DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 72D AIR BASE WING (AFMC)
TINKER AIR FORCE BASE OKLAHOMA

AFSCMAN21-102_AFSCGM2024-02
5 November 2024

MEMORAND FOR ALL AFSC & AIR LOGISTICS COMPLEX (ALC) UNITS

FROM: AFSC/LZ

SUBJECT: Air Force Sustainment Center (AFSC) Guidance Memorandum for AFSCMAN 21- 102, *Depot Maintenance Management*.

1. By order of the Commander, Air Force Sustainment Center, this Guidance Memorandum (GM) immediately implements changes to AFSCMAN 21-102, *Depot Maintenance Management*, 5 April 2021. Compliance with this memorandum and its attachments is mandatory. To the extent its direction is inconsistent with other publications, the information herein prevails IAW DAFMAN 90-161, *Publishing Processes and Procedures*.

2. This GM implements and incorporates approved AFSC Form 847s to update guidance on Labor Standard and Task Reviews, Max Item Switch and Supportability Max Item Quantity ("M" switch), Special Positions within Maintenance, and instruction to the Air Logistic Complexes (ALCs) to standardize parts disposal processing ensuring ALC production personnel properly demilitarize and dispose of consumable parts. Significate policy updates were also made to Industrial Engineering Technician (IET) (maintenance planner) responsibilities, Co-Located Positions/Support Functions, Aircraft and Missile Requirements (AMR) roles and responsibilities, Turn-ins of Expendability, Recoverability, Reparability Category (ERRC) N or P Serviceable Materiel, AFSC Form 105, AFSC Form 130, the deletion of the Loss of Production Data Collection process, and many more.

3. In advance of a rewrite of AFSCMAN 21-102, the attachment to this memorandum provides guidance and is effective immediately.

4. This Memorandum becomes void after one year has elapsed from the date of this Memorandum, or upon publishing of a new publication or re-writing/updating this manual permanently establishing this guidance, whichever is earlier.

5. Our point of contact is Mr. Mark Winters, AFSC/LZDB (DSN 312-674-3982; COMM (937) 522-3982; mark.winters.6@us.af.mil).

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Attachments:
AFSCMAN 21-102 Guidance Changes

AFSC Guidance Changes
All references to AFSCI 21-401 changed to read AFSCI 21-102 throughout.

All references to AFMCI 23-120 changed to read AFI 23-101 AFMCSUP throughout.

1.16. – (Delete)

1.16.1. - **(Delete)**

1.16.2. - **(Delete)**

1.16.2.1. - **(Delete)**

1.16.2.2. - **(Delete)**

1.16.3. - **(Delete)**

1.17. (Added) Appoint in writing. A Center Support Equipment Manager to act as the Depot Maintenance Functional Manager (DMFM) to perform FAM duties IAW AFI 10-401, Air Force Operations Planning and Execution, for depot support equipment management IAW AFI 23-101, Materiel Management Policy, AFMAN 23-122 Materiel Management Procedures and Air Force Equipment Management Interim Guidance V 3.1. The DMFM duties will include but are not limited to those listed in AFMCI 21-100 "Depot Maintenance Management" paragraph 2.3.41.

1.18. (Added) Ground Instructional Trainer Aircraft (GITA)

1.18.1. **(Added)** Each ALC will develop local guidance to ensure GITA are maintained IAW Chapter 13 of AFMCI 21-100.

2.1.3.2.2. **(Changed)** Staff a Work Measurement Point of Contact (WMPoC) for coordinating industrial engineering training and reporting requirements, directing labor standard reviews, interpreting policy guidance and providing functional support.

2.1.3.3.4. **(Changed) Labor Standard and Task Reviews:**

2.1.3.3.4.1. **(Changed)** As a minimum for commodities and propulsion, the top 20 percent in hourly variance of the overall group variance at the Production Number (PDN) level will be reviewed annually. The 20 percent in hourly variance of the overall group variance is the minimum each group can accomplish.

2.1.3.3.4.2. **(Changed)** For aircraft and missiles, the task review procedures are driven by AFMAN 63-143, Centralized Asset Management Procedures.

2.2.2.2. **(Added)** Direct labor can be broken down into operations and sub-operations. When operations and sub-operations are performed by multiple workers, standard must be adjusted to account for the required labor expended. The amount of labor required can be measured directly.

2.2.2.2.1. **(Added)** Aircraft example: Tow operations that require 5 trained workers to accomplish a task based on tech data will take 1 hour to be completed by each trained worker. Therefore, there should 5 hours planned to cover all trained workers accomplishing the task.

2.2.2.2.2. **(Added)** Exchangeable example: When batch operations such as cleaning, paint, stripping, and heat treating are performed, where WCDs are worked by more than one trained worker, but are worked together, the planner may reduce the standard in this case. For instance paint, if 30 parts are prepared, cleaned and painted at the same time, it would take less time than if each were accomplished one at a time (reference 2.5.4.1).

Figure 2.10. (Changed) Percent of Work Day Computation

Allowance Factor = 100% = 100% = 1.176
100% - 15% 85%

Figure 2.11. (Changed) Work Day Computation in Minutes.

Allowance Factor = 480 min = 480 min. = 1.176
480-72 min 408 min.

3.2.2.2. **(Changed)** Forecasting all CSAG-S funded customer orders to include repair group categories (RGCs) J, K, L and P, and OFCO to include Sustaining Engineering Program and TPS.

4.1.2.24. **(Changed)** The Production Engineer will ensure their proposed ADPE, telecommunications equipment, or IT requirements are approved by the AFSC CIO prior to budget consideration.

4.1.7.14. **(Changed)** IAW AFSCI 21-102, *Engineering Hierarchy of Controls*, the hierarchy of controls system must be used by the project engineer when addressing hazardous materials. The goal when using the hierarchy of controls system is to reduce the exposures below the Occupational Environmental Exposure Limit (OEEL). Per DoDI 6055.01, *DoD Safety and Occupational Health (SOH) Program*, the order in which to apply hierarchy of controls is: elimination, substitution, engineering and/or administrative controls, and the appropriate use of Personal Protective Equipment (PPE) when other options fail to mitigate the hazard.

4.4.4.4.1. **(Changed)** All funding documents will be generated within CCaRS to process through Funds Request & Control (FRC) in FMSuite, unless approved for cause by AFSC/LZDA. CCaRS provides the ability to create funding documents and interfaces with FRC. Whether FRC coordinators have CCaRS access or not, FRC coordinators will receive the same notifications and have access to review/coordinate on any document initiated within CCaRS. Note: Individuals who do not have a CCaRS account, but are in the coordination process of FRC, will

receive notifications to review CCaRS released document.

4.4.5.2.3.2.(**Changed)** If a funding record is approved by AFSC/LZDA for creation outside of CCaRS, the FRC document will be manually backfilled by the CCaRS DBA, and the ALC CIP Manager must attach a copy of the DFAS documents to the project's CCaRS record.
4.4.10.1.1.**(Changed)** Users can create a 'Manual' committing document within the CCaRS record to capture the FRC/DFAS transactions. This process will require the user to manually link the DFAS and CCaRS documents within the reconciliation module (reference paragraph

4.4.5.2.3.).

Table 6.2. (Changed) Information Systems Interfacing

Personnel operating within the repair process use numerous DoD and USAF legacy systems. Specific legacy system descriptions are:	
Item	**Interface**
MABSM	IMPRESA system (MABSM) is a COTS Enterprise Resource Planning (ERP) system that includes a Maintenance, Repair, and Overhaul (MRO) module which integrates with Manufacturing and Financial applications. It provides users with access to enterprise-wide information and utilizes a web-based user interface. MABSM is used primarily to manage maintenance functions within the 309 Maintenance Groups at OO- ALC/Hill Air Force Base, Utah. It is currently used to support the 309th Commodities Maintenance Group (CMXG), 309th Missile Maintenance Group (MMXG), and 309th Electronics Maintenance Group (EMXG), and 309th Aircraft Maintenance Group (AMXG). The software system name is IMPRESA and the software release is 7.30.10. The database configuration is Oracle 11.1.0.7 64 bit (11g). The hardware platform is HP Proliant DL585. The operating system is Red Hat Enterprise/Linux Advanced Server (64 bit). The hardware is located and managed at Hill Air Force Base, Utah within the IT organization. The system is common access card (CAC) enabled with single sign-on (SSO) capability. Access to the system is granted via account/password only when a DD Form 2875 has been approved and processed. Users at locations outside of the Hill2Kdomain can access the system with proper security and firewall access approvals. The system is capable of enforcing report and form level security for government approved vendors, typically used for vendors working on site at a HAFB location.

6.8.1. **(Changed)** Supervisory IET (Planning Chief). Responsible for planning of DM workload execution for aircraft, exchangeable(s), missiles, and/or OMEI. Provide advice and assistance to the Production Flight, Production Support functions, in the area of day-to-day planning activities, designing, analyzing, and improving production control through the development of more efficient and effective DM processes.

6.8.2. (**Changed)** IET (maintenance planner). Responsible for development of new workload planning packages and daily planning functions which support work package development from defined requirements. Includes but not limited to establishment of labor, equipment, flow day, and facility standards; refinement of MDS critical path; IET services which includes work measurement studies; development and file maintenance of the DM repair BOM; establishment of WCDs; identification of skills, training, equipment, and facility requirements; research, plan, and initiate job acceptance for programmed and non- programmed workloads; plan for job routing/non-job routing; identification of necessary tooling, engineering, and provisioning data as identified by the Program Office and incorporated into the List of Material (LOM) to support production; direct costs to establish the end item sales price for programmed and nonprogrammed
workloads; evaluation of production processes and methods improvement to minimize production flow time. **Note:** AFMAN 63-143 is supported by the planner as identified above.

6.8.2.2. **(Added)** IET (maintenance planner) Planning Functions:

6.8.2.2.1. **(Added)** Participate in Pre-Production Planning Team (Pre-PPT).

6.8.2.2.2. **(Added)** Review incoming workload records and pre-existing conditions.

6.8.2.2.3. **(Added)** Provide estimates to include labor hours, material and resources for RFQ/ROMs on new/existing workload requirements.

6.8.2.2.4. **(Added)** Chair Production Planning Team (PPT) events.

6.8.2.2.5. **(Added)** Participate in Pre-Induction meetings.

6.8.2.2.6. **(Added)** Determine duplicate workload operations/tasks/load Configurations.

6.8.2.2.7. **(Added)** Integrate TOs engineering changes, and mechanic input into work packages.

6.8.2.2.8. **(Added)** Participate in supportability reviews.

6.8.2.2.9. **(Added)** Develop, adjust, update, maintain BOMs.

6.8.2.2.10. **(Added)** Accomplish Time Studies, as required.

6.8.2.2.11. **(Added)** Perform Labor Standard Review to include Event Driven. IAW Chapter 2

6.8.2.2.12. **(Added)** Adjust FPWS as required.

6.8.2.2.13. **(Added)** Develop planned and unplanned work packages.

6.8.2.2.14. **(Added)** Develop/adjust master network/gated process for workload.

6.8.2.2.15. **(Added)** Load work requirements in applicable system.

6.8.2.2.16. **(Added)** Comply with JON closure process. IAW AFMCI65-101, chapter 2

6.9. **(Changed) Special Positions within Maintenance.** Personnel notification procedures and individual negotiability issues will be managed IAW the MLA. **Note:** Location of these functions is an ALC Option.

6.9.1. **(Changed) Records Professional (Forms and Records).**

6.9.1.3. **(Delete)**

6.9.2. **(Changed) Depot Forecasting Specialist (DFS).**

6.9.2.1. **(Changed)** Articulate depot maintenance goals and objectives so that funding, requirements, equipment, manpower align to achieve needed goals and objectives.

6.9.2.2. **(Added)** Perform analysis to determine if items should be placed in collaboration, based on complex demand triggers. Perform reviews of all items in collaboration, Utilize PDMC Collaboration Lists for analysis.

6.9.2.3. **(Added)** Perform Material Forecasting Analysis on all active Production Numbers/Control (PDN/CTRL), and established methodology.

6.9.2.4. **(Added)** Submit demand signal/requirement planning for DLA Managed Consumables (PDMC) for inclusion in demand data exchange (DDE) requirements to DLA.

6.9.2.5. **(Added)** Perform reviews of all items in collaboration, Utilize PDMC Collaboration Lists for analysis.

6.9.2.6. **(Added)** Submit Demand Input Templates (DIT) for Planning, through DLA-Managed Consumables (PDMC) Automated Tool.

6.9.3. **(Delete)**

6.9.3.1. **(Delete)**

6.9.3.2. **(Delete)**

6.9.4. **(Changed)** SPO/SCM Engineer Authority and Equipment Specialist (ES). Responsible for providing a fully supportable requirement to the AMR process for aircraft and Exchangeable workload requirements to the ALCs. The SPO/SCM Engineer Authority and ES provide fully defined requirements, required engineering LOMs, stock-listed parts, etc. to support the requirements, and disposition for technical issues, reliability, quality, and DRs. **Note**: In support of AFMAN 63-143, the SPO/SCM Engineer Authority and ES are part of the CAM collaborative team and support the production shop as required during aircraft schedule execution.

6.9.5. **(Changed) Co-Located Positions / Support Functions.** Positions outside the ALC may be co-located to support requirements (e.g., Engineer, DLA Material Support, Depot Supply Chain Management (DSCM), etc.).

6.9.5.1. **(Added) Cognizant Engineer and Equipment Specialist (ES).**

6.9.5.1.1. **(Added)** Responsible for providing a fully supportable requirement for Aircraft and Exchangeable workload requirements to the ALCs. The engineer and ES provide fully defined requirements, required engineering LOMs, stocklisted parts, etc. to support the requirements, and disposition for technical issues, reliability, quality, and deficiency reports.

6.9.5.1.2. **(Added)** In support of AFMAN 63-143, the Cognizant Engineer and ES are part of the CAM collaborative team and support the production shop as required during aircraft schedule execution.

6.9.5.2. **(Added) DSCM Team** (448th SCMW, DLA, and Maintenance Representative).

6.9.5.2.1. **(Added)** Role is to improve parts supportability to DM by providing a strategic, long term, outlook on parts integral to mission supportability. Will work with the ALC, Supply Chain Manager (SCM), NWRM Storage Facility, and DLA to coordinate the strategic procurement of essential materiel with the pursuit of uninterrupted availability of aircraft, engines, missiles, and exchangeables.

6.9.5.3. **(Added) Planning for DLA Managed Consumables (PDMC) Flight.**

6.9.5.3.1. **(Added)** This position's role is to improve material availability of DLA managed consumables across the AF enterprise at the time of need by enhancing the DLA demand plan.

6.9.5.4. **(Added) ALC Financial Management (FM).**

6.9.5.4.1. **(Added)** FM is responsible for the utilization of funds practices at the ALCs and the management of unit cost target performance and performs financial cost analysis.

6.9.5.5. **(Added) Quality Assurance (QA)**

6.9.5.5.1. **(Added)** QA is an integral part of all DM activities. The ALCs will implement QA programs to evaluate/assess all programs. QA assessments are outlined in Chapter 8 of this manual.

6.9.5.6. **(Added) Product Support Center (PSC)**

6.9.5.6.1. **(Added)** Located outside of the identified organizational structure. The PSC will be an enclosed, secure, and controlled area, and will be used for the purpose of maintaining and stocking Custodian Authorization and Custody Receipt Listing (CA/CRL) tooling/equipment, locally manufactured, modified, or special end item unique tools and equipment, consumables, and administrative supplies.

6.9.5.7. **(Added) Defense Logistics Agency (DLA).**

6.9.5.7.1. **(Added) DLA Aviation**

6.9.5.7.1.1. **(Added)** Responsible for Supply, Storage, and Distribution duties to include retail supply support to DM utilizing Customer Support Specialists (CSSs), formerly retail item managers (RIMs), and Sustainment Specialists (formerly supportability specialists and demand Planners), material handlers, etc.

6.9.5.8. **(Added) Distribution Depot.**

6.9.5.8.1. **(Added)** Responsible for materiel storage, packaging, receiving, inventory, and distribution in support of the depot repair function IAW MOAs, Memorandums of Understanding (MOUs), or Support Agreements.

6.9.6. **(Delete)**

6.9.6.1. **(Delete)**

6.9.6.2. **(Delete)**

6.9.7. **(Delete)**

6.9.8. **(Delete)**

6.18. (**Changed) Max Item Switch and Supportability Max Item Quantity ('M' switch).** The scheduler is responsible for setting the Max Item Switch and Supportability Max Item Quantity. These settings are used together to manage capacity in the shop by controlling the maximum number of items allowed on the Express Table. The settings are by specific PSSD/NSN. Any intervention for switch changes must be fully documented with date, name/title of person making change (Systematically time stamped during user submission), and descriptive reason statement describing the methodology used to determine the change. Caution: Incorrect inputs(s) may result in erroneous repair drives.

6.18.1. (**Changed)** Max Item Switch. This is a three-position switch that determines which particular assets [Condition Code 'Y', Awaiting Maintenance (AWM), OWO] will be included in the Max Shop Quantity calculation on the 'Repair Resource Maintenance' view and in the Supportability Max Item Quantity calculation on the 'Item Maintenance' view. The selection of 'EXPRESS Table', 'AWM Pipe', or 'Repair Pipe' in the 'Repair Resource Maintenance' view determines how shop quantity will be capped. Default value is 'EXPRESS Table'.

6.18.1.1. **(Added)** EXPRESS Table. Constrains the number of potential, repairable, and supportable requirements that are loaded to the EXPRESS Table to the quantity placed in the Max Shop Quantity field for that shop.

6.18.1.2. **(Added)** AWM Pipe. Constrains the number of potential, repairable, and supportable requirements that are loaded to the EXPRESS Table to the Max Shop Quantity field less the sum of all items that have Condition Code ‘Y’ or are AWM for that shop.

6.18.1.3. **(Added)** Repair Pipe. Constrains the number of potential, repairable, and supportable requirements that are loaded to the EXPRESS Table to the Max Shop Quantity field less the sum of all items that have Condition Code ‘Y”, are AWM, or are OWO for that shop.

6.18.2. (**Changed)** The ‘AWM Pipe’ or ‘Repair Pipe’ settings may be used to maintain a constant level of repairs for a specific NSN in a shop. This logic helps to maximize shop efficiency by maintaining a standard OWO balance throughout the shop. The Production Controller will ensure all repair requirements continue to be met when utilizing the ‘AWM Pipe’ and ‘Repair Pipe’ settings.

6.18.3. (**Changed)** Conditions Required for Supportability Max Item Quantity. The scheduler may only set the Supportability Max Item Quantity if one or more of the circumstances exist.

6.18.3.1. **(Added)** NSN repair is impacted by equipment constraints (e.g. PMEL, test set, fixtures.). EXPRESS does not consider the type or amount of equipment in the shop. The Supportability Module only calculates the number of hours available in a shop. The scheduler must review the daily EXPRESS repair listing to ensure the capacity of the shop’s equipment has not been exceeded for the items being driven into repair.

6.18.3.2. **(Added)** NSN repair is constrained due to personnel issues (e.g., skill set, qualifications, training, number of personnel). EXPRESS does not consider the skills available in the shop. When the repair listing cannot be supported due to personnel constraints, the scheduler may correct the listing to accurately reflect the skills and/or number of personnel available.

6.18.3.3. **(Added)** NSN repair is constrained due to facilities (e.g., shop, size, space) EXPRESS does not consider the type of facilities that the work will be performed in. The scheduler must review the daily EXPRESS repair listing to ensure the capacity of facility has not been exceeded for the items being driven into repair.

6.18.3.4. **(Added)** Other. Used only when reasons are outside the prescribed EXPRESS drop down and/or PAP Switch adjustments. Any intervention must have a descriptive reason statement, date, and name/title of person making change. [For PAP switch adjustment please refer to 18.35.8.4.1]

6.18.4. (**Changed)** Supportability Max Item Quantity (M-Switch). This data field represents maximum items allowed in the shop for the specific item and depends upon the switch setting of the ‘Supportability Max Item Quantity’ in the ‘Item Maintenance’ view. The default value is 99999 (i.e., 100 percent unconstrained quantity). The field range is from 0 to 99999.

6.18.4.1. **(Added)** Supportability Max Item Quantity (M-switch) is designed to manage capacity when the “AWM Pipe” or “Repair Pipe” settings are not feasible. The “AWM Pipe” or “Repair Pipe” are appropriate for use at the PSSD level. However, there are examples when these settings will not sufficiently manage capacity; such as, multiple testers within PSSDs that repair multiple parts. Capacity management is required to control Work-in-Progress (WIP), the number one rule for Art of the Possible (AoP) maintenance machine management. Uncontrolled WIP drives increased Shop Flow Days (SFDs), increased Working Levels (WLs), and the possibility of increased sparing levels.

6.18.4.2. **(Added)** The use of the M-Switch may be short-term or long-term. Short-term use of the M-Switch may arise when unanticipated demands occur, testers go down, or flying hours increase due to unplanned contingencies. AoP machines’ capacity will need to be resized to keep up with the increased demand. If increased demands persist and outgrow budgeted capacity, the long-term use of the M-switch may be required.

6.18.4.3. **(Added)** Maintenance and SCM personnel should work to gain more capacity through the Annual Program and CIP budgeting processes. Transparency shall be maintained between the SCMG and MXG on the long-term use of the M-Switch. Continuous constraints to EXPRESS drives can skew the priorities computed by the EXPRESS model and can result in suboptimal support to the customer. Thereby, it is incumbent that all parties are working to “bust constraints”, to include the use of the M-switch.

6.18.4.4. **(Added)** M-switch usage will be monitored at a minimum of monthly in Exchangeable meetings or IAW local guidance.

6.18.5. (**Changed)** 448th SCMW Recommendations. The 448th SCMW can recommend changes to the Max Item Switch and Supportability Max Item Quantity settings, but the scheduler has the final authority and is ultimately responsible for induction into maintenance.

6.18.5.1. **(Delete)**

6.31. (Changed) Aircraft and Missile Requirements (AMR).

6.31.2.1. **(Added)** Supervisory IET (Planning Chief) AMR Functions:

6.31.2.1.1. **(Added)** Oversees Maintenance Squadron AMR involvement and MRSP execution.

6.31.2.1.2. **(Added)** Key stakeholder in the induction process where Depot Maintenance accepts tactical responsibility for the asset (aircraft, end item, etc.) from the Program Office.

6.31.2.2. **(Added)** IET (maintenance planner) Strategic Functions:

6.31.2.2.1. **(Added)** Support/Participate at various meetings/reviews to include but not limited to:

6.31.2.2.1.1. **(Added)** Activation Meetings (e.g., DMAWG) to provide familiar workloads with man-hours, networks, and etc. Work with Program Office (e.g., Program Manager (PM), Engineer (EN), Equipment Specialist (ES), and or AMR Lead).

6.31.2.2.1.2. **(Added)** Collaborative Functional Team to support several meetings/reviews (i.e., ERR-DEV/PAC, Work Specification Document, AMR Brochure, DCWA, BOW, and etc.).

6.31.2.2.2. **(Added)** Conduct analysis and/or supportability reviews on documents, establishing (i.e., new, existing) workloads, to include but not limited to and provide data to Program Office (e.g., AMR Lead, PM, etc.):

6.31.2.2.2.1. **(Added)** Documents: (i.e., Work Specification Document, AMR Brochure, DCWA, BOW, Summary of Changes Requirements, etc.)

6.31.2.2.2.2. **(Added)** Price-Out of new tasks or task changes to the Strategic BOW.

6.31.2.2.2.3. **(Added)** Define, validate and update tasks to Work Spec Document.

6.31.2.2.2.4. **(Added)** Develop, validate, build/adjust and update DPSH to AMR Brochure.

6.31.2.2.2.5. **(Added)** Document all task (new and current) for validity and accuracy within the task groups.

6.31.2.2.3. **(Added)** If trend analysis has a flat trend line and it is constant, DPAH can be considered. (FCF, O&A, Correct Defect, Less than 100% OCC FAC unpredictable, etc.). This will be negotiated between Program Office and Depot Maintenance-Supervisory IET (Planning Chief).

6.31.2.2.3.1. **(Added)** Provide feedback to the Program Office relating to any assigned supportability elements determined to be non-supportable.

6.31.2.2.3.2. **(Added)** Coordinate approval of scheduled maintenance task and the year they are planned to be performed based on the results from the ERRP and BOW process.

6.31.2.3. **(Added)** IET (maintenance planner) Operational Functions:

6.31.2.3.1. **(Added)** Provide input for tail number specific supportability analysis quarterly based on Program Office requirements, (i.e., PII, records review, condition data, and etc.).

6.31.2.4. **(Added)** IET (maintenance planner) Tactical Functions:

6.31.2.4.1. **(Added)** Provide daily support by tail number and recommend maintenance tasks update to Strategic IET (maintenance planner) functions, as required.

6.31.2.4.2. **(Added)** Ensure that all MWR’s (unpredictable) are charged to the correct work spec code. Reconcile at JON Closure.

6.31.2.4.2.1. **(Added)** Approve hours required for unpredictable work, which goes against hourly trended work spec codes.

6.31.2.4.2.2. **(Added)** Approve schedulers request operations/tasks which are used in trended by occurrence work spec codes.

6.31.3.1. **(Changed)** The SPO/SCM Engineering Authority will develop a LOM required for new and existing tasks by reviewing TOs, drawings, or other engineering data. The SPO/SCM Engineering Authority will review the list of "new" and existing material (not previously loaded against a PDM or other depot task) to verify that all have a NSN assigned. This includes NSNs for material, repair parts, special tools, hazardous material (HAZMAT), etc. When complete, this list will become the fully indentured engineering BOM or MOD kit inventory consisting of component parts, quantity per unit, and parent component relationships required to produce an end item. The SPO/SCM Engineering Authority will send the developed list to the appropriate source of supply (e.g., 448th SCMW, DLA, etc.). The 448th SCMW, DLA, and IPV will perform a preliminary supportability review and provide a risk assessment to the SPO/SCM Engineering Authority. Reference AFSCI 23-101 "IPV Program".

6.31.5.4. **(Changed)** Programmed Depot Maintenance (PDM). PDM requirements identified by the using command and SPO/SCM Engineering Authority are compiled as work specifications in a Work Specification Document (Work Spec).

6.31.6. **(Changed)** The Collaborative Functional Team. This team consists of the following members: SPO/SCM Office (Engineering, ESs, Logistics Specialists, Production Management Specialists, AMR Lead), Maintenance Production Engineering, ALC/OB representative, IETs (maintenance planners); Maintenance Production Technicians (aircraft mechanics), when required; Supply Chain Specialists from the 448th SCMW and DLA.

6.32.1.2. **(Changed)** If the MOD kit proof is accomplished at a SOR different from the location(s) which will actually perform the work or if only a 'Trial Install' was accomplished, the IET (maintenance planner) and SPO/SCM Engineering Authority will review the PDM and/or MOD work scheduled on the aircraft to identify redundant activities. The IET (maintenance planner) and SPO/SCM Engineering Authority or his designee, i.e., Program Manager or ES, will also review the Work Spec and applicable technical data for duplicate or obsolete material.

6.34.1.2. **(Changed)** If the PAO determines the identified discrepancy either falls outside the scope of the PDM/UDLM/MOD and is not 'safety of flight', or otherwise determines that they will not fund the repair identified by the DEA (Delegated Engineering Authority) or SPO/SCM Engineering Authority, maintenance will not perform the work and the discrepancy will be archived and entered on AFTO Form 781, Aviation Resource Management System (ARMS) Aircrew/Mission Flight Data Document, and/or AFTO Form 95, Significant Historical Data.

6.36.1. **(Changed)** The IET (maintenance planner) and SPO/SCM Engineering Authority, as part of the Collaborative Team IAW AFMAN 63-143, will perform analyses of the workload defined by the approved Work Spec to establish the optimal flow-plan of aircraft/missile through the available depot facilities IAW known PDM and MOD requirements.

6.38.2. **(Changed)** The IET (maintenance planner) will review the AFTO Form 103 or TO 00-25-107 and translate the tasks on the AFTO Form 103 or TO 00-25-107 into operations on a WCD with assistance from the SPO/SCM Engineering Authority, as necessary.

6.44.8. **(Changed)** The IET (maintenance planner) and SPO/SCM Engineering Authority will perform a risk analysis of all 'safety of flight' related low frequency unplanned operations based on the complexity and criticality of the work required. If the IET (maintenance planner) and SPO/SCM Engineering Authority determines there is significant risk involved in the operation, or if the nature of the work justifies it (e.g., very complex, high cost etc.), the formal work planning process will be applied and WCDs will be prepared to support the work, even if it is expected to be used on less than 20 percent of the tail numbers.

6.45.1.1. **(Changed)** If an AFMC Form 202 or AFTO Form 252 was not accomplished, the AFMC Form 202 is forwarded to the DEA or SPO/SCM Engineering Authority for review and disposition.

6.45.1.2. **(Changed)** The DEA or SPO/SCM Engineering Authority, as part of the tactical team, reviews the discrepancy as submitted and determines an appropriate repair disposition.

6.45.1.4. **(Changed)** If the PAO does not have the funding to accomplish the repair, the PAO will notify the applicable SPO/SPM for additional funding. A SOW for the repair will be initiated from the SPO/SPM and the IET (maintenance planner) will initiate a ROM.

6.45.1.5. **(Changed)** If the DEA or SPO/SCM Engineering Authority determines the identified discrepancy is not a defect, (i.e., existing technical data is sufficient to accomplish the task at hand), the engineer will advise the maintenance supervisor and/or IET (maintenance planner), provide guidance as necessary to correct the cited condition, annotate the AFMC Form 202 as 'No Action Required', and process the form according to AFMCMAN 63-1202. The DEA or SPO/SCM Engineering Authority will forward the AFMC Form 202 back to the IET (maintenance planner).

Figure 7.1. (Changed) Guidelines for Preparing a Process Order.

General Information

- This section provides information about the overall process. Process orders are either oriented to a specific process or to a component. Content depends upon the complexity and criticality of the process. If a process order contains verbatim technical data information, the technical data number, basic date, change date, and change number shall be identified under the heading 'Reference Publications' or other similar title.

Process oriented:

- Process references.
- Military/commercial standards that apply.
- Quality plan.
- Other directives and operating procedures that applies.
- The typical production sequence or flow.
- The method or procedure to qualify the process (e.g., first article, certification team, etc.).
- Process controls that will be used.
- The method and frequency of sampling.
- Specific quality requirements.
- Limits for product characteristics.
- Any general parameters that apply.
- Equipment.
- The equipment capabilities and work environment.
- The installation requirements and qualification.
- Preventive maintenance requirements.
- The procedure for qualification of the process and approval methodology.
- List of process operation sheets and/or other procedure specifications.
- Non-conforming material or process results.
- List of applicable Process Operation Sheets (POS) and/or Procedure Specifications.

Component oriented:

- Title.
- Name of part/process POS as applicable.
- Date of original issue.
- Reaffirmed date.
- Revision number.
- The part numbers the process order supports.
- The technical data that applies.
- Clear and concise instructions on how to perform the operations on the components (**Note:** All requirements must be consistent with the applicable technical data).
- Any critical considerations or other workmanship criteria (secondary certification may be

required on the WCD).
Procedure: This is the how-to instruction to include cautions and warnings that apply.
- Title.
- Name of part/process POS as applicable.
- Date of original issue.
- Reaffirmed date.
- Revision number.
- The part number applicable.

- TO reference will be identified to the specific TO paragraph when verbatim information is utilized.
- Specific component repair equipment parameter settings.
Safety Notes: Identifies any steps or materials that present safety hazards to include environmental impact.
Coordination: List the coordination required for the process order.
Not necessarily in this order, however as a minimum, the following organizations will coordinate, sign, and date the process order:
- Production
- Planning
- Quality Assurance
- Safety
- Applicable Engineering Organization
- As required, other organizations may be requested to coordinate, sign, and date the process order.
Local procedures shall be developed for the coordination of electronic generated Process Orders and WCDs.
The completed process order is approved by the applicable Production Engineer of the responsible engineering function by signing block 13. This organization is the OPR for the process order.

7.1.1.3. **(Changed)** Work Specs (e.g., SOWs, etc.) are not an authorized source of technical data. The contractor's SOW may be considered an authorized source of technical data when approved by the SPO/SCM Engineering Authority (reference paragraph 7.1.2.5.1.).

7.1.1.7.1. **(Changed)** SPO/SCM Engineering Authority 'red-line' changes to technical data already in sustainment shall have an AFMC Form 202, and AFTO Form 252, stamped special handling, if needed authorizing the use of the 'red-line' TO.

7.1.2.5.1. **(Changed)** The contractor's provided data and source data as defined in TO 00-5-3, are authorized for use provided the SPO/SCM Engineering Authority has approved their use and the production planning team (PPT) has concurred the data is valid for performing the work required. Referencing of this type of data on a WCD is considered valid proof of authorization for use. The SPO/SCM Engineering Authority shall ensure currency of contractor technical data and determine the disposition of contractor's technical data after the contract has ended.

7.1.2.6.2. **(Changed)** The SPO/SCM Engineering Authority will determine the disposition of contractor technical data after contracts ends.

7.2. (Changed) Depots are responsible to ensure WCDs shall be auditable and meet the requirements of this manual, AFMAN 63-143, TO 00-5-1, TO 00-20-1, TO 00-20-2 and TO 00-25-4.

Table 7.2. (Added) Instructions for Completing Unpredictable/Hand Scribed AFSC Form 173.

BLOCK #	TITLE	CONTENT
31A	CORRECTIVE ACTION	Description of Corrective Action Required"

7.2.4.1.1. **(Added)** When using a blank AFSC959 (Handwritten) form it will be required to stamp or annotate in RED INK and highlight (any color) in the header and the description block to alert mechanics of service unique technical requirements for a dual visual control on all WCD pages to reduce the risk of utilizing incorrect technical data.

7.2.8.1. **(Changed)** Pre-Production Planning, New Workload. The SPO/SCM Engineering Authority chairs the PPPT. For each new programmed/negotiated workload, the ALC/CC requires establishment of PPPT composed of Planning Element Chief or designee, IET (Maintenance Planner), Complex/Group Business Office, SPO/SCM Engineering Authority, DEA, Complex Production Engineering (ref. Chapter 23), RC/CC Production Supervisor(s) or designee(s), QA, PAC Manager, and NDI Level III inspector. Other representatives determined by the SPO/SCM Engineering Authority, Planning element Chief/designee, and/or Complex Production Engineer as required include but are not limited to the following: (DLA, material support specialist, safety, bioenvironmental, Nuclear Weapons Resource Officer (NWRO), scheduling, training, etc.). Team members will attend PPPT meetings.

7.2.8.2. **(Changed)** The SPO/SCM Engineering Authority or designee will chair the PPPT.

7.2.12.2.6. **(Changed)** Production Engineer, IET (maintenance planner), and RC/CC Supervisor are responsible for reviewing technical data changes and determining the impact to WCDs containing specifications and tolerances.

7.2.12.5. **(Changed)** The SPO/SCM Engineering Authority may be contacted and required to respond to the production planning team as needed.

Table 7.3. (Changed) Inspection/Certificate Codes.

Code	Description
X	X Certification not required. This code will be used for tasks that are administrative in nature. This code will NOT be applied to any maintenance task or any task requiring technical data. Tasks that are administrative in nature include but are not limited to those that are: informational in nature, used for scheduling (trigger operations) tasks, non-maintenance related time tracking, etc. When the X certification/verification code is used the technical data usage statement 'No Technical Data Required', or equivalent, does not have to be annotated on the WCD.

7.3.2.8. **(Changed)** Shall access the applicable Process Order

7.3.2.8.1. **(Changed)** After the appropriate Production Engineer develops/approves the process order and ensures a validation/verified was performed, the IET (maintenance planner) shall ensure the process order number is identified on the required WCD/ task operation.

7.3.7. **(Changed)** ALC Production Engineering will:

7.3.7.3.1. **(Changed)** Process Orders are locally developed technical data used at the ALCs. The intent must not be to develop and use a process order(s) in lieu of official technical data that is available and can be used. If the Process Order coordination process creates a work stoppage, group engineering will notify the production supervisor/IET (maintenance planner) to initiate an AFMC Form 202. A Process Order may be developed:

7.3.7.3.3. **(Changed)** Development of Process Orders. The appropriate engineering organization will use Process Order Development and Display System (PODDS) to develop Process Orders. Process Orders will be controlled as technical data in production areas. The applicable engineering organization shall maintain the Process Order master file. The Process Order number will be determined locally. A Process Order shall be prepared IAW Figure 7.1.

7.3.7.3.4. **(Changed)** The applicable Production Engineering organization and the PPT shall determine Process Order requirements. The applicable Production Engineering organization is the OPR for the development, control, monitoring, distribution, and deletion of Process Orders. Production Engineering can request technical expertise from organizations as required.

7.3.7.3.5.1. **(Changed)** A Process Order containing verbatim technical data information shall have the technical data number, basic date, change date, and change number identified under the heading 'Reference Publications' or other similar title

7.3.7.3.6. **(Changed)** If the technical data change results in a change to the Process Order, the following statement or equivalent shall be entered on the Process Order '**Note**: Process Order Updated Due to a Technical Data Change.'

7.4.5.9. **(Changed)** (FI) Final Inspector Stamp. A stamp issued to select commodity subject matter experts that are skilled technicians, trained on AFSCI 62-603 AFSC Military Repair Station Program and applicable Federal Aviation Administration (FAA) requirements. FI inspectors are responsible to inspect and verify proper repair/overhaul of Military Repair Station (MRS) components that require FAA certification. MRS components must be stamped by an FI inspector to be deemed serviceable. (FI) stamps certifies the repaired/overhauled component meets MRS and FAA airworthiness requirements and is returned to service. All FI inspectors shall be listed on a special certification roster.

7.4.5.10. **(Changed) (**RII) Required Inspection Item. A stamp issued to select aircraft Quality Assurance Specialists that have been trained on AFSCI 62-603 AFSC Military Repair Station Program and applicable Federal Aviation Administration (FAA) requirements. RII inspectors are responsible to observe critical tasks that, if not performed properly, or is done with improper parts or materials, could result in a failure, malfunction, or defect, endangering the safe operation of the aircraft. RII tasks are determined by the organization and identified on a RII List specific to the affected FAA certified Commercial Derivative Aircraft. RII inspectors will stamp the WCD along with technicians upon satisfactory completion of task. RII tasks cannot be waived. All RII inspectors shall be listed on a special certification roster.

8.4.1.10.4. **(Added)** Ensure production personnel responsible to provide corrective/preventive actions to a QA deficiency successfully complete the Logistics Evaluation Assurance Program (LEAP) responsible person course, CRXMAO0007101SU *Logistics Evaluation Assurance Program* (*LEAP) (Module 2 – Responsible Person).*

8.4.4.1.5. **(Changed)** Special Inspections (SI). All observed deficiencies beyond the scope of an inspection in progress not meeting the criteria of a DSV, TDV, or UCR will be recorded in LEAP under the category of SI. SIs will be assigned a rating (QAR-1 or 3) based on severity of the observation. Sis are designed to provide a flexible tool to complement other quality assessment types.

8.4.4.1.6. **(Changed)** Management Inspection (MI). MIs are data driven inspections, based on analysis of assessments. MIs may be conducted at the discretion of the local QA or any level of management (e.g., ALC/CC/CL/CD, Maintenance Group Commander (MXG/CC), Squadron Commander (SQ/CC) or work center supervisors). MIs should be performed to follow-up on trends, conduct investigations, or conduct research to determine the root cause of problems and may be rated or non-rated at local discretion. MIs may encompass PE/QVI trends and other inspection data, aborts, trends, in-flight emergency trends, high component or system failure rates, suspected training deficiencies, and tasks outlined in aircraft dash-6 technical orders. Report MI results to the requester, and allow the individual latitude in exploring options prior to implementing corrective actions. At local discretion, MIs can be non-rated and may be counted in QA trends.

10.5.14. **(Changed)** CTK Used by More Than One Person who are accomplishing separate individual tasks. Tools used/removed from a CTK used by more than one person will be tracked by either AF Form 3136, AF Form 3126, General Purpose, electronic equivalent, or by using an electronic keyed device on a CTK and swiping the tool card to sign in or out of the CTK. The electronic product will need to be able to provide a list of items currently signed out and to whom. At a minimum, the following information will be annotated on the form/log: tool nomenclature, date out/in, legible name of the borrower, list of items, and the person's signature. The form/log shall be maintained for a minimum of 60 days. Chits are not authorized.

10.5.14.1. **(Added)** CTK Used by More Than One Person who are working as a team on a singular task. Supervisor or designated representative may designate one of the team members to check out a CTK on AF Form 3126, AF Form 3136, or a locally created log with the following information to include legible name, date key issued, date key turned in, and kit number. Tools removed by team members performing the assigned task need not be signed out. The Supervisor, Wage Leader, or designated representative will perform the end of shift inventory of a CTK used by more than one individual. The end of shift inventory will be documented on an AFSC Form 309.

10.8.9. (**Changed)** Marking of TKs. Marking of TKs, equipment, and tools will be done by a method that is legible. All tool kits (e.g., containers, boxes, rollaways, etc.) along with each **tool** and other contents assigned (on TKCRL supplemental listing or locally developed inventory) to the tool kit will be marked with the same number. After the ID Number etched on the tool it is permissible to add additional dash numbers to account for TK's with like items. TKs will be externally marked for traceability through FEM/MIS.

10.19. **(Changed) Locally Manufactured/Modified Tools and Equipment (LM/MT&E).** LM/MT&E is defined as items (to include fixtures) developed, manufactured, modified and controlled by the ALCs (e.g. X numbered tools and associated drawings) utilized during DoD Organic Depot Maintenance Activities, that also include any Depot Level Maintenance (DLM) performed by any Depot Field Team (DFT), Depot On—Site Contract Augmentee Teams (DOCAT), or other designated Depot Maintenance Activities performing maintenance and/or inspection of systems or equipment at locations other than a designated depot facility. LM/MT&E intended for use outside designated depot facilities or for Air Force Release, drawings will be in full compliance with AFMCI21-401 Section 2.5 Drawing and Engineering Order Authorization sub-sections 2.5.6, 2.5.7, 2.5.8, and the entirety of Section 5 Engineering Order. LM/MT&E does not include tools authorized in specific formal DOD T.O. data or aircraft/engine/commodity end items.

10.19.1. **(Changed)** Procedures. All LM/MT&E used on aerospace equipment must be approved by the MXG/EN (Group Engineering Office) or their designated representative. This procedure does not apply to local manufacture, modification or design of tools authorized in specific technical data. As requested by engineering, Safety coordinates on LM/MT&E. Production Engineering will review items and requirements biennially (every two years) for applicability and current configuration.

Table 14.4. (Changed) Common Errors.

Item	Error
5	D6 document is input but items are not turned in. Either the items must be turned in or the transaction reversed by DLA. The advice code must be blank T on the reversal.
6	Process misidentified items IAW paragraph 14.65.4.

Table 14.17. (Delete) AFSC Form 105 – Special Instructions for Maintenance of Workload Record.

Table 14.18. (Delete) AFSC Form 130 – Special Instructions for Maintenance of Production Asset Control Record.

Table 14.24. (Added) Supporting System Directives.

System		Directive
G300	Lean Depot Maintenance Systems	

14.24.2.1. **(Changed)** Pre-production planning teams are composed of representatives from SPO/SPM Engineering Authority, MX Production Engineering, Production, Scheduling, QA, IET (maintenance planner), SE, Bioenvironmental Engineering, PAC, Training, and Supply. SPO/SPM Engineering Authority leads the effort.

Table 14.25. (Delete) DIOH Reconciliation.

Table 14.26. (Delete) Receipt Acknowledgement (RA).

Table 14.27. (Delete) Receipt Transaction (RT)/Turn-In.

14.44.4.2.1. **(Added)** The IET/Maintenance Planner will adjust the Production Analysis Quantity (PAQ) in G005M annually to account for the new FY schedule for all workloads at the beginning of the fiscal year. The IET/Maintenance Planner will adjust the PAQ during the annual BOM review time frame to ensure adjustments are made prior to the next FY pricing. The IET/Maintenance Planner will ensure that their PAQ levels are set at 30%-50% of the FY schedule to allow G005M to perform the automatic calculations at least twice annually per

14.44.4.2. or the max G005M allows the PAQ to be adjusted if 30%-50% isn’t possible due to system max already being met.

14.44.4.5. **(Delete)**

14.55.1. **(Changed)** D035K, Stock Control and Distribution/Central Material Locator System.

Receipts and turn-ins of production items and material from supply sources will be accomplished by input of the receipt acknowledgment (RA) or turn-in transaction to the MIS which passes the transactional data to D035K. Production item transactions are passed electronically from D035K to G004L.

14.55.8. **(Added)** Lean Depot Maintenance System/G300 which is an additional data system used by schedulers in the performance as stated in this area.

14.91.2. **(Delete)** *This is a duplicate paragraph number from page 413, delete paragraph 14.91.2. on page 414.*

14.91.3.4. **(Change)** Correct the out of balance: Correcting the DIOH out of balance is the process of finding, creating, and processing a transaction in one of the aforementioned systems to bring that system or systems back into balance. This correction may require support from DLA-A with the use of an AFSC Form 94, DIOH Out of Balance Reconciliation Worksheet.

14.91.4. **(Added)** to 14.91.4 This process flow narrative addresses the daily/weekly data reconciliation process between D035K and key production systems relevant to organic depot repair activity. It is incumbent upon the scheduler to follow this process to keep DIOH balanced between the systems and to ensure paper/electronic records (AFSC Form 105) are kept up to date. The scheduler will at a minimum:
14.91.4.1. **(Added)** Pull the L2A report daily from the G004L system for the Production Section Scheduling Designator (PSSD) assigned.
14.91.4.1.1 **(Added)** If there is a L2A report for the day. Further research must be taken to compare the L2A report to the AFSC Form 105, or an electronic version approved by the OPR to ensure the transactions contain all the correct data elements. Data elements to include but are not limited to Production Number (PDN), Job Order Number (JON), National Stock Number (NSN), End Item Document Number (EIDN), and quantity.
14.91.4.1.1.1. **(Added)** If above data elements match from the AFSC Form 105 or an electronic version approved by the OPR, then annotate ‘no corrections required’ on the L2A report, sign, and date.
14.91.4.1.1.2. **(Added)** On the AFSC Form 105 or an electronic version approved by the OPR, click or check L2A box after the G004L-L2A report is verified that the transaction contains all the correct data elements.
14.91.4.1.2. **(Added)** If there are errors that exist on the L2A report the scheduler will:
14.91.4.1.2.1. **(Added)** Verify all reject and error corrections in the effected systems and attach supporting documentation to the L2A report that shows the reject or error.
14.91.4.1.2.2. **(Added)** Determine if above data elements match from the AFSC Form 105 or an electronic version approved by the OPR.
14.91.4.1.2.3. **(Added)** File the L2A report (either paper or electronically) within the immediate work area for quick access.
14.91.4.1.2.4. **(Added)** Retain documentation (e.g., L2A report, AFSC Form 105 or an electronic version approved by the OPR, etc.) either paper or electronically IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS) for audit compliance.
14.91.4.1.2.5. **(Added)** If corrections had to be made, annotate them on the L2A report once all

corrections and documentation have been completed, with the corrective action taken, sign, and date. Retain documentation (either paper or electronically) IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS) for audit compliance.
14.91.4.1.3. **(Added)** If there is no L2A report, which means there are no system transactions for the day prior, the scheduler will:
14.91.4.1.3.1. **(Added)** Attest by signing and dating the AFSC Form 007, that there was not a L2A report for that specified PSSD and date.
14.91.4.1.3.2. **(Added)** File this documentation (either paper or electronically) and retain IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS) for audit compliance.
14.91.5. **(Added)** Pull the W5C report weekly from the G004L system for the Production Section Scheduling Designator (PSSD) assigned.
14.91.5.1. **(Added)** If out of balances are listed on the W5C report, done by a comparison between the prior week's report and the current week's report, and are seven days or older, the scheduler will research the out of balance using the various production systems to obtain information to identify where the out of balance exists.
14.91.5.1.1. **(Added)** If the out of balance is because of an in-transit to maintenance, see Receipt Acknowledgement section for further guidance.
14.91.5.1.2. **(Added)** If the out of balance is because of an in-transit to supply, see Receipt Transaction (RT)/Turn-In section for further guidance.
14.91.5.1.3. **(Added)** If the MIS is out of balance, the scheduler will determine which of the MIS is out of balance knowing that D035K is the APSR.
14.91.5.2. **(Added)** If the out of balance exists from an errant sale of inputting an incorrect NSN, PDN/JON, and/or end item document number, the scheduler will submit AFSC Form 94 to request a transaction reversal in D035K. A request for a transaction reversal in D035K that contains the following minimum information: document identifier code (DIC) (i.e., D6M), document number, quantity, PDN/JON, erroneous date of transaction, and condition code. Retain a copy of the AFSC Form 94.
14.91.5.2.1. **(Added)** DLA-A will accomplish the necessary transaction in D035K.
14.91.5.2.2. **(Added)** DLA-A will return AFSC Form 94 with action taken.
14.91.5.2.3. **(Added)** Scheduler will verify the reversal in the MIS, re-input the correct transaction in the appropriate MIS, verify all corrections, and attach supporting documentation to the W5C report.
14.91.5.2.4. **(Added)** Once all corrections and documentation have been completed, annotate on the W5C report the corrective action taken, sign, and date. File this documentation (either paper or electronically) and retain IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS) for audit compliance.
14.91.6. **(Added)** If there is no W5C report, which means there are no system imbalances and the scheduler is in balance with the systems, the scheduler will:
14.91.6.1. **(Added)** Attest by signing and dating the AFSC Form 011, that there was not a W5C report for that specified PSSD and date.
14.91.6.2. **(Added)** File this documentation (either paper or electronically) and retain IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS) for audit compliance.
14.91.7. **(Added)** Reconcile the AFSC Form 105, or an electronic version approved by the OPR to the MIS to ensure all match. If the AFSC Form 105 does not match with the MIS, the

scheduler will research and determine if the AFSC Form 105, or MIS is out of balance.
14.91.7.1. **(Added)** Make appropriate corrections to the AFSC Form 105 or an electronic version approved by the OPR or take corrective action in the appropriate MIS.
14.91.7.2. **(Added)** Scheduler will verify all corrections and attach supporting documentation to the W5C report.
14.91.7.3. **(Added)** Once all corrections and documentation have been completed, annotate on the W5C report the corrective action taken, sign, and date. File this documentation (either paper or electronically) and retain IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS) for audit compliance.
14.91.8. **(Added)** Review the W5C report to identify out of balance conditions. Research compared to D035K to determine if the M balance is too high or too low in comparison to what is on work (OWO), Awaiting Maintenance (AWM), or Awaiting Parts (AWP) in the MIS.
14.91.8.1. **(Added)** If the M balance against a NSN in D035K needs to be adjusted, the scheduler will complete an AFSC Form 94.
14.91.8.2. **(Added)** Send the AFSC Form 94 to DLA-A and retain a suspense copy on file. Follow up with DLA-A within five calendar days on status.
14.91.8.3. **(Added)** DLA-A will accomplish the necessary adjustments in D035K.
14.91.8.4. **(Added)** DLA-A will notify the scheduler by completing the AFSC Form 94 with the action taken.
14.91.8.5 **(Added)** Scheduler will verify all corrections in the appropriate MIS and attach supporting documentation to the W5C report.
14.91.8.6. **(Added)** Once all corrections and documentation have been completed, annotate on the W5C report the corrective action taken, sign, and date. Close out the report by filing it (either paper or electronically) and retain IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS) for audit compliance.
14.91.9. **(Added)** It is incumbent upon the scheduler to keep the systems balanced as well as keeping AFSC Form 105, or an electronic version approved by the OPR in line with the MIS and D035K. Whenever adjustments are made in the MIS and D035K, which affect an AFSC Form 105, or an electronic version approved by the OPR, the scheduler must make the appropriate corrections on the form in question. It is incumbent upon the scheduler to ensure that all assets OWO end item document numbers match in the MIS and D035K as well as on the forms.
14.91.10. **(Added)** To ensure audit compliance, the scheduler will retain records (either paper or electronically) of the G004L L2A/W5C reports that are worked on a daily and weekly basis, respectively, and AFSC Form 105 as back up records IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS) for audit compliance. If a scheduler is reassigned or moved from the PSSD in question, the workload moved to another PSSD, or the workload is terminated, the records must be retained or accompany the workload in question. All files will be retained (either paper or electronically) IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS) for audit compliance. All records must be available if requested by an auditor."

14.92. (Added) In-Transit Reconciliation Process Narrative.

14.92.1. **(Added)** This process flow narrative addresses the weekly data reconciliation of the DIOH transactions with outstanding in-transits to and from maintenance greater than seven days. This process details the reconciliation process between D035K and the maintenance

information systems (MISs) for outstanding in-transits. It is incumbent upon the scheduler to follow this process to ensure audit compliance with item accountability. Inductions and completions of production end items from supply sources will be accomplished by a D7MRA-CL, receipt acknowledgement or turn–in transaction, or by a D6M_T in ITS/G337, Impresa, or G402A which passes to D035K. Once an end item is receipted back into supply, there will be a D6M RT in D035K.

14.92.2. **(Added) Receipt Acknowledgement (RA).** When conditions exist due to an in-transit to maintenance, the scheduler will at a minimum:

14.92.2.1. **(Added)** When conditions exist due to an in-transit to maintenance, the scheduler will at a minimum:
14.92.2.2. **(Added)** Pull the G402A RA Suspense or LDMS In-transit listing weekly.
14.92.2.2.1. **(Added)** Use one of the above reports to determine if there are any transactions older than seven days for the Production Section Scheduling Designator (PSSD) assigned.
14.92.2.2.2. **(Added)** If there are no items greater than seven days, the scheduler will annotate on the G402A RA Suspense or LDMS In-transit listing 'No RAs to clear over seven days' for week of, using the date of that week, sign, date. File the G402A RA Suspense or LDMS In-transit listing (either paper or electronically) and retain IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS) for audit compliance.
14.92.2.3. **(Added)** If there are items on the G402A RA Suspense or LDMS In-Transit listing that are greater than seven days old, the scheduler will:
14.92.2.3.1. **(Added)** Perform a physical search to determine if the item has been delivered to the shop and collaborate with Defense Logistics Agency-Aviation (DLA-A) when appropriate.
14.92.2.3.2. **(Added)** If the item is located, the scheduler will clear the RA (D7M-RA-CL) in the appropriate MIS and attach the applicable L2A or applicable D035K RINA screenshot to the G402A RA Suspense or LDMS In-transit listing and sign, date. File the G402A RA Suspense or LDMS In-transit listing (either paper or electronically) and retain IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS) for audit compliance.
14.92.2.3.3. **(Added)** If the missing item is not located, the scheduler will complete either an AFSC Form 94 to notify DLA-A of the missing item or a Web Supply Discrepancy Report (WebSDR) to notify Defense Logistics Agency-Depot Distribution (DLA-DD) of the missing item.
14.92.2.3.3.1. **(Added)** The scheduler will retain a suspense copy of the AFSC Form 94 or WebSDR.
14.92.2.3.3.2. **(Added)** Follow up with DLA-A or DLA-DD within five calendar days on the status of the missing item.
14.92.2.3.3.3. **(Added)** File this documentation (either paper or electronically) and retain IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS) for audit compliance.
14.92.2.4. **(Added)** If there is no G402A RA Suspense or LDMS In-transit listing to pull, the scheduler will:
14.92.2.4.1. **(Added)** Attest by signing and dating the AFSC Form 010 that there was no G402A RA Suspense or LDMS In-transit listing to pull for that specified PSSD and date.
14.92.2.4.2. **(Added)** File this documentation (either paper or electronically) and retain IAW Air

Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS) for audit compliance.
14.92.2.5. **(Added)** Pull the Center of Parts Activity (COPA) DIOH D7M In-Transit with no RA report.
14.92.2.5.1. **(Added)** If there are no items greater than seven days, the scheduler will annotate on the COPA DIOH D7M In-Transit report 'No RAs to clear over seven days' for week of, using the date of that week, sign, date. File the COPA DIOH D7M In-Transit report and retain (either paper or electronically) IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS) for audit compliance.
14.92.2.6. **(Added)** If there are items on the (COPA) DIOH D7M In-Transit report that are greater than seven days old, the scheduler will:
14.92.2.6.1. **(Added)** Perform a physical search to determine if the item has been delivered to the shop and collaborate with Defense Logistics Agency-Aviation (DLA-A) when appropriate.
14.92.2.6.2. **(Added)** If the item is located, the scheduler will clear the RA (D7M-RA-CL) in the appropriate MIS and attach the applicable L2A or applicable D035K RINA screenshot to the G402A RA Suspense and sign, date. File the G402A RA Suspense or LDMS In-transit listing (either paper or electronically) and retain IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS) for audit compliance.
14.92.2.6.3. **(Added)** If the missing item is not located, the scheduler will complete either an AFSC Form 94 to notify DLA-A of the missing item or a Web Supply Discrepancy Report (WebSDR) to notify Defense Logistics Agency-Depot Distribution (DLA-DD) of the missing item.
14.92.2.6.3.1. **(Added)** The scheduler will retain a suspense copy of the AFSC Form 94 or WebSDR.
14.92.2.6.3.2. **(Added)** Follow up with DLA-A or DLA-DD within five calendar days on the status of the missing item.
14.92.2.6.3.3. **(Added)** Verify the corrections in the appropriate MIS, attach supporting documentation to the G402A RA Suspense or LDMS In-transit listing, annotate on the G402A RA Suspense or LDMS In-transit listing the corrective action taken, sign, date, and file this documentation (either paper or electronically) and retain IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS) for audit compliance.
14.92.2.7. **(Added)** If there is no COPA DIOH D7M In-Transit with no RA report to pull, the scheduler will:
14.92.2.7.1. **(Added)** Attest by signing and dating the AFSC Form 009 that there was no COPA DIOH D7M In-Transit with no RA report for that specified PSSD and date.
14.92.2.7.2. **(Added)** File this documentation (either paper or electronically) and retain IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS) for audit compliance.
14.92.2.8. **(Added) Mis-Identified Asset.** If an incorrect item (misidentified) is delivered to the shop, the scheduler will:
14.92.2.8.1. **(Added)** Clear the RA Suspense in the appropriate MIS.
14.92.2.8.2. **(Added)** Identify the correct national stock number (NSN) for the item. For further assistance consult the Supply Planner (SP), Engineering, or Equipment Specialist (ES).
14.92.2.8.3. **(Added)** Process a DF1 in G402A (EPS) or LDMS for the misidentified item to correct the balance.
14.92.2.8.4. **(Added)** Determine if the shop will retain or return the misidentified item.

14.92.2.8.4.1. **(Added)** If the misidentified item is to be returned to supply, a D6M transaction will be processed using the correct NSN.
14.92.2.8.2. **(Added)** If the item is retained for repair, the item will be put on work order (OWO) in accordance with this chapter.
14.92.2.8.5. **(Added)** Verify corrections in the appropriate MIS and attach supporting documentation to the G402A RA Suspense or LDMS In-transit listing. Annotate on the G402A RA Suspense or LDMS In-transit listing corrections and documentation has been completed with the corrective actions taken, sign, date. File and retain the G402A RA Suspense or LDMS In-transit listing and supporting documentation (either paper or electronically) IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS) for audit compliance. **Note:** Electronic forms used in lieu of hard copies are acceptable providing the forms fulfill the intent of the hard copies and provide the required reporting data.

14.93 Receipt Transaction (RT)/Turn-In.

14.92.3. **(Added)** When conditions exist due to an in-transit to supply, the scheduler will at a minimum:
14.92.3.1. **(Change)** Pull the Center of Parts Activity (COPA) DIOH D6M In-Transit with no RT report for the Production Section Scheduling Designator (PSSD) assigned.
14.92.3.1.1. **(Added)** Determine if the in-transit is greater than seven days old.
14.92.3.1.2. **(Added)** If there are no in-transit receipts (D6M RT) pending processing by DLA-DD greater than seven days old, the scheduler will annotate on the report 'No RTs pending to clear over seven days' for week of (use the date of that week), sign, date. File the report and retain (either paper or electronically) IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS) for audit compliance.
14.92.3.2. **(Added)** If there are in-transits on the report which are seven days or older, the scheduler will perform a physical search within the shop to validate that the item was handed off to DLA-A/DLA-DD to return to supply. Scheduler will also work with DLA-A/DLA-DD to search for the missing item to see if the item is still awaiting processing in any of the various DLA staging areas.
14.92.3.3. **(Added)** If the missing item is located, the scheduler will work with DLA-A/DLA-DD to have the item processed and monitor the transaction history in D035K for the RT.
14.92.3.4. **(Added)** Once the RT is verified in D035K, the scheduler will attach the D035K RINA screenshot to the report and annotate on the report the corrective action taken, sign, date. File the report and retain (either paper or electronically) IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS) for audit compliance.
14.92.3.5. **(Added)** If the missing item is not located, the scheduler will complete an AFSC Form 94 to notify DLA-A of the missing item or a WebSDR to notify DLA-DD of the missing item. The scheduler will:
14.92.3.5.1. **(Added)** Retain a suspense copy of the AFSC Form 94 or the WebSDR.
14.92.3.5.2. **(Added)** Follow up with DLA-A or DLA-DD within five calendar days on the status of the missing item.
14.92.3.5.3. **(Added)** If the item has been found, the scheduler will ensure the receipt is input into the appropriate MIS, attach supporting documentation to the report, annotate on the report the corrective action taken, sign, date. File documentation and retain (either paper or electronically) IAW Air Force Records Information Management System (AFRIMS) Records

Disposition Schedule (RDS) for audit compliance.
14.92.3.5.3.1. **(Added)** If the missing item is still not located after all exhaustive research has been completed, the scheduler will submit the original AFSC Form 94 with documentation of the research conducted to notify DLA-A of the missing item and request to drop the in-transit to supply balance. The scheduler will retain a suspense copy of the AFSC Form 94 pending action taken by DLA-A.
14.92.3.5.3.2. **(Added)** Scheduler will follow up with DLA-A within five business days on status.
14.92.3.5.3.3. **(Added)** DLA-A will accomplish the necessary transaction in D035K.
14.92.3.5.3.4. **(Added)** DLA-A will notify the scheduler by completing the AFSC Form 94 with the action taken.
14.92.3.5.3.5. **(Added)** Scheduler will verify the transaction in D035K and attach the D035K RINA screenshot to the report and annotate on the report the corrective action taken, sign, date. File the documentation and retain (either paper or electronically) IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS) for audit compliance.
14.92.3.6. **(Added)** If there is no (COPA) DIOH D6M In-Transit with no RT report for the week, the scheduler will:
14.92.3.6.1. **(Added)** Attest by signing and dating the AFSC Form 008 that there was not a Center of Parts Activity (COPA) DIOH D6M In-Transit report for that specified PSSD and date.
14.92.3.6.2. **(Added)** File this documentation (either paper or electronically) and retain IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS) for audit compliance.
14.92.3.7. **(Added)** Scheduler will follow up with DLA-A within five business days on DLA-A accomplishing the necessary adjustments. The scheduler will then verify all corrections in the appropriate MIS, attach all supporting documentation to the report, and annotate on the report the corrective action taken, sign, date. File the report within the and retain (either paper or electronically) IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS) for audit compliance.

14.92.4.6. (**Change**) If the NSN is still out of balance, an AFSC Form 94, DIOH Out of Balance Reconciliation Worksheet will be initiated to indicate the research actions taken and results of research actions.

14.92.4.7. (**Change**) The AFSC Form 94 will be signed by the appropriate level of leadership (Flight Chief, Squadron CL Group DD, or Complex CC) depending on the cost of the asset. NOTE: the approval is certifying that complete and adequate research has been accomplished and there is no reason to believe there is theft, fraud and misdemeanor.

14.92.4.8. (**Change**) Once the AFSC Form 94 has been signed, it will be given to DLA-A to make the adjustments to the appropriate condition code in D035K

15.1.7. **(Changed)** Provide non-real/real property MXSG engineering support to ALC/Groups/Host Tenants.

15.5.4. **(Added)** Equipment Requiring Production Engineering Review after Maintenance or

Repair. For IPE that has been identified as requiring additional scrutiny, production engineering in AMARG, AMXG, CMXG, EMXG, MMXG and PMXG will provide MXSG with a list known as the Production Engineering Evaluation Required (PEER) equipment list.

15.5.4.1. **(Added)** The MXSG equipment specialist will place an identifier in FEM on work packages performed on PEER assets to ensure technicians repairing such equipment are aware that production engineering (AMARG/AMXG/CMXG/EMXG/MMXG/PMXG) must be notified prior to returning the equipment to service. e.g. Modify the work package so that "PEER ASSET" prints across the top.

15.5.4.2. **(Added)** MXSG will notify the appropriate AMARG/AMXG/CMXG/EMXG/MMXG/PMXG production engineering office when work is completed on PEER assets. Notification shall be provided via phone, email, or in person to the PEER representative for each squadron engineering office. MXSG must either 1) hold the repair work order open until engineering has signed off on the repair or 2) close the repair work order and initiate a new work order that must be signed off by engineering prior to returning the equipment to service.

15.5.4.3. **(Added)** If work performed is of a minor or routine nature, a signature may not be required even though the equipment may be on the PEER list. If an allowance is given for minor or routine repairs on PEER equipment, it must be clearly stated on the PEER review list for each piece of PEER equipment.

15.5.4.4. **(Added)** AMARG/AMXG/CMXG/EMXG/MMXG/PMXG production engineering may enlist production personnel or maintenance personnel as necessary to assist in determining proper functionality of equipment prior to release.

15.5.4.5. **(Added)** MXSG will train maintenance supervisors, maintenance schedulers, maintenance mechanics, and trouble call desk personnel (if applicable) on the special requirements for PEER items.

15.5.4.6. **(Added)** MXSG will comply with customer requests for AMARG/AMXG/CMXG/EMXG/MMXG/PMXG production engineering review/evaluation and signature and will not return equipment to service until AMARG/AMXG/CMXG/EMXG/MMXG/PMXG production engineering signature release.

15.5.4.7. **(Added)** MXSG will retain evidence of all repairs needing AMARG/AMXG/CMXG/EMXG/MMXG/PMXG production engineering signatures.

15.9. (Changed) MXSG Engineering and Installation Projects.

15.9.3.4.1. **(Changed)** All MXSG engineering, drafting, and planning associated with project design shall be accomplished taking into account load calculations on existing utility distribution systems and any safety/environmental concerns.

15.9.3.4.3. **(Changed)** MXSG Engineering design drawings or sketches are developed to support

BCE work requests for tasks required by the MXSG and Maintenance Groups that do not have an engineering staff.

15.10.3.6. **(Changed)** Management of Items/Materials in Support of MXSG Engineering Prototype Shop Functions.

15.14.2.1.5. **(Changed)** To ensure the equipment specifications meet the requirements for both functionality and ease of maintenance, Production Engineers should write the specifications to ensure functionality and MXSG Engineers should review the specification packages to ensure supporting utilities in a facility can support the proposed equipment; ensure ease of maintenance; and verify safety requirements are included the specification.

15.14.5. **(Changed)** Disposal Phase – When disposal of an asset is required, recommend contacting the base DLA Disposition Services organization for assistance. In addition, contacting Base Civil Engineering Group (BCE), particularly environmental compliance, to ensure facility issues are appropriately resolved and wastes or hazardous materials are disposed of properly. CM is required to ensure removal of equipment or demolition is managed as a controlled change, fully coordinated, with updated documentation released or vaulted.

15.16.11. **(Changed)** Motor testing programs consist of specific maintenance management tools designed to aid the MXSG engineer in electric motor systems and their care. For additional information: http://www.electricityforum.com/test-equipment/electric-motor-testing.htm1

15.20.3. **(Changed)** Operators, maintenance personnel, and MXG engineers provide valuable input to the SSHA development process by identifying hazards and establishing mitigating procedures, PPE, or other action to allow work when a known hazard is present.

15.23. (Changed) QC/QA Overview. Maintenance quality and equipment reliability is the responsibility of all maintenance personnel. The combined efforts of QC/QA personnel, maintenance leaders, Production Engineers, and Technicians are necessary to ensure high quality maintenance production and equipment reliability.

15.29. (Changed) Hazardous Materials Management. Hazardous materials management is governed by AFMAN 32-7002 and is managed by Base Civil Engineering.

15.31. (Changed) MSDS/SDS and vendor supplied technical data should be forwarded to SPO/SCM Engineering Authority or responsible maintenance personnel for vaulting in the CMMS or CSA. Receiving inspections may include first article tests, non-destructive examinations, special inspections identified in design or purchase specifications, and other tests or inspections.

15.33. (Changed) In addition. Production Engineers need to ensure that selected vendors can meet our customer’s technical requirements, i.e., the flow of technical requirements to a sub tier supplier in cases of transferred work. The selection process should include a Production Engineer validating and/or qualifying a vendor to ensure quality products are received.

Table 18.1. (Delete)

Figure 18.3. (Changed) AWP Worksheet Sample.

ITEM #	Task/Action	Yes	No	N/A
9	Has the planner submitted an AFMC Form 202 for SPO/SCM Engineering or else Delegated Engineering Authority to consider reuse or limited relaxation of tolerances where possible? (AF MXG)			

Table 18.5. (Changed) Meeting discussion topics.

Item	Topic
4	Available work-around actions are: CANN actions, suitable substitute NSNs, availability of a NHA, local purchase, reclamation/testing/local repair/local manufacture, request for SPO/SCM Engineering or else Delegated Engineering Authority action (e.g., reuse, temporarily expanded tolerance limits, etc.), and GPC purchases.

Table 18.5. (Added) Meeting discussion topics.

Item	Topic
8	The SCR is then responsible for updating EXPRESS with the AWP Action Taken within Data Entry of EWT.

Table 18.9. (Changed) Advice Codes

Advice Codes for Requisitions.	
Code	**Description**
7M	Health Hazard Item must have Bioenvironmental Engineering approval prior to requisitioning.

18.18. (Changed) Repair of ERRC N and P items. When production believes an ERRC N and P
item could be repaired beyond what is currently authorized, an AFMC Form 202 will be submitted to SPO/SCM Engineering Authority to repair.

18.19.5.3.1. **(Added)** Local procedures will be developed, implemented and maintained at the ALCs to standardized parts disposal processing ensuring ALC production personnel properly demilitarize and dispose of consumable parts.

18.19.5.3.2. **(Added)** All consumable parts will be properly demilitarized and turned in for disposal and into the retail Materiel Management Activity IAW AFI 23-101 Materiel Management, AFI 23-101 AFMC supplement, and AFI 21-103.

18.19.5.5.1. **(Added)** Production personnel will identify and tag material (e.g., serviceable, condemned, repairable, etc.) with stock number, part number, noun, maintenance inspection stamp/signature, and unit of issue (e.g., unit of issue is a quantity of one hundred (HD) and we have less than 50 percent, turn in as scrap). See Table14.12. for material condition codes.

18.19.5.5.2. **(Added)** Establish and maintain pick-up points for unserviceable expendability, recoverability, reparability code (ERRC) XB3 material; each point will be conspicuously marked to show RCC authorized to place material there and be clearly identified with obvious visible sign explaining and defining contents of each collection area.

18.19.5.5.3. **(Added)** Ensure "serviceable" and "identified" consumable ERRC XB3/XF3 type material is NOT placed in containers marked as unserviceable (scrap) material. For nuts, bolts, washers, rivets, shavings, wire (without connectors) and residue from the material manufacturing process, follow procedures for condemned material/scrap material as defined in para 18.19.5.6.2. below

18.19.5.5.4. **(Added)** Ensure only items that have been conspicuously marked in red with waterproof paint, dye, or similar material will be put in the containers marked for unserviceable (scrap) material. In some areas, locked containers conspicuously marked in red can be utilized as a collection point for small hardware.

18.19.5.5.5. **(Added)** ALC personnel will report any discrepancies/non-compliances in disposal procedures promptly to management.

18.19.5.5.6. **(Added)** Maintenance production support personnel will:

18.19.5.5.6.1. **(Added)** Perform appropriate research action to determine disposition of the material after production personnel have returned the shop floor residue/excess material to the designated location. Material must be tagged as serviceable, reparable, or condemned.

18.19.5.5.6.2. **(Added)** Local Manufacturing. Residue material will not be tagged as serviceable; it is the responsibility of the production shop to prove if the material is serviceable when released for the next job. If material is condemned, turn- in or scrap according to local instructions.

18.19.5.5.6.3. **(Added)** Process excess material based upon disposition research using turn- in procedures for the processing of material into the supply account.

18.19.5.5.7. **(Added)** Maintenance group supervisors will:

18.19.5.5.7.1. **(Added)** Ensure all employees can differentiate between excess material and unserviceable (scrap) material.

18.19.5.5.7.2. **(Added)** Ensure all employees know the location sites for excess and unserviceable (scrap) material.

18.19.5.5.8. **(Added)** The following procedures will be used for condemned/scrap material:

18.19.5.5.8.1. **(Added)** Scrap material is defined as material no longer usable in the production process and has no value except for its basic material content.

18.19.5.5.8.2. **(Added)** The production groups will:

18.19.5.5.8.3. **(Added)** Conspicuously mark unserviceable parts identified for disposal in red with waterproof paint, dye, or similar material. Shavings from the machining process, sheet metal scrap from the manufacturing/repair process, scrap (not identifiable to a stock number) such as nuts, bolts, screws, rivets, washers, and wire, do not require red marking. Containers conspicuously marked in red can be utilized as a collection point for small hardware.

18.19.5.5.8.4. **(Added)** Process this material through DLA-DS Disposition Services, document builder/NIMMS system as a FOB turn-in. Place the Form DD1348-1A, generated on the material as you would all other turn-ins. Once completed, material will be given to DLA-DS Distribution Services for shipment to Defense Reutilization and Marketing Service (DRMS). Groups personnel are not responsible for moving this type of material to DRMS.

18.19.5.5.9. **(Added)** Scrap material (which is not identifiable to a stock number) defined as nuts, bolts, screws, rivets, washers, and wire, will be handled as follows:

18.19.5.5.9.1. **(Added)** Notify DRMS via email DRMSSILLDSR@dla.mil to set up an appointment for a site visit to determine identity of material being scraped. Provide the following information: Name, Phone Number, Unit of Issue, location and directions, and description of property. DRMS will come to the specific shop and give instructions on how the material should be processed. After the initial instruction, the shop will sort the material in the manner instructed on an ongoing basis.

18.19.5.5.9.2. **(Added)** Once the material is separated, a turn-in document will be processed using DD 1348-1A which can be found @ https://www.esd.whs.mil/directives/forms/. The document number will consist of the specific ALC DODAAC FBXXXX, followed by the Julian date, and a four-digit serial number (first and last initial of the maker plus a number ranging from (01-99)). An example of an offline document number would be FBXXXX2015KM01. Do not duplicate the numbers.

18.19.5.5.10. **(Added)** The groups will place the document with the material and prepare for shipment.

18.19.5.5.11. **(Added)** Local manufacturing scrap material is defined as shavings and residue from manufacturing, scrap will be handled as follows:

18.19.5.5.11.1. **(Added)** Separate this material by type of metal such as aluminum, stainless steel, titanium, or as best you can into specifically labeled cans/ bins in the production shop area, remembering that the government receives more money when metals can be sold by the specific type. Ensure all scrap metal is free from hazardous chemicals. Accomplish a Form DD1348-1A using the federal stock class of the material and the offline document number process above (Paragraph 18.19.5.5.9.2). Deliver to DMS when material is ready.

18.19.5.5.12. **(Added)** Items that do not have a NSN will be handled as follows: The group will research to validate that the item in question does not have an NSN. If the item has an NSN, process it according to the cost code assigned to the NSN. If the item does not have an NSN, the local stock number (LSN) can be found at https://www.dla.mil/DDSR/.

18.19.5.5.12.1. **(Added)** Item must have a demilitarization code assigned, and must be placed on the form for the part to be turned-in to DRMS. The DEMIL code can be found at http://www.dla.mil/DDSR/. Once all the paperwork is accomplished, notify DRMS to have them review documentation and to set an appointment to deliver the material.

18.19.5.5.12.2. **(Added)** All material, with the exception of cost code "A" material, DEMIL Code "A" through "X," will require DRMS to review the documentation. Applicable Group personnel are responsibility to transport the material to DRMS.
18.35.5. **(Changed)** Disposition of AWP End Items. Refer to paragraph 18.35.1 for the definition of AWP. When piece parts will not be received to immediately support an inducted end item, the organization must determine what to do with the end item. The organization has three basic options:

18.29.1.4. (**Added**) J – Pilferage.

18.29.3. (**Added**) Only personnel on appointment letters will:
18.29.3.1. (**Added**) Have access to the secure areas where sensitive items are located.
18.29.3.2. (**Added**) Distribute items on an as required basis and a one for one exchange, if applicable.
18.29.3.3. (**Added**) Receive and turn-in all sensitive item material.

18.35.5.1. **(Changed)** Leave the end item OWO if the delivery of piece parts is expected to meet the established shop flow days (SFD) for the end item.

18.35.5.2. **(Changed)** If the current quantity of AWP end items on the D035K records does not exceed the quarterly demand rate (QDR) plus backorders and the delivery of the piece parts will not meet the established SFD for the end item, the scheduler will request an awaiting parts (AWP) resolution team (ART) meeting utilizing the AFSC Form 503.

18.35.5.3. **(Changed)** If the current quantity of AWP end items on the D035K records exceeds the QDR plus backorders and the delivery of the piece parts will not meet the established SFD for the end item, no further end items should be inducted and no further end items should be placed in AWP status. The scheduler will request an ART meeting utilizing the AFSC Form 503. An action plan is required to resolve support problems. Maintenance must request disposition action from the supply planner (SP). CANN of other end items is one of the primary supportability options of the SP to provide support for assets that are constrained for parts. If CANN is chosen, follow the process and procedures in paragraph 18.33. Disposition of the cannibalized end item including the determination of the turn-in condition code is the SPs responsibility. This process is required to prevent the stacking of end items in AWP-G and AWP-F condition status that have no current/future repair requirements. Refer to paragraph 6.11.1.

18.35.5.3.1**. (Changed)** Within five working days of the disposition request, the SP must provide specific disposition instructions, other than F condition, for aged AWP-F end item (in formal AWP, but fully parts supportable (FWP) awaiting funding) when there is no NRO through EXPRESS after 90 days. Component piece parts will be dispositioned IAW established guidance.

18.35.5.3.2. **(Changed)** Within five working days of the disposition request, the SP must provide specific disposition instructions, other than F condition, for aged AWP-G (‘Hangar Queens’) end item when there are no future requirements or for backorder component EDD exceeds 90 days and supply assistance requests have had negative results. Component piece parts will be dispositioned IAW established guidance.

18.35.8.2.1. **(Changed)** EXPRESS is updated every Tuesday to provide AWP Status Report located in Headquarters Reports of EXPRESS Web Toolkit (EWT).”

18.35.8.2.1.1. **(Changed)** The AWP Status Report will display a color flag to alert schedulers for any End Item (EI) NSNs with a NRO that have existing formal AWP assets being reported. (Note: Formal AWP means an EI was inducted for repair but is now being stored in the NIMMS ‘X’ store.)"

18.35.8.2.2. **(Delete)**

18.35.8.2.2.1. **(Delete)**

18.35.8.2.2.2. **(Delete)**

18.35.8.2.2.3. **(Delete)**

Table 18.2. **(Delete)**

18.35.8.2.2.4. **(Delete)**

Table 18.3. (Delete).

18.35.8.2.2.5. **(Delete)**

18.35.8.2.2.6. **(Delete)**

18.35.8.2.2.7. **(Delete)**

Table 18.4. (Delete).

18.35.8.3.3.1. **(Delete)**

18.35.8.3.3.7. **(Changed)** Minutes of the meeting will be published by the chairperson/SCR, reference Table 18.5.6

18.36.2. **(Changed)** Authorization. MXG is authorized to maintain floating stocks supporting items removed from a higher assembly when the time allowed for routing and repairing the component item will impact the repair line critical path. The MXGs are authorized floating spares in support of ATE, initial or final test organizations, fault isolation, shop standard, training, stand-alone, test station, and -21 TO assets. Floating spares are also authorized in support of HQ AFMC flight test organizations that must meet required flight test schedules and delivery range times. A completed AFSC Form 100, Floating Line Fill Floating Stock, is required for floating stock/floating spares authorization. The equipment custodian or shop supervisor will maintain the AFSC Form 100 either electronically or hard copy for as long as the floating stock/floating spares are required.

18.36.5.1.10. **(Changed)** Block 15. Coordination. For the Initial/Change/Revalidation/No Change area, check the appropriate block. Production/Scheduling supervisor coordination (signature required) and SPO/SCM Engineering or Delegated Engineering Authority (DEA) approval (if signature required) for initial request and upward change on AFSC Forms 100. Revalidation/No Change and downward change AFSC Forms 100 do not require internal coordination if initial request AFSC Form 100 has coordination. Re-accomplished floating stock items designated as 'NO CHANGEREQUIREMENT VALID' will contain the original ASCN.

18.37.2.1.1. **(Changed)** Production Engineer will:

18.37.2.1.1.2. **(Changed)** At no time shall the item condition affect form, fit, or function of an aircraft, engine, missile, or commodity without receiving proper documented coordination and approval from the SPO/SCM Engineering Authority.

18.37.2.1.2.1. **(Changed)** Obtain technical data package from the SPO/SCM Engineering Authority, IAW paragraph 6.11.2.10.

18.37.2.1.2.4. **(Changed)** Coordinate proposed/updates/additions/substitutions made to aircraft/engine/commodity end item technical data with the SPO/SCM Engineering Authority (i.e. AFMC Form 202, AFTO 22). Coordination will be documented IAW 18.37.2.1.3.2.

18.37.2.1.2.5. **(Changed)** Determine and document verification requirements of raw material conformity. Determine if raw stock certificate of conformance is required or if lab verification of raw materials is required. Seek clarification of raw material verification requirements from the SPO/SCM Engineering Authority though an AFMC Form 202 if required. Raw material certifications will be tracked and recorded. When raw material cannot be specifically identified as to type, hardness, number, etc., as requested, analysis and proper identification by a qualified lab (e.g. Quality Verification Center (QVC), Metallurgy Lab) is required.

18.37.2.1.3.3. **(Changed)** Ensure end items requiring (from a SPO/SCM Engineering Authority and/or technical drawing) a First Article Test (FAT) are sent to a qualified lab (e.g. Quality Verification Center (QVC), Metallurgy Lab) for testing. Ensure results of the inspection or testing are documented in an auditable file and retained IAW paragraph 1.12.1. Items that pass FAT will be available for service; unless the item has been damaged or destroyed as part of the inspection. Items that fail FAT will be sent back to the shop for corrective action, and the Production Engineer will be notified for analysis.

18.43.4. **(Changed)** The IET (maintenance planner) and production shops should maintain responsibility for all bench stock adds or deletes not just for non-IPV bench stock. Reference AFSCI 23-101 "IPV Program".”

18.49. (Changed) Bill of Material (BOM). The purpose of establishing BOMs is to provide a composite database of material used in the repair of specific workload. Numerous personnel including production support, AFSC Production Engineering, item management, and financial/budget analysts, may affect the accuracy of the BOMs which in turn may effect current and out year usage/demand projections and out year EISP development. The Production Support Chief will ensure accurate accounting of material usage through supply discipline in the maintenance repair environment. Replacement factors may be manually changed to fix errors, post workaround data that may not have reached the systems, or to raise a factor that may have dropped due to a parts shortage. Material overrides will be approved by the IET prior to ordering material. Additional guidance on BOMs is located in Chapter 14.

18.50.12. (**Changed**) Precious Metal Recovery Program (PMRP)

18.50.12.1. (**Added**) The DoD PMRP promotes the economic recovery of PM from excess and surplus PM-bearing materiel, and the reutilization of recovered fine PM for authorized internal purposes or as GFM. The program encompasses silver, gold, and the platinum family including palladium, iridium, rhodium, osmium, and ruthenium. (Added from the DODM 4160.21 Vol 2 Enclosure 5)

18.50.12.2. (**Added**) The Precious Metal Indicator Code (PMIC) indicates if an item contains precious metals. It is maintained on the item record of the National Stock Number.

18.50.12.3. (**Added**) PMIC- TYPE OF PRECIOUS METAL
A- Item does not contain precious metal.
U- Precious metal type is unknown.

V- Precious metal type varies between manufacturers.
S- Item contains silver.
G- Item contains gold.
P- Item contains platinum family metal.
C- Item contains combination silver and/or gold and/or Platinum.
*NOTE: The platinum family includes platinum, palladium, rhodium, iridium, osmium, and ruthenium.

18.50.12.4. (**Added**) Due to the recovery cost of precious metals, not all items are economically beneficial for the recovery of the precious metal. Only items that have a PMIC of C, G, P, S, and V, and with a Controlled Inventory Item Code (CIIC)/Sensitive Item Control code/Security Code, of "R" and "J" make the recovery of precious metals economically attractive. All other items to do not contain enough precious metal to make the recovery economically beneficial.

18.50.12.5. (**Added**) If an item is believed to contain enough precious metals to be considered economically attractive and does not contain a CIIC "J" or "R," you should contact the Equipment Specialist for the end item in which the material is consumed to for additional action or guidance.

18.50.12.6. (**Added**) Sensitive items "R" and "J" will be handled IAW section 6.11.2.

18.50.12.7. (**Added**) For further guidance on PMRP, refer to local regulations.

18.50.13. (**Changed**) Turn-in of Classified Material. Classified material must be completely declassified prior to turn into DLADS. The specific TO for the item or system will provide declassification/demilitarization instructions. For other basic declassification/demilitarization guidance, reference DoD Manual 4160.28, Vol 3. After declassification/demilitarization, all documents and references to the classification must be removed or obliterated.

18.50.14. (**Added**) Reusable Shipping Containers. Reusable shipping containers may be retained/stored in the lab area when one of the following conditions exist: Container is 'one of a kind' built for specific component stored in the lab, quick turn-around of components, containers used to house fragile components, and climate-controlled staging area outside lab environment. The lab area must provide a clearly identified and labeled staging area for containers. Note: Shipping containers housing components must be marked and segregated from empty shipping containers.

Table 20.1. (Delete) Two-part closed book written test Parts.

20.4.11.9.3. **(Changed)** Application. Applies to all personnel who perform aircraft flight control rigging (i.e., flight control rigging includes all tasks associated with the adjustment of mechanical, hydraulic, and/or electrical systems which control aircraft flight direction and attitude). Personnel trained in flight control rigging may be specialized in either the mechanical, hydraulic, or electrical skill of rigging. Personnel assisting in the rigging process in a support role may not require SSQ. These individuals only need to be trained to the extent necessary to accomplish their task.

20.4.11.22.4.1. **(Changed)** Completion of a written test consisting of two parts:

20.4.11.22.4.2. **(Added)** BOLDFACE/Emergency procedures test, 100 percent correct passing score (committed to memory).

20.4.11.22.4.3. **(Added)** A general knowledge written test, 90 percent correct minimum passing score, corrected to 100 percent.

20.4.11.22.4.4. **(Added)** Proficiency demonstration to an SSQ Qualification Official.

23.1.1. **(Changed)** Requirements. As new workloads develop and existing workloads evolve, Production Engineering must be involved from the very beginning to include organic 'repair' determinations primarily through the Depot Source of Repair (DSOR) process and is defined as having the primary responsibility to ensure technical requirements are documented, understood, and achievable.

23.3.6.1. **(Added)** Each AMARG/AMXG/CMXG/EMXG/MMXG/PMXG production engineering office will assemble the lists of PEER equipment by squadron. The list will include engineering notification POC's and alternates for each piece of PEER equipment. The PEER list will be reviewed upon addition or deletion of any major processing equipment within each process engineering squadron. The squadron engineering supervisor will validate the PEER list and any subsequent changes to the PEER list. Proposed changes will be coordinated with MXSG and will be submitted via a service request in FEMS.

23.3.6.2. **(Added)** Development of the PEER list should be based on the repair complexity, ease of detectability of proper repair, and criticality of the equipment's function.

23.3.6.3. **(Added)** If work performed is of a minor or routine nature, a signature may not be required even though the equipment may be on the PEER list. If an allowance is given for minor or routine repairs on PEER equipment, it must be clearly stated on the PEER review list for each piece of PEER equipment.

23.3.6.4. **(Added)** AMARG/AMXG/CMXG/EMXG/MMXG/PMXG processing engineering will provide MXSG equipment specialists the lists of PEER equipment with the appropriate engineering POC's.

23.3.6.5. **(Added)** AMARG/AMXG/CMXG/EMXG/MMXG/PMXG processing engineering will train their respective personnel that place trouble calls on the proper method to notify the MXSG trouble call desk personnel (if applicable) that engineering signature is required for equipment on the PEER list.

23.3.6.6. **(Added)** The AMARG/AMXG/CMXG/EMXG/MMXG/PMXG engineering branches will train their engineers concerning the inspection and approval responsibilities for PEER equipment maintenance.

23.3.6.7. **(Added)** Engineering may enlist production personnel or maintenance personnel as necessary to assist in determining proper functionality of equipment prior to release.

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

Prescribed Forms
(Added) AFSC Form 007, *G004L-L2A Daily End Item Production Account Visibility and Cross Reference List*
(Added) AFSC Form 008, *D6M In-Transits With No RT Report*
(Added) AFSC Form 009, *D7M In-Transits With No RA Report*
(Added) AFSC Form 010, *G402A - RA Suspense - LDMS In-Transits*
(Added) AFSC Form 011, *G004L - W5C DIOH/In Maintenance Out-of-Balance Records By PSSD*
(Added) AFSC Form 94, *DIOH Out of Balance Reconciliation Worksheet*
(Changed) AFSC Form 105, *Workload Record*
(Changed) AFSC Form 400, *Inventory Control Sheet*

BY ORDER OF THE
COMMANDER
AIR FORCE SUSTAINMENT CENTEI

AIR FORCE SUSTAINMENT CENTER
MANUAL 21-102

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DEPOT MAINTENANCE MANAGEMENT

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This manual implements and extends the majority of guidance of Air Force Materiel Command Instruction (AFMCI) 21-100, *Depot Maintenance Management*. This Depot Maintenance Manual (DMM) provides directive guidance for depot maintenance management. Major Command (MAJCOM) policy is found in AFMCI 21-100. Only current and verified technical data, as authorized by TO 00-5-1, Air Force Technical Order System, shall be used for depot maintenance. For policies and procedures used in planning and administering depot level contract maintenance programs, refer to AFI 63-101/20-101, Integrated Life Cycle Management, and AFI 63-138, Acquisition of Services. This DMM applies to the Air Logistics Complexes (ALCs) and other units deemed appropriate. This DMM does not apply to the United States Space Force. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the Air Force Sustainment Center (AFSC) Form 847, *Recommendation For Change Of Depot Maintenance Management (DMM)*. Route AFSC Form 847s from the field through the appropriate functional chain of command. The ALCs may supplement this manual by a local instruction but it must be provided to AFSC/LZD for review and coordination prior to publication and should follow guidance in DAFI 33-360, *Publications and Forms Management*. Supplemental guidance (e.g., supplements, addendums, etc.) must identify required deviations (i.e., applicability, variance, and/or differences in organizational placement of responsibilities/processes) on the supplemental guidance with the abbreviation "(DEV)" directly preceding the affected paragraph number. Ensure that all records created as a result of the process prescribed in this publication are maintained in accordance with (IAW) AFI 33-322, *Records Management and Information Governance Program*, and disposed of IAW Air Force Records Information Management System

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SUMMARY OF CHANGES

This publication replaces AFSCMAN 21-102 "*Depot Maintenance Management"* 11 SEP 2020 Version. It should be reviewed in its entirety. It incorporates several updated depot maintenance management processes and procedures from vetted and approved AFSC Form 847s "*Recommendation For Change Of Depot Maintenance Management (DMM)"*

Chapter 1

DEPOT MAINTENANCE MANAGEMENT

1.1. AFSC shall: Provide Center level policy, guidance, and staff coordination for all activities required to operate depot maintenance activities for Air Force (AF) weapon systems and is the OPR for this DMM.

1.2. Maintenance Discipline. It is the responsibility of all maintenance personnel to comply with all written guidance to ensure required repairs, inspections, and documentation are completed in a safe, timely, and effective manner. Supervisors are responsible for enforcing and establishing a climate that promotes maintenance discipline.

1.3. Technical Orders (TOs). AF TOs are published under the authority of the Secretary of the Air Force (SECAF). Compliance with TOs is mandatory.

1.4. Modification Management. A modification proposal is a recommendation to alter the form, fit, function, or interface of an item, subsystem, or system (reference AFI 63-101/20-101).

1.5. Workplace Communication and Information Management.

1.5.1. Devices and Distraction.

1.5.2. Personal electronic/communication/recording devices are hereafter known as personal devices. Examples include cameras, electronic readers (e.g., Amazon Kindle™), cellular telephones, gaming devices, tablet/laptop computers (i.e., an Apple iPad®), music players (i.e., an iPod®), video players, and multi-use devices that incorporate these functions. Personal devices shall only be used or carried IAW local policy. Employees will remove themselves from maintenance activities (i.e., hands-on maintenance, inspection/evaluation, monitoring machinery, handling material, transporting parts), aircraft, or high traffic areas to use personal devices as directed by local policy. In non-Foreign Object Damage (FOD) critical industrial maintenance facilities, personal devices shall be used IAW local policy. Unless otherwise prohibited, personal devices may be stored on one's person, in personal lockers, in personal drawers in tool boxes, or in other areas as authorized by each ALC. Sizable music playing devices (such as table-top Amplitude Modulation/Frequency Modulation (AM/FM) radios or boom boxes) are authorized throughout maintenance areas except where machinery audio warnings/alarms are used or music interferes with work being performed. ALCs may publish directives to clarify or expand the general prohibition on personal devices in coordination with the local union; ALCs may also develop local policy to authorize use of personal devices for specific official purposes.

1.5.3. Government-supplied electronic/communication/recording devices are hereafter known as government devices. Government devices required for official communication, official documentation, or other official purposes are authorized to be used. ALCs and subordinate units may publish additional directives as needed to regulate government devices.

1.5.4. Contractor-supplied devices will adhere to the same requirements as government-devices. ALCs and subordinate units may publish additional directives applicable to safety, security (classified), privacy, special access, or technical directives to regulate contractor-supplied devices.

1.5.5. Workplace distraction. Workplace music/audio volume must be kept to a level that allows clear, effective communication and ensures safe noise levels. Non-work-related

activities that impair hearing, attention, awareness, or vision are authorized IAW local policy. Employees will remove themselves from maintenance activities (e.g., hands-on maintenance, inspection/evaluation, monitoring machinery, handling material, transporting parts), aircraft, or high traffic areas before engaging in non-work-related activities. ALCs and subordinate units may publish additional directives on workplace distraction.

1.5.6. Other requirements. Electronic devices are prohibited as mandated by applicable safety, security (classified), privacy, special access, or technical directives (i.e., technical orders, process orders, or other technical data recognized by TO 00-5-1,). This manual does not relieve obligations to comply with prohibitions specified elsewhere (e.g., "empty pockets" procedures in engine intakes and fuel tanks).

1.5.7. ALCs shall develop, implement, and maintain a local Land Mobile Radio (LMR) management program IAW AFI 17-210, "Radio Management". At a minimum, the program shall address training, allowances, control, and etiquette.

1.6. Nuclear Weapons-Related Materiel (NWRM). The accomplishment of depot maintenance on NWRM items, whether at organic or contract (commercial) sites, shall comply with AFI 20-110, *Nuclear Weapons-Related Materiel Management*.

1.7. Duty Shifts and Rest Periods. Depot maintenance personnel shall have their duty hours aligned to provide the best mission support. Civil service employee work hours are governed by the collective bargaining agreement and its local supplement, and federal and state laws. Contractor employee work hours are governed by the contract, and federal and state laws. Consider union requirements and climatic conditions when determining work schedules; local work/rest schedules for extreme temperatures are recommended by the Medical Group commander. Do not schedule personnel for more than 12 hours of continuous duty time. Provide a rest period after each shift.

1.8. Civilian Visitors. Units shall not permit civilian visitors to operate any AF equipment or specialized vehicles. Civil service employees, contractor employees, and other civilian personnel who must operate AF equipment as part of their assigned duties are not considered civilian visitors.

1.9. Temporary Leads/Team Members/Collateral Duty Selection Process. Participation will be on a rotational basis, and candidates will be selected IAW the procedures identified in the Master Labor Agreement (MLA) – Article 20, *Details to Bargaining Unit Positions*, and Article 21, *Loans of Bargaining Unit Employees*.

1.10. Operation Team Spirit (OTS). OTS are in-person reviews by owning unit of on-going and completed work on aircraft undergoing Programmed Depot Maintenance (PDM)/Modification on a non-interference basis.

1.10.1. Aircraft Maintenance Group Commander (AMXG/CC) or Air Logistics Commander (ALC/CC) shall, at the start of each fiscal year (FY), formally invite customer Maintenance Group Commanders (MXG/CCs) from all MAJCOMS and all Weapon Systems to participate in the OTS program.

1.10.1.1. OTS is a voluntary program funded by the owning unit.

1.10.1.2. Visits will be requested at the beginning of the PDM/Modification process to take place at a logical point in the PDM/Modification flow but prior to Functional Check Flight (FCF) and is limited to three working days.

1.10.1.3. The OTS process shall follow AFSC Process Guide (AFSCPG) 17-001, *Operation Team Spirit (OTS)*, located on the AFSC/LZ SharePoint site. Local Operating Instructions (OIs) may be implemented to optimize this program.

1.10.2. AMXG/CC (or ALC/CC) shall establish processes designed to allow the owning unit's aircrew a depot facility visit during the aircrew's delivery and/or pickup of aircraft.

1.11. Crash Damaged or Disabled Aircraft Recovery (CDDAR). Each ALC will support its host installation's CDDAR program as required by the respective installation-level instruction.

1.12. Depot Maintenance and Inspection Records Retention.

1.12.1. Official records pertaining to the major overhaul of aircraft, missiles, propulsion, guidance, or other end-item system equipment at the ALCs will be retained for 7 years after completion of the maintenance and repair work or longer as determined by the ALC/CC.

1.12.2. Once official records exceed the retention duration, the records can either be moved to an unofficial status or be disposed.

1.13. Weight and Balance (W&B) Program. The ALC shall develop, implement, and maintain standardized procedures governing the W&B program IAW TO 1-1B-50, *Joint Technical Manual Organizational, Intermediate and Depot Maintenance Aircraft Weight and Balance*.

1.14. Functional Check Flight (FCF) Program. The ALCs shall develop, implement, and maintain standardized processes and procedures governing the ALCs involvement with the Functional Check Flight (FCF) Program IAW AFMCI 21-100, *Depot Maintenance Management* section 13.14. Functional Check Flight (FCF) Program. This program is managed by the applicable production squadron and flight test organization and as a minimum shall ensure:

1.14.1. A FCF Program Manager is designated at each squadron or geographically separated Group. As a minimum, the FCF Program Manager shall:

1.14.1.1. Establish local FCF procedures and checklists for specific local aircraft requirements.

1.14.1.2. Develop and analyze FCF metrics for trends to identify potential process, quality, and efficiency issues.

1.14.1.3. Ensure FCF reports are sent to QA for further reporting, analysis, and surveillance considerations.

1.14.1.4. Coordinate with the appropriate squadron for a FCF pilot/aircrew and provide squadron operations with the aircraft tail number, reason for the FCF, and anticipated takeoff time.

1.14.1.5. Maintain an information file for briefing aircrews.

1.14.1.6. Ensure A FCF checklist is used for each FCF.

1.14.1.7. Maintain a copy of the AF Form 2400, Functional Check Flight Log, or equivalent automated product for deficiency and trend analysis.

1.14.1.8. Ensure all maintenance actions are completed and all AFTO Form 781s are documented IAW Dash-6 and 00-series TOs.

1.15. Oil Analysis Program (OAP). The ALCs shall develop, implement, and maintain standardized processes and procedures governing the ALCs involvement with the Oil Analysis Program (OAP) IAW AFMCI 21-100, Depot Maintenance Management section 13.28. Oil Analysis Program (OAP). This program is to provide guidance necessary to execute the AF OAP and ensures all subordinate organizations understand and properly execute AF OAP and JOAP responsibilities.

1.15.1. Ensure ALCs establish a Complex OAP POC for complying with AFMC OAP responsibilities.

1.15.2. Air Logistics Complex OAP POCs will:

1.15.2.1. Establish or relocate OAP laboratories to support the AFSC mission. Coordinates establishment or relocation with the AF OAP Manager.

1.15.2.2. Ensure quality deficiency reports are submitted IAW TO 00-35D-54. Deficiency reports must be submitted to engine program offices on all equipment requiring tear down or overhaul due to an OAP laboratory maintenance recommendation and on all oil-wetted component failures where no OAP laboratory maintenance recommendation was made.

1.15.2.3. Ensure laboratories provide the depot a computer-generated printout/record, for each engine undergoing scheduled maintenance or overhaul.

1.15.2.4. Ensure laboratories process and evaluate samples IAW TO 33-1-37-1/-2.

1.15.2.5. Ensure proper training of AF OAP laboratory technicians. This includes identifying training requirements to AETC.

1.15.2.6. Ensure assigned shop instrumentation and equipment is not modified or used for non-OAP applications without AF OAP Office approval.

1.15.2.7. Ensure AF OAP and JOAP requirements are included in planning, programming and budgeting process. This includes providing needed funds, personnel, facilities and other resources to maintain an effective program.

1.15.2.8. Support equipment evaluations and field surveys for the AF OAP Office.

Chapter 2

DEPOT MAINTENANCE WORK MEASUERMENT

2.1. Introduction.

2.1.1. Introduction. This chapter provides guidance, procedures, and responsibilities for AFSC Depot Work Measurement Standards (DWMS), which addresses: labor classification; development, maintenance, and use of direct labor methods and standards; indirect labor factors; labor efficiency factors; and Shop Flow Days (SFD). It also covers procedures to ensure these written practices are consistently followed. The program stresses integrity, reliability, and accuracy of labor methods and standards.

2.1.2. Purpose. The purpose of work measurement in the depots is to meet the requirements of both external and internal customers.

2.1.2.1. External Customers. Labor standards are used as a basis for costs required to perform individual work orders. Labor standards must accurately reflect labor required to do any particular job. Labor standards are used to establish production schedules, and they have a direct bearing on the length of the repair cycle that is portrayed to the customer. Labor standards are used to calculate standard SFD for exchangeable workloads. They also have a direct bearing on quantities of spares purchased by the Item Managers (IMs). Spares can be a significant cost to external customers.

2.1.2.2. Internal Customers. Work measurement documentation provides the means to benchmark organization work performance. Labor standards are the projected times by which management can effectively evaluate actual organizational work performance. Labor standards, operation descriptions, and associated times provide data for analysis that enable the repair process owners to identify prime areas for process improvement. Standards are used in scheduling, budgeting, sales rates, manpower requirements, and shop capacity. Standard SFD are used to calculate floating stock, where applicable.

2.1.2.3. The technique selected to conduct a work measurement study will be based on a positive return on investment. The anticipated savings should exceed the cost of measurement.

2.1.2.4. The information obtained from work measurement studies or analysis will be used to evaluate organizational performance.

2.1.2.5. For consistency of application within the AFSC depots, tools, techniques, and management data associated with work measurement will be shared.

2.1.3. Responsibilities.

2.1.3.1. AFSC formulates the detailed requirements concerning Headquarters Air Force Materiel Command (HQ AFMC) Depot Maintenance Work Measurement and facilitates/coordinates on any requests from HQ AFMC to the ALCs.

2.1.3.2. Each ALC Business Office will:

2.1.3.2.1. Ensure adherence to the techniques and methods illustrated in the Depot Maintenance Work Measurement policy.

2.1.3.2.2. Staff a Work Measurement Point of Contact (WMPoC) for developing depot maintenance labor standards, coordinating industrial engineering training and reporting requirements, directing labor standard reviews, interpreting policy guidance and providing functional support.

2.1.3.2.3. Employ a Work Measurement Subject Matter Expert (WMSME) for conducting random audits and verifying/maintaining labor standard records, reports and associated documentation supporting Labor Standard Variance and/or event driven reviews.

2.1.3.2.4. Ensure ALC maintenance production groups with direct labor standards maintain a Labor Standard Variance Review Program at the Centralized Asset Management (CAM) task level for aircraft and missiles, and at the control number level for commodities.

2.1.3.2.5. When Work Breakdown Structure (WBS) code is blank or does not sufficiently identify labor type, maintain Local Remarks 1 (LRK1) data field of the Unit Manpower Document to identify the manpower requirement as one of the following: Direct Labor (DL), Production Overhead (POH), or General and Administrative (G&A) with each manpower requirements change submitted to their servicing manpower office.

2.1.3.3. Each Maintenance Production Group will:

2.1.3.3.1. Maintain a FY Labor Standard Variance Review Program for all direct labor standards.

2.1.3.3.2. Report to ALC Depot Maintenance Work Measurement POC, by the 15th of the month following the end of each quarter, on the status of labor standards reviews identified in group FY Labor Standard Variance Review Program. Metrics will be reported by task level for aircraft and missiles, and control number for commodities.

2.1.3.3.3. As a minimum, ensure labor standard reviews contain all the elements described in **Section 2C**.

2.1.3.3.4. As a minimum, review the labor standards that encompass the top 20 percent in hourly variance of the overall group variance at the Production Number (PDN) level for commodities and propulsion, and the 20 percent task review driven by AFMAN 63-143, *Centralized Asset Management Procedures*, for aircraft and missiles.

2.1.3.3.5. Adjustments to labor standards will only be accomplished within budget lead-times, and will be based on End Item Sales Price (EISP) and CAM requirements.

2.1.3.3.6. Ensure labor standard review support documentation exists in labor standard files which can be maintained electronically.

2.1.3.3.7. In addition, review labor standards on an event-driven basis. Some examples of events that would dictate an event-driven labor standard review are listed below:

2.1.3.3.7.1. New Work Load. Work load processes or operations not previously performed on an end item.

2.1.3.3.7.2. Change in Technical Data. Change in technical data that applies to form, fit, and function of an end item. Types of technical data includes blue prints, drawings, TOs, etc. (per TO 00-5-1).

2.1.3.3.7.3. Change in Work Load. Change in procedures due to product mix, volume increase or decrease, new equipment, new procedures, etc.

2.1.3.3.7.4. Rapid Improvement Events (RIEs). RIEs are process improvements that result in reduction in operation set-up times, manpower requirements, first time through quality, or processing requirements.

2.1.3.3.7.5. Work Control Document (WCD). When the scope of the WCD changes.

2.1.4. Definitions. HQ AFMC Depot Maintenance Work Measurement will use standard industrial engineering (IE) terminology and definitions. A comprehensive "Glossary of Terms" is available in the *Handbook of Industrial Engineering* and serves as the source and documentation for HQ AFMC work measurement definitions. Any variance in terminology or definitions for applicable IE terms will be addressed in writing to AFSC/LZD for consideration and approval.

2.1.5. Training and Qualifications. Journeyman IETs must be qualified in their job series. Each planning organization will ensure the completion of proper work measurement training and related career development of personnel assigned to work measurement activities. These personnel will be afforded development opportunities through a planned program of training, continuing education, work assignments, and professional and technical activities. Refresher training should be given as required. Specific training requirements are included in **Table 2.1.**

2.1.6. References. Organizations responsible for developing labor standards or managing HQ AFMC Depot Maintenance Work Measurement will utilize readily accessible references via the internet. Recommended references are shown in **Attachment 1** of this manual.

2.2. Labor Classification.

2.2.1. General.

2.2.1.1. The qualifying criteria for labor as described in this chapter is that the job being performed, whether it is classified as direct or indirect, must be paid for by the Consolidated Sustainment Activity Group (CSAG). This chapter does not apply to jobs falling outside this criterion. Throughout the remainder of this chapter, labor paid for by the Depot Maintenance Activity Group (DMAG) shall be referred to as maintenance labor.

2.2.1.2. The prescribing regulation for labor classification is Department of Defense (DoD) 7000.14-R, *Financial Management Regulation*, Volume 11B, Chapter 13. The purpose of this chapter is to assist in applying the regulation.

2.2.1.3. Proper classification of maintenance labor is an aid to managers at all levels. It is a tool for achieving the most effective and economical utilization of human resources when combined with accurate reporting of workers' time spent on assigned tasks. It is

also a tool for evaluating how well the workforce has been managed against goals stated in performance indicators. The measurement of maintenance labor, especially direct, provides the baseline or yardstick, against which labor management is measured. It should be noted that the classification of maintenance labor is based on the task performed, not on who does it.

2.2.1.4. Maintenance labor is classified as direct or indirect. Indirect labor has two categories: 1) POH and 2) G&A overhead.

2.2.2. Direct Labor. "Direct labor is work that can be identified, without undue cost or difficulty, to a single, specific job order. Direct labor generally includes the hands-on maintenance, repair, overhaul, test, and related direct production effort that follow the established sequence and content of work necessary to accomplish the billable job. Direct labor does not include the support work identified as either indirect or G&A in nature." (Reference DoD 7000.14-R, *Financial Management Regulation*, Volume 11B, Chapter 13). The following clarifications apply to AFSC:

2.2.2.1. Direct labor must be identifiable to a specific Job Order Number (JON).

2.2.2.2. Direct labor can be broken down into operations and sub-operations, and the amount of labor required can be measured directly.

2.2.2.3. Direct labor furthers the value of the product or service through enhancement of the form, fit, and/or function to meet the desired specifications of the customer.

2.2.2.4. Direct labor is supported by official work requests and authorized by prescribed work authorization documents indicating the specific nature of the work to be done. Direct labor must be assigned to a direct labor Responsibility Center/Cost Center (RC/CC), or direct labor time exception to a direct labor RC/CC.

2.2.2.5. Direct labor for programmed workloads will be broken down into tasks and labor standards determined for each task, as specified in this chapter. Direct labor tasks will be documented on a WCD IAW **Chapter 7**. The time expended on direct labor tasks will be documented in the appropriate time and attendance (TAA) and production systems.

2.2.2.6. Direct labor exceptions. When direct labor employee is not performing direct work as described in the preceding paragraphs, their time is exceptioned to indirect. There are specific duty codes that must be captured for each of the indirect activities for tracking and management purposes. This time is typically leave, training, cleanup, or other necessary activities not tied to direct work.

2.2.2.7. Labor not identified as direct labor will be identified as indirect labor (POH and G&A).

2.2.3. Indirect Labor.

2.2.3.1. POH. POH labor is all other labor expended in a Maintenance Group that does not meet the criteria for direct labor.

2.2.3.1.1. POH labor can generally be subdivided into two categories: indirect time in a production RC/CC and shop support overhead. POH labor is all labor expended at the RC/CC level in the maintenance production functions that does not meet the criteria for direct labor, i.e., not driven by volume. This includes tasks or functions that support direct labor, or which are inherent to having a direct labor capability.

2.2.3.1.2. Indirect time includes all General Schedule (GS) supervision except Software Engineering Group (SWEG) first-level supervisors, clerical, and administrative labor. This will include all 300 series (unless funded directly by the program), annual leave, sick leave, and other paid leave. Also, functions such as attending classroom training or meetings are considered indirect labor when they involve people who are assigned to a direct RC/CC. The cost of this labor is apportioned over all products in the RC/CC rather than charged to one or more specific products.

2.2.3.1.3. Shop support overhead is labor expended by personnel performing functions above the RC/CC level in support of the Maintenance Group, and by personnel performing the primary mission of a staff or overhead function. It is performed by people who are not assigned to a production RC/CC.

2.2.3.2. G&A Labor. G&A labor is labor expended by personnel performing functions external to a Maintenance Group.

2.2.3.2.1. G&A labor is all labor not meeting the qualifications for either direct or production overhead labor. This includes supervision, clerical, and training. There is a valid requirement for POH and G&A overhead labor, which must be recognized separately and should not be hidden through improper conversion or improper classification.

2.2.3.2.2. The duty code assignment of personnel and subsequent man-hour exceptions should be based on recognition of the proper level at which the direct product labor costs are applied.

2.2.4. Relationship to Actual Labor Reporting. The reporting of actual labor utilization should be done IAW the appropriate HQ AFMC instruction. The reporting of actual labor should reflect the classification of labor for the task each employee is assigned to do. Where an employee is temporarily assigned to perform a task classified different from normal assignments, the labor time spent in the temporary assignment must be reported based on the classification of the temporary assignment. For example, if a worker who normally does production overhead work, performs a direct labor task, then the time spent on that task must be reported as actual direct labor.

2.2.5. Responsibilities. Each ALC business office classifies maintenance labor and determines if the maintenance labor should be charged to a specific JON.

2.3. Classification of Labor Standards.

2.3.1. General. This section and related tables address planning within the Maintenance Aircraft and Exchangeable Groups for conducting tasks/operational analyses; developing, maintaining, and using labor standards at the ALCs.

2.3.1.1. Definition. The definition of a labor standard is the time it should take a trained worker or group of trained workers, working at a normal pace, to produce a prescribed unit of work that conforms to technical requirements and standards according to a specified method under specific working conditions.

2.3.1.2. Labor Standard Classification. Labor standards are classified as engineered or non-engineered. For an end item standard to be classified as engineered, at least 80 percent of its total standard hours must be classified as engineered.

2.3.1.2.1. Engineered labor standards must reflect a relative accuracy of plus or minus 10 percent, with a 90 percent or greater confidence level at the operation level. Reference **Section 2B**.

2.3.1.2.2. Non-engineered labor standards are all labor standards not meeting the above criteria.

2.3.1.3. Labor Standard Establishment Techniques. All of the techniques shown below are acceptable when correctly applied. Labor standard techniques include:

2.3.1.3.1. Standard Data is obtained from systems such as E.A.S.E or M.O.S.T. Policies concerning the establishment of Methods Time Measurement (MTM) based standard data elements require a level of accuracy equivalent to an engineered approved standard. When standard data is used to build a standard, the standard is classified as engineered.

2.3.1.3.2. Other work measurement techniques include time study, group timing or work sampling. Formulas are available in **Section 2D** to determine the accuracy of time study/group timing technique, or work sampling data. Therefore, these formulas can be used to determine the number of observations or samples required to classify data as engineered.

2.3.1.3.3. Regression and Correlation Analysis. Standards developed using this technique will be considered engineered when the data used for the analysis is engineered.

2.3.1.3.4. Technical estimates based on TOs or other factual data. This type of standard is classified as non-engineered.

2.3.1.3.5. Estimates. Labor standards set by non-technical, planning personnel or process owners. This type of standard is classified as non-engineered, and should be targeted for conversion where cost effective, using the work measurement technique with the best combination of accuracy and economy. Estimates must be broken down into a level of work units that allows confidence in the validity of the estimate. Include preparation and de-preparation times when setting non-engineered standards. These times can be applied in two ways: in the Personal, Fatigue, and Delay (PF&D) allowance in cases where the operator prepares for the entire shift (e.g., put on protective clothing, etc.), and in elemental times when the time is associated with an

individual operation (e.g., get a special tool, etc.). The goal is consistency to ensure the same amount of time is allowed and earned for performing like operations. PF&D will be displayed at the sub-operation level for exchangeables and task/work specification level for aircraft for non-engineered standards. This is an allowance to be added to direct labor to arrive at standard time. This allowance procedure will make the calculation of non-engineered standards consistent with the procedure for engineered standards. Reference **Section 2E** for procedures on PF&D allowances.

2.3.1.4. Learning Curve. Labor standards will not incorporate factors which reflect the training techniques used and skill of personnel (i.e., learning curve effect).

2.3.1.5. Recycle Time. The labor standard may include that recycle time inherent in the repair process that does not result from some action or inaction by the repair technician. The inclusion of recycle time must be based upon it being observed, studied, an occurrence factor developed, and allowable time added to the labor standard as an occurrence factor to a step or sub-operation within a specific operation.

2.3.1.6. Performance Rating (Leveling). Performance rating is the act of comparing the actual performance of a worker against a defined concept of normal performance. Performance rating will be performed in conjunction with engineered and non-engineered labor standard studies, e.g., work samples, time studies, and other techniques where applicable. All subject matter experts (SMEs) accomplishing performance rating must be currently certified in the system being used (Reference **Section 2B**).

2.3.1.7. Duration. Labor standards will remain in effect until revised IAW paragraph 2.3.3.3., or retired to an inactive file.

2.3.2. Documentation of Standards. See **Chapter 14** of this manual for planning jacket file requirements.

2.3.3. Review of Labor Standards.

2.3.3.1. Review. Reviews of labor standards will be determined locally by the ALC for Exchangeable Management of Items Subject to Repair (MISTR) permanent workloads. The top 20 percent overall variance between actual hours and base hours, and/or event driven actions (e.g., TO updates, equipment changes, etc.) will be the determining factor for yearly labor standard review requirements. Criteria for reviews will be documented in local yearly Work Measurement Plans maintained by the ALC OPR.

2.3.3.2. Aircraft reviews will be governed by AFMAN 63-143.

2.3.3.3. Revision. Revision of labor standards must be documented through the Sales Price Generator (SPG) or other applicable budgetary process, prior to implementation, and executed within the applicable year of execution.

2.3.4. Application of Standards.

2.3.4.1. Labor standards coverage.

2.3.4.1.1. All planned work will be covered by standards, either engineered or non-engineered (i.e., estimates).

2.3.4.1.2. Labor standards coverage is based on Direct Production Standard Hours (DPSH). The DPSH for an organization are the summation of individual end item

labor standard hours multiplied by the number of projected or actual units produced during the period being measured. Engineered labor standards coverage is the percentage derived from dividing the number of engineered DPSH by the total number of permanent programmed DPSH, including engineered and non-engineered hours.

2.3.4.2. Variance analysis. Direct labor efficiency, defined as earned hours divided by actual hours, is a measure designed to identify potential problems within a work organization; usually a RC/CC or work center. Significant variance between the projected labor efficiency and reported (actual) efficiency indicates a potential need for process improvements, and should be made clearly visible to the process owners for analysis, assessment, and process improvements. Continued variance should be reviewed at appropriate levels of management, as one of several measures of cost effectiveness and resource management.

2.4. Indirect Labor Factors and Efficiency.

2.4.1. General. Indirect labor factors are established to account for labor expended by and for a RC/CC that is not accounted for by direct labor standards. These factors allow for the cost of indirect labor to be apportioned over all the products repaired in an RC/CC rather than charged to one or more specific products. To fully evaluate the cost of the items repaired by an RC/CC and to evaluate their performance, it is necessary to establish factors or allowances for supervisory, clerical, training, and other legitimate time expenditures and for annual, holiday, administrative, and sick leave time. These factors or allowances are established and converted to annual factors. Sick and annual leave should be shown with a seasonal (periodic) variation and the factor for training adjusted for known variations.

2.4.2. References.

2.4.2.1. AFMCI 65-101, Depot Maintenance Accounting and Production System-Financial Policy and Procedures for Depot Maintenance.

2.4.2.2. Depot Maintenance Production Labor Entry (reference **Chapter 17**).

2.4.3. Indirect Labor Factor Procedures. Standard indirect labor factors for budgeting, cost accounting, planning, and reporting are developed and distributed by the responsible function, obtaining coordination from other organizational components as required. These factors are established for the FY and are not to be changed unless a significant change in workload or organization occurs. Once this factors have been established, they are converted into an indirect factor by dividing the standard by the total direct hours available to an RC/CC.

2.4.3.1. Use the following procedures for establishing factors for indirect labor (excluding leave):

2.4.3.1.1. Accumulate all pertinent data available, for example, historical, job description.

2.4.3.1.2. Determine work elements in each account.

2.4.3.1.3. Evaluate each work element using accepted work measurement techniques, for example, work sampling, time study, frequency studies, etc.

2.4.3.1.4. Total the elements for each account and express as a percent of projected direct labor.

2.4.3.1.5. Coordinate indirect labor factors with affected supervisory personnel as to completeness of the work elements.

2.4.3.1.6. Justify the indirect factors by sufficient data for normal confidence in their accuracy. Where the use of work measurement techniques is not feasible or cost effective; historic data will be considered adequate.

2.4.3.2. Establish indirect labor factors for leave using historical records and backup data. Annual leave should be computed on the basis of total leave accumulation within the RC/CC. Local base policies generally exist to govern the use of sick leave. Annual leave should generally be prorated with a periodic variation that might be reasonably expected. Other type leave (e.g., holiday, administrative, etc.) is grouped under duty code .33. Leave factor allowances are computed on the basis of projected direct labor and used as a factor of direct earned hours.

2.4.3.3. Indirect labor factors are compiled and distributed to the appropriate budgeting, cost accounting, planning, and management organizations. These factors will be broken out by month and the element of leave will include factors for duty codes .31 annual leave, .32 sick leave, and .33 holiday leave. Backup data for the indirect labor standards and the indirect labor factors for the FY in which they are used will be filed in the appropriate responsible organization.

2.4.4. Labor Efficiency Factors. Labor efficiency factors will be developed and documented. The projected factors will be coordinated with the responsible levels of management.

2.4.5. Procedures.

2.4.5.1. Projected labor efficiency factors are developed for each RC/CC on an annual basis.

2.4.5.2. This guidance is provided so that these factors may be developed on an objective basis. The specific conditions covered below are actual existing conditions and may not be accounted for in the development of labor standards or the use of PF&D factors.

2.4.6. Conditions. Labor efficiency factors are developed by projecting the effect of the following conditions on labor efficiency. The following are the most important conditions which can influence historical and projected labor efficiency:

2.4.6.1. Workload Mix. Defined as the number of different items and the volume of each item per period.

2.4.6.1.1. Changes in workload mix may cause changes in labor efficiency.

2.4.6.1.2. Changes in workload mix, which are inconsistent with the current assignment of personnel and skills, may cause some workers to be assigned to the repair of certain items with which they are not familiar. This may cause more time for research of technical data, safety requirements, and quality requirements.

2.4.6.1.3. Changes in workload mix may cause temporary tool or equipment shortages.

2.4.6.1.4. Some processes may be pre-identified as being sensitive to workload volume or mix changes.

2.4.6.2. Tooling and Equipment.

2.4.6.2.1. Changes in equipment downtime may cause disruptions to smooth work flow and completion of items. This is normally related to equipment age, lack of preventative maintenance, and rate of usage.

2.4.6.2.2. Lack of sufficient equipment may cause inefficiencies. This may result from insufficient lead time in the acquisition of required tooling and equipment.

2.4.6.3. Training of New Personnel. On-the-job training and new or reassigned personnel when new skills must be acquired will affect efficiency.

2.4.6.4. Product Quality. Changes in reject rates and rework effort may impact the labor efficiency.

2.4.6.5. Learning Curve. For new workloads or major changes in work requirements, personnel will begin at a relatively low performance level and improve with the repetition of repair actions. The impact of this on labor efficiency depends upon the amount of experience with the workload and the size of new workload in relation to the total RC/CC workload. Compensation for this condition is incorporated in the labor efficiency factors and not the labor standard itself.

2.4.6.6. Shift Worked. Changes in the number of shifts worked or changes in the relative percentage of total work by shift may impact labor efficiency. This change is caused by such things as a reduced amount of support available (e.g. material, material handling capability, maintenance, etc.).

2.4.6.7. Material Support. A change in the level of material support may impact the labor efficiency. This may be caused by time spent by mechanics getting material, waiting for material, or changing from one job to another because of material unavailability. The size of the awaiting parts inventory may be an indicator of material support problems.

2.5. Shop Flow Days (SFD) – (Exchangeable Workload Only).

2.5.1. Background. In order to ensure combat units of the Air Force have the required equipment at the right time and place, HQ AFMC must maintain the ability to replenish base stock levels through the constant flow of recoverable material to and from globally-deployed units. This material flow is known as Depot Repair Cycle Time (DRCT), commonly called pipeline time. One of the most important segments of DRCT is SFD. Over or understatement of SFD standards creates unrealistic provisioning of spares and erroneous repair requirement computation. This results in critical items and stock shortages or unneeded stock. Consequently, the importance of establishing accurate SFD standards cannot be overemphasized. This directly relates to objectives of the HQ AFMC mission to enhance the competitiveness of our operations by improving throughput, and decreasing inventory and operating expense. We need to measure standard SFD, and then work toward reducing actual SFD, through lean process improvements, and application of theory of constraints, etc.

2.5.2. Flow Days Standard. The SFD standards are computed estimates for Exchangeable MISTR permanent workloads, representing the planned number of calendar days required to process an end item, measured from the time the item is received in the Maintenance Group

to the day of serviceable turn-in. SFD standards are based on a summation of direct labor standards for individual operations. The labor standards can be engineered or non-engineered. The standard flow time development assumes that all assets and parts are available when the item is scheduled into the repair process. Delay time for multiple assets inducted on the same work order will not be included in SFD unless the approved repair process authorizes the batching of items; therefore this delay time will not be part of the process support factor in the SFD standard. The standard is input to the shop floor control system where it is used in the computation of repair and buy requirements.

2.5.3. File Maintenance of Standards. Each planning element, or equivalent responsible unit, develops, maintains, and inputs the standard shop flow days into the appropriate shop floor systems. The system will perform the computations, but all backup data must be retained in the planning jacket file.

2.5.4. SFD Standard Computation. The following formula is used to compute SFD standards in calendar days. The resultant decimal is rounded up to whole days. SFD = 7.3[(S/I)+P]/(DH) where: 7.3 = 7X (260/250). The 7 converts time in weeks to time in days; 260/250 converts weekdays per year to workdays so that the 10 federal holidays are accounted for.

2.5.4.1. S = Standard Hours. Includes all occurrence factors for all repair frequencies and PF&D. When an operation with a labor standard takes place concurrent to a process support or unique process support operation (factor P below), only include the standard time for the longer of the two in the equation. Also include all work done on the end item within the RC/CC when the work consists of sequential operations performed by one worker only. For work consisting of concurrent operations or operations performed by multiple workers, the labor standard must be reduced accordingly. Only include the standard time for the longest concurrent operation (critical path). Reduce the standard time for operations performed by multiple workers by dividing the operations standard by the number of workers.

2.5.4.2. I = RC/CC Constant. Direct labor percent factors expressed as a decimal of productive hours available per shift. The RC/CC direct labor percent factor is determined by removing the RC/CC yearly average indirect category time values (duty codes .24, .25, .26, and .29) from the 100 percent availability. (**Note:** The percentage factor for janitorial services in code .26 is not to be included in the development of the RC/CC yearly average.)

2.5.4.3. P = Process Support. Develop an average time value for required process steps, both process-related and general. These times will be expressed in hours. Include all occurrence factors (reference **Section 2A** of this publication) for all repair frequencies. Examples of process related time include plating, curing, heat treat processes, test warm-ups, etc. General process time includes end item transportation time, queue time, etc. Allowances may also be included, on a pro-rated basis, for planned delays and transportations such as equipment down for periodic calibration and maintenance, and transportation of material from supply. Process support time concurrent to a longer labor operation time is not included. This will not include storage time for awaiting parts. An average process support factor will not be a blanket time value. Backup studies will be used to the extent possible and must be retained for audit purposes.

2.5.4.4. D = Days per week (4, 4.5, 5, 6, or 7).

2.5.4.5. H = Hours per day in work (7.7 to 24).

2.5.4.6. **Note:** There may be instances within an RC/CC where single shift and multi-shifts coexist. In such cases, caution must be exercised in computing the SFD standard.

2.5.5. Actual SFD. Actual SFD represent the actual number of calendar days required to process an end item measured from the time the item is received in the Maintenance Group to the day of serviceable turn-in. The average of the actual SFD will be compared with the standard SFD by the responsible planner to determine if the standard SFD requires adjustment or if other actions are needed to improve actual conditions impacting actual flow days. Variance analysis, if required, will be addressed in local instruction.

Table 2.1. Training Qualifications.

Personnel directly involved in establishing or reviewing labor standards must be trained in methods and standards concepts and techniques. All work measurement practitioners must successfully complete appropriate training. Minimum required training includes:		
Item	**Required Training**	
1	Depot Work Methods and Standards (DWMS).	
2	Applicable systems required to perform planning functions.	
3	Command and locally developed planning courses which may include training in blueprint reading, design drawings, work specifications, technical orders, Time Compliance Technical Orders (TCTOs), process orders, temporary work orders, and WCDs.	
4	IET/Planner Training	
	a	All new IETs/Planners must successfully complete the AFMC Industrial Engineering Technician, Fundamentals course.
	b	All IETs/Planners must successfully complete Labor Standards recurring training, at a minimum, every two years. All training will be documented in the Training Scheduling System (TSS).
5	All Command approved MIS courses related to accomplishing work measurement and labor standards (**See Note**).	
6	Persons using work measurement techniques requiring performance rating (or leveling) must be capable of rating within plus or minus 10 percent of standardized rating criteria. The initial performance rating training and certification is accomplished in the DWMS course. Refresher training and proficiency qualification are required every two years.	
7	HQ AFMC Standard Data. Additionally, Methods Time Measurement (MTM-1) or equivalent is required for technicians who develop standard data. If standard data in not developed, MTM-1 or equivalent is not required.	
Note: Duplicative material or requirements may be waived for a person having an Associate's degree in Industrial Engineering Technology or a Bachelor's degree in Industrial Engineering.		

Section 2A—Occurrence Factors

2.6. Data collection. Data collection used for occurrence factors requires the same statistical analysis as the work measurement technique dictates.

2.7. Past occurrence factors. In the past, occurrence factors have caused many engineered standards to be declared invalid because the backup data was not maintained.

2.8. Defining occurrence factors. The development of labor standards requires that each operation, sub-operation, and/or step be reviewed for frequency, another name for occurrence factor. Frequency is that percent of the time an action, task, or process occurs during the completion of a work cycle (completion of repair on a particular end item/asset). Another way to relate occurrence is the relationship to the Next Higher Assembly (NHA) or the unit of production count.

2.8.1. (Aircraft only) Occurrence factors are not a determination in the DPSH hours determined to perform a task. Aircraft occurrence factors are reviewed during the Engineering Requirements Review Process (ERRP) Development Packet (DEV PAC) review process, and therefore, are not required for the Labor Standard Review (LSR) process. IAW AFMAN 63-143, if all aircraft/missiles input during a particular FY are to receive the task, then the occurrence factor is 1.00. If only a percentage of the aircraft/missiles will receive the task, then the occurrence factor should reflect the percentage. For example, if 12 PDMs are scheduled in a FY, but only six will be receiving a particular task, then the occurrence factor will be .50. Occurrence factors are at the Mission Design Series (MDS) task level, not individual operation level.

2.8.2. The frequency of occurrence for each element will be determined and the information recorded must be clearly identified to the operations, sub-operations, or steps to which it applies. The frequency will be expressed as a percentage of element occurrences when all considerations of work requirements, moves, and recycling are made.

2.9. Time. The total time value of the labor standard is the sum of the operations times the frequency of each operation. An operation is the sum of all sub-operations under that operation, times the frequency of each sub-operation; a sub-operation is the sum of all steps under that sub-operation times the frequency of each step.

2.10. Expression. Occurrences are expressed as a percentage; however, inputting uses the decimal equivalent. Inputting the frequency is three to the left and two to the right of the decimal; i.e., 125 percent would be input as 1.25. The minimum percent of time is .01 or 1 percent; the maximum is 999.99 times. If more is required, use additional steps, sub-operations, or operations.

2.11. Calculation. There are at least 10 different ways to calculate an occurrence factor (See **Table 2.2.**).

Table 2.2. Different ways to calculate an occurrence factor.

Item	Calculation
1	Arithmetic Mean
2	Calculated Ratio
3	Observed Proportion
4	Physically Determined
5	Method Determined
6	Support Shop
7	Recycle Factor
8	Historical Data
9	Technical Data Requirements
10	Study Determined

2.11.1. Arithmetic Mean. Derived by dividing the sum of the values of applicable data by the number of data elements involved. This data may be from either observation or obtained from other records. Workload data will normally come from a sample of the total population. Examples are as follows:

2.11.1.1. Average number of parts per item as observed from TO and workload figures.

2.11.1.2. Average number of items obtained per trip.

2.11.1.3. Average number of paces per trip.

2.11.2. Calculated Ratio. The physical characteristics of the work situation are such that the occurrence can be calculated without introduction of errors. Examples are as follows:

2.11.2.1. Number of selections required to select the correct leads from a number of leads.

2.11.2.2. Number of times an object must be turned to select the proper side.

2.11.2.3. Number of screws to install a panel when the time value is per screw installed.

2.11.2.4. Number of square inches to be cleaned for a geometric configuration when it is constant from cycle to cycle and a "per square inch" time value is to be applied.

2.11.3. Observed Proportion. There are situations where only one of a group of tasks can occur any given time. Over an extended period of time, each event/task must occur. Each event proportion will be the percentage of the total observations divided by the observations for that particular event or task. The sum of all proportions will equal 100 percent. Examples are as follows:

2.11.3.1. Proportion of removal of a threaded fastener with resistance.

2.11.3.2. Using multiple tools on a task; i.e., removing a nut from a bolt, using a screwdriver and an open-end wrench. What proportion of the task used the screwdriver versus the wrench? Both the screwdriver and the wrench time values must be on a part of a turn.

2.11.4. Physically Determined. The physical characteristics of the work are such that the occurrence is determined by looking at the item or the related technical data. No error is induced. Examples are as follows:

2.11.4.1. Number of bolts per specific end item.

2.11.4.2. Distance between anchors to be safety wired on an end item.

2.11.5. Method Determined. Determined by the analyst specifying the sequence of operations and prescribing standard conditions. The majority of the occurrence factors will be 100 percent. No error induced. Examples are as follows:

2.11.5.1. Obtain parts from bin.

2.11.5.2. Regular elements occurring once every cycle.

2.11.5.3. Standard data to perform a specific task.

2.11.5.4. Under certain safety situations, regulations require two or more people to be in attendance. Under most circumstances, the "safety" people will be working on their own tasks and not charged to the tasks being measured; however, if these people are required for safety and have no other tasks, then the time will be occurrences as more than one worker (larger than 100 percent).

2.11.6. Support Shop. The origin planner asks for back-shop support. One of the data items to input is Occurrence Factor (OCC FAC), which will either be estimated or taken from production records. In each case, they should be reviewed during negotiations with the back-shop. An example is as follows:

2.11.6.1. Origin IET sends a part to be painted and has determined that the occurrence factor is 50 percent; however, later the customer or IM determines this will be required 100 percent of the time. The origin IET must update the planning documents with the new data.

2.11.7. Recycle Factor. Tasks that have not been completed for one reason or another are classified as recycle. These are not tasks caused by operator error (rework). Rework is not included in the occurrence factor. Recycle tasks will be 100 percent plus whatever extra time is required. Examples are as follows:

2.11.7.1. End item test failure. Many test stands are programmed to stop at the first failure, indicating what part or area has not met the required specifications. The unit is repaired as the test stand has indicated, then retested for either pass or fail. This is true ‘recycle’ time and is included as part of the "should take time" by prorating the test time over 100 percent.

2.11.7.2. If the ‘repair after test’ time is a separate task from ‘repair’, then the prorated time does not have to be 100 percent plus, but carried as the actual percentage observed.

2.11.7.3. When the operator has omitted a sequential task, regardless of the reason, the omitted time is ‘recycle’ time; however, any time required to disassemble/assemble so the omitted task can be completed is rework and cannot be credited.

2.11.7.4. When an installed part has proven to be defective, the time to reinstall a new part is classified as ‘recycle’ time and prorated by the occurrence factor.

2.11.7.5. Work normally required to hand fit or correct inherent deficiencies of an assembly will be occurrence factored.

2.11.7.6. Unavoidable calibration, adjustments, or unpredictable work done as the result of an inspection or test and the necessary retests.

2.11.7.7. **Note:** Rework is any work done on an item to correct work previously done due to operator error. Rework will not be included in the direct production labor standards. The workload generated through rework requirements must be isolated for special considerations. This isolation of rework would result in a variance of the earned hour report and operating cost reported.

2.11.8. Historical Data. May be used to determine occurrence factor. Examples are as follows:

2.11.8.1. Completed WCD.

2.11.8.2. Monthly production count summary

2.11.8.3. Routing slip history file.

2.11.9. Technical Data Requirements. An occurrence factor dictated by applicable TO technical data. Examples are as follows:

2.11.9.1. TCTO.

2.11.9.2. Occupational Safety and Health Administration (OSHA) requirements.

2.11.9.3. Directives from the IM.

2.11.10. Study Determined. Occurrence factors which are study determined are based on the number of times the event occurs during the development of a labor standard. Examples are as follows:

2.11.10.1. A 10-cycle study (previously determined to be representative of the workload) was completed with the required statistical accuracy for an engineered standard (reference paragraph 2.3.1.2.1.). One of the elements had only two (2/10) occurrences (non-engineered); therefore, an occurrence factor of 20 percent.

2.11.10.2. An element with identical work content (right and left hand subassemblies installed) will have an occurrence factor of 200 percent providing the element description reads "install right and left hand subassemblies."

2.12. Development. The data can be developed from several different sources such as:

2.12.1. Data collected while doing the work measurement study.

2.12.2. Data taken from the WCD.

2.12.3. Data taken from the test stand. Some test stands have, as part of their input, serial number indicator to give a count at end of tests.

2.12.4. Historical data (WCDs, shipping records, etc.).

2.12.5. All recycled work, work controlled by the test equipment, not by worker error or neglect, is considered as ‘should take time’, requiring an occurrence factor.

2.12.6. Material usage records.

2.13. Documentation. Documentation of occurrence factors must be maintained in the labor standard jacket to provide an audit trail.

2.13.1. The following must be documented for backup:

2.13.1.1. Source -- Reason occurrence required.

2.13.1.2. Method -- Technique used.

2.13.1.3. Conversion factors.

2.13.1.4. Special Conditions.

2.13.2. The documentation requirements may be hand scribed (legibly) on documents which already exist in the Labor Standard Jacket/File. The recorded information must be clearly defined as to the operation, sub-operation, or step to which the occurrence applies. Data may also be a part of any computer output product, generally on a supplementary line, as long as it provides an audit trail.

2.14. Task measurement.

2.14.1. As in all work measurement techniques used to develop engineered standards, the SME must be assured that a 'representative sample' of the workload has been observed. The absolute minimum number is three units; however, with the high variability in our workload, an agreement must be made between the IET and the production shop to determine a realistic quantity.

2.14.2. All labor standards are an average time; therefore, the larger the sample the better the statistical reliability will be. There comes a point in time where it is not economically feasible to study a task any longer, but it must meet the statistical accuracy of plus or minus 10 percent at 90 percent confidence level in order to be classified as an engineered standard.

Section 2B—Engineered Labor Standards

2.15. Methodology. The ALCs have the authority to decide where, and to what extent to apply engineered standards based on their competitive needs, and economic considerations, i.e., where anticipated direct labor savings exceed the cost of standards development. There is no blanket, across the board numerical engineered labor standard coverage goal.

2.15.1. Engineered labor standards must include as a minimum:

2.15.1.1. Documentation of an operations analysis.

2.15.1.1.1. An operations analysis encompasses the procedures that the process owners consider, i.e., production, the purpose of the operations, methods used, inspection requirements, materials used, material handling, setup, tools, equipment, and working conditions.

2.15.1.1.2. The operations analysis is considered an integral part of developing labor standards. The analysis should be accomplished and recorded prior to the determination of a labor standard, and in the improvement of established labor standards.

2.15.1.1.3. An operations analysis should be based on a process chart, because of its wide application for describing and improving a method. The process chart is one of the most important tools for methods engineering, in that it provides a graphic

presentation of the process. Typical types of process charts include flow process chart, operation process chart, operator process chart, man and machine process chart, work place layouts, value stream maps, etc. The type of chart should be selected for a specific application. The level of detail may vary with type of standard.

2.15.1.1.4. For engineered labor standard development, the operations analysis must be documented in sufficient detail (technique and type standard dependent) to allow future reviewers to recreate the steps the original data developer used.

2.15.1.1.5. Workloads longer than one year identified as having potential for methods improvement will have a method study accomplished within the first year after production initiation.

2.15.1.2. Method Improvement Studies.

2.15.1.2.1. Method improvement studies are an integral part of continuous process improvement and engineered standard development. They are performed to provide managers with ideas and data on how to achieve optimal approaches to doing work. Each study should provide improvement and standardization of the methods, equipment, working conditions, and operator training. Candidates for method improvement studies should be selectively chosen from high labor intensive areas, suggestion programs, analysis of management information reports, feedback from the production workforce, etc.

2.15.1.2.2. A method improvement study will document a clear description of the current work process, the proposed process, flow process charts for current and proposed methods, and an analytical comparison of the two methods, as applicable. The work center supervisor or designated representative will review and coordinate with the new method description before the standards are set or revised, and subsequently report any deviations from the approved method.

2.15.1.2.3. In the case of new workloads, direct labor costs must be documented in order to satisfy the requirement of the buying activity that the projected levels of productivity are reasonable and attainable. Ideally, projected direct labor hours are backed up by a methods improvement study, plus documented labor standards. In practice, this work measurement continuous process improvement cycle may not coincide with the need to provide labor costs for new workloads. When this occurs, the projected times must be based on a combination of historical times, plus professional judgments based on programmed, documented changes (e.g., acquisition of new equipment, revised floor layouts, work content changes, etc.). As soon as the changes are implemented, time variations must be recorded in order to provide evidence of attainability. In addition, realistic labor efficiency factors must be used to compute startup costs.

2.15.1.3. Specific Records.

2.15.1.3.1. A record of standard practice or method followed when the standard was developed.

2.15.1.3.2. A record of rating or leveling observed during performance where applicable.

2.15.1.3.3. A record of the standard time computation including explanation of PF&D allowances.

2.15.1.3.4. A record of observed, synthesized, or predetermined time system time values used in determining the final standard time, e.g., data collection sheets, etc.

2.15.1.3.4.1. A minimum of 80 percent of the normal time associated with the labor effort covered by the standard will be derived from recognized industrial engineering techniques in which the statistical accuracy requirement can be demonstrated to meet the above.

2.15.1.3.5. Occurrence factor calculations and supporting backup data.

2.15.1.3.6. A 'Historical Record Change' memorandum explaining the reason for each labor standard increase or decrease in standard time. This requirement includes changes in the standard practice (method) which is implemented but does not impact the standard time sufficiently to require alteration

2.15.1.3.7. Flowchart or diagram.

2.15.1.3.8. Work area layout.

2.15.1.3.9. SFD standard computations (for exchangeables only).

2.15.1.3.10. This documentation must be maintained in files, either paper or electronic, by the Work Measurement Subject Matter Expert (WMSME) or planning personnel.

2.16. Accuracy Formulas.

2.16.1. Time (Stop Watch) Study and Group Timing Technique.

2.16.1.1. There are many references containing formulas and procedures for the statistical analysis of time study data. These procedures are based on the number of cycles, the mean time, the range between cycles, and the standard deviation. Repetitive time study accuracy is established at the elemental level. For non-repetitive time studies, accuracy is established at the cycle level.

2.16.1.2. The formula in **Figure 2.1.** represents an accurate method of determining the statistical validity of study data:

Figure 2.1. Accurate method of determining the statistical validity of study data.

$S = \frac{(SD / \sqrt{N})(T)}{X}$ Where:

S = Relative accuracy
X = Arithmetic mean of the time values
SD = Standard deviation
N = Number samples
T = The (N-1) t value (see T reference in the Table below)

Reference: Probability and Statistics for Engineers (**See Note**).

N	T	N	T
1	3.078	11	1.363
2	1.886	12	1.356
3	1.638	13	1.350
4	1.533	14	1.345
5	1.476	15	1.341
6	1.440	16	1.337
7	1.415	17	1.333
8	1.397	18	1.330
9	1.383	19	1.328
10	1.372	20	1.325

Note: Extracted from Johnson, Miller and Freund, "Probability and Statistics for Engineers," 8th Edition, ISBN-13: 978-0321986245, represents 90 percent confidence level.

2.16.1.3. Level of accuracy required should be the highest attainable, based upon the type of work being performed. Highly repetitive, short-cycle operations must have high quality standard times (+/- 10 percent). Highly variable repairs may not have consistent times from occurrence to occurrence, particularly at the elemental level. Consequently the development of statistically accurate times may not be attainable within practical and attainable limits.

2.16.1.4. A finite number of time study observations should be made for highly variable work elements to ensure proper and economical use of the industrial engineering resources. The precise number can be determined by establishing a minimum number of cycles to be observed and calculating the accuracy after this minimum has been measured. If the accuracy is unacceptable, a specific number of additional cycles can be observed, and a new accuracy calculation made. If a significant improvement has not been achieved, the study should be stopped and the current level of accuracy accepted and reported for the standard. All supporting study data will be maintained as an audit trail.

2.17. Work Sampling.

Figure 2.2. Formulas used to determine relative or absolute accuracy of work sampling data.

Relative: $SR = Z \sqrt{[(1 - P) / (N * P)]}$
Absolute: $SA = Z \sqrt{\{ [P * (1 - P)] / N \}}$
Where:
SR = Relative accuracy expressed as a decimal
SA = Absolute accuracy expressed as a decimal
Z = Number of standard errors
= 1.645 for 90 percent confidence level
P = Percent occurrence expressed as a decimal
N = Number of observations

2.17.1. Compute SR or SA according to the formula in **Figure 2.2.** When absolute accuracy is used, the SA = SR(P) relationship will hold true.

2.17.2. To determine the number of work sampling observations required to attain a specified statistical accuracy at a desired percent confidence level, the formulas in **Figure 2.3.** are used.

Figure 2.3. Formula for work sampling observations.

Relative: $N = Z^2 (1 - P)$
$SR^2 (P)$
Absolute: $N = Z^2 P(1 - P)$
SA^2

Note: To use this formula, the value of P must be estimated before the study. The formula is also used at various points in the study to determine progress toward a predetermined statistical accuracy.

2.17.3. In addition to the formulas in **Figure 2.2.** and **Figure 2.3.**, engineered labor standards must accomplish the following to maintain status:

2.17.3.1. A methods validation will be accomplished. This will include sufficient observations of the elements to verify or to change their descriptions.

2.17.3.2. Current workplace layouts will be compared to the layouts on file to determine if any changes have occurred. **Note:** If either of these two factors change, the appropriate portion of the work measurement study must be reevaluated to maintain its engineered labor standards status.

Section 2C—Labor Standard Review Requirements

2.18. Purpose. If a labor standard review is required, each labor standard review must be annotated with the name of the responsible industrial engineering technician and the date the standard was reviewed. The names of any personnel consulted during the technical review must also be listed. Documentation requirements are listed below. PF&D must only be recalculated if the allowance is dependent on the workload mix, such as an aircraft work center where a percentage of the planes are worked outside; otherwise, PF&D should be revalidated during the review.

2.19. Technical Data.

2.19.1. Verify the current TO number is valid, and check all changes to the TO since the last review.

2.19.2. If there are no changes to the tech order since the last review, annotate this fact. If there have been changes, an annotation should be made as to whether the changes affect the standard.

Figure 2.4. Examples of TO annotations.

1. TO 00-125-234, General Shop Practice Requirements for the Repair, Maintenance, and Test of Electrical Equipment. There were no changes to the process since the previous review.
2. TO 00-125-234, The changes were discussed during the labor standard/occurrence factor/WCD review.

2.20. WCD. Review the WCD, with technical personnel where required, and make annotation.

Figure 2.5. Examples of WCD annotations.

1. The WCD was reviewed with Joe Smith/LAPNE and no changes were required.
2. The WCD was reviewed with Joe Smith/LAPNE and was revised on 1 Mar 2007 based on changes to the TO.

2.21. Labor Standard Hours. Labor standard hours will be validated through one of the following methods:

2.21.1. Work sampling study, time study, or other work measurement technique.

2.21.2. Variance analysis comparing actual direct labor hours required to standard hours.

2.21.3. Estimate. Estimates must be accomplished at a level of work units that allows confidence in the validity of the estimate.

Figure 2.6. Examples of Labor Standard Hours annotations.

1. Due to the addition of a new cleaning step to sub-operation 0010 in the latest revision to the TO, the sub-operation time was increased from 1.2 to 1.5 hours per discussion with the engineer John Johnson/LAEA. 2. There were no requirement or process changes since the last review; therefore, the current standard of 6 hours is accurate, per discussion with the engineer John Johnson/LAEA. 3. Analysis of actual direct labor hours required for FY07 showed the operation is actually taking an average of 5.75 hours. After discussion with Jimmy Jones/LAEC, the standard is reduced by 0.25 hours.

2.22. Occurrence Factor. Occurrence factors should be validated against current, forecast technical/failure changes, or recent historical data. Either an annotation should be made or a copy of the report showing the occurrence factor should be added to the file.

Figure 2.7. Example of Occurrence Factor annotation.

The E046B occurrence factor report for commodities dated 15 Oct 2007 showed an actual occurrence factor for the operation to be 0.80 for the last 12 months. Following analysis, it was determined that the operational occurrence will continue at the 0.80 level. The occurrence factor was updated 1 Nov 1998.

2.23. PF&D. PF&D allowances must be calculated by RC/CC/skill code (See **Section 2E**).

Figure 2.8. Examples of annotations in the PF&D calculations themselves.

1. Reviewed shop conditions with the supervisor Jim Jones/LIPEM. Shop conditions have not changed so the previous PF&D of 10 percent is still valid.

2. Reviewed shop conditions with the supervisor Jim Jones/LIPEM. Due to new environmental requirements, additional personal protection equipment (PPE) is required, so the PF&D was recalculated to 14 percent.

Note: PF&D allowances are applied to standards at the sub-operation level for exchangeables. As a minimum, a sub-operation/operation is defined as a work unit performed at one work station with one skill level. If the unit is moved to another work station, or a different skill level is required (e.g., system test to repair, etc.), a new sub-operation must be established to allow PF&D to be applied. When non-engineered standards are based on actual hours or estimates, it must be clear from the documentation that PF&D was not double-counted. (Aircraft Only). PF&D factors are allowed for engineered and non-engineered standards. However, due to aircraft "fixed price" funding, PF&D factors are not feasible at the aircraft operation level due to the unpredictable nature of aircraft maintenance being performed inside hangers, outside in varying weather conditions, and the vast amount of WCD operations. Locally, if a determination is made to include a PF&D factor, a standard PF&D can be locally determined at the Brochure Work Spec Task Level during the ERRP DEV PAC review. Locally determined, standard PF&D factors, will be documented in the applicable ERRP DEV PAC.

Figure 2.9. Examples of annotations for the labor standards.

1. The standard of 50 hours is based on average actual hours for FY97; therefore the PF&D is included in the estimate.

2. The standard of 1.5 hours is an estimate which did not include a PF&D allowance; therefore a 10 percent PF&D was added to each sub-operation. PF&D calculations are on file in the planning office.

3. The standard is engineered; a 10 percent PF&D was added to each sub-operation. PF&D calculations are on file in the section office.

2.24. SFD (Commodities). The shop flow day calculation should be reviewed. If there were any changes to any of the factors going in to the formula, the shop flow days should be recalculated. Since indirect factors ('I' in the formula) are recalculated on an annual basis, it is important to calculate the formula with the latest factors. An annotation should be made, or a copy of the calculations attached.

2.25. Engineered Labor Standards. In addition to the above requirements, engineered labor standards must accomplish the following to maintain their status:

2.25.1. A methods validation will be accomplished. This will include sufficient observations of the elements to verify or to change their descriptions.

2.25.2. Current workplace layouts will be compared to the layouts on file to determine if any changes have occurred.

2.25.3. **Note:** If either of these two factors changed, the appropriate portion of the work measurement study will be re-accomplished and documented.

2.26. Aircraft Labor Standards. The LSR process for aircraft shall be performed during the ERRP DEV PAC review on Brochure Work Spec Tasks with a labor hour variance of + or – 20 percent. Inaccurate TAA hours will not be used in the + or – 20 percent variance in determining a LSR. LSRs will be performed IAW local supplements and AFMAN 63-143.

2.26.1. PF&D factors are allowed for engineered and non-engineered standards. However, due to aircraft "fixed price" funding, PF&D factors are not feasible at the aircraft operation level due to the unpredictable nature of aircraft maintenance being performed inside hangers, outside in varying weather conditions, and the vast amount of WCD operations. Locally, if a determination is made to include a PF&D factor, a standard PF&D can be locally determined at the Brochure Work Spec Task Level during the ERRP DEV PAC review. Locally determined, standard PF&D factors, will be documented in the applicable ERRP DEV PAC. Each ALC will generate local procedures for handling PF&D documentation, if required.

2.26.2. Occurrence factors are not a determination in the DPSH hours determined to perform a task. Aircraft occurrence factors are reviewed during the ERRP DEV PAC review process, therefore, are not required for the LSR process. IAW AFMAN 63-143, if all aircraft/missiles input during a particular FY are to receive the task, then the occurrence factor is 1.00. If only a percentage of the aircraft/missiles will receive the task, then the occurrence factor should reflect the percentage. For example, if 12 PDMs are scheduled in a FY, but only six will be receiving a particular task, then the occurrence factor will be .50. Occurrence factors are at the MDS task level, not individual operation level.

Section 2D—Sampling Review Procedures

2.27. Sample size and rejection criteria. Use **Table 2.3.** for the Sample size and rejection number based on the number of standards.

2.27.1. Enter table with the number of active standards in the area being sampled (i.e., 1,500 active standards, use 1,201 to 3,200 range).

2.27.2. Read the sample size to take (i.e., 125). Find the number of rejected standards that requires rejection of the entire batch (i.e., 22). When a batch fails, the entire population is considered to have similar flaws. The remedial actions to correct the sample batch need to be applied to the general population. A resample must be taken to confirm acceptable results.

2.27.3. This group of standards (i.e., 125) may be prioritized by workload volume, but at least 25 percent of the sample must address the total range of standards.

Table 2.3. Sample size and rejection criteria.

Number of Standards	Sample Size	Rejection Number
2 to 8	2	2
9 to 15	3	2
16 to 25	5	2
26 to 50	8	3
51 to 90	13	4
91 to 150	20	6
151 to 280	32	8
281 to 500	50	11
501 to 1,200	80	15
1,201 to 3,200	125	22
3,201 to 10,000	200	22
10,001 to 35,000	315	22
35,001 to 150,000	500	22
150,001 to 500,000	800	22
500,001 and over	1,250	22

2.28. Accepted or rejected. The following criteria are used to determine if an individual labor standard is accepted or rejected. Defects will be classified as critical, major, or minor. Any sampled standard that has one critical defect or four major defects will be considered a reject. No limitation is placed upon the number of minor defects a sample can have.

2.28.1. Critical defects.

2.28.1.1. Standard method is not commensurate with method being used.

2.28.1.2. The total of any sub-operations that are left out, or included but no longer required by the TO, have an impact greater than the accuracy requirements on the standard being evaluated.

2.28.2. Major defects.

2.28.2.1. No reason for each labor standard time increase or decrease documented, or incorrect action reason code applied.

2.28.2.2. Labor standard documentation requirements missing which impacts the traceability of the method and accuracy of the time, one defect per finding.

2.28.2.3. Misapplication of work measurement techniques.

2.28.2.4. Errors in labor standard time computations having impact greater than accuracy allowed.

2.28.2.5. Misapplication of PF&D or supporting engineered backup studies missing.

2.28.2.6. No evidence of a method analysis.

2.28.2.7. No evidence of an operations analysis.

2.28.3. Minor defects.

2.28.3.1. Any documentation errors or other errors considered significant.

Section 2E—Personal, Fatigue, and Delay (PF&D) Allowances.

2.29. Personal.

2.29.1. PF&D is the time allowed a worker to compensate for attending to personal needs, fatigue, and delay occurring due to conditions beyond their control. This time is additive to the normal time required to accomplish a job. The inclusion of this allowance is common practice in the development of a labor standard.

2.29.1.1. Allowances for PF&D must be included as part of the labor standard. When increased allowances are used because of temperature, lighting, noise, and other environmental situations, actual readings must be documented. Reference **Section 2B** for examples of documentation.

2.29.1.2. There will be no subjectively assigned or applied special delay allowances. Special delay allowances must be supported by an engineered backup study of the work conditions.

2.29.1.3. The determination of a separate PF&D allowance for each labor operation performed may not be feasible due to the large number of operations in depot maintenance. Adequate allowances can be achieved through study and identification of different type work conditions and the application of pre-established allowances based upon these conditions. Each allowance is applied to all operations under the conditions associated with that allowance. There will be no "across the board" type increases or decreases in allowance category percentage without the support of an engineering study.

2.29.1.4. Allowances will be applied at the sub-operation level for Exchangeable MISTR permanent workloads items and the operation level for aircraft. As a minimum, a suboperation/operation is defined as a work unit performed at one work station with one skill level. If the unit is moved to another work station, or a different skill level is required (e.g., system test to repair, etc.), a new sub-operation/operation must be established to allow PF&D to be applied. When estimates and historical data are used for non-engineered standards, it may be necessary to first remove the allowance or a portion of the allowance from the basic time to prevent double counting. Reference **Section 2B** for examples of documentation. **Note:** E046B for permanent exchangeable workloads has the capability within the system to distinguish PF&D allowances, therefore aircraft labor standards are assumed to be included in the base hours. Aircraft and Exchangeable permanent workloads should have the appropriate back-up documentation to justify allowance factors.

2.29.1.5. Special condition (other). Time expended by direct labor personnel on the inventory of tools is placed in the labor standard when the inventory is required once per operation, end item, or movement to or from a work area. When the inventory is performed on a once per day frequency, the time is placed in the PF&D allowance as part of end-of-shift cleanup time. The percent of cleanup time for tool inventory (control) should be documented.

2.29.2. Where appropriate, a fixed PF&D allowance based on the standardized method may be developed one time for a specific function or for groups of personnel doing similar work under similar conditions. The fixed allowance applies to all standards in the function or group and precludes the need to individually compute the allowance for each standard. In work

situations where the guidelines are not applicable, the fixed allowance will be developed through work measurement techniques such as time study or work sampling.

2.29.3. The development and application of PF&D allowances requires that the various conditions under which a job is performed be examined and considered. To insure that all conditions are considered, separate factors are provided for each of the three areas: Personal, Fatigue, and Delay. Analysts/technicians must be completely objective in establishing the allowances which correctly reflect the true situations inherent to the job.

2.29.4. Allowances for Personal Time. Consider the surroundings, working conditions, and job requirements which cause the employee to stop work from time to time to attend to necessary personal needs (go to restroom, get a drink of water, get fresh air, etc.). Since most operations allow two breaks of 10 minutes each during the 480-minutes shift, the basic allowance for this factor will be 4.2 percent (20.0 minutes). If facilities layout or management policy dictate that longer break periods are required, it will be necessary to re-compute the percentage for the basic allowance subject to approval of higher authority.

Table 2.4. Basic Allowance and additional percent.

Basic Allowance is 4.2 percent, add the percent that coincides with the condition.	
Condition	**Percent**
Normal office conditions.	0
Normal shop, central heat, slightly dirty or greasy.	1
Slightly disagreeable conditions. Exposed to inclement weather part of the time, poor heating, or poor cooling.	3
Exposed to extremely disagreeable conditions most of the time. Proximity to hot objects, continuous exposure to disagreeable odors and fumes, or to excessive temperature ranges.	6

2.29.4.1. Add the following where applicable. Where time is allowed by management at the beginning of the shift to make ready and/or at the end of the shift to get/put away tools and equipment, clean-up work area, or to don/remove special work clothing (e.g., aprons, smocks, etc.) allowances are as follows:

Table 2.5. Time Allowance.

Total minutes allowed for preparation and cleanup	**% Allowance**
5	1.0
10	2.1
15	3.1
20	4.2

2.29.4.2. In ‘super-cleanroom’ conditions, supplement these allowances with an adjunctive allowance. Required when operators must utilize special clothing, which includes caps, boots, etc., and remove it when leaving work area. This includes time to invest or divest special clothing at beginning and ending of shift, at lunch, and for personal requirements 4.0.

2.29.4.3. Where the work period is 8 consecutive hours and 20 minute lunch period is allowed at the expense of the government 4.2.

2.30. Allowances for Fatigue.

2.30.1. Physical. Consider the average weight handled per man and only those elements of time that the man is under load to determine percentage (total time for under load elements divided by base time and use the closest percentage on the chart). Also, consider the height that loads must be manually lifted (average situation).

Table 2.6. Weight and Load Time chart.

Effective Net Weight Handled	Percent of time under load				
	1-12	13-25	25-50	51-75	76-100
1-10	0	1	2	3	4
11-20	1	3	5	7	10
21-30	2	4	9	13	17
31-40	3	6	13	19	25
41-50	5	9	17	25	34
51-60	6	11	22	x	x
61-70	7	14	28	x	x
71-80	8	17	34	x	x
Note: x – Study individual job for improvement considering job enlargement, mechanical aids, worker rotation or other stress relieving aids.					

2.30.1.1. Table values will be multiplied by factors as dictated by conditions in **Table 2.7.**

Table 2.7. Conditional factors.

Condition	Number
For picking up loads from floor, multiply basic allowance by	1.10
For placing load above chest-height, multiply basic allowance by	1.20
For getting load from above chest-height, multiply basic allowance by	0.50
Note: The application of the factors from this table in the computation formula in paragraph 2.31.4. will normally provide a realistic PF&D allowance. However, in some instances the use of these factors results in an unrealistic, zero or negative denominator in the formula. When this occurs, assuming all factors are defined correctly, it will be necessary to combine related elements or standards into higher levels until a realistic allowance is obtained. "Realistic" is defined as an allowance acceptable to the worker, the supervisor, and the analyst.	

2.30.1.2. To determine the effective net weight for sliding or rolling objects the weight must be multiplied by the following coefficients of friction (average values) as seen in Table 2.8.

Table 2.8. Coefficients of friction.

Surface	Friction Coefficient
Wood on Wood	0.4
Wood on Metal	0.4
Metal on Metal	0.3
Example: Worker sliding a 40lb. casting from metal conveyor to wooden work bench. ENW = 40 lbs. x .4 = 16 lbs.	

2.30.2. Position. Consider the position which the employees must assume to perform the operation. Select the class which best describes the average condition. It is assumed that the job will be less tiresome if the position can be varied frequently.

Table 2.9. Position.

Class	Percent
Sitting or standing	0
Sitting	1
Walking	1
Standing	2
Climbing or descending ramps, stairs or ladder	4
Working in close, cramped position	7

2.30.3. Mental. Consider the degree of concentration necessary to perform the job and the amount of variety in the tasks. Highly repetitive jobs should be low in this factor.

Table 2.10. Mental.

Item	Class	Percent
1	Work largely committed to habit; simple calculations on paper; reading easily understood material such as routine or familiar instructions; counting and recording; simple inspection requiring attention but little discretion; arranging papers by letter or number.	0
2	Work requires full attention; copying numbers, addresses or instructions; memory of part number, name while checking stock or parts list; simple division of attention between work at hand and jobs of others, conveyor, or time schedule; simple calculations in head; compiling papers by subject of familiar nature.	2
3	Work requires concentrated attention; reading of non-routine instructions; routine calculations on paper such as long division and four-place multiplication; checking numbers, parts, papers, etc., requiring cross check or double check; division of attention between three components such as accounting, inspecting, and grading or driving over unfamiliar route, watching vehicle, traffic and route signs.	4
4	Work requires deep concentration, swift mental calculations or calculations on paper; memorizing; inspection work requiring interpretation and discretion of unfamiliar nature, as when working against non-routine specifications; highly divided attention between phases of work, operations of others, hazards etc.	8

2.30.4. Lighting. Consider the amount of light on the working surface in relation to the fineness of details upon which the operator works. Consider the amount of glare on the work surface and rapid changing or ‘hypnotic’ effect on the work surface.

Table 2.11. Lighting.

Class	Percent
Continual glare on work areas; work requiring constant change in light on work area. Less than 75 candle power on work surface for normal job. Less than 125 foot candle power on work surface for close work.	2

2.30.5. Noise Factor. Consider the general noise of the work areas as well as any annoying, sharp, staccato, or intermittent noises occurring during more than 50 percent of the work day. If ear plugs or ear muffs are worn, their sound deadening effect must be considered when using this allowance.

Table 2.12. Noise Factor.

Item	Class	Percent
1	Constant, rather loud noises such as in machine shops, motor test shops, etc. (over 60 decibels)	1
2	Average constant noise level but with loud, sharp, intermittent, or staccato noise such as nearby riveters, punch presses, etc. (Example: sheet metal shop)	2

2.30.6. Monotony. Consider the fatigue resulting from fast, highly repetitive operations. The cycle time is the time elapsed from starting one element until the same element is started again.

Table 2.13. Monotony.

Cycle Time	Percent
0.00-0.20 minutes	4
0.21-0.40 minutes	3
0.41-0.80 minutes	2
0.81-2.50 minutes	1
2.51 minutes or more	0

2.30.7. Restrictive Safety Devices and Clothing. Consider those devices which are required by the job and which cause fatigue when worn. No allowance should be made here unless it is necessary to remove the device occasionally for relief, or if wearing them causes fatigue. If more than one device is required, add the allowances.

Table 2.14. Restrictive Safety Devises and Clothing.

Item	Class	Percent
1	Face Shield	2
2	Rubber boots	2
3	Goggles or welding mask	3
4	Tight, heavy protective clothing	4
5	Filter mask	5
6	Safety glasses	0

2.31. Delay.

2.31.1. Allowances for Delay. Consider the job in relation to adjacent jobs--how long can any adjacent job be shut down before the job being studied is affected? Also, consider other delays inherent in the job, such as supervisory interruptions, moving from one work station to another, waiting for cranes, etc. No delays which can be prevented by the employee should be considered here.

Table 2.15. Basic Allowance.

Item	Class	Percent
1	Isolated job. Little coordination with adjacent jobs	1
2	Fairly close coordination with adjacent jobs	2

2.31.2. Balancing Delay. Where employees are required to move from one work station to another to balance adjacent stations, add the following:

Table 2.16. Balancing Delay.

Item	Class	Percent
1	Move once each 5 minutes	5
2	Move once each 30 minutes	3
3	Move once each 60 minutes	2
4	Move once each 2 hours	0

2.31.3. Special Delay Allowances.

2.31.3.1. Except for the above, there will be no predetermined or generally used delay allowance percent that is applied without an engineered study. An appropriate study must be conducted in each shop or functional area to ascertain additional delay allowance requirements.

2.31.3.2. All non-cyclic work elements will be apportioned in the manner that will most accurately add their cost to the product cost. Work elements such as cleaning chips and tool care and replacement, though occurring on an irregular basis, can be measured and the time required prorated directly to the machine operating portion of the work cycle rather than as an allowance. Certain other irregular occurring elements having a direct relationship to the job, such as obtaining parts and materials and periodic inspection, should be added to the cycle time on a prorated basis or as a separate work element rather than added as an allowance. Again, care should be taken to assure that there is no duplication between cycle time elements and allowance elements. The delay allowance must not be used as a "dumping ground" for operation activity not an integral part of the workload in the shop.

2.31.3.3. Special delay allowance elements fall into two categories: (1) those which occur on a non-foreseeable basis (power failure, minor repairs to defective parts, wait for job assignment), and (2) those which occur on a time basis (daily, weekly, hourly). The following are examples of the type of special delay which can be considered for allowance:

2.31.3.3.1. Obtain job information from supervisor, inspector, or production control.

2.31.3.3.2. Wait for special tools already being used if waiting time cannot be eliminated.

2.31.3.3.3. Power failure of non-reportable duration.

2.31.3.3.4. Work interference.

2.31.3.3.5. Minor rework elements if not caused by operator error.

2.31.3.3.6. Extra work required due to hidden part or material defects, if minor.

2.31.3.3.7. Unsuccessful hunts for parts or materials.

2.31.3.3.8. Machine breakdown of non-reportable duration.

2.31.4. Application of Allowance.

2.31.4.1. Expression as Percentage. The factors provided in this procedure are expressed as a percentage of 480 minutes (eight hours). Since the productive time in the work day is a variable inversely proportional to the amount of PF&D allowance, it is necessary that all factors are expressed as a percentage of the total work day in order to provide a constant base. It is therefore necessary that all locally determined factors are similarly expressed.

2.31.4.2. Computation Procedures.

2.31.4.2.1. Percent of Work Day. The application of the allowances requires that the total percent of PF&D allowance be determined first by adding the percentage for the applicable factors of the productive day before it can be applied. This is accomplished by dividing the total work day by the productive day expressed as a percent of the work day, see **Figure 2.10.** for an example.

Figure 2.10. Percent of Work Day Computation.

$$\text{Allowance Factor} = \frac{100\%}{100\% - \text{allowance (\% of the work day)}}$$

Example: Assume all factors total 15 percent allowance (this is 72 minutes of the 480 minute work day). Converting this allowance to a percentage of the productive day (408 min) results in an allowance of 17.6 percent.

$$\text{Allowance Factor} = \frac{100\%}{100\% - 15\%} = \frac{100\%}{85\%} = 1.76$$

Figure 2.11. Work Day Computation in Minutes.

$$\text{Allowance Factor} = \frac{480 \text{ min.}}{480\text{-}72 \text{ min.}} = \frac{480 \text{ min.}}{480 \text{ min.}} = 1.176$$

2.31.4.2.2. Application to Normal Time. The final step in the application of the allowance is to multiply the normal time by the allowance factor. For example, assume the rated productive time to be 408 minutes, the job standard would be: 408 minutes X 1.176 = 480 minutes.

2.31.5. Examples of Application.

2.31.5.1. Unloading Boxes from Truck.

Figure 2.12. Unloading Boxes from Truck.

The boxes weigh 25 pounds each and the employee is under load 25 percent of the time. The boxes are being taken from stacks slightly higher than his waist and are placed on pallets resting on the truck bed. The work is purely routine. The employee walks approximately five feet with each box. The cycle time (per box) is .500 minutes, actual under load elements equal .125 minutes (if per pallet the % may be somewhat less). No restrictive safety devices are required. A forklift operator is considered a part of the unloading crew.

Computation and Allowance		**Percent**
Personal		
Basic		4.2
Class B Slightly disagreeable, exposed to weather		3.0
Fatigue		
Physical	25 pounds handled at 25% of the time (total under load element time, .125 divided by cycle time, .500 = 25%)	4.0
Mental	Class A – work committed to habit	0.0
Position	Class C (walking)	1.0
Monotony	Class C (0.50 minutes)	2.0
Delays		
Class A. Little coordination with adjacent jobs		1.0
TOTAL ALLOWANCE		**15.2%**

$$\text{Allowance Factor} = \frac{100\%}{100\% - 15.2} = \frac{100\%}{84.8\%} = 1.179$$

2.31.5.1. Computation of Standard. If this operation is studied and the normal time is determined to be 0.500 minutes, the standard time would be computed as follows: 0.500 x 1.179 = 0.590 standard minutes. The number of decimal places used would depend on the time increments used in the man hour accounting system and the volume of production.

2.31.5.2. Aircraft Instrument Assembly.

Figure 2.13. Aircraft Instrument Assembly.

Job Conditions:

- An employee receive tray of parts and assembles small aircraft instruments. Completed instruments are delivered to outgoing window in clean room. Cycle time is 15 minutes.
- Work is performed in a 'super' cleanroom.
- No formal break periods have been established, but employees are free to attend to personal needs as necessary.
- Instrument weighs less than one pound.
- No clean up period at end of shift.
- Employee performs work seated at work bench.
- No restrictive devices are required.
- Only occasional visual and mental concentration required.
- Unavoidable delays have been established at 5 percent by separate study.

Computation and Allowance	**Percent**
Personal	
Basic	4.2
'Super' clean room	4.0
Fatigue	
Position-sitting	1.0
Delays	
Unavoidable Delay	5.0
TOTAL ALLOWANCE	**14.2%**

$$\text{Allowance Factor} = \frac{100\%}{100\% - 14.2\%} = \frac{100\%}{85.8\%} = 1.166$$

Computation of Standard. Standard time is computed in the same manner as shown in the preceding examples.

2.31.5.3. Contract Administration.

Figure 2.14. Contract Administration.

Job Conditions:
An employee is performing in a technical capacity administering contracts. The following conditions are in effect:

- The employee reviews and prepares contractual documents, contacts contractor or other government personnel for obtaining information or resolving problems, and participates in meetings. The work requires a combination of deep concentration and concentrated attention.
- The employee is primarily sitting but does change positions throughout the work day (i.e., not restricted to desk). Operations vary in cycle time and content. No restrictive devices are required. Delays are inherent in the job. Employee has the ability to shift to other operations when delays occur.

Computation and Allowance		**Percent**
Personal		
Basic		4.2
Fatigue		
Mental	Work requires deep concentration 50% time and concentrated attention 50% time	6.0
Position	Sitting	1.0
Monotony	N/A	0.0
Delay		
Isolated Job		1.0
TOTAL ALLOWANCE		12.2%

$$\text{Allowance Factor} = \frac{100\%}{100\% - 12.2\%} = 1.139$$

Computation of Standard. Standard time is computed in the same manner as shown in the preceding examples.

2.31.5.4. Preparation of Voucher.

Figure 2.15. Preparation of Voucher.

Job Conditions:
An employee is preparing a voucher for payment. The following conditions are in effect:

- The operation is performed in a normal office.
- The work requires full attention. Employee must check request for payment against contract clauses, make calculation on calculator, and prepare voucher.
- Employee accomplishes job at desk but may change routines to obtain additional data.
- Cycle time of operation is 20 minutes.
- No restrictive devices are required.
- If flow of work is cut back, operation would have to be shut down or curtailed.

Computation and Allowance		**Percent**
Personal		
Basic		4.2
Fatigue		
Mental	Work requires concentrated attention	4.0
Position	Sitting	0.0
Monotony	N/A	0.0
Delay		
Fairly close coordination with adjoining jobs		2.0
TOTAL ALLOWANCE		11.2%

Allowance Factor = $\frac{100\%}{100\% - 11.2\%} = 1.126$

Computation Standard. Standard time is computed in the same manner as shown in the preceding examples.

Figure 2.16. Computation Example.

S = 3 standard hours
I = 87 percent = .87
P = 4 hours transportation time + 8 hours test warm up = 12 hours
D = 5 day work week
H = single 8 hour shift
7.3 [(3 / .87) +12] /(5 * 8)
7.3 (3.45+12)/40
2.82, which is rounded up to 3.0 calendar days
Note: When a production number has support shop operations, the support shop planner will provide the SFD (to two decimal places) to the network planner for consolidation

Chapter 3

REQUIREMENTS REVIEW AND DEPOT DETERMINATION (R2D2)

3.1. Overview.

3.1.1. R2D2 is HQ AFMC's annual two-phased process to plan the resources necessary to support the projected funded customer orders for a specified period, usually two years. Phase I (R2) involves the identification of funded customer orders and provides an opportunity for suppliers and customers to hone the accuracy of those orders based on history and other factors. During Phase I, AFSC is responsible for Consolidated Sustainment Activity Group-Supply (CSAG-S) funded customer orders and CSAG-S associated Other Funded Customer Orders (OFCO). In addition, AFSC is responsible for assisting outside agencies i.e., Navy, Army, National Aeronautics and Space Administration (NASA), Department of Homeland Security (DHS), etc. to file maintain their funded customer orders in the Maintenance Planning and Execution (MP&E) system.

3.1.2. Phase II (D2) entails the building of the Depot manpower capability plan in order to satisfy the funded customer orders. Within Phase II, AFSC is responsible for building the Depot manpower plan based on the consolidated results of Phase I of the R2D2.

3.2. Roles and Responsibilities.

3.2.1. AFSC/LZD. In facilitating the annual AFSC level R2D2 process, AFSC/LZD will be responsible for the following:

3.2.1.1. Maintain AFSC's R2D2 Enterprise Information Management (EIM) SharePoint® web site to include posting of related documents and managing owner, user, and visitor access.

3.2.1.2. Write, coordinate, and issue annual AFSC level R2D2 Guidance and Schedule.

3.2.1.3. Establishing the internal schedule, milestones, products, and activities required to accomplish R2D2.

3.2.1.4. Review ALC submission of R2D2 deliverables for compliance with AFSC and higher level policy and guidance.

3.2.1.5. Develop and use metrics to monitor compliance with this manual and the annual R2D2 guidance and report results to appropriate organizations.

3.2.1.6. Obtain approved Rates and Factors Table from HQ AFMC/FMR and post to the SharePoint site for use in computing DPSH of the various commodity workloads.

3.2.1.7. Obtain projected funded customer orders and post to the SharePoint site. Funded customer orders are obtained through a combination of three basic sources:

3.2.1.7.1. Depot Purchased Equipment Maintenance (DPEM) orders. The CAM office (HQ AFMC/A4F) manages and passes the DPEM orders via a Centralized Access for Data Exchange (CAFDEx) Funded Requirements Management (FRM) file.

3.2.1.7.2. CSAG-S orders. The 448th Supply Chain Management Wing (SCMW) manages and passes the CSAG-S orders via an Automated Budget Compilation System (co-c) and Funding Matrix file.

3.2.1.7.3. OFCO are those customer orders not otherwise contained in either the CAFDEx FRM or the ABCS/Matrix, i.e., modifications programs, partnerships, Test Program Sets (TPSs), etc. Direct Cite customer orders are considered a part of OFCOs, i.e., Navy, Army, Foreign Military Sales (FMS), NASA, DHS, etc. OFCOs are captured and file-maintained in the MP&E system by four principle organizations: Air Force Life Cycle Management Center (AFLCMC), 448th SCMW, Air Force Nuclear Weapon Center (AFNWC), and ALC/OBWs at each of the ALCs. Once captured in MP&E, the OFCO data is exported for use in the ALCs' capability plans.

3.2.2. 448th SCMW and AFSC/LZD are jointly responsible for:

3.2.2.1. Supporting AFSC/LZD in determining the exchangeable workload.

3.2.2.2. Forecasting all CSAG-S funded customer orders to include repair group categories (RGCs) J, K, L and P, and OFCO to include Sustaining Engineering and TPS.

3.2.2.3. Managing the Automated Budget Compilation System (ABCS).

3.2.2.4. Developing and updating the collaboration guide as needed.

3.2.2.5. Presenting the results of their requirements review at the R2D2 meetings.

3.2.2.6. Measuring the effectiveness of their forecasting efforts for the purpose of providing feedback to improve the process.

3.2.3. The ALCs, Oklahoma City – Air Logistics Complex (OC-ALC)/OBW, Ogden – Air Logistics Complex (OO-ALC)/OBW, and Warner-Robins - Air Logistics Complex (WR-ALC)/OBW will:

3.2.3.1. Use the consolidated/approved funded customer orders to determine skills and direct workers required IAW manpower policies and any other objectives in the annual R2D2 guidance.

3.2.3.2. Build and forward the 678 templates (F678) and Projected Manpower and Capability Report (8203) to AFSC/LZD no later than (NLT) the due date stipulated in the AFSC annual guidance.

3.2.3.3. Present execution plans at the R2D2 meeting and use the HQ AFMC/A4 approved R2D2 baseline as the execution plan.

3.2.3.4. Participate in all monthly performance reviews which track execution to the final approved R2D2 baseline.

3.2.3.5. Gather OFCO for those customers not having access to the MP&E system, i.e., Navy, Army, NASA, DHS, etc.

3.3. Requirements Review (R2). The R2 phase of the R2D2 process consists of identification, validation, collaboration, supportability review, approval, and final aggregation of all funded customer orders. The term Funded Customer Orders is defined as that part of the total requirement which is constrained by funding, performed organically by the Air Force and approved by the customer.

3.3.1. Identification. CSAG-S funded customer orders are identified using the ABCS for RGC J, K, L, and P. OFCO belonging to CSAG-S such as TPS and Sustaining Engineering

workloads are identified and captured in the MP&E system. OC-ALC/OB, OO-ALC/OB, and WR-ALC/OB are responsible for coordinating with and assisting other non-Air Force agencies in identifying and file-maintaining their funded orders in MP&E.

3.3.1.1. Validation. CSAG-S funded customer orders are validated jointly by the 420th Supply Chain Management Squadron (SCMS)/GUNAA and AFSC/LZRB. The Validation Review concentrates on reviewing specific data when significant requirement changes are known to have occurred since the last major D200 computation cycle or previous year's cycle. The Validation Review ensures that the requirements are not the result of a computational or input error. A short narrative is provided for each change made. Instances requiring changes may include: changes in flying hours, unit repair cost, labor and/or materials, undelivered orders, shop flow days, carcass constraints, etc.

3.3.1.2. Collaboration. CSAG-S Collaboration is to be managed cooperatively between the 448th SCMW and AFSC/LZD IAW AFSC/LZD Annual R2D2 Guidance. The 448th SCMW, in collaboration with maintenance complex subject matter experts and other key supply chain stakeholders, will conduct a supportability review of the exchangeable funded customer order. The 448th SCMW will provide a preliminary ABCS/Funding Matrix file and collaboration guide. The review will consider such items as carcass availability, consumable materials, facilities, support equipment, training, etc.

3.3.1.3. Approval. The ALC OBs and 448th are to obtain GS-15 or O-6 equivalent review of their R2 results and forward them to AFSC/LZD for final approval and posting to the SharePoint site. AFSC/LZD will aggregate the ABCS/Funding Matrix and OFCO, outbrief AFSC leadership, and report the results to HQ AFMC/A4FD.

3.3.2. AFSC/LZD will aggregate AFSC approved funded customer orders with DPEM customer orders into a final roll-up for use as the initial baseline during the Depot Determination phase. This file will be used to reconcile the ALCs' Format 6 submissions.

3.4. Depot Determination (D2). The D2 phase of the R2D2 process consists of the capability build (Depot Maintenance Manpower Plan), capability assessment, and approval of the D2 plan. The approved D2 plan then serves as the baseline for the execution year and DMAG budget (reference Performance Measurement and Reporting for further details). The approved D2 plan is revisited again just prior to the start of the FY to determine the need to update (reference Execution Plan for further details).

3.4.1. Depot Maintenance Manpower Plan. Air Force manpower resources are budgeted and controlled through the DoD program element structure. In turn, Headquarters United States Air Force (HQ USAF) established the Air Force Program Element Code (PEC) structure to allocate and account for authorized resources.

3.4.1.1. AFSC/LZD has been designated specific authority to manage the depot maintenance PEC as an integral part of the R2D2 process.

3.4.1.1.1. AFSC manages its organic depot maintenance manpower program through the workload management process. Depot maintenance manpower levels are a function of AFSC depot maintenance customer projected funding levels. AFSC/LZD is responsible for reconciling the manning levels with current and projected levels of customer funding.

3.4.1.1.2. Depot maintenance manpower consists of three labor categories: Direct, production overhead (POH), and general and administrative (G&A) overhead. Definitions of each can be found in **Chapter 2**.

3.4.1.1.3. The depot maintenance manpower program differs from manpower programs supported with appropriated funds. Depot maintenance manpower is supported from the Working Capital Fund (WCF), a revolving fund. The fund incurs costs, bills customers, and receives revenue from sales to customers for goods sold or services performed. No depot maintenance work is begun until customer funds are obligated. As resources (manpower, parts, and utilities) are expended (costs), bills are paid from the WCF account. Customers are then billed (sales) and payments are received to replenish the account (revenue). Customer funds are not recognized as revenue to reimburse the depot maintenance workforce until depot maintenance costs are incurred.

3.4.1.1.4. Distinguishing features of depot maintenance manpower are that its civilian workforce is managed via funded customer orders and not subject to end strength constraints. Per Title 10, United States Code (USC) § 2472, Prohibition on management of depot employees by end strength, "The civilian employees of the Department of Defense, including the civilian employees of the military departments and the Defense Agencies, who perform, or are involved in the performance of, depot-level maintenance and repair workloads may not be managed on the basis of any constraint or limitation in terms of man years, end strength, full-time equivalent positions, or maximum number of employees. Such employees shall be managed solely on the basis of the available workload and the funds made available for such depot-level maintenance and repair." The term “man years” is synonymous with work years. The statute means that the depot maintenance workforce is sized to the workload to be accomplished.

3.4.1.1.4.1. Title 10, USC § 2472, safeguards the civilian workforce against arbitrary manpower cuts as long as the authorization is appropriately identified as a depot maintenance resource and used according to the following rules.

3.4.1.1.4.2. A civilian may be identified as a depot maintenance authorization when the function being performed is providing 100 percent support to a depot maintenance operation.

Table 3.1. Depot Maintenance Resource Rules.

Item	Rule
1	The 100 percent support rule alone does not automatically make an authorization a depot maintenance authorization. Some functions are inherently Operations and Maintenance (O&M) (primarily Base Operating Support (BOS) functions) and should remain O&M regardless of the level of support provided to depot maintenance. Examples would include personnel functions or civil engineering functions that may provide 100 percent of their efforts to supporting depot maintenance—these positions remain O&M. Depot maintenance reimburses O&M for the support. A “Y” shred has been designated as an identifier of depot maintenance reimbursed O&M when added to an O&M PEC. This shred will provide a clear separation of support services provided by O&M activities

	from functions performed as normal depot maintenance operations. In addition, DMAG reimbursable O&M "Y" shred positions should not reside in the ALCs. These positions providing various types of support services to depot maintenance should be located outside the ALCs in the appropriate O&M activity [Air Base Wing (ABW), PK, DP, etc.]. Department of Defense Instruction (DoDI) 4000.19, Interservice and Intragovernmental Support, and AFMCI 65-601, Intracommand Support, provide additional information regarding WCF activities reimbursing BOS costs.
2	A depot maintenance coded position must be fully embedded in a recognizable depot maintenance entity, such as a production group, or overhead support to a production group, not an authorization in an O&M or "other funded" organization. All depot maintenance positions on PEC 78211A, whether an authorization or an over hire, should be performing depot maintenance functions and should only be assigned within the Complex.
3	A depot maintenance coded position will not provide support to non-depot maintenance operations.
4	A depot maintenance coded position must have a clear identity to an activity identified as a "seller" of services or products. The depot maintenance resource management organization at the ALC will ensure buyer functions are performed by individuals and organizations separate from those engaged in seller functions, and vice versa.
5	The functions of a resource assigned to a depot maintenance authorization must be governed by policy and procedures established by a depot maintenance operation.

3.4.1.1.5. Depot maintenance capability and R2D2. Policy will be developed in support of the workload management process. Policy will be issued in the annual R2D2 guidance in areas such as overtime and flexible workforce options required to meet direct objectives, savings, or efficiencies.

3.4.1.1.6. Flexible Capability. It is HQ AFMC policy to institute flexible capability based on workload fluctuations during the execution year. Specific targets or directives relative to the use of flexibility options will be provided in the annual R2D2 Guidance.

3.4.1.1.6.1. Overtime. Overtime is the primary tool for reacting to variability of workload. It has proven to be the least expensive on a cost per hour scale, as well as the quickest way to react to changes. The ALCs should base a portion of direct/overhead capability on overtime. General guidelines for the use and accounting of overtime are outlined in **Table 3.2.**

Table 3.2. AFSC Rules of Engagement.

Item	Rule
1	The ALCs are responsible for managing overtime. Each ALC will develop an annual capability plan that specifies expected overtime requirements. These plans will also include overtime for required overhead support functions over and above that required for direct labor, and will be consistent with applicable budget guidance.
2	Normally, overtime is spread across all workload categories in order to prevent significant imbalances. The ALCs will periodically review actual overtime usage to ensure imbalances do not exist, and overtime expended is the minimum required to meet

	funded customer orders. Each ALC is responsible for ensuring procedures are in-place to adequately record and report the use of overtime. The ALCs will ensure internal recordkeeping procedures are in place at all levels to provide documentation for advanced approval of overtime by local management, as well as documentation of the actual amount of overtime used IAW personnel policy governing overtime.

3.4.1.1.6.2. Depot On-Site Contract Augmentee Teams (DO-CATs). DO-CATs may augment only the direct labor civilian workforce at an organic depot by performing depot-level maintenance and modification on a short-term basis to ensure continued customer support, and help mitigate risk associated with the fluctuation in customer requirements and new workloads.

Table 3.3. DO-CAT Rules.

Item	Rule
1	DO-CATs are not used to replace the requirement to plan capabilities lead-time away, but to aid in meeting increased requirements within lead-time. DO-CATs are funded with organic depot maintenance funds.
2	Due to the inflexible nature of some contract vehicles, the decision to include or exclude DO-CATS as a flexible component of capability will be made on a case-by-case basis.
3	DO-CATs perform depot-level maintenance and modification of assets including aircraft; aerospace ground equipment; communications, electronics and metrological equipment; automated data processing and cryptology equipment; missile weapon systems, support equipment, etc. Direct labor is the only authorized labor category on DO-CAT contracts. DO-CATs shall not be used for production overhead. DO-CATs may not be used for personal services.
4	No constraints for the use of DO-CATs is directed by this instruction. However, constraints for the use of this resource may be provided in the annual R2D2 Guidance.

3.4.1.1.6.3. Supplemental Hiring Programs. These programs typically guarantee an employee a minimum amount of work with no provisions for extended or long-term employment. They are designed to allow depot maintenance managers to increase and decrease capability without impacting the permanent workforce. **Table 3.4.** shows a breakout of current hiring programs, types of appointments, and the rules that govern them.

Table 3.4. Supplemental Hiring Programs.

	PERMANENT FULL-TIME EMPLOYEE	PERMANENT PART TIME EMPLOYMENT	PERMANENT INTERMITTENT EMPLOYMENT	PERMANENT SEASONAL EMPLOYMENT	PERMANENT ON CALL EMPLOYMENT	TEMPORARY LIMITED EMPLOYMENT	TERM EMPLOYMENT
AUTHORITIES	(5 CFR Part 315, NSPS DoD 1400.25-M, SC-1950	(5 CFR Part 340, NSPS DoD 1400.25-M,SC1950)	(5 CFR Part 340, NSPS DOD 1400.25-M,SC1950	(5 CFR Part 340, NSPS DOD 1400.25-M, SC1950)	(5 CFR Part 340,)	(5 CFR Part 316. NSPS DOD1400 .25-M, SC1950)	(5 CFR Part 316, NSPS DOD 1400.25-M, SC1950)
WORK SCHEDULE:	• Usually works 40 hrs per week	• 16 to 32 hrs per week on a prearranged tour of duty	• Up to 40 hrs per week - no regularly scheduled tour of duty – cannot be scheduled in advance	• Up to 40 hrs per week- “Conditions of Employment”	• 16 to 40 hrs per week	• Up to 40 hrs per week	• Up to 40 hrs per week

PRIMARY FEATURES:	• Stable work force • Fixed cost • Inflexible work schedule • Covered by RIF & Adverse Action procedures	• Stable work force • Variable cost • Moderate schedule flex • Covered by RIF & Adverse Action procedures	• High turnover • Variable cost • Maximum schedule flex • Released & recalled at will • Work is sporadic/ unpredictable • Cannot be scheduled in advance	• Fairly stable work force • Variable Cost • Flexible schedule • Recalled for seasonal work & released thereafter • Work a minimum of 6 months in a calendar year, but less than 12 months each year • "Conditions of Employment" required • Covered by RIF & Adverse Action procedures	• Fairly stable work force • Variable Cost • Moderate schedule flex • Rapid release & recall • Works at least 6 months • "Conditions of Employment" required • Expected conversion to year-round employment • Covered by RIF & Adverse Action procedures	• High turnover • Variable cost • Flexible schedule • Appointment for 1 yr can be extended up to 4 yrs • Release at will • Not eligible for noncompetitive conversion	• Stable work force • Variable cost • Flexible schedule • Covered by RIF & Adverse Action procedures • Non-status appointment for 1 to 4 yrs • Noncompetitive conversion to career-career conditional appointment difficult

BENEFITS COVERAGE:	• Health Insurance • Life Insurance • Retirement • AL & SL • Thrift Savings Plan	• Health Insurance PT Employee bears part of cost) • Life Insurance • Retirement • AL & SL • Thrift Savings Plan	• None	• Health Insurance (PT Employee bears part of cost) • Life Insurance • Retirement • AL & SL • Thrift Savings Plan	• Health Insurance (PT Employee bears part of cost) • Life Insurance • Retirement • AL & SL • Thrift Savings Plan	• Health Insurance (FT or PT & over 1 yr continuous service - employee pays all costs) • AL & SL (FT or PT)	• Health Insurance (FT or PT-PT Employee bears part of cost) • Life Insurance (FT or PT) • Retirement (FT or PT) • AL & SL (FT or PT) • Thrift Savings Plan
POSITION CHANGES:	• Promotion, demotion, reassignment, and detail	• Promotion, demotion, reassignment, and detail	• Promotion, demotion, reassignment, and detail	• Promotion, demotion, reassignment, and detail	• Promotion, demotion, reassignment, and detail	• Can detail to temporary positions	• Promotion, demotion, reassignment, and detail to term positions

ESTIMATED EMPLOYMENT COSTS:	• 121.1 % of Base Pay plus cost of up to 6 months credit for retirement while in non-pay status	• 121.1% of Base Pay for time worked plus cost of up to 6 months credit for retirement while in non-pay status	• 107.65 % of Base Pay (FICA)	• 121.1% of Base Pay for time worked plus cost of up to 6 months credit for retirement while in non-pay status	• 121.1% of Base pay for time worked plus cost of up to 6 months credit for retirement while in non-pay status	• 107.65% of Base Pay (FICA)	• 121.1 % of Base Pay for time worked plus cost of up to 6 months credit for retirement while in a non-pay status

3.4.1.1.7. Once R2D2 is complete and approved, AFSC/LZD will determine if a reallocation of manpower authorizations between ALCs is required to balance authorizations to workload. If a reallocation is deemed necessary, AFSC/LZD will request issuance of a program letter to HQ AFSC/DPB to redistribute authorizations. In addition, if depot maintenance is significantly short of authorizations to cover the government civilian capability required to produce the planned workload, AFSC/LZD will also request through AFSC/DPB, appropriate action to obtain additional authorizations.

3.4.1.1.8. All depot maintenance manpower policies are subject to DoD, Air Force and HQ AFMC manpower policy constraints as well as Office of Personnel Management policy concerning hiring and reduction in force authority.

3.4.1.2. Workload and Capability Assessment: At this point, the workload and capability are reviewed for compliance with Title 10, United States Code (USC) 2472, and other applicable directives. IAW Title 10, USC 2472, the ALCs have full authority to hire to meet funded requirements. The ALCs shall provide a projected manpower/capability level IAW local policies, and will coordinate this projection through the appropriate local channels. ALC projections will be submitted to AFSC/LZD to be included as an adjunct submission to the R2D2 process.

3.4.1.2.1. Workload is comprised of carry-in plus new funded customer orders, less carry-out.

3.4.1.2.2. Carry-in and carry-out. Maintaining a balance between workload and capability includes an analysis of carry-in and carry-out workload. Normally, workload started in the previous year(s) is completed in the current year of execution (carry-in). Workload that is not completed in the year of execution will be carried forward to the next year (carry-out). HQ AFMC has carry-out targets in the form of Outlay Rates, to help ensure continuity of work and maintain a consistent level of

workload within each ALC. These Outlay Rates are established annually in sync with budget guidance and are to be included in the annual R2D2 Guidance.

3.4.1.2.3. Capability review and management. The Source of Repair (SOR) uses the approved projected funded customer orders to complete the Format 6 portion of the F678. The SOR will not change the approved projected funded customer orders without approval of funds holders. The Format 7 portion of the F678 then automatically applies the applicable rates from the Rates and Factors Table and Outlay Rates, both obtained from HQ AFMC/FMR, to determine the minimum capability to plan for and maximum allowable carry-over expressed in DPSHs.

3.4.1.2.4. The Format 8 portion of the F678 draws upon the Format 7 data to aggregate capability requirements and carry-over at the commodity level in DPSHs. Results are documented on both the Format 8 and the 8203 report. A detailed description of the 8203 report is provided later in this chapter. The SORs then forward their completed F678 and the 8203 report to AFSC/LZD.

3.4.2. AFSC R2D2 Final Submission: The review and approval of the final R2D2 package is used as the baseline for the execution year and DMAG budget.

3.5. Reports and Other Deliverables.

3.5.1. F678. Funded customer orders and depot maintenance capability data are reported using the F678 completed by the ALCs.

3.5.1.1. The F678 is structured such that funded/approved customer orders (from all funds-holders in dollars and by commodity) are translated into SOR dollar allocations from all source customers.

3.5.1.2. The funded/approved customer orders are then translated into funded DPSH using Repair Group Category (RGC) type-work sales rates; and finally into SOR planned workload and the capability to accomplish that workload using outlay rates assigned to reimbursable codes (customer codes). All sales rates/prices, factors, and outlay rates are obtained through HQ AFMC/FMR for use in the F678. RGC and Customer Codes and their definitions may be found in AFMCMAN 20-102, Maintenance Planning and Execution System (MP&E) (D363).

3.5.1.3. The F678 is also used to characterize risks taken in the form of dollars included/excluded from the plan and recording justification.

3.5.1.4. The F678 contains both automatic computations and cells for manual data entry. Formulas used for automatic computations are not to be altered or compromised by the user. Detailed functions and instructions for filling out the F678 are contained within the document.

3.5.2. Weapon System/Engine Output Plan. An output plan will be provided by each ALC for each year under consideration during the R2D2 process. The output plan is given in answer to the customer's projected inputs for the same period. A template and accompanying guidance will be provided by AFSC/LZDB for use by the ALCs.

3.5.3. Manpower and Capability (8203) Report. The Projected/Actual Manpower and Capability Report, Reports Control Symbol (RCS): MTC-A4(M)8203, shall be provided for all years under consideration during the R2D2 process. The data sources for the 8203 report

are the H033/BTM and Time and Attendance systems. The 8203 report is to be completed by the ALCs on the SharePoint site and will be used as an execution tracking document to show progress against plan. Up-to-date Hiring and Attrition Plans are required to be developed and maintained. The Civilian Employment Plan (CEP) will be completed by AFSC/LZDB based on the approved 8203 report for execution year.

3.5.3.1. Overview. The 8203 report consists of two parts: a Monthly and a Year-To-Date. Each part is composed of three sections: Section I, Organic Resources; Section II, Contract Augmentee (CA); and Section III, Total Capability (Civ, Mil & CA). Data used to compile all three sections of this report will be data associated with depot maintenance resources only.

3.5.3.2. A template will be provided by AFSC/LZDB before the beginning of each FY with correct man-hours per month for the upcoming year and the areas identified that requires manual input.

3.5.3.3. Templates with correct work years will also be provided for R2D2 for applicable years. The 8203 reports are due at the time all other deliverables are submitted. Protection has been enabled except where data is to be entered, thus entries need only be made in unprotected cells for monthly data. Year-to-date data is calculated from monthly data based on formulas residing in the spreadsheet. Do not change any formulas.

3.5.3.4. The 8203 report is submitted 13 times for each FY. The first 8203 report is a projection for the upcoming FY and is completed IAW the annual R2D2 guidance. The remaining 12 reports are due the 8th working day of the month immediately following the month just completed, and will compare actual monthly performance against the projection.

Section 3A—Section I, Organic Resources

Table 3.5. Section 1, Organic Resources.

Item	Category	Description
1	Total Paid Civilian Hours	Total hours a depot maintenance civilian will be compensated. This line will be the total of civilian regular time, civilian overtime, and civilian leave.
2	Civilian Regular Time	Total on-duty regular hours (no overtime, no leave) of a depot maintenance civilian. This line will be the total of civilian regular time direct, production overhead, and G&A overhead.
3	Civilian Regular Time, Direct	: Total regular time hours of a depot maintenance direct employee performing direct work. This should not include hours of a direct employee exceptioned out to other than direct functions. This would be the regular time direct product actual hour (DPAH), Duty Codes 11 and 12.
	Civilian Regular Time, Production Overhead	Total regular time hours of a depot maintenance civilian performing duties classified as production overhead. This category would also include the on-duty hours a direct employee spends doing other than direct work, including cost class IV (CCIV)--Duty Code 14. Production Shop First Line

4		Supervisors, both personnel and their hours, are to be classified as production overhead.
5	Civilian Regular Time, G&A Overhead:	Total regular time hours of a depot maintenance civilian performing duties classified as overhead "staff" work.
6	Indirect Time (Memo)	The time a direct depot maintenance employee spends performing other than direct work (.20 time). This time is exceptioned out to indirect and rolled into production overhead. Overtime is not to be included in the Indirect Memo Time of the 8203 report (or the IF3). Indirect Memo Time will only include civilians; no military and no overtime. Duty code .14 time is not included.
7	Civilian Overtime	Total overtime hours worked by depot maintenance civilian employees. This line will be the total of civilian over time direct, production overhead, and G&A overhead.
8	Civilian Overtime, Direct	Total overtime hours expended by a depot maintenance direct employee.
9	Civilian Overtime, Production Overhead	Total overtime hours expended by a production overhead resource; including CCIV overtime.
10	Civilian Overtime, G&A Overhead	Total overtime hours expended by an employee performing duties classified as overhead "staff" work.
11	Civilian Leave Time	Total hours of leave expended by a depot maintenance civilian employee. This line will be the total of civilian leave time direct, production overhead, and G&A overhead.
12	Civilian Leave Time, Direct	Total leave hours of depot maintenance direct labor employees.
13	Civilian Leave Time, Production Overhead	Total leave hours of depot maintenance production overhead employees.
14	Civilian Leave Time, G&A Overhead	Total leave hours of depot maintenance employees performing duties classified as overhead "staff" work.

3.6. Total Military Hours. Total Military Hours are broken into nine different categories. See **Table 3.6.** for total hours expended by depot maintenance military personnel on-duty and/or on-leave.

Table 3.6. Total Military Hours.

Item	Category	Description
1	Military On-Duty Time	Total hours expended by depot maintenance military while in on-duty status. This line will be the total of military on-duty time direct, production overhead, and G&A overhead.
2	Military On-Duty Time, Direct	Total hours expended by depot maintenance military in on-duty status performing direct labor functions.
3	Military On-Duty Time, Production Overhead	Total hours expended by depot maintenance military in on-duty status performing production overhead functions.

4	Military On-Duty Time, G&A Overhead	Total hours expended by depot maintenance military in on-duty status performing duties classified as overhead "staff" work.
5	Military Leave Time	Total hours expended by depot maintenance military in leave status. This line will be the total of military leave time direct, production overhead, and G&A overhead.
6	Military Leave Time, Direct	Total hours expended by depot maintenance military direct labor personnel in leave status.
7	Military Leave Time, Production Overhead	Total hours expended by depot maintenance military production overhead personnel in leave status.
8	Military Leave Time, G&A Overhead	Total hours expended by depot maintenance military performing duties classified as overhead "staff" work in leave status.
9	Total Paid Hours (Civilian and Military)	Total hours for depot maintenance civilians and military.

3.7. DPSH Produced (w/o CCIV or CA). The applicable DPSHs, without CCIV or DO-CATs, for work accomplished by depot maintenance personnel during the report period.

3.8. Man-Hours Per Month. The number of paid hours based on a regular 8-hour work day for each month in the FY. This includes the 10 federally recognized holidays (New Years, Martin Luther King Jr, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Columbus Day, Veterans Day, Thanksgiving, and Christmas). This number is automatically calculated based on the last two digits of the FY entered in cell M1 of the 8203 report.

3.9. Summary of Workyears: This particular portion of the report will be a breakout of the workyears directly associated with the civilian and military hours reported. The categories used are the same as used with the hours. Workyears are derived by dividing hours by man-hours per month.

3.10. Civilian End Strength. This element of the 8203 report is intended to place each individual on-board, as of the end of the reporting period, into one of the three employment categories: permanents, on-calls or temporaries. It then allows further delineation by labor classification: direct, production overhead, or G&A overhead.

3.11. Total Civilian End Strength. This number is a roll-up of the information contained above.

3.12. Military End Strength. Total number of military on-board at the end of the reporting period. This number will include only those military personnel authorized as a part of the depot maintenance PEC.

3.13. FYXX Civilian Dir End Strength, Civilian Prod O/H End Strength, and Civilian G&A End Strength. These numbers are intended to be a one-time entry for the previous year. When summed, they should equal the total assigned personnel as of 30 September for the year just completed.

3.14. End Strength by Employment Category. Provides end strength by category of employment. This section provides categories for every employee assigned within depot maintenance. This is delineated between the total on-board and the assigned, but not on board, during the report period. The check figure is intended to ensure that the Total Civilian End Strength

matches the end strength number provided in this section. Both categories are intended to capture only the on-board number. Those employees assigned to depot maintenance, but not in the on-board number, are captured in the Total Leave Without Pay (LWOP) category. The LWOP combined with the total on-board number will equal the total assigned for depot maintenance for the month being reported.

3.15. Other Statistics. This area of the 8203 report contains built-in formulas that calculate the appropriate number from entries made elsewhere in the spreadsheet. Manual entries will not be made here.

Table 3.7. Direct Product Actual Hour (DPAH) conversion.

Item		
1	DPAHs (Civilian and Military Capability) (With Overtime)	Civilian regular time direct, plus civilian overtime direct, plus military on-duty time direct hours.
2	DPAHs (Civilian and Military Capability) (Without Overtime)	Civilian regular time direct, plus military on-duty time direct hours.
3	DPAHs (Civilian Capability) (With Overtime)	Civilian regular time direct, plus civilian overtime direct hours.
4	DPAHs (Civilian Capability) (Without Overtime)	Civilian regular time direct hours.
5	Total Civilian DPAH Yield (With Overtime)	DPAHs (Civilian Capability) (With Overtime) x 12 Civilian Regular Time Work years + Civilian Leave Work years
6	Total Civilian DPAH Yield (Without Overtime)	DPAHs (Civilian Capability) (Without Overtime) X 12 Civilian Regular Time Work years + Civilian Leave Work years
7	Total Civilian and Military DPAH Yield (With Overtime)	DPAHs (Civilian and Military Capability) (with Overtime) x 12 Civilian Regular Time Work years + Civilian Leave Work years + Total Military Time Work years (Including Leave)
8	Total Civilian and Military DPAH Yield (Without Overtime)	DPAHs (Civilian and Military) (Without Overtime) x 12 Civilian Regular Time Work years + Civilian Leave Work years + Total Military Time (Including Leave)
9	Direct Civilian Labor DPAH Yield (With Overtime)	DPAHs (Civilian Capability) (With Overtime) x 12 Civilian Direct (Regular + Leave + Indirect) Work years
10	Direct Civilian Labor DPAH Yield (Without Overtime)	DPAHs (Civilian Capability) (Without Overtime) x 12 Civilian Direct (Regular + Leave + Indirect) Work years
11	Output/Paid Man Day (OPMD)	DPSHs Produced x 8 Total Paid Hours (Civilian and Military)
12	Direct Labor Efficiency	DPSHs Produced DPAHs (Civilian and Military Capability)(With

		Overtime)
13	Direct Overtime Percentage (Without Leave)	Direct Overtime Percentage (Without Leave):
14	Direct Overtime Percentage (With Leave)	Civilian Overtime Direct Civilian Regular Time Direct + Civilian Leave Time Direct
15	Overhead Overtime Percentage (Without Leave)	Civilian Overtime Production Overhead + Civilian Overtime G&A Overhead Civilian Regular Time Production Overhead + Civilian Regular Time G&A Overhead
16	Overhead Overtime Percentage (With Leave)	Civilian Overtime Production Overhead + Civilian Overtime G&A Overhead Civilian Regular Time Production Overhead + Civilian Regular Time G&A Overhead + Civilian Leave Time Production Overhead + Civilian Leave Time G&A Overhead
17	Total Overtime Percentage (Without Leave)	Civilian Overtime Civilian Regular Time
18	Total Overtime Percentage (With Leave)	Civilian Overtime Civilian Regular Time + Civilian Leave

3.16. Percent of Total Paid Civilian Hours. This area of the 8203 report contains built-in formulas that calculate the appropriate number from entries made elsewhere in the spreadsheet. Manual entries will not be made here.

Table 3.8. Percent of Total Paid Civilian Hours.

Item		
1	Regular Time as a Percentage of Total Paid Civilian Hours	Civilian Regular Time Total Paid Civilian Hours
2	Overtime as a Percentage of Total Paid Civilian Hours	Civilian Overtime Total Paid Civilian Hours
3	Leave Time as a Percentage of Total Paid Civilian Hours	Civilian Leave Time Total Paid Civilian Hours Sick Leave (Memo) as a Percentage of Total Paid Civilian Hours: Civilian Sick Leave Hours Total Paid Civilian Hours
4	Civilian Sick Leave Hours	Indicates the sick leave hours consumed by depot maintenance civilian employees during the report period. This is a manual entry.
5	Percent Direct	Civilian Regular Time Direct + Civilian Overtime Direct + Civilian Leave Time Direct Total Paid Civilian Hours
6	Percent Production Overhead	Civ Reg Time Prod Overhead + Civ Overtime Prod

		Overhead + Civ Leave Time Prod Overhead Total Paid Civilian Hours
7	Percent G&A Overhead	Civ Reg G&A Overhead + Civ Overtime G&A Overhead + Civ Leave Time G&A Overhead Total Paid Civilian Hours
8	Percent Production Overhead and G&A Overhead	Percent Production Overhead + Percent G&A Overhead = Percent Production Overhead and G&A Overhead

Table 3.9. Additional Data (Memo Entries) – Cost Class IV Paid Hours.

Item		
1	Civilian Duty Code 14	The total civilian labor (DPAHs) expended in Duty Code 14. The sum of Direct, Indirect, and Leave Cost Class IV.
2	Direct (Including Overtime)	The total direct civilian labor (DPAHs) expended in Duty Code 14.
3	Indirect (Including Overtime)	The total indirect civilian labor (DPAHs) expended in Duty Code 14.
4	Leave	The total leave (DPAHs) expended in Duty Code 14.
5	Overtime	Total Duty Code 14 overtime.
Note: Memo entry as each category above includes overtime, with the exception of leave.		

Table 3.10. DPSH Yields.

Item		
1	Overtime DPAH	Civilian Overtime DPAH previously entered (manually) on Page 1 under Civilian Overtime, Direct.
2	Direct Labor Efficiency (DLE)	Civilian direct labor efficiency previously provided under Other Statistics.
3	Overtime DPSH	The applicable overtime DPSHs, excluding DO-CATs, for work accomplished by depot maintenance personnel during the report period.
4	Military DPSH	The applicable Military DPSHs, for work accomplished by Military personnel during the report period.

Table 3.11. Total DPSH (Without Duty Code 14 and CA) previously provided.

Item		
1	DPSH Without Overtime	Self-explanatory
2	DPSH Without Military	Self-explanatory
3	DPSH Without Military and Overtime	Self-explanatory

Table 3.12. Other Various Yields.

Item		
1	Civilian Regular Time + Leave Work years	Self-explanatory.

2	Civilian Regular Time + Leave Work years + Military	Self-explanatory.
3	Civilian Direct Hours (Regular + Leave + Indirect) – Military	Civilian direct regular time, plus civilian direct leave, plus indirect time of the direct employee.
4	Civilian Direct (Regular + Leave + Indirect) Work years	Civilian direct regular time work years, plus civilian direct leave work years, plus indirect time of the direct employee work years.
5	DPAH Hours With Military	Self-explanatory.
6	Civilian and Military Direct Work years	Self-explanatory.

Table 3.13. Other DPSH Yields.

Item		
1	Total Civilian DPSH Yield With Overtime	DPSH Without Military x 12 Civilian Regular Time & Leave Work years
2	Total Civilian DPSH Yield Without Overtime	DPSH Without Military & Overtime x 12 Civilian Regular Time & Leave Work years
3	Total Civilian and Military DPSH Yield With Overtime	Total DPSH x 12 Civilian Regular Time & Leave Work years & Military
4	Total Civilian and Military DPSH Yield Without Overtime	DPSH Without Overtime x 12 Civilian Regular Time & Leave Work years Plus Military Reg Time & Leave Wkyrs
5	Civilian Direct DPSH Yield With Overtime	DPSH Without Military x 12 Civilian Direct (Regular & Leave & Indirect) Work years
6	Civilian Direct DPSH Yield Without Overtime	DPSH Without Military or Overtime x 12 Civilian Direct (Regular & Leave & Indirect) Work years
7	Civilian & Military Direct DPSH Yield With Overtime	Total DPSH x 12 Civilian & Military Direct Work years
8	Civilian & Military Direct DPSH Yield Without Overtime	DPSH Without Overtime x 12 Civilian & Military Direct Work years

Table 3.14. Factors.

Item		
1	Leave Factor (.30 Time) (expressed as a ratio)	Civilian Leave Time, Direct Civilian Regular Time, Direct
2	Indirect Factor (.20 Time) Without Overtime (expressed as a ratio)	Civilian Regular Time, Indirect Time (Memo) Civilian Regular Time, Direct
3	Total Indirect Factor Without Overtime	The sum of the Leave Factor (.30 time) and Indirect Factor (.20 time) Without Overtime.

3.17. Hiring: Counts only new employees coming into depot maintenance, i.e., a new hire from off-the-street or from another organization external to depot maintenance. Moves within depot maintenance are not to be counted in this number. Nor are depot maintenance personnel returning to work from an LWOP status.

3.18. Attrition: Counts only those employees who have left depot maintenance roles entirely for whatever reason; i.e., quit, transferred out, retired, deceased, etc. Personnel moves within depot maintenance are not to be counted in this number. Depot maintenance personnel going into an LWOP status also are not to be counted.

3.18.1. Net Gain/Loss: The difference between Hiring and Attrition (above).

3.18.2. Attrition Rate (%): Attrition divided by Total On Board from previous month.

3.18.3. Retirements (Memo Entry) Provides a separate entry for the number of retirements included in the Attrition number.

Section 3B—Section II, Contract Augmentee (CA)

Table 3.15. Section II, Contract Augmentee (CA); also known as DO-CATs.

Item		
1	CA Direct DPAH Hours With Overtime	Total direct CA hours produced in support of depot maintenance organic operations, including overtime.
2	CA Direct DPAH Hours Without Overtime	Total direct CA hours produced without overtime.
3	Work years With Overtime	Derived by dividing CA Direct DPAH Hours With Overtime by CA Man Hours Per Month.
4	Work years Without Overtime	Derived by dividing CA Direct DPAH Hours Without Overtime by CA Man Hours Per Month.
5	Production Overhead Hours With Overtime	CA production overhead hours, including overtime.
6	CA Production Overhead Hours Without Overtime	CA production overhead hours without overtime.
7	Work years With Overtime	Derived by dividing CA Production Overhead Hours With Overtime by CA Man Hours Per Month.
8	Work years Without Overtime	Derived by dividing CA Production Overhead Hours Without Overtime by CA Man Hours Per Month.
9	CA G&A Overhead Hours With Overtime	CA General and Administrative overhead hours, including overtime.

10	CA G&A Overhead Hours Without Overtime	CA General and Administrative overhead hours, without overtime.
11	Work years With Overtime	Derived by dividing CA G&A Overhead Hours With Overtime by CA Man Hours Per Month.
12	Work years Without Overtime	Derived by dividing CA G&A Overhead Hours Without Overtime by CA Man Hours Per Month.
13	CA Total Hours With Overtime	The sum of CA Direct, CA Production Overhead and CA G&A Overhead hours, including overtime.
14	CA Total Hours Without Overtime	The sum of CA Direct, CA Production Overhead and CA G&A Overhead hours, excluding overtime.
15	Work years With Overtime	Derived by dividing CA Total Hours With Overtime by CA Man Hours Per Month.
16	Work years Without Overtime	Derived by dividing CA Total Hours Without Overtime Hours by CA Man Hours Per Month.
17	CA DPSH Produced With Overtime	Self-explanatory.
18	CA DPSH Produced Without Overtime	Self-explanatory.
19	Direct Labor Efficiency (for CAs)	Obtained by dividing CA DPSH Produced With Overtime by CA Direct DPAH Hours With Overtime.
20	CA Man Hours Per Month	The number of available hours in each month of the FY for CAs. Excludes the 10 federally recognized holidays (New Years, Martin Luther King Jr, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Columbus Day, Veterans Day, Thanksgiving, and Christmas).
21	Total CA DPSH Yield With Overtime	CA DPSH Produced With Overtime x 12 CA Total Work years Without Overtime
22	Total CA DPSH Yield Without Overtime	CA DPSH Produced Without Overtime x 12 CA Total Work years Without Overtime
23	CA Direct DPSH Yield With Overtime	CA Direct DPSH With Overtime x 12 x Direct Labor Efficiency Direct Work years Without Overtime
24	CA Direct DPSH Yield Without Overtime	CA Direct DPSH Without Overtime x 12 x Direct Labor Efficiency Direct Work years Without Overtime
25	Total CAs On-Board	Self-explanatory.
26	Total CA Direct Hours	Sum of On-Duty Direct and Indirect Labor Hours. **(See Notes 1 and 2)**
27	Indirect Labor Factor CAs	The time a direct CA spends performing other than direct work expressed as a ratio. Indirect Labor Hours (Prod O/H Only) CA Direct DPAH Hours With Overtime
28	Output Per Man Day (OPMD) CAs	The portion of an 8-hour day used by a CA producing a revenue-earning product. CA DPSH Produced With Overtime x 8

		CA Total Hours With Overtime
Note: 1 - On-Duty Direct: Direct CA time spent performing direct work. 2 - Indirect Labor Hours: Direct CA hours spent performing other than direct work. 3 - Memo Entry for Personnel Force Innovation (PFI). This is a breakout of Guard and Reserve Active Duty Hours worked in support of DoD agencies. Hours are currently rolled into the Contract Augmentee hours directly above. This Memo Entry will provide visibility of the number of PFIs versus contractors we have each month, and ensures that they will not be double counted. MEMO ENTRY (Included in CA hours above) PFI = Personnel Force Innovation		

Section 3C—Section III, Total Organic Capability

3.19. Section III, Total Organic Capability. Section III, Total Organic Capability (Civilian, Military, and CA). All data in this section is calculated from data contained in Sections I and II.

Table 3.16. Section III, Total Organic Capability.

Item		
1	DPAH (Civilian, Military & CA) With Overtime	DPAHs (Civilian & Military Capability) With Overtime + CA Direct DPAH Hours With Overtime.
2	DPAH (Civilian, Military & CA) Without Overtime	DPAHs (Civilian & Military Capability) Without Overtime + CA Direct DPAH Hours Without Overtime.
3	DPSH (Civilian, Military & CA) With Overtime	Total DPSHs CA + CA DPSHs Produced With Overtime.
4	DPSH (Civilian, Military & CA) Without Overtime	DPSH Without Overtime + CA DPSHs Produced Without Overtime.
5	Total DPAH Yield (Civilian, Military & CA) With Overtime	DPAH (Civilian, Military & CA) With Overtime x 12 Civilian Regular Time & Leave & Military Work years + CA Work years Without Overtime.
6	Total DPAH Yield (Civilian, Military & CA) Without Overtime	DPAHs (Civilian, Military & CA) Without Overtime x 12 Civilian Regular Time & Leave & Military Work years + CA Work years Without Overtime.
7	Total DPSH Yield (Civilian, Military & CA) With Overtime	DPSH (Civilian, Military & CA Capability) With Overtime x 12 Civilian Regular Time & Leave & Military Work years + CA Work years Without Overtime.

3.20. Approval Process.

3.20.1. R2D2 Approval. HQ AFMC/A4FD facilitates the "R2D2 Meeting" where the funded workload and depot capability are reviewed and discussed collectively by HQ AFMC/A4/A4FD/A4F/FMR, AFSC, and AFLCMC.

3.20.2. AFSC/LZD will prepare and present a briefing on the ALCs' compliance with R2D2 Policy and annual R2D2 Guidance.

3.20.3. The output of the R2D2 meeting is an approved HQ AFMC/A4 "R2D2 Baseline" which becomes the ALCs' execution baseline. This baseline will be used to measure actual execution performance during monthly execution reviews and will also be used to build the budget. HQ AFMC/A4 is the approval authority for R2D2.

3.20.4. Reporting. The 8203 report has cells for reporting usage of all categories of capability, including the flexible options. This report will be used to measure actual against projected hiring of all capability. All data elements must be provided in the yearly projection, as well as the monthly actual.

3.21. Annual Program (AP).

3.21.1. The purpose of the AP is to react to significant changes to funded Customer orders from budgeted program established in the R2D2 process. Significant change is defined as those inputs that cannot be absorbed using the flex capability contained within the plan, thus creating an inability to remain on time, on cost, and within efficiency targets. The AP should be finalized before the start of the FY, or as soon as practical near the beginning of the FY.

3.21.1.1. The Depots are accountable to manage their manpower and cost based on actual orders received and work skills mix and cost control within the ALC. The ALCs shall use good business sense and judgment in application and committal of resources.

3.21.1.2. For changes to be made to the approved R2D2 baseline, the following criteria must be met:

3.21.1.2.1. Changes in funded customer orders must be valid.

3.21.1.2.2. Funding must be from a traceable source.

3.21.1.2.3. Probability of occurrence must be high.

3.21.1.2.4. Must be greater than +/- 5 percent of total R2D2 baseline.

3.21.1.3. Changes among programs (work mix) that do not result in a change in the total R2D2 baseline are not required to be included in the AP, but are encouraged.

3.21.2. During the AP, the ALCs will perform the following:

3.21.2.1. Update assessment of expected carry-over (Format 8, right side).

3.21.2.2. Update customers' forecasted funded orders (Format 6 of the F678) and document justification for changes.

3.21.2.3. Update capability (Format 8, left side).

3.21.2.4. Update production schedule (Input/Output schedule).

3.21.2.5. Assess and document the risks associated with the changes being made in the AP.

3.21.3. Upon completion, the following deliverables are required:

3.21.3.1. Revised R2D2 briefing with order changes, risk assessment, change to capabilities, and updated input/output schedules.

3.21.3.2. AP 8203 report showing updated projections.

3.21.3.3. AP F678.

3.21.4. AFSC/LZDB will be responsible for monitoring the AP process for compliance with all guidance to include carry-over/unbilled balance, yield, flex, cycle specific guidance, etc.

3.21.5. The results of the AP will be coordinated through the corporate structure for final approval by AFSC/CC. The coordination package will include a statement explaining why the changes being made were not part of the normal R2D2 cycle.

3.22. Performance Measurement and Reporting.

3.22.1. An AFSC performance review will be conducted monthly to track execution to the final approved R2D2 baseline. The following areas will be measured at the AFSC roll-up and individual complex level: Customer orders, input/output schedule, production, manpower, overtime, yield, DLE, and indirect labor factor (ILF). The ALCs will provide actual performance data monthly by way of the 8203 report. The projected and actual 8203 reports will serve as the data source for production, manpower, overtime, yield, DLE, and ILF metrics.

3.22.2. Customer Orders. This metric will track actual funded order generation as compared to the forecast provided by the customer for us in the R2D2. Customer Orders will be categorized as follows: AFLCMC, 448th SCMW, Other, and AFSC total. This metric will facilitate early detection/timely reaction to changes in funded customer orders to the ALCs. AFSC will also use this data to determine if/when baselines should be revised to more accurately reflect production, OT, yield, and manpower targets vs. the original forecasted R2D2 plan.

3.22.2.1. AFLCMC orders include all funded customer orders managed by the SPO, AFLCMC, and HQ AFMC/A4F (CAM office). These orders include the following commodities: aircraft, missiles, engines, other major end items, exchangeables, area-base/tenant, manufacturing, software, and storage.

3.22.2.2. 448th SCMW (CSAG-S) orders include all funded exchangeable orders managed by the 448th SCMW. Exchangeable orders include the following Repair Group Categories (RGC): J – Exchangeable MISTR, K – Exchangeable Programmed Project Directive, L – Service Work, and P – Manufacture for AF Stock Funds.

3.22.2.3. OFCOs includes all remaining orders not encompassed in the two previous paragraphs. OFCOs are obtained from the MP&E system and can include funded customer orders from agencies such as DHS, FMS, Coast Guard, NASA, etc. These orders can also include the following commodities: aircraft, missiles, engines, other major end items, exchangeables, area-base/tenant, manufacturing, software, and storage.

3.22.3. Production. The production metric will depict total DPSHs produced during the execution year. DPSHs will include Civilian, Military, and DO-CATs; both regular and overtime. Hours will be depicted in both monthly and year-to-date formats.

3.22.4. Input/Output Schedule. This metric will depict quantities of aircraft and engines projected to be input (inducted) by the customer and planned to be produced by the ALCs during the year of execution.

3.22.5. Manpower. This metric will measure actual against projected hiring of all capability. All data elements must be provided in the yearly projection, as well as the monthly actual.

3.22.6. Overtime. This metric will show overtime expressed as a percentage of total DPAHs produced.

3.22.7. Yield. This metric will track how well the ALCs and AFSC as a whole compare to the projected yields established as a result of the approved R2D2. HQ AFMC/A4FD provides AFSC/LZD with an initial yield target annually for use during the R2D2 process. The ALCs' planned yields, when taken in the aggregate, should equal or exceed the HQ AFMC/A4FD composite yield target. Once approved by HQ AFMC/A4, the R2D2 yield then becomes the target used during the year of execution.

3.22.8. Indirect Labor Factor (ILF). ILF represents the time spent by the direct worker not working on an end item i.e. training, leave, jury duty, meetings, etc. expressed as a ratio. The ILF metric shows the sum of the Leave Factor and the Indirect Factor, excluding overtime. The Leave Factor (.30 Time) excluding overtime is expressed as a ratio between Direct Paid Leave and Direct Paid Hours. The Indirect Factor (.20 Time) is expressed as a ratio between Indirect Time and Direct Paid Hours. The ILF includes any .21 supervisory time executed or budgeted in the direct Resource Control Center (RCC).

3.22.9. Direct Labor Efficiency (DLE). The DLE is the ratio between DPSHs earned and the DPAHs (actual time spent) earning those hours. Example: 1,333 (DPSH) ÷ 1,457 (DPAH) = 91 percent. When analyzing DLE, be aware that a low DLE can be an indication of low productivity. Conversely, a high DLE can be an indication of inflated labor standards.

3.23. Information Systems Used.

3.23.1. Depot Maintenance Workload Planning and Control System (G004C). System used to support workload planning and interface data to other systems.

3.23.2. Maintenance Planning and Execution (MP&E) System (D363). Command repository for all depot maintenance requirements. It provides maintenance program planning, execution, and management functionality for maintaining major and secondary items. It provides a single source of requirements managed by the ALCs and other Air Force Logistics facilities. Specific guidance may be found in AFMCMAN 20-102.

3.23.3. Depot Maintenance Accounting and Production System (DMAPS) Data Store System (DDSS). Data store for historical data elements which are either not held by the DMAPS suite of systems or not held on a long term basis. DDSS is also a relational database repository allowing a variety of functional end users to inquire and retrieve production information. DMAPS is the financial system of record and management information system used to support organic depot maintenance execution at the three ALC(s). The DMAPS program is a suite of

systems and includes interfaces within the suite and with other systems. **Note**: DDSS and DDS are both acceptable acronyms when referring to the DMAPS Data Store System.

3.23.4. Defense Industrial Financial Management System (DIFMS). DoD standard system, which is designed to support financial accounting and reporting at the Navy, Marine Corps, and Air Force depot maintenance and Navy research and development activities. In the Air Force, DIFMS is the official financial system of record for organic depot maintenance.

3.23.5. Cost and Performance Budget Module (CPBM)-H033. H033 DMAPS application consists of the Cost and Production Performance Module (CPPM), the CPPM Maintenance Module, and the Budget Target Module (BTM). Cost Transfer Module (CTM) functionality is part of BTM. CPPM is a management information system that provides organic depot maintenance financial and production information as well as essential performance indicators to each ALC manager. CPPM reports support these managers by providing online, day-to-day visibility of their operating costs and production performance, allowing them to compare actual results with financial budget and production targets. BTM is an automated Organic depot maintenance budgeting tool that, when used in conjunction with the actual historical data captured in the CPPM, permits multiple iterations of the budget/target development process, as well as production and expense 'what-if' scenarios (reference AFMCI 65-101).

3.23.6. Centralized Access for Data Exchange (CAFDEx). Incorporates DPEM requirements for customers. Under the FRM module, a workload report is available to download all customer requirements for workload planning.

3.23.7. Automated Budget Compilation System – Buy (D075/ABCS-Buy). Automated system used by the 448th SCMW and AFSC/LZRB to identify requirements to the ALCs. The ALCs use these requirements to prepare workload and budget submissions for Repairables and Consumables managed in the CSAG-S. Computations are run twice a year (March and September), of which the September computation is used in the R2D2 process.

Chapter 4

CAPITAL INVESTMENT PROGRAM

4.1. Capital Investment Activities.

4.1.1. Purpose and Applicability. Congress authorized the establishment of the Capital Purchases Program (CPP), now known as the Capital Investment Program (CIP), within the Defense Business Operations Fund (DBOF), now known as the Defense Working Capital Fund (DWCF). The program was devised to provide a responsive avenue for the modernization of the Department of Defense (DoD) depot maintenance industrial base. The CIP allows CSAG to include capital depreciation in customer sales rates as one means of financing the replacement of capital assets. This concept places CSAG operations in a more business-like posture and allows business-like investments for transforming depot maintenance, replacing unserviceable or technologically obsolete capital assets, and providing for productivity enhancements and environmental improvements. In 2008, the Logistics Board of Advisors identified a need for the development of an enterprise-wide prioritization process based on Headquarters Air Force (HAF) directed weighted criteria. To achieve this objective, a RIE was conducted in 2009 and a draft prioritization process and template were developed. In 2011, the process and template were validated and adopted for use beginning in FY12 by the ALC/CCs. When the CIP was realigned under AFSC in 2013, AFSC/LZ and the ALC/CCs directed the continued use of the process.

4.1.2. Guidance.

4.1.2.1. This chapter applies to HQ AFMC/FM, AFSC/EN/FM/LZ/PZ, AFLCMC, OC-ALC, OO-ALC [(including 309th Aerospace Maintenance and Regeneration Group (AMARG)], and WR-ALC.

4.1.2.2. The ALC Commander must ensure a supplement, OI, or Process Guide (PG) to this chapter is established that clearly defines specific roles, responsibilities, and timelines for complying with this chapter.

4.1.2.3. CIP is governed by DoD 7000.14-R, Volume 2B, Chapter 9, *Financial Management Regulation*. Whenever there is confliction between published guidance, the guidance issued by the higher level takes precedence (reference DAFI 33-360, *Publications and Forms Management*).

4.1.2.4. AFSC/LZDA must provide guidance, training, and direction for all aspects of the Capital Investment Program and conduct annual onsite program reviews at each of the ALCs.

4.1.2.5. Process Guides. AFSC/LZ will publish a process guide to help standardize processes by implementing the use of process control gates to improve obligations across the enterprise, and help assets achieve full operational capability in a timely manner. The process guide applies to all organizations, groups, and staff offices identified in **Chapter 4**. **Note:** The AFSC/LZ process guide is maintained on the LZ home page at the following location https://org2.eis.af.mil/sites/21766/default.aspx

4.1.2.6. CIP Appointment Letters. The AFSC/LZD Comprehensive Cost and Requirements System-Data Base Manager (CCaRS-DBM), AFSC/LZDA CIP Managers,

ALC CIP Managers, and Group CIP Monitors/Managers must be formally appointed by letter at the appropriate level of leadership and provided to AFSC/LZDA.

4.1.2.7. Capital Investment Categories. CIP investments are submitted by specific capital investment categories (Automated Data Processing Equipment and Telecommunications Equipment, Minor Construction, Software Development, Test and Inspection Equipment, and Weapon System Sustainment). The objective is to eliminate or reduce Secretary of the Air Force Financial Management and Budgeting (SAF/FMB) and Office of the Secretary of Defense (OSD) Comptroller line item approval of the CIP budget or reprogramming submission as well as enabling greater flexibility within the approved budget amount. This reduced oversight requires HQ AFMC, AFSC, and the ALCs to be even more diligent in complying with all regulatory and accountability requirements.

4.1.2.8. CIP investments must be planned, programmed, obligated, expensed, and reported in one of the following five capital investment categories: Automated Data Processing Equipment and Telecommunications Equipment, Minor Construction, Software Development, Test and Inspection Equipment, and Weapon System Sustainment.

4.1.2.9. Automated Data Processing Equipment (ADPE) and Telecommunications Equipment. This category consists of computer hardware, operating system software (including utility and communications software), and telecommunications equipment.

4.1.2.10. Minor Construction (MC). This category includes new facility construction or alteration of an existing facility that fall below the statutory Military Construction funding threshold. **Note:** The planning and design cost of an investment financed under MC are not counted as part of the statutory threshold. Therefore, the associated cost must be identified separately from individual projects in the Budget Estimate Submission.

4.1.2.11. Software Development (SW). This category includes the actual development and acquisition of the information systems (both organic and contractor support) as well as major modifications that meet the capital expenditure threshold. This category does not include software developed for a customer that is necessary for the operation of, and will become integrated into a weapon system (see DoD 7000.14-R, Volume 2B).

4.1.2.12. Test and Inspection Equipment (T&IE). This category includes new and replacement equipment purchases, rehabilitation of existing equipment, and modification of existing equipment specifically designed for performance of test and inspection on depot maintenance workloads.

4.1.2.13. Weapon System Sustainment (WSS). This category includes new and replacement equipment purchases, rehabilitation of existing equipment, and modification of existing equipment that is not designed for test and inspection. Under the Defense Federal Acquisition Regulation Supplement (DFARS) Subpart 208.70 - Coordinated Acquisition, there is: (a) Integrated Material Management (IMM) for consumable stock listed items (See 208.7003-1). (b) Coordinated Acquisition Program (CAP) for non-stock commodities (See 208.7003-2). **Note:** Federal Supply Class Code 3400 stock listed items should be obtained from Air Force or DOD inventory before initiating a purchase under IMM to the Defense Logistics Agency (DLA). Otherwise, the Coordinated Acquisition Program (CAP) procedures will be followed.

4.1.2.14. A capital investment comprising a given capability must be defined within only one of the five capital funding categories and must produce a fully functional stand-alone capability. **Note:** If an investment can be categorized under more than one funding category, select the category with the larger dollar value. In addition, each CIP requirement, whether "singular" in nature (i.e., a requirement comprised of a lone capital asset) or grouped as "capability-based" (i.e., a requirement comprised of multiple assets) must include Budget Exhibit Fund 9a Capital Investment Summary (9a), Budget Exhibit Fund 9b Capital Investments Justification (9b), and be certified by an Economic Analysis (EA) as an individual line-item entity (see DoD 7000.14-R Volume 2B, Chapter 9, Section 090302, Fund 9B) A single EA can be used if the assets can be grouped as a "capability-based" requirement in which they all fall into the same investment category. **Note:** If multiple assets are being grouped, each asset must be identified in the EA to support equipment tracking and depreciation breakouts.

4.1.2.15. Specifically Excluded Capital Investments. The following items cannot be financed under CIP: Major Range and Test Facility Base; Military and Tenant support functions; Major Weapon Systems and general-purpose passenger type vehicles; Equipment and minor construction projects purchased to meet mobilization requirements, but not used during peacetime operations; Equipment initially procured and usually furnished as part of a weapon system and/or support system to include initial common support equipment for depot maintenance support of new weapon systems; Equipment normally funded by appropriated funds and provided to contractors as government furnished equipment; MC projects for non-DWCF activity or military support functions; Construction and facility investment projects that exceed the amount specified in Title 10 USC § 2805, Unspecified Minor Construction, for funding under Operations and Maintenance appropriations; Environmental projects financed or submitted for funding by the Defense Environmental Restoration Account; Capital investments for Morale, Welfare, and Recreation activities (see DoD 7000.14-R, Volume 2B). **Note:** For Real Property Installed Equipment (RPIE), reference AFI 32-9005, *Real Property Accountability*.

4.1.2.16. Capitalization Thresholds. ADPE, SW, T&IE, and WSS investments must have a value of $250K or greater. MC investments must have a value of $250K to the maximum statutory threshold. All ADPE, MC, SW, T&IE, and WSS investments must have a useful life of two or more years.

4.1.2.17. Comprehensive Cost and Requirements System (CCaRS). CCaRS is a management tool designed to support a number of key facets of financial and program management.

4.1.2.18. All CIP requirements and supporting documents must be entered into CCaRS in a timely manner. Furthermore, CCaRS must be used for managing, tracking, and reporting: commitments, obligations, expenditures, procurement milestones, and full operational capability (FOC).

4.1.2.19. In the event that CCaRS becomes unavailable for any prolonged period of time, the CCaRS-DBA or AFSC/LZDA must institute alternative procedures. Once CCaRS becomes available, the CCaRS-DBA, AFSC/LZDA, and the ALC CIP manager must take appropriate action to update the CCaRS data base.

4.1.2.20. The ALC Commander is ultimately responsible for all aspects of their Capital Investment Program (see AFMCI 21-100, *Depot Maintenance Management*). They must establish a process based on the Enterprise Prioritization and Approval Process for: Requirements development, review, validation, prioritization, and approval. Furthermore, a CIP Working Group (CIPWG) must be established consisting of the ALC CIP Manager and the Group CIP Monitors/Managers.

4.1.2.21. CIPWG Responsibilities. The CIPWG must review, verify, validate, and prioritize all proposed investments. Furthermore, they must ensure all proposed investments support the ALC strategy as well as the overarching AFSC, MAJCOM, and AF strategies. In addition, the CIPWG must produce their ALC's 1-N list of recommended investments for submission to their ALC corporate board for formal funding consideration. The corporate board should consist of the Group Technical Directors, Group Commander's/Directors, ALC Technical Director, ALC CIP Manager, and Group CIP Monitors/Managers.

4.1.2.22. The AFSC and ALC Technical Directors will meet annually to explore opportunities to standardize best practices for acquisition of investments, discuss alternative solutions, availability of unutilized equipment, and proliferation of existing technologies IAW AFSCI 61-101, *Sustainment Technology Enterprise Process*, developed at each ALC through small business innovation research (SBIR), rapid innovation funding (RIF), or depot maintenance transformation (DMT).

4.1.2.23. The AFSC Chief Information Officer (CIO) or delegate is ultimately responsible for verifying, validating, and ensuring all ADPE, telecommunications equipment, and Information Technology (IT) requirements are in compliance with MAJCOM and higher level guidance.

4.1.2.24. The project engineer will ensure their proposed ADPE, telecommunications equipment, or IT requirements are approved by the AFSC CIO prior to budget consideration.

4.1.3. Methodology.

4.1.3.1. Consolidated Sustainment Activity Group – Maintenance (CSAG-M). The ALCs are charged with managing all CSAG-M funded assets to include transferred and contributed assets.

4.1.3.2. The CIP encompasses six phases: Strategic Planning, Requirements Development, Programming, Funding Activities, Execution Activities, and Post Obligation Activities.

4.1.4. Communications.

4.1.4.1. The ALC CIP Manager is responsible for the transmittal of all official CIP communications and activities that require review, acknowledgement, coordination, or approval.

4.1.4.2. The ALC CIP Manager is ultimately responsible for ensuring timely and accurate updating of the CCaRS database.

4.1.4.3. AFSC/LZDA should conduct biweekly CIP management teleconferences. The ALC CIP Manager or their alternates must participate in all teleconferences.

4.1.5. Strategic Planning.

4.1.5.1. Depot maintenance strategic planning is the process used by the AF to articulate depot maintenance goals and objectives so that funding, requirements, equipment, manpower, infrastructure, recapitalization, and business processes align to achieve these goals and objectives.

4.1.5.2. The ALC/CC must ensure all investments are IAW the AF, MAJCOM, AFSC, and ALC strategies/initiatives. Furthermore, they must ensure the depots are adequately and properly equipped to support existing depot maintenance workloads.

4.1.5.3. The ALC/CC must ensure a three-year requirements plan (budget year plus two out years) is developed, vetted, and utilized. All requirements must be based on the ALC's anticipated depreciation value.

4.1.5.4. The Group Commander's/Directors must ensure a lifecycle management plan for equipment replacement, rehabilitation, or modification is developed and utilized for all assigned equipment.

4.1.6. Requirements Development.

4.1.6.1. The requirement initiator must ensure their project will satisfy a valid documented need and will be IAW their ALC's strategic plan and initiatives. Also, the ALC CIP Manager or Group CIP Monitor/Manager must ensure CCaRS records are established for all requirement years.

4.1.6.2. Requirements initiate from a variety of drivers such as: corporate initiatives, weapon system health, safety, environmental interests, capability, reliability, maintainability, sustainability, and supportability.

4.1.6.3. All depot equipment purchases must be authorized IAW with AFMCI 21-100, *Depot Maintenance Management,* Chapter 2 and AFMAN 23-122, *Materiel Management Procedures*, Section 5D.

4.1.6.4. Implementation and Execution Plans. The project engineer must develop an Engineering Implementation Plan whenever an Engineering Execution Plan is not required.

4.1.6.4.1. Engineering Implementation Plan (EIP). The EIP must identify all the major actions that must be completed organically for the equipment to become functionally acceptable, certified for operation, production ready to perform the associated depot maintenance work load, and for declaring FOC. Furthermore, it must identify the responsible individual/organization for each action. The EIP must be attached to the project's CCaRS record. **Note:** EIP's are not required for pre-FY18 projects.

4.1.6.4.2. Engineering Execution Plan (EEP). An EEP is required for any CIP project procuring industrial plant equipment (IPE) (including Automatic Test Equipment) that is not Commercial off-the-shelf (COTS) or ADPE, the production engineer will develop an EEP. An EEP is recommended for a single COTS IPE procurement and required for a multi-COTS integrated IPE procurement. The purpose of the EEP is to reduce risk, as non-COTS IPE procurements require design/build/test activities. The EEP will be coordinated with the following: ALC Safety office, ALC Environmental office or Maintenance Support Group (MXSG) Environmental

liaison, Metrology and Calibration Flight, ALC Energy Manager or MXSG Energy liaison, Bioenvironmental Engineering Flight, MXSG (e.g., MXSG engineering, Precision Measurement Equipment Laboratory (PMEL), plant maintenance squadron, etc.), and the production squadron that will be using the IPE. The EEP must be approved by the Group Engineering Chief, or a first-level supervisor in the Group Engineering Chief's organization. Coordination documentation will be retained in a project management system (e.g. CCaRS, project folder, paper folder). The approved EEP must be attached to the project's CCaRS record.

4.1.6.5. Post Implementation Analysis Plan (PIAP). The project engineer must develop a PIAP for all investments $1M or greater and for those costing $250K or more that are for improved productivity and for replacement items that can outperform an existing item. At a minimum, the PIAP must identify the specific data elements used to justify the investment ("The What"), the associated actions ("The When"), and the method(s) for quantifying the associated data element(s) ("The How"). The PIAP must be attached to the projects CCaRS record. **Note:** PIAPs are not required for pre-FY18 projects.

4.1.6.6. New Technology. If a proposed investment will utilize a new technology, the technology must have been demonstrated to be functional in an actual system application or operational environment IAW Title 10 USC § 2208, *Working-Capital Funds.* This definition is the equivalent of a minimum Technology Readiness Level (TRL) 8 as defined in DoDI 5000.2R, *Operation of the Defense Acquisition System*.

4.1.6.7. TRL 8. The CIP further defines TRL 8 assets as a successful production article or prototype (that will be brought up to production article capability) test and demonstration by the provider physically located in an ALC. The associated Program Office(s) and appropriate EA(s) must provide an approval document i.e., memorandum for record (MFR) to the ALC CIP management office stating they approve of the proposed investment and will utilize the new technology for the intended purpose. Furthermore, if a prototype will be used the MFR must state the prototype can and will be retrofitted to full-production article capability. **Note:** The associated Program Office approval document (i.e., MFR) must be obtained prior to submitting the recommended investment for formal funding consideration.

4.1.6.8. AFSCI 61-101, *Technology Development And Insertion Process* defines the process that the ALC must use to develop and implement new technologies. The use of new technologies and production enhancements must be taken into account during the requirements planning and development process. It is crucial that requirements introducing technology to modify, enhance, or supplement depot maintenance processes are thoroughly defined, validated, and documented IAW CIP policy and vetted among all interested parties before committing to an investment. When the new technology has not been documented in the production technical or process orders, the cognizant engineering authority must provide supporting justification/approval (e.g., letter of intent) to use the new technology along with a Tech Transition plan. Furthermore, this supporting documentation must be attached to the project's CCaRS record.

4.1.7. IT Hardware and Software.

4.1.7.1. The AFSC/CIO must verify and validate all ADPE and telecommunications equipment projects and ensure IT investments are in compliance with higher level

guidance for IT investments. **Note:** The AFSC/CIO may delegate this responsibility to the local ABW/SC Director. The AFSC/CIO must work with the Cyberspace Systems Integrator-Base (CSI-B), ALC CIP Manager, and the AFSC/LZDA CIP Management office on all potential ADPE and IT investments.

4.1.7.2. Software development and modifications must be approved through the appropriate functional review board to validate the requirement. For logistics IT systems, this process begins with AFSC/LZT and entails obtaining approval through the logistics IT governance structure. Separately, the required activity must demonstrate completion of actions to satisfy the Service Development and Delivery Process (SDDP), registration in the Enterprise IT Data Repository (EITDR) and potential submission of a request for obligation authority through the Organizational Execution Plan (OEP) process for defense business systems that meet the requirements set forth in Title 10 USC § 2222, *Defense Business Systems: Architecture, Accountability and Modernization*, otherwise known as the National Defense Authorization Act (NDAA) approval.

4.1.7.3. Each proposed acquisition of a capital asset must be reviewed to ensure it satisfies the criteria found in DoD 7000.14-R, Volume 2B, Chapter 9.

4.1.7.4. The acquisition is more economically feasible to purchase rather than to lease the capital asset. While leasing is not a part of CIP, it may be appropriate for areas of fast changing technology or when workloads are expected to cease before the end of the program or payback period.

4.1.7.5. The acquisition must comply with AF, HQ AFMC, AFSC, and the ALC's long-range planning and programming objectives and result in satisfying a documented need for a capability to perform valid operations, functions, or services that cannot be performed as effectively or economically by the use of existing equipment and facilities or by contract.

4.1.7.6. The acquisition complies with policies and regulations governing the acquisition and management of facilities, special tooling, and special test equipment as established by DoDD 4275.5, *Acquisition and Management of Industrial Resources*, as well as other applicable policies and regulations governing the lease and acquisition of equipment and facilities.

4.1.7.7. The workload projections used to justify investments must take into account the results of inter-service decisions, workload posture planning decisions, readily available commercial alternatives, and other reasonable options available for accomplishing applicable workload.

4.1.7.8. Capital assets recommended for acquisition shall be those deemed to be most efficient and effective to accomplish the objective for which they are justified. For specific criteria see DoD 7000.14-R, Volume 2B, Chapter 9.

4.1.7.9. Workload capacity projections must consider similar/existing asset performance, effectiveness, and availability improvement potentials for accomplishing applicable workload.

4.1.7.10. ATS and ATE Requirements. ATS and ATE requirements (re-host, modification, and purchase) not identified on the DoD family of testers must be

coordinated on by the ATS Product Group Manager (PGM) office (AFLCMC/WNA) during the requirements development phase.

4.1.7.11. Computer Numerical Control (CNC) Equipment Requirements. CNC equipment is defined as any automated industrial plant equipment which incorporates CNC or Numerically Controlled (NC) machine control technology for the manufacture, repair, and inspection of end items.

4.1.7.12. Technology Application Insertion. Technology Application Insertion requirements are those requirements that apply existing proven technology that currently does not exist within a depot to solve problems and improve performance of production processes.

4.1.7.13. Environmental, Safety, and Health Investments. Investments of this nature must alleviate environmental, safety, or health deficiencies.

4.1.7.14. IAW with AFSCI 21-401, *Hazardous Materials Hierarchy of Controls*, the hierarchy of controls system must be used by the project engineer when addressing hazardous materials. The goal when using the hierarchy of controls system is to reduce the exposures below the Occupational Environmental Exposure Limit (OEEL). Per DoDI 6055.01, *DoD Safety and Occupational Health (SOH) Program*, the order in which to apply hierarchy of controls is: elimination, substitution, engineering and/or administrative controls, and the appropriate use of Personal Protective Equipment (PPE) when other options fail to mitigate the hazard.

4.1.7.15. Energy Conservation. Energy efficiency and conservation must be considered and addressed in the decision-making, prioritization, and selection processes. Documentation must show current energy consumption, consumption of each alternative considered, and where mission trade-offs were made. Trade-offs are defined as using the same or more energy, but yield much higher savings or impact in other areas such as labor, materials, cycle times, safety, environmental (e.g., hazardous waste generation), and other strategic initiatives and mandates. In addition, the project manager/engineer must ensure that: 1) Procurement requirements consider maintenance of energy-consuming systems (e.g., lighting, compressed air, steam, etc.) and their associated life cycle costs in the EA, 2) Specifications for items being purchased will clearly identify any energy performance related requirements. **Note:** Energy information (i.e., voltage, amperage, horsepower, motor efficiency, etc.) should be requested for all contractor quotes, 3) Energy performance requirements will be communicated to suppliers and contractors, and 4) Suppliers and contractors will be told that energy performance is part of the evaluation criteria for selection.

4.1.8. Prioritization.

4.1.8.1. With the exception of OSD/HAF/SAF/HQ AFMC/AFSC directed investments, the ALC is responsible for reviewing, validating, prioritizing, and approving their recommended investments.

4.1.8.2. Key Element of Enterprise Prioritization Process. CCaRS was enhanced to include a project "Analysis" section that eliminated the use of the electronic Prioritization And Reporting Template (e-PART). The Analysis section is made up of three elements,

the Project's Information, Prioritization, and Supporting Documentation. These elements are key to the AFSC Enterprise Prioritization and Approval Process.

4.1.8.3. Deleted.

4.1.8.4. Requirements Scoring. Criteria scored 1-9 must be supported by valid verifiable data. The lack of valid verifiable data will result in a lower criteria score during the AFSC Enterprise Prioritization and Approval Process.

4.1.8.5. A certified EA or an approved waiver to an EA is required for all ALC Commander recommended investments regardless of their dollar value.

4.1.8.6. EA Investment Justification Letter. If an EA does not financially support the proposed project and the Group Commander (or designee) decides they want to pursue the project, an EA Justification Letter must be written that clearly states the reason for proceeding forward with the project. The EA Justification Letter must be endorsed by the Group Commander (or designee) and approved by the ALC/CC (or designee). Furthermore, the letter must be attached to the project's CCaRS record.

4.1.8.7. Non-Passenger Vehicle Approval Document. Procurement of a non-passenger vehicle (such as a tow vehicle) must be approved by the unit's Vehicle Control Office (VCO). The VCO's approval must be attached to the project's CCaRS record.

4.1.8.8. DoD Non-Family of Testers Approval. ATS and ATE requirements that are not identified as one of the DoD Family of Testers must be coordinated on by the ATS PGM office (AFLCMC/WNA) during the requirements development phase. **Note:** The ATS PGM office coordination (e.g. E-Mail, MFR, etc.) must be attached to the project's CCaRS record.

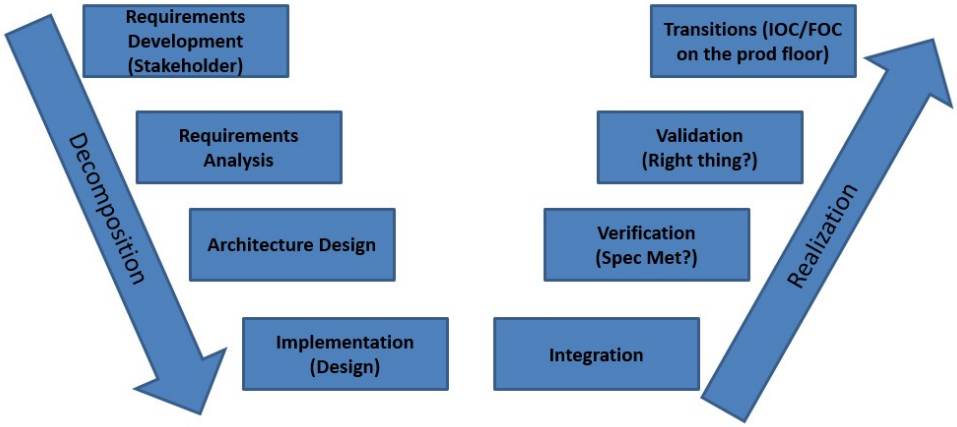
4.1.8.9. ADPE Approval Document. All ADPE requirements must be approved by the AFSC/CIO (AFSC/LGP) or the ALC designee and the approval document must be attached to project's CCaRS record.

4.1.8.10. COTS. COTS is defined as a commercial item sold in the commercial marketplace and offered to the government, without modification, in the same form in which it was sold in the marketplace. An EEP is not required for single COTS IPE procurements, however, an EEP is recommended.

4.1.8.11. Multi-COTS integrated IPE procurements. An EEP is required for a multi-COTS integrated IPE procurement. An example of a multi-COTS integrated IPE procurement is laser de-paint. Multi-COTS integrated IPE procurement does not include multiple buys of similar COTS IPE such as purchasing 10 milling machines.

4.1.8.12. Technical Requirements for IPE. Technical requirements for IPE should employ a systems engineering process see **Figure 4.1.** that addresses: technical data and software; technical events and reviews; acceptance; facilities and infrastructure; manpower and training; sustainment; IPE ancillary equipment; IT; and Environmental, Safety and Occupational Health (ESOH). Statements of Work/Performance Work Specifications/Purchase Specifications or equivalent for all IPE purchases (excluding ADPE) will address these technical requirements as appropriate. Essential information that should be addressed for each of these technical requirements is discussed below.

Figure 4.1. Systems Engineering Process.



4.1.8.13. Technical Data and Software. Technical data includes recorded information of a technical nature necessary to purchase, operate, and support industrial equipment (e.g., drawings, specifications, manuals, spare parts and consumables list, test reports, COTS for equipment and software design, maintainability, commonly sized components, industry reliability standards, ergonomics, engineering controls). Software can include code, compiler, libraries, version description documents, etc. required to purchase, operate, and support industrial equipment. When applicable, the production engineer should ensure contract data requirements lists (CDRLs) are developed and included in the contract for each required technical data item.

4.1.8.14. Manuals. If a manual covers different models, series, configuration of the equipment, the differences should be clarified by use of difference data sheets, or be included in the text or table(s) in the manual. The manual should precisely reflect the hardware configuration of the equipment/system. The amount of data required shall be determined by the complexity of the equipment and the maintenance concept and plan. The manual should consist of all data required for operation/maintenance/calibration of the equipment/system as determined by the contracting activity.

4.1.8.14.1. Operation Manuals. Operation manuals should effectively communicate in detail how to operate IPE.

4.1.8.14.2. Maintenance Manuals. Maintenance manuals should address, at a minimum, corrective and preventive maintenance (PM) instructions. Diagnostic and prognostic maintenance procedures should be addressed depending on the complexity of the equipment being purchased.

4.1.8.14.3. Calibration Procedures Manuals. Calibration procedures manuals should effectively communicate in detail how to calibrate IPE.

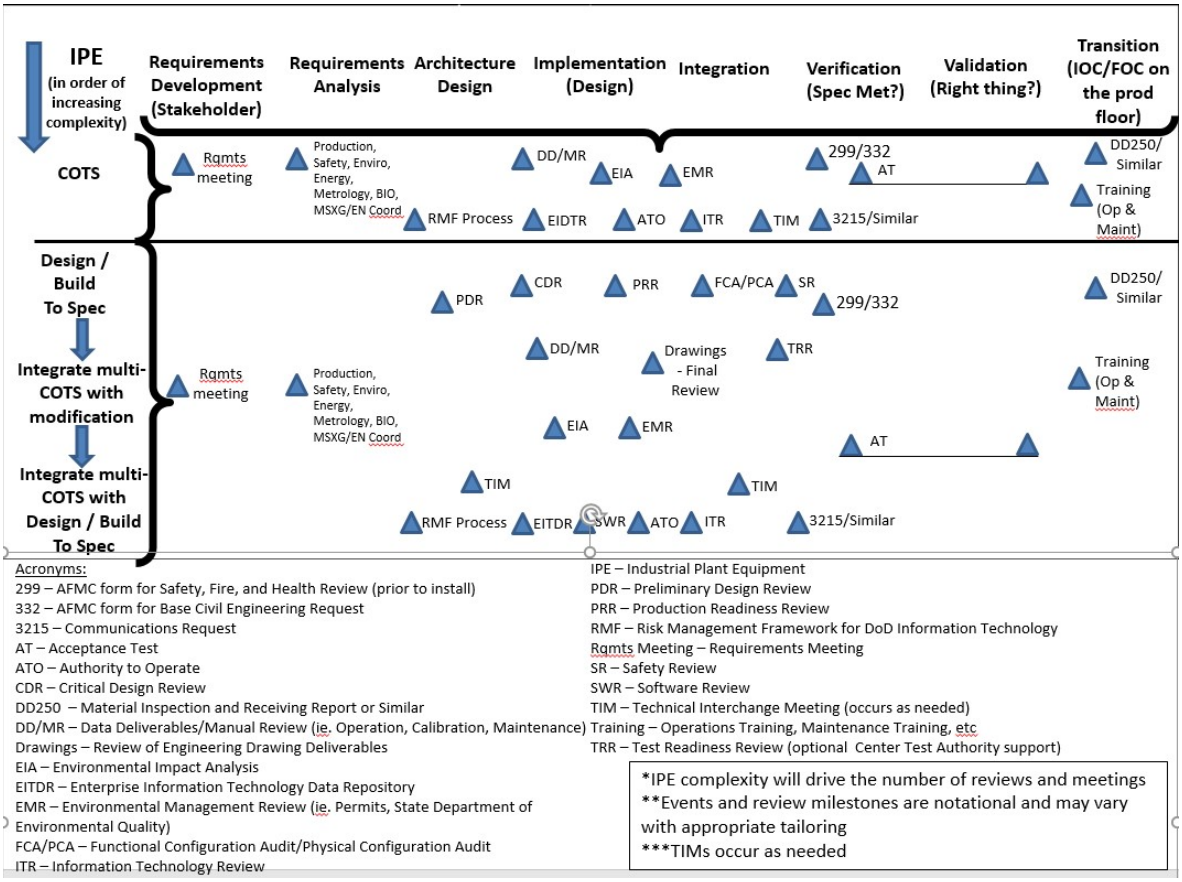
4.1.8.15. Data Rights. A documented data rights strategy should be finalized with the contracting officer. The following are types of data rights: unlimited, limited, government purpose, special licensing, and restricted rights. Necessary data rights for technical data and software should be acquired to satisfy agency needs.

4.1.8.16. Technical Events and Reviews (e.g., Preliminary/Critical Design Reviews, Test Readiness Reviews, Acceptance Test). The number of technical events and reviews will

be driven by the complexity of the project see **Figure 4.2.** The EEP should address the schedule and the entry/exit criteria for the associated technical events and reviews. During execution of the CIP project, a formal technical board chaired by the Group Engineering Chief (or delegated authority IAW AFSCI 21-402, *Industrial Process Control*) will conduct the associated technical review(s) to ensure criteria/requirements/risks are addressed.

4.1.8.17. Events and reviews in **Figure 4.2.** are notational and may vary with appropriate tailoring.

Figure 4.2. Industrial Plant Equipment Systems Engineering Events & Reviews.



4.1.8.18. The project engineer should conduct Technical Interchange Meetings (TIMs) with the vendor as needed to ensure CIP projects meet performance and schedule goals. Appropriate government representatives should be invited to ensure relevant technical requirements are adequately addressed.

4.1.8.19. When risk is assessed as medium or higher, the project engineer should consider mitigating the risk through acceptance tests or similar events at the manufacturer and/or at the install location. In addition, MXSG involvement should be considered based on complexity of the IPE project.

4.1.8.20. An Independent Engineering Review Board (IERB) is required for any significant ALC CIP projects that exceed $10M or present a high risk per Military Standard (MIL-STD) 882E, *Department of Defense Standard Practice*: System Safety,

and IAW AFSCI 21-402 *Industry Process Control*. Contents of the EEP's IPE technical requirements will be summarized and presented to the IERB. The IERB will determine the soundness of the EEP, evaluate its risk assessment, make recommendations for edits/additions/clarifications, and approve the EEP of the proposed CIP project.

4.1.8.21. The IERB membership will consist of AFSC/EN as chairperson, AFSC/EN OL Hill, AFSC/EN OL Robins, AFSC/EN Technical Director, ALC Technical Directors, AFSC/SE representative, and AFSC/ENS or their designees. AFSC/ENSP will serve as the secretariat for the IERB.

4.1.8.22. Acceptance. Acceptance of IPE should include the following (when applicable): performance/test requirements, baseline readings, production hardware, software, software data rights and license, implementation audits, and associated documentation necessary for final acceptance. Also state if an acceptance test plan or procedures are required to be supplied by the contractor [e.g., data item description] or developed/provided by the government.

4.1.8.23. Facilities and Infrastructure. Facilities and infrastructure technical requirements should address real property assets and infrastructure required for IPE support [e.g., delivery and installation, utilities such as electricity (use local standards to prevent need for transformers), natural gas, chilled water, compressed air, Industrial Waste Treatment Plant, real property requirements such as foundation details and roof penetrations, ventilation, space, storage, environmental compliance, and energy conservation].

4.1.8.24. Energy efficiency and conservation is evaluated when prioritizing funding for CIP projects. The production engineer may inform suppliers that equipment will be evaluated based on energy performance. The life cycle cost included in an economic analysis should address significant impacts to energy performance.

4.1.8.25. Any alterations to Real Property in support of the installation of IPE will require the submittal of an AF Form 332, *Base Civil Engineer Work Request*. Alterations include but are not limited to: foundations, trenches, cutting holes in the facility (e.g., floor, walls, or roof), tapping into utilities (e.g., sprinkler, water, main power supply, chilled water, and steam), adding heat load to a facility, and causing a significant increase in power requirements.

4.1.8.26. AFMC Form 299, *Safety, Fire, and Health Review*, will be submitted prior to IPE installation.

4.1.8.27. Manpower and Training. Technical requirements for manpower and training should consist of identifying resource needs, training needs (e.g., training manuals, associated workbooks, presentation materials, etc.), and skillsets required to operate and maintain IPE.

4.1.8.28. Sustainment. IPE is continually managed through a cycle of engineering implementation, sustainment, disposal, and new implementation see **Figure 4.3.** Evaluation of IPE should consider this entire lifecycle. IPE enters the sustainment phase once it is installed and achieves FOC status. A sustainment plan that addresses technical tasks that ensure continued operation and maintenance of industrial equipment (see **Figure 4.4.**) will be included in the EEP (e.g., calibration, preventative maintenance, predictive maintenance/reliability centered maintenance, equipment health monitoring

(EHM), support/service contracts, calibration/maintenance requirements/schedule, warranty, extended spares kit). These tasks should be accomplished continually through sustainment. An AFSC Form 388, *Machine Tool and Equipment Historical Record*, or a local equivalent, will be used on all newly acquired equipment for Facility and Equipment Maintenance (FEM) system.

Figure 4.3. Industrial Plant Equipment (IPE) Requirements Management.

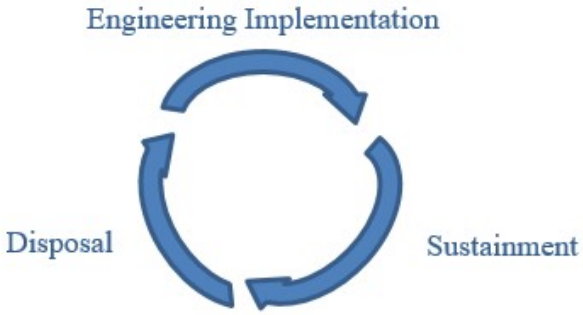


Figure 4.4. Sustainment Activities.

4.1.8.29. IPE Ancillary Equipment. Technical requirements for IPE ancillary equipment should include all equipment that is not inherently part of the primary industrial equipment unit, but is required for functional support and maintenance [e.g., Test, Measurement, and Diagnostic Equipment (TMDE), tools, heating, ventilation, and air conditioning (HVAC), generators, and consumables such as oils, lubricants, coolants, refrigerants, filters, batteries, fuses, and bulbs]. TMDE will be acquired IAW TO 00-20-14, *Air Force Metrology and Calibration Program.*

4.1.8.30. Information Technology. Technical requirements for information technology should include resources and infrastructure required to operate industrial equipment (e.g., network interface, authority to operate, risk management framework).

4.1.8.31. ESOH. Technical requirements for ESOH should include hazardous materials, physical hazards, failure modes and effects analysis (FMEA), and environmental considerations involved with operating IPE. Early integration of ESOH considerations will help reduce risk from actions that could cause damage to people, equipment, or the

environment. Additional benefits include reduction of operations, support, and disposal costs.

4.1.8.32. Engineers will document utilization of the hierarchy of controls in the EEP when selecting equipment and processes IAW AFSCI 21-401. The primary consideration should be the use of alternate hazard elimination and control methods before selecting equipment and processes which require PPE (e.g., hearing protection, respirators, etc.).

4.1.8.33. Hazardous materials documentation will be included in the EEP. Examples can include: authorization to bring on base, disposal, safe handling procedures, specific PPE requirements, and decontamination.

4.1.8.34. One of the following risk mitigation tools will be included in the EEP: FMEA, failure mode effects and criticality analysis (FMECA) and/or OSHA 3071, *Job Hazard Analysis*. A FMEA/FMECA should identify failure modes and their causes and effects, level of detail should be dictated by risk.

4.1.8.35. Environmental information and/or data (e.g., emissions or effluent information that would benefit either AF Form 813, Request for Environmental Impact Analysis, preparation or permit applications from state or the United States Environmental Protection Agency (EPA)). Additional environmental resources can be found though NEPA and eDASH. Air Quality requirements can be found in Federal Regulation 40 Code of Federal Regulations (CFR) 70.3 and AFMAN 32-7002, *Environmental Compliance and Pollution Prevention*.

4.1.9. Programming.

4.1.9.1. Enterprise Prioritization and Approval Process.

4.1.9.2. The ALC/CC must ensure all recommended investments are: Fundable under the CIP, can be obligated in the FY, and in compliance with all strategic plans and initiatives.

4.1.9.3. The ALC's annual depreciation values are used for comprising the annual Budget Estimate Submission (BES) and President's Budget (PB) submission. **Note:** Under the AFSC/LZ Enterprise Prioritization and Approval Process the individual ALC depreciation value does not guarantee equivalent funding levels because all recommended investments compete for funding on their own merit.

4.1.9.4. The ALC CIP Management office must establish internal timelines for verifying, validating, prioritizing, and obtaining their ALC Commander's recommended requirements approval letter in time to meet the annual CIP Data Call suspense.

4.1.9.5. AFSC/LZD must establish internal timelines for completing the Enterprise Prioritization and approval process in time to meet SAF/FM's annual suspense.

4.1.9.6. Annual Cycle and Milestones.

4.1.9.6.1. Milestone 1. The AFSC/LZ must issue an annual CIP Data Call (budget year plus two additional years) by the last duty day of June with a last duty day of January suspense via a Senior Officer Communication and Coordination Electronic Resource (SOCCER). Unless otherwise directed, the following must be provided: ALC Commander's approval letter (for budget year recommended capital investments), estimated annual depreciation values (by fund category for the budget

year and the two out years), and anticipated out year capital investments (by project for the two out years).

4.1.9.6.2. Milestone 2. The ALC CIP Manager must ensure action is taken to verify, validate, prioritize, and approve their ALC's recommended requirements in accordance with this chapter. Also, the ALC CIP Manager must ensure that each of the requirements identified on the Commander's approved requirements letter have all the mandatory documentation and additional supporting documentation attached to the project's CCaRS record. Furthermore, they must ensure that project's score(s) were derived solely from the documentation attached to the project's CCaRS record. If not, they must take action to revise the score(s) prior to formal submission. Moreover, they must ensure their ALC's submissions are in accordance with the CIP Data Call SOCCER.

4.1.9.6.3. Milestone 3. AFSC/LZDA must consolidate, verify, validate, identify and work submission shortfalls (with the ALC CIP Manager), and score each of the requirement's (using only the documentation attached to the project's CCaRS record). After scoring, representatives from AFSC/ENS/FZB/PZI will review the project's from their functional perspective (ENS: technical requirements and risk, FZB: EA assessment and Funds category, PZI: acquisition strategy) and provide recommendations based only on their functional area of responsibility. **Note:** A non-recommendation and the supporting comments made by AFSC/ENS/ FZB/LZD/PZI do not disapprove a project. Upon completion, AFSC/LZDA must annotate the ALC's and AFSC's project scores in the Custom Date Fields of the appropriate CCaRS record. Furthermore, they must provide a 1-N Enterprise Requirements List that includes AFSC/ENS/FZB/PZI's recommendations, comments, and documented concerns along with the two out-year requirements listings to AFSC/LZD (Goal: late-March).

4.1.9.6.4. Milestone 4. AFSC/LZD must brief the CIP 1-N Enterprise Requirements List to include documented recommendations and concerns along with the two out-year requirements listings to the Depot Maintenance Execution Group (DMEG) (Goal: early-April).

4.1.9.6.5. Milestone 5. AFSC/LZD must brief the CIP 1-N Enterprise Requirements List to include documented recommendations and concerns along with the two out-year requirements listings to the AFSC Integration Board (Goal: mid-April).

4.1.9.6.6. Milestone 6. AFSC/LZD must brief the CIP 1-N Enterprise Requirements List to include documented recommendations and concerns along with the two out-year requirements listings to the AFSC/CA. (Goal: late-April).

4.1.9.6.7. Milestone 7. AFSC/CA must render a funding determination on the proposed CIP 1-N Enterprise Requirements Lists. Once the determination is made, AFSC/CA must take action to formally approve a CIP 1-N Enterprise Investments List and acknowledge the two out-year requirements listings (Goal: late April).

4.1.9.6.8. Milestone 8. Upon receipt of the approved CIP 1-N Enterprise Investments List, AFSC/LZDA must generate an Authority to Advertise (ATA) Letter that identifies the approved investments as well as the out-year requirements for

AFSC/LZD/FZB/PZI signature. Upon obtaining all signatures, AFSC/LZDA must distribute the ATA letter to AFSC/FZB/FZRA, the ALC CIP Managers, and the ALC's MIPR Support sections. (Goal: late-April).

4.1.9.6.9. Milestone 9. Upon receipt of the ATA letter, the ALC CIP Manager must provide a copy of the letter to all the appropriate organizations/agencies/individuals for their action and suspense the project engineers to provide estimated submission dates for their associated procurement package.

4.1.9.6.10. Milestone 10. Upon receipt of the procurement package submission dates, the ALC CIP manager must provide the appropriate contracting agency a copy of the ATA letter that identifies the projects requiring their action to include the estimated procurement package submission dates. The CIP manager must also initiate action to ensure skeleton accounting addresses are built for all investments prior to the start of the upcoming FY.

4.1.9.6.11. Milestone 11. Upon receipt of the ATA letter, the contracting agency must initiate action to assess the procurement strategies for each of the projects, identify the appropriate contracting milestones, and provide the estimated milestone dates to the ALC CIP Manager prior to the end of August for development of the ALC's Obligation Baseline Plan.

4.1.9.6.12. Milestone 12. The ALC CIP manager must develop their Baseline Obligation Plan, obtain their ALC Commander's approval, and submit the plan to AFSC/LZDA prior to the start of the fiscal year.

4.1.9.6.13. Milestone 13. AFSC/LZDA will review the ALC's plans against the obligation goals and take action if necessary. Next, they must consolidate the ALC plans and take action via the corporate board process to obtain AFSC/CA approval.

4.1.10. Funding Activities.

4.1.10.1. Annual Operating Budget (AOB). The AOB provides Capital Obligation Authority by funds categories (ADPE, MC, SW, T&IE, and WSS). The Capital Obligation Authority represents a limitation subject to the provisions of Title 31 USC § 1517, *Prohibited Obligations and Expenditures*. Obligations are not to be incurred beyond the total approved amount shown for each year for the Capital Budget without the specific prior approval of SAF/FM. **Note:** The AOB is based on Congressional approval of the President's Budget (PB) that is released prior to the start of the FY.

4.1.10.2. AFSC/FZRA/LZDA must review the AOB against the AFSC CIP budget (CSAGM) submission and work with AFSC/FZB to resolve any issues.

4.1.10.3. Upon receipt of the SAF AOB, HQ AFMC/FMR must issue an AFMC CSAG Maintenance AOB to AFSC/FZB/FZRA/LZDA and the CCaRS-DBA for their action.

4.1.11. Funds Distribution.

4.1.11.1. Upon formal receipt of the AOB, the CCaRS-DBA must load the AOB dollar values to CCaRS and AFSC/LZDA must initiate CCaRS actions to distribute funding to the ALCs.

4.1.11.2. As soon as the ALC loads the distributed funds into DIFMS, the ALC CIP Manager must initiate a Target Load Sheet (TLS) for each of the approved investments to facilitate loading of funds into the General Accounting And Finance System (GAFS/BQ) at the Customer Order Number (CON) or project level. **Note:** Individual TLSs must be submitted for each of the appropriate funding categories (i.e., ADPE, MC, SW, T&IE, and WSS) within five business days.

4.1.11.3. AFSC/LZDA must review and coordinate on all TLSs to ensure that funds are being applied to the appropriate investment in the correct dollar amount.

4.1.11.4. AFSC/FZRA must review and approve all Advices and TLSs.

4.1.11.5. The ALC CIP Manager must ensure approved TLSs have been processed into GAFS/BQ to support execution. **Note:** Funding documents other than planning PRs, will not be issued until TLSs have been processed.

4.1.11.6. AFSC/LZDA is the approval authority for authorizing the use of un-allocated, residual, fall-out, or plus-up funding. AFSC/LZDA must ensure all budget year investments as well as all prior year requirements are fully funded prior to distributing funding for other investments. Approval must be based on the enterprise priority, availability of funds, and ability to obligate the funds. **Note:** AFSC/LZDA has authority to provide funding for any project identified on the ATA letter.

4.1.12. Execution Activities.

4.1.12.1. The ALC CIP Manager must ensure program execution IAW the AFSC/CA approved Baseline Obligation Plan, adhere to the OSD Obligation Goals, and strive to achieve the AFSC Obligation Goals.

4.1.12.2. OSD Obligation Goals. The OSD obligation goals are documented on the SAF AOB and are generally: 50 percent by the end of March, 75 percent by the end of June, and 100 percent by the end of the September.

4.1.12.3. AFSC Obligation Goals. The AFSC obligation goals are 25 percent by the end of December, 50 percent by the end of March, 80 percent by the end of June, and 100 percent by the end of August.

4.1.13. Obligation Planning and Reporting.

4.1.13.1. The ALCs must develop a program year Baseline Obligation Plan that adheres to achieving the OSD and AFSC obligation goals and the ALC CIP manager must submit the ALCs Baseline Obligation Plan to AFSC/LZDA per Milestone 12.

4.1.13.2. Obligation Review. AFSC/LZDA must schedule an annual obligation review with the ALCs to assess the risk of all unobligated investments (Goal: mid-May).

4.1.13.2.1. The ALC CIP Manager must work with their leadership to assess the risk for each of their unobligated investments. Furthermore, they must provide their ALCs assessment and recommendations to AFSC/LZDA prior to the scheduled AFSC/LZD obligation review.

4.1.13.2.2. AFSC/LZD must conduct an obligation review with the ALCs to discuss their assessments, proposed recommendations, and to render a decision on how to proceed.

4.1.13.2.3. Once AFSC/LZD renders a decision, AFSC/LZDA must notify the appropriate ALC CIP Managers and AFSC/FZB/FZRA of the decision.

4.1.13.2.4. Upon notification, the ALC CIP Manager must notify the appropriate organizations/individuals of the obligation review decisions and initiate the appropriate actions.

4.1.14. Commitments and Obligations.

4.1.14.1. Obligation documents bind government dollars for specific investments. Examples of obligation documents include but are not limited to: formal contracts, CAT I Military Interdepartmental Purchase Requests (MIPRs); CAT II MIPRs (binding upon contract award); Miscellaneous Obligation Reimbursement Documents (MORDs).

4.1.14.2. AFSC/CA is the MIPR approval authority for all non-Program Executive Office (PEO) acquisitions $500K or greater unless the MIPR is for equipment identified under Federal Supply Group 3400 that will be going to DLA. **Note:** A copy of the ATA letter must be attached to all MIPR packages to ensure the ALC's MIPR support section is aware of the fact that AFSC/CA has already approved the project.

4.1.14.3. Commitments and obligations are posted to Defense Finance and Accounting Service (DFAS) upon occurrence for each investment. Whenever a DFAS transaction occurs, the ALC CIP Manager must ensure the transaction is correct or take immediate action to correct the discrepancy, and must reconcile the transaction in CCaRS. **Note:** A funding document is considered committed upon certification.

4.1.14.4. Obligation of funds must adhere to the stipulations of the AOB. Additionally, for SW development or modernization, obligation of funds must adhere to the requirements set forth within Title 10 USC § 2222 if the SW involves a defense business system and plans to spend over $1.0M during the current year and the next five years. Any deviation from the AOB without prior approval from AFSC/FZB, HQ AFMC/FMR, or higher authority is subject to the consequences of the Anti-Deficiency Act and other public laws as appropriate (see DoD 7000.14-R, Volume 2B, Chapter 9).

4.1.14.5. AFSC/FZB must report the ALCs' obligation status during all CIP Execution Reviews or as otherwise directed.

4.1.14.6. The ALC CIP manager is responsible for tracking and reporting the status of all MIPRs to their leadership and AFSC/LZDA on a monthly basis.

4.1.14.7. Upon contract award, the ALC CIP Manager must take immediate action to return all unobligated/residual funds to AFSC/LZDA as soon as possible.

4.1.15. Realignment of Funds.

4.1.15.1. Realignment of funds is the movement of current year funds within the same category, e.g. WSS, T&I, MC, ADPE, SW. The ALC CIP Manager must execute their program according to their funding authority and minimize or eliminate the need for realignment actions. If realignment of funds becomes necessary, the ALC CIP Manager must request a realignment by accomplishing and processing a TLS.

4.1.15.2. Realignment of SW funds for investments supporting SW Development or Modernization. If the investment was previously required to submit a request for

obligation authority under Title 10 USC § 2222, then an out of cycle request must be submitted to change the amount of obligation authority. The request will be worked through the local IT portfolio management organization and the applicable HQ AFMC functional organization.

4.1.15.3. Realignment Approval. AFSC/LZDA must review and coordinate on all requests and AFSC/FZRA must complete all approval actions in CCaRS, document the 9a and 9c, and adjust funding advices. Upon notification of approval, the ALC CIP Manager must ensure associated documentation, e.g., 9b, EA, MFR, and CCaRS records, are annotated accordingly within five business days.

4.1.16. Reprogramming of Funds.

4.1.16.1. Reprogramming of funds is the movement of funds between different FYs (i.e., prior year cost increase) or funds categories. The ALC must make every effort to minimize or eliminate the need for reprogramming. If reprogramming of funds becomes necessary, the ALC CIP Manager must inform AFSC/LZDA of their request and AFSC/LZDA must initiate the appropriate actions to garner approval.

4.1.16.1.1. Reprogramming of SW funds for investments supporting SW Development or Modernization. If the reprogramming of funds involves a software development or modernization investment and the IT system program involved was previously required to submit a request for obligation authority under Title 10 USC § 2222, then an Out-Of-Cycle request to change the amount of obligation authority must be worked through the local IT portfolio management organization and the applicable HQ AFMC functional organization.

4.1.16.1.2. Reprogramming Authority. The CSAG Maintenance Division may without prior approval from OUSD(C) Operations Directorate reprogram up to $5M between approved capital budget projects for minor construction and non-ADP equipment and reprogram up to $1M between ADP and software projects in a fiscal year program. Deviations from the PB that are consistent with the reprogramming criteria noted above must be identified to the Director for Office of the Under Secretary of Defense (OUSD) Revolving Funds within 15 days of occurrence or during the quarterly execution reviews, whichever occurs first (see: Air Force Working Capital Fund (AFWCF) CSAG-Maintenance Fiscal Year Obligation Authority and DoD 7000.14-R, Volume 2, Chapter 9).

4.1.16.1.3. If reprogramming is required, AFSC/LZDA must work with AFSC/FZB to accomplish a reprogramming package to obtain AFSC/FM approval for submission to HQ AFMC/FMRS to staff the request for formal submission to SAF/FMBOR for consideration. If the request requires OSD approval, SAF/FMBOR will accomplish all additional actions.

4.1.16.1.4. Approved Reprogramming Request. Upon receipt of a new SAF AOB, HQ AFMC/FMRS must issue a new HQ AFMC AOB to AFSC/FZB/FZRA/LZDA.

4.1.17. Carryover of Capital Authority.

4.1.17.1. Request for CIP Carryover Authority. Upon notification of OSD's Request for CIP Carryover Authority (generally June/July), AFSC/LZDA will provide the ALC CIP Manager a carryover template and instructions. The ALC CIP Manager must annotate

the request, obtain senior leadership approval, and submit the request to AFSC/LZDA for their action.

4.1.17.2. AFSC/LZDA will review the ALC submissions, work with the ALC CIP Manager to resolve any shortfalls, consolidate the ALC's request, and submit the request to AFSC/FZB for their action.

4.1.17.3. AFSC/FZB will review the request to determine if adequately justified prior to submission to HQ AFMC/FMR for their action.

4.1.17.4. HQ AFMC/FMR will review and formally endorse the request for submission to the SAF/FMB Director for OUSD Revolving Funds for consideration. If OSD grants carryover authority, SAF/FMB will notify HQ AFMC/FM of the approval and identify the dollar value on next year's AOB under the Prior Year Capital Obligation Authority. IAW SAF/FMB direction, all funds approved for carryover must be obligated NLT the end of the first quarter unless otherwise directed.

4.1.18. Prior Year (PY) Cost Increases.

4.1.18.1. All validated within scope prior year cost increases must use current year (CY) CSAG Maintenance budget authority to fund the increases.

4.1.18.2. When notified of a prior year cost increase, the ALC CIP manager must initiate action for the accomplishment of a "Request for Prior Year Capital Obligation Authority Adjustment" and eSSS.

4.1.18.2.1. Upon receipt of a "Request for Prior Year Capital Obligation Authority Adjustment" and eSSS, the ALC CIP manager must review the request for accuracy, completeness, and that all the required ALC organizations have coordinated on the eSSS. The ALC CIP manager must coordinate on the eSSS and submit it to AFSC/LZDA.

4.1.18.2.2. AFSC/LZDA must review all PY request for accuracy, completeness, and ensure the eSSS has all the required ALC coordination's. The ALC CIP manager must coordinate on the eSSS, and submit it to AFSC/FZB.

4.1.18.2.3. AFSC/FZB must review all PY request for accuracy, completeness, and ensure the eSSS has all the coordinations. AFSC/FZB must coordinate on the eSSS and staff it with AFSC/FM for a funding determination. If AFSC/FM disapproves the request, they must annotate the eSSS accordingly and AFSC/FZB must return the request and eSSS to AFSC/LZDA and the appropriate ALC CIP manager. If AFSC/FM approves the request, AFSC/FZB must return the request and eSSS to AFSC/LZDA and the appropriate ALC CIP Manager. Furthermore, they must have AFSC/LZDA generate a reprogramming request for submission to SAF.

4.1.18.2.4. If SAF approves the request, they must take action to obtain OSD's approval to issue a new AOB. Upon approval, SAF must issue a new AOB to HQ AFMC/FMR for their action.

4.1.18.2.5. Upon receipt of the new AOB, the CCaRS-DBA must load the AOB to CCaRS and adjust the funding values. AFSC/LZDA will initiate actions to distribute the required funding to the appropriate ALC and AFSC/FZRA will document the Exhibit Fund 9c.

4.1.18.2.6. Upon receipt of funds, the ALC CIP Manager must ensure the associated documentation and CCaRS records are annotated within one business day. Furthermore, the ALC CIP Manager must ensure the funds are fully obligated prior to the end of the current fiscal year.

4.1.19. Out-of-cycle (OOC) Request.

4.1.19.1. The ALC/CC, Group Commander, or ALC CIP Management office can submit an OOC request at any time throughout the program year to add, cancel, or move a project between fiscal years.

4.1.19.2. The ALC CIP Manager must ensure the OOC request includes the Project Title, CSN, CCaRS #, Dollar Value, Funding Category, Reason for the Request and that the letter was signed by the appropriate Group commander (or higher) prior to submitting it to AFSC/LZDA for their action.

4.1.19.3. AFSC/LZDA has authority to approve any OOC request to cancel a project, move a project between program years, or fund an out year project as long as the project is identified on the ATA letter. If the project is not on the ATA, the project must be staffed for AFSC/CA's approval. However, if the request is for an urgent or emergency requirement, AFSC/CA has granted AFSC/LZD authority to fund the project. After doing so, AFSC/LZD must notify AFSC/CA of their action via an Items of Interest (IOI) or other approved method. Upon approval of an OOC, AFSC/LZDA must return the request to the ALC and provide a copy to AFSC/FZRA. **Note:** Urgent or emergency requirements are defined as requirements that will eliminate work stoppages that are directly affecting production or requirements that will correct problems or violations involving health, safety, fire protection, pollution, or security which are serious, urgent, and hazardous.

4.1.20. Interim Payments.

4.1.20.1. If a contractor requests interim payments for commercial items, the ALC contracting office must work the request with the MAJCOM Director of Contracting, SAF/AQCK, SAF/FMPS, and AFSC/FMRA/LZDA (reference Air Force Federal Acquisition Regulation (AFFAR) Part 5332, *Contract Financing*).

4.1.20.2. The ALC contracting office will accomplish the following and submit to the MAJCOM Director of Contracting for action: staff summary sheet; proposed SAF/FMPS memorandum requesting financing; background paper on commercial financing; determination of findings for use of commercial interim financing.

4.1.20.3. If the MAJCOM Director of Contracting approves an interim payment request, the request will be submitted to HQ AFMC/FM for review and for submission to SAF/AQCK and SAF/FMPS for action.

4.1.21. Current Year Cost Increases.

4.1.21.1. Upon notification of a current year cost increase, the ALC CIP Manager or Group CIP Manager/Monitor will accomplish a "Request for Current Year Obligation Authority Adjustment" letter and submit it to AFSC/LZDA for action.

4.1.21.2. Upon notification of approval, the ALC CIP Manager will ensure the associated documentation, e.g., Fund Exhibit 9b and CCaRS record, is annotated accordingly within two business days.

4.1.22. Post Obligation Activities.

4.1.22.1. Upon in-house acceptance or contract award, the appropriate in-house or contracting agency must provide the ALC CIP Manager a copy of the in-house agreement or contractual documentation to include an estimated delivery date.

4.1.22.2. The ALC CIP Manager or Group CIP Manager/Monitor must attach all contractual documentation (e.g., MORD, CAT I MIPR, CAT II MIPR, or In-house agency agreement) to the project's CCaRS records under the "Obligations – Attachments" section. Furthermore, they must determine the Original FOC date for the item by adding the EIP or EEP completion time frame to the estimated delivery date. Once the Original FOC date is determined, the date must be entered into the project's CCaRS record under the Custom Dates section in the "Original FOC" date field (not the "Planned FOC" date field). **Note:** The "Original FOC" date will be the baseline date for the project.

4.1.22.3. If the estimated delivery date of an asset goes past due, the project engineer must notify their Group CIP Manager/Monitor or the ALC CIP Manager, and immediately contact the appropriate contracting agency to take action to resolve the matter. Upon resolution, the ALC or Group CIP Manager/Monitor will change the estimated delivery date in the CCaRS Custom Dates section.

4.1.22.4. Upon delivery of the asset, the ALC CIP Manager or Group CIP Manager/Monitor must annotate the "Delivery date" in the Custom Dates section of the project's CCaRS record. Furthermore, they must work with the project engineer to review the project's EIP or EEP to ensure the completion time frames are still good for the asset to achieve FOC by the date in the "Original FOC" field of the project's CCaRS record. If the Original FOC date is not achievable, the project engineer must take action to correct the plan and determine a new FOC date. Upon determining the new FOC date, ALC CIP Manager or Group CIP Manager/Monitor must annotate that date in the project's CCaRS record under the Custom Dates section in the "Planned FOC" date field (not the "Original FOC" date field). **Note:** The "Original FOC" date is not allowed to be changed.

4.1.22.5. AFSC/LZDA will develop and provide an FOC reporting template to the ALC CIP Manager.

4.1.22.6 The Group CIP Managers must use the FOC reporting template to report the current status of all their projects that have gone past their "Original FOC" dates. They must provide their report to the ALC CIP manager on a monthly basis. The ALC CIP Manager must report their ALC's FOC status to AFSC/LZDA NLT the seventh day of the month or as directed.

4.1.22.7. The ALC CIP Manager and Group CIP Manager/Monitor are responsible for updating the CCaRS database on a daily basis.

4.1.22.8. The ALC CIP Manager must conduct a CCaRS reconciliation a weekly basis (or sooner) and take action to resolve any issues.

4.1.23. Post Implementation Analysis Plan (PIAP).

4.1.23.1. A PIAP and reporting is mandatory for all CIP investments of $1M or greater and for those costing $250K or more that are for improved productivity and for replacement items that can outperform an existing item. **Exception:** Environmental, hazardous waste reduction, or requirements mandated by a regulatory agency (state, local, or federal) including directed action by a higher DoD or component authority which does not allow a choice.

4.1.23.2. Once a CIP asset achieves FOC, the ALC CIP Manager must initiate action for the project engineer to begin the post implementation analysis (PIA) identified in the project's PIAP and notify the appropriate Group Commander. **Note:** The project's post implementation analysis must be finished within three years IAW AFMAN 65-605V1, *Budget Guidance and Technical Procedures*.

4.1.23.3. The Group Commander must ensure the project engineer completes the PIA within three year and that the project engineer provides their closing assessment to the ALC CIP Manager within 30 days of completion.

4.2. Funding Activities and Equipment Management.

4.2.1. Purpose and Applicability.

4.2.1.1. To ensure depot maintenance activities are adequately sustained for the CSAG-M industrial base and infrastructure.

4.2.2. Scope.

4.2.2.1. This area highlights the policies and justification process underlying the formulation of requirements.

4.2.3. Methodology.

4.2.3.1. The CIP provides all depot maintenance working capital funded organizations with a method for budgeting and funding equipment requirements. Assets will be capitalized and depreciated over the useful life and funds will be recovered through the sales rate charged to the customer.

4.2.4. Funding.

4.2.4.1. CIP funding can only be used to finance legacy systems and/or support systems. Specific items that must be financed with appropriated funds are listed in the DoD FMR 7000.14-R, Volume 2B, Chapter 9, Section 090104.E.

4.2.4.1.1. New weapon system and/or support systems must be financed with appropriated funds (activation funds) IAW DoD FMR 7000.14-R, Volume 2B, Chapter 9, Sections 090104.B. and 090104.H.2. Assets required for depot activation or stand up must be funded with appropriated funds (activation funds) IAW AFMCI 21-100. **Note:** The AF uses a single capital investment funding appropriation line in conjunction with an acquisition program.

4.2.4.2. Equipment financed by CSAG-M must be used by organic depot maintenance activities. The equipment must be utilized to the extent that full cost recovery is ensured through depreciation and rate structure so that equipment recapitalization may occur.

4.2.4.3. In cases where assets are co-used by non-CSAG-M activities, appropriate cost sharing will occur and a Memorandum of Agreement (MOA) or service level agreement will be established if the use is on a continuous basis. Payment for equipment use will be for actual cost (depreciation, maintenance, repair, and administrative costs). Payment can be in cash (treated as a refund) or an in-kind exchange (reduce base operating support payments). **Note:** CIP funding execution authority does not apply to non-CSAG-M interests.

4.2.5. Depreciation.

4.2.5.1. All CSAG-M capital assets (regardless of the initial capitalization source) are depreciated over the useful life (reference DoD FMR 7000.14-R, Volume 2B, Chapter 9, Section 090104 and Volume 4, Chapter 6, Section 060205.). Depreciation measures how much of a given resource is consumed and is part of the total cost of producing an output. The planned annual depreciation expense is recovered through the sales rates charged to the customer, thereby recovering the total asset cost over the useful life. Recovery of depreciation expense is the primary financing source for future capital investments.

4.2.5.1.1. Method of Depreciation. Apply straight-line depreciation based on capitalized amount less residual value including installation costs. DWCF will use the DoD recovery periods for depreciable assets (reference DoD FMR 7000.14-R, Volume 4, Chapter 6, Section 60205.J. and AFMAN 65-605V1. DWCF activity will continue to report and depreciate capital assets until the book values of the assets reach zero or the residual value, as appropriate (reference DoD FMR 7000.14-R, Volume 2B, Chapter 9, Section 090104).

4.2.5.2. Transferred or Contributed Assets. ALCs must recover the remaining depreciation value of the assets (reference DoD FMR 7000.14-R, Volume 11B, Chapter 2, Section 020402.C.).

4.2.5.3. Public Private Partnership (PPP). Assets acquired through PPP are not depreciable unless the government obtains title of each asset (reference DoD FMR 7000.14-R, Volume 2B, Chapter 9, Section 090105.). **Note:** Any ATS/ATE acquired through PPP that becomes government owned must comply with DoD ATS standardization policy requirements.

4.2.5.4. Methodology. Accurate accounting is critical to ensure depreciation is captured for financing recapitalization. All CSAG-M equipment must be accounted for by the ALC in the DIFMS.

4.2.5.4.1. DIFMS is the financial management system that is used to capture and depreciate capital asset's cost according to the financial policies (reference AFMCI 65-101).

4.2.5.4.2. AMARG uses a local inventory/accounting system, and will follow the same policies and procedures as the ALCs to the maximum extent possible.

4.2.5.5. Commencement of Depreciation.

4.2.5.5.1. CIP assets must be declared FOC before initiating depreciation. As soon as FOC is formally declared, the ALC CIP Manager must take action to ensure

depreciation commences and that the asset is recorded as FOC in DIFMS. The acceptance date must be recorded as the serviceable date.

4.2.5.5.2. Depreciation of Hardware ADPE assets. If one ALC is acting as the broker for an ADPE asset that will be used at another ALC, depreciation must be divided equally. Depreciation should begin in the month following the date the ADPE is installed and operational regardless of whether it is actually used. If the ADPE supports only one ALC, depreciation will be accomplished IAW DoD FMR 7000.14-R, Volume 4, Chapter 6, Section 60205.J and AFMAN 65-605V1.

4.2.5.6. Depreciation Reporting.

4.2.5.6.1. The DIFMS Fixed Assets report (7310-501) and the Assets Under Development report (7310-512) reports from the DIFMS On-Line-Report-Viewing (OLRV) will be used for deriving and reporting planned and actual depreciation values.

4.2.5.6.2. Each ALC must report their anticipated depreciation values for the budget year, plus two additional out years during the annual CIP Data Call cycle. **Note:** These values will be broken out by the funding category (i.e., ADPE, MC, SW, T&IE, and WSS) so that AFSC/FZR can submit them for inclusion in the BES.

4.2.5.7. Management.

4.2.5.7.1. To enable results measurement, the ALCs will maintain records of all capital assets procured through the DWCF or contributed to CSAG-M organizations via non-DWCF sources. Full accounting of all capital assets ensures realistic projections of depreciation costs accrued and enables full recapitalization.

4.2.6. Equipment Authorization.

4.2.6.1. All depot equipment purchases must be authorized on the unit's equipment Allowance Standard. Depot activities at OO-ALC, OC-ALC, WRALC, and 309 AMARG are authorized to use ASC 042 for non-stock listed equipment that directly supports depot programs or projects which has been determined to be a onetime buy (see AFMAN 23-122).

4.2.7. Project Folders.

4.2.7.1. The Group CIP Manager/Monitor must establish equipment/project folders for all equipment purchased through the DWCF or contributed via non-DWCF sources. Electronic project folders may be utilized if directed by the ALC leadership. Folders must be retained for the specific retention periods IAW DoD FMR 7000.14-R, Volume 1, Chapter 9, Figure 9-1.

4.2.7.1.1. At a minimum, each project folder must identify the following information: the date the project folder was last reviewed for completeness; organization/building location; national stock number (NSN); control symbol number (CSN); serial number; custodian account number; document number; nomenclature; procurement cost; installation cost; significant events; plant account number (PAN); applicable DIFMS Account Code 14, 24, or 84 documentation; any other information that further documents the asset. **Note:** Overarching guidance or local directives may require additional items be included.

4.2.7.1.1.1. DIFMS Account Code "14" (Purchased Equipment). The following will be included: copy of signed purchase contract, engineering specifications (local purchase only), EA with supporting data or a cost analysis, vital mission approval document (if accomplished), simulation model (if accomplished), post implementation benefits analysis (if $1M or greater), DD Form 250, *Material Inspection and Receiving Report* (optional), DD Form 1149, *Requisition and Invoice/Shipping Document,* DD Form 1150, *Request For Issue/Transfer/Turn-In*, DD Form 1348, *DoD Single Line Item Requisition System Document (Manual)*, DD Form 1423*, Contract Data Requirements List*.

4.2.7.1.1.2. DIFMS Account Code "24" (Contributed Equipment). The following will be included: copy of signed purchase contract or D043, DD Form 250 (optional), DD Form 1149, DD Form 1150, DD Form 1348.

4.2.7.1.1.3. DIFMS Account Code "84" (Non-DMAG Owned Equipment). The following will be included: a maintenance agreement containing replacement responsibility, return rights, return date specified, and disposal instructions.

4.2.8. Turn-in of Excess Equipment.

4.2.8.1. DWCF equipment that is being replaced or is no longer required to support a valid workload/mission must be declared excess. Prior to transfer, turn-in, or disposal of DWCF funded equipment, the unit's Equipment Custodian or Equipment Management Element must notify the Group CIP Manager/Monitor of their intent and await concurrence before initiating any formal actions.

4.2.8.1.1. The Group CIP Manager/Monitor will verify the asset isn't required by another group within the ALC. If no other group requires the item, they will inform the ALC CIP Manager of their intent to turn in the asset and notify the Equipment Custodian or Equipment Management Element to initiate formal turn-in action.

4.2.9. Equipment Installation.

4.2.9.1. Site preparation for the installation of equipment including costs such as direct foundation work (supporting concrete slab) and secondary utilities will be included in the total project cost and not as a separate minor construction cost.

4.2.9.2. The Equipment Custodian or Equipment Management Element must notify the project engineer and Group CIP Manager/Monitor of all equipment deliveries within five business days. Once the equipment arrives, the Group CIP Manager/Monitor or ALC CIP Manager must annotate the delivery/acceptance date in the project's CCaRS record.

4.2.9.3. Once the equipment arrives, the project engineer must take action to ensure the equipment is installed and achieves FOC in accordance with the approved EIP or EEP. The Group CIP Manager/Monitor must monitor the project for compliance and report the status to the ALC CIP Manager on a monthly basis until FOC is achieved. If the project engineer determines the equipment will not achieve FOC in accordance with the approved EIP or EEP, they must immediately notify the Group CIP Manager/Monitor or ALC CIP Manager, revise the EIP or EEP, provide the revised EIP or EEP to their Group/Commander for concurrence, and provide the revised EIP or EEP to the Group CIP Manager/Monitor for submission to the ALC CIP Manager.

4.2.9.3.1. Upon receipt of a revised EIP/EEP, the ALC CIP Manager will take immediate action to obtain the appropriate ALC level of approval.

4.2.9.3.2. Upon approval, the ALC CIP Manager will notify the Group CIP Manager/Monitor, project engineer, and AFSC/LZDA, and will document the revised FOC date in the "Planned FOC" data field versus the "Original FOC" data field of the Custom Dates section and attach the revised EIP or EEP to the CCaRS record. The Group CIP Manager/Monitor will monitor the project for compliance and report the status to leadership and the ALC CIP Manager on a monthly basis until FOC is achieved.

4.2.9.3.3. Upon notification of approval, the project engineer will take action to ensure FOC is achieved IAW the revised EIP or EEP and provide monthly status reports (or as directed) to the Group CIP Manager/Monitor and ALC CIP Manager until FOC is achieved. Once all EIP or EEP criteria is achieved, the project engineer must formally report the asset as being FOC to the Group CIP Manager/Monitor who must report it to the ALC CIP Manager. **Note:** To declare an asset FOC, the project engineer will verify the asset is functionally acceptable, certified for operation, and production ready to perform the associated depot maintenance workload.

4.2.9.3.4. Once the ALC CIP Manager receives notification that the asset is FOC, they must annotate the FOC date in project's CCaRS record, ensure the asset is properly documented in DIFMS, initiate depreciation, and notify AFSC/LZDA/FZRA/FZRE.

4.2.10. Automatic Test System (ATS) and Automatic Test Equipment (ATE).

4.2.10.1. OSD and Department of the Air Force has provided guidance to minimize unique types of ATS being introduced into the DoD inventory (reference AFI 63-101/20-101). The intent is to provide an environment that reduces proliferation of unique, proprietary systems and to leverage the benefits of industry standards regarding hardware, software, and COTS technology. The ultimate goal is to reduce total ownership cost of ATS. **Note:** Additional information concerning ATS policy including ATS selection process guide can be accessed at: https://www.acq.osd.mil/log/MPP/ats.html

4.2.10.2. DoD ATS Selection Process. Any time one of the following occurs, the DoD selection process applies: Adding new capability to a tester in the inventory; adding workload (new TPS(s) to an existing tester; purchasing more ATS of a tester already in the inventory; modification of an ATS; or buying new test equipment. **Note:** DoD has directed the use of a DoD approved ATS family of testers located at (https://www.acq.osd.mil/log/MPP/ats.html) as the preferred solution for ATS requirements. All other ATS solutions require an ATS standardization deviation waiver routed through the AF ATS PGM (AFLCMC/WNA).

4.2.10.2.1. The Air Force's Versatile Depot Automatic Test System (VDATS) was identified as a member of the DoD standard family of testers. The first priority in selecting a tester for a weapon system requirement is to use VDATS or another DoD designated "Family of Testers".

4.2.10.2.2. ATS and ATE solutions not identified within the DoD "Family of Testers". If a non-DoD "Family of Testers" is being pursued to satisfy a requirement, it must be coordinated on by the ATS PGM office (AFLCMC/WNA) during the requirements development phase prior to budget submission. **Note:** The ATS PGM office coordination (e.g. E-Mail, MFR, etc.) must be attached to the project's CCaRS record.

4.2.10.3. Depot-only ATS. Depot-only is defined as those systems residing only at the depots where field activities do not have like systems. This includes hardware, operating system software, Unit Under Test (UUT), and TPS (UUT specific hardware, software, and documentation).

4.2.10.4. Configuration Control. All ATS projects developed locally at a depot must be coordinated and validated through the ATS PGM office. The ATS PGM will address Integrated Logistics Support (ILS) elements and Operational Suitability, Safety, and Effectiveness (OSS&E) requirements for the Command. Unless the ATS PGM specifically grants local purchase authority, all ATS projects will be centrally procured through them. CSAG-M activities shall not modify or change configuration of ATS managed projects without ATS PGM office coordination and validation.

4.2.10.5. Engineering support activities associated with ATS/ATE investments cannot be funded with CSAG-M dollars.

4.2.11. Mechanized Materiel Handling System (MMHS).

4.2.11.1. CIP will fund all MMHS used and owned by CSAG-M activities. MMHS projects ($250,000 or greater) will be planned, programmed, and budgeted like a normal equipment project. MMHS includes the composite methods, techniques, process controllers, and equipment shelters required for handling materials in a proven mechanized manner with a dedicated function. Examples of MMHS are wire or rail guided vehicles, pneumatic tubes, other small part conveying systems, automatic storage and retrieval systems, outdoor storage and retrieval systems, or any combination of the above.

4.2.12. Management of Computer Numerical Control (CNC) Equipment.

4.2.12.1. The ALCs adopted G-Code as a standard manufacturing language for CNC/NC machines. G-Code specifies a particular format for NC data. All CNC/NC equipment purchases will use G-Code as the standard language unless a compelling reason can be justified and documented.

4.2.13. Technology Application/Insertion Infrastructure.

4.2.13.1. Technology Application/Insertion Infrastructure projects are defined as those projects that apply existing proven technology that currently does not exist within a depot to solve problems and improve performance of production processes. **Note:** Projects which require basic research or development of unproven technologies do not qualify for CIP funding. However, if a given technology currently exists and a requirement calls for insertion of this proven technology into DWCF operations, the efforts necessary for introduction into depot operations can be funded with CIP.

4.2.13.2. Technology Application/Insertion Infrastructure projects will be planned, programmed, budgeted, and economically justified like all other projects.

4.2.13.3. All Technology Application/Insertion Infrastructure projects will be coordinated as part of the Technology Development and Insertion Process (TDIP) and submitted to AFSC/EN Technology Insertion Branch (reference AFSCI 61-101) prior to budget submission.

4.2.14. Environment, Safety, Health, and Energy.

4.2.14.1. CSAG-M assets purchased to alleviate environmental, safety, health, or energy deficiencies that qualify for CIP funding will be planned, programmed, budgeted, and economically justified like all other projects.

4.2.14.2. Consideration for safety and health will be a part of all equipment projects according to MIL-STD-882D, *Standard Practice For System Safety*, and AFI 91-202, *The US Air Force Mishap Prevention Program*.

4.2.14.3. Environmental impacts will be assessed in the acquisition and management of CIP equipment according to AFPD 32-70, *Environmental Considerations in Air Force Programs and Activities.*

4.2.15. Technical Data Funding.

4.2.15.1. Financing the procurement and printing of technical data. The source of funds to procure and print technical data depends upon the appropriation or fund that procures

the end item of equipment or system to which the data is applicable (see AFMAN 65-605V1). The associated technical data will support the sustainment strategy of the end item, equipment or system. **Note:** Electronic media is preferred.

4.2.15.1.1. Modifications. Technical data required as a result of a modification to an end item of equipment or system will be paid for with the same appropriation (and budget program) or DWCF activity that pays for the modification.

4.2.15.1.2. Post-Acquisition and Modification Phase. Use O&M in these situations, but only when the technical data support equipment or systems are financed with procurement appropriations (3010, 3011, 3020, and 3080).

4.2.15.1.3. Use DWCF funds for the technical data and associated requirements when the equipment is procured by the DWCF or when modifications to that equipment require technical data after production or modifications.

4.2.15.2. The Performance Work Statement (PWS) for equipment should include a DD Form 1423 with data item descriptions specifying technical data (e.g., illustrated parts breakdown, repair/overhaul manuals, calibration procedures, etc.) as appropriate according to MIL-STD961E, *Defense and Program-Unique Specifications Format and Content,* and MIL-STD962D, *Defense Standards Format and Content*.

4.2.16. Stress Tension Shelters and Aircraft Sun Shades.

4.2.16.1. A stress tension shelter usually has a fabric membrane in tension over a ridge frame while an aircraft sun shade is a modular structure with a maximum of two sides and the sole purpose is to provide minimal shelter from the elements (reference AFMAN 65-605V1).

4.2.16.2. Procurement of aircraft sun shades. The owning organization (group level or equivalent) will develop plans for purchase, installation, acceptance, maintenance, and lifetime sustainment of the aircraft sun shade including any installed utilities as defined in AFMCI 21-100, *Depot Maintenance Management*, Chapter 13. Approval will be obtained IAW AFMCI 21-100 prior to submitting the recommended investment for funding consideration.

4.2.16.3. Funding Determination. To determine the appropriate type of funding for stress tension shelters, aircraft sun shades, and other modular structures reference AFMAN 65-605V1.

4.2.16.4. Upgrading or altering existing aircraft sun shades (including adding a wall(s) or bay) will be approved in the same manner as approval for a new aircraft sun shade IAW AFMCI 21-100. If allied support (e.g., electrical, water, communications, lighting, etc.) is required, reference AFMAN 65-605V1.

4.3. Economics, Benefits, and Simulation Analysis.

4.3.1. Purpose and Applicability.

4.3.1.1. The decision for making capital equipment investments is driven by mission and economic factors. This chapter provides policy and guidance for the justification of CIP investments. The objective is to provide the structure for decision making regarding the capital outlay of DoD resources directed towards the modernization of AFSC depots.

4.3.2. Scope.

4.3.2.1. This policy applies to all capital investments funded by CSAG-M.

4.3.3. Governing Directives.

4.3.3.1. CIP is governed by the DoD FMR 7000.14-R, Volume 2B. Whenever there is conflict between published guidance, the guidance issued by the higher level takes precedence (reference DAFI 33-360).

4.3.3.2. The AF requires an EA to assist in making rational choices among competing alternatives (reference AFI 65-501, *Economic Analysis*).

4.3.3.2.1. AFSC/LZ has specified an alternative threshold of $250K for accomplishing an EA for CIP investments to support AFSC's enterprise prioritization process.

4.3.3.2.2. For software development and modernization, an economic analysis is required to comply with the Clinger Cohen Act (CCA). Full details of CCA compliance to include the requirement to complete an economic analysis in support of software and modernization are contained in DoDI 5000.02, *Operation of the Defense Acquisition System*.

4.3.3.3. Instructions for accomplishing an economic analysis is contained in AFI 65-501 and AFMAN 65-506, *Economic Analysis*.

4.3.4. EA Initiation and Certification.

4.3.4.1. Initiation of an EA. An EA will be generated as soon as possible by the requirement generator and submitted for certification via the automated CCaRS workflow in ample time to meet the annual CIP Data Call suspense. Under the AFSC Enterprise Prioritization and Approval Process, an EA is required for all requirements regardless of their dollar value unless a waiver to an EA is approved. **Note:** Waivers for SW and modernization are not available based on the CCA compliance requirements.

4.3.4.2. All EAs and waivers to an EA will be processed through AFSC/FZC for action.

4.3.4.3. Certification of an EA. AFSC/FZC will formally certify all EAs less than $2M and HQ AFMC/FMC will formally certify all EAs $2M or greater. Certified EAs will be attached to the project's CCaRS record.

4.3.4.3.1. An EA is not required if any of the following criteria apply (reference AFI 65-501).

4.3.4.3.1.1. The cost of conducting the analysis clearly outweighs the potential informational benefits to the decision maker.

4.3.4.3.1.2. There is only one method possible to accomplish the objective. If this criterion is used, the justification will describe any possible alternatives and why the alternatives were not viable.

4.3.4.3.1.3. OSD or higher authority directs a new or modified program and specifies how to accomplish program goals.

4.3.4.3.1.4. Legislation specifically exempts the project from an EA or specifically directs the method of accomplishment.

4.3.4.3.1.5. The project corrects problems or violations involving health, safety, fire protection, pollution, or security which are serious, urgent, and hazardous.

4.3.4.4. EA Certification. Once an EA is certified at the appropriate level, the Certificate of Satisfactory Economic Analysis will be attached to the project's CCaRS record.

4.3.5. EA Waiver Request.

4.3.5.1. When an activity determines an EA is not required, a waiver to an EA will be accomplished (reference AFI 65-501). **Note:** Waivers for SW development and modernization are not available based on the CCA compliance requirements.

4.3.5.1.1. Functional offices will prepare a waiver to an EA request using the format in AFMAN 65-506. The request will adequately explain and document the reason why the analysis is not necessary.

4.3.5.2. Approval Authority for a Waiver to an EA.

4.3.5.2.1. AFSC/FM Director/Deputy and FZ-OL at Hill and Robins have approval authority for EA waiver requests that are less than $2M

4.3.5.2.2. SAF/FMCE will approve all requests for investments with a cost of $2M or greater. The OSD Comptroller is the final authority to grant waivers from EA requirements within DoD. **Note:** The functional OPR and MAJCOM Financial Management will both concur with waiver requests prior to submission to HAF A4/7PY for concurrence and submission to SAF/FMCE for approval consideration (reference AFI 65-501).

4.4. Comprehensive Cost and Requirements System (CCaRS).

4.4.1. Purpose and Applicability.

4.4.1.1. CCaRS is a web based tool designed to support a number of key facets of program management. In 2005, HQ AFMC/FM/XR endorsed CCaRS and agreed that all agencies within HQ AFMC should use CCaRS as the preferred tool for requirements management. In 2010, CCaRS was designated as the official system of record for the CIP. CCaRS collects detailed requirements from the project manager, coordinates the effort through an electronic workflow, and automatically reveals fund availability based on priority and budget authority. CCaRS also supports the execution of established budgets by providing the capability to generate funding documents, develop forecasts for obligations and expenditures, and track commitments, obligations, and expenditures.

4.4.2. Scope.

4.4.2.1. This section highlights the utilization of CCaRS for all CIP requirements and applies to all organizations within the ALCs. **Note:** The contents of this section are not all inclusive.

4.4.3. Guidance.

4.4.3.1. Whenever there is conflict between published guidance, the guidance issued by the higher level takes precedence (reference DAFI 33-360).

4.4.3.2. CCaRS will be utilized for all CIP transactions unless otherwise directed by AFSC/LZD.

4.4.4. Policy.

4.4.4.1. The AFSC/LZDA CCaRS Data Base Administrator (DBA) will establish CCaRS user accounts, will notify users of CCaRS changes/issues, and work to resolve all CCaRS related matters.

4.4.4.2. CCaRS Account Users. All potential users will accomplish the appropriate CCaRS DCO training at **http://www.webccar.com/DCO_Training.html** prior to submitting a DD Form 2875, *System Authorization Access Request (SAAR),* to AFSC/LZDA CCaRS DBA to establish a CCaRS account.

4.4.4.3. Establishing CCaRS Records. CCaRS records will be established as soon as possible for all budget year projects plus two additional years.

4.4.4.3.1. The ALC CIP Manager is responsible for all aspects of CCaRS records management and must ensure records are accurately updated in a timely manner and take action to resolve program issues.

4.4.4.3.2. AFSC/LZDA will maintain oversight of the ALCs' CCaRS records management, take action to resolve issues with ALC CIP Managers, and ensure all program reporting to senior leadership is generated from CCaRS.

4.4.4.3.3. AFSC/LZDA/FZRA and the ALCs will initiate all documentation through CCaRS unless there is network/configuration management issues. If this occurs, AFSC/LZDA will notify all users and implement backup measures. Upon resolution, all actions taken outside of CCaRS must be updated in CCaRS as soon as possible.

4.4.4.3.4. Archiving of CCaRS records. The ALC CIP Managers must obtain approval from AFSC/LZDA to archive a CCaRS record.

4.4.4.4. Funding Documents.

4.4.4.4.1. All funding documents will be generated within CCaRS to process through the Automated Business Service System (ABSS) unless approved for cause by AFSC/LZDA. CCaRS provides the ability to create funding documents and interfaces with ABSS. Whether ABSS coordinators have CCaRS access or not, ABSS coordinators will receive the same notifications and have access to review/coordinate on any document initiated within CCaRS **Note:** Individuals who do not have a CCaRS account, but are in the coordination process of ABSS, will receive notifications to review CCaRS released document.

4.4.4.4.2. AFSC/LZDA is responsible for coordinating on all Target Load Sheet (TLS) and OBAN/Target Allowance Form (aka Advice). Furthermore, they are responsible for generating and coordinating on all advices.

4.4.4.4.3. AFSC/FZRA is responsible for approving all TLSs and advices.

4.4.5. Program Management (PM).

4.4.5.1. CCaRS provides historical data for managing projects throughout their lifetime. Data may include: schematics, diagrams, pictures, graphs, spreadsheets, supporting e-mail, work statements, business cost estimates, analysis, funding allocation, and execution documents.

4.4.5.2. The CCaRS data base has five modules of which four are currently being used. The modules are: Program Management; Financial Management; Reconciliation; Reporting; Contract Management (not currently used).

4.4.5.2.1. Program Management Module. This module consists of three primary and subareas: Program Management – Tools; Requirements Management – CCaR List, Create New CCaR, Priority List; and PM Tools – Business Management Report (BMR), BMR Template, Funding Document Request, New Start Form, Government Purchase Card Requirement Form, BMR Chart Export Status.

4.4.5.2.2. Financial Management Module. This module consists of three primary and subareas: Budgeting – Budget Authority, Funding Profile Report, Incoming Documents, Distributed Budget Manager, Reimbursable Activities, Composite Budget; Target Load Tool – Accounting Address List, Target Load Sheet, GAFS Address request, SubAllotments; and Execution – BMR, BMR Template, Forecasting Tool, Document Report, Annual Budget Execution Report (ABER), Budget Execution Report (BER), Document Coordination, BMR Chart Export Status, Plan Summary.

4.4.5.2.3. Reconciliation Module. This module consists of three primary and sub-areas: Reconciliation – COE Recon, Travel Recon, Un-Deleted DFAS Documents; DFAS Interfaces – DFAS Interface Configuration; Recon Reports – Mechanization of Contract Administration Services (MOCAS) data, Contract Recon.

4.4.5.2.3.1. The Reconciliation Module allows the user to track prior and current year execution transactions. The execution of funds are captured in the following sequence: first, the Commitment (certified funding document) reserves the funds for the project, second, the Obligation (identifies the purchase price of the services or items being procured), and finally, the Expenditure (payment) of funds disbursed for services rendered.

4.4.5.2.3.2. If a funding record is approved by AFSC/LZDA for creation outside of CCaRS, the ABSS document will be manually backfilled by the CCaRS DBA and the ALC CIP Manager must attach a copy of the DFAS documents to the project's CCaRS record.

4.4.5.2.3.3. Manually created commitment and obligation documents within CCaRs must be manually linked to the DFAS document.

4.4.5.2.4. Reports Module. This module consists of the following four primary and subareas: Budget – Funding Profile Report, Annual Funding Report; Execution – Annual Budget Execution Report, Budget Execution Report, Document Report, MOCAS data, Contract Recon, Plan Summary; Advanced Reporting – Advanced Reporting; Coordination Reports – Document Coordination, Coordination Authority, Coordination Report.

4.4.5.3. CCaRS File Maintenance. The ALC CIP Manager must annotate all transactions as soon as possible and they must conduct a reconciliation every week.

4.4.6. Record Structure.

4.4.6.1. Project records are created, updated, stored, and maintained within the CCaRS data base. Records can be reviewed as: Working copies, In-Process copies, Approved copies, and Historical changes.

4.4.6.2. Control Symbol Number (CSN). The CSN associates a specific project to the owning ALC, budget year, investment category, Maintenance Group (MXG), and project sequence. When establishing a new CCaRS record, the CIP manager will establish a CSN identifier for each project by using the CSN alphanumeric structure. **Note:** The ALC CIP Manager is responsible for generating, tracking, and ensuring configuration control for the CSNs. Additionally, they are responsible for outlining how positions five and six will be utilized.

4.4.6.3. CSN Alphanumeric Structure. The following alphanumeric sequence structure must be used for establishing CSN sequence numbers.

4.4.6.3.1. First position (one character) designates the specific ALC or AMARG: AMARG = A, OO-ALC = G, WR-ALC = L, OC-ALC = H.

4.4.6.3.2. Second position (one character) is a numeric identifier for the funding year. (i.e., 4, 5, 6)

4.4.6.3.3. Third position (one character) is an alpha identifier for the funding category: ADPE = A, MC = M, SW = S, T&IE = T, WSS = W.

4.4.6.3.4. Fourth position (one character) is an alpha identifier for the appropriate maintenance group.

4.4.6.3.5. Fifth position (one character) is a sequence identifier that can be alpha or numeric (IAW local guidance).

4.4.6.3.6. Sixth position (one character) is a sequence identifier that can be alpha or numeric (IAW local guidance).

Table 4.1. CSN Alphanumeric Structure.

Control Symbol Number	Description	Identifier
Position 1	ALC or AMARG	Alpha
Position 2	Funding Year	Numeric
Position 3	Funding Category	Alpha
Position 4	Maintenance Group	Alpha
Position 5	ALC CIP Manager Determined	Alpha or Numeric
Position 6	ALC CIP Manager Determined	Alpha or Numeric

4.4.6.4. CCaRS Record List. All active and archived records are accessible from this list. The record list displays the projects by CCaRS Number, Control Number, Title, OPR, Office (organization), FY, and Priority. In addition, there are custom fields that provide additional information such as the Project Capability, Project Category, Group, Initiative, AFSC/LZD Score, and ALC Score. The initiative field is used to identify and track special interest projects such as Energy, Nuclear, OSHA, and Fall Protection. **Note:** The ALC CIP Manager will populate the initiative field with the appropriate special interest from the dropdown menu when building a CCaRS record.

4.4.6.4.1. Information Link. There are 11 sub-links that provide specific supporting segments or windows for a requirement. The links include: Overview; General; Custom Fields; Custom Dates; POCs; Associated CCaRS; Description; Requirement Source; Impact; Basis of Estimate; Coordination.

4.4.6.4.1.1. Overview. The overview provides a description of the Project, Budget, FYs, and Execution Status.

4.4.6.4.1.2. General. This area is used to populate the CCaRS Number, Project Title, Date, OPR, Phone Number, Office (organization), Period of Performance start and end dates, BAE-Email, and Project Description.

4.4.6.4.1.3. Custom Fields. The custom fields enhance the scope of the project and identify key project attributes such as Group, F Jon, RC/CC, Capability, Initiative, Asset Location, PAN, CAN, Project Category, Radio Frequency Identification Device ALC Score, HQ Score, SIR, FY, LCC, Technology Repair Center (TRC), and Document Type. **Note:** Mandatory fields are identified with an asterisk.

4.4.6.4.1.4. Custom Dates. The custom date fields are used to monitor, manage, and report the status of all funded investments. **Note:** The dates in these fields automatically populate the CCaRS Milestone report. The ALC CIP Manager must populate all the required custom date fields for the project (depending on the contracting vehicle being utilized, not all the fields are required) such as the estimated and actual fields for Submission of Procurement Package; Acceptance of Procurement Package; FM Certification/Approval of Procurement Package; Legal Review; Solicitation; Request For Bid; Contract Award; Delivery Date; Original FOC Date; Planned FOC Date; Actual FOC Date; Depreciation Start.

4.4.6.4.1.5. The ALC CIP Manager will annotate all the appropriate custom fields and custom dates for all funded investments and continually monitor all funded investments to ensure timely obligations. When a custom date becomes past due, the ALC CIP Manager will annotate the CCaRS record with the reason, make any necessary changes to the follow on custom dates, and notify AFSC/LZDA of the changes in a timely manner.

4.4.6.4.1.6. Points of Contact (POCs). This area is used to document project information such as E-mail addresses; POC Types; Names; Grades; and Phone numbers.

4.4.6.4.1.7. Associated CCaRS link. This area is used for linking projects (i.e., phased projects) for ease of reference. It is used to document CCaRS numbers; Titles; Categories; Priorities; and OPRs.

4.4.6.4.1.8. Description. This area is used to provide specific information about the project.

4.4.6.4.1.9. Requirement Source. This link identifies the source of funding. Examples of funding sources are Presidential Budget (PB), Congressional plus ups, Reprogramming support, or other types of funding initiatives.

4.4.6.4.1.10. Impact (known as risk assessment). This area is used by ALC and Command leadership to assess the impacts that will result if the project is not implemented.

4.4.6.4.1.11. Basis of Estimate. This area provides the specific funding breakdown for the cost of a project.

4.4.6.4.1.12. Coordination. This area is used to document the coordination cycle.

4.4.6.4.2. Funding Link. The Funding Link has five sub-links that assign the project's Capability and the anticipated FY the requirement will be funded. It also provides the ability to establish a baseline to forecast execution, and track actual funding actions and execution status. The sub-links are Execution Status; Budgets/FY; FY/Budgets; Requirement History; and Funding Profile.

4.4.6.4.3. Tools Link. The Tools Link has four sub-links: Funding Document Requirement Forms; New Start; Attachments; Audit Log. The Attachments link is used to post all pertinent documents for the project such as the EA, SAR(s), MFR(s), ALC/CC's Requirements letter, Tech evaluations, etc.

4.4.6.4.4. CCaRS Execution Window. The execution window under the Information link is where the Commitments, Obligations, and Expenditures information is located. Under the Commitments field are the actual commitments and forecast information. Under the Obligations field are the CCaRS Obligations, DFAS Obligations, and Forecast. Under the Expenditures field are the CCaRS Expenditures, DFAS Expenditures, and Forecast.

4.4.6.5. Target Load Sheet (TLS). The TLS is an automated CCaRS document that is used by the ALC CIP Manager to request permission to apply or remove project funding. TLS sequence numbers will be established by using the TLS alphanumeric structure.

4.4.6.5.1. Separate TLSs must be accomplished for each of the different funding categories (i.e., ADPE, MC, SW, T&IE, and WSS). However, multiple investments can be identified on each TLS for the specific funding category. **Note:** The investment title, CSN, CCaRS number, and reason for the transaction must be annotated in the comments section of the TLS for all funding line entries.

4.4.6.6. TLS Alphanumeric Structure. The following alphanumeric sequence structure will be used for establishing TLS sequence numbers.

4.4.6.6.1. First Position (two characters) is for the specific ALC or AMARG: AMARG = AM, OO-ALC = OO, OC-ALC = OC, WR-ALC = WR.

4.4.6.6.2. Second Position (two characters) is for the FY (e.g. 22, 23, 24).

4.4.6.6.3. Third Position (two-four characters) is the funding category: ADPE, MC, SW, T&IE, WSS.

4.4.6.6.4. Fourth Position (two characters) is the sequence number (i.e., 01, 02, 03, etc.). **Note:** The first TLS sequence number for each funding category will always begin with 01.

Table 4.2. TLS Alphanumeric Structure.

TLS	Description
Position 1	ALC or AMARG
Position 2	Fiscal Year
Position 3	Funding Category
Position 4	Sequence Number (will begin with 01)

4.4.7. Planning.

4.4.7.1. CCaRS records will be established for all requirements and submitted for funding consideration regardless of the FY. At a minimum, the ALC CIP Manager will establish records for the upcoming budget year projects as well as the two out year projects identified on the ALC/CC's CIP Data Call submission.

4.4.7.2. Base-line Obligation Plan The base-line obligation plan is a program management tool for tracking obligation status throughout the program year. Once AFSC/CA approves the ALC's Base-Line Obligation Plan, the ALC CIP Manager will monitor and report any deviation from the approved plan to leadership and AFSC/LZDA in a timely manner.

4.4.7.3. EAs will be initiated in CCaRS via the automated process flow. This is accomplished by releasing it through the CCaRS record coordination workflow in the "WORKING" copy of the associated record. The working copy provides visibility for all organizations involved.

4.4.7.3.1. There are two separate process flows for EA Certification. One process flow is for an EA with a dollar value less than $2.0M. The other process flow is for EAs with a dollar value of $2M or greater. **Note:** AFSC/FZC has certification authority for EAs valued at less than $2M and HQ AFMC/FMC has certification authority for EAs valued at $2M or greater.

4.4.7.3.2. If HQ AFMC/FMC have unresolved questions, HQ AFMC/FMC will generate an EA comments matrix which will be released to the ALC via the CCaRS comments matrix workflow. **Note:** The ALC CIP Manager is responsible for ensuring the comments matrix is accomplished by the appropriate individual/organization.

4.4.8. Accounting Addresses.

4.4.8.1. Upon receipt of the ATA, the ALC CIP Manager must begin building Skeleton Accounting Addresses for all investments. **Note:** Once DFAS addresses are input into GAFS-BQ, the DFAS addresses can be linked in CCaRS to automatically populate the TLS based on CSN selection.

4.4.9. Obligation Authority.

4.4.9.1. Upon receipt of an AOB, AFSC/LZDA must initiate funding actions to distribute the ALC's approved funds by the appropriate funds category. This is accomplished by generating an OBAN Target/Allowance Form (aka Advice).

4.4.9.2. An Advice is an automated CCaRS document that is used to increase or decrease the ALC's obligation authority. The Advice sequence numbers will be established by using the Advice alphanumeric structure.

4.4.9.2.1. Once an Advice is approved, the CCaRS-DBA must use the CCaRS Budget Authority Editor to allocate the funds. The ALC CIP Manager will annotate the project's approved and authorized dollar values in CCaRS.

4.4.9.3. Advice Alphanumeric Structure. The following alphanumeric structure will be used for establishing Advice sequence numbers.

4.4.9.3.1. First Position (two characters) designates the specific ALC or AMARG (AMARG = AM, OO-ALC = OO, WR-ALC = WR, OC-ALC = OC).

4.4.9.3.2. Second Position (two characters) is the FY (e.g. FY22 = 2, FY23= 3, FY24 = 4).

4.4.9.3.3. Third Position (three characters) is the sequence number (i.e., 001, 002, 003) that is auto populated by CCaRS.

Table 4.3. Advice Alphanumeric Structure.

Advice	Description
Position 1	ALC or AMARG
Position 2	Fiscal Year
Position 3	Sequence Number (Auto Populated)

4.4.9.4. Once an Advice is approved in CCaRS, ALC FM will load the distributed funds into DIFMS.

4.4.10. Funds Execution.

4.4.10.1. Amendments to the initial funding document must be amended from the original document created in CCaRS.

4.4.10.1.1. Users can create a 'Manual' committing document within the CCaRS record to capture the ABSS/DFAS transactions. This process will require the user to manually link the DFAS and CCaRS documents within the reconciliation module (reference paragraph 4.4.5.2.3.).

4.4.11. Reports.

4.4.11.1. The ALC CIP Manager should utilize the automated CCaRS Plan Summary Report and Milestone Report to track, monitor, and report project status to AFSC/LZDA. The ALC CIP Manager will reconcile these reports on a weekly basis to ensure accuracy.

4.4.11.2. Canned Reports. Canned reports are pre-designed and auto-populated reports that are populated from the associated CCaRS data such as Funding Profile, Annual Funding, Budget Execution, and Annual Budget Execution Reports.

4.4.11.3. Advanced Reports. The advanced reporting tool allows users to create customized reports using one of the predefined templates. Under the Advanced Reports window, there are several reports that have been specifically created for the ALC reporting structure. **Note:** Only individuals with CCaRS supervisor authority can create these types of reports.

4.4.11.3.1. Milestone Report. The Milestone report is used for tracking project status from submission of a procurement package through contract award. This report is populated from the dates entered in the custom date fields of the project's CCaRS records.

4.4.11.3.2. Plan Summary Report. The plan summary report allows users to view the forecast plan data for the selected budget(s) and FY(s). Users have the option of viewing suggested, current, and baseline plan data for commitments, obligations, and expenditures.

4.4.11.3.3. Business Management Report (BMR). The BMR enables the user to create slide presentations for an array of program reporting such as execution charts, event forecasting timelines, and CCaRS/DFAS execution comparisons.

Chapter 5

ORGANIC DEPOT FIELD TEAM (DFT)

5.1. Purpose. This chapter establishes process and procedures on the management responsibilities for organic DFT operations.

5.2. General Information. A DFT is an individual or group designated to perform depot level maintenance and/or inspection of systems or equipment, such as aircraft, commodities, and engines, at a place other than the depot facility. Workloads may be identified by, but not limited to, the System Program Manager (SPM), Material Group Manager (MGM), Product Group Manager (PGM), or higher authorities. Operating activities will forward their request for maintenance assistance for work requirements directly to their designated ALCs.

5.3. Policy.

5.3.1. The Business Operations (OB) Office serves as the single point of contact and control for all matters related to DFT workload. Specifically, within the Workload and Analysis Section, the Workload Element serves as the OPR for DFTs. The ALC/OB staff works in conjunction with various production groups and staff office representatives throughout the ALCs to develop official workload positions, decisions, plans, and/or responses. All matters affecting potential changes in DFT maintenance workload are directed or referred to the ALC/OB or designated POC for action and/or official response. Such matters includes, but limited to, the following:

5.3.2. TO 00-25-107, *Maintenance Assistance*, DFT support requirements.

5.3.3. Project orders and all other workload funding/authorization instruments (AFMC Form 181, *Project Order*, AF Form 185, *Project Order*, DD Form 448, *Military Interdepartmental Purchase Request*, etc.).

5.3.4. This process is not intended to inhibit informal communications between System Program Offices (SPOs) or other customers and the affected production areas, but is necessary to ensure proper coordination of workload actions and efficient business processes that lead to enhanced warfighter support.

5.4. Documentation Requirements.

5.4.1. The SPO provides ALC/OB or designated POC with a workload offer in the form of a Statement of Work (SOW). The SOW will include the MDS/type model series (TMS), type of work, location, estimated timeframe, specific repair/manufacture instructions (TO references, AFMC Form 202, *Nonconforming Technical Assistance Request and Reply*, instructions, etc.) and justification for organic accomplishment.

5.4.2. The production group workload section provides ALC/OB or designated POC with a cost estimate. The cost estimate will include number of people, job order quantity (JOQ) expressed in depot production standard hours, labor cost, material cost, travel cost, other cost, and limiting factors when applicable. Cost estimates for DFT organic work will use labor and material costs appropriate to the weapon system the DFT will be supporting (published weapon systems DFT sales rate).

5.5. Procedures.

5.5.1. DFT Request. ALC/OB or designated POC receives request for DFT assistance (i.e., SOW) from the SPO.

5.5.2. DFT Request Processing.

5.5.3. ALC/OB or designated POC forwards request for DFT assistance (i.e., SOW) to the Production Group Workloading Section.

5.5.4. Production Group. Workloading section sends DFT request (i.e., SOW) to the pre-planning/screening review team (planners, schedulers, engineers, financial personnel, and other personnel as deemed necessary).

5.5.5. Pre-planning Actions. The pre-planning review team reviews and identifies requirements to determine DFT supportability. DFT requirement aspects to identify include but are not limited to the following:

5.5.5.1. Repair Plan. A methodical procedure to accomplish the requested repair/correction.

5.5.5.2. Material Requirement List. A list of material required to accomplish the requested repair/correction.

5.5.5.3. Technical Data. Information (e.g., specifications, tolerances, etc.) required to accomplish the requested repair/correction.

5.5.5.4. Manning for DFT. Specified skills and number of personnel needed for the DFT.

5.5.5.5. Tooling/Support Equipment. A list of common tools, specialized tools, and support equipment required for the DFT.

5.5.5.6. Production Acceptance Certification (PAC) Requirements. PAC program requirements/qualifications needed for the DFT members.

5.5.5.7. Quality. Assure procedures used provide a service or product that will satisfy the customer.

5.5.5.8. Personnel Selection/Notification. Notify selected DFT members.

5.5.5.9. Internal POCs. Identify supporting ALC POCs for DFT.

5.5.5.10. Customer Relations. Provide required information to the host unit to support the DFT.

5.5.5.11. Environmental Issues. Review tasks and site for environmental compliance.

5.5.6. Request Approval. Pre-planning review team results are provided to the Production Group Workloading Section.

5.6. DFT Funding Request Processing.

5.6.1. The Production Group Workloading section forwards DFT approval with review team results in the form of a cost estimate to the ALC/OB. The cost estimate will include number of people, JOQ (expressed in depot production standard hours), workload duration in calendar days, labor cost, material cost, travel cost, other cost, and limiting factors, when applicable. Only material cost for non-stock listed, disposable items will be processed (e.g., fabrication

of bonded composite/metal patches, splash mold fittings, etc.). All field operating units are responsible to acquire stock listed items through the supply system. All manufacturing requirements for NSN items received by the ALCs in support of a DFT will require a request for quotation (RFQ) and be processed through the appropriate ALC/OB RFQ Workflow or designated POC.

5.6.2. The ALC/OB forwards DFT approval to include JOQ, estimated total labor cost, material cost, and workload duration in calendar days to the appropriate SPO.

5.6.3. DFT Funding Request Approval.

5.6.4. The SPO approves and forwards funding to ALC/OB via an AFMC Form 181 into the Automated Project Order System (J025A) and an AFSC Form 206, *Temporary Work Request*, which will be utilized to establish an "A" (direct cost) and possible "T" (material cost, if required to support DFT) work order within the Job Order Production Master System (JOPMS) G004L.

5.6.5. The ALC/OB may accept a letter of intent (LOI) to fund workload in advance of funding receipt where customer-driven workload needs to be performed to meet flow days and effectively use available capability.

5.6.6. The ALC/OB accepts funding and releases a work authorization to the Production Group Workloading section.

5.7. Post DFT Request Approval.

5.7.1. After receipt of DFT funding, Production Group Workloading section notifies the appropriate Planning/Production Squadron personnel to begin DFT preparatory actions.

5.7.2. After receipt of DFT funding, the Production Group Workloading section provides ALC/OB with DFT composition (military, civilian, or a combination) and the estimated start and completion dates for the associated DFT work.

5.7.3. The DFT will not deploy until receipt of full funding or approved LOI, associated JON in G004L, and host site provides parts availability notification, if applicable.

5.8. Execution.

5.8.1. All official responses for DFT workload declinations must include the appropriate Production Group Office concurrence/approval. Any DFT workload declination will be sent to ALC/OB (i.e., the Workloading Section) for official approval of the declination by the ALC/CC/Vice Director.

5.8.2. Any SOW received by ALC/OB will be considered an official workload offer.

5.8.3. Any cost estimate received by ALC/OB from the applicable Production Group will be considered an official notification of workload acceptance.

5.8.4. ALC/OB has a responsibility to ensure the integrity of all ALC aircraft workload cost estimates. All cost estimates must reflect the appropriate published weapon systems DFT sales rates and mirror the work outlined in the customer SOWs.

5.8.5. The following requirements will impact the DFT estimated start and completion dates provided by the Production Group Workloading Sections:

5.8.6. The receipt of cost estimates from the Production Group Workloading Sections.

5.8.7. The receipt of funding from the customer (i.e., SPO).

5.8.8. Confirmation of parts/tooling availability at host site.

5.8.9. ALC/OB or designated POC may accept a LOI to fund workload but may incur limited costs in advance of funding receipt only for authorized programs for which customer funds are available. LOIs to fund workload are valid for no more than 30 days from date of issuance and should be provided to ALC/OB or designated POC on official letterhead from the requesting organization and be signed by the Life Cycle Management Center-designated, management-level personnel representing both the program management and funds management offices. Upon expiration, if customer funding has not been received, work must immediately cease and no additional cost may be incurred.

5.9. Work Control Documents (WCDs).

5.9.1. When a DFT is designated to perform maintenance/inspection of systems or equipment at a place other than the depot facility, the responsibilities listed below are assigned to ensure WCD establishment and control. All DFT WCDs are considered official documents and are governed by existing regulatory guidance.

5.9.2. Responsible Production Planner shall:

5.9.2.1. Ensure authorized WCDs established for planned DFT work are provided to the Lead DFT mechanic/technician prior to team departure to maintenance/inspection location.

5.9.2.2. Ensure “blank” hard copies of AFSC Form 959, *Work Control Document*, are included in the WCD package that is provided to the Lead DFT mechanic/technician for use in documenting unpredictable DFT work. All required information needed on the “blank” AFSC Form 959 will be hand scribed by the DFT mechanic/technician.

5.9.2.3. Upon request, coordinate any needed engineering assistance requests (Engineering Technical Assistance Requests 107 Process) when TO defined instructions do not exist for an unpredictable DFT identified discrepancy.

5.9.2.4. Responsible Lead DFT Mechanic/Technician shall:

5.9.2.4.1. Review WCD package prior to team departure to maintenance/inspection location to ensure all needed WCDs (planned and “blank” AFSC Form 959) are included and notify responsible planner of any WCDs that need to be added to the package.

5.9.2.4.2. Contact responsible supervisor/planner during the DFT visit to maintenance/inspection location to request submission of any needed engineering assistance requests (Engineering Technical Assistance Requests 107 Process) when TO defined instructions do not exist for an unpredictable DFT identified discrepancy.

5.9.2.4.3. Ensure all revisions to the originally planned WCD are documented on AFSC Form 959. Ensure the AFSC Form 959 is attached to the original WCD during the DFT visit to the maintenance/inspection location.

5.9.2.4.4. Ensure required information (Engineering Technical Assistance Requests 107 Process) is hand scribed on the AFSC Form 959 used to allow documentation of

unpredictable DFT work during the DFT's visit to the maintenance/inspection location.

5.9.2.4.5. Upon the DFT's return to the depot, ensure the completed WCD package is submitted to the appropriate office of responsibility, i.e., group work loading, planning, or scheduling.

5.10. Rework.

5.10.1. As a result of an acceptance inspection deficiency report (DR), if it is determined that the depot should send a DFT to correct discrepancies, all cost (including travel) for a rework DFT will be charged to the responsible squadron and not the customer. Material costs will also be charged to the responsible RC/CC. No earned hour credit to a JON or charges to a customer will be made.

5.10.2. In the TAA portion of the DMAPS, the labor for this effort will be exception to duty code 26 with special project code subshred 14 (Misc. Defective Asset Rework, X51112614000) in the responsible RC/CC (i.e., the RC/CC that accepts responsibility for the deficiency). Planning may establish a "dummy" T-JON in G097 for the purpose of generating rework WCDs.

5.11. Depot Field Team (DFT) Pre-Departure Briefing.

5.11.1. The Maintenance Group should brief DFT team members prior to departure to ensure the team understands the scope/requirements of the mission and their roles/responsibilities (e.g., overtime requirements, sick leave procedures, chain of command, transportation, tool control, interim reporting, return procedures, etc.) during the trip.

5.11.2. Maintenance Groups will brief the appropriate personnel prior to team departure to ensure DFT labor production transactions are accurately performed at the JON level in the TAA system.

Chapter 6

DEPOT MAINTENANCE PRODUCTION SUPPORT

6.1. Depot Maintenance Production Support. Depot Maintenance strives to apply the right resources at the right time at point-of-use to execute a needs-driven production plan and schedule. AFSC/CC shall develop standardized procedures and responsibilities for depot maintenance production support activities to include workload control, planning, and scheduling functions as well as documentation requirements. Additionally, responsibilities for functional relationships with stakeholders outside of the depot maintenance realm (e.g., PM, DLA, etc.) must also be defined.

6.2. Purpose. This chapter contains policies and procedures required of the AFSC to conduct Depot Maintenance (DM) production support activities for aircraft, exchangeable (commodities), Other Major End Items (OMEI) (e.g., missiles, engines, etc.), and associated components/parts. These activities are grouped into several DM categories to include PDM, Modification (MOD), Unprogrammed Depot Level Maintenance (UDLM), unpredictable, and exchangeable requirements. It specifically addresses the overall philosophy, policies, procedures, organizational structure, key personnel duties and responsibilities, key functional area requirements, and systems necessary to perform DM production support within USAF guidance. For the 309th AMARG and all OO-ALC Geographically Separated Units (GSUs), procedures in this chapter pertaining to data systems are not applicable. AMARG will continue to use the approved COTS products in place of the legacy systems used at the ALCs. They will also follow the supply rules and guidance in AFH 23-123V1, *Materiel Management Handbook Volume One*, *Materiel Management Reference Information*; AFMAN 23-122 *Materiel Management Procedures*; and AFI 23-101 *Air Force Materiel Management,* for material ordering and turn in processes and procedures.

6.3. Philosophy. DM exists to support the warfighter. It provides this support by applying its resources to keep the mechanic on task. DM strives to apply the right resources at the right time at point-of-use to execute a warfighter needs-driven production plan and schedule. Process improvement results, in turn, assist in determining personnel duties/responsibilities, organizational structure, enterprise software configuration requirements, facility requirements, and other DM requirements. In simpler terms, all DM activities must be process improvement based, must keep the mechanic on-task, and must optimize warfighter support. Key tenets for DM include:

6.3.1. Standardized repair process (reduced flow days).

6.3.2. Focus on throughput (constraint management).

6.3.3. Support on the shop floor (Production Support Flight).

6.3.4. Synchronized backshop repair.

6.3.5. Proper allocation of manpower/skills.

6.3.6. Daily repair based on greatest AF need.

6.3.7. Defined roles and responsibilities.

6.4. Policy. This chapter contains functional policy for DM performed by the AFSC at the ALCs and the functional relationships with support organizations (e.g., AFLCMC, DLA, and 448th SCMW).

6.5. General Information.

6.5.1. The term "production" refers to the Production Flights, Sections, and/or Elements that perform depot maintenance actions. The term "Production Support" refers to the units in the Production Support Flight (PSF) that support the performance of DM (e.g., planning, scheduling, material requisitioning, maintenance process engineering, etc.). Also, the name of the flight, section, or element is used in lieu of individual flight functional titles (as they relate to responsibilities and procedures) in most paragraphs since ALC squadrons are authorized to select and employ positions per paragraph 6.6.

6.5.2. Electronic Maintenance Information System (MIS) forms used in lieu of hard copy are acceptable providing the MIS forms fulfill the intent of the hard copy and provide required reporting data.

6.5.3. RFQ Policy within DM. AFSC Form 501, *Request for Quote/Rough Order of Magnitude*, will be used to process and control RFQ data flow between the customer and the Pre-Production Section. A DLA Form 1838, *Organic Manufacturing Quote*, is also authorized as an alternative RFQ form for DLA requests for ALC organic manufacturing quotes.

6.6. DM Organization.

6.6.1. DM Positions. AFSC may select the Production Support Flight positions required to support their workload. AFSC may not establish other positions to perform the duties and responsibilities assigned to these positions by this manual. Assigned duties and responsibilities must be performed by incumbents in the following positions. Position alignment may vary under the Pre-Production Section (PPS) and Production Support Section (PSS). Other disciplines may also be assigned to the PPS and/or PSS to enhance the effectiveness of the mission. (**Note:** Those organizations supporting AFMAN 63-143 may be structured through matrixed alignment as required.)

6.6.1.1. AFSC will ensure the ALCs have functions that perform strategic planning, master scheduling, and analytical activities needed to ensure production requirements are fully supportable prior to asset induction. Activities may include customer requirements analysis, long- to short-range production planning, master production scheduling, capacity and material requirements planning, and contingency management.

6.6.1.2. AFSC will ensure the ALCs have functions that perform the day-to-day scheduling and material technician activities required to keep the mechanic continually engaged in asset repair from initial induction to final sell. These activities include: researching direct line ordering and movement of parts and material within the maintenance organization; coordinating with 448th SCMW and DLA to manage awaiting parts (AWP) assets; scheduling and monitoring assets through the repair process; researching and ensuring JONs are opened properly for workloads; managing parts removed to Facilitate Other Maintenance (FOM); assisting production personnel in resolving engineering/quality support issues; delivering and/or coordinating delivery of tools/support equipment.

6.6.1.3. AFSC may establish "lead" positions to manage multiple personnel in identical positions. For example, a "Planner Lead" position may be established to manage multiple Planner positions. Reference paragraph 1.9. to establish 'Planner Lead' positions.

6.7. Responsibilities.

6.7.1. Requirements Review Boards.

6.7.2. Spares Requirement Review Board (SRRB). The AF established the SRRB to combine separate ALCs, MAJCOM, and ANG (hereinafter included under the CAM and Fund Holders designator as an AF customer of the Working Capital Fund) budgeting processes for AF secondary items supporting the worldwide requirement for CSAG-S reparable and consumable items and validating the CSAG-S portion of the Air Force Cost Analysis Improvement Group (AFCAIG) Cost Per Flying Hour (CPFH) submission. Participate in the SRRB per AFMAN 63- 143.

6.7.3. Aircraft and Missile Requirements (AMR). The AMR process is used to develop, review, validate, and approve depot level maintenance and repair for aircraft and missile systems within the weapon system sustainment portfolio. This applies to all AF organizations requiring and providing depot maintenance on AF systems, whether the work is performed organically, contractually, or via inter-service. This does not apply to Federal Aviation Administration (FAA) certified systems or systems supported via interim contract support. The ALCs must support the AMR process documented in AFMAN 63-143 which is driven by TO 00-25-4, *Depot Maintenance of Aerospace Vehicles and Training Equipment.*

6.7.4. AFSC/FM. Financial Management (FM). Responsible for developing policy and procedures for budgeting and funding of the CSAG-S and CSAG-M programs. Provide funding documents and unit cost targets to the ALCs. Serve as focal point for fee-for-service issues.

6.7.5. Production Meeting. The ALCs will establish scheduled Production Meetings. The purpose of the meeting is to discuss scheduled/impending production requirements, establish work priorities, and coordinate schedule changes. This meeting ensures all DM production requirements are effectively scheduled and problems are resolved. The ALCs will establish the frequency of the meetings and assign a chairperson.

6.7.6. Exchangeable Meeting. The ALCs will establish scheduled exchangeable meetings. Ensure meeting topics, as a minimum, include Execution and Prioritization of Repair Support System (EXPRESS) induction constraints, AWP issues, and asset status; Mission Impaired Capability Awaiting Parts (MICAP), Surge, and Repair Cycle Status; production schedule execution and deviations; late Engineering Technical Assistance Request (ETAR/202) will be discussed in the monthly formal exchangeable meeting; prioritization of assets requiring/competing for shared resources; material constraints. Ensure any constraints that cannot be resolved are elevated.

6.7.6.1. When the response/disposition from the engineering activity has not been received from the responsible engineer, the requesting activity will ensure that late AFMC Form 202s are discussed at the Exchangeable Meetings.

6.7.6.2. To determine the importance/impact of the late 202s, production and production support will collaborate prior to the meeting to determine where they should be discussed in the exchangeable meeting. One of the key discussion points will be those assets that cannot be repaired based on the current tech data, and a decision is needed to extend the tech data or to condemn the asset.

6.8. Pre-Production.

6.8.1. Supervisory IET. Responsible for short, medium, and long range planning of DM workload execution for aircraft, exchangeables, missiles, and/or OMEI. Provide advice and assistance to the Production Flight, Production Support functions, in the area of day-to-day planning activities, designing, analyzing, and improving production control through the development of more efficient and effective DM processes.

6.8.2. IET/Planner. Responsible for development of new workload planning packages and daily planning functions which support work package development from defined requirements. Includes but not limited to establishment of labor, equipment, flow day, and facility standards; refinement of MDS critical path; IET services which includes work measurement studies; development and file maintenance of the DM repair BOM; establishment of WCDs; identification of skills, training, equipment, and facility requirements; research, plan, and initiate job acceptance for programmed and non-programmed workloads; plan for job routing/non-job routing; identification of necessary tooling, engineering, and provisioning data as identified by the SPO and incorporated into the list of material (LOM) to support production; direct costs to establish the end item sales price for programmed and nonprogrammed workloads; evaluation of production processes and methods improvement to minimize production flow time. **Note:** AFMAN 63-143 is supported by the planner as identified above.

6.8.2.1. IET/Planner Training. IET/Planner Training. All new IETs/Planners must successfully complete the AFMC Industrial Engineering Technician, Fundamentals course.

6.8.2.1.1. All IETs/Planners must successfully complete BOM and Labor Standards recurring training, at a minimum, every two years. All training will be documented in the Training Scheduling System (TSS).

6.8.3. Master Scheduler. Responsible for approving the schedule for asset induction, work plan for aircraft induction, carry-out, flow days, etc. Chair the Pre-Induction Aircraft Conference. Review system schedule and determine impact of MODs, UDLM, and new or changed DM requirements. Review resource supportability by MDS per FY. Adjust schedule per facility or skill constraints. **Note:** This position may be assigned to the Production Support Flight Chief, as necessary. In support of AFMAN 63-143, the Master Scheduler function may be performed as a Pre-Production and/or Production Support function to ensure coordination with planning and production which occurs as soon as the schedule changes are made to ensure work packages, facility requirements, and supportability is updated for schedule execution.

6.8.4. Procedures and Analysis (P&A). Responsible for overseeing analysis functions critical to the efficient and effective operation of Pre-Production and Production Support.

6.8.5. Management Analyst. Responsible to perform analysis on various program operations and processes for production, Pre-Production, and Production Support activities; prepare charts and data for meetings as required; may develop internal procedures in support of operations. **Note:** In support of AFMAN 63-143, the P&A function may be performed as a Pre-Production and/or Production Support function to facilitate analysis of trends affecting the work package for feedback to production and the SPO.

6.8.6. Production Support (Responsible for Schedule Execution Activities).

6.8.7. Supervisory Production Controller. Responsible for managing daily execution activities for scheduling, material, and related Production Support Center activities to support the repair of aircraft, exchangeables, and/or OMEI.

6.8.8. Production Controller (Scheduler). Manage execution of shop workload (i.e., repair, overhaul, MOD, and PDM activities, programmed and un-programmed for aircraft, OMEI, and exchangeable workloads). Responsible for updating capacity information in EXPRESS (Exchangeables only). Monitor and manage shop capacity for both the input and output of assets. Synchronize support to the schedules. Ensure all WCD completion requirements have been satisfied (reference **Chapter 7**).

6.8.9. Production Controller (Production Support Technician). Provide material requisition support, item research, direct-line order placement, monitor work in progress, develop, correct, or adjust information in data systems, and assist higher graded Schedulers when required. **Note:** In support of AFMAN 63-143, the Production Controller (Production Support Technician) function may be performed as a Pre-Production and/or Production Support function to support identification of material and material requisition status as part of PreProduction and production.

6.8.10. Material Expeditor/Handler. Receive, route, and move parts, assemblies, components, and other materials between repair stations/shops. Operates material handling equipment and, if applicable, coordinates with NWRM storage facility personnel with respect to movement of NWRM assets for those ALCs with NWRM responsibilities.

6.9. Special Positions within Maintenance. Personnel notification procedures and individual negotiability issues will be managed IAW the MLA. **Note:** Location of these functions is an ALC Option. AMXG--Strategic IET (maintenance planner). **Note**: Location of this function is on ALC option. 1) Support Activation Teams to provide familiar workloads with man-hours, network, and etc. and work with SPO/SPM. 2) Accomplish Trend Analysis on all workloads (AMR, OFCO, and etc.) annually. Work with SPO/SPM to negotiate the hours and occurrence factors and set out year's budget.

6.9.1. Records Professional (Forms and Records). **Note:** Location of this function is an ALC Option.

6.9.1.1. Review, annotate, and store documents.

6.9.1.2. Document weapon system history with Comprehensive Engine Management System (CEMS), Reliability and Maintainability Information System (REMIS), Programmed Depot Maintenance Scheduling System (PDMSS), Core Automated Maintenance System (CAMS), and Malfunction Detection Analysis & Recording System/GRD Proc System (MADARS) as required. **Note:** For ALCs utilizing electronic WCD capability, an electronic data record may be utilized and permanent records stored on electronic medium such as compact disc.

6.9.1.3. Depot Forecasting Specialist. Submit demand signal/requirement Planning for DLA Managed Consumables (PDMC) for inclusion in demand data exchange (DDE) requirements to DLA. **Note:** Location of this function is an ALC Option.

6.9.2. Co-Located Positions.

6.9.2.1. Positions outside the ALC may be co-located to support requirements (e.g., engineer, DLA Material Support, Depot Supply Chain Management (DSCM), etc.).

6.9.3. Support Functions.

6.9.3.1. DSCM Team (448th SCMW, DLA, and Maintenance Representative). Role is to improve parts supportability to DM by providing a strategic, long term, outlook on parts integral to mission supportability. Will work with the ALC, Supply Chain Manager (SCM), NWRM Storage Facility, and DLA to coordinate the strategic procurement of essential materiel with the pursuit of uninterrupted availability of aircraft, engines, missiles, and exchangeables.

6.9.3.2. Planning for DLA Managed Consumables (PDMC) Flight. Role is to improve material availability of DLA managed consumables across the AF enterprise at the time of need by enhancing the DLA demand plan.

6.9.4. Cognizant Engineer and Equipment Specialist (ES). Responsible for providing a fully supportable requirement to the AMR process for aircraft and Exchangeable workload requirements to the ALCs. The engineer and ES provide fully defined requirements, required engineering LOMs, stocklisted parts, etc. to support the requirements, and disposition for technical issues, reliability, quality, and DRs. **Note:** In support of AFMAN 63-143, the Cognizant Engineer and ES are part of the CAM collaborative team and support the production shop as required during aircraft schedule execution.

6.9.5. ALC Financial Management (FM). Responsible for the utilization of funds practices at the ALCs and the management of unit cost target performance. Performs financial cost analysis.

6.9.6. Defense Logistics Agency (DLA).

6.9.6.1. DLA Aviation. Responsible for Supply, Storage, and Distribution duties to include retail supply support to DM utilizing Customer Support Specialists (CSSs), formerly retail item managers (RIMs), and Sustainment Specialists (formerly supportability specialists and demand Planners), material handlers, etc.

6.9.6.2. Distribution Depot. Responsible for materiel storage, packaging, receiving, inventory, and distribution in support of the depot repair function IAW MOAs, Memorandums of Understanding (MOUs), or Support Agreements.

6.9.7. Quality Assurance (QA). Is an integral part of all DM activities. The ALCs will implement QA programs to evaluate/assess all programs. QA assessments are outlined in **Chapter 8.**

6.9.8. Product Support Center (PSC) (ALC Option). Located outside of the identified organizational structure. The PSC will be an enclosed, secure, and controlled area, and will be used for the purpose of maintaining and stocking Custodian Authorization and Custody Receipt Listing (CA/CRL) tooling/equipment, locally manufactured, modified, or special end item unique tools and equipment, consumables, and administrative supplies.

6.10. Exchangeable Repair.

6.10.1. Purpose. This section outlines the DM production support functional policies required to effectively operate and manage depot exchangeable repair processes and workload. The overarching purpose is to standardize the basic repair processes for ALC organic depot level repair and overhaul for Exchangeable Workloads.

6.11. Functions.

6.11.1. Production. Each squadron director will be the accountable OPR responsible for assets in the production shop and the assigned resources to accomplish depot repairs. Using standard repair processes, the OPR is responsible for production output for the shop(s).

6.11.1.1. The OPR has overall responsibility for the workload, planning, scheduling, and quality control in support of repair, production, overhaul, and manufacturing processes. Includes determining capacity parameters in EXPRESS to uphold the supportability function of the automated repair execution process.

6.11.1.1.1. Provide supervision, operational direction, and guidance to the maintenance production chiefs and the PSF to ensure the most productive and cost effective methods are used to produce a timely and quality product that maximizes serviceable asset availability.

6.11.1.1.2. Is responsible for managing resources required to perform programmed and non-programmed workloads; will respond when the automated Supportability Module of EXPRESS considers repair to be constrained based on insufficient shop capacity. Capacity constraints are revealed daily in two EXPRESS output reports: the Supportability Report and Supportability Summary.

6.11.1.1.3. Chair the informal Exchangeable Meeting which is a meeting (as required) that discusses constraints and provides overall maintenance and production assessment to support the repair process (reference paragraph 6.19.3.).

6.11.1.1.4. Form and manage depot field teams, when tasked, to provide worldwide support for customers, TCTO requirements, and TO 00-25-107 requests (reference **Chapter 5**).

6.11.1.2. The Squadron Commander/Director determines when end items are taken in or out of on work order (OWO) status. The Squadron Commander/Director must weigh customer requirements with the level of risk they are willing to accept. The Squadron Commander/Director decides when to take an item off OWO and place it in the AWP store (remains on the maintenance 'M' balance). Adherence to policy will reduce the AWP backlog, capture true costs associated with depot repair, capture accurate consumption data needed to facilitate stockage of replacement items, and allow personnel to perform repairs on required assets.

6.11.1.3. DM activities are barred from inducting assets (exceeding the net repair objective) to cannibalize as a source of supply (SOS) for repair parts not available through normal supply channels. Parts needed to effect repairs will be requisitioned from the supply system. If repair parts are not received in a timely manner, the Squadron Commander/Director may seek relief by asking AFLCMC, DLA, and/or the 448th SCMW to fund carcass cannibalization with an AFSC Form 206. Thus, maintenance is paid for work associated with cannibalization and all demand data is captured in the applicable data systems. Under no circumstances is the Squadron Commander/Director authorized to induct beyond the repair objective for the purposes of cannibalizing parts unless a funded AFSC Form 206 is provided. AFLCMC, DLA, and/or the 448th SCMW will provide the disposition and supply condition code of all assets inducted for cannibalization purposes when the work is completed.

6.11.2. Production Support Functions.

6.11.2.1. General. This section provides guidance and direction for operating a PSF. The PSF manages the planning, scheduling, and AF DM material activities required to support execution. **Note:** Exchangeable Groups operating IAW AFMAN 63-143 meet the intent of the requirements for Production Support for Exchangeable Repair.

6.11.2.2. Induction Process. All end items driven into repair or drawn into repair are assigned a 14-position end item document number through D035K. The end item document number stays with the end item until it is turned into supply. The assets will be tracked using the same document number. Likewise, D035K, G402A, and G337 will use the same document number to account for repairables. The Scheduler will monitor and coordinate with the DLA CSS on delinquent in-transits.

6.11.2.3. The quantity per transaction (D7M) will always be 'one each' to facilitate end item tracking. Workloads inducted with job designators 'J' and 'L' are exempt from the one-per-induction rule. Other workloads are exempt with an approved waiver.

6.11.2.4. Ordering From Supply. To order material, use standard operating procedures and systems. Use the Automated Bill of Material/Naval Air Systems Command Industrial Material Management System (ABOM/NIMMS) as the input system for material ordering. All shops must provide the end item document number, standard reporting designator (SRD), and required delivery date (RDD) with all requests. By including the end item document number on each issue request, D035K will react by linking the end item and component/piece-parts internally. Supply policy states that you must use a Urgency of Need (UND)/Force Activity Designator (FAD) combination to equal at least a priority 06 in order to initiate AWP. Combinations include all UNDA/FAD combinations and UNDB/with FAD 1 thru 3.

6.11.2.5. The end item document number is assigned by D035K and can be found on the WCD produced by G337. The SRD can be obtained from the Air Force Technical Order (AFTO) Form 350, *Repairable Item Processing Tag*, the REMIS table, or the TO. The user provides the required delivery date.

6.11.2.6. When ordering parts, use the end item document number of the end item being repaired to ensure the right parts are linked to the right end item. D035K will edit end item document numbers against the database for end item document numbers.

6.11.2.7. All backorders against an end item are now considered AWP backorders regardless if the end item is in AWP or OWO status. D035K will automatically code piece-parts and/or component requisitions as AWP, with project code 'AWP' and advice code '6N' when the end item document number, SRD, and RDD are entered on the issues request.

6.11.2.8. Bench Stock/Residual Materiel. Bench stock and residual materiel are two examples of maintenance owned bit and piece parts to be used before any additional bit and piece parts are ordered. PSTs will query D035K to check if item is supported by Industrial Product-Support Vendor (IPV) prior to placing part orders. Reference AFSCI 23-101 "*Industrial Product-Support Vendor (IPV) Program*"

6.11.2.9. Other Sources of Materiel. When traditional sources fail to provide required parts by the required delivery date, DLA may opt to use other sources for parts support.

Other sources include approved cannibalization and save lists, local purchase, or local manufacture.

6.11.2.10. Local Manufacture. Parts catalogued with a NSN can be locally manufactured when the designated SOS cannot meet the delivery date. Coordinate local manufacture with the SOS. A funded AFSC Form 206 along with the appropriate blueprints/drawings must be provided for local manufacture. Local manufacture items must be properly documented, and demand data must be captured and input into the supply system.

6.11.2.11. Cannibalization of Inducted Items. Cannibalization of inducted items is the removal of an installed assembly, subassembly, component, or part from one inducted item for use on another item with the intention of replacing it. A cannibalization of inducted items occurs when a component ordered against an end item/end item document number has to be file maintained to another end item/end item document number because the component was cannibalized. Production Managers are not authorized to over induct end items (in excess of the Net Repair Objective) for the express purpose of cannibalizing parts (reference **Chapter 18**).

6.11.2.12. Reclamation. Reclamation is the recovery of parts for further use from end items or excess assemblies. Parts removed by reclamation are generally not replaced and the end item may not be identifiable for turn in. Reclamation will be used instead of procurement or repair by the SOS, after considering cost, whenever it provides the quickest means of satisfying a MICAP or other critical item requirement, or when there is no other known SOS (reference **Chapter 18**).

6.11.2.13. AWP Policy (reference **Chapter 18**, AFI 23-101, and AFI 20-110 AFMCSUP for NWRM assets). **Note:** D035K transaction authority varies by ALC.

6.11.2.13.1. When all the component parts have been received or canceled, D035K will automatically change the AWP-G to AWP-F (fully supportable). D035K will output a notification of the condition change, parts will be delivered, and work can be completed. The EXPRESS system will drive supportable AWP assets prior to requesting another asset from supply to be shipped to maintenance.

6.11.2.13.2. Moving AWP off Work Order. A transaction will be processed to move the end item off the JON OWO and into AWP. The ZFA/L will be processed in D035K to load the AWP storage location. The backorders for parts/components will be file maintained automatically. D035K will pass a D7 RF/PK to G402A to move the end item from OWO to AWP-G. All AWP end items will be maintained on the 'M' balance.

6.11.2.13.3. Uninstalled parts in the shop for the end item will be returned with the end item. Parts returned from the shop should be stored with the end item. However, if there is no room or it is not practical, parts may be stored in a separate area. Each part/component must be identified to a particular end item and cannot be co-mingled with parts from another end item.

6.11.2.13.4. AWP Supportable Notification. When an AWP end item becomes 100 percent parts supportable, D035K will generate an information notice. This is notification that the last backorder against a given end item has arrived (or cancelled) and the asset is ready to return to repair.

6.11.2.13.5. Moving an End Item from AWP to OWO. Once the last backorder is received, D035K codes the end item FWP or 100 percent supportable. G402A is used to transfer AWP to OWO when the end item move notice is received from D035K.

6.11.2.13.6. End Item Turn-In Processing. When turning in an asset, the scheduler will use the same end item document number created when the asset was brought into repair. D035K checks for existing backorders marked against the end item document number. If backorders exist, the system responds with a controlled exception 'AK' notifying the user of existing backorders. **Note:** To help prevent 'AK' exceptions the scheduler and appropriate others as required will work with the PST to reconcile any outstanding backorders prior to the sale of the end item.

6.11.2.13.7. AWP 'Get Well' Efforts. Existing supportable end items must be worked before additional carcasses are inducted for repair. D035K has been programmed to facilitate the drawdown of FWP assets by first selecting end items coded FWP before other carcasses. Where IT systems fail to induct 100 percent supportable AWP/FWP coded assets; the scheduler must intervene and induct those available assets into repair. Which assets and the number inducted are at the discretion of maintenance.

6.11.2.13.8. AWP Reconciliation. DLA will complete an annual AWP reconciliation. The purpose of this reconciliation is to ensure proper accountability of AWP end items, piece parts on hand, and piece parts on order. Use existing Due In From Overhaul (DIOH)/AWP management reports to complete this reconciliation. The AWP reconciliation will be coordinated with maintenance and scheduled by DLA.

6.11.2.13.9. Long lead-time AWP assets will be addressed during the Exchangeable meetings and will be maintained on the 'M' balance. Maintenance will coordinate with AFLCMC, DLA, and/or 448th SCMW for disposition.

6.11.2.13.10. Storing Assets. DLA will store and control serviceable components, piece parts, unserviceable end items, and AWP assets. **Note:** NWRM assets are excluded.

6.11.2.13.11. AWP Metrics. DLA will provide AWP by RC/CC, NSN, and SOS to isolate problem components, poor support to repair shops, and SOS support. The information will be used to assist in solving wholesale and retail stockage and issue problems.

6.12. Multiple Source of Repair (MSOR). MSOR items use a combination of organic and/or contract repair such as organic/organic, organic/contract, or contract/contract. The items are routed to the appropriate organic and/or contract repair sites.

6.13. Supportability. Supportability is measured in terms of carcass, capacity, funds, and parts. Each of these resources affects a shop's ability to perform the repair. For example, lack of carcasses, parts, capacity, and funds will prevent the end item from being 'driven' into the shop. All of these resources are evaluated each day as part of the repair process before any repairs are funded. The Supportability Module in EXPRESS is used to evaluate resource supportability.

6.13.1. EXPRESS [reference AFI23-101_AFMCSUP_AFMCGM2019-02]. EXPRESS measures carcass, capacity, funds, and parts against predetermined criteria. In EXPRESS, 448th SCMW has the ability to adjust carcass criteria and the responsibility to see if carcasses

can be made available where the EXPRESS Supportability Module considers repair to be constrained based on carcasses not being available. Two EXPRESS outputs that reveal when carcass constraints are evident are the Supportability Report and the Supportability Summary.

6.13.2. Organic Repair. EXPRESS will identify repairs for programmed workload. Programmed workload is defined as workload assigned a permanent control number.

6.13.3. Non-Programmed Workload Support. The non-programmed workloads may include: Insurance/Numerical Stockage Objective (INS/NSO) items, low demand items, local manufacture, items that are non-Cooperative Logistics Supply Support Agreement (non-CLSSA) FMS items, MODs/TCTO items, partnership workloads, some Depot Maintenance Interservice Support Agreement (DMISA) items, and other non-predictable workloads. These requirements will be worked using an AFSC Form 206.

6.14. Requirements. This process computes individual item requirements in D200. A D200A Item Re-computation is initiated, as necessary, to make corrections after the final computation has been printed. These corrections are passed to the ABCS (D075) and Readiness Based Leveling (RBL) (D035E). The 448th SCMW will continue to validate forecasted repair/buy quantities and perform file maintenance. These actions are required for long range planning and budgeting of buy and repair requirements. Base and depot levels are computed when pipeline data is passed from D200 to RBL. Depot working levels are overlaid into EXPRESS by RBL.

6.14.1. Readiness Based Leveling (RBL) D035E. RBL is the AF system designed to allocate the D200A worldwide requirement among bases and the depot to reduce base expected backorders. RBL ensures the worldwide sum of levels does not exceed the requirement computed in D200A. RBL allocates all adjusted stock levels (ASLs) unless there is an insufficient worldwide requirement to meet demands.

6.14.2. Exchangeable Induction Policy. CSAG-M is self-sustaining wherein all costs are required to be recouped through payments from our customers. DM should not usurp 448th SCMW's responsibility for determining how to satisfy repair requirements by over inducting carcasses as a source of supply for repair parts not available through normal channels of supply. The 448th SCMW must retain the authority for initiating buys, pay DM to 'harvest' usable repair parts off carcasses held in supply, or use of any other means available to provide repair parts to the repairing agency.

6.15. Reparable Asset Process.

6.15.1. This is the process of unserviceable assets transferring from the customer to the repair facility. Upon successful funds application within the daily EXPRESS process and receipt of D7, the unserviceable asset is moved directly from central receiving to the repair facility when a repair requirement exists in EXPRESS. If no immediate requirement exists, the unserviceable asset is stored in the warehouse pending future repair, reclamation, or disposal.

6.15.2. The EXPRESS logic determines which programmed demands to repair first and if an asset will be inducted that day. EXPRESS uses multiple systems to obtain item specific data that includes the daily demand rate (DDR) and specific EXPRESS MAJCOM Scenario Subsystem (EMSS) data. EXPRESS will generate a complete list of all programmed repair actions on a daily basis for organic items. Non-programmed workload requirements will be handled on an exception basis.

6.15.3. Supportability Module. EXPRESS automatically determines which items can be repaired by using the supportability module. Funding shortfalls are identified and will be resolved by the 448th SCMW. High priority supportability failures should receive special management emphasis within the CSAG-S.

6.15.4. Automated Funding (J025A). After intervention, the scrubbed supportable list is passed to J025A for funding. If it passes funding, the list is passed back to EXPRESS. If there is a failure at the funding point, the 448th SCMW may be tasked to do further research.

6.15.5. D035K EXPRESS Table Loading. EXPRESS passes the funded supportable prioritized list to the D035K EXPRESS Table. Loading the list to the D035K EXPRESS Table starts movement of unserviceable assets into the applicable maintenance facility for repair.

6.16. EXPRESS Contingency Planning. In the event that the daily prioritization, funding, and distribution automated processes fail, there are various options available based on the circumstances causing the contingency.

6.16.1. If all data required for optimal EXPRESS processing is not available, ALCs should proceed with EXPRESS processing using the data available. Except in the event that D035B data is not available, there are two options to consider:

6.16.1.1. If work in progress, plus workload from the previous Prioritized List limited by available repair resources adequately occupies the shop, no new EXPRESS run is necessary (i.e., it is better to work with the previous data than to use outputs produced by EXPRESS without the D035B file). Repair constraints must be considered manually in this case as the EXPRESS Supportability function will not be applicable.

6.16.1.2. Only if the unsupported repair objective, plus work in progress is not sufficient to workload the shop, should the scheduler request the system administrator to proceed with EXPRESS processing realizing the results will be somewhat compromised by the lack of current D035B data. Since the system administrator may be requested to proceed with EXPRESS processing, which will overlay the previous results, any scheduler planning to use the previous results must make a copy of the Prioritized List.

6.16.2. If EXPRESS fails to run, continue to repair assets where the previous day's repair left off (i.e., where the total repair objective was not supported due to limited repair resources). The previous day's unsupported repair objective is on the EXPRESS Prioritized List. If the previous day's unsupported repair objective plus work in progress is not sufficient to workload the shop, the 'bringing in of additional workload' will be a managerial decision.

6.17. Manual Intervention of the EXPRESS Table. There may be times when it is necessary for the scheduler to manually intervene with the automated process of developing the daily EXPRESS Table. This can be done in the EXPRESS Table Quantities Output in EXPRESS immediately following the Supportability Module run. All intervention transactions must take place as designated by each operating location. Changes will not be accepted after this time. All file maintenance changes to EXPRESS data during intervention should be made with caution. The intervention window is the opportunity for 448th SCMW to review and/or input recommended changes to the scheduler for manual intervention. Caution: Incorrect input(s) will result in serious operational problems, data problems, funding problems, and possible erroneous repair drives. Any

intervention for quantity or switch changes must be fully documented with descriptive reason statement, date, and name/title of person making change.

6.17.1. During intervention, there are no specific restrictions regarding deletion of stock numbers or quantities for which the scheduler is responsible. However, barring only the exceptions specified below, the scheduler is permitted to add only stock numbers or quantities that are identified on that day's EXPRESS Supportability Report.

6.17.2. The report reflects items that are both supportable and unsupportable. The added stock numbers or quantities must be limited to those which are prioritized above the lowest priority requirement supported by the funding burn rate. Stock numbers or adequate quantities shown as supportable must be selected and deleted from the EXPRESS Table to offset the repair costs of any stock numbers or quantities that are added.

6.17.3. Conditions Required for Manual Intervention. The scheduler may only manually intervene in the automated process if one or more of the following circumstances exist:

6.17.3.1. Interchangeability and Substitutability (I&S) Issues. Examples include Subgroup Master NSN versus Actual NSN, one-way interchangeable items, and Authorized for Procurement Purposes (APP) NSNs. To address these in intervention, a new NSN can be added but only when it is offset by deleting the identified NSN for which it substitutes.

6.17.3.2. Equipment constraints. EXPRESS does not consider the type or amount of equipment in the shop. The Supportability Module only calculates the number of hours available in a shop. The scheduler must review the daily EXPRESS repair listing to ensure the capacity of the shop's equipment has not been exceeded for the items being driven into repair.

6.17.3.3. Personnel constraints. EXPRESS does not consider the skills available in the shop. When the repair listing cannot be supported due to personnel constraints, the scheduler may correct the listing to accurately reflect the skills and/or number of personnel available.

6.17.3.4. Erroneous parts data. When an NSN fails for parts and research shows those parts are available, the end item shall be brought in for repair unless another constraint exists. Also, when an NSN is identified for repair and parts are not available, the end item may be removed from the repair list.

6.17.3.5. Validated data discrepancies. When data discrepancies can be validated, the problem must be documented and reported to the appropriate OPR. When this 'dirty data' can be accurately validated, the OPR, typically 448th SCMW, must determine what the repair requirement and priority would be for an affected item if the data were valid. If the scheduler is convinced the NSN should be added to or the quantity increased on the EXPRESS Table, it can be done provided an NSN and/or adequate quantity of lower priority supportable requirements are deleted to offset the repair cost of the added requirements. Conversely, a data discrepancy resulting in a decision to reduce repair requirements or priorities can be addressed by deleting the affected NSN or reducing the quantity during intervention.

6.18. Supportability Max Item Switch and Quantity ('M' switch). The scheduler is responsible for setting the Max Item Switch and Max Item Quantity. These settings are used together to

manage capacity in the shop by controlling the maximum number of items allowed on the EXPRESS Table. The settings are by specific NSN. Caution: Incorrect input(s) may result in erroneous repair drives.

6.18.1. Supportability Max Item Switch. This is a three-position switch that determines which particular assets [Condition Code 'Y', Awaiting Maintenance (AWM), OWO] will be included in the Supportability Max Shop Quantity calculation on this screen and in the Supportability Max Item Quantity calculation on the 'Item' view. The selection of 'EXPRESS Table', 'AWM Pipe', or 'Repair Pipe' in the Repair Resource View determines how shop quantity will be capped. Default value is 'EXPRESS Table'.

6.18.2. EXPRESS Table. Constrains the number of potential, repairable, and supportable requirements that are loaded to the EXPRESS Table to the quantity placed in the Supportability Max Shop Quantity field for that shop.

6.18.3. AWM Pipe. Constrains the number of potential, repairable, and supportable requirements that are loaded to the EXPRESS Table to the Supportability Max Shop Quantity field less the sum of all items that have Condition Code 'Y' or are AWM for that shop.

6.18.4. Repair Pipe. Constrains the number of potential, repairable, and supportable requirements that are loaded to the EXPRESS Table to the Supportability Max Shop Quantity field less the sum of all items that have Condition Code 'Y', are AWM, or are OWO for that shop.

6.18.5. Supportability Max Item Quantity. This data field represents maximum items allowed in the shop for the specific item and depends upon the switch setting of the 'Supportability Max Item Switch' in the Repair Resource View. The default value is 99999 (i.e., 100 percent unconstrained quantity). The field range is from 0 to 99999.

6.18.5.1. 448th SCMW Recommendations. The 448th SCMW can recommend changes to the Max Item settings but the scheduler has the final authority and is ultimately responsible for induction into maintenance.

6.18.6. Conditions Required for Max Item Switch and Quantity. The scheduler may only set the Max Item Switch and Quantity if one or more of the circumstances exists [reference paragraph 6.17.3. (i.e., Conditions Required for Manual Intervention)].

6.18.6.1. The Max Item switch and quantity should be used as a last resort to manage capacity in a shop. It is intended to be used short term and not as a continuous filter for requirements.

6.18.7. The Max Item Switch (M-switch) is designed to manage capacity when the "AWM Pipe" or "Repair Pipe" settings are not feasible. The "AWM Pipe" or "Repair Pipe" are appropriate for use at the PSSD level. However, there are examples when these settings will not sufficiently manage capacity; such as, multiple testers within PSSDs that repair multiple parts. Capacity management is required to control Work-in-Progress (WIP), the number one rule for Art of the Possible (AoP) maintenance machine management. Uncontrolled WIP drives increased Shop Flow Days (SFDs), increased Working Levels (WLs), and the possibility of increased sparing levels.

6.18.7.1. The use of the M-switch may be short term or long term. Short term use of the M-Switch may arise when unanticipated demands occur, testers go down, or flying hours

increase due to unplanned contingencies. AoP machines' capacity will need to be resized to keep up with the increased demand. If increased demands persist and outgrow budgeted capacity, the long term use of the M-switch may be required. Maintenance and SCM personnel should work to gain more capacity through the Annual Program and CIP budgeting processes. Transparency shall be maintained between the SCMG and MXG on the long term use of the M-Switch. Continuous constraints to EXPRESS drives can skew the priorities computed by the EXPRESS model and can result in suboptimal support to the customer. Thereby, it is incumbent that all parties are working to "bust constraints", to include the use of the M-switch. M-switch usage will be monitored daily, weekly, and monthly in Exchangeable meetings.

6.18.8. The exception to use Max Item switch and quantity on a continuous basis is the 'AWM Pipe' or 'Repair Pipe'. Caution: Incorrect input(s) may result in erroneous repair drives. The 'AWM Pipe' or 'Repair Pipe' settings may be used to maintain a constant level of repairs for a specific NSN in a shop. This logic helps to maximize shop efficiency by maintaining a standard OWO balance throughout the shop. The Production Controller will ensure all repair requirements continue to be met when utilizing the 'AWM Pipe' and 'Repair Pipe' settings.

6.19. Exchangeable Meeting.

6.19.1. Purpose. The Exchangeable meeting is used to ensure the depot repair process is on track, seek methods of improvement, and apply the necessary resources to get the job done. It provides the necessary oversight and direction to engage all key players. The meeting enhances communication and ensures that all team members are given the opportunity to identify/solve problems that hinder maintenance in repairing assets. Topics discussed vary based on local conditions but include the mandatory areas specified in this manual. Roles and responsibilities of Exchangeable meeting key players are outlined below.

6.19.2. Formal Exchangeables Meetings. Formal Exchangeable meetings will be held monthly. The Group Commander/Director will chair the meeting to facilitate cross flow of problems, solutions, and innovations. The purpose of the formal meeting is to inform the Group Commander/Director of issues impacting the repair cycle that delay or prevent adequate customer support and facilitate communication between functional groups to resolve these issues. The number of formal monthly meetings may vary depending on the number of Squadrons within the Production Group. The Exchangeable meeting focus is found in **Table 6.1.**

6.19.2.1. The Group Commander/Director is responsible for publication of the formal monthly minutes. Constraints that cannot be resolved at the formal monthly meeting shall be elevated to the ALC for resolution.

6.19.3. The Squadron Chief or designated representative will chair the informal Exchangeable meeting. No formal minutes are required. Constraints that cannot be resolved at the informal Exchangeable meeting will be addressed at the formal monthly Exchangeable meeting with the Group Commander/Director. The Exchangeable meeting focus is found in **Table 6.1.**

Table 6.1. Exchangeable Meeting Focus.

What to Review	Questions to Ask. Examples listed below

Asset Posture	What is on-hand at field level? Is the Redistribution Order (RDO) an option? What is the serviceable balance? Do we have available 'F' condition carcasses? How many items are backordered?
Repair Cycle (Snapshot View)	What is broken? Where is it? Is somebody fixing it? What are the bottlenecks? What are the leading indicators?
Repair Cycle Dynamics	How fast? How reliable? Right priorities? Resource problems? People problems? Contractor support?

6.19.4. Exchangeable Meeting Attendees. The mandatory monthly forum will include all personnel who resolve problems within the depot repair process. The Squadron Commander/Director, 448th SCMW personnel, appropriate Squadron representatives from scheduling, process engineering, planning, material support, as required; representatives from system engineering, contracting, procurement, DLA, and others critical to customer support will also participate in these meetings, as required, if specific issues demand attendance. Personnel at other ALCs will facsimile (FAX) or email the status of items for which they are responsible to the affected Squadron Commander/Director. If issues exist, personnel will participate in the meetings via video-teleconference, speakerphone, etc. The Squadron Commander/Director responsible for the 'problem item' will lead the discussion.

6.19.5. Roles and Responsibilities in Support of the Exchangeable Meetings.

6.19.5.1. The 448th SCMW's role is to brief the worldwide health of the item. This includes information on the Exchangeable Chart, as required, and includes the Asset Posture items listed in **Table 6.1.** The 448th SCMW is responsible for attending the Exchangeable meetings if items being reviewed are under their area of responsibility. The 448th SCMW is also responsible for any additional information relative to the 'problem item' that is not portrayed on the chart or requires further explanation, which may involve identifying and correcting data problems involving requirements and asset data that impact EXPRESS. The 448th SCMW should also be prepared to discuss any procurement issues, availability of carcasses for reclamation or cannibalization, status of repair actions at contractor or other organic locations, etc.

6.19.5.2. DLA will brief parts related issues and AWP status.

6.19.5.3. The Contracting Officer will attend, as necessary, to discuss contracting issues.

6.19.6. Informal Exchangeable Meeting Discussions. The Squadron Director will lead the Exchangeable meeting discussions. The entire team will participate, as necessary, in the discussion directing efforts at problem resolution. The basic health and status of items will be addressed covering the specifics of what failed and why.

6.19.6.1. The 'Top 10' problem items to be briefed will be determined using the EXPRESS Supportability Summary Report. The review will consist of the items IAW

the Single Prioritization Across Weapon Systems (SPAWS) ranking that have failed. Additional items that cannot be produced may be added to the list.

6.19.6.2. Workaround for Determining the 'Top 10'. Currently, there is no automated method to have the Supportability Summary Report sort items for multiple shops. An alternate method would be to run the Supportability Summary Report for the entire ALC, eliminate those shops not within the Group Commander/Director purview, and select the 'Top 10' items IAW the SPAWS ranking that have failed.

6.19.6.3. 448th SCMW Recommendations. The 448th SCMW can recommend an item be included on the list to be presented but the Squadron Commander/Director has the final authority to determine what is presented.

6.19.6.4. AWP and Hangar Queens. In addition to the 'Top 10' items, the meeting will also include a status of parts driving AWP and all Hangar Queens compiled by DLA. Additional back-up charts should be added as required.

6.19.6.5. Exchangeable Chart Data. The owning organization is responsible collecting and displaying the information for this chart. The information can be obtained from the Logistics, Installations, and Mission Support – Enterprise View (LIMS-EV), Supply Chain Management (SCM) View, Execution and Privatization of Repair Support System (EXPRESS), or other approved and current command system(s) by the applicable representative from the supply chain. Local instruction(s)/guidance may be developed to further define this process. The following sub-paragraphs list examples of items that may be displayed and discussed on the Exchangeable Chart but are not mandatory.

6.19.6.5.1. WorldWide (WW) Active Inventory. This is the amount of inventory needed to support all customers (i.e., FMS, other services, and non-capitalized customers). This includes authorized and on-hand levels. Formulas and information sources are:

6.19.6.5.2. Authorized (WW Inv Auth). WW Inv Auth = MICAPs + POS Authorized + RSP Authorized + WL Authorized + CRI Estimate.

6.19.6.5.3. On-hand (WW Inv OH). WW Inv OH = POS On-Hand + RSP On-hand + Work-In-Process + CSI On-hand + CRI On-hand + In-transit (serviceable and unserviceable).

6.19.6.5.4. WorldWide MICAPs (MICAP).

6.19.6.5.5. SPAWS Value. SPAWS is the prioritization method within EXPRESS that merges each of the weapon system priority lists into a single prioritized list across all weapon systems (indicated by rank and support indicator). The Fixer uses this list to make repair induction decisions for a specific NSN to support field-level requirements.

6.19.6.5.6. Peacetime Operating Stock (POS).

6.19.6.5.7. Authorized (POS Auth). This is the computed RBL level within Standard Base Supply System (SBSS) or D035K.

6.19.6.5.8. On-hand (POS OH).

6.19.6.5.9. Readiness Spares Packages (RSP).

6.19.6.5.10. Authorized (RSP Auth).

6.19.6.5.11. On-hand (RSP OH).

6.19.6.5.12. Net Repair Objective (Net Rep Obj). The repair objective quantity provided by EXPRESS and is calculated before the supportability module has processed. This figure is obtained from the Working Level and Base Needs report in EXPRESS.

6.19.6.5.13. Working Level Authorized (WL Auth). Computed by RBL and is the recommended amount of assets that should be in the Consolidated Serviceable Inventory (CSI) and Work-In-Process (WIP) at any one time to support requirements. These assets are owned by the 448th SCMW and are located at a depot, contractor facility, or at an offbase storage location. The level can be obtained from the Working Level and Base Needs report in EXPRESS.

6.19.6.5.14. Consolidated Reparable Inventory Estimated (CRI Est). The amount of unserviceable assets that RBL estimates should be in the retrograde pipeline or available in the warehouse. This information is found in the depot working level file in D035E to EXPRESS.

6.19.6.5.15. Total Work-In-Process (Total WIP). Shows the status of assets currently in the repair process and includes any assets in work at another repair location such as a contractor, another service, or another depot. For depot assets, this quantity includes OWO, AWM, and unserviceable materiel in transit to maintenance. While D035K at each depot has visibility of the local WIP balances, only D035A has visibility of assets in WIP at off-base storage locations and at each depot. Total of the following balances: WIP assets (condition code ‘M’) at the depots, O/P code 09; WIP assets (condition code ‘M’) at repair contractors or other services, O/P code A; and unserviceable assets in transit to maintenance (condition code ‘Y’), O/P code 09.

6.19.6.5.16. Consolidated Serviceable Inventory On Hand (CSI OH). The total of the following balances provided by D035A: serviceable assets (condition code ‘A’ and ‘Z’), O/P code 09 stored at a depot (condition code ‘B’ and ‘C’ assets are rolled up in the ‘A’ quantity,); serviceable assets (condition code ‘A’) stored at off-base storage locations, O/P code A; and serviceable assets (condition code ‘A’) stored at repair contractor locations, O/P code A.

6.19.6.5.17. Consolidated Reparable Inventory On Hand (CRI OH). Total of the following quantities are obtained from D035A: Unserviceable materiel (condition codes D, E, F, G, J, K, L, Q, and R) at a depot, O/P code 09; unserviceable materiel (condition codes D, E, F, G, J, K, L, Q, and R) at an off base storage location (includes contractor and other service storage locations), O/P code A.

6.19.6.5.18. Unserviceable In-transit (In-transit). Amount of unserviceable materiel being returned from retail customers. Provided by D035C (HDFA screen): Unserviceable Intransit are O/P code 01 and HK (INTRANSIT UNS).

6.19.6.5.19. Monthly Demand Rate (MDR). Production is concerned with the SCM wholesale repair requirement versus the retail demand rate generated by CSAG-S retail customers.

6.19.6.5.20. Retention Authorized (Retention Auth). The maximum amount of assets the 448th SCMW is authorized to have in their inventory.

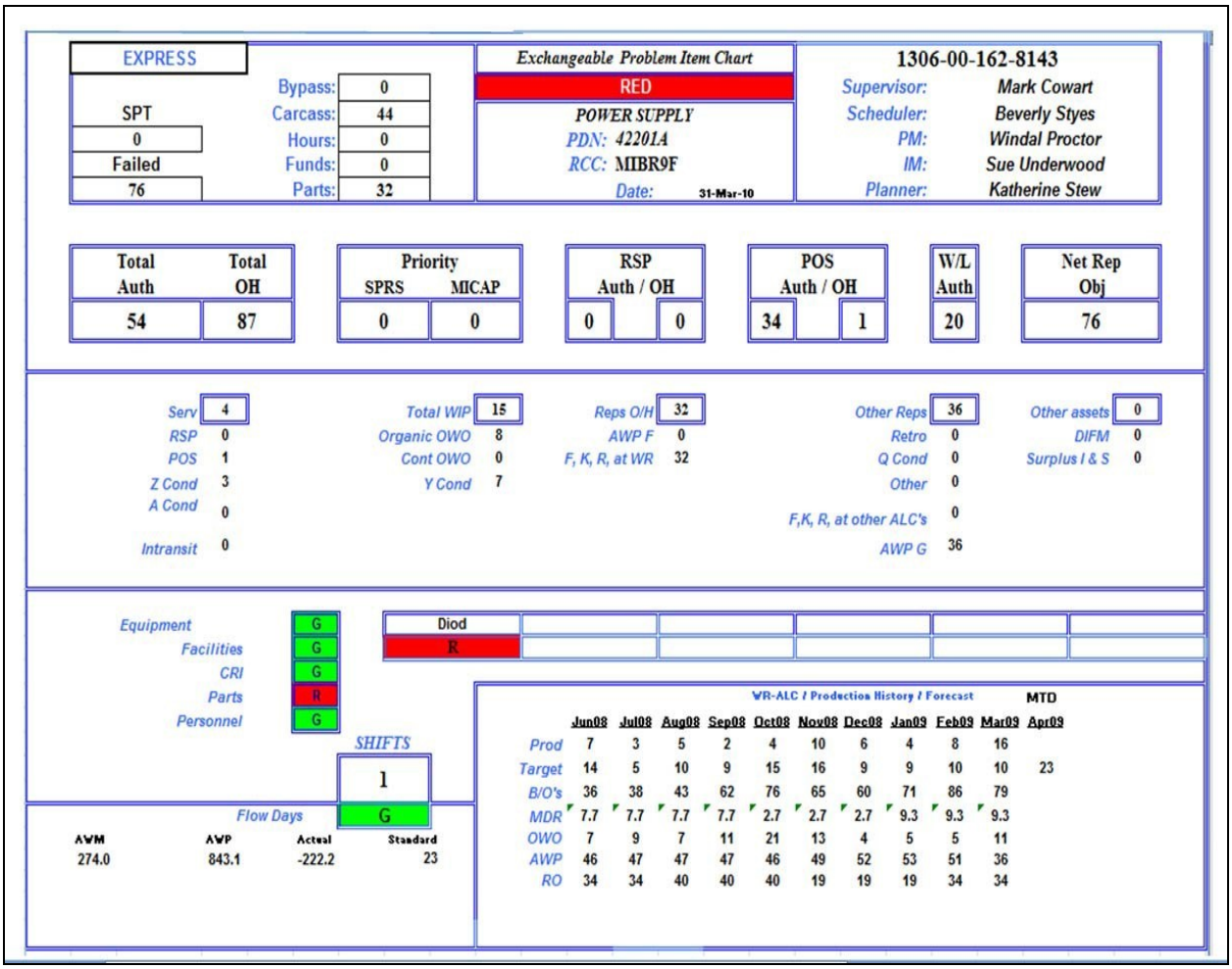
6.19.6.5.21. Local Work-In-Process (Local WIP). The amount of assets in the repair process at the local ALC. This balance is obtained from D035A as condition code M, O/P code 09.

6.19.6.5.22. Additional information. The following information should be considered when building the Exchangeable production chart.

6.19.6.5.22.1. Procurement Due-Ins. Information concerning procurement due-ins is not reflected on this chart because the chart displays the 'current' health of the item not 'future' health. The 448th SCMW should be prepared to discuss any procurement issues or pending buys.

6.19.6.5.23. Exchangeable Production Chart Overall Item Rating. Maintenance will color code the overall rating of the item green, yellow, or red as follows: Green means item has no MICAPs and all individual ratings are green; yellow means the item has no MICAPs and one or more of the individual items are yellow; red means the item has one or more MICAPs and/or one or more of the individual items are red. Reference **Figure 6.1.**

Figure 6.1. Sample Exchangeable Production Meeting Chart.



6.19.6.5.23.1. Overall Equipment Rating. Maintenance independently rates each critical piece of equipment. Green indicates adequate equipment to handle the projected workload is available and is in serviceable condition. Yellow indicates adequate equipment is not available but an acceptable plan is in place (i.e., equipment is down for routine maintenance, needs minor repair, or scheduled for routine maintenance and a workaround exists). Red indicates that adequate equipment is not available or equipment is down for maintenance for an extended period of time and no workaround exists. Individual equipment ratings will be rolled up to a composite equipment color-code rating. Items with any critical equipment having a color coded rating of red or yellow will have the same overall equipment rating.

6.19.6.5.23.2. Overall Personnel Rating. Maintenance rates personnel. Green indicates that sufficient personnel are available to produce full requirements. Yellow indicates personnel are available to produce critical areas of MICAP and RSP but some requirements (POS and/or CSI) cannot be filled. Yellow also indicates requirements can be met but overtime rate exceeds sustainable levels.

Red indicates sufficient personnel are not available to fulfill requirements for MICAP or RSP items or when capacity is used up for further repairs. Personnel status will remain red until additional hours are assigned or become available through completed repairs.

6.19.6.5.23.3. Overall Flow Day Rating. Maintenance rates flow days. Green indicates the item is produced in less than or equal to the standard flow days. Red is assigned to items produced with flow days greater than the standard. Standard Shop Flow Days will be calculated and reviewed IAW **Chapter 2** in this manual. Standard Shop Flow Days are input into G019C. Actual Shop Flow Days will be obtained from the appropriate maintenance system.

6.19.6.5.23.4. Overall Consolidated Repairable Inventory Rating. The 448th SCMW validates CRI inventory. Green is assigned if carcasses are on hand. Green is also assigned if RBL identified CRI levels are zero. Red is assigned when carcasses are not available.

6.19.6.5.23.5. Overall Parts Rating. Maintenance rates overall components. Green is assigned to items with parts on hand to do the EXPRESS driven repairs. Red is assigned if parts are on backorder and not available to support RDD. The D035K system is used for access to estimated delivery dates.

6.19.6.5.23.6. Overall Funds Rating. Green indicates funding is available and production is not impacted. Yellow indicates funds are available to cover the critical areas of MICAP and Joint Chiefs of Staff (JCS) projects but funding lacks capability to cover full requirements. Red is assigned when lack of funding is preventing the MICAP or JCS item from being brought into repair.

6.20. Job Routing.

6.20.1. The decision to Job Route/Non-Job Route will be made by AFLCMC (SPO/SPM/SCM), as appropriate, working with the ALCs and DLA. Normal practice is for an unserviceable asset to be turned into supply in exchange for an available serviceable asset. Consequently, job routed repair is not authorized if a serviceable asset is available from supply in the configuration required. All conversions from job routed to non-job routed should begin budget lead-time away for anticipated cost changes to the CSAG-M/CSAG-S. If circumstances still require job routing, approval must be obtained from the Program Office. Such action must be reported to supply in order for supply to record accurately the true requirements for stockage (reference AFI 20-110 AFMCSUP for NWRM job routing guidance).

6.20.2. Job Routed Repair. Job routed repair occurs when a recoverable component is found to be unserviceable during the overhaul, the item is removed, repaired/reconditioned, and reinstalled on the same end item.

6.20.2.1 Have Exchangeable and/or AMXG IET (maintenance planner) develop a BOM on routed repairs. Work with SPO/SPM/SCM to get items as MISTR Line in the out years based on trend analysis data.

6.20.3. Non-Job Routed Repair. Non-job routed repair occurs when an unserviceable item is removed and replaced with a serviceable item from supply. A non-job routing process is strictly a ‘remove and replace’ operation.

6.21. Procedures for Job Routing (As approved by the SPO/SPM/SCM, as appropriate).

6.21.1. The appropriate WCDs will be developed and used as required by **Chapter 7**. All job routed repairs are to be input and tracked though the repair process via the appropriate data system.

6.22. Procedures for Non-job Routing.

6.22.1. Shop replaceable units (SRUs) removed from line replaceable units should be turned into DLA and a serviceable asset used to fill the hole on the end item. Due-in from maintenance/due-out to maintenance (DIFM/DOTM) procedures will be used to maintain financial/material accountability. If the SPO/SPM or 448th SCMW (whoever manages the item) approves, job routing will be permitted if SRUs are not available.

6.23. Process Routing.

6.23.1. Process routing, which consists of forwarding an item to a process shop, is an integral part of the overall repair effort but is not considered a job route. A process shop is defined as a DM function that provides conditioning support on component assemblies and materials, or essential support services for end items being repaired by other DM organizations. The following are examples of candidates for process routing: cleaning, plating, heat treat, welding, battery servicing, grinding, machining, non-destructive inspections (NDIs), check/test, and minor maintenance (not to exceed Level Three field repairs).

6.24. Materiel Management.

6.24.1. The tracking and control of exchangeable items is accomplished through the material management system D035K DIOH program as the supply accountable property system of record (APSR). G004L is the accountable maintenance financial system.

6.25. EXPRESS Funds Application.

6.25.1. Purpose. This guidance provides direction for funds application of Work Authority (WA) as it relates to EXPRESS funding execution.

6.25.2. There is no ownership of the repair cost authority as the 448th SCMW CA is held in central pool by specific SOS. The central pool is maintained and executed at Group level to allow for funding on demand to support the repair on demand process. This process focuses on the reparable assets managed by the 448th SCMW. These items can be identified by a three position Expendability, Recoverability, Reparability Category (ERRC) designator of XD1 or XD2 or the one position alpha designator of C or T. Items are also identified as budget code ‘8’ items.

6.25.3. The 448th SCMW Group FM office for each SOS is responsible for providing timely funding to allow daily EXPRESS execution via J025A.

6.25.4. The 448th SCMW Group Wholesale Funds Manager(s) representative from the SOS Group FM office will address funding issues at Exchangeable meetings for their SOS and will communicate with the 448th SCMW FM prior to the meetings to obtain the latest funding information.

6.26. Organic Workload Funding Execution Process.

6.26.1. The EXPRESS system determines the repair execution requirements for organic programmed repair items (Exchangeables), and identifies the requirements by Sub Group Master (SGM) and by weighted repair cost. On a daily basis, EXPRESS triggers the PO funding process in J025A. For each SOS/SOR combination, J025A generates an on-line PO using data from EXPRESS and G004L. J025A then notifies EXPRESS when the PO has been funded and accepted or that funding was not completed. CSAG-M will not put assets into work without a funded PO. 6.26.2. EXPRESS burn rates.

6.26.2.1. The EXPRESS supportability module for each SOR contains a separate burn rate for each SOS having repair at that SOR. The burn rates tell the EXPRESS supportability module how much CA is available from each SOS to support their daily repair requirements. The EXPRESS burn rate is SOS specific rather than shop specific. The 448th SCMW Group Wholesale Funds Manager(s) is responsible for the SOS repair funding burn rate data and ensures burn rate data has been properly entered into EXPRESS. The burn rate data consists of four elements that are required to calculate the EXPRESS burn rate: SOS Checkbook, Days Remaining, Funding K-factor (%), and Percent of Checkbook. These values can be changed as needed.

6.26.2.2. SOS Checkbook is the uncommitted CA balance for a particular SOS. EXPRESS Depot Funding will receive each SOS's uncommitted CA balance for MPC 1Q01 from J025A daily.

6.26.2.3. Days Remaining identifies the remaining workdays in FY or for a specific number of days the applicable funding should apply. The 448th SCMW Group Wholesale Funds Manager(s) work(s) with the CSAG-M Acceptor at each SOR to identify the remaining workdays.

6.26.2.4. Percent of Checkbook is the percent of uncommitted CA balance that will be applied for an SOS's requirements at a particular SOR.

6.26.2.5. Funding K-factor (%) allows the daily burn rate to be exceeded by a predetermined percent. If SOS burn rate is calculated to $500 for a given day and the SOS selected 150% for the K factor, the burn rate will equal $750. The EXPRESS supportability module would use $750 as the burn rate for this SOS rather than $500. The K-factor helps with situations where an item has an extremely high unit repair cost or the requirement on a given day exceeds the burn rate because of increased demands.

6.26.3. Burn rate calculation.

6.26.3.1. EXPRESS calculates the SOS burn rates by multiplying the SOS's uncommitted CA balance by the SOS's percent assigned to that SOR then divides by remaining work days and multiplies the value by the K-factor %. SOS burn rate = K factor x [(uncommitted CA x % of CA)/ days remaining].

6.26.4. EXPRESS PO Processing.

6.26.4.1. J025A edits the information it receives from the EXPRESS file. Using the EXPRESS data and information from G004L, J025A will automatically build/initiate a PO and transmit to the Initiator/Approver (the 448th SCMW Group Wholesale Funds Manager) at the appropriate SOS. J025A cannot attempt to build a PO for the requirement if data is missing or has invalid characters for the Production Control Number, SGM, Quantity, Production Section Scheduling Designator (PSSD), or Fund Classification Reference Number (FCRN). Care must be taken to ensure the data is properly entered into EXPRESS and G004L.

6.26.4.2. Approver transmits the PO to the Air Liaison Officer (ALO) for certification of funds and the ALO will then submit the PO to the CSAG-M Acceptor. The CSAG-M Acceptor will then send the PO to DFAS for Obligation of CA Funds and DFAS will finalize the PO. Notification is returned to EXPRESS stating funds application is complete. A record of the PO is also forwarded to DIFMS/FIT to update the maintenance financial records.

6.26.4.3. Prior to acceptance, if the Acceptor rejects the PO, it is passed back to the Certifier then to the Approver and back to the Initiator with comments for appropriate action. Subject to required actions, funding will not be applied for induction needs for the particular funding stream [Program Control Number (PCN)/FCRN] in question that day.

6.26.5. PO acceptance.

6.26.5.1. There is no partial approval/acceptance of a PO. After supportability and subject to maintenance manual intervention, should total dollar value on PO exceed total available WA, the Initiator will reduce the requirement to the available funding. Initiator can delete any or all funding streams from the PO.

6.26.5.2. The CSAG-M Acceptor's on-line signature on the PO indicates CSAG-M is accepting the SOS's offer (i.e., the workload). This process allows the CSAG-M to incur an expense on behalf of the 448th SCMW.

6.26.6. PO Funds Application Time Limits.

6.26.6.1. There is a two hour window (1330-1530 Eastern Time) to build the PO, approve the funds, certify and commit the funds, accept the PO, obligate the funds, and notify EXPRESS of the funded or unfunded requirements.

6.26.6.2. The Initiator is responsible for oversight of the acceptance process. Initiator is required to monitor the EXPRESS funding process and contact the Acceptor when the PO amendments are not being processed in a timely manner. The Initiator will ensure the approval, certification, and acceptance process is completed during the two hour window. If completion cannot be accomplished, the Initiator/Approver/Certifier/Acceptor in J025A may request to extend the J025A EXPRESS window.

6.26.6.3. Upon completion of funding process, EXPRESS reformats the funded J025A file and sends the file to D035K which begins the movement of reparable carcasses to shops for induction and repair to commence.

6.26.7. Contingency Plan.

6.26.7.1. If J025A is off-line, the CSAG-M Acceptor will sign a paper copy and return to the initiator. The Initiator will hold the paper copy until J025A is back on-line.

6.26.7.2. J025A provides a PO amendment number that G004L needs to load the information into the maintenance systems. Amendment numbers are not available until the Initiator is able to input the POs into J025A.

6.27. Production Support for Aircraft and Missile Repair.

6.27.1. Purpose. This section outlines the DM production support philosophy and policies required to effectively operate and manage the aircraft/missile repair process.

6.27.2. Aircraft/missile management will implement an automated aircraft/missile production operation-level schedule. This schedule must be available to both production and support personnel.

6.27.3. The schedule emanates from production's FY work plan with the number of aircraft/missiles by work package, becomes more specific by MDS level of detail, and is most specific with the schedule by tail number for a particular aircraft or serial number for a particular missile. This schedule resides in the aircraft/missile repair scheduling system that captures operations by start date within the network and provides project management capability and visibility.

6.28. The Pre-Production Functions.

6.28.1. Section 6.29 provides guidance and direction for the pre-production activities required to support execution.

6.29. General. Note: Exchangeable Groups operating IAW AFMAN 63-143 meet the intent of the requirements for Production Support for Exchangeable Repair.

6.29.1. Procedures and Analysis (P&A) Office. Responsible for overseeing analysis functions critical to the efficient and effective operation of Pre-Production and Production Support. **Note:** P&A functions for Exchangeable workloads may be located at the Group or Squadron level.

6.29.1.1. Provide support and coordination for meetings and briefings.

6.29.1.2. Develop and maintain internal Group operating procedures which will not conflict with published governing instructions.

6.29.1.3. Perform internal process reviews and monitor practices to ensure compliance with established procedures and practices.

6.29.1.4. Measure process compliance and evaluate business metrics.

6.29.1.5. Analyze trends.

6.29.1.6. Evaluate workload progress.

6.29.1.7. Recommend changes to process, personnel position descriptions and procedures, equipment and facility, information systems, and training.

6.29.1.8. Track Quality and Engineering Investigations (Q/EIs)/credits, warranty, and desired results.

6.29.2. Industrial Engineering Technician (IET) Planning Functions:

6.29.2.1. Estimate man-hours and resources to perform PDM MODs, and UDLM SOWs in support of RFQs.

6.29.2.2. Reconcile similarities between PDM and MOD work packages.

6.29.2.3. Update fixed price worksheet, and reconcile and provide final fixed price worksheets to the SPOs.

6.29.2.4. Develop master network.

6.29.2.5. Develop work packages.

6.29.2.6. Integrate TOs, engineering changes, and mechanic input into work packages.

6.29.2.7. Develop BOMs by PDM operation.

6.29.2.8. Merge Tail Serial Number Scrub List to BOMs for UDLM operation.

6.29.2.9. Adjust BOMs as necessary.

6.29.2.10. Adjust aircraft/missile schedules by major job.

6.29.2.11. Participate in the supportability reviews. 6.29.2.12. Update BOMs from AMR for FY LOM.

6.29.2.12. Load workload packages.

6.29.2.13. Adjust operation schedules.

6.29.2.14. Compare equipment to work specifications.

6.29.2.15. Compare facilities to work specifications.

6.29.2.16. Review aircraft/missile records and pre-existing problems.

6.29.2.17. Participate in Pre-Induction conference.

6.29.3. Master Scheduler Functions.

6.29.3.1. Coordinate FY work plan for aircraft/missile induction, carry-out, flow days, and shifts with planning. Any changes must be coordinated and approved by planning to ensure changes to work packages and networks are updated.

6.29.3.2. Review system schedule impacts of MODs, UDLM, and new or changed requirements.

6.29.3.3. Review resource supportability by MDS per FY.

6.29.3.4. Adjust schedule per facility or skill constraints.

6.29.3.5. Establish aircraft/missile schedule.

6.29.3.6. Develop aircraft/missile input/output schedule with planning.

6.29.3.7. Confirm incoming tail/serial number and configuration.

6.29.3.8. Chair Pre-Induction Conference.

6.30. Production Support Functions. (Schedule Execution Support)

6.30.1. Scheduler Functions.

6.30.1.1. Review aircraft/missile history.

6.30.1.2. Route from Pre-Dock and Dock; track all routed items.

6.30.1.3. Verify PDM/UDLM work packages are in the appropriate production scheduling system, and ensure JON opened in G004L.

6.30.1.4. Synchronize back-shop support to schedule.

6.30.1.5. Manage WCDs and issue to Production Supervisor for distribution to mechanics. **Note:** For the ALCs with electronic work control document (eWCD) capability, the scheduler will make available 10 days worth of work at a time to the production first line supervisor via a MIS report indicating operations available for work by production for the 10 day period.

6.30.1.6. Verify operation completion to include T-JONs. **Note:** For the ALCs with eWCD capability, only operations in MIS operation status code 9 will be stamped once completed by the mechanic, which verifies certification of completion on the eWCD, and credits the RC/CC with earned hours. The scheduler will verify all operations contain the appropriate stamps, serial numbers, and corrective actions before certifying with a C stamp.

6.30.1.7. Ensure JON is closed in G004L and input departure notice in the appropriate production scheduling system.

6.30.1.8. Chair the Tail Team/Aircraft Maintenance Team (AMT)/Product Focus Team (PFT) (includes the First Line Supervisor, Maintenance Process Engineer, Production Support Technician (PST), and as needed, the Planner) meeting to perform a 10 day 'forward look' of operations IAW with the critical path schedule. The evaluation involves reviewing skills, parts, tools, equipment, and etc. for each operation.

6.30.2. Production Support Technician (PST) Functions.

6.30.2.1. Perform research, direct-line ordering, turn-in processes, file maintenance of backorders, etc.

6.30.2.2. Perform direct-line material requisitioning.

6.30.2.3. Monitor backorder status.

6.30.2.4. Process turn-ins of aircraft/missile-specific DIFM/DOTM and verify turn-in of unused parts.

6.30.2.5. Assist with 10 day 'forward look' for resource support against the critical path.

6.30.2.6. Assist with processing and tracking cannibalization actions in the Production Scheduling System.

6.30.2.7. Coordinate delivery of kits/packages and available resources based upon aircraft/missile schedule.

6.30.3. Synchronization Team Function. The Synchronization Team's focus is on the aircraft/missile tail/serial number schedule, the RDD of a given operation, and the backshops' Estimated Delivery Dates (EDDs). The Synchronization Team has representatives from the

backshops and from each aircraft/missile squadron for backshop conflict resolution. Specific functions include:

6.30.3.1. Track and expedite manufacturing and repair work done in the backshops.

6.30.3.2. Track assets throughout the production cycle.

6.30.3.3. Coordinate with Scheduler and Planner upon failure of parts supportability to reschedule operation as necessary.

6.30.4. Production: Each squadron director is responsible for aircraft repair in the production shop through associated flight chiefs and first line production supervisors to accomplish depot repairs. Using standard repair processes, the squadron director is responsible for production output for their shop(s) utilizing the most productive and cost effective methods to produce a timely and quality product.

6.30.4.1. The first line supervisor assigns work and supervises mechanics performing tasks on the aircraft/missile.

6.30.4.2. The mechanic plays an integral part in meeting customer expectations. While the support functions are to ensure the mechanic is supportable, the mechanic has a responsibility to ensure the proper use of technical data, identification of problems in a timely manner, proper use of PPE, and adherence to safety, environmental, security, and regulatory guidance. The mechanic, as required, will support operational sequencing to ensure the critical path network is properly flowed to ensure optimal flow days to meet customer expectations IAW AFMAN 63-143. Mechanics must complete work in the appropriate time and attendance system, and certify completion of operation by stamping and dating WCD or eWCD.

6.31. System Program Office (SPO) Support to the Aircraft and Missile Repair Processes.

6.31.1. Develop, plan, and refine requirements. The SPO/SPM (Program Office) is responsible for identification of the requirements.

6.31.1.1. Aircraft and Missile Requirements (AMR). The AMR process is governed by TO 00-25-4 and AFMAN 63-143. The AMR process is used to develop, review, validate, and approve depot level maintenance and repair for aircraft and missile systems. The AMR process includes the ERRP, Bill of Work (BOW), and Requirements Supportability processes.

6.31.1.2. The ERRP drives the generation of a new engineering requirement from conception through approval by providing justification with fully developed supportability elements. In addition, the Program Office/SPM or designee, with input from the ALC maintenance group, will determine which current/existing tasks will be included in the ERRP, with a goal of 20 percent annually.

6.31.2. Requirements Definition Team. This team is comprised of Program Office Engineering and ESs. The team will document a proposed requirement (new, amended, or deleted) and take the necessary actions to receive approval to further develop the requirement to gain approval from the Chief Engineer. For existing tasks that are under review, full DEV PACs are required. Standard aircraft handling maintenance tasks (e.g., towing, jacking, safe for maintenance, etc.) do not need to be defined in an engineering DEV PAC, PART I first-

level review, but do require supportability analysis consideration in the development of the engineering requirement review process in DEV PAC, PART II.

6.31.3. The Requirements Supportability Process reviews and assesses the supportability for individual tasks (scheduled maintenance tasks) new and existing tasks in the AMR Work Spec, AMR brochure, or BOW. It determines the program year the new task would be supportable and added to the Work Spec and AMR brochure, and actions required to obtain supportability for existing tasks which were not previously reviewed for supportability prior to funding in the brochure.

6.31.3.1. The SPO/SPM ES and Engineer will develop a LOM required for new and existing tasks by reviewing TOs, drawings, or other engineering data. The SPO/SPM ES will review the list of "new" and existing material (not previously loaded against a PDM or other depot task) to verify that all have a NSN assigned. This includes NSNs for material, repair parts, special tools, hazardous material (HAZMAT), etc. When complete, this list will become the fully indentured engineering BOM or MOD kit inventory consisting of component parts, quantity per unit, and parent component relationships required to produce an end item. The SPO/SPM will send the developed list to the appropriate source of supply (e.g., 448th SCMW, DLA, etc.). The 448th SCMW, DLA, and IPV will perform a preliminary supportability review and provide a risk assessment to SPO/SPM. Reference AFSCI 23-101 "IPV Program"

6.31.3.2. Supportability Elements for All Reviews. The elements to be reviewed for supportability include parts, 448th SCMW managed items, and DLA managed items (includes General Support Division (GSD), local purchased, and local manufactured items). Non-parts supportability elements for all reviews include support equipment, special tooling, common tooling, PPE, HAZMAT, manpower/skills, PSC or 'Blue Straw' or 'Tool Crib' material, and facilities/utilities, and training requirements.

6.31.4. Brochure.

6.31.4.1. The AMR brochure is file maintained in CAFDEx AMR and developed to identify the DM tasks required to maintain AF aircraft and missile systems in mission ready status. **Note:** Requirements are based on need and not on the availability of funds. The AMR brochure supports organic workload agreements and the Work Spec. New or changed scheduled maintenance tasks identified during the Work Spec reviews are assigned DPSH labor standards by IETs (maintenance planners). Standards are based on approved data, group timing, work sampling, estimates, technical estimates, or trend analysis, and maintained in a project workload planning system. Where feasible, three years of data should be considered.

6.31.4.1.1. The brochure is developed and managed by the Program Office responsible for the weapon system management with input from the Lead Commands, ALC/OB representative, Funds Holders, Customers, and the organic SOR. It is used primarily by weapon system engineers, equipment specialists, production managers, IETs (maintenance planners), requirement functionals, CSAG-M, HQ USAF, HQ AFMC, and the other MAJCOMs. It also documents the programmatic DM requirements for weapon systems and provides data used to substantiate budget submission.

6.31.5. Work Specification (Work Spec) Requirements.

6.31.5.1. Work Specs are of prime importance in securing maintenance services under the AF DM concept and are the most critical documents in maintenance negotiations. Work Specs are not to be used as depot level TOs. The Work Spec is prepared to support organic workload agreements, commercial contracts, and interservice agreements. The Work Spec documents general information relating to the specific weapon system including terms, data requirements/procedures, special security or quality requirements/procedures, scheduled maintenance tasks for receipt of the weapon system at the facility, work task requirements and final processing of the weapon system, and applicable TOs and directives. The Work Spec is maintained in the CAFDEx AMR websystem.

6.31.5.2. The SPM Engineering Flight develops the DM technical requirements and provides to the Production Management Specialist (PMS) who is responsible for the overall preparation, content, and coordination of the Work Spec. The PMS completes the Work Spec, makes available to the appropriate stakeholders, and schedules the annual Work Spec review. The PMS incorporates changes identified during the review and forwards the Work Spec to the SOR for DPSH development. The SPM engineer is the final authority for the technical requirements in the Work Spec.

6.31.5.3. Work Specs are updated and reviewed annually to ensure that new or changed tasks, as well as existing tasks, are adequately defined. Work Specs govern the scope of maintenance and are used by the PMS to state the depot maintenance required to be performed on government equipment.

6.31.5.4. Programmed Depot Maintenance (PDM). PDM requirements identified by the using command and system engineers are compiled as work specifications in a Work Specification Document (Work Spec). Requirements may include programmed upgrades, analytical condition inspections, and scheduled PM. Aircraft/missile MDS and the age and condition of the aircraft are considered when determining PDM requirements.

6.31.5.5. The SPO/SPM will coordinate the development of the Work Spec with the IET (maintenance planner). In addition to new requirement development, the ERR manager will track and schedule a 20 percent review of completed (existing) DEV PACs annually, with a plan to review completed (existing tasks) DEV PACs at least once every five years. The plan for the subsequent years' review will be provided at the AMR yearly. Maintenance IETs (maintenance planners) will validate DPSH of the existing scheduled depot maintenance tasks annually, as part of the SPO ERR Dev Pac review at the task level, as part of the AFMAN 63-143 collaborative team. This review constitutes the required labor standard and WCD reviews for aircraft operations, as required by other chapters in this manual. The SPO/SPM will ensure existing task requirements have been reviewed for supportability and is included in the DEV PAC review. Validation will occur concurrently with the ERRP development and review of the DEV PACs for existing tasks. New requirements, which are not fully supportable, will not be included as a funded brochure requirement until they are fully supportable unless an alternate supportability plan is provided by the SPO.

6.31.6. The Collaborative Functional Team. This team consists of the following members: Program Office (Engineering, ESs, Logistics Specialists, Production Management Specialists,

AMR Lead), Maintenance Process Engineering, ALC/OB representative, IETs (maintenance planners); Maintenance Production Technicians (aircraft mechanics), when required; Supply Chain Specialists from the 448th SCMW and DLA. Invitation to SCMs and customers should be the norm for the collaborative meetings. **Note:** The collaborative functional team, as part of the ERR DEV PAC process, meets the intent of the Pre-Production Planning Team (PPPT) as required by other chapters of this manual.

6.31.6.1. During the ERRP, the collaborative functional team will estimate the physical resources required to accomplish the Work Spec. For aircraft, the physical resources' estimates may include ramp and hangar space, engine-run test cells, compass row, co-located and assigned industrial (i.e., backshop) capability, etc., to the point that tasks and physical resource requirements are correlated. The team will identify from the Work Spec repair requirements that should logically be performed by locally ALC-assigned industrial resources to include correlating the specific task with a particular ALC industrial capability. The SPO/SPM will input the requirements into the CAFDEx AMR module unless the role has been delegated to the IET (maintenance planner). This delegation authority must be in writing to the ALC maintenance group.

6.31.6.1.1. The validated Work Spec will be available 1 April by accessing CAFDEx or contacting the SPO/SPM. The IET (maintenance planner) will use the validated Work Spec to perform trend analysis of work to include any differences if the new Work Spec represents a change to the current (already in-work) PDM package. The analysis will include the labor hours, equipment, facilities, material, and special tooling required to accomplish the SOW. The IET (maintenance planner) will develop the master operations required to support the tasks, correlate the specified work with required skill codes, identify which tasks have material associated, identify facility requirements for each task, correlate required skills with hours, and flow the work in a logical sequence to include high level network development with support from the SPO, network team, production mechanic, and scheduler.

6.31.6.1.2. The SPO/SPM will review/negotiate the hours and occurrence factors provided by the IET (maintenance planner). SPO/SPM will make changes to hours and occurrence factors in the CAFDEx AMR module as necessary unless the role has been delegated to the IET (maintenance planner). This delegation authority must be in writing to the ALC by the SPO. The SPO/SPM will ensure all material for the Work Spec is stock listed and supportable. The SPO/SPM ES will confirm identified items have current valid contracts or can be locally manufactured to support the workload. The ES should treat PDM material supportability in the same way as MOD/TCTO material supportability such that it is programmed, budgeted, and available.

6.31.6.1.3. The Work Spec and AMR brochure is published on 15 November for the upcoming FY, and is available by accessing CAFDEx or contacting the SPO/SPM.

6.31.6.1.4. The SPO/SPM will complete development of the AMR brochure and Work Spec by Program Year. The AMR brochure includes tasks, approved hours, occurrence factors, and number of aircraft/missiles scheduled to work per year by MDS, and the Work Spec includes tasks only. The AMR process is documented in AFMAN 63-143 as required by TO 00-25-4.

6.31.7. Bill of Work (BOW).

6.31.7.1. The BOW documents all scheduled maintenance tasks, by MDS, contained in the Work Spec and brochure with the following elements: Work package, parts listings, hazardous materials, special tooling, non-issued PPE, support equipment, and production skills needed to perform the task. Additionally, it includes the aircraft/missile maintenance network (critical path), creation of the specific operations from the developed master operations, associated to the tasks, by MDS, and updates to the list of materiel in their respective data systems.

6.31.7.1.1. Operational Supportability occurs from when the brochure is published to aircraft/missile induction, is based on the operational tail/serial number (as applicable) specific BOW, and assumes all identified supportability elements are or will be available 31 days prior to task execution schedule. A task review of scheduled maintenance task(s) will be accomplished 90 days prior to execution of the task(s).

6.31.7.1.2. The Planner as part of the BOW team will review specific operations created to support tasks in the Work Spec and determine the appropriate sequencing with the assistance of firstline supervisors and mechanics. Those operations, when sequenced based upon dependency, define the critical path network. Defined and sequenced operations are then grouped into major jobs in the Production Scheduling System. Operations and major jobs, which do not impact the critical path, are considered 'auxiliary/parallel'. The result is an MDS-specific network of dependent operations built around the critical path, plus noncritical operations which are sequenced with critical path operations, into a schedule that is optimized to available resources.

6.32. Modification Requirements.

6.32.1. The SPO Program Manager (PM) in conjunction with the SPO/SPM Engineer and Lead Command will prepare the MOD package or SOW/TCTO. The IET (maintenance planner), as part of BOW development, will evaluate the impact of the proposed MOD against depot capacity to include facilities, equipment, and manpower. The IET (maintenance planner) will develop and execute simulation(s)/analysis to determine the impact of loading the MOD into the network. The IET (maintenance planner) will identify any resource constraints caused by loading the MOD into the network. Specific constraint information must include quantity and type of resource required to accomplish the task, availability of the required resource during the execution period of that task, and impact to resource availability based upon the resource requirements for all other tasks for all other scheduled aircraft/missile during that same period. The system should similarly reflect the impact upon resource availability of removing a particular task from the workload.

6.32.1.1. The IET (maintenance planner) will determine the number of hours required to accomplish the MOD. In the network, these hours are measured in flowdays. Following the MOD kit proof, the IET (maintenance planner) will refine the estimate of required hours to perform the MOD. If adjustments to the rough order of magnitude (ROM) and schedule are required, the adjustments are accomplished at this time.

6.32.1.2. If the MOD kit proof is accomplished at a SOR different from the location(s) which will actually perform the work or if only a 'Trial Install' was accomplished, the IET (maintenance planner) and Cognizant Engineer will review the PDM and/or MOD work scheduled on the aircraft to identify redundant activities. The IET (maintenance planner) and Cognizant Engineer or his designee, i.e., Program Manager or ES, will also review the Work Spec and applicable technical data for duplicate or obsolete material. The IET (maintenance planner) will identify and validate duplicate Work Specs and operational checks. The Master Scheduler will determine where within the annual plan MOD(s) should be scheduled, and identifies any conflicts with scheduled work. The IET (maintenance planner) will ensure MOD tasks that are redundant are not incorporated into the MDS network. This is not just a concurrent block of time for the MOD but a total integration of MOD operations with other maintenance operations where possible.

6.33. Unpredictable Requirements.

6.33.1. For the purpose of this instruction, the following definitions clarify terms used to describe unpredictable requirements.

6.33.1.1. There are two types of unpredictable requirements: those that are Work Spec (project) related and those that are not (non-project). Unpredictable requirements can be discovered during records review (accomplished at the pre-induction conference), Pre-Dock Inspections [i.e., non-destructive inspection (NDI) and Evaluation and Inspection (E&I)] and aircraft/missile disassembly, In-Dock activities (mechanic 'stumble-ons'), or Post-Dock activities (i.e., functional test or check flight). The E&I team, mechanic, work lead, or first line supervisor, whomever discovers the unpredictable requirement, is responsible to document the discrepancy [e.g., AFSC Form 173, *MDS/Project Operation Assignment*, AFSC Form 959, Maintenance Work Request (MWR) Discrepancy Log, etc.]. E&I will initiate inspection discrepancies through the appropriate MIS for approval by the IET (maintenance planner). Stumble-on discrepancies will be documented in the discrepancy log, if authorized by local supplement, and initiated by the production controller (scheduler) in the appropriate MIS for approval by the IET (maintenance planner). Supportability will be accomplished for all unpredictable requirements prior to approval/qualification by the IET (maintenance planner). Work arounds may be authorized if supportability cannot be obtained within the flow days of the aircraft to meet the negotiated schedule. All workarounds [e.g., cannibalizations (CANNs), routes, shoe tags, local manufacture, Government Purchase Card (GPC), etc.] will be documented in the supply system and provided as feedback IAW the applicable AFMAN63-143 collaborative team to alleviate a non-supportable posture for future requirements.

6.33.1.2. Work Spec (Project) Related Unpredictables are requirements that are defined or can be related to one of the work codes in the Work Spec document. These unpredictables are within the scope of the Work Spec and have a negotiated block of hours/money available to assign against in the course of performing programmed maintenance. Unpredictables will have a block of hours allocated.

6.33.1.3. Overrun of hours for project work will not drive additional funds, and the tasks are trended and will be adjusted during the annual review.

6.33.1.4. Unpredictables are either planned or unplanned based on the expected frequency of the work and the nature of the operation (complexity and criticality). The only

difference between the two is that the planned has a work package pre-built and ready to drop.

6.33.1.5. High Frequency Planned Operations are normally expected to occur for more than 20 percent but less than 100 percent of the aircraft/missile tail/serial numbers and are fully planned.

6.33.1.6. Low Frequency Planned Operations occur less than 20 percent but are planned when work is critical or complex.

6.33.1.6.1. PAO and Strategic IET (maintenance planner) will annually review any tasks occurring 20% or more in O&A and provide data to Collaborative Functional Team. Collaborative Functional Team will work tasks to get them in planned work (AMR, OFCO, or etc.). Tasks could go through DEV PAC processes.

6.33.1.7. Low Frequency Unplanned Operations. Unpredictable requirements within the scope of the Work Spec which are normally expected to occur less than 20 percent of the time. Prior to being worked by Production, the IET (maintenance planner) and Project Administration Officer (PAO), as part of the Maintenance Review Team (MRT), may physically review the discrepancy to ensure validity and that the requirement is covered in the Work Spec. Once the determination is made, the IET (maintenance planner) must approve unpredictable Work Spec related requirements (not planned low percent). When approved by the IET (maintenance planner), the work is systematically assigned an operation number and incorporated into the production schedule.

6.33.1.8. Over and Above (O&A) Unpredictables (non-Work Spec/non-project related) are requirements that cannot be directly related to a work code in the current Work Spec but should be complied with for safety or because it is more economical to do the work at the depot. O&A Unpredictables will not be accomplished without prior PAO or, as applicable, an Administrative Contracting Officer (ACO) approval. The PAO/ACO may give advance work approval as locally supplemented. **Note:** As applicable, PAO functions apply to ACO activities in support of a contracted workload.

6.34. Project Administration Officer (PAO).

6.34.1. If the PAO approves the non-project work, the IET (maintenance planner) will adjust the Fixed Price worksheet to reflect the additional work. If the over and above hours have been expended and more hours are required, the PAO notifies the MAJCOM requesting additional 206 funding. The IET (maintenance planner) will adjust the hours on final fixed price work sheet and forward to work loading.

6.34.1.1. Discrepancies that are non-project related and not approved for work by the planner are forwarded to the PAO by the planner for work approval. If the PAO has O&A funds and opts to work the discrepancy, the PAO will approve the work. If the PAO chooses not to fund the work and the work does not pose a safety of flight issue, then the discrepancy is archived as Carry Forward to Home Station (CFHS) and presented to the customer when the aircraft/missile is delivered.

6.34.1.2. Unprogrammed, non-project, unpredictable tasks must be tracked by the IET (maintenance planner) IAW the AFMAN 63-143. The IET (maintenance planner) will present the data to the customer during subsequent AMRs for the purpose of including recurring unprogrammed, unpredictable tasks into future negotiated Work Specs. If the

PAO determines the identified discrepancy either falls outside the scope of the PDM/UDLM/MOD and is not 'safety of flight', or otherwise determines that they will not fund the repair identified by the engineer, maintenance will not perform the work and the discrepancy will be archived and entered on AFTO Form 781, Aviation Resource Management System (ARMS) *Aircrew/Mission Flight Data Document*, and/or AFTO Form 95, *Significant Historical Data*. In either case, a re-evaluation of the PDM timeline may be required to account for the addition of the new task. Such accounting would include the additional facilities, tools, manpower, and material inherent to the task. If the work is added to the work package, the PDM/MOD schedule and supportability will be re-worked to account for the new task.

6.35. Job Routing.

6.35.1. The decision to Job Route/Non-Job Route will be made by the SPO/SPM. Normal practice is for an unserviceable asset to be turned into supply in exchange for an available serviceable asset. Consequently, job routed repair is not authorized if a serviceable asset is available from supply in the configuration required. All conversions from job routed to nonjob routed should begin budget lead-time away for anticipated cost changes to CSAGM/CSAG-S. If circumstances still require job routing, such action must be reported to supply in order for supply to record accurately the true requirements for stockage.

6.35.2. Job Routed Repair. Job routed repair occurs when a recoverable component is found to be unserviceable during the overhaul, the item is removed, repaired/reconditioned, and reinstalled on the same end item. Job routing between ALCs is not authorized.

6.35.3. Non-Job Routed Repair. Non-job routed repair occurs when an unserviceable item is removed and replaced with a serviceable item from supply. A non-routing process is a strictly 'remove and replace' operation.

6.36. Develop and Approve FY Plan.

6.36.1. The IET (maintenance planner) and Cognizant Engineer, as part of the Collaborative Team IAW AFMAN 63-143, will perform analyses of the workload defined by the approved Work Spec to establish the optimal flow-plan of aircraft/missile through the available depot facilities IAW known PDM and MOD requirements. Also included in this analysis will be historical UDLM requirements for a given FY. The results of this analysis will determine the quantity of aircraft/missile maintenance can accommodate for the FY along with the required number of flowdays.

6.36.2. The Master Scheduler and IET (maintenance planner) will review the FY Input-Output plan. The analysis will define facility and workload variables that may impact the negotiated delivery date(s). The result of the analysis will reflect the required sequencing of aircraft/missile input to the depot by arrival date (draft Input-Output schedule). The developed draft Input-Output schedule forms the basis for any future analysis for proposed additional workloads (i.e., UDLM/'drop-in') for the given FY plus provides the foundation for development of the Master Plan that grows in specificity as a tail/serial-number-specific network. Simulation(s)/analysis of the developed Work Spec is critical to accurately determining the annual schedule, as well as assessing the impact of any future changes to negotiated delivery dates, inputs, etc.

6.36.3. The Master Scheduler and IET (maintenance planner) will review the draft Input/Output schedule, perform 'rough-cut capacity planning', and verify that available facilities will accommodate the planned sequencing of aircraft through available PDM/MOD production resources. The Master Scheduler will identify any conflicts, recommend solutions in the form of a revised Input-Output schedule, obtain coordination from the planning organization, and forward the Input-Output schedule to the SPO/SPM. The SPO/SPM will distribute the developed Input-Output schedule to the MAJCOMs so the MAJCOMs know when to send the aircraft/missile to the depot.

6.37. The IET (Maintenance Planner) As Part of the BOW Team.

6.37.1. The IET (maintenance planner) will review the aircraft/missile PDM/MOD schedule as it relates to tasks by skill in the production scheduling system, plus relevant simulation(s)/analysis results, and will note where all job-hours are networked into the schedule (Planned Labor Application). The AMR brochure hours, simulation(s)/analysis developed in G037F or other simulation(s)/analysis tools, and aircraft/missile history is used to project annual, quarterly, and monthly aircraft/missile PDM/MOD personnel resource requirements by work package. The developed report will include the total mix and quantity of skills required to accomplish the work package by month, plus report skill shortages or overages. Skill/personnel shortfalls or overages are identified to the PSF Chief.

6.38. Unprogrammed Depot Level Maintenance (UDLM) Requirements.

6.38.1. The customer (Lead Command/FMS) generates a work request to the SPO/SPM for Unprogrammed work IAW TO 00-25-107, or by submitting an AFTO Form 103, *Aircraft/Missile Condition Data*, IAW TO 00-25-4. It is the responsibility of the SPO to ensure supportability prior to forwarding the workload request to maintenance. The IET (maintenance planner) will prepare the ROM based on tasks and LOM. The SPO will coordinate with the Master Scheduler and the owning unit to schedule aircraft/missile arrival. The SPO/SPM will complete AFSC Form 206 or AFMC Form 181 using the coordinated fund site. The SPO/SPM will forward the completed AFSC Form 206 or AFMC Form 181 to maintenance.

6.38.2. Following receipt of the AFSC Form 206, the IET (maintenance planner) will activate the AFSC Form 206 in G004L. The IET (maintenance planner) will prepare the UDLM WCD. The IET (maintenance planner) will review the AFTO Form 103 or TO 00-25-107, and translate the tasks on the AFTO Form 103 or TO 00-25-107 into operations on a WCD with assistance from the Cognizant Engineer, as necessary. The IET (maintenance planner) will identify hours per operations by using TOs or engineering guidance/drawings. If a LOM for the UDLM does not accompany the AFTO Form 103 or TO 00-25-107, the IET (maintenance planner) with the assistance of the Collaborative Team IAW AFMAN 63-143, will develop the LOM using available technical information and identify the non-material resource requirements for each operation defined on the WCD to include skills, equipment, special tools, facilities, etc.

6.38.3. The SPO/SPM will coordinate the developed price for the UDLM with the customer and prepare an AFMC Form 181 to identify the funding citation. The SPO/SPM will coordinate induction timing with the customer. The SPO/SPM will forward the AFSC Form 206 and schedule to maintenance. Upon receipt of the AFSC Form 206 and expected

induction date, the IET (maintenance planner) will input labor hours and material into G004L which will assign the JON.

6.38.4. The IET (maintenance planner) will develop a MDS, tail/serial number specific, operational LOM by correlating items from the BOM with specific UDLM operations for a particular aircraft/missile and load the information into the appropriate database. This LOM is not the same as the one developed within G005M for planned PDM. The IET (maintenance planner) will develop the UDLM WCD IAW governing directives. The IET (maintenance planner) will assign an operation number to each UDLM operation, associate each operation with the appropriate RC/CC, and input the data into the appropriate system against the UDLM TJON.

6.38.5. The Master Scheduler will integrate the UDLM schedule into the MDS network. Once the UDLM schedule is input into the planning system (e.g., G097, etc.), supportability reviews of all resources against that schedule are possible.

6.39. UDLM Supportability Review.

6.39.1. Prior to induction, the IET (maintenance planner) will perform a complete supportability analysis on UDLM required work package for all resources (e.g., technical data, material, equipment, special tools, skills, facilities, etc.) required to support the UDLM. The IET (maintenance planner) will evaluate the output of the resource determination and simulation(s)/analysis, compare it with all resource requirements for all other work scheduled during the same period, and identify any shortfalls to the SPO/SPM. The Master Scheduler will coordinate with the SPO/SPM and schedule the UDLM work within the FY Production Schedule. The IET (maintenance planner) will enter the JON into G004L and coordinate creation of a specific Tail/Serial Number Schedule.

6.40. Pre-Induction Process.

6.40.1. Operational Supportability occurs from when the work specification is validated to aircraft induction [for the period 17 months prior to induction ending 31 days prior to induction or JON is opened (ability to submit the first requisition)]. It is based on the operational tail/serial number, as applicable, assuming all identified supportability elements are/or will be available 31 days prior to task execution schedule. Operational supportability will be assessed against the criteria identified in **Figure 6.1.** Operational Supportability Assessment reviews will occur at a minimum quarterly with the last review to be accomplished 90 days prior to execution of the task(s).

6.41. Pre-Induction Inspection (PII).

6.41.1. Depot Pre-Induction Inspections (PIIs) are designed to determine the aircraft condition lead-time before induction to depot maintenance. Depot teams use the aircraft condition knowledge to establish a supportable BOW process for specific repair actions, parts, tools, and equipment; i.e., generating what needs to be done, with what, and ensuring it will be there when planned. PIIs are synchronized with the home station check (HSC), Phase, or isochronal (ISO) inspections prior to depot input to the MDS directed by Program Office. PIIs can be a physical inspection or a pre-induction analysis of records. The determination as to who will accomplish the PII (Depot Team, Contract Team, or Field Unit) will be negotiated during the Fleet Scheduling Conferences and is when the Depot schedules are established with arrival dates of the aircraft at the respective

ALCs. As part of the conference, the PII will be 'scheduled' approximately nine months prior to induction to PDM. The MAJCOM/Unit representative will declare their intent to accomplish 'Organizationally' or request DFT/contract field team (CFT) support for the PII. If none of these options are feasible at a particular time, any aircraft not receiving a PII would still be inducted into PDM. If a depot or contract team is accomplishing the PII, the PS&D Section Chief or designated representative will:

6.41.1.1. Be provided a visit agenda by the PII team lead.

6.41.1.2. Coordinate with PII team lead to present a situational awareness inbrief/outbrief to the MXG as required.

6.41.1.3. Coordinate/request tail number data pull queries from applicable MIS.

6.41.1.4. Act as liaison and refer PII team to maintenance units for equipment support as required.

6.41.1.5. Maintain a file copy of the PII report from PII Team Lead.

6.41.2. The PII provides additional information regarding the condition of a specific aircraft, with sufficient lead time to improve support of the depot level work package (months before aircraft scheduled maintenance induction) and real-time means to establish the known aircraft condition baseline for planning effectively. Detailed PII instructions will be documented in TO 00-25-4.

6.42. Pre-Induction Conference.

6.42.1. The IET (maintenance planner) will identify unpredictable requirements during the PreInduction Conference when reviewing aircraft records and AFTO Forms 103 supplied by the customer prior to aircraft/missile arrival.

6.43. Establish and Open Serialized JON.

6.43.1. The IET (maintenance planner) will identify a specific tail/serial number and JON against a Control Number and forward it to a Workloader. The Workloader will activate the obligation of funds against the specific tail number in G004L. When inputting the three digit JON suffix to the existing five digit Control Number with a single field Job Designator, the resultant nine digit number will account for costs and resource control by tail/serial number.

6.43.2. The IET (maintenance planner) will 'serialize' the JON (i.e., links a specific aircraft/missile serial number to a three digit JON suffix) and forward the information to the Workloader. The Workloader will input the serial number/JON suffix data into G004L. At this point, CSAG-M funds become available in the Maintenance Data Systems for use.

6.43.3. The SPO/SPM will provide the task listing to the IET (maintenance planner). Tasks are categorized as either 'fixed-price' or 'options'. The IET (maintenance planner) will validate which tasks on the list will be worked. The validated list is used to make final adjustments to the tail/serial-number specific work package by loading the appropriate options into the production scheduling system.

6.43.4. The IET (maintenance planner) will select operations by Work Categories and Configuration Codes, and input them into the production scheduling system which connects to G004L for production count. The result is a tail-number/serial-number specific schedule by operation.

6.43.5. The scheduler or IET (maintenance planner) will open applicable control numbers connected to the JON in G004L. Opening of the JON (i.e., control numbers) for materials ordering may occur 30 or more days prior to aircraft/missile arrival within the same FY.

6.44. Execution Process.

6.44.1. Automated program management scheduling systems (e.g., LDMS, PDMSS, ROCIT, PDMSS WEB, IMPRESA, etc.) are the core systems within the aircraft/missile repair process. Visibility of schedule, resources required by operation start dates, operations by type required, funding, and etc., are provided to the aircraft Tail Team/AMT, missile PFT, and process support personnel in the industrial logistics pipeline so that all members synchronize their efforts to the aircraft/missile schedule. The scheduler, PST, and aircraft/missile First Line Supervisor form the aircraft specific team which meets regularly to assure support in 'rolling 10 day' windows. An IET (maintenance planner) is available for support to the team as needed.

6.44.2. A tail/serial number-specific production schedule with its critical path provides the focus for synchronizing logistics support and direct labor. The goal for all process support players is to provide the supporting resources to the mechanic prior to the operation start date.

6.44.3. Aircraft/missile management must not shift major jobs in the schedule for manipulating short term efficiency of direct labor. Movement of operations for a specific aircraft tail number within the 10 day window will remain the prerogative of the Tail Team/AMT. Outside of the 10 day window, the schedule execution chief will approve movement of specific aircraft tail number operations. Any premature start/production count, movement, and deletions/reversals of operations to facilitate efficiency or schedule targets is not permitted.

6.44.4. Adherence to schedule will be more critical as flow days are reduced. Independent, uncoordinated manipulation of the schedules would desynchronize the in-work major aircraft/missile tasks from their support logistics. Unexpected events will always occur and may require changes to the schedule. Unexpected events are more readily accommodated when the majority of tasks are accomplished according to schedule.

6.44.5. Aircraft/missile management will man-load to the schedule on multiple shifts within existing constraints, if required, and will result in fewer aircraft/missiles in work at one time but the major end-items will flow through the depot at higher velocities. Aircraft labor and logistics support will be highly focused on fewer aircraft. By reducing the number of aircraft on-station, thereby increasing the number available in the field, an increasing capacity arises at the ALC.

6.44.6. Proper synchronization of available backshop repair capacity (supporting off aircraft/missile repair items) to the aircraft/missile schedule is a necessary pre-condition to reducing the number of aircraft/missile flow days. The backshops will integrate the aircraft/missile schedule requirements into their scheduling activities meaning aircraft/missile production must be able to prioritize their backshop requirements as per the aircraft production schedule. Priorities must then be de-conflicted if multiple aircraft/missile or exchangeables customers require the same backshop capacity at the same time. The synchronization team consists of a Schedule Execution Representative (Sync Rep), i.e., a scheduler from the PSS, along with Exchangeable backshop representative(s). The team is responsible to resolve

conflicting priorities and expedite output to the schedules. The representatives will meet as required to work the 'hot item' aircraft/missile priorities from an ALC perspective when conflicting demands for backshop capacity exist. De-conflicting competing customer requirements for backshop capacity can only be accomplished if the Sync Rep works closely with the backshops. Accordingly, the backshop IET (maintenance planner) are able to work quickly and collaboratively to properly load available backshop capacity. Priorities worked in the backshops must be synchronized to the aircraft/missile schedule, if the integrity of the aircraft/missile production schedule is to be maintained, and support provided when needed. Regular high level reviews occur to resolve conflicts between aircraft requirements and backshop capacity.

6.44.7. Discrepancies discovered after aircraft/missile arrival that have been planned as 'lowfrequency' operations will be qualified (e.g., it is funded, material can be ordered against it, etc.) by IET (maintenance planner) approval. Once qualified, the production scheduling system will issue the WCDs associated with the planned task at the start of the associated major job.

6.44.8. Low frequency project related operations must be clearly stated in the Work Spec and included as work or inspection requirements in the work package, and normally occur for less than 20 percent of the serial numbers. Formal work planning is not always completed on low frequency project related operations. Hand scribed or system generated documents can be used if no formal WCDs are available. The IET (maintenance planner) and Cognizant Engineer will perform a risk analysis of all 'safety of flight' related low frequency unplanned operations based on the complexity and criticality of the work required. If the IET (maintenance planner) and Cognizant Engineer determines there is significant risk involved in the operation, or if the nature of the work justifies it (e.g., very complex, high cost etc.), the formal work planning process will be applied and WCDs will be prepared to support the work, even if it is expected to be used on less than 20 percent of the tail numbers.

6.44.9. The mechanic/technician discovering the requirement for unpredictable work is responsible to document the discrepancy and ensure the applicable WCDs are initiated to include all follow-on maintenance actions. All discrepancy documentation will reference applicable technical data to include any follow-on actions (i.e., ops checks) required by the technical data, and part number, TO, figure, and index. Prior to work being accomplished, the first level supervisor reviews the documentation to ensure the proper PAC requirements are included and the information is complete. A MWR is then generated if the automated capability exists. If the automated capability does not exist and the maintenance actions have not been previously planned, the scheduler will submit the hand-scribed AFSC Form 173 to the IET (maintenance planner). The IET (maintenance planner) will periodically review O&A occurrences and initiate full planning for those operations that occur frequently enough to justify this action. The non-project related O&A WCDs are processed to the PAO for approval.

6.44.10. The E&I team and/or mechanics/technicians must be trained on their unpredictable work requirement documentation responsibilities. The training provided will include the responsibility for ensuring WCDs are generated and how to prepare the work sheets/AFSC Forms 173/AFSCs Form 959 to include identification of water line, butt line, and part number information, etc. The training provided will also stress that all follow-on maintenance actions

required by the technical data must be documented. In addition, the training provided must include the proper use of AFTO Forms 781 and AFTO Forms 95 series.

6.45. Tactical Supportability. Tactical Supportability occurs from aircraft/missile induction to aircraft/missile produced date. The task review is based on availability of supportability elements to meet task execution schedule. Maintenance will provide feedback of unpredictable requirements discovered from induction to completion so the SPO/SPM can ensure that the organizations responsible for supportability are aware for future requirements.

6.45.1. The IET (maintenance planner) reviews unpredictable discrepancies and determines whether the identified discrepancy is project/Work Spec related. If it is project related, the IET (maintenance planner) verifies/corrects hours and accomplishes all other steps required to approve/qualify the task as a valid operation if hours are available within the existing funding. If the discrepancy is non-project related or project hours have been expended, the IET (maintenance planner) will submit the discrepancy to the PAO for approval of hours/funding. Discrepancies disapproved by the IET (maintenance planner) are forwarded to the PAO, archived, and will be presented to the customer upon aircraft/missile delivery and CFHS.

6.45.1.1. Production will request/initiate an AFMC Form 202 when there is no applicable technical data for the repair of the discrepancy and forward to IET (maintenance planner). The IET (maintenance planner) verifies there is no applicable technical data for the repair. The IET (maintenance planner) will review the AFMC Form 202 archives to verify if an AFTO Form 252, *Technical Order Publication Change Request*, has been added to the appropriate technical data [reference AFMCMAN 63-1202, *Air Force Materiel Command Engineering Technical Assistance Request (ETAR) Process*]. If an AFMC Form 202 or AFTO Form 252 was not accomplished, the AFMC Form 202 is forwarded to the engineer for review and disposition.

6.45.1.2. The cognizant System Engineer, as part of the tactical team, reviews the discrepancy as submitted and determines an appropriate repair disposition. The engineer will include repair steps along with any notes or cautions required for the repair. The engineer then returns the AFMC Form 202 to the IET (maintenance planner). The IET (maintenance planner) accepts the AFMC Form 202 and forwards to Production who accepts the AFMC Form 202. The AFMC Form 202 becomes an official document at this time.

6.45.1.3. If the engineering repair disposition falls under project/Work Spec, the IET (maintenance planner) will plan the repair with hours and approve the WCD through the system. If the repair falls under non-project, the IET (maintenance planner) will forward the planned hours through the appropriate system to the PAO for O&A funding.

6.45.1.4. If the PAO does not have the funding to accomplish the repair, the PAO will notify the applicable system program office for additional funding. A SOW for the repair will be initiated from the SPO/SPM and the IET (maintenance planner) will initiate a ROM. The requested ‘206 funds’ will then be coordinated through the applicable program office to establish a ‘T’ job in G004L for the repair. The IET (maintenance planner) will then plan and input the hours by skill and operation into the production scheduling system for tracking and accountability.

6.45.1.5. If the engineer determines the identified discrepancy is not a defect, (i.e., existing technical data is sufficient to accomplish the task at hand), the engineer will advise the maintenance supervisor and/or IET (maintenance planner), provide guidance as necessary to correct the cited condition, annotate the AFMC Form 202 as 'No Action Required', and process the form according to AFMCMAN 63-1202. The engineer will forward the AFMC Form 202 back to the IET (maintenance planner). The IET (maintenance planner) will file the AFMC Form 202 for record, maintain for two years, and forward a copy of the AFMC Form 202 to the scheduler of the subject aircraft/missile. The scheduler will attach the returned AFMC Form 202 to the discrepancy documentation (AFSC Form 173 or WCD) and clear the discrepancy as 'no defect'. The scheduler will archive the AFMC Form 202 to submit to the customer upon completion of the maintenance (reference AFMCMAN 63-1202 for additional guidance).

6.45.1.6. The IET (maintenance planner), PAO, or ACO can approve a limited (nonMISTR/overhaul) repair for an item. The scheduler will introduce the item into the backshop with an IET (maintenance planner) approved AFSC Form 173 or WCD for a 'one-time, limited repair' (e.g., spot weld, etc.). The scheduler will route the item to the appropriate backshop for repair.

6.45.1.7. When appropriate, the IET (maintenance planner) will develop and execute a simulation(s)/analysis of the developed workload package. The simulation(s)/analysis are performed at the discretion of the IET (maintenance planner) depending upon the anticipated impact to the Production Scheduling System of the Unpredictable Requirement. The IET (maintenance planner) will determine whether the unpredictable requirement is a critical path or parallel operation. It is a critical path event if it has an identified dependency. Unpredictable requirements will be transformed into a work package comprised of operations and resources by type. The resources by type will be arrayed against the tail/serial-number schedule to determine the best fit for the operations in the schedule. Resource requirements will then be compared against resource availability.

6.45.1.8. Delays to schedule, along with the associated costs, will be collected and reported to P&A section, and will be reported to upper management. The IET (maintenance planner) will also review the history of low frequency and approved unpredictable tasks to determine whether those tasks should be included in future work packages or if the occurrence factor of low frequencies should be changed.

6.46. Tactical Supportability (Tail Team/AMT/Missile PFT Rolling 10 Day 'Forward Look').

6.46.1. This review occurs in rolling two week windows (i.e., 10 workdays). Accountable Tail Teams/PFTs, consisting of a scheduler, IET (maintenance planner), PST, and Aircraft/Missile Supervisor, will be assigned to individual aircraft/missile tail/serial numbers. The number of aircraft(s)/missile(s) each Tail Team/AMT/PFT is responsible for and the skill level of Tail Team/AMT/PFT members are based upon schedule requirements. The Tail Team/AMT/PFT will have complete responsibility for task execution on their assigned aircraft/missile. The scheduler will control execution of the tail/serial number specific production schedule and will release only supportable WCDs to the aircraft/missile supervisor. The aircraft/missile supervisor will adhere to the tail/serial number specific production schedule as closely as skill availability allows. The PST will ensure parts are

ordered and coordinate with DLA the delivery of material to the aircraft/missile. Tail Team/AMT/PFT members will review the status of the weekly production plan for each aircraft/missile assigned to the Tail Team/AMT/PFT on a daily basis. The scheduler will coordinate delivery of special equipment and the availability of special tools for each aircraft/missile IAW scheduled operation start.

6.46.1.1. The IET (maintenance planner) will identify items which can be logically associated by operation and packaged together/kitted for delivery. To what degree material is planned into operational packages will be determined locally.

6.46.1.2. If a review by the PST or mechanic reveals local operation package items that were not loaded/identified in the material planning system (e.g., D230, G005M, etc.), the PST will contact the IET (maintenance planner) who will add that item to the local operation/material list.

6.46.1.3. The DLA Sustainment Specialist/CSS will review items for which the EDD has slipped, and determine if the new EDD threatens the schedule or otherwise warrants additional action.

6.46.1.4. The PST will confirm availability of MOD kits or PDM/UDLM operation packages to meet the RDD for individual aircraft/missile IAW the PDM/UDLM/MOD schedule. The IET (maintenance planner) will locally determine the appropriate replacement factor and occurrence rate for material to include in kits and operation packages.

6.46.1.5. The PST may separate existing mod kits by operation number. The members of the Tail Team/AMT/PFT will review the status of the aircraft/missile to include schedule progress, material supportability projections (10-day to two-week forward look), available manpower, etc., and coordinate available resources toward accomplishment of the production schedule. The scheduler will appraise schedule status, determine which operations are next in the schedule, and provide the operations to the PST. The PST will brief material supportability of operations scheduled for the period of the ‘forward-look’. The PST will provide the scheduler and aircraft/missile supervisor with a list of operations that are supportable. The aircraft/missile supervisor will review the scheduled operations falling within the ‘window of the forward-look’, and determine if manpower/skills are available.

6.46.1.6. Based upon the review of schedule, material supportability, and manpower/skills availability, the Tail Team/AMT/PFT will make required adjustments to the schedule. Appropriate delay codes will be entered against unsupportable operations. A report of nonsupportable and delay-coded operations will be available in the scheduling system. The aircraft/missile supervisor will perform a ‘forward-look’ of hours by skill required to perform supportable scheduled operations. The aircraft/missile supervisor will report overages and shortfalls by skills to the Production Flight Chief who will reallocate available skills to support the total master system schedule (i.e., allocate manpower to and from other aircraft/missile).

6.47. The Aircraft/Missile Supervisor and Mechanics. The aircraft/missile supervisor and mechanics will meet as required, at the beginning of shift, to ensure effective crew communication (e.g., hand out 10 day work requirements turnover log, supportable WCDs, kit status and locations,

etc.) occurs between shifts. Daily crew meetings will occur at shift overlap, if applicable. The purpose of the daily crew meeting is to receive and pass the status of work to the next shift, and provide information regarding supportable WCDs and work packages to the next shift. Second and third shifts will also pass on information regarding work accomplished for day shift support resolution. The aircraft/missile supervisor will ensure critical path operations are continued across all shifts and will deliver reports to relieving supervisors regarding critical path accomplishment.

6.47.1. The Squadron Commander/Director will chair a weekly meeting with the appropriate support section managers. As a minimum, critical path planned verses critical path completed, flow days planned verses flow days completed, and negotiated output date verses Production Scheduling System projected output date will be reviewed for each aircraft/missile. The Squadron Commander/Director will assign action items to the appropriate support section manager(s) for problems that are beyond the scope of the Tail Team/AMT/PFT to resolve. Action items will be answered by the next working day. The PSF will work logistics issues. The Production Chiefs will resolve skill issues to ensure integrity of the Master (all aircraft/missile) Schedule. If a change in the operations scheduled within a 10 day window is required, the IET (maintenance planner) will adjust the operation execution date, as appropriate, within the confines of resource availability to optimize schedule execution such that the negotiated aircraft/missile delivery date is unaffected. The scheduler will coordinate with the IET (maintenance planner) to resolve changes that fall outside the 10 day window.

6.47.1.1. The scheduler will coordinate for the delivery of special or aerospace ground equipment (AGE). Production will notify the tool crib to expect demand for specific special tools required to execute the schedule by operation. The PST will coordinate with the material handler/expediter to deliver equipment required to execute the schedule by operation.

6.47.1.2. The Master Scheduler will review all overtime requests. If overtime is required to protect the schedule, the Master Scheduler will determine the optimal apportionment of that overtime by aircraft/missile.

6.48. Request and Order Material.

6.48.1. Direct Exchangeable Items.

6.48.1.1. The PST turns in the repairable item through ABOM/NIMMS and orders a serviceable item. The cost of a new unit is charged against the aircraft/missile JON. The DLA CSS will monitor status of all direct exchangeable items on order to determine capability to satisfy depot demands. If the requisition status does not meet the RDD and cannot be expedited, supportability options may include:

6.48.1.1.1. Raise priority to MICAP when the condition is within 31 days of a particular system operational check/critical path (reference AFI 23-101).

6.48.1.1.2. Initiate a T-JON (i.e., AFSC Form 206) for local repair or manufacture of the item.

6.48.1.1.3. Authorization to cannibalize the item (reference **Chapter 18**).

6.48.1.1.4. Send unserviceable unit to respective backshops for repair with the repaired item going to the Tail Number Bin (TNB)/Missile Serial Number Bin (SNB) when complete if the item is not needed immediately at the aircraft/missile.

6.48.1.1.5. Notify the customer that the negotiated delivery date will slip day-by-day, and that additional costs in overtime may be incurred to get the aircraft/missile back on schedule.

6.49. Planned Material.

6.49.1. The PST will review a LOM for each operation within the current two week 'window' for each tail/serial number.

6.49.1.1. Request(s) for material, not pre-positioned at the aircraft/missile, will be submitted into the Material Processing System (MPS-D230) or other designated material processing system to support the current two-week schedule 'window'. The location and timing of prepositioning of material will be determined locally, as appropriate. The scheduler/PST will determine what material to order, when to order it, and where it should be delivered (e.g., to the aircraft/missile or TNB/SNB).

6.49.1.2. While working on the aircraft/missile, the mechanic can identify an item(s) required to accomplish the planned operation. The mechanic reviews and determines the items required to accomplish the specific operation. The mechanic will also identify material required to accomplish 'install' operations immediately following execution of any associated 'remove' operation.

6.49.1.3. The mechanic will pull bench stock material required to complete an operation unless the IPV contractor performs kitting of these items. The IPV contractor will replenish bench stock items IAW the quantities identified during routine inventories. Reference AFSCI 23-101 "IPV Program".

6.50. Unplanned Material Request.

6.50.1. The mechanic/PST will request material via the material ordering system with the priority necessary to meet the RDD shown in the operational schedule. Material requests for 'Unpredictable' (not planned against the operation or quantity exceeding that planned against the operation) will be sent to the IET (maintenance planner) for review and approval for NONBOM material if appropriate. **Note:** Approval will be systematically or written (reference **Chapter 18**).

6.50.1.1. The IET (maintenance planner) receives and reviews NON-BOM material requests for unprogrammed material in the Material Module of the appropriate production scheduling system. The IET (maintenance planner) will determine if the requested material should be planned against an operation, if the material was previously ordered, or if it was erroneously ordered for a different operation. The IET (maintenance planner) reviews the quantity ordered against the tail/serial number specific LOM quantity and units per assembly (UPA). **Note:** For G097 users only, if the IET (maintenance planner) determines if material should be ordered, the IET (maintenance planner) will change the status code in the Material Module to 'Approved'. IET (maintenance planner) approval triggers MPS (D230) to overlay the material data included in the request into ABOM/NIMMS to order the material.

6.50.1.2. Resolve Stock Ineffectiveness Via Supportability Options.

6.50.1.3. The PST will track the status of all outstanding backorders on a daily basis and notify the DLA CSS if status is not adequate.

6.50.1.4. The DLA CSS will notify the Sync Team or equivalent to update the 'Hot Item' list. 'Hot Item' is a term for a required item in which the EDD exceeds the RDD that is being processed or repaired. The scheduler will provide the item RDD to the Sync Team. The Sync Team or equivalent will update the 'Hot Item' list with the new RDDs. With manufactured/routed items, the 'Hot Item' list will also be updated to reflect the process of repairing the item, as opposed to the original intent of replacing the item (manufacture pieces of a part as opposed to manufacture of the end-item with an NSN or locally assigned P number).

6.50.1.5. Work-Arounds.

6.50.1.6. The scheduler and aircraft/missile supervisor will develop work-arounds when required to compensate for delays in material supportability (i.e., EDD exceeds RDD). Examples of work-arounds include re-arranging major jobs, crew size adjustments, multiple shifts, overtime, etc. Based upon the flow days impact of the developed work-around, the scheduler and aircraft/missile supervisor will determine whether to delay execution of a scheduled operation. **Note:** For those ALCs with Maintenance Requirements Supportability Process (MRSP)/Core teams working IAW AFMAN 63-143, the MRSP/Core team is responsible to develop the work- arounds necessary and will not release the operation to the shop floor until supportability is determined. The following rules apply for developing workarounds:

6.50.1.6.1. Identify and work major jobs that do not affect the major job of the 'Hot Item', i.e., work jobs that are parallel to the major job of the 'Hot Item' but are not on the schedule's critical path.

6.50.1.6.2. Man-load the installation major job (apply more people in the current shift) of the 'Hot Item' to get the major job back on schedule.

6.50.1.6.2.1. Apply multiple shifts to the 'install' major job of the 'Hot Item'.

6.50.1.6.2.2. Apply overtime to the 'install' major job of the 'Hot Item'.

6.51. Non-SPO Field Directed Cannibalization (CANN) Action. For those ALCs supporting Logistics Requirements Determination Process (LRDP) tactical/Core teams working IAW AFMAN 63-143, the LRDP tactical/Core team is responsible to develop and approve the CANN actions and will notify the scheduler of the approved CANN aircraft.

6.51.1. If all efforts to acquire the required material by the RDD fail, the scheduler will review what (if any) CANN options exist and will initiate CANN procedures (reference **Chapter 18**). The scheduler will forward the number of CANNs and the number of labor hours consumed to perform CANNs to the P&A section for analysis and reporting to the SPO/SPM and the Squadron Commander/Director. All supply documentation will be processed to ensure the correct JON is charged.

6.51.1.1. When the CANN is approved, the scheduler prepares the required CANN paperwork and the mechanic will remove the required item from the 'donor' aircraft/missile. The PSS will deliver the item to the receiving aircraft/missile.

6.51.1.2. CANN actions are a last resort option to obtain a part or component. Since maintenance is not reimbursed for labor and other costs to perform CANNs, this procedure should be avoided if other avenues to secure the item are available. The

scheduler will initiate documentation for CANN actions. **Note:** This does not include CANN actions directed by the SPO via an AFSC Form 206 in support of the field.

6.52. Engineering Disposition and Schedule Changes.

6.52.1. If all attempts to resolve a material shortfall fail, the Tail Team/AMT/PFT will request an engineering disposition (i.e., AFMC Form 202). The Tail Team/AMT/PFT will request cognizant engineering to determine whether the discrepancy represents a 'safety of flight' condition. If not, the aircraft/missile can be returned to the customer without repairing the identified discrepancy. The discrepancy will be archived and the schedule will not be changed.

6.52.1.1. If the discrepancy does represent a 'safety of flight' condition, the scheduler will initiate a schedule change through the Master Scheduler to the SPO/SPM via appropriate channels. The schedule change represents a slippage of the negotiated delivery date. The scheduler and Tail Team/AMT/PFT can effect schedule changes peculiar to a specific aircraft/missile which do not impact other aircraft/missile schedules.

6.52.1.2. The Master Scheduler will evaluate the impact of the recommended change upon the total system schedule. If the Master Scheduler determines that system priorities and resource constraints require a change to the aircraft/missile schedule, the Master Scheduler will direct the IET (maintenance planner) to effect the appropriate change to the tail/serial number network.

6.53. Receive, Store, and Deliver Material.

6.53.1. DLA Aviation will receive and inspect incoming material for obvious damage, check for correct documentation, and deliver to point of use (POU).

6.53.2. Material received from maintenance that was removed to FOM will be maintained electronically or manually. The aircraft/missile mechanic is responsible for attaching proper documentation to the item removed to FOM and will notify the PSS. The PSS will move the item into the FOM storage area. The first line supervisor is responsible for ensuring that items removed by the mechanics are identified and presented to the PSS for input in a timely manner (reference **Chapter 18**).

6.53.3. The IET (maintenance planner) will review the system-generated data on unplanned manufactured items and notes the occurrence factor (i.e., number of issues) for each item. If the IET (maintenance planner) notes a 'significant' quantity of issues for the item, the IET (maintenance planner) may elect to plan that item against the operation.

6.53.4. The IET (maintenance planner) will advise the ES to update the Acquisition Advice Code (AAC) for items if recorded usage history so warrants.

6.53.5. The PST will turn in discrepant material received by maintenance to the DLA Shop Service Center (SSC) for credit. DLA will initiate a Report of Discrepancy (ROD) for any discrepant material received.

6.54. Item Delivery In Accordance With Schedule and Requirements.

6.54.1. The DLA material handler will deliver items directly to Production Support. Any material stored within the FOM/TNB/SNB will be delivered by Production Support to the

aircraft when required. Oversized items delivered directly from the backshop will be moved to the aircraft/missile by the AF material expeditor.

6.54.1.1. Items that cannot be delivered by Production Support (e.g., HAZMAT, tools, etc.) will be picked up by the mechanic.

6.54.1.2. The PST is the primary agent for receipt of material at the aircraft/missile. Other personnel at the aircraft/missile (i.e., scheduler, aircraft/missile supervisor, and mechanic) may also receipt material.

6.54.1.3. Mechanics will initiate a Quality Deficiency Report (QDR) any time they identify a delivered item to be discrepant which does not meet form, fit, or function, and notify the PST that a replacement will be required. QDR procedures are identified in TO 00-35D-54, *USAF Deficiency Reporting, Investigation, and Resolution.*

6.55. Aircraft/Missile Status Documentation.

6.55.1. The depot procedures are outlined in TO 00-20-1, Aerospace Equipment Maintenance Inspection, Documentation, Policy, and Procedures.

6.55.2. The ALC will debrief aircrews to determine the status of the aircraft upon arrival to the depot. The aircrews will be debriefed using locally developed procedures or checklists to determine the airworthy status of the aircraft for any new incoming flight discrepancies prior to performance of any depot maintenance.

6.55.3. The aircraft AFTO Forms 781 are the only source of aircraft status. WCDs direct what work is to be performed and are not a source to determine aircraft status. These procedures are to prevent dual documentation of maintenance status in both the AFTO Forms 781 series and depot WCDs.

6.55.3.1. The following procedures will be used for all aircraft/missile work including unpredictable operations, low frequency predictable, and all other O&A work operations not fully planned as part of regular depot activity upon debrief of the aircraft to DM. Aircraft/missile status documentation is accomplished by utilizing AFTO Forms 781 series and/or AFTO Forms 95 prior to induction into DM. AFTO Forms 95 will be reviewed by appropriate dock, phase, and functional test personnel as necessary to identify any historical information which may be pertinent to the aircraft for PDM.

6.55.3.2. After induction, depot WCDs will be used for all other DM work as the sole source of aircraft/missile maintenance up to the preflight/testing phase. During PDM/MOD or other programmed/unprogrammed maintenance, all work performed shall be documented on depot WCDs (reference **Chapter 7**). The use of AFTO Forms 781 series will be reinitiated prior to the start of the aircraft initial -6 FCF Preflight inspection.

6.55.3.3. Discrepancies from aircraft debrief may be corrected in the AFTO Form 781A, Maintenance Discrepancy and Work Document, and AFTO Form 781K, Aerospace Vehicle Inspection, Engine Data, Calendar Inspection and Delayed Discrepancy Document, prior to induction into DM. Entries to include all delayed discrepancies and inspections must be carried forward to depot WCDs or transferred to AFTO Forms 781A for completion. If discrepancies are cleared using AFTO Forms 781A, technical data used to correct the discrepancies must be referenced and the maintenance technician completing the work will sign off the 'Corrected By' block as prescribed by TO 00-20-1.

If discrepancies are transferred to depot WCDs, the 'Corrective Action' blocks of the AFTO Forms 781A and AFTO Forms 781K must reference the depot WCDs used to clear the discrepancies. All uncleared entries in the AFTO Forms 781A and AFTO Forms 781K will be transferred to depot work documents as authorized and described by TO 00-20-1. The statement, "All preceding uncleared entries transferred to depot WCDs" (specify identification number), will be annotated in the last block of the AFTO Forms 781A and AFTO Forms 781K. Depot maintenance begins after this action or when all other pre-depot actions are complete as locally defined. The aircraft's AFTO Form 781 series will be 'closed' by records section personnel and will not be used to annotate further discrepancies. The aircraft's records (AFTO Forms 781) will remain closed until preparation for the initial -6 FCF Preflight begins. The end result must be a complete audit trail in the AFTO Forms 781 series.

6.56. Post Dock Documentation.

6.56.1. Upon completion of the aircraft In-Dock Maintenance Phase of depot level maintenance, the Post Dock Review Team (PDRT) will conduct a Post Dock Records Review (PDRR) using AFSC Form 504, Post Dock Review Checklist, or a locally developed form that captures, at a minimum, information required by AFSC Form 504.

6.56.1.1. PDRT required attendees are the Losing Scheduler/Scheduling Element (Chair), the Gaining Scheduler/Scheduling Element, the Planner/Planning Element, losing PST, Forms/Records personnel, and the Gaining Post Dock Supervisor or designated alternate. PDRT Optional Attendees based on MDS requirements are the Losing Production Phase Supervisor or designated alternate, the Fuel Foreman, the Gaining ALS/PST, and others as required.

6.56.2. The PDRT will reconcile all forms and documents using the AFSC Form 504, ensuring all required signatures are obtained.

6.56.3. After completion of the initial FCF, all in-flight discrepancies and follow-on maintenance will be annotated in the AFTO Forms 781 series. When AFTO Forms 781A discrepancies are closed, a reference to the appropriate technical data will be annotated in the corrective action block. IAW AFI 21-103, Equipment Inventory, Status And Utilization Reporting, maintenance debrief will enter flying time information into REMIS. Ensure flying times and installed engine event history recorder readings for all FCFs are updated NLT the next duty day after occurrence (reference Chapter 22). In event of major discrepancy after initial FCF, AMXG/CC/CD/DD may grant written approval via memorandum for aircraft maintenance documentation to return to WCDs; approval memo shall be filed with aircraft records.

6.57. Measure Results and Analyze Trends.

6.57.1. The P&A will monitor and review internal PSF process performance and feedback to determine the correct metrics for providing accurate feedback for focused and effective process improvement. Selected measures must accurately reflect the status of critical indicators of success. Subsequent to determining the correct metrics for providing accurate feedback, the P&A will identify the source(s) for the information used to collect that metrics. The P&A will then determine the parameters for acceptable PSF performance within the

selected metrics IAW Squadron Commander/Director guidance. The P&A office will also monitor metrics driven by the Maintenance Group or Wing.

6.58. Evaluate Process and Procedures.

6.58.1. The P&A Unit will perform periodic review of procedures to verify mission objectives are supported. The results of these reviews will be reported to the Squadron Director, preproduction, and production support functions. As a result of internal review, the P&A Section will conduct analyses, identify changes to policies and procedures, system changes, and remedial training requirements, and measure performance deficiencies, as required.

Table 6.2. Information Systems Interfacing.

Personnel operating within the repair process use numerous DoD and USAF legacy systems. Specific legacy system descriptions are:	
Item	**Interface**
CAVAF	COMMERCIAL ASSET VISIBILITY - AIR FORCE (CAVAF) provides visibility of assets at commercial contractor facilities, status reporting, and capability to process transactions received from asset management subsystem. The status transactions reported are: receipt at a contractor's facility, induction into repair, completion of maintenance, shipment, not economically reparable, request for disposition instructions, scrap transaction, disposition of nonreparable assets, and visibility of NWRM assets. The system uses a standard 180 days for turnaround at a contractor's facility from the date of induction. There is no provision for reflecting the contractual due date nor for projecting changes in shipping dates.
MABSM	IMPRESA system (MABSM) is a COTS Enterprise Resource Planning (ERP) system that includes a Maintenance, Repair, and Overhaul (MRO) module which integrates with Manufacturing and Financial applications. It provides users with access to enterprise-wide information and utilizes a web-based user interface. MABSM is used primarily to manage maintenance functions within the 309 Maintenance Groups at OO-ALC/Hill Air Force Base, Utah. It is currently used to support the 309 Commodities Management Group consisting of Power Systems, Hydraulics, Landing Gear, New Tech Repair, and 309th Missile Maintenance Group. The software system name is IMPRESA and the software release is 7.30.10. The database configuration is Oracle 11.1.0.7 64 bit (11g). The hardware platform is HP Proliant DL585. The operating system is Red Hat Enterprise/Linux Advanced Server (64 bit). The hardware is located and managed at Hill Air Force Base, Utah within the IT organization. The system is common access card (CAC) enabled with single sign-on (SSO) capability. Access to the system is granted via account/password only when a DD Form 2875 has been approved and processed. Users at locations outside of the Hill2Kdomain can access the system with proper security and firewall access approvals. The system is capable of enforcing report and form level security for government approved vendors, typically used for vendors working on site at a HAFB location.
D002A	INTEGRATED LOGISTICS SYSTEM – SUPPLY (ILS-S) provides Joint

	Command and Air Force warfighters with global visibility of base-level weapon system parts, and other supply assets for planning and accomplishing real-time combat operations world- wide. It is comprised of the following supply applications: Standard Base Supply System (SBSS), Standard Asset Tracking System (SATS), and Air Force Supply Centralized Database (AFSCDB), and Enterprise Solution Supply (ESS). ILS-S supports 15,000 plus supply customers and is an integral part of Air Force Supply Chain Management and Chief Financial Officer financial accounting. ILS-S provides direct supply support to Active, Guard, and Reserve forces anywhere in the world in support of peacetime and wartime operations. ILS-S is a Non ACAT, Mission Assurance Category I (MAC I) sustainment program. It is scheduled to be replaced by the Expeditionary Combat Support System (ECSS) in FY12. In the interim, the ILS-S applications identified above will be maintained as necessary to ensure continued supply support to the war fighter.
D035A	ITEM MANAGER WHOLESALE REQUISITION PROCESS (IMWRP) provides a uniform item management capability for worldwide property accounting, inventory control, and distribution/redistribution of material at the wholesale level. Requisitions and related transactions are processed in support of AF bases, security assistance program, other services/agencies, contractors, and depot supply. Document control is maintained to ensure that the customer requisition is fully satisfied. Balances are adjusted as a result of redistribution orders, material release orders, capitalization/recapitalization actions, and logistics transfer actions. Reports of excess are processed on consumable, equipment, and recoverable items.
D035B	WHOLESALE MANAGEMENT AND EFFICIENCY REPORTS (WMER) provides transaction history data and management data products for AF managed material. Produces logistics performance information, supply availability, and workload analysis reports, indicating supply effectiveness relative to demands placed on the USAF Logistics System. Measures the HQ AFMC requisitioning pipeline, by segment, against DoD time standards from date of requisition to date materiel is available for shipment. Provides management with performance data at various levels throughout HQ AFMC and HQ USAF.
D035C	REPORTABLE ASSET MANAGEMENT PROCESS (RAMP) has been formally decommissioned, however the Data Systems Designator (DSD) name is retained to represent RAMP functionality in D035 within CDRS, only. RAMP receives and summarizes transactions indicating materiel usage, providing base repair cycle time and usage data for the recoverable consumption item requirements system. Maintains visibility of AF-owned recoverable assets and levels by reporting location, and provides visibility of reparable items in transit between operating accounts until a receipt has been acknowledged by the accountable receiving activity.
D035E	READINESS BASED LEVELING (RBL) is being used for Interface Control Document (ICD) purposes to document RBL specific interfaces of

	D035 within CDRS only. RBL computes users' stock levels for selected recoverable items and provides the levels to the recorded users. When received, the levels are loaded and used in the requisitioning process.
D035J	FINANCIAL INVENTORY ACCOUNTING AND BILLING SYSTEM (FIABS) provides financial recording for the accountable item inventory balance of AF investment items and items in the general support, system support, and reparable support divisions of the AF stock fund. Reflects the dollar status of stock fund general ledger.
D035K	WHOLESALE AND RETAIL RECEIVING AND SHIPPING (WARRS) is a legacy mainframe D035 subsystem that provides retail customer support including bit-and- piece parts and end-item support to depot maintenance. Maintains historical data for all accountable depot retail transactions and for Air Force receipts into the depot and for shipments out of the depot.
D087X	EXECUTION AND PRIORITIZATION OF REPAIR SUPPORT SYSTEM (EXPRESS) provides a single ALC integrated priority list of all repair requirements, determining ability of existing resources to support repair actions, and providing the data and mechanism to move items into repair. Prioritization of Aircraft Repairables (PARS) prioritizes repair and distribution of assets to the users from the source of the CSI. EXPRESS Prioritization Processor (EPP) sets priorities for the repair of items which are not addressed in PARs and combines all into a single integrated list for each repair shop. Assets which do not have aircraft availability goals are prioritized using a deepest-hole logic to try to fill the most critical need. EPP provides list to the Distribution Module to identify prepositioning actions for serviceable parts as they come out of repair. The Supportability Module takes the EPP list and determines whether the required items can be repaired based on four evaluation criteria availability: carcass, repair parts, repair funds, and repair resources. Items meeting all criteria are entered onto the D035K EXPRESS Table for transfer to the shop.
D200A	REQUIREMENT MANAGEMENT SYSTEM (RMS) computes procurement requirements for spares and determines depot level maintenance repair needs for the Air Force. RMS forecasts and controls procurement and repair requirements of materiel needed for logistics support of weapon systems operated by the Air Force. RMS maintains visibility on all recoverable and consumable spares while computing buy and repair requirements on a quarterly cycle and contains a Central Secondary Item Stratification process which compares peacetime and war readiness assets against requirements for Air Force recoverable and consumable items and produces the Supply System Inventory Report (SSIR), an annual report to Congress on the status of DoD on-hand inventory at the end of each FY. RECOVERABLE ITEM SIMULATION CAPABILITY (RISC) provides the ability to re-compute selected recoverable consumption items (simulation of D200A).
D230	MATERIEL PROCESSING SYSTEM (MPS) enables mechanics to

	automatically request material on the shop floor, immediately notifies the planner for approval, and provides the ability for Production Material Technicians/Forward Logistics Specialists to review the status of all orders placed, as well as correct and process orders with error conditions returned. MPS is intricately tied to the schedule execution and PDM workload management system for aircraft and missiles, and performs material planner support for commodities.
G004L	JOB ORDER PRODUCTION MASTER SYSTEM (JOPMS) initiates and manages the Job Order Number (JON) which is required to begin a maintenance task on the shop floor. The system creates and tracks work in progress, interfaces with financial systems providing visibility of production hours in process and completed (earned hours), provides a repository for storing the production number master records, tracks customer work requests, record work authorizations, maintain temporary work plans, records end item production, and documents standard labor hours earned during depot level maintenance.
G005M	DEPOT MAINTENANCE MATERIAL SUPPORT SYSTEM (DMMSS) identifies material that must be pre-positioned to support maintenance workloads and manages the BOM, which is required for planning for material in support of production maintenance workloads, initiating costing for the depot maintenance systems, and providing a mechanism to control material usage.
G019C	MISTR REQUIREMENTS SCHEDULING AND ANALYSIS SYSTEM – MISTR provides maintenance with scheduling and analysis data on MISTR reparable items. Schedules and tracks MISTR items and provides management information necessary to respond to the turnaround required by the repair cycle. The system also produces MISTR schedules that are distributed to maintenance for scheduling repair operations by individual stock number and control number.
G037F	WORKLOAD ANALYSIS PLANNING DATA SYSTEM (WAPDS) is now an OC- ALC site unique that generates MDS input/output schedules and workload analysis reports for aircraft (LA) and financial (FM) organizations. The maximum quantities in work, monthly input quantities, and learning curves in order to compute aircraft input internal. In addition, a method is provided to summarize the skill and labor standards received from projections of critical path data. The summarized standard data is applied to the input/output schedule producing a graphic representation of the scheduled workload and a computation of monthly work requirements. The requirements are stated in both standard man-hours and personnel equivalents. The system objective is to support the workload analysis process with computer prepared reports and graphics giving optimized input/output schedules, estimated labor standards, critical path facility usage, workload analysis for planned labor applications, and historical analysis.

G081	MALFUNCTION DETECTION, ANALYSIS & RECORDING SYSTEM/GRD PROC SYSTEM (MADARS) provides in-flight aircraft status and troubleshooting info while generating a permanent record of line replaceable unit (LRU) status. MADARS shows current performance of selected systems, performs engine health diagnosis, identifies discrepant LRUs, records trend data, determines its own health, calibrates the total monitoring system and provides for data storage and retrieval. A GRD computer system processes in-flight data recorded on tapes, evaluates the trend data, and develops programs to utilize the experience data. System supports base level and logistics for the C-5A/B, C-141, C-17 at Air Mobility Command (AMC) bases, Air Force Reserve (AFR) bases, and Air National Guard (ANG) bases.
G097	PROGRAMMED DEPOT MAINTENANCE SCHEDULING SYSTEM (PDMSS) is the HQ AFMC depots standard project management system used to manage execution of all aircraft programmed/unprogrammed depot maintenance and overhaul workload performed for the warfighter. PDMSS performs planning, maintenance operation resourcing and completion, critical path schedule execution, and performance management and is the critical workload management system for aircraft and missile planners, schedulers, and maintenance technicians.
G337	INVENTORY TRACKING SYSTEM (ITS) tracks repairable end items from time of induction into the depot to time of turn-in. It provides inventory control and assigns item tracking numbers to all parts as they come in and subsequently tracks them through disassembly, repair, and assembly.
G402A	EXCHANGEABLES PRODUCTION SYSTEM (EPS) links the maintenance shop floor personnel to Depot Supply for ordering and issuing direct and indirect material, and track maintenance transactions in process. It also provides visibility of workload requirements and end item asset availability. Users of the system are maintenance personnel, planners, schedulers, and cost analysis personnel.
J025A	AUTOMATED PROJECT ORDER FORM SYSTEM (APO) automates the HQ AFMC 181 process/coordination and provides an automated routing control for the next in line process step. Emphasis of the system is to provide access for the status of documents as approved, rejected, or canceled; for extraction of summarization data; access to historical data and reports.
LEAN DEPOT MANAGEMENT SYSTEM (LDMS)	LDMS contains the Air Force Illustrated Parts Breakdowns (IPB) for each end item it tracks. Prevents technicians from ordering unapproved parts! LDMS identifies end items that need modification or have a pending TCTO. LDMS prompts technicians to verify modification was done when job is closed. Modification history is available for each end item. No MOD left behind. Automates Processes–Enforces OSS&E–Reduces errors–Eliminates waste. Increases Aircraft Availability–Reduces CNDs, MICAPs. Reduces

	Maintenance Costs–Increases productivity–Reduces carcass requirements. Conclusion LDMS is a Tool for Success!

Chapter 7

WORK CONTROL DOCUMENT (WCD) AND TECHNICAL DATA

7.1. Introduction. This chapter provides process and procedures for depot work and the control and use of technical data in compliance with Air Force policy. This chapter also provides guidance for processing, handling, and storage of WCDs, and supersedes all other guidance pertaining to WCDs if a conflict exists.

7.1.1. Technical Data.

7.1.1.1. Only current and verified Technical Data, as authorized by TO 00-5-1, shall be used for depot maintenance. Process and procedures on the use and control of Technical Data shall be IAW TO 00-5-1. If formal TOs are not available or the use of electronic TOs is too impractical for a specific task, a locally printed TO extract may be used for seven calendar days, verified, and stamped for additional use. Locally printed technical data extracts are engineer drawings/Mylar, D-2 drawings, process specifications, commercial maintenance manuals (CMMs), COTS, etc.

7.1.1.2. Use of unapproved technical data (e.g., notes, manuals, drawings, emails, etc.) including uncontrolled copies (or pages) of formal TOs is prohibited.

7.1.1.3. Work Specs (e.g., SOWs, etc.) are not an authorized source of technical data. The contractor's SOW may be considered an authorized source of technical data when approved by the cognizant or SPO engineer (reference paragraph 7.1.2.5.1.).

7.1.1.4. Specific TOs take precedence over general TOs. When specific TOs does not contain procedures or processes (e.g., cleaning, plating, etc.), general TOs containing this information shall be used. If there is a difference in requirements between these documents, the more stringent requirement applies.

7.1.1.5. The current version of TOs shall always be used. For all dual based TOs (i.e., hard copies and electronic distribution), the units shall consider the 'medium of primary use' at the point of maintenance as the current version. For aircraft in storage at AMARG, use the technical data prescribed by the requesting authority.

7.1.1.6. WCD Focal Point. Each ALC designates the WCD Focal Point. This individual is the OPR for WCD program directives and assists all production groups with WCD program requirements.

7.1.1.6.1. Be the central focal point for administering WCD Program on all Industrial Engineering Technician (IET) training and reporting requirements, interpret policy guidance, and provide functional support.

7.1.1.7. When a depot production area is required to perform maintenance using a TO identified as 'preliminary', the System Program Manager/Supply Chain Manager (PM/SCM) Chief Engineer shall authorize the use of the 'preliminary' TO(s) IAW TO 00-5-3, *Air Force Technical Order Life Cycle Management.*

7.1.1.7.1. Engineering 'red-line' changes to technical data already in sustainment shall have an AFMC Form 202, and AFTO Form 252, stamped special handling, if needed authorizing the use of the 'red-line' TO. For contractor engineering 'red-line' changes to the contractor CMM when the Air Force is performing as a partner under

a Contractor Logistics Support (CLS) agreement, a letter from the contractor engineer shall be required authorizing the use of the 'red-line' changes to a contractor developed and distributed CMM.

7.1.2. Technical Data Procedures.

7.1.2.1. Technical Data Extracts. Extracts are 'printed or downloaded' copies of any technical information including contractor technical data from authorized electronic repositories/databases or from authorized paper technical data libraries. For example copies of TOs, Process Orders, Mil-Stds, a Special Handling (SH) AFTO Form 252, *Technical Order Publication Change Request,* Engineering drawings/blueprints, Mylars, Electronic Work Instructions, Technical Manual Work Instructions, Process Specifications, etc. Technical Data downloaded from authorized repositories and/or paper technical data are considered organizational property. At no time will technical data or portions of technical data be copied, e- mailed or provided to an unauthorized user (contractor, individual, etc.).

7.1.2.1.1. Anyone authorized and able to print technical data extracts may print an extract for another authorized individual lacking the ability to do so. The recipient of the extract is responsible for the control and currency of the technical data extract.

7.1.2.1.2. Technical data extracts and pages of technical data are permitted. This includes digital technical data where portions are printed. The following are the requirements for control of technical data extracts: the technical data title page will be printed, dated, and stamped with a maintenance stamp; required pages from the technical data will be attached and/or placed in a binder under the specific technical data title page. Personnel not assigned a maintenance stamp will legibly print their first name initial and last name on the technical data title page. The required pages from technical data will be attached and/or placed in a binder under the technical data title page. Extended use extracts will be reviewed for currency minimally every seven calendar days. If the extract is needed for more than seven calendar days, line out the old date and write the new date in on the technical data title page. For compliance purposes, repeat this process every seven calendar days until no longer needed.

7.1.2.1.3. If multiple extracts are required, the extracts can be placed into a binder with an index sheet. The index sheet will be maintained in the front of the binder and will identify all the technical data extract numbers contained within the binder. The index sheet will be stamped and dated showing required currency review checks of the documents contained within the binder. There is no need to stamp and date each extract maintained within the extract binder. If a technical data extract is removed from the binder, the removed extract must be reviewed, stamped, and dated again.

7.1.2.1.4. Printed technical data extract will also contain a required supplement, AFMC Form 202, AFTO Form 252, stamped special handling if necessary, if it affects the maintenance processes being performed.

7.1.2.1.5. Any extract not dated, not stamped, or does not have the printed name of the individual and date on the technical data title page is considered an 'uncontrolled copy'.

7.1.2.2. Engineering Drawings. Anyone authorized and able to print engineering drawings may print an extract for another authorized individual lacking the ability to do so. The recipient is responsible for the control and currency of the document. The recipient of the drawing will stamp and date the top front side of the document. If the recipient of the drawing is not assigned a maintenance stamp, the individual will legibly print their first name, initial, and last name, and date on the top front side of the drawing. Extended use extracts will be reviewed for currency minimally every 90 calendar days. If the extract is needed longer than 90 calendar days, line out the old date and write the new currency revalidation date on the drawing. Engineering drawings no longer needed will be destroyed and disposed of properly.

7.1.2.2.1. If multiple drawing extracts are required, the extracts can be placed in a binder with an index sheet. The index sheet will be maintained in the front of the binder and will identify all drawing extract numbers contained within the binder. The index sheet will be stamped and dated showing required currency review checks of the documents contained within the binder. There is no need to stamp and date each extract maintained within the extract binder. If a drawing extract is removed from the binder, the extract will be reviewed and stamped again.

7.1.2.3. Mylars. Anyone authorized and able to print mylars may print an extract for another authorized individual lacking the ability to do so. The recipient is responsible for the control and currency of the document. Mylars will be labeled with a piece of tape reflecting the review date along with a stamp. If the recipient of the mylar is not assigned a maintenance stamp, the individual will print their first name, initial, and last name, and date on tape. If the mylar is needed greater than 90 days, line out the old date and write the new currency revalidation date on the mylar tape. Mylars no longer needed will be returned to the owning organization.

7.1.2.3.1. Archived Drawings/Mylars. When a drawing or mylar is no longer required for current workload(s) but will be used in the future, these documents will be placed in an archive area for storage. A master inventory listing will be maintained of all documents placed in an archived area. If a specific drawing or mylar is required to be used again, currency will be validated prior to reuse by production. The document will be signed out using the AF Form 614, *Charge Out Record,* or the use of a sign-out control log.

7.1.2.4. Process Specifications.

7.1.2.4.1. Contractor Managed Process Specifications (PSs). PSs will be placed in a numbered binder. Binders will contain a PS inventory sheet in the front of the binder. This inventory sheet will identify title, PS number, version, and version date, and will be stamped and dated by the contractor who is required to review, update, and keep PSs current. If the contractor does not have a stamp, the contractor shall date, print first name, initial, and last name on the inventory sheet.

7.1.2.4.2. Planning Managed PSs. PSs will be placed in numbered binders. Binders will contain a PS inventory sheet in the front of the binder. This inventory sheet will identify title, PS number, version, and version date, and will be stamped and dated by the planner who is required to review, update, and keep PSs current.

7.1.2.4.3. Production Managed PSs. PSs will be placed in numbered binders. Binders will contain a PS inventory sheet in the front of the binder. This inventory sheet will identify title, PS number, version, and version date, and will be stamped and dated by the RC/CC supervisor or designee who is required to review, update, and keep PSs current.

7.1.2.4.4. PS Use. Technicians will sign out required PS binder using the AF Form 614 (i.e., 'pinky'). Technicians will follow all Tech Data sign-out procedures.

7.1.2.4.4.1. If a technician must use only one PS contained in a PS binder, the technician will verify currency via the index sheet (i.e., resolve any currency conflicts prior to use with PS POC), sign out the required PS on the AF Form 614, and place the AF Form 614 within the binder in the exact sequence where the PS was removed from. Technician will follow all Tech Data sign-out procedures for removing a PS from a binder.

7.1.2.4.4.2. If a technician makes a copy of any PS, the technician will verify PS currency via the PS inventory sheet (i.e., resolve any currency conflicts prior to use with PS POC), the technician making the copy will stamp and date PS on PS front page controlling PS as a Technical Data extract. It is recommended to not copy any PS unless absolutely necessary for mission accomplishment and if permissible by the contractor. Contractually, these documents can be proprietary and reproduction may not be permissible.

7.1.2.4.5. Process Specification Annual Inventory/Review. All PSs shall receive an annual review to ensure the PSs are complete and current. When there are too many PSs in a library to permit inventory during a single month, the PS POC may establish an incremental schedule to ensure a complete inventory of all PSs within the year. Such incremental reviews are considered 'within the year' if completed within the proper month even if the completion date is more than 365 days since the last inspection.

7.1.2.4.5.1. Annual PS inventory documentation must identify the PSs inventoried, date performed, and the name of the responsible individual. The PS POCs will perform a full PS page check of all paper PSs ensuring no pages of a PS are missing. Inventory PS discrepancies must be resolved and requisition missing PSs and PSs increments as required.

7.1.2.5. Other Authorized Technical Data.

7.1.2.5.1. Contractor Technical Data. Contractor supplied technical data may be used when the depot maintenance organization is acting as a sub-contractor in accordance with TO 00-5-1. Depot maintenance personnel shall use contractor data when CLS/Contractor Support (CS) contracts provide for Air Force assistance to the contractor or when operating, or maintaining equipment at sites or locations not covered by the contract. The contractor's provided data and source data as defined

in TO 00-5-3, are authorized for use provided the cognizant engineering authority has approved their use and the production planning team (PPT) has concurred the data is valid for performing the work required. Referencing of this type of data on a WCD is considered valid proof of authorization for use. The Cognizant Engineers or SPO engineer shall ensure currency of contractor technical data and determine the disposition of contractor's technical data after the contract has ended.

7.1.2.6. Disposition of Technical Data Extracts. Personnel disposing of technical data and related TO file documentation including personnel utilizing TO extracts will follow disposition procedures IAW TO 00-5-1. If the document is classified, destroy IAW DoD 5200.1R, *Information Security Program*, and AFI 16-1404, *Air Force Information Security Program*. CD-ROMS will have both surfaces scratched before recycling. **Note:** Highlighting on a technical data extract is permissible. What is not allowed are notes and/or annotating any type of dimension, tolerance, specification, part number, etc. on the extract. Only highlighting of the extract is allowed.

7.1.2.6.1. The TO extract may be placed in recycle or regular trash receptacles as a whole document if marked 'Distribution is Unlimited' on the title page. However, if the TO has a distribution limitation statement, it shall be recycled by placing different parts of the extract in different recycle bins, torn into three or more pieces or shredded and placed in one bin, or incinerated. Proprietary data must always be shredded before recycling.

7.1.2.6.2. The program manager/system program office engineer will determine the disposition of contractor technical data after contracts ends.

7.1.2.7. Technical Data Availability. O&M technical data procedures for operation, trouble shooting, repairing, removing, installing, manufacturing, calibrating, or servicing action must be available and used at the job site IAW TO 00-5-1. General TOs and Methods and Procedures Technical Orders (MPTOs) do not need to be at the job site except when there is contractor support. All MPTOs listed in the SOW and directive upon the contractor must be readily available at the job site.

7.1.2.7.1. Used at the job site. Technical data shall be in the area where the work is being performed i.e., work bench, aircraft stall, dock, machine shop, etc. The job site is determined by the nature of the task.

7.1.2.8. Reclamation removal work packages, copies of TO extracts IAW TO 00-5-1, and 309th AMARG specific instructions. Technical data will be reviewed and the most current version will be used prior to issuing reclamation work control packages to maintenance.

7.1.2.8.1. To meet requirements for aircraft in storage at 309th AMARG, TO 1-1-686, *Desert Storage, Preservation and Process Manual for Aircraft, Aircraft Engines, and Aircraft Auxiliary Power Unit Engines*, will be used for procedures and specifications addressed (e.g., landing gear strut extension, aircraft tire pressures, aircraft towing procedures, etc.).

7.1.2.8.1.1. The 309th AMARG will develop, implement, and maintain processes and procedures that addresses Desert Operations unique program requirements and route to AFSC/LZD for review and approval. The 309th

AMARG will develop a TO IAW TO 00-5-1 that addresses unique Desert Operation processes of reclamation, demilitarization, and disposal.

7.1.2.9. TO Changes and Authorized Deviations. Technical data used in depot maintenance must be complete, accurate, effective, and efficient. It is the responsibility of maintenance personnel at all levels, including SPO personnel, to ensure deficiencies are reported in a timely manner and improvements made when authorized. When work cannot be performed using the TO as written, an authorized deviation must be processed and approved. The AFTO Form 22, *Technical Manual (TM) Change Recommendation and Reply,* is processed IAW TO 00-5-1 or the AFMC Form 202 and is sent to the appropriate engineering/planning function which processes the request IAW AFMCMAN 63-1202.

7.1.2.9.1. AFTO Form 22. This form provides the mechanism by which improvements and corrections to TO deficiencies may be made. TO 00-5-1 provides detailed instructions on the routing of TO deficiency submissions. It is the responsibility of the individual discovering a TO deficiency to initiate an AFTO Form 22.

7.1.2.9.2. AFMC Form 202. Use the AFMC Form 202 to furnish technical data for conditions or procedures beyond published authority under work stoppage and non-work stoppage conditions, and when technical data does not exist and must be developed, approved, and provided to maintenance technicians. Use procedures IAW AFMCMAN 631202 for the preparation, use, and control of AFMC Form 202.

7.1.2.9.3. AFTO Form 252, *Technical Order Publication Change Request*. An approved AFTO Form 252 may be issued as a result of an approved AFMC Form 202 when a TO change is required to provide the correct or newly developed data necessary to resolve an actual or anticipated work stoppage. The completed AFTO Form 252 is stamped Special Handling (SH252), processed and inserted into the TO as detailed in AFMCMAN 63-1202, and used until replaced by the formal TO update.

7.1.2.9.4. AF Form 3925, *Engineering Order (EO)*. An EO is used to document changes to engineering drawings IAW AFMCMAN 63-1202.

7.1.2.9.5. Posting TO Changes. Changes to TOs must be monitored and documented, ensuring no process is compromised. The organization responsible for posting changes to TOs will publish and provide a list of changes to the appropriate engineering organization, production supervisor, and planning organization. Changes to TOs may require changes to the WCDs and process orders. The planning, production, and engineering organizations are jointly responsible for reviewing the TO changes and the determination of WCD impacts. Changes to WCDs and process orders shall be accomplished within fifteen working days after formal posting of the TO change.

7.2. Work Control Document (WCD). WCDs are not technical data. The WCD is an official and authorized document with the technical data reference. All programmed and nonprogrammed work will be performed on an approved WCD. The WCD is the official record for work including control, identification, inspection, and routing of operations. Locally Manufactured/Modified Tools and Equipment (LM/MT&E) work may use a WCD or similar. A WCD shall be developed

for all programmed and temporary workloads which ensures there is a complete audit trail of work performed. The ALCs performing host tenant support workloads, including PM type support workloads not included in FEM, can develop procedures for documenting maintenance actions accomplished by certified technicians. WCDs shall be auditable and meet the requirements of this manual, AFMAN 63-143, TO 00-5-1, TO 00-20-1, and TO 00-25-4. The amount of detail and technical data references on WCDs is determined by the PPPT. Unpredictable WCDs that are developed and processed thru the MWR system are not required by the PPT unless requested. Operation number will be unpredictable or O&A as determined by the MWR system.

7.2.1. If there are conflicts between the WCD and the technical data, the technical data shall prevail.

7.2.2. WCDs, job plans, or other documents controlling the routing and management of workload performed by AFSC maintenance groups will be reviewed based upon the following: unforeseen workload changes, quality deficiencies, changes to Technical Data, statistically significant labor standard variances, statistically significant rework, continuous process improvement, and occurrences of an AFSC Form 957. When an inactive WCD is going to be reinstated, a review will be accomplished prior to placing them back in use. The WCD review will be documented on an AFSC Form 500-2 WCD Review Checklist. Local supplements may be developed as required. **Note:** Partnership workloads will be accomplished IAW the Implementation Agreement (IA).

7.2.2.1. (Aircraft Planned Workloads). For those organizations supporting LRDP (ref AFMAN 63-143), the aircraft WCD/Labor Standard reviews will be considered accomplished during the ERRP. Local supplements may be developed as required.

7.2.2.2. When the SOW changes, WCDs shall be created/edited to ensure that all existing and emerging requirements are captured from SPM SOW and associated technical data to prevent missed work.

7.2.3. WCD review on NWRM will be performed annually. The review shall follow the procedures outlined in AFI 20-110 and AFI 20-110 AFMCSUP. The NWRM review will be documented on AFSC Form 500.

7.2.4. When ‘IAW’ is used on a WCD, the technical data must be open and in use. It is acceptable to have the technical data, given the environmental conditions (e.g., confined space, windy conditions, etc.) and for safety reasons, within a reasonable distance. When approached, the technician will have correct and approved technical data open to the applicable area in work. The performing technician will be able to point to the task being accomplished in the technical data but need not be on the exact page. Critical tasks/operations identified by the Production Planning Team (PPT)/PPPT will be IAW tasks/operations covered by technical data.

7.2.4.1. Service Unique Technical Data. Workloads with multiple versions of service unique (e.g. Navy, Marines) technical data will list the service name in the header on each page of WCD (e.g., Air Force, Navy, …) and incorporate an additional “watermark” visual control that is easily displayed on all WCD pages to alert mechanics to service unique technical requirements and reduce the risk of utilizing incorrect technical data.

7.2.5. All warnings, cautions, and notes will be reviewed prior to performing the task or at the beginning of each shift. Review verification status pages, when present, to check the verification status before attempting to use any procedure IAW TO 00-5-3.

7.2.6. Any technical data referenced by the PPPT or PPT shall be complete and directly related to the work being accomplished. The PPPT determines the WCD technical data references and it may include paragraphs, tasks, and steps needed to perform the work. However, paragraphs, tasks, and steps are not required. The WCD is the official record that certified technicians, as required by the PAC Programs, perform tasks using authorized technical data. WCDs will contain the complete technical data alpha-numeric designated number when used. Technical data abbreviations are not authorized.

7.2.7. When the primary technical data applies to every operation of the repair process, it is not necessary to repeat the technical data reference for each sub-operation. Other technical data referenced in the primary technical data are not required to be listed on the operation line. Operations that require the use of independent technical data shall be referenced in the operation description block. Any operation not listing independent technical data reverts to the primary technical data.

7.2.8. Pre-Production Planning Team (PPPT). Initial process for developing WCDs. During the early acquisition stage of a new system, the PPPT will include a long-rang Planner.

7.2.8.1. Pre-Production Planning, New Workload. The PM/SCM Engineer (Weapon System Engineering Authority) chairs the PPPT. For each new programmed/negotiated workload, the ALC/CC requires establishment of PPPT composed of Planning Element Chief or designee, Maintenance Planner, Complex/Group Business Office, PM/SCM Engineer (Weapon System Engineering Authority), DEA, Complex Production/Process Engineering (ref. **Chapter 23**), RC/CC Production Supervisor(s) or designee(s), QA, PAC Manager, and NDI Level III inspector. Other representatives determined by the Cognizant Engineer, Planning element Chief/designee, and/or Complex Production/Process Engineer as required include but are not limited to the following: (DLA, material support specialist, safety, bioenvironmental, Nuclear Weapons Resource Officer (NWRO), scheduling, training, etc.). Team members will attend PPPT meetings.

7.2.8.2. The Cognizant Engineer or designee will chair the PPPT. Pre-production personnel are responsible for the initial resource development and identification of critical end items for exchangeables and brochure required critical tasks for aircraft, workplace facility layouts, process flow charts, BOM requirements, work breakdown structure and associated WCDs, labor standard operations, identification of training and certification requirements for production personnel, review of all hardware and software technical data, review of all associated equipment and hand tools, review of all special processes, finalization of direct cost, and reporting of shortfalls that prohibit organic start and requesting work authorization documents (WADs) for programmed/negotiated workload start. **Note:** It is important that the planning team members have a thorough working knowledge of the maintenance industrial repair/overhaul process. In addition, a thorough understanding of all maintenance organizations and their responsibility to each other is required.

7.2.8.3. For organizations operating under the LRDP, the strategic team created will fulfill the requirement for the PPPT.

7.2.9. Production Planning Team (PPT). The PPT purpose is to further develop, plan and refine workload requirements as they pertain to WCDs. The PPT is chaired by the IET. The PPT team is composed of, at a minimum, the IET and each affected RCC Production Supervisor or their designee. When the WCD review involves a new industrial process or a deviation from an established industrial process, the IET will coordinate with the ALC Production Engineering and determine if Production Engineering attendance is necessary. When the WCD review involves NDI tasks, the IET will coordinate with ALC Production Engineering and, together, determine if NDI Level III inspector attendance will be requested. Additionally, the IET will determine necessary attendance for other representatives to include ALC Production Engineering, PM/SCM Engineer (Weapon System Engineering Authority) or DEA (Delegated Engineering Authority), Production Controller/Scheduler, QA, safety, bioenvironmental, etc. If invited to attend the PPT, each responsibilities attendance will be considered mandatory. A physical, "face-to-face" meeting is not required for formal coordination; virtualization of this meeting is authorized.

7.2.9.1. All formal PPTs will use AFSC Form 500 to document the meeting and will serve as the PPT meeting minutes. The responsible planning organization will maintain the completed form(s) electronically or a completed hard copy form(s). The Planner will maintain the completed AFSC Form 500 as part of the permanent record. The AFSC Form 500 is the final and official record of the PPT and documents the issues/concerns discussed. Attach any required documentation to AFSC Form 500 as needed that supports the PPT (i.e., AFSC Form 957, *Work Control Document (WCD) Change Request*). A round table is not required for formal coordination.

7.2.9.2. The AFSC Form 500 or contractor equivalent will be used to document review of contractor supplied WCDs. A round table is not required for coordination. Completing AFSC Form 500 electronically is encouraged. Instructions for completing AFSC Form 500 are provided in **Table 7.4.**

7.2.10. Types of WCDs. The following are the only authorized types of WCDs for production maintenance. (**Note:** Deviations are not authorized without prior AFSC/LZ written approval). WCDs comparable to Inventory Tracking System (ITS), LDMS, AFSC Form 959, and AFSC Form 173, shall comply with the requirements of this manual.

7.2.10.1. AFSC Form 959. ITS (G337), IMPRESA, Networks made to order (MTO), Maximo (G029), AFSC Form 173, or PDMSS (G097), and Management Planning and Control System (MPCS) formally known as D012, or contractor equivalent are used for workloads processed through production maintenance. The WCD will be attached to the item throughout the production process or will be placed in a designated location for those items where attachment is not practical (reference **Table 7.1.** and **Table 7.2.**).

7.2.10.2. Sequential Tasks. Tasks are accomplished and certified in step-by-step sequences, however, deviation is permissible based on the nature of the task. The deviation will not create a conflict with the technical data source and integrity of the task accomplishment will not be compromised. Any task determined by the PPT as requiring sequential steps shall have the following or equivalent statement on the WCD or definitized list: "Tasks must be accomplished and certified in step-by-step order".

7.2.10.3. AFSC Form 173, MDS/Project Operation Assignment.

7.2.10.3.1. All unpredictable AFSC Forms 173 will be processes through MWR for approval. Initiator submitting the unpredictable MWR will determine the technical data reference.

7.2.10.3.2. A Work Emergency is defined as a situation when MRT/Planner/PAOs are not available to approve WCDs, causing a work stoppage or a delay in aircraft flow time. To prevent a work emergency, the production supervisor will generate and apply their P stamp on a hand scribed WCD. The Aircraft Logistics Specialist (ALS) or designee shall also stamp the WCD which authorizes the task to be performed. The MRT/Planner/PAO approval must occur the first business day following this condition to approve and comply with coordination requirements on the WCD.

7.2.10.3.3. Definitized List. Use G097 for information to complete definitized lists. A definitized list supplements AFSC Form 173 and shall be attached to and become a permanent part of the AFSC Form 173 throughout the production process. Definitized lists must be updated and the task description must be in agreement with the source AFSC Form 173. It provides a detailed step-by-step breakdown of the process. AFSC Form 959/ITS/D012 may be used as a definitized list for AFSC Forms 173.

7.2.10.3.4. The AFSC Form 173 will be assigned an inspection code applicable to the work being accomplished as determined by the PPT. AFSC Form 173 header cards for definitive guides containing multiple skills may be coded as administrative. The person stamping the source AFSC Form 173 is certifying that the tasks/operations on the definitized list are stamped and dated. If the PPT determines that the header card is an administrative task/operation, the scheduler will certify that all certification blocks on the definitized guide have been stamped and dated by 'C' stamping the WCD.

7.2.10.4. Electronic WCDs. HQ AFMC approved computer systems generated WCDs without hard copies are authorized and encouraged as long as the accuracy and integrity of the documents can be maintained and the minimum documentation is accomplished as required by this and other applicable instructions. Automated Data Processing System (ADPSs) that have the capability, electronic completion, and certification of WCDs shall include PAC and supervisory certifications. These systems must have sufficient built-in safeguards (e.g., Personal Identification Numbers (PINs), electronic signatures, passwords, firewalls, etc.) to ensure system integrity and security are maintained and that a reliable audit trail is maintained. The records shall be maintained IAW Air Force Records Information Management Systems (AFRIMS).

7.2.10.5. Contractor Supplied WCDs. Contractor supplied/distributed WCDs used by AF personnel shall be utilized IAW AFSCMAN 21-102. Local supplements may be developed to address unique contractor WCD requirements (e.g., form number, design, format, etc.).

7.2.10.5.1. PPT Review of Contractor WCDs. The PPT Review of Contractor's WCDs. The PPT review of contractor WCDs shall consist of the Planner, applicable Production RC/CC, Controller/Scheduler, and designated workload QAS. Additional representation from the following organizations should be considered wherever a

contractor's WCD is reviewed: Safety, Bio-environmental, and the contractor. The PPT review shall ensure technical data is identified and available, applicable critical tasks/operations are identified, and personnel have the required skills to perform the maintenance task.

7.2.11. Level of Effort and other Non-MISTR (Management of Items Subject to Repair)/Non-PDM (Programmed Depot Maintenance) Workloads. The AFSC Form 959 will be used when no end item product is produced and no other official WCD process is feasible. Local procedures may be developed on how this form will be used and filled out for these specific requirements.

7.2.12. Technical Information on WCDs.

7.2.12.1. Technical Data Usage Requirement.

7.2.12.1.1. All WCDs requiring PAC certification (i.e., M, I, E, T, and N Coded) must contain the technical data reference applicable to the work being performed. Dual stamp codes are authorized.

7.2.12.1.2. General maintenance tasks/operations not covered by technical data and performed by mechanics shall require the statement "Technical Data Not Required" or equivalent noted on the WCD(s).

7.2.12.1.3. Technical data on the WCD may reference additional TOs or drawings necessary to accomplish the task. Due to space constraints on AFSC Form 173, the primary TOs may be the only ones referenced on the WCD. When the primary technical data applies to every sub-operation of the repair process, it is not necessary to repeat the technical data reference for each sub-operation. Other technical data referenced in the primary technical data are not required to be listed on the sub-operation line. Suboperations that require the use of independent technical data shall be referenced in the suboperation description block. Any sub-operation not listing independent technical data shall revert back to the primary technical data.

7.2.12.2. Specifications and Tolerances on WCDs.

7.2.12.2.1. Including specifications, tolerances, and any similar information verbatim from the governing technical data into any WCD will be held to an absolute minimum. The intent must not be to enable using WCDs in lieu of the official technical data. Justification for inclusion of this type of data on WCDs is based on a significant gain in efficiency and/or productivity, or a clear reduction in the chance of using the wrong specifications or tolerances or avoids possible misinterpretation or miscalculations of these values. Specifications/tolerances are not to be confused with military specifications (MIL-SPECs), stock numbers, or part numbers.

7.2.12.2.2. WCD operations determined critical by the PPT or identified as 'IAW' shall not have any specification, tolerance, or other similar information identified within the task description block.

7.2.12.2.3. The responsible planning organization shall maintain a control log of all WCDs containing specifications and tolerances. At a minimum, this log will identify the WCD control number and date of last PPT review, technical data number, basic

date, the change date, and change number. If the technical data changes, the WCD shall subsequently be changed.

7.2.12.2.4. The planner shall manually update all changes to WCDs on the production floor and annotate the statement ("**Note:** WCD specification updated due to a technical data change.") or equivalent statement in red at the top of the WCD header page. It does not have to be in red if electronically applied.

7.2.12.2.5. The planner shall notify the production organization identifying the applicable WCD was updated because of a recent technical data change.

7.2.12.2.6. Process engineering, planning, and RC/CC Supervisor are responsible for reviewing technical data changes and determining the impact to WCDs containing specifications and tolerances.

7.2.12.3. Data Collection on WCDs. Provisions will be made to annotate measurements, laboratory/test/reports results, entries on AFTO Form 95, and time changes and calendar inspection items complied with on the WCD or attached data sheet when such annotation is required IAW TO 00-20-1. Requirements can be generated by technical data, the PPT, work specifications, quality plans, or when a precise audit trail is needed. Data sheets used to annotate measurements or laboratory/test/reports results will be attached to the WCDs.

7.2.12.4. Inspection/Certification Codes. These are codes utilized for determining the type of Inspection/Certification required on a WCD. The only authorized inspection/Certification Codes are listed in **Table 7.3.**

7.2.12.4.1. A maintenance stamp is mandatory and shall be used to indicate work completion and certification. **Note:** Electronic stamps are acceptable. Use of initials and employee numbers are not permitted.

7.2.12.5. Critical Task/Operation Identification. Maintenance performed by AFSC personnel will be reviewed to identify critical maintenance tasks/operations. Critical tasks/operations designated for secondary PAC certification must be listed and stamped as separate line items. The cognizant engineering authority may be contacted and required to respond to the production planning team as needed. The PPT identifies critical tasks/operations as any task/operation that affect form, fit, and function, and has an inspection/certification identified. If not done correctly, it can result in one of the following conditions:

7.2.12.5.1. A catastrophic failure of an end item.

7.2.12.5.2. An end item failure that may affect 'safety of flight'.

7.2.12.5.3. Where end item failure may present an imminent safety/health hazard or affect a life support system.

7.2.12.5.4. Any failure of a critical safety item (CSI).

7.2.12.5.5. Any item containing TO direction for addition or removal of software [Computer Program Identification Number (CPIN) loading or removal] which, if not performed, would compromise functionality and/or foreign or national security.

7.2.12.6. Secondary Certification. Secondary certification (i.e., second set of eyes) is required for all critical tasks/operations and can also be used as a designated inspection tool to: help control problem/high dollar tasks, foreign object (FO)/closing inspections, and QDRs; provide measurement; improve processes. Secondary certification shall be accomplished on the applicable WCD task/operation using either an 'E' or 'I' PAC certification codes. The 'I' secondary PAC inspection code is not to be restricted to the in process inspection (IPI) that is mandated by MAJCOM, TO, or local management directives but will be used when technical data conformance cannot be verified after task/operation completion. Where secondary certification is required for tasks that are visual in nature (i.e., FOD inspections), the secondary certification is accomplished and documented by an authorized IPI inspector other than the technician performing the specific step of a task that requires the IPI. The following can be considered when identifying secondary certification:

7.2.12.6.1. Cautions and warnings which may have associated tasks/operations that are critical in nature.

7.2.12.6.2. Other items in the technical data that meet the criticality criteria.

7.2.12.6.3. Mishaps and other safety reports/alerts, and investigations involving the workload that identify critical areas.

7.2.12.6.4. Previously identified problem areas from similar workloads.

7.2.12.6.5. Deficiency reports, especially category one, and other customer feedback. **Note:** There are some SSQ tasks that do not allow secondary certification. In addition, there are those where it is impossible to inspect or witness the accomplishment of the task. Mandatory SSQ tasks/operation, except those that are non-critical, must be considered when identifying requirements along with any other sources that are available for specific workloads.

7.2.12.7. Production closures of end items that will be installed on aircraft, aircraft closures, non-enclosed areas where safety of flight could be compromised and major component mating operations. A WCD task/operation or definitized list for performing a rag/FO inspection will be used. Include the statement 'Rag/FO inspection C/W' on the WCD. Production closure of end items that require closing/rag/FO inspections do not require a separate WCD or definitized list. ALCs may use an equivalent rag/FO inspection statement on the WCDs and definitized list. If technical data or TO provide guidance, a separate rag/FO inspection task/operation is not required. The technical data or TO will be annotated as 'IAW' on WCDs. Area will be immediately temporarily/permanently secured following the closing/installation inspections.

7.2.12.8. After the initial work planning process is complete, the first level supervisor or higher has the primary responsibility for identifying additional operations for secondary certification requirements. The IET(maintenance planner) must work closely with the responsible supervisor to ensure all critical items identified in the technical data are included. Changes in workload requirements and technical data must be carefully screened for tasks/operations that meet the criticality criteria.

7.2.12.9. Multi-Task/Operation, Task/Operation, and Team Task/Operation Certification. Local procedures must be developed to document work accomplishment for tasks that are

accomplished by several individuals and/or for all work accomplished by more than one person due to shift change. When possible, the same individual or crew should perform multitask/operation work to maintain continuity. For multi-task/operation, task/operation, and team task/operation certifications, the person performing the last task/operation must certify on the WCD that the portion they performed was done correctly and verifies all previous tasks/operations have been stamped. For critical team tasks, the WCD will be created in a manner that captures stamps from all team members as well as the certification for task completion.

7.2.12.10. Changing Inspection/Certification Codes. Inspection/certification codes can only be changed, in-work, by the following functions:

7.2.12.10.1. Production supervisor can perform a one-time upgrade to an inspection/certification code if a secondary certification is desired. The production supervisor will also affix a 'P' stamp and date above the inspection block or locally identified area.

7.2.12.10.2. A QAS can add a 'Q' code above block 29 of the AFSC Form 173 or in the 'Other/Insp' (third column) of the definitized list. On the AFSC Form 959, the QAS can add a 'Q' in block 20, third column identified with a 'Q'. On an ITS equivalent WCD, the QAS will add a 'Q' to the right of the current certification code block. All 'Q' entries will be done in red. The QAS will affix a stamp and date next to the manually entered 'Q' code on the applicable WCD. For downgrade of 'Q'coded WCDs or definitized lists, reference local guidance if applicable.

7.2.12.10.3. Downgrades to an inspection/certification code. If the inspection code is a critical task coded as an 'I' or 'E', the planner, production supervisor, and QA shall stamp and date the WCD. Also place an informational note, in red, in the task description block or designated area. For a permanent downgrade to critical operations, the PPT must review and coordinate on the AFSC Form 500.

7.2.12.11. Applicable only to MISTR workloads, prior to hand written tasks/operations being added to WCDs on shop floor, the PPT will review and coordinated on an AFSC Form 500. **Note:** During off-shift hours and weekends, the PPT may review and coordinate on the AFSC Form 500 on the next available work day.

7.2.13. FCF and maintenance operational checks documentation will be IAW TO 00-20-1 and TO 1-1-300, *Maintenance Operational Checks and Check Flights*.

7.2.14. Rework. Collection and analysis of rework data is essential to promoting efficient and effective processes. Rework is any work that is being re-accomplished to repair or replace failed material or end items or to correct a work discrepancy where the discrepancy is the direct result of incorrect workmanship after the acceptability or completion of the work task/operation or end item has been stamped on the WCD by production personnel.

7.2.14.1. Documentation of Rework. The WCD is flagged with one red diagonal line drawn through the inspection certification block of the specific WCD operation where the workmanship defect or deficiency exists. Stamp and date the task description block inserting an informational note explaining the reason for rework. When it is necessary to rework an item, the item and the accompanying WCD retreat to the first step requiring reaccomplishment then the normal sequence is followed to completion.

7.2.14.2. A rework WCD is generated that includes all operations/tasks that must be reaccomplished and is attached to the original WCD. All rework operations/tasks are reaccomplished, stamped, and dated. Production count is not taken for rework.

7.2.14.3. All WCDs used for rework will contain the header information of the original WCD. WCDs will be annotated 'REWORK' on the header of the WCD in red. Electronically generated rework WCDs do not require 'REWORK' in red.

7.2.15. Routed Items. Routing may be classified as either job routing or process routing. Routing may involve multiple RC/CCs or may occur within a single shop.

7.2.15.1. Job Routing. AFSC Form 127 or automated system produced equivalent shall be used when designated by the PPT to furnish routing and data to/from aircraft and support shops. When items are aircraft specific, the MDS and complete aircraft serial number (i.e., C130J 86-0092) shall be included along with the item control number, part number, and item serial number. AFSC Forms 127 is not to be used in lieu of a WCD. If the routed item work to be accomplished requires the performance of a maintenance task, an approved WCD will be developed or provided to the mechanic/technician for performance and certification of the maintenance task identified. Items routed between organizations using routed order documents require the tasked organizations to develop a WCD in compliance with this manual. Retention of AFSC Form 127 is not required as a depot historical record for aircraft or support shops since all work performed will be documented and certified on approved WCDs.

7.2.15.2. Process Routing. Process routing consists of forwarding an item to a process shop and is an integral part of the overall repair effort but is not considered a job route. A process shop is defined as a depot maintenance function that provides conditioning support on component assemblies and materials, or essential support services for end items being repaired by other depot maintenance organizations. The following are examples of candidates for process routing: cleaning, plating, heat treat, welding, battery servicing, grinding, machining, NDI, check/test, and minor maintenance.

7.2.16. Non-programmed work. Non-programmed work is work authorized by AFSC Form 206. AFSC Form 206 requiring maintenance shall have an approved WCD. The G004L-L3A report will not be used as the WCD.

7.2.17. Deficiency Report Data. Deficiency data reported IAW TO 00-35D-54 to include aircraft/engine acceptance discrepancies must be analyzed by the Production Group QA Office. Technical data and WCD problems contributing to reported defects must be corrected. Changes to these documents must be formally requested and tracked to ensure effectiveness as part of the corrective actions as appropriate. The QA program must provide feedback to managers and supervisors.

7.2.18. Condemned Parts WCD Documentation. When a part is condemned, the technician condemning the part will stamp and date the appropriate WCD certification block, enter in the specific task/operation description block the word 'condemned', and include the word 'condemned' on the first page of the WCD. No technician documentation is required for operations that will not be completed due to parts condemned.

7.2.19. WCD Change Request Procedures.

7.2.19.1. AFSC Form 957 is prescribed to identify additions, deletions, and corrections to an existing WCD and may also be used to recommend action be taken to create a new WCD. Electronic systems capable of generating the same requirements of the AFSC 957 may be used.

7.2.19.2. The person identifying the need for a change on the WCD will initiate the request to planning by completing AFSC Form 957, Part 1. For administrative changes (e.g., typos, spelling, grammar, etc.), this process is not required.

7.2.19.3. The signature and organization symbol of the initiator's supervisor or the first line Production Supervisor that owns/accomplishes the workload is required. When changes to a RC/CC are required, both the old RC/CC and new RC/CC supervisors' signatures will be required. Both the old RC/CC and new RC/CC supervisors' CAC enabled acknowledgment will be required when using local electronic systems.

7.2.19.4. The supervisor will forward the request to the appropriate planning organizations.

7.2.19.5. The responsible IET (maintenance planner) will complete the following actions within 15 working days: (**Note:** If the request cannot be corrected/completed with 15 working days, attach or add comments/justification to the AFSC Form 957 indicating reasoning for the correction/completion delay.)

7.2.19.5.1. Complete Part II of the request indicating the request was accepted or explain why the request was not accomplished.

7.2.19.5.2. Input changes to the WCD as required.

7.2.19.5.3. Return a copy of the completed request to the supervisor.

7.2.19.5.4. Maintain AFSC Form 957 electronically or in planning jacket IAW paragraph 1.12.1.

7.3. Roles and Responsibilities.

7.3.1. PPT. The responsibilities of the PPT are as follows:

7.3.1.1. Assist in the development of the WCD for programmed workloads.

7.3.1.2. Provide and receive input between Groups for routed items.

7.3.1.3. Review inspection/certification codes, technical data, and safety requirements.

7.3.1.4. Identify in the WCD any task as determined as critical using the definition of a CSI as guidance. A CSI is defined as a part, an assembly, installation equipment, launch equipment, recovery equipment, or support equipment for an aircraft or aviation weapon system if the part, assembly, or equipment contains a characteristic where any failure, malfunction, or absence of which could cause a catastrophic or critical failure resulting in the loss or serious damage to the aircraft or weapon system, an unacceptable risk of personal injury or loss of life, or an uncommanded engine shutdown that jeopardizes safety. CSIs include items determined to be 'life limited', 'fracture critical', 'fatigue sensitive', etc. Damage is considered serious or substantial when it would be sufficient to cause a 'Class A' accident or a mishap of severity category I. The determining factor in CSIs is the consequence of failure not the probability that the failure or consequence

would occur. Items formerly identified as ‘flight safety part’, ‘flight critical part’, ‘flight safety critical aircraft part’, or ‘safety of flight item’ are considered CSIs.

7.3.1.5. Identify tool, equipment, ground handling, and mockup requirements as required. Review all applicable technical data and determine the availability and adequacy of the above items.

7.3.2. Planner.

7.3.2.1. IET (maintenance planner) develop WCDs from approved technical data. This instruction or other directives do not authorize use of unapproved or uncontrolled technical data of any kind. The procedures as documented in this manual will be carefully followed and supported to ensure products and services meet all technical requirements.

7.3.2.2. Ensures all MWRs are processed through the MWR system process.

7.3.2.3. Serves as chairperson of the PPT.

7.3.2.4. Ensures development, preparation, revision, and review of WCDs and definitized lists, and the accuracy of their technical contents. When informed of technical data, SOW, and work scope changes, WCDs will be reviewed and updated as required.

7.3.2.5. Notifies the scheduling function, production supervisor, and engineering function as appropriate when revisions are made to WCDs that directly impact the form, fit, or function of the operation process.

7.3.2.6. Performs a review and update of WCDs when work scope, technical data, or engineering changes are processed with the applicable PPT members to ensure they contain all steps necessary for tasks/operations performed by the mechanics. The IET (maintenance planner) will review affected WCDs to ensure accuracy and currency. Review of WCDs will include confirmation of the availability of complete and accurate technical data, that the work process complies with all applicable requirements, and validation of inspection codes. This review will be documented on AFSC Form 500.

7.3.2.7. Maintains an electronic or hard copy file of all WCD change requests (i.e., AFSC Form 957) IAW paragraph 1.12.1.

7.3.2.8. Shall access the applicable AFSC Form 561, *Process Order*, (or equivalent) either electronically or hard copy.

7.3.2.8.1. After the appropriate process engineer develops/approves the process order and ensures a validation/verified was performed, the IET (maintenance planner) shall ensure the process order number is identified on the required WCD/ task operation.

7.3.2.9. Participates in the AFMC Form 202 process and maintains documentation, electronically or hard copy, as required by AFMCMAN 63-1202.

7.3.2.10. Maintains and stores the latest electronic or hardcopy WCD/work package.

7.3.2.11. Electronic Reviews. Reviews without hard copies are authorized and encouraged as long as the accuracy and integrity of the documents can be maintained and the minimum documentation is accomplished as required by this and other applicable instructions. The process must have sufficient built-in safeguards (e.g., PINS, electronic signatures, passwords, firewalls, etc.) to ensure system integrity and security are

maintained and that a reliable audit trail is maintained. The records must be maintained as prescribed in AFRIMS.

7.3.3. Production Supervisor shall ensure:

7.3.3.1. Subordinates are familiar with the directives governing their duty assignments.

7.3.3.2. The most recent authorized technical data is used.

7.3.3.3. Personnel are advised of any significant changes in new, revised, or changed technical data.

7.3.3.4. Emphasis is placed on all changes that are critical or safety related (i.e., cautions/warnings).

7.3.3.5. New, revised, or changed technical data is reviewed to determine if it affects the qualifications/certifications of personnel and the entries on the WCDs or definitized lists.

7.3.3.6. If these areas are impacted, steps are taken to bring both personnel and WCDs into conformance with the new requirements. The supervisor shall notify the training and planning organizations of any significant changes.

7.3.3.7. Attendance at the PPT meeting.

7.3.3.8. Assistance in the development of WCDs as needed.

7.3.3.9. Review of the WCD/work package documentation for confirmation of inspection and certification codes IAW requirements and critical tasks/operations.

7.3.3.10. Identification and review of PAC tasks and secondary certification requirements on the WCD for accuracy. Coordinate with the Group PAC Manager to ensure PAC tasks relate to the work described in the WCD operation task description block.

7.3.3.11. Review of new, revised, or changed publications. Provide recommendations to the planning team concerning revisions to WCDs.

7.3.3.12. Availability of required technical data in the work center.

7.3.3.13. Review of completed WCDs for accuracy and completeness. Ensure all rework documentation is attached if applicable. Ensure completed WCDs and all required supporting documentation are available to the Production Controller/Scheduler.

7.3.3.14. In conjunction with the Production Controller, prepare routing documents when none are preprinted.

7.3.3.15. Notification to QA prior to accomplishing tasks/operations requiring ‘Q’ stamp.

7.3.4. Maintenance Technician/Mechanic shall:

7.3.4.1. Certify completion of a PAC inspection/certification coded task by stamping and dating the WCD. When a task/operation listed on a WCD is not or will not be accomplished, an annotation of not required (NR), not applicable (NA), previously complied with (PCW) or satisfactory as is (SAI), will be indicated in the applicable task/operation description block. The IET (maintenance planner) is the only one authorized to delete a planned requirement for any planned/unplanned operation for aircraft/missiles or commodities.

7.3.4.1.1. Any aircraft specific technician annotating on a WCD an operation as NR, NA, PCW, or SAI, will notify the Production Supervisor or IET (maintenance planner) so the applicable task/operation can be deleted as required. Place an informational note in the task description block explaining why the task was not accomplished. The technician will stamp and date the WCD in the task description block, not the PAC certification block. When a task/operation listed on a WCD is NR, NA, PCW, or SAI, the planner will stamp and date in the applicable task/operation block, not the PAC certification block. The IET (maintenance planner) is not required to stamp individual steps identified as NR, NA, PCW, or SAI on definitized guides.

7.3.4.1.2. (Exchangeables/Local Manufacture Only). For MISTR and temporary 206 workloads, the supervisor or IET (maintenance planner) is not required to be notified. The MISTR/temporary workload which has 100 percent mandatory operations requiring a WCD modification of NR, NA, PCW, or SAI, the technician will annotate the WCD operation as NR, NA, PCW, or SAI, and will provide explanation why the operation was not accomplished, stamp and date the WCD in the task/operation description block, not the PAC certification block. For WCDs which are not 100 percent mandatory and is governed by inspection criteria that have required/not required blocks on the WCD, do no need to provide annotation to the operation. The technician will stamp the appropriate required/not required block.

7.3.4.2. When a WCD contains consecutive operations that will not be required, a large hand scribed ‘Z’ shall be lined out through the operations. The mechanic shall include within the ‘Z’ a statement describing the reason the marked out operations are not required. The technician will stamp and date beside the statement.

7.3.4.3. All stamps and dates on WCDs must be clear and legible. Any date format is acceptable providing the date can be determined. The month may be identified using alpha or numerical characters (e.g., Jan, Feb, Mar, or 01, 02, 03, etc.).

7.3.4.4. A technician who makes a documentation error, or stamps or dates a WCD illegibly or in error, shall write in red ‘VOID’ across the impression. The technician shall enter the correct documentation and re-enter a legible stamp or date.

7.3.4.5. Submit a ‘Request for Change to WCD’ to Planning through the supervisor for WCD discrepancies using AFSC Form 957.

7.3.4.6. Initiate a WCD/MWR or notify the supervisor when stumble-on (unpredictable, unplanned) tasks/operations are identified to ensure a WCD is created to identify all disturbed systems and follow-on maintenance actions.

7.3.4.7. Document the AFTO Forms 781 and other aircraft forms IAW TO 00-20-1 when required.

7.3.4.8. Notify supervisor prior to accomplishing tasks/operations requiring ‘Q’ stamp.

7.3.5. Production Controller/Scheduler shall:

7.3.5.1. Serve as a member on the PPT when requested.

7.3.5.2. Purge in-process WCDs and reprint when notified by the IET (maintenance planner).

7.3.5.3. Receive completed WCDs and retain electronically or hard copy in an auditable file IAW paragraph 1.12.1. **Note:** In areas that have a Records Section, production controller/scheduler will forward completed WCDs to the Records Section where the documents will be retained electronically or hard copy IAW paragraph 1.

7.3.5.4. Prepare, in conjunction with the Production Supervisor, routing documents when none are preprinted.

7.3.5.5. Enter item serial number on the WCD when the item is delivered for work when applicable.

7.3.5.6. Distribute and receive WCDs when applicable.

7.3.5.7. Review, stamp (Scheduler 'C' stamps), and date the completed WCDs to ensure all required certification blocks have been stamped and dated. If the WCD is not complete or contains documentation errors, notify the production supervisor for correction. The scheduler will not process D6M (i.e., sell) transaction for end items prior to reviewing and 'C' stamping WCDs. A local procedure can be developed for aircraft process (for the amount of time for the scheduler to complete).

7.3.5.8. Local procedures can be developed for scheduler to review multiple '173 cards' and stamp/date on one '173 card' to certify review.

7.3.6. QA will:

7.3.6.1. When required, serve as a member of the PPT and assist in the development of the WCD by identifying quality (Q) inspection code and any other quality requirements contained in the QAP for that workload.

7.3.7. ALC Production/Process Engineering will:

7.3.7.1. Provide input to the PPT for the development of the WCDs by identifying critical characteristics used in the identification of critical tasks/operations for that workload including those associated with CSIs.

7.3.7.2. Attend or designate a representative to the PPPT and PPT meetings.

7.3.7.3. Prepare and maintain Process Orders.

7.3.7.3.1. Process Orders (i.e., AFSC Forms 561 or equivalent) are locally developed technical data used at the ALCs. The intent must not be to develop and use AFSC Forms 561 (or equivalent) in lieu of official technical data that is available and can be used. If the Process Order coordination process creates a work stoppage, group engineering will notify the production supervisor/IET (maintenance planner) to initiate an AFMC Form 202. A Process Order may be developed:

7.3.7.3.1.1. When there is a unique requirement to describe specific applications, procedures, techniques, shop practices, and methods to complement approved technical data.

7.3.7.3.1.2. To establish procedures for locally designed equipment, fixtures, templates, etc.

7.3.7.3.1.3. To establish procedures for equipment operation where COTS manuals are not available or are inadequate.

7.3.7.3.1.4. To combine requirements from multiple sources of technical data into one procedure from existing technical data.

7.3.7.3.1.5. To establish alternative procedures to prevent production delays due to the configuration of the aircraft, missile, or commodity during depot maintenance (i.e., systems/components inoperable or disassembled for long periods of time).

7.3.7.3.2. When Process Orders exceed the maximum number of pages, an attachment may be used to continue the Process Order.

7.3.7.3.3. Development of Process Orders. The appropriate engineering organization shall use AFSC Form 561 (or equivalent) to develop Process Orders. Process Orders will be controlled as technical data in production areas. The applicable engineering organization shall maintain the Process Order master file. The Process Order number will be determined locally. A Process Order shall be prepared IAW **Figure 7.1.**

7.3.7.3.4. The applicable process engineering organization and the PPT shall determine Process Order requirements. The applicable process engineering organization is the OPR for the development, control, monitoring, distribution, and deletion of Process Orders. Engineering can request technical expertise from organizations as required. For mandatory coordination and signatures of Process Orders, reference **Figure 7.1**. Coordination office and signatures from applicable organizations will be annotated on the Process Order. Electronic coordination is authorized for all coordinating and approving officials.

7.3.7.3.5. If a Process Order contains verbatim TO information, the Process Order will be reviewed each time the subject TO is changed for currency. If the Process Order does not contain verbatim TO information, the Process Order will be reviewed every two years for currency. The OPR will update process orders as required and the distribution function will update the master Process Order index.

7.3.7.3.5.1. A Process Order containing verbatim technical data information shall have the technical data number, basic date, change date, and change number identified on the first page of the AFSC Form 561 in block 11with the heading of 'Technical Data Reference'.

7.3.7.3.6. When technical data is changed, the engineering organization shall initiate a review within fifteen working days of when the change is formally posted to the applicable technical data. If the technical data change results in a change to the Process Order, the following statement or equivalent shall be entered on the AFSC Form 561 at the top of block 11 with '**Note:** Process Order Updated Due to a Technical Data Change.'

7.3.7.3.7. The Process Order shall be updated to reflect the latest technical data change dates and change numbers even if there were no changes affecting the procedures contained on the process order. If no Process Order procedures have been affected, process engineers may update the title page with technical data version date and change number without recoordinating the entire Process Order.

7.3.7.3.8. Process Orders containing technical data (i.e., torque values, dimensions, tolerances, and specifications) shall be monitored to ensure that when technical data

changes are made the applicable Process Order is reviewed and updated. Engineering, planning, and production are responsible for reviewing technical data changes and determining the impact to Process Orders.

7.3.7.3.9. Process Orders shall not compromise form, fit, or function of an aircraft/missile or commodity.

7.3.7.3.10. Local procedures may be developed for Process Engineers to make Process Order 'Red Line' Changes.

7.3.7.3.11. The applicable process engineering organization will ensure the Process Order contains the required 'Warnings, Cautions, and Notes'.

7.3.7.3.12. Process Order Scientific and Technical Information (STINFO) Markings. Process Orders shall contain on the front page a Distribution Statement, Export Control Warning, and Destruction Notice.

7.3.7.3.12.1. Distribution Statement. If the Process Order is tied to a TO, use the same stringent distribution statement as the TO. If the Process Order is tied to more than one TO, use the most stringent distribution statement among the TOs. If the Process Order is not tied to a TO or any other document incorporating a distribution statement, the developing engineering office will assign the appropriate distribution statement. Reference TO 00-5-1 to determine and assign the applicable distribution statement.

7.3.7.3.12.2. Export Control Warning. Use 'WARNING—Export Controlled'.

7.3.7.3.12.3. Destruction Notice. Use 'Destruction Notice—Destroy by any method that will prevent disclosure of contents or reconstruction of the document.'

7.3.7.3.13. Prior to Process Order formal implementation and distribution the applicable engineering organization will schedule a formal Process Order validation/verification (VAL/VER). The VAL/VER will be performed by production and requires 100 percent hands-on performance of all procedural (e.g., operational, maintenance, calibration, equipment set-up, etc.) tasks contained within the Process Order. The Process Order VAL/VER will be documented and maintained by the applicable engineering organization IAW paragraph 1.12.1. **Note:** Process Orders developed prior to this change are exempt from performance of VAL/VER as the Process Orders have been in use in maintenance production areas.

7.4. Stamps.

7.4.1. Electronic Stamps. AFSC approved computer systems generated WCDs without hard copies are authorized and encouraged as long as the accuracy and integrity of the documents can be maintained and the minimum documentation is accomplished as required by this and other applicable instructions. ADPSs that have the capability, electronic completion, and certification of WCDs shall include PAC and supervisory certifications. These systems must have sufficient built-in safeguards (e.g., PINS, electronic signatures, passwords, firewalls, etc.) to ensure system integrity and security are maintained and that a reliable audit trail is maintained. The records shall be maintained IAW AFRIMS.

7.4.2. Stamps are issued to maintenance personnel to denote status on WCDs. Maintenance stamps will be issued to maintenance personnel to certify, by stamping and dating, that the work has been accomplished and completed as required by specified technical data. At any instance that a maintenance stamp is used, the stamp impression will be dated.

7.4.3. Procedures to maintain control of maintenance stamps will include, at a minimum, the following:

7.4.3.1. Designation of the organization responsible for issue and control of stamps. List the responsibilities of the organization's Stamp Monitor.

7.4.3.2. Administrative procedures/criteria for request, issue, control, accountability, revocation, and recall of stamps.

7.4.3.3. The requirements for documenting request, issue, receipt relocation, loss, and annual inventory of stamps.

7.4.3.4. Procedures and responsibilities for performing an annual inventory of stamps.

7.4.4. Only stamps issued and controlled through the organization Stamp Monitor will be used for the certification/verification of depot maintenance.

7.4.5. The stamps listed below have mandatory issue and use requirements, and may only be issued to and used for the purpose specified.

7.4.5.1. (M) Maintenance Stamp. A stamp issued to production maintenance personnel for certifying accomplished maintenance tasks. (M) stamps will not be used to certify work unless the mechanic has met all required qualification and training requirements identified under the PAC Program.

7.4.5.2. (C) Scheduler Stamp. Issued to the scheduler to ensure all required certification blocks have been completed.

7.4.5.3. (N) NDI Stamp. Issued to NDI PAC certified mechanics. Mechanics must be trained and qualified in NDI maintenance tasks prior to being issued an (N) stamp.

7.4.5.4. (P) Production Supervisor Stamp. Issued to production supervisors to certify or change inspection codes on maintenance WCDs. Stamps are required for WCD related responsibilities.

7.4.5.5. (IET) Planning Stamp. Issued to the IET (maintenance planner) to verify or change requirements on maintenance WCDs. Stamps are required for WCD related responsibilities.

7.4.5.6. (T) Test Technician Stamp. Issued to qualified and PAC certified test operators whose function is to test weapon systems components IAW technical data, specification, safety, and other applicable directives.

7.4.5.7. (Q) Quality Stamp. Issued to the QAS to ensure certification and verification of inspection, when required, on WCDs are complete. Stamps are required for WCD related responsibilities.

7.4.5.8. (MRT) and (PAO) Stamps. Stamps are issued to designated members of the MRT to certify authorization for work. Hand scribed AFSC Form 173 WCDs are not considered approved and cannot be used to perform maintenance unless stamped and

dated by the MRT or IET (maintenance planner). Electronic signatures and dates using PDMSS are acceptable.

7.4.5.9. (FI) Final Inspector Stamp. A stamp issued to select commodity subject matter experts that are skilled technicians, trained on AFSCI 62-100 AFSC Military Repair Station Program and applicable Federal Aviation Administration (FAA) requirements. FI inspectors are responsible to inspect and verify proper repair/overhaul of Military Repair Station (MRS) components that require FAA certification. MRS components must be stamped by an FI inspector to be deemed serviceable. (FI) stamps certifies the repaired/overhauled component meets MRS and FAA airworthiness requirements and is returned to service. All FI inspectors shall be listed on a special certification roster.

7.4.5.10. (RII) Required Inspection Item. A stamp issued to select aircraft Quality Assurance Specialists that have been trained on AFSCI 62-100 AFSC Military Repair Station Program and applicable Federal Aviation Administration (FAA) requirements. RII inspectors are responsible to observe critical tasks that, if not performed properly, or is done with improper parts or materials, could result in a failure, malfunction, or defect, endangering the safe operation of the aircraft. RII tasks are determined by the organization and identified on a RII List specific to the affected FAA certified Commercial Derivative Aircraft. RII inspectors will stamp the WCD along with technicians upon satisfactory completion of task. RII tasks cannot be waived. All RII inspectors shall be listed on a special certification roster.

7.5. Technical Order Distribution Office (TODO). The TODO ensures TOs are managed IAW AFPD 63-1/20-1, *Integrated Life Cycle Management*, AFI 63-101/20-101, and TO 00-5-1. Criteria for establishing levels of TO distribution activities is provided in TO 00-5-1.

7.5.1. TODO offices shall control electronic technical data configuration.

7.5.2. A TODO will be assigned to administer technical orders for the Type IIA Contract PMEL and Metrology and Calibration Flight.

Table 7.1. Instructions for AFSC Form 959 (Electronic or Hand Scribed).

Mandatory entries are identified as REQUIRED. The following information will be entered in the appropriate blocks.		
BLOCK #	**TITLE**	**CONTENT**
1	Date	REQUIRED: Enter Date
2	Job Order Number	REQUIRED: Enter the control number and job designator (the three digits JON suffix will be inserted when the item is scheduled for work).
3	Quantity	Enter the quantity.
4	Production	REQUIRED: Enter the symbol for the responsible.
5	Date Scheduled	REQUIRED: The scheduling function or the mechanic enters the date when the items are placed into work.
6	Date Completed	REQUIRED: The scheduling function or the mechanic enters the date after the work is

		complete.
7	Part Number	Enter the part number. When the WCD is for more than one part then all part numbers, NSNs, and production numbers can be listed, blocks 12 and 17 can be used for continuation. When multiple part numbers are listed, the scheduling function designates part number, NSN, and control number combination for the item by circling the appropriate part when block five is completed.
8	Tech Data	REQUIRED: Enter the primary technical data source. Independent technical data that does not fall under the primary will be entered in block 17.
9	Item Serial Number	Leave blank. The scheduling function enters the serial number.
10	Mission Design Series	REQUIRED: Enter the MDS when the item is routed from an aircraft, engine, or other major end item.
11	Stock Number	Enter the complete stock number to include the Materiel Management Aggregation Code (MMAC) if applicable If not stock listed, so state.
12	Optional	Optional. Specify in local instructions.
13	Serial Number	REQUIRED
14	Noun	Enter the nomenclature identifying the item.
15	Dispatch Station Skill Code	Enter the dispatch station number. When routed to more one building, include building numbers. REQUIRED: Enter skill code for the task being performed.
16	PDN/OP Number	REQUIRED: Enter the performing RC/CC if different from block 4 and Ops numbers from labor plan. Do not duplicate numbers.
17	Work to be Accomplished	Enter the description of work and if applicable, technical data and usage. Secondary certification task must be listed separately.
18	Mechanic	REQUIRED: PAC certification codes M&N and inspection codes E&I. The mechanic stamps and dates after completion of the operation/task. When task is administrative in nature, an X code will be designated.
19	P	Supervisor verification P stamp will be entered when required. The supervisor stamps and dates at the completion of the required inspection/verification. Secondary certification block for E&I codes. The mechanic stamps and dates at the completion of the operation/task.
20	Q	Quality Inspection code Q. The QAS stamps and dates at the completion of the required

		inspection/verification.
21	Final Destination	Enter the destination or dispatch station and functional code of the RC/CC responsible for disposition of routed items.
22	Coordination/Initiating	REQUIRED: Enter the office symbol date, and RC/CC signature/Date signature of the PPT representative.
23	Document S/N	Enter the serial number of the Form as required. Sequential numbering may be used or this number may be used along with the publication date to control form revisions. It can also be used for suspense or other tracking purposes.

Note: All operations/tasks must be certified as complete by stamping and dating in the appropriate blocks. The IET (maintenance planner) is the only one authorized to delete or negate a planned requirement. The IET (maintenance planner) will annotate, stamp, and date the WCD in the task description block.

When a task listed on a WCD is not or will not be accomplished, an annotation of Not Required (NR), Not Applicable (NA), Previously Complied With (PCW), or Satisfactory As Is (SAI) will be indicated in the applicable task description block. Any aircraft specific technician or mechanic annotating on a PDMSS WCD an operation as NR, NA, PCW, and SAI will notify Production Supervisor or IET (maintenance planner) and place an informational note in the task description block explaining why the task was not accomplished. The technician or mechanic will stamp and date the WCD in the task description block, not the PAC certification block.

Any person other than the IET (maintenance planner) will identify the PDN or OPS number in the next open line (i.e., Block 16) and provide a brief statement as to why in Block 17.

When the electronic generated version of the AFSC Form 959 does not have block numbered and arranged as described above, local procedures should be developed to ensure essential elements are captured and accountability is maintained by the creation of a complete audit trail.

Table 7.2. Instructions for Completing Unpredictable/Hand Scribed AFSC Form 173.

The instructions provided below are the mandatory and basic requirements for completing a hand scribed (pen and ink) AFSC Form 173. These instructions will also apply for the same elements and data fields for an unpredictable AFSC Form 173 when it is generated through an approved AFMC data system (i.e., PDMSS (G097). When the electronic generated version of the AFSC Form 173 does not have blocks numbered and arranged as described above, local procedures should be developed to ensure essential elements are captured and accountability is maintained by the creation of a complete audit trail. Mandatory entries are identified as REQUIRED and are identified specifically when required. Any person initiating an AFSC Form 173 should make every effort to complete as many blocks as possible when knowledgeable of the requirement.

BLOCK #	**TITLE**	**CONTENT**
1	DATE	REQUIRED – INITIATOR. Date initiated.
2	SKILL CODE	REQUIRED - Primary skill code required to complete 2 the task/operation.

3	OPERATION NUMBER	REQUIRED - SCHEDULER. Operation number will be unpredictable or O&A as determined by the MRT.
4	WPN ID	REQUIRED - Job Order Number for the aircraft.
4A	FUND CD	AS REQUIRED
5	STANDARD HOURS	REQUIRED - PLANNER: Planner reviews defect, verifies data, checks for follow-on maintenance, and applies an estimated standard.
6	TYPE	AS REQUIRED
7	NO. WKRS	REQUIRED - Number of workers required to do the task.
8	AREA	Location of discrepancy on the A/C.
9	MAT	AS REQUIRED
10	CONTROL NO.	AS REQUIRED
11	JD	AS REQUIRED
12	WORK CATEGORY DESCRIPTION	REQUIRED - Work Category Description (Unpredictable, O&A, Shakedown, etc.)
13	WK CAT CD	AS REQUIRED
14	MAJ JOB	AS REQUIRED
15	CREW CODE	AS REQUIRED
16	MISSION DESIGN SERIES	AS REQUIRED
17	ACFT SERIAL NO	AS REQUIRED
18	ACFT TIME	AS REQUIRED
19	RESOURCE CONTROL CENTER	REQUIRED - Resource Control Center (coincides with skill).
20	TY MA	AS REQUIRED
21	STD RPTING DESG	AS REQUIRED
22	DATE COMPLETED	MECHANIC. Numeric Day, Month, Year (DD/MM/YY).
23	WORK UNIT	REQUIRED - 5 digits, alphanumeric code used to identify the system (SYS), subsystem (SUB), and component (C) which are being worked.
24	ACT	AS REQUIRED
25	WHEN DISC	AS REQUIRED
26	HOW MAL	3 digit numeric code used to describe the equipment malfunction.
27	NO. UNITS	AS REQUIRED
28	WK SPEC	AS REQUIRED
29	INSP CODE	REQUIRED - SUPERVISOR/MRT PLANNER: PAC certification code.
30	FAC CD	System Requirement for Capacity Utilization.
31	DESCRIPTION STAMP	REQUIRED - INITIATOR: Detailed description of discrepancy and technical data reference.
32	ACTUAL HOURS	AS REQUIRED

33	DRAWING NO.	AS REQUIRED
34	DETAIL PLAN	AS REQUIRED
35	DELAY CODE	AS REQUIRED
36	MECHANIC	REQUIRED - PRODUCTION MECHANIC: PAC Code identified in Block 29 indicates level of certification/inspection required. The mechanic stamps and date after completion of the operation/task.
37	PRODUCTION CERTIFIER	REQUIRED - PRODUCTION MECHANIC: When PAC Code identified in Block 29 indicates Secondary Certification required. The mechanic stamps and dates after completion of the operation/task.
38	QUALITY INSPECTOR	Quality Q stamps and dates at completion of verification/inspection when specified in Block 29.
39	SCHEDULER	REQUIRED - SCHEDULER: Stamp and date document after verification to indicate that all required entries been completed and certification blocks have been stamped as required.
40	NO.	REQUIRED - INITIATOR: Name. Mechanic, Planner, Supervisor.
41	ENG TIME	AS REQUIRED
42	ENG SERIAL	AS REQUIRED
43	YR/MFR	AS REQUIRED
44	ENG MOS/TMS	AS REQUIRED
45	TCTO CODE	AS REQUIRED
46	INSTALL/REMOVE	AS REQUIRED
47	ITEM	AS REQUIRED
48	PART NO.	AS REQUIRED
49	ITEM SERIAL NO.	AS REQUIRED
50	ITEM TIME	AS REQUIRED

Figure 7.1. Guidelines for Preparing a Process Order.

Purpose - A brief reason for the process order.
Scope - Describe the scope.
General Information - This section provides information about the overall process. Process orders are either oriented to a specific process or to a component. Content depends upon the complexity and criticality of the process. If a process order contains verbatim technical data information, the technical data number, basic date, change date, and change number shall be identified on the first page of the AFSC Form 561 in block 11 instructions under the heading 'Technical Data Reference'. Suggested content for these two kinds of process orders is as follows:
Process oriented:
- Process references.
- Military/commercial standards that apply.
- Quality plan.
- Other directives and operating procedures that applies.
- The typical production sequence or flow.
- The method or procedure to qualify the process (e.g., first article, certification team, etc.).
- Process controls that will be used.
- The method and frequency of sampling.
- Specific quality requirements.
- Limits for product characteristics.
- Any general parameters that apply.
- Equipment.
- The equipment capabilities and work environment.
- The installation requirements and qualification.
- Preventive maintenance requirements.
- The procedure for qualification of the process and approval methodology.
- List of process operation sheets and/or other procedure specifications.
- Non-conforming material or process results.

Purpose - A brief reason for the process order.
Scope - Describe the scope.
General Information - This section provides information about the overall process. Process orders are either oriented to a specific process or to a component. Content depends upon the complexity and criticality of the process. If a process order contains verbatim technical data information, the technical data number, basic date, change date, and change number shall be identified on the first page of the AFSC Form 561 in block 11 instructions under the heading 'Technical Data Reference'. Suggested content for these two kinds of process orders is as follows:
Process oriented:
- Process references.
- Military/commercial standards that apply.
- Quality plan.
- Other directives and operating procedures that applies.
- The typical production sequence or flow.
- The method or procedure to qualify the process (e.g., first article, certification team, etc.).
- Process controls that will be used.

- The method and frequency of sampling.
- Specific quality requirements.
- Limits for product characteristics.
- Any general parameters that apply.
- Equipment.
- The equipment capabilities and work environment.
- The installation requirements and qualification.
- Preventive maintenance requirements.
- The procedure for qualification of the process and approval methodology.
- List of process operation sheets and/or other procedure specifications.
- Non-conforming material or process results.
- List of applicable Process Operation Sheets (POS) and/or Procedure Specifications.

Component oriented:
- Title.
- Name of part/process POS as applicable.
- Date of original issue.
- Reaffirmed date.
- Revision number.
- The part numbers the process order supports.
- The technical data that applies.
- Clear and concise instructions on how to perform the operations on the components (**Note:** All requirements must be consistent with the applicable technical data).
- Any critical considerations or other workmanship criteria (secondary certification may be required on the WCD).

Procedure: This is the how-to instruction to include cautions and warnings that apply.
- Title.
- Name of part/process POS as applicable.
- Date of original issue.
- Reaffirmed date.
- Revision number.
- The part number applicable.
- TO reference will be identified to the specific TO paragraph when verbatim information is utilized.
- Specific component repair equipment parameter settings.

Safety Notes: Identifies any steps or materials that present safety hazards to include environmental impact.

Coordination: List the coordination required for the process order.

Not necessarily in this order, however as a minimum, the following organizations will coordinate, sign, and date the process order:
- Production
- Planning
- Quality Assurance
- Safety
- Applicable Engineering Organization

- As required, other organizations may be requested to coordinate, sign, and date the process order.
Local procedures shall be developed for the coordination of electronic generated Process Orders and WCDs.
The completed process order is approved by the applicable process engineer of the responsible engineering function by signing block 13. This organization is the OPR for the process order.

Table 7.3. Inspection/Certificate Codes.

The codes identified below are the only inspection/certification codes authorized for use on depot maintenance WCDs or enter maintenance stamp number on electronic WCDs. Any maintenance personnel that certify depot maintenance WCDs will stamp and date each required certification. Stamp impression must be legible and will not obliterate any other stamp impression already applied to the document. Only stamps issued by the applicable organization Stamp Monitor will be used for the certification of depot maintenance WCDs (**See Note 1**).

Code	Description
M	Requires certification by ONE PAC Certified Mechanic.
E	Requires certification by TWO PAC Certified Mechanics. For end product certifications.
I	Requires certification by TWO PAC Certified Mechanics. For in-process certifications.
N	Requires certification by ONE NDI PAC Certified Mechanic.
Q	Requires certification by ONE QA Specialist for inspection/verification.
D	Identifies required review by a Defense Contract Management Agency (DCMA) inspector/evaluator.
X	Certification not required. This code will be used for tasks that are administrative in nature. This code will NOT be applied to any maintenance task. Tasks that are administrative in nature include but are not limited to those that are: informational in nature, used for scheduling (trigger operations) tasks, non-maintenance related time tracking, etc. When the X certification/verification code is used the technical data usage statement 'No Technical Data Required', or equivalent, does not have to be annotated on the WCD.

Note:
1 - Dual inspection codes are acceptable
2 **-** On tasks/operations where secondary certification has been determined, the E code is used when technical data conformance can be verified after work completion. The I code is the most critical of all inspection/certification codes and shall not be skipped over to perform another dependent operation. The I code is used when technical data conformance cannot be verified after work completion.

Table 7.4. Instructions for Completing an AFSC Form 500.

The instructions provided below are the mandatory and basic requirements for completing AFSC Form 500.		
BLOCK #	**TITLE**	**CONTENT**
	Date	Enter date in upper right hand Block.
1	Identify WCD Control Number(s)	Enter the task, Operation(s) and/or product number (PDN), i.e., 67387A, 00069B. If PDN has not been assigned by 801/206, enter – TBDI and the NSN, P/N Weapon System.
2	Identify WCD Number/Operations(s)	Enter the DCD and/or WCD number, i.e., Y0001R, I000D. If child WCDs are supporting a master/parent WCD in block 1, enter supporting child WCD control number in Block 2. (**See Note 1**)
3	Primary Format Used	Select appropriate box. If the system is not listed, select OTHER and enter system in the next Block, i.e., MPCS (D012).
4	Planning Reason	Select appropriate box to indicate type meeting. If not listed, select OTHER and enter type in next Block.
5 - 9	Check appropriate box for each question	Select appropriate box to the right of each question. If additional questions and/or information are required other than those in Blocks 5 – 9, annotate in Block 9. Justification N/A or NO selection for Blocks 5 – 9 can also be annotated in Block 9.
10	Comments	Annotate all PPT/PPPT supporting documentation and detailed meeting information, (e.g., PPPT/PPT Chairperson name, document changes to WCD, critical tasks/operations and justification, IAW TO info, tools, manpower, equipment, labor hours, AFMC Form 202s, AFTO Form 252s, process orders, etc.). Annotate in the block the list of attendees. (**See Note 2**)
11	Identify PPT Names and Phone Numbers	Electronic/manual signature is authorized. Each electronic AFSC Form 500 will contain entire name and contact phone number, select CONCUR, NONCONCUR or N/A, and sign and date electronically. The last member to sign electronically will email AFSC Form 500 to the appropriate planner. For hand scribed AFSC Form 500, each PPT/PPPT member will enter name and contact phone number, select CONCUR, NONCONCUR or N/A, and sign and date.

		The last member to sign will submit form to the appropriate planner.

Note:
1 – Separate AFSC Form 500 maybe developed for each child WCD.
2 - Date can be entered in the 'NAME' block along with name or 'CONTACT PHONE' block along with phone number. AFSC Form 500 must be signed and dated to be considered complete. If Block 10 is accomplished manually, please ensure all blocks are completed and that it is signed and dated in the 'SIGNATURE' block. Also, PAC manager/monitor can sign in Block 10 if required.
3 – List of attendees: Date can be entered in the 'NAME' block along with name or 'CONTACT PHONE' block along with phone number. Then click 'EMAIL' button at top of form which will set up an email with the AFSC Form 500 as attachment to send to next 'PPT' member. AFSC Form 500 must be signed and dated to be considered complete. If Block 10 is accomplished annually, please ensure all blocks are completed and that it is signed and dated in the 'SIGNATURE' block. If all signature blocks are filled and there is a requirement for the PAC manager/monitor to sign the AFSC Form 500 then they may sign in Block 10h, 'Other' if required.

Chapter 8

QUALITY ASSURANCE PROGRAM QUALITY ASSURANCE (QA)

8.1. General. Maintenance process/product quality and equipment reliability is the responsibility of all maintenance personnel. The combined efforts of QA personnel, maintenance leaders, and technicians are necessary to ensure high quality maintenance production and equipment reliability. The QA staff evaluates the quality of maintenance accomplished and performs necessary functions to manage the Maintenance Standardization and Evaluation Program (MSEP). The MSEP provides an objective sampling of the proficiency of maintenance personnel, and the compliance MSEP focus areas, programs, and processes. QA serves as the primary advisory agency in the maintenance organization, assisting maintenance supervision at all levels to resolve quality problems. The evaluation and analysis of deficiencies and problem areas are key functions of QA that highlight and identify underlying causes of poor quality in the maintenance production effort. Aircraft, major end items, and equipment condition as well as personnel proficiency are validated through the MSEP and shall be recorded using an approved QA database. QA personnel assigned to evaluate 583d MMXS GSU sites have unique challenges. QA personnel must objectively inspect in-garrison and field level operations as well as depot centric processes specific only to the 583d MMXS mission. The 583d MMXS units rely on 'two-deep' GS-1910 civilian inspectors geographically separated from the parent complex. Additionally the inspectors provide the 583d MMXS units with inspection results, policy guidance, and report results and findings to the OO-ALC.

8.2. AFSC Depot Maintenance Quality Program. Quality is defined as conformance to established requirements and standards. QA is a process that provides adequate confidence that controls are in place to ensure products, processes, and services conform to established requirements/standards. QA is an integral part of all depot maintenance activities. QA efforts will focus, as a minimum, on conformance of products, processes, and services to technical and safety requirements/standards, improvement of depot maintenance processes, the prevention of product and service deficiencies, and customer satisfaction. Deficiencies that occur, both internal and external, will be analyzed to identify trends, deficient processes, and systemic problems. Analysis and recommendations will be presented to appropriate production management for their review and required action to prevent recurrence.

8.3. Maintenance Standardization and Evaluation Program (MSEP). The MSEP is the maintenance component designed to provide unit maintenance managers with a method of evaluating compliance with AF, Lead Command, and local maintenance directives and policies. The ALCs will implement the MSEP using the minimum requirements in AFMCI 21-100.

8.4. Process, Product, Service, and Conformance. Quality conformance is defined as a process, product, or service that meets all established requirements/standards. A conforming process is one operating within process specifications, using conforming materials, and performed by qualified/certified personnel IAW all technical, safety, and other applicable publications. Incoming non-conforming products/materials identified during depot maintenance processes will be reported IAW TO 00-35D-54. QA personnel will assist in identifying and evaluating problems and recommend corrective or preventive actions, as appropriate, to the level necessary for resolution. Identification of problems must be considered as an opportunity to improve both processes and products. Timely corrective and preventive action on customer complaints and feedback is critical and is outlined in TO 00-35D-54.

8.4.1. AFSC Depot Maintenance Quality Assurance Responsibilities.

8.4.1.1. AFSC/LZ shall provide center level policy, guidance, and staff coordination required to operate depot maintenance activities for AF weapon systems.

8.4.1.2. Review results of HQ AFMC inspections and the MSEP for needed policy actions.

8.4.1.3. Ensure development and maintenance of the AFMC Depot Maintenance QA training to support this instruction. This includes the AFMC Depot Maintenance QA Course and the GS-1910 civilian training plan (CTP).

8.4.1.4. Review all maintenance of the Logistics Evaluation and Assessment Program (LEAP) and training necessary for all levels of users to effectively use the program.

8.4.1.5. Participate in the HQ AFMC Quality Assurance Working Group (QAWG). Members include HQ AFMC/A4 and the ALC QA Chiefs. AFSC functionals, AFLCMC, AFSC/EN, and Group QA Chiefs as required.

8.4.1.5.1. Meet annually and participate in monthly teleconferences.

8.4.1.5.2. Act as focal point for issues that impact Depot Maintenance QA functions.

8.4.1.6. Ensure standardization of ALC QA responsibilities.

8.4.1.7. AFSC/CC Responsibilities.

8.4.1.7.1. Establish a Center Quality Program.

8.4.1.8. ALC/CC Responsibilities.

8.4.1.8.1. Provide the necessary resources, support, and authority for the ALC QA functions to support the requirements of this instruction.

8.4.1.8.2. Review QA Summary and Metrics.

8.4.1.8.3. Ensure QA function is an independent function with direct reporting to the ALC/CC.

8.4.1.8.4. Manage as appropriate, FAA Part 145, Repair Station (if applicable), or like FAA processes.

8.4.1.9. ALC QA Chief Responsibilities.

8.4.1.9.1. Provide policy and guidance for the Group level QA and the MSEP.

8.4.1.9.2. Provide quality information to the ALC/CC.

8.4.1.9.3. Work with AFSC and other quality focal points, as necessary, on all applicable quality issues.

8.4.1.9.4. Ensures this manual is supported by ALC Quality Assurance Plans (QAPs) and/or Quality Assurance Surveillance Plans (QASPs).

8.4.1.9.5. Review and approve Group QAPs and/or QASPs to ensure the QAPs and/or QASPs contain all requirements of the ALC Supplement, annually or when major changes, updates, or revisions are made.

8.4.1.9.6. Act as the ALC focal point for higher headquarters (HHQ) inspections and Industry Certification Compliance Inspections when applicable.

8.4.1.9.7. Consolidate, review, prepare, and report QA metrics to the ALC/CC.

8.4.1.9.8. Provide input and support to AFSC/IG and ALC/IG for the Air Force Inspection System and Commander's Inspection Program (CCIP) oversight as required by AFI 90-201, *The Air Force Inspection System*.

8.4.1.9.9. Appoint a LEAP focal point for the ALC.

8.4.1.9.10. Ensure the ALC FOD and Dropped Object Prevention (DOP) Program are properly administered.

8.4.1.9.11. Ensure development and maintain all depot maintenance QA training to include the Depot Maintenance QA Course and the GS-1910 CTP. HQ AFMC/A4M will provide functional approval for all depot maintenance QA training. Identify a qualified instructor for the AFSC Depot QA Course.

8.4.1.9.12. Serve as member of the HQ AFMC QAWG.

8.4.1.9.13. Host cross-feed meetings with Group level QA Chiefs.

8.4.1.9.14. Manage the ALC Impoundment IAW **Chapter 9.**

8.4.1.9.15. Ensure maintenance related local instructions are reviewed by QA.

8.4.1.10. Group Commander/Director Responsibilities.

8.4.1.10.1. Review and take appropriate action on HHQ findings and internal quality assessments, and review and take action on other Group level quality data.

8.4.1.10.2. Review and approve, in conjunction with the ALC QA Chief, the Group QAP/QASP developed/managed by the Group QA Chief.

8.4.1.10.3. Ensure the Group FOD/DOP program is administered IAW **Chapter 13**.

8.4.1.11. Group level QA Chief Responsibilities.

8.4.1.11.1. Develop and manage the Group QAP and/or QASP. Ensure new or changing workload requirements are considered for incorporation into the QAP and/or QASP.

8.4.1.11.2. Provide quality process/product information and analysis to the Group Commander/Director.

8.4.1.11.3. Act as the Group focal point for HHQ inspections, ALC/Group programs, process and product conformance, and reviews.

8.4.1.11.4. Consolidate, prepare, and review Group QA metrics and brief the Group Commander/Director.

8.4.1.11.5. Identify a Group level focal point/manager for all LEAP/local QA Data Systems.

8.4.1.11.6. Manage customer reported defects to include Quality Deficiency Reports IAW TO 00-35D-54.

8.4.1.11.7. Ensure participation in validation and verification of any new or revised Group maintenance processes as required.

8.4.1.11.8. Serve as member of the HQ AFMC QAWG as required.

8.4.2. Implementation Guidance.

8.4.2.1. The ALC QAP/quality manuals are the basic implementation guidance for depot maintenance production and production support quality requirements. These documents will address the following:

8.4.2.1.1. Identify the type (i.e., task, specific item, procedure or process) and minimum number of Personnel Evaluations (PEs), Quality Verification Inspections (QVIs), and Routine Inspections (RIs), Management Inspections (MIs), and Special Inspections (SIs) to be conducted monthly or delegate the requirement to be included in the Group QAP/QASP.

8.4.2.1.2. Define the process for control, routing, and follow-up of the AFSC Form 77, *Request for Quality Assistance (RQA)*, or locally developed form.

8.4.2.1.3. Define the corrective action and preventive action process to be accomplished by production units. Care should be taken to determine root causes of deficiencies rather than simply treating symptoms. The process will, as a minimum:

8.4.2.1.3.1. Include analysis of the defects and actions taken.

8.4.2.1.3.2. Include methods used by QA offices to communicate and cross-feed information to other ALCs.

8.4.2.1.3.3. Include methods used for QA to follow-up on corrective action taken by unit, preventive action, or process changes made to prevent recurrence or new occurrences of similar non-conformances.

8.4.2.1.4. Define requirements for development of QASPs.

8.4.2.1.5. Establish standards for Quality Assessment Results (QAR) ratings.

8.4.2.1.6. Define process and procedures for documenting deficiencies, corrective and preventive action, and follow-up action data into approved QA database.

8.4.2.1.7. Define requirements to analyze quality deficiencies and recommend appropriate corrective and preventive action.

8.4.2.1.7.1. As a minimum, procedures for QA evaluations of internal or external reported deficiencies will be documented to ensure QA conducts a 100 percent review of all major and critical aircraft Acceptance Inspection Deficiency Reports (AIDRs) and Product Quality Deficiency Reports (PQDRs) received through the Joint Deficiency Reporting System (JDRS). The reports may be part of a process review, SI, Management Inspection (MI), AFSO 21 ‘8 Step event’, or QASP adjustment if warranted, or performed as a stand-alone DR investigation.

8.4.2.1.7.2. For CAT II Routine Major Deficiencies inducted for investigation, QA will research and conduct analysis where workmanship or tech-data is identified as the cause. This investigation will be a process review, SI, MI, or

AFSO 21 '8 Step event' in conjunction with organizational leadership to identify root causes, corrective actions, and develop actions to prevent reoccurrence. Possible actions to consider include changes to inspection codes on WCDs, critical task break-out, better PAC task identification, increased training, formal training, structured on the job training (SOJT), changes to technical orders, process orders, and/or increased QA surveillance and possible addition of 'Q' inspection codes to prevent recurrence or no changes to processes recommended. Recommendations will be approved by Group Commanders/Directors. Group/ALC CCs will be briefed quarterly on all workmanship related DRs and related investigations.

8.4.2.2. Quality Assurance Plan (QAP).

8.4.2.2.1. The QAP identifies specific detailed quality processes and procedures relative to a particular group. QAPs provide documentation of a group's day-to-day operational QA procedures. If processes are not defined in the quality manual, the QAP will document these procedures. The QAP includes what shall be accomplished, by whom, when, how, and what documents are used and how they are controlled. QAPs will be reviewed at least annually to ensure currency of existing or new policy requirements to ensure quality program objectives are being met and to introduce improvements to the processes.

8.4.2.3. Quality Assurance Surveillance Plans (QASP).

8.4.2.3.1. The QASP identifies the functions and associated actions performed by a particular group level QA to ensure that requirements are performed IAW specified standards and that an appropriate level of quality activities are in place, operational, and effective.

8.4.2.3.2. QASP Content as a minimum will contain:

8.4.2.3.2.1. Assessment type (i.e., task specific item, procedure, or process), frequency, and minimum number of PEs, QVIs, RIs, MIs, SIs, process reviews, and other assessments to be performed on a recurring basis.

8.4.2.3.2.2. Assessment Areas. For the purpose of planning and conducting assessments, major workloads will be broken down into assessment areas. Assessment areas are defined as segments or portions of a workload, system, component, process, procedure, or subject matter that is investigated, inspected, evaluated, or audited.

8.4.2.3.2.3. Minimum Number of Assessments. The methodology (i.e., American National Standards Institute (ANSI)/American Society for Quality (ASQ) Z1.4, *Sampling Procedures and Tables For Inspection By Attributes*) or rationale used to determine type (i.e., task specific item, procedure, or process) and minimum number of PEs, QVIs, RIs, MIs, SIs, and process reviews to be performed.

8.4.2.3.2.4. A standard is the acceptable quality level (i.e., number of minor defects) that can be considered satisfactory as a process average or conforming to established criteria. An acceptable quality level (AQL)/standard denotes the maximum allowable number of minor findings for any assessment and must be

strict enough that the task, process, or product meets an acceptable level of quality but is not so strict that a QAR-1 rating is unattainable. The AQL/standard is derived from QA performance-based data. The process for determining AQL level will be included in the QASP. Failure to meet an AQL/standard results in the assessment being rated as QAR-3. **Exception:** Reference AFI 11-301V, *Aircrew Flight Equipment (AFE) Program*, and AFI 11-301V1 AFMCSUP for units performing maintenance and configuration requirements of aircrew flight equipment.

8.4.3. QA Training.

8.4.3.1. All QASs, inspectors, and evaluators (i.e., QA personnel) must be trained IAW AFI 36-2650 AFMCSUP, *Maintenance Training*, and training requirements outlined in the AFMC GS-1910 CTP. **Exception:** Ensure AFE QASs are trained IAW AFI 11-301V1 prior to evaluating AFE tasks.

8.4.3.2. All QA personnel must be trained or possess sufficient technical knowledge to effectively perform their duties. QA personnel are not required to be PAC certified on tasks being assessed but must meet any qualification requirements (i.e., mandatory formal training) as defined in **Chapter 21.** Section III of the PAC record will be used to document QAS task qualifications.

8.4.3.3. Core Training Requirements. QA personnel who perform assessments will receive formal classroom training in the following areas:

8.4.3.3.1. The Depot Maintenance Quality Assurance Course will be mandatory training for all GS-1910 QAS and other series performing QA functions.

8.4.3.3.2. Logistics Evaluation and Assessment Program (LEAP). All QA LEAP users will complete the 'LEAP Users Course' or an equivalent. LEAP system administrators, including work center administrators, will complete the 'LEAP Administrators Course'. Users who have previously completed either of the courses do not need to retake the course simply because the course is or was revised.

8.4.3.3.3. The Depot Maintenance Quality Assurance Refresher Course will be mandatory training for all GS-1910 QAS and other series performing QA functions every 3 years.

8.4.3.4. Training Documentation. Training will be tracked in the Training Scheduling System - Production Acceptance Certification (TSS-PAC) as defined in **Chapter 21.**

8.4.3.5. Evaluator Proficiency Evaluation (EPE). A qualified QAS or evaluator shall conduct an EPE on each inspector while they are performing a PE or Quality Verification Inspection (QVI). The EPE will be documented on an AFMC Form 343, Quality Assurance Assessment, and input in to LEAP. Each QAS shall be trained and must pass the EPE on a PE and QVI prior to being qualified to perform unsupervised PEs and QVIs. Subsequent EPEs will be conducted no later than 24 months on a PE and/or QVI. All EPEs must be tracked in TSS-PAC and LEAP. Organizations may increase the frequency of EPEs.

8.4.3.6. QA Augmentation. If a functional area does not warrant a full time position in QA and specialized expertise is warranted, select qualified technicians that are

recommended by management and agreed to by QA to be augmentees. QA must maintain a list of current augmentees. Augmentees must meet all QAS training requirements. Reference **Chapter 1** for additional selection criteria.

8.4.3.7. QA Subject Matter Experts (SMEs). QA may use SMEs for areas without technical expertise. SMEs are to provide technical guidance and understanding, and not to function as a QAS. SMEs will work jointly with a QAS.

8.4.4. Quality Assessments.

8.4.4.1. The following types of evaluations, inspections, and observations support the Quality Program: Personnel Evaluations (PEs), Quality Verification Inspections (QVIs), Routine Inspections (RIs), Special Inspections (SIs), Management Inspections (MIs), Process Reviews, and Isolated Violations (IVs). The quality manual and/or Group QASPs will define procedures and responsibilities for performing the types of assessments listed below:

8.4.4.1.1. Personnel Evaluation (PE). A PE is a direct evaluation of a PAC certified mechanic/technician performing a maintenance task. PEs evaluate/assess a single technician or team of technicians for job proficiency and compliance with technical data requirements during the performance of a specific maintenance task. PEs will be given a QAR rating. QAR ratings will be based on AQL/standards developed and identified in the quality manual, QAP, or QASP as applicable. Each PAC certified mechanic will receive a PE every 24 months with the exceptions of NDI which is 12 months. Failed evaluation will result in a reevaluation within 30 days of recertification of the failed task. Supervisors will notify QA when recertification is accomplished.

8.4.4.1.1.1. QA will provide notice not less than one hour prior to the evaluation. QA personnel will explain the evaluation process and rating criteria. The evaluation starts when the individual or team begins the task or portion of the task to be evaluated, and is completed when the job or previously determined portion of the task is finished. The TO and applicable steps covered in the task evaluation will be included on the AFMC Form 343.

8.4.4.1.1.2. General maintenance practices that relate directly to the task being performed (i.e., tools, equipment, WCDs, safety, technical data, material, FOD/DOP prevention, and training) will be examined during the PE. Other maintenance practices may also be examined as locally determined.

8.4.4.1.1.3. When performing a PE, QA personnel will assess if the technician performed the task as prescribed by the applicable technical data.

8.4.4.1.1.4. QA personnel will provide the technician or team a critique of the PE at its completion. The technician or team's supervisor or designated representative will also be briefed of assessment results.

8.4.4.1.1.5. Personnel must pass a PE on a task that is a core competency of their job and/or a task identified requiring special skills qualification (SSQ). For new personnel or personnel changing job series, conduct a PE as soon as possible but no longer than 120 days from task certification.

8.4.4.1.1.6. The following Performance Evaluation Error Criteria Descriptions are unique to 583d MMXS GSU sites.

Table 8.1. Performance Evaluation Error Criteria Descriptions.

Item	Criteria	Description
1	Code Handling Violation	An error that, as a reasonable expectation, could result in a code compromise (Actual or Credible Possibility).
2	Violation of Two-Person Concept	An error that, as a reasonable expectation, could result in a compromise of a no-lone zone or critical component(s) (Actual or Credible Possibility).
3	Significant Security Violations	An error that, as a reasonable expectation, could result in compromise of the weapon system or subsystem (Actual or Credible Possibility).
4	Custody Transfer	Failure to properly execute custody transfer procedures.
5	Unreliable	A condition which creates an unreliable nuclear weapon or an unsafe or insecure environment as defined in Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 3263.05C, *Nuclear Weapons Technical Inspections*.
6	Conditional	A condition that creates an unreliable missile or missile component.

8.4.4.1.2. Quality Verification Inspection (QVI). An assessment/evaluation of a maintenance procedure, process, product, or portion thereof, while it is being accomplished, or after it has been completed and the task/WCD stamped. While performing a QVI, a PE of a single technician or team of technicians may be evaluated/assessed at the same time. Credit may be taken for both the QVI and PE. However, the QAS must identify their intentions to take credit for both inspections prior to the inspection/evaluation starting. It should be briefed that a failure of one could result in a failure of both inspections/evaluations. QVIs will not be conducted after equipment operation when such operation could invalidate indications of proper job accomplishment. This type of inspection does not require disassembling parts, removal of stress panels, or like actions.

8.4.4.1.3. Quality Verification Inspection Q-Stamp (Q-Stamp). QVIQ requirements must address those tasks affecting safety of flight, having historically high failure rates, and/or based on internal and external trend analysis. The ALCs shall develop, implement, and maintain a standardized process for QVIQ inspections to include the method of accomplishment, measurement, and MSEP reporting. QVIQ inspections will be based on the severity of trending data and safety factors. All maintenance actions/functions listed on the QVIQ require mandatory notification to QA each time the maintenance action/function is accomplished. Waiver authority for a QVIQ inspection task may be granted by Group QA Chief or appointed designee. The waiver process will be defined in the group QAP or quality manual.

8.4.4.1.3.1. A Q-Stamp will be required for completion of each QVIQ task/operation. By Q-Stamping a task/operation, the QA inspector is verifying that the Q-Coded portion of a task/operation being inspected was performed IAW applicable technical data/instructions and the task/operation was correctly

performed (i.e., meets form, fit, or function technical requirements). Any QA person stamping off Q-Coded tasks/operations must be PAC qualified in the specific tasks/operations/systems they are verifying as being accurately performed.

8.4.4.1.4. Routine Inspection (RI). RIs are assessments of common depot production maintenance programs and processes that require continuous evaluation, and may be evaluated independently or be performed in conjunction with any other type of assessment such as a PE and QVI. Observed deficiencies beyond the RI checklist questions, but related to the program inspected, will be documented against the RI. Mandatory questions when applicable to the organization must be evaluated for the assessment to qualify as a routine inspection. The following are the HQ AFMC routine inspection areas and must be included in the QASP (if applicable):

Table 8.2. HQ AFMC Routine Inspection Areas.

Item	Area
1	Material Control
2	Foreign Object (FO)
3	Tool Control
4	WCDs
5	PAC/SSQ Training
6	Equipment
7	Safety (Flight Line/Industrial/Explosive)
8	Technical Data
9	TOs
10	Engine Management
11	Forms Documentation

8.4.4.1.5. Special Inspection (SI). SIs when driven by the analysis of assessment data may be conducted at the discretion of the local QA or requested by ALC/CC/Civilian Leader (CL)/Civilian Director (CD), MXG/CC, SQ/CC, or work center supervisors. Additionally, observed deficiencies beyond the scope of an inspection in progress not meeting the criteria of a detected safety violation (DSV), technical data violation (TDV), or unsatisfactory condition report (UCR) will be recorded in the Command approved information system under the category of SI. SIs will be assigned a rating (i.e., QAR-1 or QAR-3) based on severity of the observation. SIs are designed to provide a flexible tool to complement other quality assessment types.

8.4.4.1.6. Management Inspection (MI). MIs cover a broad category. Perform these inspections to follow up on trends, conduct investigations, or conduct research to get to the root cause of problems. Any level of management may request MIs. MIs may encompass PE/QVI trends and other inspection data, aborts, trends, in-flight emergency trends, high component or system failure rates, suspected training deficiencies, and tasks outlined in aircraft dash-6 technical orders. Report MI results to the requester, and allow the individual latitude in exploring options prior to implementing corrective actions. At local discretion, MIs can be non-rated and may be counted in QA trends.

8.4.4.1.7. Isolated Violation (IV). This category represents observed events or conditions with safety implications or technical violations not related to an inspection or evaluation which may be considered unsafe, not IAW established procedures, or in the case of equipment, unfit to operate. Isolated violations will be rated as a QAR-3 and documented as one of the following:

8.4.4.1.7.1. Detected Safety Violation (DSV). An observed unsafe act by an individual. The inspector will stop the unsafe act immediately. Do not document a separate DSV on an individual undergoing a PE since the unsafe act automatically results in a 'Fail' rating on the PE. Use the word 'Safety' when a safety violation is committed during a PE.

8.4.4.1.7.2. Technical Data Violation (TDV). An observation of any person performing maintenance without the proper technical data available and in use, or not being followed. The technician must have knowledge of all general directives associated with the job prior to performing the task. However, those directives need not be present at the job site. Do not document a separate TDV on an individual undergoing a PE or an In-Process QVI since failure to use technical data automatically results in a 'Fail' rating.

8.4.4.1.7.3. Unsatisfactory Condition Report (UCR). An unsatisfactory condition is defined as an event/discrepancy that requires immediate supervisory intervention to ensure safety or process/product form, fit, or function reliability. Unsatisfactory conditions are deemed major and will be documented as a UCR. A condition of a minor nature shall be documented against the applicable checklist or its regulatory guidance.

8.4.4.1.8. Process Review. A review of a process from end to end or a portion of the process. The review may include a review of planning, technical data, WCDs, equipment, tools, training, material, and other key areas that affect the process. The process review may include participation from all stakeholders: Engineering, AFLCMC, Business Office, QA, Safety, Environmental, and other SMEs as required. Process reviews should include results of program/process performance audits/inspections, customer feedback, product conformity, status of preventative/corrective actions, action items from previous management/program reviews, changes that could affect the Quality Management System (QMS), improvement opportunities, adequacy and effectiveness of training programs, and changes to authority requirements which could impact the organizational processes, products, systems, and programs. QA may perform PEs, QVIs, and applicable checklists during the process review. QA findings will be documented on an AFMC Form 343 or other local quality form. A final written report will be produced at the conclusion of the process review.

8.4.4.1.9. Activity Inspection (AI). Activity inspections may be conducted annually or when associated with an Inspector General (IG) inspection. When conducting Activity Inspections, use applicable checklists and process improvement tools to evaluate and provide actionable feedback for unit leadership. SMEs may be used while conducting the Activity Inspection. Each

unit will receive an in brief, out brief, and a report as part of the Activity Inspection.

8.4.4.1.9.1. The Activity Inspection must encompass a statistical sampling of all sections/flights of the organization being inspected and a statistical sampling of all facets of the operation to include unit self-inspections within each inspected section/flight. Whenever possible, locally required inspections conducted by outside agencies (e.g., safety, training, security, logistics readiness squadron (LRS), bio-environmental, or the fire department) should be accomplished in conjunction with the QA activity inspection. This reduces the number of disruptions to the organization being inspected and also increases the comprehensiveness of the activity inspection.

8.4.4.1.9.2. Activity Inspection Reports. The report must be objective and factual with specific definitions of problem areas. Inspectors should work with the inspected organization to assist in performing root cause analysis and developing corrective action plans for ALC wide systemic issues.

8.4.4.2. Quality Assessment Results (QAR) Ratings. A value reflecting the results of quality assessments.

8.4.4.2.1. Ratings. These ratings will be inputted into a Command approved QA database. Assessments will be rated, however, MIs will be rated at local discretion. Deficiencies will be classified as major or minor findings. A minor finding is defined as an unsatisfactory condition that requires repair or correction but does not endanger personnel, affect safety of flight, jeopardize equipment reliability, or warrant discontinuing a process or equipment operation. A major finding is defined as a condition that would endanger personnel, jeopardize equipment reliability, affect safety of flight, or warrant discontinuing process or equipment operation.

8.4.4.2.1.1. QAR-1. This rating indicates the evaluated process/product met the established standard. This rating is considered a pass rating.

8.4.4.2.1.2. QAR-3. This rating indicates an evaluated process/product did not meet the established standard because one or more major findings were detected or exceeded the AQL. This rating is considered a failed rating.

8.4.4.2.1.3. When a QAR-3 condition is observed, QA personnel will notify production supervision immediately. Under no circumstances will a safety error or equipment reliability error go uncorrected. If an assessment is being performed, QA personnel will consider the seriousness of the error committed when deciding whether or not the assessment should be allowed to continue.

8.4.4.2.1.4. When QAR-3 rating that is directly attributable to a certified technician's proficiency, that individual, team, or team member will be de-certified. De-certification and re-certification procedures are defined in **Chapter 20.**

8.4.4.2.1.5. QA personnel must assign a QAR-3 rating if:

Table 8.3. QAR-3 Ratings.

Description	QAR-3 Rating

Warning	A TO 'Warning' is overlooked or a safety error, that could result in personal injury, is detected.
Caution	A TO 'Caution' is overlooked or an equipment reliability error that could result in equipment or system unreliability or damage, is detected.
Lack of technical proficiency	The person or team accomplishing the task being evaluated demonstrates a lack of technical proficiency.

Table 8.4. Reason for Failed Evaluation.

Item	Reason
1	Number of minor discrepancies exceeds the established AQLs/standards.
2	Technician fails to detect a major discrepancy while complying with an inspection or work card requirement.
3	Technician fails to comply with a step of prescribed technical data that could affect the performance of the equipment involved or cause injury to personnel.
4	Technician demonstrates a lack of technical proficiency or knowledge for that specific task.
5	Technician commits a safety violation.
6	Technician fails to document maintenance actions in appropriate records.

8.4.5. Data Collection, Analysis, and Reporting.

8.4.5.1. LEAP or other QA approved data systems will be used as the tool for collecting and compiling QA data collected by QA personnel. This data will be reviewed monthly to analyze results, identify trends, and will be reported to management in the appropriate forum. This information allows management to make informed and responsible decisions about the quality system. LEAP or an approved QA database will retain this information for a period of five years. The organization assessed is responsible for ensuring corrective and planned actions to prevent recurrence are entered into an approved database. Personnel using the database must be trained to the extent necessary to effectively use the data collection system.

8.4.5.2. MSEP Metrics. The purpose of MSEP metrics is to measure compliance and provide regular feedback to management on the health of the processes, products, systems, programs, and personnel evaluated. The formula for metrics is the number of QAR-1 rated (i.e., passed) assessments divided by the total number of that type assessment conducted in an organization for a given time period (e.g., total QAR-1 Routine Inspection Tool assessments divided by the total number of Routine Inspection Tool assessments performed in a squadron/group per month or at the ALC per quarter). Deduct 0.5 percentage points for each TDV, DSV, and UCR from the overall percentage grade. Data for the metrics will be extracted from the LEAP database on the following types of assessments (i.e., PEs, QVIs, RIs, MIs, and SIs).

8.4.5.3. Reporting.

8.4.5.3.1. Metrics will be reported to Group monthly and to the ALC/CC quarterly.

8.4.5.3.2. Grading. The results of the total number of inspections accomplished during the period will be assigned one of the following five tier ratings based on number of inspections passed versus number of inspections completed. In addition,

the results of the total number of inspections accomplished during the period may be rolled up to create a cumulative rating by work center, section, flight, squadron, group, and ALC.

Table 8.5. Five Tier Ratings.

Item	Tier	Rating
1	Outstanding	95% - 100%
2	Excellent	90% - 94.99%
3	Satisfactory	80% - 89.99%
4	Marginal	70% - 79.99%
5	Unsatisfactory	0% - 69.99%

8.4.5.3.3. MSEP Summary. The MSEP summary shall be compiled quarterly and advises the Group/CC/CL and ALC/CC/DV of the quality of maintenance. The quarterly summary shall be published and distributed to the ALC/CC and Group CC/CL in the ALC.

8.4.5.3.4. Control and Processing of an AFMC Form 343. Quality assessment data will be documented on a computer generated AFMC Form 343 and recorded in LEAP or an approved database. The approved database collects, indexes, files, stores, and maintains applicable AFMC Form 343 data.

8.4.5.3.4.1. QA personnel will input assessments into the Command approved QA database within one work day (i.e., 24 hours). Production personnel responsible for the deficiency/finding will provide a viable corrective/preventative action plan within eight business days. A corrective/preventative action plan will be developed to prevent or minimize the potential for recurrence. QA will review the corrective action plan and will either accept or reject the corrective/preventative action plan within two business days. The ALC shall further identify AFMC Form 343 processing procedures to include extension of suspense dates.

8.4.5.3.4.2. Follow-up Assessments. Depending on the severity of the discrepancies, the QAS, QA supervisor, or management may direct specific follow-up actions. Results of follow-up assessments will be recorded in the approved database.

8.4.5.4. AFSC Form 77, *Request for Quality Assistance (RQA)*. Quality assistance can be requested by anyone submitting an AFSC Form 77 or equivalent. Forms and procedures for processing the AFSC Form 77 or equivalent will be made readily available to the maintenance work force. Timely and effective responses to deficiencies and needed improvements are critical.

8.4.6. Dull Sword and Deficiency Reporting and Investigation.

8.4.6.1. Dull Sword Reporting. Dull Sword reporting procedures are IAW AFMAN 91-221, *Weapons Safety Investigations and Reports*. The Weapons Safety Manager is the OPR for this program.

8.4.6.2. Joint Deficiency Reporting System (JDRS). The JDRS has been established to identify, report, and resolve deficiencies on military weapon systems.

Chapter 9

IMPOUNDMENT PROCEDURES PROGRAM

9.1. Aircraft and Equipment Impoundment.

9.2. Quality Assurance (QA). QA or equivalent function acts as the OPR for group impoundment procedures. QA will evaluate the need for development of a local operating instruction to include local procedures for impoundment situations, decision process, off-station aircraft impoundment, home station notification, release officials, forms entries, appointment and responsibilities of impoundment investigating officials, special handling or tagging of parts from impounded items sent through the repair cycle, and conducting impoundment investigations across organizations. Software and physical science labs are excluded from the impoundment program.

9.3. Impoundment Officials. Selection will be made IAW paragraph 1.9. Impoundment officials may be any appointed Aircraft Maintenance Officers, Senior Non-Commissioned Officers (SNCOs), Production Superintendents assigned to Flight Test, First line Supervisors, or Engineers (reference AFMCI 21-100 for additional information).

9.4. Local Procedures. While this publication is production and process oriented, it is necessary for each maintenance organization to translate impound requirements into local procedures. Local procedures will be defined in local publications utilizing local MIS.

9.5. Reference. Reference AFMCI 21-100 for other depot impoundment procedures guidance.

Chapter 10

TOOL AND EQUIPMENT MANAGEMENT

10.1. Introduction. The primary focal point of this program is the individual tool user, however it is necessary to have support, training, and constant emphasis from all levels of management for the program to be effective.

10.2. Program Objectives. The objectives of the tool and equipment program is to reduce tool cost through strict effective control, security, and accountability of assets, and to prevent and eliminate FOD to aircraft, engines, missiles, training, and support equipment. ALCs, commanders, and key leaders are responsible for standardization in executing an effective tool program. The tool management program outlined in this manual represents AFSC's minimum program requirements

10.3. Tool Control Manager (TCM) Responsibilities. The ALCs shall establish a TCM position and identify the individual selected to fill the position in writing. A TCM main role is to be a liaison between the tool program, the ALC, and the respective Groups. The TCM responsibilities include policy implementation, management of the lost tool program, monitoring of loaned tools, monitoring of QA findings for trends, developing corrective action plans for systemic tool issues, and, if required, brief the ALCs on the tool program status.

10.4. Tool Accountability.

10.4.1. Tool Kit (TK) custodians are responsible for tool and equipment accountability and control (i.e., knowing where tools are and who has responsibility for them). When a person signs for a tool or piece of equipment, the individual is accountable for the item until it is returned to its proper location. Accountability transfers back to the TK custodian through a representative or tool room employee.

10.4.1.1. Employees responsible for government property will complete AFSC Form 311, *Certificate of Responsibility for Government Property.*

10.4.2. TK Custodian. Supervisors serving as a TK custodian will be designated in writing. Alternate TK custodians will be designated in writing and the documentation will be maintained at the tool crib. TK custodians are responsible for tool, HAZMAT, and consumable asset accountability and control. **Exception:** A separate person may be designated as the HAZMAT monitor.

10.4.3. The Maintenance Support Group/Authorized Contractor (MXSG/AC) is the only authority that can change 'like' (i.e., form, fit, or function) tools/items. When permanently changing a group RC/CC, ensure information (i.e., tool card) provided to the tool crib/center has been updated for the purpose of tracking loaned tools and equipment.

10.4.4. Tool Accountability System (TAS), Electronic FEM system, MIS:

10.4.4.1. All units must utilize TAS, FEM, or other approved ALC MIS for accountability and control of tools and equipment. Contractors and civil service organizations are not required to use TAS/FEM. Aircrew Flight Equipment (AFE) Sections will follow guidance in AFI 11-301V1.

10.4.4.2. Units will use TAS, FEM, or other approved ALC MIS to:

10.4.4.2.1. Track the issuance and receipt of all assigned tools, equipment, tool kits, HAZMAT items, TOs (does not apply to TOs, equipment and HAZMAT kept in a shop and not dispatched.).

10.4.4.2.2. Track authorizations/restrictions for special tools/equipment by individual.

10.4.4.2.3. Track spare, lost, and damaged (removed) tools.

10.4.4.2.4. Develop and manage TK inventories.

10.4.4.2.5. Develop and manage deployment kits (i.e., import/export).

10.4.5. If TAS, FEM, or other approved ALC MIS is not available (i.e., at a deployed location), units may use one of the following methods: the AF Form 1297, *Temporary Issue Receipt*, or vendor supplied system for POU machines.

10.5. Tool Kits.

10.5.1. Tool Kit (TK). A container used to store tools or equipment and to maintain positive control and ease of inventory. TKs will be standardized to the maximum extent possible by template and have an accompanying Tool Kit Custody Receipt Listing (TKCRL).

10.5.2. TK Types:

10.5.2.1. Consolidated Tool Kit (CTK). Tool kits issued to a supervisor for use by one or more individuals in a work center.

10.5.2.2. Individual Tool Kit (ITK). A standardized collection of tools organized by task, skill, work area, or a combination thereof which is issued to an individual.

10.5.2.3. Dispatchable Tool Kits (DTK). Tool kits designed for checkout will be taken to a job site with one individual responsible for the tool kit.

10.5.3. Tool Set (TS) Guidance. Tools and equipment issued from the tool crib/center which contains multiple parts, sizes, attachments, or fittings. TSs (e.g., socket set, tap and die sets, etc.) do not require a template/TKCRL but will have an accompanying inventory list.

Table 10.1. Tool Set (TS) Inventory List.

TYPE	ISSUED TO	FOR USE BY	TKCRL REQUIRED	TOOL CHECK-OUT METHOD
CTK	Supervisor	Crew	Yes	AF Form 3136, *General Purpose Form*, or electronic equivalent.
DTK	Supervisor or Employee	Employee or Crew	Yes	Tool Card or AF Form 1297, *Temporary Issue Receipt*
ITK	Supervisor or Employee	Employee	Yes	N/A
TS	Supervisor or Employee	Employee or Crew	No	Tool Card or AF Form 1297

10.5.4. Counting Pieces in a set. Tool sets are identified on the TKCRL by total number of items in the set. For example, a hex wrench set - 9 each hex wrenches plus container is a total of '10 pieces'; '9 pieces plus case' is also acceptable.

10.5.5. TK Content/Design Determination. Supervisors (i.e., TK custodians) will determine the type, size, contents, and number of TKs required for their work centers. MXSG/AC working with TK custodians will design TKs to provide a quick inventory and accountability of tools.

10.5.6. TK contents will be standardized by skill, task, mission, work area, or a combination thereof to the maximum extent possible. ALC tool request forms or equivalent MIS is used to establish a new template or to revise or delete an established template. Each type of standardized template will be assigned a template number. The ALC tool request form or equivalent MIS is initiated by the supervisor and will include the following: a complete list of required tools, NSNs, nomenclatures, issue quantities, drawer locations/bins (e.g., Drawer 1, Drawer 2, Drawer A, Drawer B, etc.) with all required signatures before they are forwarded to the Group/Squadron TCM. Supporting commercial data (e.g., source, part number, catalogue page or screen print, etc.) will be provided for adding non-stock listed tools.

10.5.7. TKCRL Management. A TKCRL is required for each TK. The Maintenance Support Group/Authorized Contractor will prepare a TKCRL for each kit. The minimum TKCRL contents of the listing are name of TK owner, NSN/item number, marking requirement (the Y/N column), template identification number, kit identification number, nomenclature/description, quantity issued, date of issue, and tools listed by drawer location.

10.5.8. TK Issue. An appointment must be made with tool crib/center prior to TK issue and turn-in. During TK issue, both the issuing tool representative and the receiving employee will verify each tool listed on the TKCRL for accuracy of tools issued, serviceability, and proper TK marking, and will also ensure the TKCRL and TK quantities match and are accurate to include drawer locations. The employee and tool crib attendant will sign the TKCRL. The tool crib/center will retain a copy of the tool request form and the master (i.e., official) TKCRL shall be signed by the employee which will be maintained by the tool crib. Supervisors will submit tool requests through Group/Squadron TCM.

10.5.9. Template Change. Template changes are accepted once a year if needed and submitted through the Group/Squadron TCMs. When more than one change is required during the year, it shall only be for new workloads and/or a change of workload. If the additional template change is for any other purpose, a letter of justification will need to be provided from the squadron director to the group/squadron TCM for approval. Templates may be changed to ensure the right number of tools, proper tool to complete a given task, skill or work area, or a combination thereof to attain configuration control/standardization. Template changes will be documented on the tool request form and forwarded to the Group/Squadron TCM. The Group/Squadron TCM will forward any required template changes to the tool warehouse/tool issue center so the template can be updated.

10.5.10. TK Turn-In Transfer. Ensure employees turn-in or transfer tool kits in the tool center prior to RC/CC reassignment, task changes requiring a different template, or termination of employment. The TK will be turned into the tool crib/center or transferred to the supervisor prior to reassignment. The tool room attendant and employee will inventory the kit for accuracy of tools returned and proper TK marking. Tool attendant and employee will sign an

FEM (or other approved MIS) transaction report. A copy will be provided to the employee for the TK turn-in receipt once all tools have been accounted for. Supervisors or designee will account for all items on the supplemental list prior to turning in tool kits to the MXSG/AC. Supplemental items will be turned in to the issue point. Tool kits may be re-assigned to another employee as long as the following steps are taken: The Tool Request Form with the required signatures must be sent to the main tool crib. The group/squadron TCM or supervisor of the employee turning in the tool kit will perform a Supervisor Inspection IAW this chapter.

10.5.11. Non-Mobile Cabinets. For TKs that use drawers of a workbench, workstation, cabinet or Vidmar to store assigned tools, clearly mark each drawer that is part of the TK. TK drawers will be marked (e.g., 1, 2, 3, B, C, etc.). Excess drawers may be used for other shop requirements provided they are labeled as such and contents do not violate other AF or MAJCOM instructions.

10.5.12. Shadow/Silhouette. Each tool, item of equipment, or consumable contained in a TK shall have an assigned location identified either by inlay cuts in the general shape of the item, shadowed layout, label, or silhouette. No more than one item is stored in a cutout, shadow, or silhouette except for tools issued in sets such as drill bits, hex wrenches, apexes, or paired items (e.g., gloves, booties, etc.).

10.5.13. The Maintenance Support Group/Authorized Contractor is responsible for foaming/shadowing of all new TKs ordered. Additional requests may be made for foaming/shadowing support through this organization. Cut-out will facilitate ease of inventory and be in the general 'shape of the item' within plus or minus one inch variance. Finger holes are authorized in cutouts as long as they do not take away from the shape of the tool.

10.5.14. CTK Used By More Than One Person. Tools used/removed from a CTK used by more than one person will be tracked by either AF Form 3136, AF Form 3126, *General Purpose*, electronic equivalent, or by using an electronic keyed device on a CTK and swiping the tool card to sign in or out of the CTK. The electronic product will need to be able to provide a list of items currently signed out and to whom. At a minimum, the following information will be annotated on the form/log: tool nomenclature, date out/in, legible name of the borrower, list of items, and the person's signature. The form/log shall be maintained for a minimum of 60 days. Chits are not authorized.

10.5.15. Locking/Securing TKs. MXSG/AC will ensure each TK can be locked to prevent unauthorized access which may be accomplished by using tool containers that have an integral locking system or any other locking device (i.e., padlocks cables or a lock bar).

10.5.16. Individuals will secure/lock tools, TK, or equipment anytime the tool or TK is left unattended (i.e., not being watched or looked after). If tools or equipment can be removed from a TK without an employee's knowledge, then the TK is not secured. Tool kit locks will be used to provide a physical barrier to opening the container lid, drawer, or door and prevent the unauthorized removal of tools. Locks are not required on tools and equipment that are stored within secured tool rooms or work centers.

10.5.17. Identification tags or dust caps attached to tools/equipment will be secured in a manner that will preclude any possibility of FOD.

10.5.18. Tool kit locks will be used to provide a physical barrier to opening the container lid, drawer, or (ALC TCM approved) door and prevent the unauthorized removal of tools. Locks are not required on tools and equipment that are stored within secured tool rooms.

10.5.19. Dispatchable tools, equipment, and TKs are required to be locked and/or secured when left unattended. Tools and equipment shall never be secured to the exterior of an aircraft. Tool kits located within the controlled movement area are required to be locked when unattended and not in use but do not need to be secured to another object. Common accessories, backshop test stations/stand accessories, TMDE, and support equipment hooked up to an aircraft, end item, or equipment that requires extensive set-up time to perform a task are not required to be secured/locked if left unattended for short periods of time.

10.5.20. CTK/DTK Key Security. Supervisors or designated representatives must lock up CTK/DTK keys and maintain separate sign out logs or MIS. When an employee is temporarily assigned a TK for use, the TK key will be checked out using a sign out log. Use AF Form 3126, AF Form 3136, or a locally created log with the following information to include legible name, date key issued, date key turned in, and kit number. Tools removed from a TK issued to a single individual are not required to be signed out.

10.5.21. TMDE in TKs. The owning organization's TMDE monitor will be responsible for routing precision measurement equipment (PME) items for calibration. PME items maintained in a TK will either be individually shadowed within the TK or be placed in containers. If placed in containers, the container will be controlled as a tool. TMDE monitors will issue a receipt to be kept in the TK for tools removed for calibration, certification, or repair.

10.5.22. Supplemental Listing. The supplemental listing is a listing of all items kept in TKs that are not listed on the TKCRL. Supplemental listings will contain at a minimum: the NSN and/or part number if available, nomenclature, size, quantity, marking requirements, drawer location, and TK identification designator (ID). The supplemental listing will be signed and dated by both the employee and the supervisor immediately after the last entry on the listing. A copy of the supplemental listing will be kept with the TKCRL and on file by the supervisor. Use AF Form 3126, AF Form 3136, or equivalent. Inventory, control, and lost tool procedures will apply to supplemental items.

10.5.23. Maintenance stamps and their caps, when maintained in the ITK, will be shadowed and entered on the supplemental listing as stamp and cap, if applicable. Maintenance stamps will not be marked with ITK number. Stamps with caps, if included, will have the stamp number marked on the cap. Maintenance stamps and caps are not personal items and will not be included in a personal drawer.

10.5.24. Removed and/or Broken Tools. Removed and/or broken tools/items shall be documented in FEM if they cannot be replaced immediately. For DTKs and dispatchable support equipment/dispatchable special tools containing multiple parts, document the missing, removed, and/or broken tools/items on an AFMC IMT 61, *Missing/Removed Tools and Equipment*. A tool request will be generated for an out of stock tool and a printout will be placed in the TK until the tool can be issued/replaced. Tool Crib/Center will remove the ID from any permanently removed tool/item. A permanently removed tool/item without a planned replacement) constitutes a change to the inventory.

10.5.25. Replacement tools shall not be issued without receipt of the unserviceable or documentation indicating the tool is lost and reported. If previously issued serviceable tools are to be used as replacement tools, completely remove any prior assigned marking before placing in spare storage. A limited stock of replacement tools will be maintained by the MSG/Authorized Contractor. The supervisor will ensure quantities and types of tools in stock are not excessive and/or co-mingled. Tool bin labels will include NSN or part number, unit of issue, item description, and minimum bin levels. Stock levels may be adjusted in support of special projects, special operating requirements, or if existing demand data is insufficient to support mission requirements. A single occurrence of a mission limiting status is not sufficient reason to establish an adjusted stock level but may be an indicator to review demand data for accuracy. Items that are subject to wear and breakage may be maintained in the tool issue center to replace unserviceable items.

10.5.26. Tool Disposal. Ensure tools are disposed through the DLA Disposition Services or demilitarization contractors. The Maintenance Support Group/Authorized Contractors will maintain transfer documentation for all DLA Disposition Services transfers.

10.5.27. Safety Concerns. Flashlights, lanterns, portable lighting devices and light sources will conform to the requirements of TO 00-25-172, *Ground Servicing of Aircraft and Static Grounding/Bonding*, when used during servicing operations, TO 1-1-3, *Inspection and Repair of Aircraft Integral Tanks and Fuel Cells,* when used during fuel cell maintenance, and AFMAN 91-201, *Explosives Safety Standards*, when used in explosive environments. **Note:** Aircraft and equipment TOs may dictate additional restrictions.

10.5.28. For deployment purposes, ensure equipment, tools, and HAZMAT items are properly identified, prepared, and documented IAW AFI 10-403, *Deployment Planning and Execution*.

10.5.29. Discard removable (i.e., slide on) pocket clips from tools (e.g., flashlights, continuity testers, small screwdrivers, etc.) when possible prior to placement in tool kits used in critical FOD areas. Do not disassemble/damage tools for sole purpose of removing clips (i.e., tape measures), rubber switch guards, etc. The sharp edge of blades will not be exposed when not in use (e.g., buried in foam, put in a container, etc.).

10.6. Temporary Loaned Tools.

10.6.1. Temporary Loaned Tools, Tool Kit, Common Accessories, and Support Equipment. Tool cribs/centers will ensure tools issued on an as-needed basis will be returned to the issue point. The authorized tool management system will be used by all tool cribs/centers to ensure an audit trail exists on all items on loan. Items containing multiple parts will have an attached inventory list and total piece count. A photo of the items, including the case, can be considered an inventory. The issuing tool center and the individual obtaining the loan will perform a joint issue and return inventory.

10.6.2. During the duration of the loan, the individual signing for the loaned item must perform all required inventory and user maintenance actions. A hand receipt or computer tracking system will be used to track to whom the tool was loaned. Temporary loaned tools will only be loaned to employees and supervisors with a valid tool card. Tools checked out from the tool crib or PSC may be stored in the employee's ITK but not in their personal drawer. These tools items will not be on loan for more than 30 calendar days.

10.6.3. Loaned tools will be recorded on AFSC Form 307, *Temporary Loan Record.*

10.7. Other Items In TKs.

10.7.1. HAZMAT. All tools containing HAZMAT (e.g., grease guns, shrouded tools/equipment, etc.) will follow AFI 90-821, *Hazardous Communication (HAZCOM) Program,* and local ALC guidance.

10.7.2. Consumables. Consumables may be placed in TKs and shall be identified on the supplemental listing. Examples of consumables include safety wire, adhesive, wire bundle lacing, solder, etc. Do not include common hardware items such as bolts, nuts, and/or screws unless required as tools. Supervisor approval is required before any consumable is added to a TK and will be marked according to this manual. Consumables in a tool kit will be shadowed, marked, and identified by nomenclature, size (if applicable), and quantity on the tool kit supplemental listing. The technician and their supervisor will initial and date the changes on supplemental listing.

10.7.3. Expendables. Expendable items are items that must be frequently replaced due to high use, excessive wear, breakage, or otherwise become unfit for use. Supervisor approval is required before any expendable is added to a tool kit and shall be controlled IAW this chapter. Expendables in a tool kit will be shadowed (i.e., inlaid, silhouetted, or outlined), and identified by nomenclature, size (if applicable), and quantity on the tool kit TKCRL or supplemental listing. One-for-one swap of tools does not have to occur on a daily basis. Items requiring replacement due to usage or breakage will be exchanged on a one-for-one basis as soon as possible. A stock of broken or worn tools may be returned as one-for-one swap items. Inventory and lost tool procedures will apply to expendable items. Every attempt will be made to recover and return all pieces of broken expendable tools to tool crib/PSC prior to replacement. If the tool or a significant portion (as determined by the supervisor) is lost, a copy of a completed AFMC Form 310 must be presented before a replacement tool may be issued.

10.7.4. Personal Items. A technician's personal items (e.g., rings, wallet, watches, etc.) may be stored in an ITK, however technicians are limited to one personal drawer. The drawer must be clearly labeled 'Personal' and will only contain personal items. This drawer will not be subject to inspection during a regular TK inspection.

10.7.5. Personal Protective Equipment (PPE). A drawer or an additional tool box/container is authorized for protective equipment and inclement weather apparel, and must be clearly labeled 'Personal Protective Equipment'. PPE containers are subject to toolbox inspections. PPE kept in ITKs will be marked with the ITK number. PPE not stored in an ITK will be marked with the employees' last name, first initial, and stored in a personal or PPE locker. **Note:** Shop PPE is PPE intended for shop use (i.e., face shield for shop use at a drill press) will be marked with the shop symbol.

10.7.6. All non-disposable PPE will be exchanged on a one-for-one basis and an AFMC Form 310 will be initiated for all lost non-disposable PPE. If PPE is identified as highly pilferable, these items will be controlled as a one-for-one swap through supervisor (or designated alternate) issue.

10.7.7. Non-disposable PPE kept in an ITK will be shadowed and labeled with the ITK number and annotated on the supplemental listing. Non-disposable PPE not stored in an ITK will be stored in a PPE locker or personal locker, and will be marked with last name and first

initial of individual. Head mount flashlights issued from the tool warehouse will be marked with the kit ID and marked on the TKCRL, and will be controlled as disposable PPE. PPE contained in shop area (e.g., thermal gloves for oven, face shields for pedestal grinder, etc.) will be marked with shop symbol/identifier for traceability. Surgical gloves, ear plugs, and non-prescription safety glasses are common types of disposable PPE. The final decision whether a PPE item is disposable, or not, rests with the ALC Tool Manager. PPE that is not permanently issued to an individual and is cleaned by a laundry service does not require marking (i.e., coveralls and lab coats).

10.7.8. Personal Tools. Personally purchased tools (e.g., mini-mag flashlights, Leatherman's, buck knives, etc.) are NOT authorized on the flightline or in any maintenance area.

10.8. Markings and Traceability.

10.8.1. Assignment of IDs for TKs, non-CA/CRL equipment, and assignment of TK numbers for tools.

10.8.2. Mark tools or equipment that a work center assigns/issues to individuals.

10.8.3. Permanently mark (i.e., by etching or other means) grease guns, dispensing cans, spray bottles, pump oilers, and similar containers with the type of grease, fluid, or other liquids and MIL-SPEC of the contents. If the MIL-SPEC is subdivided into Grades, Classes, or Types, include that information on the permanent marking. If no MIL-SPEC exists, mark the item with the manufacturer's name and part number/NSN from the applicable material safety data sheet/safety data sheet (MSDS/SDS). Keep hoses and fittings separate for each type of grease. **Note:** If containers are used to hold or apply substances classified as hazardous materials, ensure labeling requirements of AFI 90-821, 29 CFR 1910.1200(f), *Hazardous Communications*, and local directives. Ensure local directives comply with requirements of AFI 90-821, and have been properly vetted with appropriate community functional personnel and local union representatives.

10.8.4. Fiberglass handled hammers are marked IAW TO 32-1-101, *Use and Care of Hand Tools and Measuring Tools*.

10.8.5. TKs, tools, and dispatchable equipment that may possess a unique serial/tracking number must be marked with an ID number. If the item cannot be marked, etched, or stamped, annotate the additional designator on the TKCRL. TMDE will be marked with AFTO Form 66, *TMDE Bar Codes (Polyester Film)*, bar code number for tracking purposes in the FEM/MIS.

10.8.6. Tools/items that are assembled and are not intended to be disassembled during use, require only one mark/etch/stamp and one entry in the TKCRL/supplemental listing (e.g., scribes, flashlights, grease guns, feeler gauges, etc.). Tools/items requiring disassembly prior to storage will list the total number of disassembled pieces on the TKCRL/supplemental listing. The disassembled pieces will be marked separately or stored in a container if too small/impractical to mark. If tools/items are disassembled during storage, all items need to be accounted for via shadowing and quantity listed on the TKCRL or supplemental listing.

10.8.7. Remove the ID from unserviceable tools and tools removed from the TK, with the exception of warranty tools where removal of ID would void the tool warranty, and update FEM/MIS.

10.8.8. Tools, common accessories, and support equipment issued individually or part of a tool kit will be marked prior to issue with the ALC code (reference **Table 10.2.)** and a number identifying it to the proper tool issue center/crib. The proper tool issue point may include multiple locations within an organization but the ID assigned shall be traceable back through FEM/MIS.

10.8.8.1. Program Owned Tooling/Support Equipment (SE). Programs built around shared tooling to meet modification requirements across the fleets and reduce overall costs, i.e., F35/F-22. Control of these items is critical to aircraft safety. Since this tooling/SE is 'program owned', the ALC marking codes are not required as mentioned in paragraph 10.8.8. and **Table 10.2.** The ALCs should develop local procedures for managing 'program owned' tooling and support equipment.

10.8.9. Marking of TKs. Marking of TKs, equipment, and tools will be done by a method that is legible. All tool kits (e.g., containers, boxes, rollaways, etc.) along with each tool and other contents assigned (on TKCRL supplemental listing or locally developed inventory) to the tool kit will be marked with the same number. TKs will be externally marked for traceability through FEM/MIS.

10.8.10. All TKs will be assigned a TK ID and each tool in the TK will be marked (excluding tools on the Non-Marked listing) with the TK ID number prior to initial issue. Tools being replaced by tool crib/center personnel will be marked prior to replacement. Tools will be laser marked, where possible, and is the preferred method.

10.8.11. Tools made of a material incapable of laser (e.g., rubber, rawhide, plastics, etc.) shall be marked with a permanent marker. If the marking becomes illegible, the tool will be remarked before the end of the shift.

Table 10.2. ALC ID Number Marking Codes.

CODE	ALC
AM	AMARG
HL	OO-ALC, Hill AFB
OC	OC-ALC, Tinker AFB
WR	WR-ALC, Robins AFB

10.8.12. Tools Impractical or Too Small to Mark. Tools impractical to mark (i.e. hacksaw blades, rulers, due to method of use, size, or composition of material) will be identified by an 'N' on TKCRL or supplemental listing. Tools will be controlled and lost tool procedures will apply. A list of tools too small or impractical to mark will be approved by the ALC TCM and kept on file by the MSG/Authorized Contractor. The listing will be referred to as the ALC Non-Marked listing. Kits/sets containing tools which are listed on an ALC Non-Marked listing are not required to be marked with TK number. Tools too small to mark will be placed in a container as described in paragraph 10.8.13.

10.8.13. Container Marking. Containers (e.g., cases, pouches, tubes, boxes, etc.) will be shadowed and marked with the TK number and quantity. Lids or caps will be marked and listed on TKCRL/supplemental listing only if they can be separated from the container making two individual pieces. If an identification number becomes illegible, the TK owner will remark container by end of shift.

10.8.14. Clecos, and other similar holding devices are considered tool items and will be controlled and subject to inventory and lost tool procedures. Clecos will be shadowed in the TK either individually, in containers, or on trays

10.8.14.1. Clecos, and other similar holding devices are considered tool items and will be controlled and subject to inventory and lost tool procedures. Clecos will be shadowed in the TK either individually, in containers, or on trays.

10.8.14.2. If Clecos must remain on an aircraft or component for multiple shifts, an informational note will be made in aircraft record and/or in a paper Work Control Document (WCD) task description block of the specific WCD operation number where the Clecos were installed; use the turnover block for eWCDs. This installation note will be stamped and dated by the technician who installed (or counted) the Clecos on the aircraft or component. When the Clecos are removed, another informational note will be made indicating Clecos were removed. The removal statement will be stamped and dated by the technician that removed (or counted) the Clecos. Total quantity of Clecos installed/removed will be reflected in the respective WCD informational notes.

10.8.14.3. Exemptions from the aircraft record and/or WCD accountability requirements in paragraph 10.8.14.2. are authorized when the following requirements are met.

10.8.14.3.1. Shop to be exempted is not designated as a FOD-critical area.

10.8.14.3.2. WCDs have specific FO inspection tasks prior to closing or release to a FOD critical area, which are locally identified.

10.8.14.3.3. MXG/CC/CL performs risk assessment IAW AFI 90-802, concludes risk is low, and requests exemption via written memorandum subject to ALC/QA Chief concurrence (1st indorsement) and ALC/CV/DV approval (2nd indorsement). The memorandum shall affirmatively state that that the three conditions above are true.

10.9. Inventory and Inspection Requirements.

10.9.1. TK Custodian Daily Inventory. The person who is responsible for the tool kit will perform an inventory when the tool kit is opened (start of shift), at the completion of a logical sequence of work (defined as a job, task, work step), movement to another area, and end of workday (end of shift). When the kit is opened (start of shift) and at the end of shift, the inventory will be documented on AFSC Form 309. Additionally, perform a visual inventory of all TKs prior to operation of aircraft or equipment when maintenance actions are performed (e.g., engine run, landing gear retraction, flight control operational checks) and upon return to a tool crib/center.

10.9.1.1. During duration of a loaned tool, the individual signing for the tool must perform all required inventory and user maintenance actions.

10.9.1.2. Conduct a comprehensive inventory of all tools, non-CA/CRL equipment when the TK custodian changes. The purpose of this inventory is to perform an extensive inspection of all tools and non-CA/CRL equipment to include condition, identification markings, and accuracy of the MIL/TK/CRL Supplemental listing. Inspect all tools for serviceability IAW TO 32-1-101. Consolidated tool kit/Tool kit (CTK/TK) custodians

document these inventories. The inventory will be documented in FEM/MIS or on a general purpose form.

10.9.1.3. On-Site TK Transfer Inventory [Procedures for transfer of tools and TKs at the job site (on-site transfers)]. TKs are not normally passed from one individual to another at the job site; however, mission needs occasionally require this action to occur. Ensure tool accountability and control is maintained when transfer occurs between the individuals. As a minimum, the individuals involved in the transfer will accomplish a joint inventory and document accordingly.

10.9.1.3.1. The Supervisor, Wage Leader, or designated representative will perform the end of shift inventory of a CTK used by more than one individual. The end of shift inventory will be documented on an AFSC Form 309. **Note:** Upon returning to the work area after sheltering for real-world/exercise events, an immediate and complete inventory of all TKs will be conducted.

10.9.2. Long Term TK Storage Inspections. Groups requiring long term storage will establish secure areas for TK storage. The TK Custodian or designated representative shall inspect using the supervisor's criteria in this chapter and seal TKs before being placed in long term storage. While in storage, the TKs shall be inspected 18 months for inventory content and corrosion prevention. Ensure TMDE in a TK is sent to PMEL for calibration upon removing the TK from long-term storage. Document the inspections on an AFSC Form 309 or in FEM/MIS.

10.9.3. Tool Crib/Room/PSC Inventory (or Authorized Contractor). Perform a visual inventory of all TKs and equipment when issued for use and when returned.

10.9.3.1. The annual inventory of tools and equipment will be documented by attaching a cover letter to the inventory listing used to conduct the inventory and contain the following information: tool crib/center inventoried, date the inventory was conducted, names of the individuals who participated in the inventory, discrepancies found, corrective actions taken, and the supervisor's name and signature.

10.9.4. TK Annual Inspections: An annual comprehensive inventory/inspection shall be conducted of all assigned tools, tool kits, common accessories, TMDE, and support equipment. At a minimum, the inventory shall entail tool location, nomenclature, ID number, and tool quantity. The purpose of this inventory is to perform an extensive inspection to include: condition, identification markings, and accuracy of inventory. Inspect all tools for serviceability IAW TO 32-1-101. A record copy of the inventory listing and inspection results will be kept in the tool room. Document the inventory on an inventory listing, an AFSC Form 309, or in a MIS. The date of the inventory will be documented and kept on file at tool room according to local procedures and used to track when the next annual inspection is due.

10.10. Supervisory Inspections.

10.10.1. Supervisors are responsible for ensuring all tool kits assigned to them and their subordinates are inspected at least once every 365 days. The supervisor's inspections will include verification of the TKCRL and supplemental listing against the tool kit contents as well as ensuring each item has a matching identification number. Documentation of the supervisor's inventory on the AFSC Form 309 or MIS is required. Previous AFSC Forms 309 will be stored/filed until a supervisor review has been accomplished on the current AFSC Form 309. The supervisor or designated representative (**Note:** The designated representative cannot inspect their own tool box.) must inspect tool boxes under their control to:

10.10.1.1. Ensure all items are properly shadowed/inlayed/silhouetted/outlined except for tools inside a POUS.

10.10.1.2. Ensure all items are properly marked or etched excluding TMDE and items too small and impractical to mark/etch (i.e., tools identified on non-marked listing).

10.10.1.3. Ensure kit content matches documentation (i.e., match TKCRL and supplemental list to kit contents, loaned items to kit contents, and lost/broken/missing item documentation to kit contents).

10.10.1.4. Ensure tool kit is free of foreign objects.

10.10.1.5. Ensure no more than one personal drawer is used and only personal items will be stored in the personal drawer.

10.10.1.6. Ensure all tools are serviceable and if not, ensure proper documentation and replacement action is taken. Ensure TMDE is not overdue for calibration IAW TO 00-20-14, *Air Force Metrology and Calibration Program*.

10.10.1.7. Ensure procedures for requiring a second party or on-duty supervisor inspection of TKs when conditions warrant a single person shift. The same individual that signs out a TK cannot sign it back in.

10.11. Procedures for Lost/Found Tool Items.

10.11.1. Lost. Tools identified as missing from a TK will be reported immediately to the supervisor. If a lost tool/item or portion of the tool/item is not found after a thorough search and within one hour, an AFMC Form 310 or MIS will be initiated by the immediate supervisor of the employee who lost the tool/item. The supervisor will also contact the squadron/group TCM immediately for official reporting. The tool/item owner will document the loss on page four of AFSC Form 309 if the tool/item was part of TK. The lost tool/item package (i.e., AFMC Form 310) has a seven workday suspense back to the group TCM once it is issued. The squadron/group TCM will ensure the AFMC Form 310 is complete and has been properly coordinated. Reference DoD 7000.14-R Financial Management Regulation; Volume 12/Chapter 7: Financial Liability For Government Property Lost, Damaged, Destroyed, or Stolen, if applicable. If the item is not located, Squadron Director or Deputy shall determine when the search may be discontinued.

10.11.2. Found. If at any time during the investigation the item/tool is found and retrieved, notify the Squadron Director/Commander and tool crib supervisor (if applicable), Group TCM, maintenance control, QA, first line supervisor, or equivalent of the owning work center. Tools found prior to completion of the lost tool reporting process will be returned to the TK

owner. Tools that are found after the lost tool investigation and reporting process have been completed shall be returned to the tool crib if a replacement tool has already been issued. Recovered tools returned to tool crib shall be either de-marked and returned to stock if serviceable or properly disposed of if unserviceable. Lost items procedures also applies to TOs and stamps.

10.11.3. Aircraft Specific. Aircraft/equipment thought to contain a lost tool/item during the depot maintenance process will be documented by initiating a WCD and transferred to the aircraft forms as a Red 'X' discrepancy and informational note referencing the AFMC Form 310 report number for Lost on Aircraft (LOA) at the point when the AFTO Form/IMT 781 or equipment forms are re-initiated. Local instructions may be developed to include Not Lost on Aircraft (NLOA) and LOA procedures.

10.11.3.1. If the aircraft is in flight test, ensure a Red X is placed on the AFTO Form 781A, a lost tool package is initiated, and the procedures of this manual are followed. The AFMC Form 310 report number will be referenced/documented in the corrective block of the AFTO Form 781A when clearing the discrepancy. The lost tool package, to include the AFMC Form 310 should accompany the aircraft forms to home station.

10.11.4. Cross Group Lost Tool Procedures. If a tool is lost across groups or in an area not usually assigned to the TK owner, the immediate supervisor or alternate supervisor of that area must be notified along with their applicable TCM. This will ensure supervisors are aware of a lost tool in their area of responsibility so appropriate lost tool procedures may be taken. **Note:** The employee who lost the tool will report to their owning organization's TCM for accomplishment of the lost tool report. The TCM will supply a courtesy copy to the TCM of the affected area. (For example: An EMXG employee loses a tool in AMXG. The EMXG employee would notify the AMXG supervisor and AMXG TCM. The EMXG TCM would initiate the lost tool/item report and would also provide a courtesy copy to the AMXG TCM. The AMXG TCM will provide a copy of the Lost Tool Report to the Forms and Records section.)

10.11.5. Lost Tool In An Inaccessible Aircraft Area. When it is suspected that the tool/item has fallen into an inaccessible or unobservable aircraft area, perform a NDI or use borescope equipment to locate the lost tool.

10.11.5.1. If the tool/item is in an inaccessible area that poses no FOD threat and the action is to leave the tool/item in place, the x-ray (or equivalent) with the identification of the exact tool location and copies of all information concerning the lost tool are maintained in the aircraft historical file until the tool/item is recovered.

10.11.5.2. If the aircraft MDS is one that has a PDM or is scheduled for depot modification, the lost tool/item and location is listed in the AFTO Form 345, *Aerospace Vehicle Transfer Inspection Checklist and Certification*, for removal by the depot.

10.11.6. Off-Base Reporting. Deployed TDY teams will coordinate with the host base director or equivalent on all lost tools/items not found. An AFMC Form 310 will be completed and a copy provided to the appropriate TCM IAW local publications.

10.12. Rag Control.

10.12.1. Units will ensure positive control of rags. Units shall establish specific requirements for control of paper products/rags when used in a closure or final assembly. Any paper products/rags used shall meet FOD program requirements and the base Hazardous Waste Management Plan and IAW AFMAN 32-7002, *Environmental Compliance and Pollution Prevention*. Each ALC shall be responsible to ensure cloth rags are controlled and accounted for when used in maintenance processes that require closure procedures or final assembly.

10.12.2. A rag is defined as a remnant of cloth purchased in bulk or a standardized, commercial quality, vendor-supplied shop cloth used in general industrial, shop, and flightline operations. Cheesecloth is considered a rag, however paper products/paper towels are not considered rags.

10.12.3. In FOD critical areas, the rag issue point will verify and record the number of cloth rags issued to an individual in a written or electronic tracking log. Cloth rags shall be returned to the issue point or functional equivalent, counted, and verified. When cloth rags are returned, the individual receiving them shall annotate in the tracking log that the items have been returned. AFMC Form 310 shall be used for any cloth rag that cannot be found.

10.12.4. Marking or identifying each shop rag with a TK number is not necessary. Issue and receipt procedures will be established to ensure positive control and accountability of each rag that leaves a TK area. Some recommended methods of shop rag control include:

10.12.4.1. Issuing rags on a 'one-for-one' swap.

10.12.4.2. Issuing a predetermined number of rags with TKs and include them on the TK contents listing.

10.12.4.3. Issuing rags in pre-packaged containers with the number of rags marked on each container.

10.12.5. Rags will not be cut or torn in order to produce multiple pieces of standardized rags, commercial quality cloths/rags, or vendor-supplied shop cloths/rags.

10.12.6. All employees performing maintenance in FOD critical areas on aircraft, engines, and accessories, or providing a service to these organizations will perform an inspection of the work area prior to closing out a task or moving to another area to ensure that cloth rags have not been inadvertently left in the area.

10.13. Equipment and Accessories.

10.13.1. It is not necessary to include in a TK equipment and accessories which do not present a FOD potential and will not leave the work center, support section, or tool room. However, such equipment and accessories must have designated storage locations established. Designated locations may be work areas or stations. Equipment that is used outside the work center will be accounted for utilizing a general purpose form or electronic equivalent for sign out/sign in. The equipment and shop machinery accessories used within the work center in the line of sight from its designated storage location is not required to be signed out. Equipment will be marked with a number identifying it to the proper tool issue center, PSC, or backshop. Equipment with multiple pieces will have an inventory listing and total piece count to account for all pieces. A photograph showing all total pieces can be substituted as

an inventory listing. The owning organizational supervisor or designated representative will document and sign a yearly inventory of non-CA/CRL equipment.

10.13.2. The ALCs shall establish designated locations for test equipment and common accessories (e.g., waveguides, attenuators, fittings, cables, adapters, etc.) that are not part of a TK. At a minimum, designated locations will be labeled to identify the contents.

10.13.3. Industrial shop machinery accessories/attachments (e.g., blades, arbors, chucks, gears, etc.) need not be controlled as tools, however such items will be maintained in a neat and orderly fashion in a designated storage location for accountability. At a minimum, storage cabinets/drawers will be labeled to identify the contents.

10.13.4. Shop machinery accessories/attachments and/or end items used to adjust or operate equipment that is used for TDY support shall be marked with the ALC's identifier code and with a number identifying it to the proper tool issue center, PSC, or backshop.

10.13.5. Shop equipment will be secured when not in use in designated storage locations (e.g., secured building, caged areas, cabinets, etc.). Shop machinery accessories/attachments will be kept and stored in a neat and orderly fashion. At a minimum, storage cabinets and/or drawers will be labeled to identify the contents as 'Shop Machinery Accessories/Attachments'.

10.13.6. Supervisors will be responsible for the security of shop equipment when not in use. Individuals will be responsible for equipment that is signed out until it is returned to the owning shop. Shop accessories do not need to be secured due to equipment operation requirements.

10.14. Temporary Duty (TDY) Teams.

10.14.1. Procedures to issue, receipt, and control TKs used to support TDY teams and tool control procedures for TDY personnel. Tools issued to personnel to support TDYs shall be tracked in FEM or equivalent.

10.14.2. Tools used to support a TDY, only if taken from an existing CTK or ITK, will have an AF Form 1297 documenting tool NSN, nomenclature, and quantity of tools. AF Form 1297 will be with the tools to serve as a TKCRL and a copy of the AF Form 1297 will be included in the existing kit to ensure accurate inspection and inventory records are maintained. All copies will be signed by the employee and supervisor, and a line will be drawn through the unused portion of the listing. If TMDE is included in the tools taken TDY, a copy of the AF Form 1297 will be given to the PME monitor for their records. All inventories of such tools will require AFSC Form 309 for the daily and supervisor's inventories.

10.14.3. Tools checked out of a tool crib/PSC to support a TDY will be requested on a tool request form and tracked in the FEM. A TKCRL will accompany the tool kit. TKs remaining at TDY locations will be inventoried and transferred between team chiefs on a tool request form. A copy of the tool request form will be forwarded to the issuing tool crib by the returning team chief upon return. While TDY, team chiefs will coordinate with the issuing tool crib on broken/replacement tools.

10.15. Point Of Use Station (POUS).

10.15.1. POUS may be identified as a vending machine type of equipment, a cabinet, a Vidmar, a locker system, a controlled room, a tool box, or any combination of the various types.

10.15.2. POUS Inspections. POUS machines shall be inventoried by the owning organization on a quarterly basis and identity tags verified for content. The POUS database or inventory shall, at a minimum, capture the part number, nomenclature, minimum or maximum stock levels, and quantity on hand of each item contained in the POUS, and shall have an auditable process. The database shall also allow the user to capture any required inspections. POUS used as CTKs will be inspected using CTK guidelines.

10.15.3. POUS containing tools, common accessories, support equipment, consumables, and CA/CRL equipment will be identified, managed, and documented, and must be secured by the owning organization's contracting officer's representative (COR) or contractor.

10.15.4. POUS may be used to control and account for various types of items to include, but not limited to, tools, common accessories, support equipment, consumables, CA/CRL items, hardware, parts, absorbent pads, PPE, TMDE and office type supplies (e.g., serviceable tags, plastic bags, Kimwipes, pens, notebooks, etc.).

10.15.5. Consumable items in a POUS will be managed to ensure material is not pilfered. High pilferable items will be identified and may be placed in a POUS. High pilferable items requires a 'one-for-one' swap. Supervisors will monitor reports to identify high pilferable items.

10.15.6. The POUS database shall, at a minimum, capture the part number, nomenclature, minimum or maximum stock levels, and quantity on hand of each item contained in the POUS, and shall have an auditable process. The database shall also allow the user to capture any required inspections.

10.15.7. Tools to include TMDE contained in a POUS must be in a section which limits access to only tools for that transaction.

10.15.8. Expendable tools in POUS are not allowed in Functional Test Flight, Engine Test Cells, and Fuel Cell maintenance areas.

10.15.9. Organizations may place expendable tools in commercial vending machines (i.e., POUS) in production areas if, at minimum, the following steps are taken:

10.15.9.1. The POUS must only issue one item at a time (e.g., a drawer full of drill bits, etc.) or the number of items the mechanic requested.

10.15.9.2. Process must be auditable to the number of items each mechanic is withdrawing from the vending machine.

10.15.9.3. A 'one-for-one' swap will be required in these areas, however the mechanic is still responsible for the number of expendable tools in the mechanic's possession and is required to comply with lost tool/item procedures if an expendable tool is lost.

10.15.10. PPE may be stored in a POUS.

10.15.11. Cloth rags will not be stored in POUS within critical FOD areas.

10.15.12. Titanium Engine Blade Blending or Oxygen System Use. Tools/expendable items used for titanium engine blade blending or oxygen system maintenance will be kept in special purpose kits separate from other tools. In addition to normal TK identification, kits will be marked 'For Titanium Engine Blade Blending Only'. For tools utilized in oxygen system maintenance, mark the kits with the following statement: 'For Oxygen System Use Only'.

10.16. Electronic Tools (E-Tools).

10.16.1. E-Tools (e.g., desktop and laptop computers, hand held devices, portable maintenance aids, etc.) are common infrastructure, allow access to logistics information systems, update TOs, provide automated change requests similar to AFTO Form 22, and integrate with other MIS.

10.16.2. E-Tools purchased and used for the purpose of viewing digital technical data and/or for maintenance documentation must be accounted for as ADPE IAW 33-series AFIs and tracked in FEM/MIS. E-tools designed specifically for a weapon system (e.g., F-35, F-22, etc.) will be accounted for on an equipment account (i.e., CA/CRL) and tracked in FEM/MIS if stored in a tool crib/center or equivalent.

10.17. Maintenance Support Group (MSG)/Authorized Contractor Tool Crib. Shrouded tool/equipment compliance: Tools or equipment used IAW TO 1-1-8, *Application and Removal of Organic Coatings, Aerospace and Non-Aerospace Equipment,* will be properly cleaned, disposed of, and/or stored IAW local ALC procedures and/or local manufacture procedures.

10.17.1. Tool Replacement Procedures. A stock of spare tools is authorized to replace broken, worn, or missing tools to prevent unnecessary work delays. Spare and expendable tools are highly pilferable and pose an increased fraud, waste, and abuse potential.

10.17.2. Conduct annual inventories of the main tool room, tool issue, and temporary loan centers using the FEM/MIS reports. Inventory results will be analyzed and retained by the tool control function to identify and implement corrective actions.

10.17.3. Prepare inventory adjustment variance reports from periodic inventories. Inventory adjustments will be reviewed and approved by the tool management function. The variance report will be retained for not less than one year.

10.17.4. An end of shift inventory is required for all areas that temporarily loan tools, tool kits, common accessories, TMDE and support equipment. Document the inventory on an inventory listing, an AFSC Form 309, or in a MIS.

10.17.5. DTKs. DTKs assigned and maintained within a tool crib/center will require an AFSC Form 309 to document inspections as follows: When the DTK is issued and returned to the tool crib/PSC during the same shift/day, the responsible mechanic along with the tool crib/PSC attendant will perform a joint inventory. If the DTK is not returned during the same shift/day, the responsible mechanic will complete all required inspections and initial page one of the AFSC Form 309. Pages two and three may be used as required and page four will be used to document lost tools. At least once every 365 days, the tool crib/center supervisor or designee must inspect the DTKs assigned to a PSC/tool crib and document on page four of AFSC Form 309.

10.18. Overview of Responsibilities.

10.18.1. Maintenance Support Group/Authorized Contractor is responsible to maintain a supply of common hand tools and other items as required to satisfy normal daily demands for the following:

10.18.1.1. Replacement of unserviceable items.

10.18.1.1.1. Issue of temporary items.

10.18.1.1.2. Issue of permanent items.

10.18.1.1.3. Determine reorder points using the authorized tool management system.

10.18.1.1.4. Label bins with the NSN or part number, nomenclature, and bin location.

10.18.1.1.5. Manage assigned TMDE IAW TO 00-20-14.

10.18.1.1.6. Assemble requested tool kits utilizing an established template.

10.18.1.1.7. Issue tool kits using the TKCRL as the permanent record of issue.

10.18.1.1.8. Control TKCRL IAW this chapter.

10.18.1.1.9. Maintain a file copy of turned-in kit TKCRL IAW paragraph 1.12.1.

10.18.1.1.10. Issue no more than one ITK per technician on a permanent basis except as authorized.

10.18.1.1.11. Ensure no credit is given against any TKCRL for any unmarked or misidentified tools turned into the tool center.

10.18.1.1.12. Support maintenance group TDY teams with necessary tools and TMDE on a short term loan for the duration of the TDY.

10.18.1.1.13. Notify the maintenance groups of all overdue tools.

10.18.1.1.14. Tool crib/centers will not issue tools individually from DTKs. When a recurring need exists for common tools to be issued individually (e.g., hammers, screwdrivers, pliers, drills, wrenches to perform routine, housekeeping or facility tasks within the work center), add the tools to a TK.

10.18.2. Maintenance Group Responsibilities.

10.18.2.1. Designate custodial responsibility for production managed tool cribs/centers.

10.18.2.2. Prepare documentation justifying specific hand tool requirements.

10.18.2.3. Notify the MXSG tool crib/center in writing of a TK requirement before the employee’s projected start/need date. At a minimum, the request will provide the employee's name, employee's ID number, phone number, RC/CC, and the required template.

10.18.3. Warranty Tool Management. The purpose of a warranty tool management program is to ensure high quality industrial-strength warranted tools are available for use in aircraft and equipment activities. Warranty tools shall be purchased using a GPC or through local contracts with a warranty tool vendor. Units desiring to establish a warranty tool program must coordinate the program through both the supply and contracting squadrons. Detailed

management procedures are contained in AFI 23-101. MXSG/AC will maintain an active warranty tool program. No attempt to repair and/or modify any warranty tool will be made by either users or program managers.

10.18.4. Modifications to tool containers/kits are authorized if approved through local manufactured tool procedures, or unapproved if modifications void the manufacturer's warranty or renders the container/kit unserviceable.

10.18.5. Tool Acquisition. All tool purchases must be reported to authorized tool manager or MXSG for input into the FEM for accountability and tracking purposes. Ensure tools are not acquired by any organization other than MXSG/Authorized Contractor/TCM without written approval (i.e., email will suffice).

10.18.6. Depot Field Teams (DFTs). Depot On-Site Contractor Augmentee Team (DOCAT) employees performing depot maintenance functions will be issued tools from tool crib/PSC and will comply with all applicable tool control instructions.

10.18.7. Tool Crib Center/Center Operations.

10.18.7.1. Limit tool issue sections to no more than one per work center. Establish procedures to ensure custodial control. Set up tool rooms to ensure accountability.

10.18.7.2. The tool crib/tool issue center must be capable of being locked and afford protective measures such as monitoring, 24-hour coverage, or controlled key access. Tool issue center supervisor authorizes access to tool rooms for ALC only. When all CTKs/TKs are not capable of being secured in the tool room/tool issue center, the section tool issue center/supervisor will design a process to prevent the unauthorized use or access to tools and equipment. Due to space and facility limitations, it may not be possible to store oversized tool kits in the tool room/tool issue center/crib.

10.18.7.3. Tool cribs/tool issue centers will be in a secured and controlled area and will be used for the purpose of maintaining and stocking tooling/equipment, locally manufactured, modified, or special end item unique tools and equipment. Tool crib/tool issue center will be secure so that the only access is through lockable doors. The tool crib/tool issue center supervisor authorizes access to the tool crib/center. Tool cribs/tool issue centers may store, order, and/or issue consumable or expendable type items needed to support the production efforts of a particular unit or weapon system.

10.18.8. Overdue Tool Reporting. The tool crib/tool issue center will notify the supervisor/mechanics and the Group TCMs of delinquent tools utilizing FEM/MIS reports. Supervisors are responsible to check the tool crib/tool issue center and notify employees that have delinquent tools. Employees with delinquent loaned tools will not be allowed to check out additional tools until the delinquent tool has been recovered. Tool management employees may also post a list regarding over-due tools at the tool crib or issue point.

10.19. Locally Manufactured/Modified Tools and Equipment (LM/MT&E). LM/MT&E is defined as items (to include fixtures) developed, manufactured, modified and controlled by the ALCs (e.g. X numbered tools). LM/MT&E does not include tools authorized in specific formal DOD T.O. data or aircraft/engine/commodity end items.

10.19.1. Procedures. All LM/MT&E used on aerospace equipment must be approved by the MXG/EN (Group Engineering Office) or their designated representative. This procedure does

not apply to local manufacture, modification or design of tools authorized in specific technical data. As requested by engineering, Safety coordinates on LM/MT&E. Engineering will review items and requirements biennially (every two years) for applicability and current configuration.

10.19.2. Requests for approval of LM/MT&E must include a description of the item and its intended use, a list of materials required, cost, and procedures for manufacturing the tool. Include photos, sketches and/or drawings. The engineering office will have access to sketches and/or drawings, photos and documentation of all approved LM/MT&E. Tools/equipment identified and approved for construction in a formal DOD T.O. are considered pre-approved and do not require approval. Production shops shall ensure that all tools and equipment that is utilized in the processes in their shops that are not referenced in technical data have been authorized by LM/MT&E review procedures. All LM/MT&E will be marked with a tracking number that link the item back to the approving engineering section's record package.

10.19.3. Each MXG will utilize a tracking system and a local publication to approve and account for LM/MT&E. 10.19.4. All LM/MT&E must meet applicable Air Force Occupational Safety and Health (AFOSH), explosive safety, and USAF standards. All equipment designated for use with nuclear weapons test and handling must meet requirements in AFI 91-103, *Air Force Nuclear Safety Design Certification Program*.

10.19.4. Tools listed and issued to a TK will not be modified. Dressing or sharpening of tools is allowed IAW TO 32-1-101 and does not constitute a modification. When LM/MT&E are added to TKs the tracking number will be documented on the supplemental listing, and will be marked with the TK ID. LM/MT&E too small or impractical to mark will fall under the guidance of paragraph. 10.8.12 of this manual.

10.19.5. When LM/MT&E has been determined no longer serviceable or required by Process Engineering, the tool will be turned into DLADs following local procedures. The LM/MT&E will be removed from the modified tool/equipment database.

10.19.5.1. All markings will be removed from LM/MT&E prior to delivery to DLA for disposal.

10.19.6. Roles and Responsibilities for LM/MT&E.

10.19.6.1. Production/Process Engineer will:

10.19.6.1.1. Apply roles and responsibilities from AFSCI 21-402, *Industrial Process Control*.

10.19.6.1.2. Determine and document applicable technical requirements described in paragraph 10.19.6.1.8. All technical requirement documents will be provided to the applicable scheduler for an auditable file upon completion of the job.

10.19.6.1.3. At no time shall the item condition affect form, fit, or function of an aircraft, engine, missile, or commodity without receiving proper documented coordination and approval from the Program Office/Supply Chain Engineering Authority. When Production/Process Engineering is not the engineering authority, contact the Program Office/Supply Chain Engineering Authority to approve use of LM/MT&E.

10.19.6.1.4. Determine and document technical data requirements (including configuration management of technical data) as appropriate. Technical data requirements may include: technical orders, specifications, standards, drawings, engineering change orders, process orders, storage, marking, first article testing, etc. When Production/Process Engineering is not the engineering authority, clarifications and/or deviations from technical data (e.g. technical orders, drawings) require an approved AFMC Form 202. Ensure items manufactured are identified by a unique drawing number, with a corresponding revision letter, and differentiating part numbers for each: dash, find, or detail on the drawing. At a minimum all blueprints and/or drawings provided will include all information necessary to manufacture the part without relying on the local planning or manufacturing functions to supply engineering judgment. Required information includes, but is not limited to, the following: complete dimensioning of every feature on every part, complete tolerances on every dimension, and complete surface finish requirements on every surface. If the drawing requires the purchase of an off-the shelf component it must call out the item by: original manufacturer's part number and either original manufacturer's name, or original manufacturer's CAGE code, or both. If the drawing requires processing in accordance with any industry or Government standard, that standard and its applicable revision will be called out. The drawing will define all applicable materials, alloys, and conditions for each detail that is to be manufactured. Use of generic terms such as "aluminum" or "metal" should not be used. Similarly the use of equivalency statements should not be used. Threaded features should include a complete class code. Welded joints should include instructions on joint preparation and shall either include the type of filler rod to be used or the mechanical properties of the filler rod. If the engineering function intends for any manufacturing limitations to exist, they should include them on the face of the drawing. If a part is to be manufactured from the 3-D solid model the face of the drawing shall include an unambiguous note to define the location of all relevant engineering data the part is to be manufactured from.

10.19.6.1.5. Determine verification requirements of raw material conformity. Determine if raw stock certificate of conformance is required or if lab verification of raw materials is required. Seek clarification of raw material verification requirements from the Program Office/Supply Chain Engineering Authority though an AFMC Form 202 if required.

10.19.6.1.6. Ensure end items requiring testing are sent to a qualified lab (e.g. Quality Verification Center (QVC), Metallurgy Lab). The results of the inspection or testing will be provided to the applicable scheduler for an auditable file.

10.19.6.1.7. Perform validation to ensure the LM/MT&E satisfies the intended function. When appropriate, include the Program Office/Supply Chain Engineering Authority in the validation process.

10.19.6.1.8. If the LM/MT&E requires certification/calibration, identify the PME program using form AFTO 45, *Request for Calibration Responsibility Determination*.

10.19.6.2. IET/Planner will:

10.19.6.2.1. Construct a WCD (or similar) for each locally LM/MT&E. The WCD (or locally approved form) will include task sequence.

10.19.6.2.2. Ensure process sequence steps are noted on drawings, when applicable.

10.19.6.2.3. Coordinate proposed updates/additions/substitutions with the Production/Process Engineer. Coordination will be documented IAW paragraph 18.37.2.1.3.2.

10.19.6.2.4. When the Production/Process Engineer is the engineering authority, proposed updates/additions/substitutions made to technical data must be coordinated with the Production/Process Engineer, otherwise, coordinate with the Program Office/Supply Chain engineering authority. Coordination will be documented IAW paragraph 18.37.2.1.3.2.

10.19.6.2.5. Ensure raw material certifications are tracked and recorded. When raw material cannot be specifically identified as to type, hardness, number, etc., as requested, analysis and proper identification by a qualified lab (e.g. Quality Verification Center (QVC), Metallurgy Lab) is required. When Production/Process Engineering is not the engineering authority, contact the Program Office/Supply Chain Engineering Authority for clarification of raw material verification requirements though an AFMC Form 202. Otherwise, the Production/Process Engineer will determine raw material verification requirements.

10.19.6.3. Production Controller/Scheduler will:

10.19.6.3.1. Apply all roles and responsibilities from paragraph 7.3.5. In particular, receive completed WCDs (or similar) for each part and retain electronically or hard copy in an auditable file IAW paragraph 1.12.1.

10.19.6.3.2. Receive all technical data documentation for each part from the Production/Process engineer and retain electronically or hard copy in an auditable file (with the applicable WCD or similar) IAW paragraph 1.12.1.

10.19.6.4. Quality Assurance Specialist will:

10.19.6.4.1. Apply all roles and responsibilities from **Chapter 8**.

10.20. Training Overview.

10.20.1. For a strong, viable tool and equipment management program, all personnel who use tools and equipment in their daily work requirements must receive appropriate training. This training must stress all aspects of tool control including individual responsibilities and the consequences of noncompliance. Training programs will be a combination of classroom, on the job training (OJT), and supervisory briefings.

10.20.2. Training Requirements. Each ALC will use the initial Tool Control and Accountability Course for initial training and the web based Tool Control and Accountability Course for refresher training. The Command courses will be modified to include local procedures outlined in this manual. All employees who work with tools and equipment, including QA, and the immediate supervisor will receive the initial tool control course and refresher training. Initial training will be requested within 30 days of assignment to a maintenance position. Tool Control and Accountability Course refresher training is required

triennially (i.e., every 36 months) for employees or supervisors of employees who use tools and/or equipment in their work centers. Accommodations to the 30-day initial training will be considered due to unforeseen circumstances and will be handled on a case-by-case basis.

10.20.3. Documentation. All tool and equipment management training will be documented in the TSS.

10.21. Supervisor Initial Work Center Briefing.

10.21.1. Supervisors will conduct an initial work center specific tool and equipment management briefing with newly assigned individuals prior to first time use of tools/equipment or within 30 days of assignment. Supervisors will cover accountability procedures and lost and found tool/item procedures at a minimum. Work center briefings will be documented on a form of choice and available on file if requested. Supervisors will ensure all assigned personnel are familiar with lost, found, and missing tool procedures.

10.21.2. Ensure all individuals including contractors in TDY status, or those that are transferred or loaned from another unit, receive a work center briefing prior to initial use of tools/equipment in that area. All newly assigned personnel (i.e., temporary, contractors, transferred, and those on loan to the production areas) will receive a work center specific tool and equipment briefing emphasizing policies and procedures.

Chapter 11

MAINTENANCE OPERATIONS CENTER (MOC)

11.1. Maintenance Operations Center (MOC). The MOC monitors and coordinates maintenance production and execution of the flying and maintenance schedules while maintaining visibility of aircraft status. Through coordination with the maintenance units, the MOC communicates priorities for competing limited resources (e.g., fuel or calibration docks, wash racks, and dispatched specialists from the maintenance squadrons) based on maintenance priorities. The exchange of information between squadrons and the MOC must be sufficient in detail to allow the MOC to comply with reporting requirements and to identify potential problems. The MOC will maintain a '24/7' hour operation with a minimum manning requirement of two personnel per shift.

11.2. The MOC will:

11.2.1. Publish local radio call signs for maintenance Land Mobile Radio (LMR) networks.

11.2.2. Ensure aircraft status and Expected Time In Commissions (ETICs) are properly reported.

11.2.3. Monitor the progress of aircraft FCFs.

11.2.4. Inform affected activities of changes in priorities, plans, and schedules.

11.2.5. Coordinate on changes to the flying schedule with applicable agencies.

11.2.6. Request support services (e.g., standby firefighting capability, airfield water and snow removal, fueling and defueling services, civil engineering support, control tower clearances for ground movement of aircraft and equipment, etc.).

11.2.7. All squadrons will coordinate and gain MOC approval on all aircraft engine runs, fuel requests, and all aircraft ground movements conducted by maintenance personnel prior to execution.

11.2.8. Develop, implement, and maintain functional checklists.

11.2.8.1. Functional checklists are required for use during actions such as aircraft crash, flight line fire, severe weather warning or evacuation, runway closure, Quick Reaction Checklists, and any other unusual circumstances deemed necessary. Use unit operational plans as a guide in developing the checklists. Checklists contain those actions required to be taken by functional areas. The MOC maintains checklists IAW ALC local guidance.

11.2.9. Ensure all deviations to the flying schedule are reviewed and accurately reported.

11.2.10. Notify appropriate agencies.

11.2.11. Notify the safety office, QA, and FOD monitor of mishaps involving aircraft FOD and aircraft damage.

11.2.12. The MOC senior coordinator or representative will attend the production/scheduling meeting.

11.2.13. IAW AFI 21-103, the Maintenance Debrief will enter all flying hour information into REMIS NLT the next duty day after the occurrence. All FCFs shall be updated in REMIS

and installed engine times shall be updated in CEMS, G081, or the Integrated Maintenance Data System (IMDS), as applicable.

11.3. The MOC Personnel will:

11.3.1. Personnel will have experience on at least one assigned weapons system.

11.3.2. The MOC senior controller or representative will attend the production/scheduling meeting.

11.3.3. The MOC senior controller will establish a proficiency training program for MOC operations to familiarize personnel with every aspect of the MOC operations.

11.3.3.1. Assist in overall management of the MOC, and enforce radio and telephone discipline.

11.3.3.2. Oversee all status and aircraft location displays and computer systems for timely and correct entries.

11.3.3.3. Monitor hard copy publications, checklists, plans, instructions, regulations, recall rosters, and schedules by conducting an annual review.

11.3.3.4. Ensure the MOC is secure at all times (i.e., no unauthorized personnel entry and personnel, who are allowed, to enter are escorted until departure).

11.3.3.5. Be knowledgeable of procedures for real world and exercise conditions, and be able to react as required.

11.3.4. MOC Controllers will be able to interpret and analyze weather information received from the Weather Flight and react in the appropriate manner as required. Act as the focal point and controlling agency for the protection and preservation of resources.

11.3.4.1. Prepare daily reports/briefings reflecting information as needed.

11.3.5. Local Aircraft Production Engineering will ensure the MOC is informed of all limiting factors to production caused by facilities and ramp maintenance.

11.4. Visual Aids and Displays. The MOC will maintain visual aids either electronic or manual to show the status, ETIC, and location of each aircraft on station. Ensure status boards depicting aircraft status and location comply with program security guidelines. The visual aids will provide ready access to critical data. Computer terminals may be used in place of visual aids. Visual aids will display the following:

11.4.1. Aircraft Status will be displayed IAW local MIS. Any changes to the aircraft status will be reported to the MOC immediately.

11.4.2. Flying Schedule. Display the individual aircraft scheduled for flight each day with the following information columns, as a minimum, aircraft serial number, takeoffs, and remarks. Any changes to the flying schedule will be reported to the MOC immediately.

11.5. MOC Facilities. The MOC should be located near the flight line. The facilities must meet the following minimum standards:

11.5.1. A completely enclosed room with air conditioning and heating. An observation room is permitted. The doors to the MOC and the observation room will be either mechanically or electrically locked to control access.

11.5.2. Isolate MOC electrical power circuits. Provide a standby power source and emergency lighting. Establish procedures to operate standby power sources or suitable relocation site.

11.6. MOC Maintenance Communications. Reliable, redundant, and effective communications systems are essential for efficient operation. Maintain 'comm-out' procedures to include loss of radios, Local Area Network (LAN), and phone. Personnel shall receive initial radio operating training before assuming duties involving radio operation.

11.6.1. A Very High Frequency (VHF)/Ultrahigh Frequency (UHF)/High Frequency (HF) radio is authorized to provide communications between aircraft and maintenance.

11.6.2. Each MOC will have a hotline on the secondary crash phonenet.

11.7. Aerospace Vehicle Distribution Officer (AVDO). The AVDO will ensure aircraft status is properly reported and maintained, and accurately reports all assignment/possession changes through the Lead Command AVDO.

11.7.1. IAW AFI 21-103, the AVDO will enter all flying hour information into REMIS NLT the next duty day after the occurrence.

Chapter 12

AIRCREW EGRESS SYSTEMS MAINTENANCE PROGRAM

12.1. AFSC Egress Maintenance.

12.1.1. AFSC Egress personnel are responsible for all egress systems maintenance and must be trained and certified before being authorized to maintain or inspect aircraft egress systems.

12.1.2. All personnel will use the Demand Response Team when directed by TOs, during any task requiring the removal/installation of explosive components, and during egress final inspections. Team selection will be IAW paragraph 1.9. Supervision will recommend and ensure team members are PAC certified to perform egress maintenance.

12.1.3. Aircrew Flight Equipment (AFE) personnel (i.e., Air Force Specialty Code 1P0X1, including civilian equivalents) will remove/install parachutes/survival kits from all nonejection seat equipped aircraft. Egress personnel will perform these tasks on ACES II and Martin Baker (i.e., MK-16 series) equipped aircraft. All personnel will complete appropriate training, certification, and familiarization requirements (reference paragraphs 12.6., 12.7., and 12.9.).

12.1.4. AFE personnel will retain all administrative control over ACES II survival kits and personnel parachutes (i.e., documentation of all time changes in the IMDS) and tracking of serially controlled items stored within survival kits and serially controlled items on the personnel parachute assembly.

12.1.5. AFE personnel will maintain control over spare survival kits and personnel parachutes within their facility. One set of serviceable spares will be ready for each assigned airframe to support any Red Ball maintenance that may occur. **Note:** Spares ready for Red Ball Maintenance may be stored in the Egress Section if the AFE Section is not manned 24/7.

12.1.6. Egress personnel will locate inadvertent beacon activation on the flightline. AFE personnel will locate inadvertent beacon activations within their shops/vehicles.

12.1.7. The AFE Superintendent (i.e., Air Force Specialty Code 1P0X1 or civilian equivalent) is the focal point concerning parachute/survival kit system technical issues.

12.1.8. Removal and installation of emergency oxygen cylinders, lines, and quick disconnects attached to ejection seats will be accomplished by egress personnel.

12.2. Facilities.

12.2.1. The installation commander will provide an enclosed shop facility, separated from other inhabited buildings or areas whenever possible, for off-equipment egress maintenance.

12.2.2. Egress facilities will have limited access to ensure system integrity and will also be properly licensed for explosive component storage. Explosives are listed on an AF Form 2047, *Explosive Facility License*, and maintained within the Egress Section.

12.2.3. Facility must be large enough to accommodate the average number of egress components requiring maintenance and storage at any one time.

12.2.4. The egress section‘s licensed explosive facility will not exceed the licensed Net Explosive Weight (NEW) capacity for each Hazard Class Division (HC/D) without approval from the Wing Weapons Safety Office. Reference AFMAN 91-201 for additional restrictions.

12.2.5. Only egress section personnel will be authorized unescorted entrance to the egress licensed explosive location.

12.2.6. All off-equipment ejection seat maintenance will be accomplished in the Egress Section maintenance facility.

12.3. Safety Requirements.

12.3.1. Personnel will strictly adhere to all safety requirements IAW AFMAN 91-201, AFI 91202, AFI 11-209, *Aerial Event Policy and Procedures*, and all 11A-, 11P-, 13A-series, and aircraft-specific TOs.

12.3.2. Operators of an explosive laden vehicle must have completed and be current on Egress Explosive Safety Training and qualified on the particular type of vehicle being driven IAW AFI 24-301, Ground Transportation.

12.3.3. The use of safety pins without an appropriate streamer properly attached is strictly forbidden. Only authorized flight safety pins will be installed on aircraft egress systems. Substitute safety devices are strictly prohibited.

12.4. Classification Training.

12.4.1. Egress personnel will meet mandatory training requirements IAW AFI 36-2650 "Maintenance Training", this manual, and the CTP/Career Field Education and Training Plan (CFETP).

12.4.2. Government and contractor egress maintenance personnel who possess, at a minimum, one year of experience within the last three years performing egress intermediate-level and organizational-level maintenance, repair, inspections, etc., may be considered for a waiver to the classification training requirements. Waiver requests will be submitted to the Command Egress functional manager for review. The Command Egress functional manager will then forward the waiver to the HAF 2A6X3 Career Field Manager for final approval or disapproval. If the waiver is disapproved, the individual must complete classification training.

12.5. Initial Certification of Egress Personnel.

12.5.1. Once classification training is complete, egress personnel must successfully complete an Air Force Education and Training Command (AETC) egress technician course for the specific aircraft to be maintained. **Exception:** ACES II-trained and certified egress Staff Sergeant (SSgt) 5-level or above being reassigned to another base or unit maintaining ACES II-equipped aircraft are not required to complete the organizational maintenance (O/M) on equipment egress technician course. Whether or not these individuals attend the O/M course is the decision of the Egress work center supervisor.

12.5.2. Personnel are certified to perform egress systems maintenance by demonstrating adequate proficiency to a designated certifying official in the egress systems work center. Certification pass/fail criteria will be established by the egress work center supervisor. Document certification IAW AFI 36-2650, *Maintenance Training*. Retrain any individual who fails the practical evaluation until the individual demonstrates adequate proficiency or withdraw the individual from training. If egress personnel are withdrawn from training, retrain IAW AFI 36-2650. **Note:** Egress is an SSQ task.

12.5.2.1. Reference **Chapter 20** for additional information concerning Egress SSQ qualification, re-qualification, and disqualification requirements.

12.5.3. (AMARG only). There are normally no requirements for specific egress training on an aircraft that is being maintained in storage or that is being processed into reclamation. For aircraft being processed into storage, egress personnel shall be qualified and certified to perform all egress tasks in support of the storage function. Training for Process-In aircraft egress systems tasks of Cartridge Actuated Device/Propellant Actuated Device (CAD/PAD) Removals (CADRE) shall be managed as critical tasks and training shall include the use of locally developed standard SOJT training guides and worksheets. The Process-In training program shall provide for the development and delivery of training using the most qualified SMEs. The individual may come from AMARG on aircraft systems previously trained or worked. When no local SME exists, training shall be provided by the most qualified source (i.e. qualified egress system mechanic from the aircraft losing organization). The AMARG designated egress SOJT trainer or qualifier shall only qualify individuals who can perform the function safely, and all elements of the respective SOJT training guide and worksheet have been accomplished.

12.6. Initial Certification of Non-Egress Personnel.

12.6.1. Non-egress personnel must successfully complete an AETC egress technician course for the specific aircraft to be maintained. **Exception:** AFE personnel do not have to complete the technician course unless employed as egress augmentees.

12.6.2. After completing the AETC technician course, non-egress personnel will be initially certified IAW paragraph 12.5.2. Non-egress personnel will also be recertified IAW paragraph 12.5.2.

12.6.3. Quality Assurance Evaluators (QAEs) exclusively performing contract surveillance do not have to be certified, however if performing egress maintenance, the QAEs must be certified.

12.6.4. All egress augmentees will complete Egress Explosive Safety training.

12.7. Decertification.

12.7.1. Decertify any individual who fails to demonstrate adequate proficiency or who has a documented administrative action that could adversely affect job performance.

12.7.2. Decertify non-egress personnel who have not been recertified in the past 180 days. Decertify egress personnel after not having performed egress maintenance for more than 18 months. Instructing and inspecting egress maintenance is not considered performing maintenance.

12.7.3. Document de-certification IAW AFI 36-2650.

12.8. Recertification.

12.8.1. The purpose of recertification is to ensure personnel still maintain the required knowledge and skills to safely maintain and/or inspect egress systems.

12.8.2. Recertify non-egress personnel at minimum every 180 days.

12.8.3. Recertify egress personnel after not having performed egress maintenance for at least 18 months.

12.8.4. QAEs exclusively performing contract surveillance do not have to be recertified, however if performing egress maintenance, the QAEs must be recertified.

12.8.5. Recertification procedures are identical to initial certification procedures and will be accomplished IAW paragraph 12.5.2. and document recertification IAW AFI 36-2650.

12.9. Using Newly Assigned Uncertified Egress Personnel.

12.9.1. Newly assigned uncertified egress personnel may assist in performing egress systems maintenance but will never 'clear' (i.e., sign off) AFTO Form 781-series entries in the MIS, condition tags, or WCDs.

12.10. Egress/Cockpit Familiarization Training.

12.10.1. The intent of egress familiarization training is to ensure non-egress personnel are aware of the hazards associated with an egress system and what to do if a hazard exists. As a minimum, initial and refresher (i.e., 24 month) egress/cockpit familiarization training will include location and installation procedures of egress system safety devices, cockpit entry/exit procedures, procedures for determining whether or not an egress component is expended, emergency procedures associated with an expended egress component, and local maintenance concerns identified by the egress work center supervisor.

12.10.2. Only egress personnel certified on assigned egress system(s) will conduct egress familiarization training. **Exception:** Maintenance Training Section (MTS) personnel may conduct this training provided they have AETC Egress classification course and met requirements contained in paragraph 12.6., and paragraph 12.8. Non-egress personnel may administer training media (i.e., slide show/video) during refresher familiarization training. Direct all students to the egress section for any questions concerning course subject matter or technical assistance.

12.10.3. Training media must either utilize current media produced by the 367th Training Support Squadron (TRSS) listed on the 367th TRSS "The Griffin" website at: https://367trss.hill.af.mil/ or meet the approval of the 2A6X3 MAJCOM Functional Manager (MFM) or civilian equivalent.

12.10.4. All non-egress personnel who access aircraft cockpits with egress systems must complete initial and refresher familiarization training.

12.10.5. The egress work center supervisor will review and validate all egress familiarization training documents, at minimum, every 24 months.

12.10.6. Initial egress familiarization training will be 'hands-on' using an aircraft. Units desiring to use an aircraft maintenance trainer instead of an aircraft must submit a request through the group commander to HQ AFMC A4M for approval or disapproval.

12.10.7. Refresher familiarization training may be conducted using an aircraft, maintenance trainer, and/or any media desired by the egress work center supervisor.

12.10.8. New personnel to the unit must receive initial familiarization training prior to accessing cockpits unless last duty position involved same mission design aircraft as current duty position. Personnel not requiring initial training will attend refresher training when they become due. Individuals overdue for "24-month" egress familiarization training will not access aircraft cockpits until they complete familiarization training.

12.11. Units with Unique, Experimental, or Test Aircraft.

12.11.1. If training courses are not available through AETC, units must use inter-agency training before considering nongovernment training sources. If courses in both of these sources are not available, units must establish a documented training program that meets the intent of this manual. The program must provide for training by the most qualified personnel and must be approved by the MFM prior to implementation.

12.12. Egress Systems Inspections and Documentation.

12.12.1. All systems 'Red X' provisions. Only certified egress personnel will 'clear' (i.e., sign off) egress system discrepancies.

12.12.2. A certified egress production inspector will inspect any disturbed integral part of the egress system. The inspection must be an egress final inspection unless another inspection is prescribed by technical data.

12.12.3. Egress personnel will conduct an 'egress final' every 30 days on ejection seats where personnel/recovery parachutes and/or survival kits are integral parts of the ejection seat. Egress personnel will also conduct an 'egress final' when any maintenance other than a visual inspection is performed on an integral part of an ejection seat.

12.12.4. Cannibalization Actions.

12.12.4.1. Egress system component CAD/PAD cannibalization actions are considered 'High-Risk' and should not be performed unless priority aircraft are involved (i.e. higher headquarters/alert status) or lack of ready equipment will impede mission accomplishment.

12.12.4.2. To ensure system integrity and validation of the explosive CAD/PAD listing, cannibalization of egress explosive components and/or seats will not be accomplished without the approval of the MXG/CC or Deputy Group CC.

12.13. Aircraft Static Display.

12.13.1. Aircraft placed on static display must be rendered safe IAW TO 00-80G-series, Make Safe Procedures For *Public Static Display,* and AFMAN 91-201.

12.14. Technical Assistance.

12.14.1. When escape system damage/repairs exceed TO limits, request maintenance assistance IAW TO 00-25-107 through the appropriate Lead Command Weapon System Manager with an informational copy to the Lead Command Egress System Manager.

12.15. Training Aircraft.

12.15.1. Aircraft utilized for local maintenance training, fire department training, and aircrew extraction training will be made ‘safe’ IAW aircraft-specific TOs. If TO procedures do not exist, contact the Lead Command for guidance.

Chapter 13

FOREIGN OBJECT DAMAGE (FOD)/DROPPED OBJECT (DO) AWARENESS AND PREVENTION PROGRAM

13.1. Introduction.

13.1.1. AFSC/LZ will provide policy and procedures for establishing and monitoring the AFSC FOD/DO Awareness and Prevention Program. These programs are designed to increase awareness to reduce or eliminate dropped objects and any foreign objects that could damage an aircraft, aerospace component, or aerospace support equipment operated at any AFSC depot, detachment, or remote operating location. FOD/DO awareness and prevention will be an integral part of all AFSC QA Programs. GSUs will follow their assigned ALC's FOD/DO Program.

13.1.2. Applicability. The FOD/DO Program applies to all personnel in the AFSC organizations, tenants, and contracted services that work in, on, around, or travel through areas near operational aircraft, engines, munitions, missiles, drones, space systems, support equipment, AGE, trainers, or components thereof, and includes personnel operating vehicles and equipment on flightlines, runways, taxiways, parking ramps, and in aircraft hangars or maintenance areas. Software only labs (no hardware activity) and physical science labs are excluded from the FOD/DO Program.

13.1.3. Industrial manufacturing and MSG-Plant Management shop areas such as but not limited to HVAC, machine shops, pattern wood shop, tool warehouse and lifting device, welding shops, plating tank areas, flame spray shops, etc., are considered non-critical FOD areas of the FOD program requirements. However, cleanliness with regard to housekeeping requirements remains to prevent work debris migration outside the manufacturing shop area. Personnel working in these areas are still required to accomplish initial and refresher FOD training.

13.2. Definition of Dropped Object (DO).

13.2.1. A DO is any aircraft part, component, surface, aerospace platform hardware, or other item which falls or is lost during aircrew operations, unless intentionally jettisoned from engine start to engine shutdown. DOs will also include unintentional/inadvertent dropped tow equipment, tow targets, drones, missiles, rockets, etc., and will be reported regardless of reason for release/drop as a DO to the AFSC FOD/DOP Manager. The intentional release of tow targets, drones, etc., when the reason for release is the malfunction of equipment, are not considered a DO and will be reported IAW AFI 91-204, *Safety Investigations and Reports*. Any object dislodged by a FO [e.g., an in-flight refueling (IFR) boom, a bird, etc.] is not considered a DO. Preventable DOs are defined as any item which was lost due to negligence during inspection or improper installation."

13.3. Definition of Foreign Object Damage (FOD).

13.3.1. FOD is any damage to an aircraft, engine, aircraft systems, component, tire, munitions, or support equipment (except sand nicks within operational limits defined by applicable technical data) caused by foreign objects which may or may not degrade the required safety and/or operational characteristics of the aforementioned items.

13.4. FOD/DO Prevention Program.

13.4.1. The ABW/CV shall ensure an effective FOD/DO prevention program is established which addresses, at a minimum, capping, plugging, covering, controlling, reporting, accounting, investigating, and inspecting. The FOD program must also outline flightline requirements, oversight responsibilities, training, and standardized terminology. All personnel (i.e., military, civilian, and contractors) working in, on, around, or traveling through areas near aircraft, munitions, AGE, engines, or components thereof shall comply with FOD prevention.

13.4.2. FOD Prevention Program. The ABW/CV will ensure the minimum requirements in this manual are supported with detailed guidance and procedures. Local directives may be developed to outline organizational responsibilities for flightlines, runways, taxiways, parking ramps, and outside maintenance areas that are shared with the ABW and tenant units.

13.4.3. Capping, Plugging, and Covering.

13.4.3.1. Plug, cap, or cover all openings, ports, lines, hoses, electrical connections, and ducts on aircraft, engines, munitions, missiles, drones, space systems, support equipment, AGE, trainers, or components to prevent FO from entering the systems any time maintenance is not being performed (e.g., end of task, end of shift, etc.) and IAW applied technical data. All units being processed for disposal or demilitarized do not need to be capped and plugged. All necessary caps, plugs, covers, etc. shall be made readily available by management for use by maintenance personnel. Aircraft engine and pitot static covers shall remain on aircraft at all times other than during operation of the aircraft or when performing maintenance or inspection of the areas or IAW the applicable TO.

13.4.3.2. Electrostatic discharge (ESD) sensitive equipment requires the use of ESD caps/covers IAW TO 00-25-234, *General Shop Practice Requirements for the Repair, Maintenance, and Test of Electrical Equipment*. Local ESD directives and technical data may outline stricter controls.

13.4.3.3. Tear-down processes (i.e., those processes that will completely tear down the item prior to return to service) to include the following processes are not required to have components capped or plugged during the following operations: blast, cleaning, coordinate measuring machine, disassembly, heat treat, induction inspection, machining, NDI processes, plasma spray, plating, and welding. Components that cannot be inspected 100 percent to ensure FO free will still require open cavities to be capped, covered if required, plugged, taped off, etc. All components will be inspected for FO prior to reassembly. Any assembly that requires minor repair will be capped and plugged at all times.

13.4.3.4. Measures to prevent infiltration of debris into exposed areas/open systems of the airframe shall be used during tasks/operations where debris (e.g., shavings, turnings, drillings, etc.) is generated. Use suitable covers, such as paper, tarps, or foam inserts, to catch and contain debris and limit the migration into areas with limited accessibility and/or visibility. For example, cover environmental control system bays and top of aircraft where panels have been removed.

13.4.4. Cleanup and FO/debris removal.

13.4.4.1. Control of work order residue will be accomplished IAW **Chapter 18.**

13.4.4.2. At a minimum, clean-up shall be performed at the end-of-task and end-of-shift.

13.4.4.3. Cleanup and FO/debris removal shall be done to ensure debris does not become trapped. Debris shall be removed prior to installation of parts/components or closing of panels that would hide or obscure the debris or that would hinder or prevent removal.

13.4.4.4. Except during active maintenance operations/tasks that generate debris, all foreign debris (including but not limited to trash, packaging, unusable parts/pieces, excess parts/pieces, etc.) shall be removed from the following areas: aerospace vehicles, facilities, support equipment, components (e.g., LRUs, SRUs, etc.), vehicles, and tires. These areas shall be made FOD-free at end-of-task and end-of-shift, and maintained in a FOD-free condition. **Exception:** This requirement does not apply to areas devoid of aircraft, their components, or parts.

13.4.5. Reporting.

13.4.5.1. Contact FOD monitor on all FOD related issues and incidents within eight hours of occurrence. FOD focal points will channel up all information through the next higher FOD focal point until the FOD monitor is notified. Reports from the FOD monitor are due to AFSC/LZ within 24 hours of the incident's occurrence. FOD/DO Monitors may submit initial and final FOD/DO reports by using the AFMC Propulsion Management EIM site.

13.4.5.2. Coordinate with the applicable group FOD/DO focal point/investigation team to ensure findings are provided on all open incidents which will allow for monthly updates to AFSC/LZ Workflow and HQ AFMC/A4 Workflow.

13.4.5.3. Report all cut tires to airfield management immediately and inspect the aircraft taxi route from the parking ramp up to the taxiway for possible FO. Airfield management should inspect taxiways and runways for possible FO.

13.4.5.4. FOD rates shall be computed by MDS as follows: Number of Preventable FODs (damage exceeding $50K) ÷ aircraft flying hours/ground runs x 1,000 = FOD rate. Aircraft flying hours shall be computed using acceptance flights, functional check flights, ground runs, and the number of un-installed engine test cell run time.

13.4.5.5. FOD Rate. The preventable FOD standard for AFSC is 3.0.

13.4.5.6. FOD Incident Classification. FOD incidents are classified as preventable and nonpreventable. Only preventable FOD incidents over $50K (i.e., parts and labor) shall be chargeable to the FOD rate.

13.4.5.6.1. FOD incidents are considered preventable except when:

13.4.5.6.1.1. Caused by natural environment or wildlife and includes hail, ice, animals, insects, sand, and birds. Report this type of damage IAW AFI 91-204.

13.4.5.6.1.2. Caused by internal engine materiel failure as long as damage is confined to the engine.

13.4.5.6.1.3. Caused by materiel failure of an aircraft component if the component failure is reported as a DR using the combined mishap DR reporting procedures of AFI 91-204 and TO 00-35D-54.

13.4.5.6.1.4. Found during depot overhaul for maximum operating time.

13.4.6. FOD/DO Investigation.

13.4.6.1. Investigate each FOD/DO incident to determine the cause and preventive action. Immediately remove from service any aircraft, missile, drone, support equipment, engine, or component unsafe for use when known or suspected FOD/DO is discovered.

13.4.6.2. The investigating team shall send FOD/DO reports electronically to AFSC/LZ workflow within 24 hours confirmation that an incident occurred.

13.4.6.3. Each unit will establish its own FOD/DO control numbers.

13.4.6.4. Coordinate with FOD/DO focal point and safety to ensure a team of appropriate personnel investigates each FOD/DO incident that is not reportable under AFI 91-204. If the investigation reveals circumstances determined to be a mishap IAW 91-204, immediately involve the ALC and ABW Safety offices to lead the investigation and provide all known details to date.

13.4.6.5. All DCMA managed units at contracted facilities will report FOD incidents to the Command FOD/DO Manager.

13.4.6.6. Review maintenance records for items that may have contributed to the FOD incidents.

13.4.6.7. Use X-ray, borescope, and other state-of–the-art equipment to locate FO in an inaccessible area.

13.4.6.8. Perform a thorough inspection of the aircraft for missing aircraft components (e.g. screws, rivets, fasteners, etc.) for installed engine FOD. Perform a thorough inspection of the run pad or ramp area and within 25 feet of the aircraft intake for FOD damage that occurred during aircraft ground runs. For FOD incidents discovered after flight, perform a thorough inspection of the parking location, taxiways, and where the aircraft launched from, for FO sources that may have attributed to the incident.

13.4.6.9. For any aircraft sustaining engine FOD caused by an unknown source, extend the vari ramps, thoroughly inspect all accessible components and areas within the vari ramps cavity, close vari ramps, X-ray vari ramps, and lower louver areas IAW applicable TO. Compare the X-rays with previous X-rays of the aircraft to determine movement or missing items.

13.4.6.10. Perform an inspection of the uninstalled engine, test stand, test equipment, etc., for FO sources for FOD that occurred at the test facility.

13.4.6.11. Immediately perform a tool kit and equipment inventory upon discovery of FOD and review recent Lost/Item Reports for relevance to FOD incidents.

13.4.6.12. Coordinate with supply personnel who has access to the D043A supply system to determine costs of parts and pieces when figuring cost of FOD damage. Contact the Command FOD Manager for further assistance if required.

13.4.6.13. Contact the Command FOD manager if owning MAJCOM or unit directs shipment of the damaged engine before the investigation is completed. The Command

FOD manager will coordinate the completion of the FOD investigation with the owning MAJCOM or unit.

13.4.6.14. A locally developed impoundment FOD checklist should be used to enhance FOD investigations.

13.4.6.15. ALCs will reimburse owning units for FO related damage incurred which was found to be caused by ALC negligence. The Group/Squadron responsible for the reimbursement will be determined by the Command FOD Manager.

13.4.6.16. When FOD is discovered on a transient aircraft, depot input/output, Engine Regional Repair Center (ERRC), or Centralized Repair Facility (CRF) engine, the ABW/ALC FOD Program Monitor will notify the AFSC FOD Program Manager and the owning organization within 24 hours. An informational copy of the FOD report must be provided to the owning organization's safety office/FOD monitor to ensure compliance with AFI 91-204 and aircrews must ensure proper documentation in the AFTO Form 781A or an electronic equivalent has been completed.

13.4.7. FOD Discovered During Depot Maintenance/Functional Test (DM/FT).

13.4.7.1. In addition to the initial reporting procedures, the ALC FOD monitor or designated authority will notify the owning unit NLT 24 hours after occurrence of all FOD incidents discovered during DM/FT of aircraft, missiles, drones, engines, or components. The Command FOD manager will notify the owning MAJCOM. All evaluated and repaired FOD will be annotated in applicable WCDs, AFTO Form 781 or AFTO Form 95 IAW TO 00-201, or CEMS IAW TO 00-25-254-1, *Comprehensive Engine Management System Engine Configuration, Status and TCTO Reporting Procedures*.

13.4.7.2. FOD Discovered Upon Removing Aircraft From Long-Term Storage At AMARG. A formal FOD report is not required if the FOD was discovered upon removing the aircraft from long-term storage and was annotated in historical records prior to induction to AMARG. In the event FOD is discovered upon removing aircraft from long-term storage and cannot be verified through historical records, the AMARG FOD focal point will provide a courtesy notification of the FOD to the Command FOD manager. The FOD will not be charged against the ALC FOD rate.

13.4.7.3. At the point in an investigation a FOD incident is determined, the ALC FOD monitor or alternate shall coordinate with the Impoundment Official and ALC Safety Official to ensure a team of appropriate personnel investigate each incident of FOD. If the FOD mishap is chargeable, the ALC Safety Office shall establish an investigation team. The FOD investigation team will perform the following actions and submit a report to the ALC FOD monitor:

13.4.8. Categories of FOD areas.

13.4.8.1. There are two categories of FOD areas: Critical and non-critical.

13.4.8.2. FOD critical areas to be considered are maintenance areas where aircraft maintenance is performed (i.e., jet engine maintenance, fuel cell maintenance, and subassembly maintenance) and any other maintenance area designated FOD critical by ALC senior leadership. All other maintenance areas not described in the previous example, designated by ALC senior leaders or non-maintenance areas are considered non-critical areas.

13.4.8.3. Local publications shall be developed to identify areas that are designated FOD critical areas.

13.4.9. Additional FOD Prevention Practices.

13.4.9.1. Prior to engine start, the ramp area within 25 feet of the intake will receive an FO inspection. Each engine intake and exhaust will receive an FO inspection after any engine intake or exhaust maintenance. Prior to engine start and after engine shut down to include maintenance and test cell runs, each engine intake and exhaust will receive a FOD inspection.

13.4.9.2. Hats shall not be worn within the danger area of an operating jet engine.

13.4.9.3. All personnel will empty their pockets and remove all accessories when entering and/or performing intake/exhaust inspections. Wear pocketless and buttonless coveralls when physical entry is needed to inspect engine intake or exhaust areas. Inspect shoes and wear booties prior to entering intake and exhaust areas.

13.4.9.4. Badges will be secured with the following type of devices: plastic armband; nylon neck cord, or button with nylon macramé that can be securely affixed to the outer garment. The use of metal on these items should be kept at a minimum, (i.e., clip or spiral key ring) and if used; ensure that it cannot be separated from the cord. Badges will also be removed when required by an AFI or TO, or a hazardous situation is identified.

13.4.9.5. For all maintenance areas designated as FOD critical areas, watches, rings, necklaces, chains, and other jewelry shall not be worn while performing maintenance. . Wigs, hairpieces, etc. shall be securely attached to the individual so that it cannot be separated from the individual. Climate and safety will be considered.

13.4.9.5.1. All personnel shall follow guidelines for the proper wearing of finger rings and other jewelry as outlined in AFMAN 91-203, Air Force Occupational Safety, Fire and Health Standards, and the work center job safety analysis IAW AFI 91-202, which apply to personnel entering a designated maintenance area usually indicated by yellow lines or other required markings. This includes administrative and support personnel visiting the work areas for any length of time.

13.4.9.6. Escort personnel shall brief visiting personnel on FOD procedures IAW locally developed FOD briefings.

13.4.10. FOD Containers.

13.4.10.1. All maintenance production areas must have FOD containers accessible to workers when area trash/collection cans are not feasible. The FOD containers shall have the acronym 'FOD' stenciled in contrasting letters no smaller than two inches. All FOD containers regardless of location will be emptied when full or once a day.

13.4.10.2. Vehicles driven on the flightline must be equipped with a FOD container with a lid, flap, or cover secured to the container. The FOD container shall be secured to keep it from tipping over.

13.4.11. FOD Walks.

13.4.11.1. FOD walks or sweeps are mandatory within designated FOD critical areas. Local publications will outline frequency and areas of responsibility.

13.4.11.2. FOD walks will be accomplished prior to towing aircraft through FOD non-critical areas to ensure damage does not occur to aircraft tires.

13.4.11.3. FOD walks shall be conducted in such a fashion as to ensure the removal of debris from aircraft, facilities, and support equipment. An area that has undergone a FOD walk shall be left in a FOD-free condition. FOD walks shall not be limited in scope so as to allow FOs or debris to remain within an area where a FOD walk has been conducted (e.g., omitting the aircraft or focusing exclusively on support equipment).

13.4.12. Vehicle and towed equipment.

13.4.12.1. All government owned vehicles, contractors, privately owned vehicles, and any other vehicle operators, will perform a FOD inspection on all towed equipment, vehicles, vehicle tires, and open cargo areas of vehicles prior to entering the runway, taxiway, and flightline. When inspecting tires, ensure a roll-over check is completed to ensure the entire surface is inspected for FOD including the unseen area in contact with the pavement.

13.4.12.2. Vehicles driven on the flight-line must be equipped with a FO removal tool. The tool will be permanently marked with the identification number assigned to the vehicle and added to AF Form 1800, *Operator's Inspection Guide and Trouble Report*, for inventory and accountability.

13.4.12.3. Vehicle operators departing the paved surface will perform a FOD inspection on all equipment and vehicle tires immediately upon re-entering the paved surface of runways, taxiways, flightlines, and aircraft parking ramp areas.

13.4.13. Grounding Cables.

13.4.13.1. Clips on aircraft and AGE grounding cables shall have un-used screws removed and remaining screws coated with a thread locking compound.

13.4.14. Remove metal identification bands from all tubing (except aircraft installed egress system components) and cables on the aircraft. Additionally, remove identification bands from cargo tie-down chains/devices prior to use around aircraft. However, factory installed ID tags attached to cargo chains/devices will remain on the chain/device to identify the type being used. Do not remove manufacturer identification bands from hydraulic hoses. Hydraulic lines will be marked IAW TO 42E1-1-1, *Organizational, Intermediate and Depot*

Maintenance Aviation Hose and Tube Manual. Leave inspection and load tolerance tags attached.

13.4.15. All personnel will follow basic MDS tech order aircraft safe-for-maintenance and local FOD prevention procedures before entering the aircraft cockpit, cabin or flightdeck. Footwear of all personnel will be inspected for imbedded debris in the sole portion and any debris removed before entering the aircraft cockpit. Aircrew members will ensure small loose items (i.e., items smaller than the standard pencil/pen) are in pockets equipped with a method to ensure positive closure to prevent items from falling out. Recommend placing small items together in a small bag or container able to be closed before placing them in the pocket to create a redundant method of containment. The use of writing devices with the least amount of small items that could fall off (e.g., pocket clips, erasers covers, etc.) is also recommended.

13.4.16. Publicity. Publicity is a key element of an effective FOD Program. Information on posters and other materials to establish and maintain an awareness of the need to prevent FOD/DO can be obtained from the FOD Monitor. Competitive programs in FOD/DO awareness and prevention between wing, group, squadron, and shops are strongly encouraged.

13.5. Supervisor Briefing.

13.5.1. Initial work center briefing. Supervisors will ensure newcomers receive a briefing on work center specific FOD/DO awareness and prevention practices prior to starting work in their assigned work area. Work center FOD/DO briefings will be documented. Ensure individuals who are TDY, transferred, or loaned from other units receive a work center FOD/DO briefing prior to beginning work in the area.

13.5.2. Quarterly briefing. Supervisors shall brief personnel who accomplish on-equipment or off-equipment maintenance tasks in the performance of their assigned duties quarterly and retain personnel attendance records for one year. Include the briefing as part of the unit's periodic news or staff meetings. Include a review of the committee minutes of the last meeting, any incident investigation finding which concluded since last quarter, and any unique requirements that could affect FOD/DO awareness and prevention if applicable.

13.6. FOD/DO Awareness and Prevention Training.

13.6.1. Conduct and document initial and refresher FOD/DO awareness and prevention training for personnel who, in the performance of their assigned duties, work in or travel through maintenance areas, flightline areas, etc. The Maintenance Training Office at OO-ALC is the lead training organization for developing and updating HQ AFMC Maintenance FOD/DO training.

13.6.2. Initial training will consist of formal classroom training. Use HQ AFMC course for the FOD/DO awareness training. Personnel will receive initial FOD awareness and prevention training within 30 days of assignment to the work center.

13.6.3. Refresher training is required every 36 months

13.6.4. Local training shall be developed to augment the FOD training courses that identify local procedures, requirements and directives. The ALCs, with several types of aircraft assigned and/or possessed (i.e., PDM aircraft) will have all aircraft incorporated into one complex training program. Training should emphasize the following minimum FOD/DO awareness and prevention subjects:

13.6.4.1. Lessons learned and common causes of FOD and those which are peculiar to the type of aircraft, other sub-assemblies, support equipment, engines, or components assigned to or serviced by the organization.

13.6.4.2. Procedures unique to the assigned and/or possessed aircraft.

13.6.4.3. Hardware and tool control and accountability policies for end of task, end of shift, and transfer at work site.

13.7. AFSC FOD/DO Manager.

13.7.1. Conduct an annual AFSC FOD/DO meeting.

13.7.2. Notify HQ AFMC of FOD/DO incidents

13.7.3. Clarify policy and assist units with resolving FOD/DO issues.

13.7.4. Work with other MAJCOM FOD/DO Managers to resolve FOD/DO issues between the ALC and the owning command.

13.7.5. Maintain status of action items from previous AFSC FOD/DO meetings. **Note:** Action items are carried in an 'open' status until closed or completed.

13.7.6. Document and track until closure all FOD/DO occurrences per MDS since last meeting.

13.7.7. Document and track FOD/DO metrics showing cumulative FOD data and trends from the beginning of the FY.

13.7.8. Document and track customer reported FO, FOD, and DO on aircraft, missiles, drones, engines, or other components and equipment processed at the ALCs within TO 0035D-54.

13.7.9. Collect and distribute lessons learned from other MAJCOM, base, ALC, and unit FOD program committees to include photographs and descriptions of 'show-and-tell' items of interest if applicable (e.g., FOD damage, FO found during FOD walk, DO, etc.).

13.8. ABW/ALC FOD/DO Program Monitor.

13.8.1. The ABW/CV and/or the ALC/CV will appoint a TSgt (or above), civilian, or contractor if designated by the PWS, with at least one year experience in the maintenance field to the position of FOD/DO monitor and their name will be posted in a prominent place within the unit on a locally developed visual aid. The ABW and ALC FOD/DO Monitor can be the same person if agreed upon between the ABW and ALC.

13.8.2. An alternate ABW/ALC FOD Monitor shall also be appointed in writing and meet all of the qualification requirements of the ALC FOD Monitor. The FOD Monitor/alternate FOD Monitor may also be a maintenance officer. The FOD Monitor may be assigned on a full-time basis, reporting directly to the ALC CV.

13.8.3. The FOD/DO Monitor will be responsible for:

13.8.3.1. Administration of the FOD/DO awareness and prevention program.

13.8.3.2. Review all applicable program instructions, supplements, and FOD checklists. Validate locally developed self-inspection checklists within 30 days of assigned duties.

13.8.3.3. Ensure all FOD/DO incidents are reported IAW current applicable directives to AFSC/LZ through AFSC/LZ Workflow within 24 hours. FOD/DO Monitors may submit initial and final FOD/DO reports by using the AFMC Propulsion Management EIM site.

13.8.3.3.1. ALC/Wing DOP monitor shall provide the AFSC DOP Manager an initial DO report via e-mail to AFSC/LZ Workflow within 24 hours of occurrence. In addition, if it involves casualties, property damage, or if adverse publicity is likely, report IAW AFMAN 10-206, Operational Reporting (OPREP). The safety office shall be notified of all dropped objects within 24 hours of occurrence unless it involves casualties, property damage, or if adverse publicity is likely, and then the safety office shall be notified immediately.

13.8.3.3.2. ALC/Wing FOD monitor shall provide the AFSC FOD Prevention Manager an initial FOD report via e-mail to AFSC/LZ Workflow within 24 hours of occurrence. The final report will be submitted to the AFSC FOD Prevention Manager via email after the investigation is complete. Reports shall be retained for a minimum of 24 months. FOD Monitors may submit initial and final FOD reports by using the AFMC Propulsion Management EIM site.

13.8.3.3.3. ALC/Wing DOP Monitor shall provide the AFSC DOP Manager a final dropped object report via e-mail to AFSC/LZ Workflow. Reports shall be retained for a minimum of 24 months. The DOP report format listed in AFMCI 21-100 shall be followed. DOP Monitors may submit initial and final DO reports by using the AFMC Propulsion Management EIM site.

13.8.3.4. Review the ALC FOD/DO incidents, and analyze the reports and other data for trends that identify areas requiring management action.

13.8.3.5. Develop and present a FOD agenda at the quarterly base FOD Awareness and Prevention Committee meeting. (**Note:** May be a monthly meeting if deemed necessary by the ALC commander or designed representative). Ensure the meeting minutes are published and distributed to the ALC CV or CA and each committee member.

13.8.3.6. Attend the annual FOD meeting (**Note:** Attendance maybe via video conference or webinar) and encourage attendance at the annual National Aerospace FOD Prevention conference.

13.8.3.7. GSUs from their host ALC will report and coordinate any known or suspected FOD/DO occurrence on the flightline, runways, taxiways, or parking ramps to the host base FOD Monitor.

13.8.3.8. Coordinate FO prevention needs with the airfield manager and other organizations when construction is in progress on or near maintenance areas or other areas where FOD incidents may occur.

13.8.3.9. Inform all organizations of all FOD hazards.

13.8.3.10. Provide FOD/DO information and items of interest to FOD focal points in subordinate organizations (i.e., the Group and Squadron focal points shall share information).

13.8.3.11. Develop a standard FOD continuity book requirement for all FOD focal points. Continuity book requirements shall be developed that permits a newly appointed person

to comply with existing policy and procedures with minimum assistance. The requirements shall be outlined in local publications. The continuity book may be hard copy or in electronic format.

13.8.3.12. Review and update the FOD continuity book based on requirements as outlined in local publications.

13.8.3.13. The ABW FOD/DO Monitor will develop processes and procedures to collect FOD/DO incident reports from tenant organizations.

13.9. FOD/DO Focal Point.

13.9.1. Each Group/CC, Squadron/CC or CV, or deputy or civilian equivalent, in an on/off equipment maintenance function shall appoint in writing a FOD Prevention Focal Point for their organization. The CCs of units with flying operations shall appoint in writing a DO Prevention Focal Point for their organization. The FOD/DO Focal Point shall:

13.9.1.1. Be at least a Staff Sergeant (SSgt) possessing an aircraft, missile, or related maintenance Air Force Specialty Code, or a civilian possessing an aircraft, missile, or related maintenance background.

13.9.1.2. Conduct periodic FOD spot checks and report observations to the first line supervisor of the area of responsibility and to the Group quality organization. These reports may be entered into LEAP but will not be counted for the QA required inspections. The frequency of the FOD spot checks by each Focal Point will be specified in local FOD supplements.

13.9.1.3. Review all applicable program instructions, supplements, and FOD checklists. Validate locally developed self-inspection checklists within 30 days of assigned duties.

13.9.1.4. Review AI reports for adverse negative trends and make recommendations to the FOD Monitor.

13.9.1.5. Review and update the FOD program continuity books. **Note:** Develop a continuity book IAW local instructions, if one is not available at time of assignment.

13.9.1.6. Attend the Base FOD Program Committee meetings when requested by the FOD Monitor.

13.9.1.7. Assist supervisors in developing FOD awareness and prevention briefings.

13.10. Committee Meetings.

13.10.1. At a minimum, the following will be in attendance at the quarterly base FOD/DO Prevention Committee meetings: ABW/CV, ABW and ALC Monitor, designated Union representative, ALC Maintenance Training, Flight Test representative, and ALC Tool Control Manager.

13.10.2. The FOD/DO Awareness and Prevention Committee agenda shall include but is not limited to:

13.10.2.1. Status of actions on items from previous meetings. Action items are carried in an “open” status until all actions or corrections are closed out or completed.

13.10.2.2. FOD/DO occurrence since last meeting.

13.10.2.3. Customer reported FOD, and DO on aircraft, missiles, drones, engines, or other components and equipment processed at any AFSC facility.

13.10.2.4. Assignment of specific action and responsibilities.

13.10.2.5. FOD/DO awareness and prevention program status, improvement, recommendations, and/or suggestions, including initiatives and suggestion reviews.

13.10.2.6. Tool control and accountability issues.

13.10.2.7. Lessons learned from other Complexes, MAJCOM, bases and units FOD/DO awareness and prevention committees.

13.10.2.8. Meeting Minutes. In addition to the agenda items, the minutes will include as a minimum a list of attendees and absentees. Attendees list will identify the ALC FOD monitor and provide functional address symbol and duty phone number for all personnel. Meeting minutes will be made available to FOD committee members.

Chapter 14

OPERATIONAL WORKLOADING, PLANNING, AND SCHEDULING CONTROLS

Section 14A – Control of Workload

14.1. General. The ALC will manage organic depot-level maintenance production facilities required to repair and modify AF materiel. Workload control is an integral part of the mission. It starts from the point of building a plan, and ends when the last item is completed for the last job order for a given fiscal period. The buyer-seller relationship is outlined in AFMCI 65-101 and **Chapter 2** which covers the policies and procedures governing the DPEM customers of the CSAG-M. Criteria in this directive pertains to policies, controls, and procedures applicable to each individual item of workload from the point before induction through job closure. **Note:** This chapter does not apply to depot maintenance plant management.

14.2. Relationship with Other Functions. Workloading cannot be entirely separated from other internal ALC functions. ALC personnel involved with the workloading process must also be aware of the required relationship with the planning and scheduling functions. The planning aspects of a job order system are outlined beginning with paragraph 14.20 and scheduling in paragraph 14.48.

14.3. Operating Policy. The emphasis on workload management includes control of all direct work from point of input through the resulting costs. Control over workload in no way affects the basic charter of the ALC but enhances response by limiting support to valid mission requirements of a legitimate customer. The following policies will be adhered to:

14.3.1. Processing Technical Order Compliance (TOC). These are items that did not generate from the Technology Repair Center (TRC). Certain commodity items are coded by the IM as being within the capability of any system program director (SPD) to perform TOC regardless of their TRC designation. When the maintenance workloading function determines the items are acceptable, the required support must be charged against the responsible IM's type 6 Project Order. If there is no current Project Order from the originating SPD, workloading personnel will negotiate with the responsible IM to obtain a type 6 Project Order to cover the prescribed work. Under no circumstances may this non-TRC TOC work be accomplished against another type Project Order (reference AFMCI 65-101 for the types of Project Orders).

14.3.2. Required Correlation Between Negotiated Work Specs and QA Verification Requirements. Under the CSAG-M operation, the ALCs must rigidly observe the negotiated job specification as established with the customer. Planned workbooks and quality verification requirements will be developed within these guidelines (i.e., during the course of the job when there are other defects or work requirements identified by the quality or production function and when correction would cause the man-hour ceiling originally agreed to with the customer to be exceeded). The PAO will approve all O&A work.

14.3.3. Work negotiations are a continuous effort. MISTR items are driven in daily through the EXPRESS system. MISTR items are driven by daily EXPRESS requirements. EXPRESS items are referenced in AFMCI 23-120. The processes will always have the objective of meeting warfighter requirements and maintaining MICAP rates. To accomplish this necessitates eliminating capability where requirements no longer exist and shifting capability to match changes in requirements.

14.3.4. Control numbers will be electronically assigned to provide a method of continuity and assurance so that specific exchangeables can be identified to either a permanent or temporary

category. All data products, in relation to control number assignment, are designed and distributed specifically for the use of the central control number assignment function. Workloader personnel review current management products to assure the proper use of production numbers on WADs (reference AFMCI 65-101). WADs authorize the expenditure of labor, material, and other related costs to do work by a specific customer on AFMC Form 206 or AFSC Form 206, *Temporary Work Request*, and AFSC Form 600, *Production Order*, within G004L (reference paragraph 14.20). WADs are related to all supporting documents through the medium of the production number, which consists of a basic control number and job designator, and results in:

14.3.4.1. Identification of the type work to be done.

14.3.4.2. A medium for the allocation and control of parts and material required to do the work.

14.3.4.3. A medium for the accumulation of Direct Product Earned Hours (DPEH) and end item inductions/completions at the JON level.

14.3.4.4. A medium for the control of the accumulation and application of material consumption data and accurate cost data.

14.3.5. For management purposes, changes to control numbers are not authorized. If an incorrect control number has been opened, correct the error by closing the incorrect control number and opening a new control number. When workloads are transferred from one group to another, the control number will not be changed. Block assignment of control number for any reason is not authorized.

14.3.6. Follow AFMAN 63-143 to ensure AMR and Logistics Requirements Determination Process (LRDP) brochure hours and BOW/SOW costs are reviewed annually.

14.4. Stabilization of Rates. AFMCI 65-101 contains HQ AFMC policy on sales rates. ALC personnel involved with various WADs should be aware of the contents of the reference and the fact that the ALC must approve any changes to the rates.

14.5. Workload Requirements. Accurate identification of individual workload requirements is necessary to ensure that each item of inducted workload will be properly categorized throughout the ALC production process. Examples include the RGCs and reimbursement codes. These types of identifiers apply to each workload accepted from the CSAG-M customer. All items must have a Project Order established before any work or service is performed.

14.6. Project Orders. AFMCI 65-101 contains the policies and procedures associated with Project Order management and control. ALC workload personnel must be aware of their roles. No workload, regardless of size, can be brought into the production process without an impact on the financial picture of a Project Order. Numerous computer output products are available electronically from the DMAPS-DIFMS to portray a current position for those workloads which have been inducted.

14.7. Workload Generation. Depot maintenance workloads may be generated from various sources such as base or tenant organizations, ALC MISTR drives, ALC aircraft/missile/engine project directives, as well as from internal ALC requirements. Regardless of the source, any workload going through the production process will be associated with a production number. A production number is composed of a five-digit control number and a one-digit job designator.

Production numbers are categorized as permanent, temporary, or support, depending upon the type/situation of the specific workload involved. General guidelines are as follows:

14.7.1. Permanent Production Numbers. Contain a numeric in the first position. Application:

14.7.1.1. Serialized aircraft, missile, and OMEI.

14.7.1.2. All other areas where there is a repetitive/continuous workload (e.g., MISTR, MDS, TMS engines, or areas that involve a workload with a long flow time).

14.7.2. Temporary Production Numbers. Begin with an alpha in the first position. Application:

14.7.2.1. All off-base work.

14.7.2.2. All repairs done on ALC equipment.

14.7.2.3. All manufacture.

14.7.2.4. All other workloads that do not justify the establishment, file maintenance of extensive permanent material, and labor standards in the associated computer systems. This area includes both planned and unplanned workloads.

14.7.3. Project Directives. Project directives will normally have a permanent production number assigned. However, if the quantity is insufficient to warrant the setting up of finite labor and material standards, the workloader will contact the issuing activity and request the issuance of a computer generated AFMC Form 206 or AFSC Form 206. This action allows setting up a temporary production number and use of the project directive as an attachment to the Work Authorization Document (WAD).

14.7.4. Base Tenant Support. All Base Tenant support should be IAW local Host Tenant agreements. Where differences occur between the Host Tenant agreements and CSAG policy and procedures, the Depot Maintenance Systems (DMS) Air Force Industrial Fund (AFIF) policy and procedures will take precedence. Whenever Host-Tenant agreements are initially set up or revised, maintenance personnel will be familiar with the CSAG procedures and will consider the procedures/policies in their agreement. Recurring work will be requested on a computer generated AFMC Form 206 or AFSC Form 206 by the tenant, and may involve either of two RC/CC rate EISP applications Bill of Material Indicators (BOMIs) either M or R. The Data Processing Code (DPC) will be S, and T prefix CN will be used. BOMI will be M or R, only one labor operation with OSH = 1.000 hour, RGC will be N and the JON Quarterly Sales Indicator (QSI) of M, and UOM of HR will be machine assigned. In the job quantity block, the originator will show the first quarter's man-hour requirement. The 309th AMARG/OBW will prepare AFMC Form 206 or AFSC Form 206 for each RC/CC doing work for that tenant and send the forms to the responsible Production Planning Office for preparation of the AFSC Form 237, *Temporary Labor and Material Plan*. For Base Tenant Support temporary jobs, the BOMI now becomes an RC/CC rate indicator and shows which rate is to be used to compute the EISP. When the BOMI = R, the EISP is computed using the RC/CC labor rate plus the RC/CC direct material rate. Any BOM list, when the BOMI = R, is not computed in the EISP. When the BOMI = M, the EISP is computed using the RC/CC labor rate plus the BOM list. If no BOM list exists, and the BOMI = M, the EISP will be computed using the RC/CC labor rate only. If a tenant support job is going to require an excessive amount of direct material which will not be covered by the RC/CC direct material

rate, a separate AFMC Form 206 or AFSC Form 206 and AFSC Form 237 are prepared and material planned accordingly. In this situation, use RGC N and DPC N. If this type of tenant support jobs is recurring, consider making them permanent jobs with project order 7, RGC N, and DPC N. Temporary JONs with DPC S will not be automatically closed but will be updated each succeeding quarter by the computer. At the end of each quarter, G004L will reduce the JOQ to what has been completed, and allow the JON to go to sales. G004L will then re-establish the production number with the next quarterly JON suffix. At the beginning of each quarter, the tenant will electronically initiate a new AFMC Form 206 or AFSC Form 206 to the workload technician depicting the new man-hour and dollar value requirement in the JOQ and estimated job total cost blocks. The workloader will then submit a computer generated AFSC Form 930, *G004L File Maintenance Transactions*, to file maintain the new JOQs for each JON set up for that tenant.

14.8. Hourly Sales Rates and End Item Sales Prices (EISPs). Each individual workload, when completed, will generate revenue for the CSAG. That revenue is designed to offset expenses that have been incurred to complete the workload. The generation of the revenue is accomplished by establishing a rate or price for the products or service. While AFMCI 65-101 contains the criteria applicable to sales rates approval, the criteria outlined below represents the application of those rates.

14.8.1. RC/CC Rates. RC/CC rates are annual average hourly rates approved by the ALCs before the beginning of a FY and used as follows:

14.8.1.1. Aircraft, Missile, and OMEI. The RC/CC rate forms the initial baseline for the ALC approved DPSH rate for these areas. Before the ALC requests approval of the generated rates, the financial impact caused by carry-over work must be considered and may dictate a change to the RC/CC rate or the ALC may elect to change only the computer generated end result.

14.8.1.2. Permanent production numbers on all other workloads. The RC/CC hourly rate is input into the SPG in Depot Maintenance Accounting and Production System Integrated Engine (DMAPSIE) by the Workload Programming Planning and Control System (G004C) as directed by the ALCs before computation of the next FY EISP. The SPG in the DMAPSIE system then computes an EISP for each assigned permanent production number. During September each year, prices are input into the G004L system. The G004L system maintains a separate file of the prices called the Sales Price Master (SPM). The prices remain firm throughout the next FY unless a change is approved by HQ AFMC. For new workloads (i.e., new production numbers), the new price is input into the SPM file AFSC Form 600. Individual price changes authorized by the ALCs are electronically input into the SPM and controlled by Financial Management. AFMCI 65-101 identifies the engine sales price development and usage.

14.8.1.3. Temporary production numbers. The RC/CC hourly rate is downloaded into G004L from G004C on or about 1 October to compute either an average hourly sales price or an EISP.

14.8.1.4. All production numbers. The input of RC/CC rates to the above designated computer systems pertains to RC/CCs which are in existence in G004C as of 1 September of each year. If new RC/CCs are set up during the year, the rates are provided to the

designated systems after ALC approval. Reference AFMIC 65-101 for complete details on the RC/CC rate approval process.

14.8.1.4.1. Sales Rates are either hourly or end item. The specific workload and/or a method of accomplishment dictate which of the two types applies.

14.8.1.4.2. Computational Routines for Temporary Production Numbers. Specific details are contained in this chapter beginning with paragraph 14.20.

14.8.1.4.3. Computational Routines for Permanent Production Numbers (non-serialized). Reference AFMCI 65-101.

14.8.1.4.4. OMEI Pricing. Reference section 14.20 for specific details.

14.9. Responsibilities of the Workloader.

14.9.1. Ensure valid production numbers are established on all WADS.

14.9.2. Ensure all new work requests are covered by a funded Project Order. If determined to be unfunded, there will be an error message on the G004L-L3G listing, take immediate action to get a Project Order amendment. Start daily follow-up action to get proper funding (reference AFMCI 65-101). Make sure all unfunded work is not started.

14.9.3. Facilitate all depot maintenance requests from the customer. Acceptance of Project Orders should be based on the existing or adjusted organic capability to perform the work or service requested and if the completion date is feasible.

14.9.4. Verify all fields on the computer generated AFMC Form 206 or AFSC Form 206.

14.9.5. Process and control all error/valid transaction listings for tenant activities related to temporary work requests.

14.9.6. Review for control and quality of all file maintenance transactions. This includes:

14.9.6.1. Editing all pertinent blocks on computer-generated forms to ensure information is correct before sending to G004L and G019C.

14.9.6.2. Receiving and checking the G004L-L3G report daily to ensure previous day's input was accepted. If errors exist, initiate and complete corrective action. The G004L-L3G report is obtained electronically.

14.9.7. Gather and update travel and per diem costs for A-Prefix WADS. Obtain planned expense material costs, if applicable, from the planning function. Review for adequacy and insert into the applicable data system before closing A-prefix WADS. Obtain from the system and file maintain, with a computer generated AFSC Form 930 transaction, material costs related to tenant workload requests. This must be done on time to prevent absorbing costs.

14.9.8. Aid the scheduler in designating the type of JON suffix, either monthly or quarterly, for the initial opening of permanent WADS when requested.

14.9.9. Act as the ALC focal point for providing applicable production status to the initiator of the depot maintenance repair requirement.

14.9.10. Ensure all RC/CCs established within the ALC are contained in the master table. Update as required IAW AFMCI 65-101.

14.9.11. Ensure the correct FCRN is maintained in the master JON record of the G004L system at all times, and this responsibility may be delegated to the funds certifier.

14.10. Work Performance Category Descriptions (Job Designator).

14.10.1. Code A - Major Overhaul. This type maintenance consists of complete end item disassembly, cleaning, inspection for repair requirements, and tests on the operating components and basic structure to determine the authorized support necessary to restore serviceability. Inspection and repair actions may include replacement of subassemblies or operating components, and adjustment, calibration, reassembly, and functional testing of the complete unit. It is considered to be synonymous with the terms rework or rebuild. Modification may be done along with the repair when the man-hours are subordinate to the repair requirement. This includes complete rehabilitation of AF equipment (i.e., structural repairs required on major airframe components as the result of crash, battle, or comparable damages which require depot facilities, skills, and tooling to restore alignment).

14.10.2. Code B - Progressive Maintenance/Programmed Depot Maintenance (PDM). Progressive maintenance or PDM includes a predetermined amount of repair work requiring depot skills, equipment, and tooling that requires disassembly, necessary cleaning, and inspection for repair or replacement, as necessary, of the component and assemblies. This defined cycle of repair may be equated with one increment of a periodic maintenance overhaul when done on a progressive basis requiring two or more inputs to the end item. It is authorization to reassemble, calibrate, adjust, and functionally test the complete assembly. Modifications may be done along with and included under code B when it is considered a subordinate portion of the total work.

14.10.3. Code C – Depot Performance of All Two Level Organizational and Intermediate Workloads Other Than Engines. This code applies to that level of maintenance done by the CSAG-M organic facilities that does not require skills or equipment capabilities above that authorized for an AF organization or intermediate maintenance function. Maintenance will be performed in a depot under this code on commodity component items Expendability, Recoverability, Reparability Category (ERRC) coded for repair at organizational or intermediate level (i.e., XF, NF, XD, and ND) which can be economically restored to a serviceable condition within this level of repair.

14.10.4. Code D - Activation of Stored Major Item. This maintenance includes the depreservation, servicing, inspection, testing, and replacement of subassemblies, as required, on major end items that have been stored or kept in an inactive pool at an authorized storage point. The range of end items includes aircraft, missiles, aircraft engines, vehicles, and motorized equipment. Removal from shipment is included under this code.

14.10.5. Code E - Inactivation, Storage Preparation, and In Storage Maintenance of Major Items. This code applies to the preparation for temporary or long-term storage of major items at authorized ALC storage points. Major end items include aircraft, missiles, aircraft engines, vehicles, and motorized equipment. For routine maintenance required on the stored items to maintain the desired level of serviceability, refer to Code M. Preparation for shipment is included under this code.

14.10.6. Code F – Renovation Proof Testing. This code applies when the maintenance work consists of performing a proof test procedure on a representative quantity of items or material

to determine whether specification characteristics are satisfactory. This testing will result in the destruction or loss of a predetermined stock of supply or customer owned items. Items requiring proof testing will include ordnance items, missile propellant mixtures, or other items or material whose projected shelf life can only be determined through a sample destruct and analysis process. Included under this code is the required documentation evaluating the test results necessary to ensure retention of the desired capability on the remaining on-hand stock.

14.10.7. Code G – Analytical Rework Evaluation of Materials and In-Service Items. This code is applied when a depot maintenance mission organization performs a chemical or physical analysis of in-service items or new material including Analytical Condition Inspection of aircraft. This analysis includes the tear down necessary for deficiency inspection of components or to facilitate laboratory processing that is chemical, metallurgical, physical, etc. Included is the technical evaluation and documentation of the findings or determination of maintenance criteria as in an item undergoing prototype analysis for planning purposes during which no repair is involved. If depot maintenance codes A, B, or C is to be performed concurrent with the teardown and analysis work, the appropriate code will apply for the repair portion of the job. Turn-in to supply on the code G job and issue to the code A job order if required. An Engineering Investigation IAW TO 00-35D-54 may be processed using a permanent or temporary job order with code G. If the TRC is not the responsible TRC for the item, use the temporary job order with code G and include the analysis for teardown (i.e., repair and test) along with the documentation as applicable. The IM initiates AFMC Form 206 or AFSC Form 206 in this case. Code G also applies when an end item is undergoing prototype analysis for labor and material planning purposes in which no repair is involved. Code G may also apply when the technical evaluation and documentation result from kitproofing and print-proofing AFMC Form 206 or AFSC Form 206 is initiated by the IM for each evaluation.

14.10.8. Code H – Conversion/Modification. A conversion will alter the basic characteristics of an item to change the mission, performance, or capability. Normally, these modifications are known as Cost Class V Mods. Minor repairs may be performed under this code only when accomplished along with conversion and the man-hours requirement is either subordinate to the change or essential to the operating safety of the end assembly. A modification is the alteration or change of the physical makeup of a weapon support system, subsystem, component, or part IAW approved technical direction of TOC. These are known as Class IV modifications. This type of maintenance covers the accomplishment of TCTOs on otherwise serviceable stock. These types of items require periodic inspection and testing, as specified in the technical order governing the item's maintenance cycles.

14.10.9. Code I - Repair. Depot Performance of Organizational and Intermediate Level Maintenance. This code applies to that level of maintenance done by the CSAG organic facilities that do not require skills or equipment capabilities above that authorized for an AF organizational or intermediate maintenance function. This code applies to maintenance performed on aircraft that are base assigned, or in a transient status, not scheduled for input on a PDM project. This aircraft maintenance includes daily and routine inspection and replacement of defective or time change accessories, the accomplishment of periodic inspections specified in applicable TOs, and the required maintenance. When a portion of a job requires depot level support, include the organizational or intermediate level part of the work under the higher level. Repair of damages to exterior aircraft surfaces, corroded or worn

airframe components, or correction of minor structural defects not requiring depot precision alignment is also included in Code I. The disassembly or buildup maintenance required for engine power packs is within the scope of this code. Maintenance will be done in a depot under this code on commodity component items ERRC coded for repair at organizational or intermediate level (i.e., XR, XF, or NF) which can be economically restored to a serviceable condition within this level of repair. This level of repair will also apply to any recoverable type end item (i.e., XD or ND) that is generated regardless of its assigned overhaul TRC depot. This code applies to ALC owned PME. All cost class 4 work will be done under this code. **Exception:** Reference code T.

14.10.10. Code J -Inspection and Test, Condition Determination or Bench Check. This code applies to the physical examination or testing required in determining the condition status of an item. This action must be a separate and distinct requirement applicable to the total job. Condition status includes the determination of whether the item being examined can properly perform its intended use, and the level of repair that would be necessary to restore serviceability should the item be classified as reparable. No type of repair is authorized under this code. **Note:** When asset characteristics are outside of normal repair requirements, use of code J is required to process assets for base supply through the ALC before the actual repair or restoration to a serviceable condition. The WAD must contain a DPC T. These are items having a high condemnation rate or an extremely low condemnation rate when condition classification is undetermined. Use this code as directed by AFMCI 65-101.

14.10.11. Code K - Manufacture and Fabrication. This code applies to the manufacture or assembly/fabrication of any item. Manufacture of suggestion items, tools, and equipment is included.

14.10.12. Code L - Reclamation. This code authorizes to process end items, assemblies, or subassemblies for parts and components that will be added to the supply inventory or immediately consumed. Limit repair of the part reclaimed under this code to the minimum usable level. Dispose of the remains of the reclaimed end items. It is authorized to process the residue material to disposal. Code L also covers the demilitarization of assemblies before disposal. Use code L for IM/PMS directed cannibalization of stock from supply using cost code H. Dispose of the cannibalized asset as directed by the manager. Use DPC N with this type of job regardless of origin (reference **Chapter 18** for the schedulers' instructions for cannibalization).

14.10.13. Code M - Storage. This code includes the inspection, re-preservation, and routine maintenance of weapons systems, equipment items, subsystems, and components in the supply system in a storage status to maintain a predetermined level of serviceability.

14.10.14. Code N -Technical Depot Assistance. This code is used to authorize the use of qualified depot maintenance workers to provide technical information, instructions, and guidance, or to perform work requiring specialized depot skills at a customer's location outside the MXSG under an RGC of area or base assistance (reference TO 00-25-107). This code is also used for accounting of foreign student training when accomplished in the ALC shops (reference AFMCI 65-101).

14.10.14.1. Within depot shops, T- prefix control number and code N must be set up in the appropriate RC/CC where the work is performed. When a job price has been negotiated, the price will be divided by the RC/CC rate to determine the total man-hours

that will be earned. The JOQ should be 1 and the operation occurrence 1. In this case, the operation standard hours are the same as the man-hours to be earned. This code is also used for accounting of foreign student training under RGC N when done in the ALC shops. Costing of this training is accomplished using the applicable RC/CC approved rate from the G004C system. Reference AFMCI 65-101 for policy and procedures.

14.10.14.2. This code includes all demilitarization other than that incidental to reclamation (i.e., code L).

14.10.15. Code T - Other Work. This type applies to other work not covered by other authorized Weapon Performance Categories.

14.10.16. Code U - Software Maintenance/Sustainment. Are modification activities after initial operating capability (IOC) or fielding necessary to correct defects and/or improve performance and upgrade or modify to adapt and/or perfect the fielded software baseline to a changing/changed environment? Maintenance/sustainment can include the modifications or upgrades necessary to ensure safety and relevance in operations and interoperability with other systems. Depot-level software maintenance includes:

14.10.16.1. Corrective maintenance successfully fixes faults discovered in the software.

14.10.16.2. Adaptive maintenance incorporates changes made necessary by modifications in the software or hardware (i.e., operational) environment of the program to assure intraoperability and interoperability including changes in the maintenance environment.

14.10.16.3. Perfective maintenance incorporates changes demanded by the user which may be due to changes in requirements or legislation, or for embedded applications in response to changes in the surrounding system. A changed requirement can be but not limited to responses to urgent operational needs.

14.10.16.4. Preventive maintenance modifies a software product after delivery to detect and correct latent faults in the software product before they become effective faults.

14.10.17. Code W - Contractor Logistics Support (CLS). CLS is commercial support for those weapons systems and equipment that do not have an organic support base established. Contractors provide total support including depot maintenance for the equipment, end-item, and components. Only those maintenance functions that would be classified as depot level, if the equipment was maintained organically, will be included.

14.10.18. Code Y - Scheduled Maintenance. The application of certain maintenance procedures to ensure that aeronautical equipment is maintained by controlling degradation resulting from time, operation cycles, use, and climatic exposure. Scheduled maintenance requirements are the minimum necessary under all conditions, and are mandatory to insure timely discovery and correction of defects. Includes Standard Depot Level Maintenance and PDM.

14.11. Depot Field Team Requirements. These requirements are normally within the scope of TO 00-25-107. AFMC Form 206 or AFSC Form 206 is initiated using the WAD Edit Extension table for temporary JONs (reference **Figure 14.16.**). **Note:** Reference **Chapter 5** and AFMCI 65101.

Section 14B – Procedures for Control of Workload

14.12. JON. A JON is a nine-position alphanumeric combination composed of the control number, job designator, and a three-position suffix.

14.12.1. Types of Production Control Numbers.

14.12.1.1. Permanent. A permanent control number is a five-digit number assigned to each end/line item of planned workloads: MISTR, TMS, and MDS, or any recurring planned workload. The range of permanent control numbers (to be electronically and or manually assigned) will run from numbers 00001 through 99999. The assignment of the number also dictates a need to set up labor and material standards (by planning) in the applicable data systems

14.12.1.2. Temporary. A temporary control number is composed of one alpha (i.e., first position) assigned by the workloader, and four numeric assigned to each end/line item of temporary or nonrecurring workloads. The four numerics are computer generated.

14.12.2. JON Suffix. This is a three-position alphanumeric code that will be determined and assigned IAW the following:

14.12.2.1. If the estimated unit cost is $90,000 or more and is subject to E&I such as aircraft, missiles, and OMEI, the last three positions must relate to a specific serial number. The following rules apply to serialized suffix assignment:

14.12.2.1.1. For G097 records, the JON suffix alpha, numeric, or if a combination if used for a serialized suffix and corresponds to the G097 weapon identity code.

14.12.2.1.2. For non-G097 items involving supply, the JON suffix must be numeric with a zero in the third position for AF items and Ownership Purpose Code (OPC) of 1, 4, or 5 for DMISA items.

14.12.2.1.3. Serialized items that are non-G097 not involving supply will have a JON suffix of all alphas.

14.12.2.2. If the estimated unit cost is $25,000 to $90,000 and is subject to E&I. The first and second positions represent the FY and month, respectively, of the actual induction. If the OPC is A (i.e., Air Force), the third position will be A. For other than AF ownership, the third position will agree with the OPC available as an attachment to this regulation. The same FY and month for a production number will not be allowed with two different OPCs. Reference **Table 14.6.**

14.12.2.3. If the estimate unit cost is less than $25,000, the three-position suffix can be monthly or quarterly. The first and second positions will be FY, quarter, and month. The third position is the same as table in the above paragraph.

14.12.2.4. If the estimated unit cost is greater than $25,000 and is not subject to E&I, a monthly JON suffix is assigned.

14.12.2.5. If the estimated unit cost is less than $25,000 and not subject to E&I, a monthly or quarterly JON suffix may be assigned.

14.12.2.6. All JONs carrying the monthly identifier in the second position of the JON suffix will use a coding scheme of A = October, B = November, C = December, D = January, E = February, F = March, G = April, H = May, I = June, J = July, K = August, and L = September. Any JON carrying the monthly identifier of M can be used in October,

November, or December with the previous FY for replacement of non-serviceable assets only.

14.12.2.7. JON suffix covered in this section pertains to the JON suffix structure for all permanent production numbers and for C prefix with DPC P temporary production numbers. All other temporary jobs will have a quarterly JON suffix assigned by G004L IAW the current Project Order Number (PON) and the applicable DPC.

14.12.2.8. When a monthly JON suffix has been established, a quarterly JON suffix will not be allowed before the next quarter. When a quarterly JON suffix has been established, a monthly suffix will not be allowed before the next quarter.

14.13. Maintenance Generated Temporary Work Requests.

14.13.1. Initiation of a computer generated AFMC Form 206 or AFSC Form 206 by maintenance is used to establish the C prefix PME customer account job orders and T prefix (S DPC) job orders for tenant support.

14.14. Production and Control.

14.14.1. Status for Internal ALC Use. The current production status as of the end-of-day on Thursday of each week or the end of month (EOM) may be obtained for any assigned production number by referencing the end item master list. The master lists are produced in the following sequence and reflect the status of each item: JON/FY (G004L-G1A), PSSD/JON/FY/ON/MATL ID (G004L-G3A), and End Item Identity (G004L-W3B).These lists show the status of all records that are on the temporary or permanent JON master files.

14.14.2. Production Status for Customer Feedback. This action is accomplished through the data contained on the G004L-L3C.

14.14.3. Assignment of Permanent Control Numbers.

14.14.3.1. The assigned portion of the permanent control number register will consist of two master listings and serves two purposes. All control numbers currently assigned will be shown and any control number, which does not appear on these lists, is available to be assigned. JON Master List by JON/FY (G004L-G1A) and the JON Master list by EII (G004L-G3B) is stored electronically and viewed on line.

14.14.3.2. Permanent control numbers will be computer generated or can be manually established to indicate a particular workload TMS and MDS.

14.14.3.2.1. Closing of Permanent Control Numbered JONs. The G004L system, through the use of status codes related to actions taken on any specific JON master record, will close a JON master at the end of the JON period.

14.14.3.2.2. Use ‘Delete Permanent PDN’ to delete the permanent JON master when the record has no suffix assigned. The G004L system will electronically delete these at the following EOM. **Note:** This action will delete the entire production number, not just the JON Master.

14.14.4. Assignment of Temporary Production Numbers.

14.14.4.1. Temporary Production Numbers are assigned electronically when the workloader correctly completes the required information on the AFMC Form 206 or

AFSC Form 206. A-Prefix is used only for workloads that will be accomplished off base with personnel on actual temporary duty. Procedures for the use of hourly standards are given in this chapter beginning with section 14.20 through section 14.46. For work done under a type 6 PON, the end item identity (EII) must be a customer account identity (CAI). All 'A'-prefixed work must have a valid MDS/TMS or stock number as the EII. Only one 'A'-prefixed control number will be set up for each area technical assistance request. Personnel from support RC/CCs will be loaned to the responsible RC/CC.

14.14.4.1.1. For normal TDY job orders, the JOQ should be the total number of man-hours required for the TDY requirement.

14.14.4.1.2. C-Prefix. This prefix is used only for non-ALC PME work that will be done as cost class 1. This prefix will be assigned to accumulate production costs to a specific CAI for other than the ALC PME. The CAI must be used for all C-prefixed control numbers.

14.14.4.1.3. M-Prefix. This prefix is used only for local manufacturers. This prefix will be assigned to all manufacture work except line and Cost Class IV support.

14.14.4.1.4. T-Prefix. This prefix will be assigned to all temporary repair work done on base within the ALC shop and/or all off base modification programs under serial number control. For serialized workload, reference paragraph 14.44.

14.14.5. When a JON completion is processed in the end item production segment of the G004L system and it completes the JOQ for a temporary production number with a K, N, T, or U DPC, the system will automatically close the JON.

14.14.6. Production Number Errors. Any opening WADs with errors will be printed out on the G004L-L3B and G004L-L3G list. The workloader must notify the customer for corrections as necessary. Any JON master record, once established, will be automatically deleted only when the JOQ and completions are equal on temporary JONs or when there have been no inductions on a permanent number at the end of the JON period. All temporary JONs (i.e., A, M, or T prefix) will close automatically. Temporary JONs for tenant support T prefix (DPC S) will close and regenerate with the latest labor, material, and JOQ. All permanent JONs close at the EOM when all inductions for the JON period have been completed.

14.14.7. Production Numbers for Training (Reimbursable). The WAD will be established using the appropriate CAI. The trainer will be considered direct labor and loaned to the RC/CC in which the labor operation is set up. Duty Code 11 will be used. A local special projects shred code may be used if desired. The approved RC/CC rate, which does not include direct material, will be used to compute the sales price by G004L. These workloads will use a T prefix production number with job designator N.

14.14.8. Increased Job Order Quantities (JOQs). JOQs input using AFMC Form 206 or AFSC Form 206 may be increased by the initiator with a changed computer generated AFMC Form 206 or AFSC Form 206 until such time as Part II of AFMC Form 206 or AFSC Form 206 is accepted. After that time, increased JOQs will be accepted only on two different control numbers: A prefix, and T prefix with a DPC S. Requests for JOQ increases should be substantiated with proper documentation. The JOQ of prior year requirements cannot be increased.

14.14.9. File Maintenance of the JON Master File. This will be accomplished directly in the G004L system.

14.15. Project Order Status. Workloaders should be aware of the impact of each WAD as it is inducted to the production process. The foregoing paragraphs are a goal of day-to-day workload control and each technician must be aware of and responsible for the financial impact. That impact starts from the point of induction and goes through the sales and project order closure.

14.16. Sales. The generation of sales is the method used by the CSAG to generate revenue to offset operating expenses. If the sale values are incorrect in any way, the ability to offset the expenses becomes questionable. It is essential that each sale be consummated and validated at the earliest practical date. AFMCI 65-101 outlines the methods used by Sales Price Generator (SPG) in DMAPSIE data system for making sales. All workloaders should be familiar with this cited directive.

14.17. File Maintenance.

14.17.1. H1 Customer Job Order Release. The workloader will coordinate with the customer for each AFMC Form 206 or AFSC Form 206 accepted and planned by the ALC which has the EISP suspended. The following jobs do not get the EISP suspended: C Prefix JONs, T Prefix JONs serialized (except those with DPC 7), and A Prefix JONs. These exceptions do not require an H1 transaction. The G004L system will automatically release the above when the AFSC Form 237 is processed validly into the system with the Status of Planning Indicator (SOPI) marked complete.

14.17.1.1. For all M-Prefix and T-Prefix temporary work requests, a customer action is required when the EISP exceeds the estimated total job cost. If the customer provides no positive action within 10 cycles, the EISP will be released, the job will be worked at the higher EISP, and the customer will be billed at the higher cost. If the PON differs from that designated on the initial computer generated AFMC Form 206 or AFSC Form 206, it can be changed on the H1 transaction by the customer only when the job has not been released to ALC scheduling (JON Status Code = blank). Once released to the planner, the change must be coordinated with the workloader and the appropriate scheduler.

14.18. Data System Products (reference Table 14.23.).

Section 14C – Planning and Control

14.19. General. The IETs within the ALCs provide the labor and material standards, shop capability, WCDs, and associated data to accomplish the production processes. The planning function requires technical knowledge of data systems, production processing methodology for various end items, ability to interpret directives, and complete understanding of management objectives related to the DMAPS and at AMARG to the applicable system. The G004L system is used to provide the basis for job order costing by end item identity. It creates work in process records and accumulates production units completed for output to Sales Price Generator (SPG) in DMAPSIE at the job order level which results in revenue to offset costs incurred. The system provides several data products for use at different levels of management. These products track production and show work in progress.

14.20. Relationship with Other Functions. The planning function depends on the workload function, the scheduling function located throughout the production shops, and the production

function of the various shops which accomplish repair processes or services on end items for which the planning organization is responsible.

14.20.1. Workload Control. The workload function provides requirements for which the repair capability exists, and ensures funds availability and ample lead-time for setting up the basic JON, labor, and material standards.

14.20.2. Scheduling. The scheduling function uses the tools provided by planning to ensure proper shop loading of end items and manpower, the acquisition of the component parts required by the production shops to produce serviceable end items, and a measurement capability of the shop's performance. Scheduling personnel participate, as required, in the PPPTs and PPTs, and as such, support the planning function in the depot production process.

14.20.3. Production. Production organization produce project orders as assigned. The production organization provides direct feedback regarding current workload status such as unplanned material requirements, WCDs, technical data discrepancies, etc. Production personnel are active members of the PPPT and PPT and support the planning function in the depot production process.

14.20.4. Quality Assurance. The quality assurance function provides quality guidance during preproduction and production planning and through work completion.

14.21. Operating Policy. The emphasis on operational planning includes preparing and maintaining WCDs; developing and maintaining resource standards for labor and material; developing task sequencing compatible with technical data, work requirements, and work specifications. The following policies will be adhered to:

14.21.1. HQ AFMCI 21 Series.

14.21.2. HQ AFMCI 23 Series.

14.21.3. HQ AFMCI 65 Series.

14.21.4. HQ AFMCI 63-143 Series.

14.22. IET Responsibilities.

14.22.1. Participate in and coordinate on workload negotiations when requested. Organizations utilizing EXPRESS do not negotiate MISTR workloads.

14.22.2. Support PPPT and serve as the chairperson of the PPT.

14.22.3. Provide cost/hour estimates and source selection support, and provide technical inputs to decision tree analysis and inter-service studies.

14.22.4. Provide limited planning support to the acquisition process for weapon systems and end items.

14.22.5. Provide production planning for current workloads.

14.22.6. Coordinate and provide follow-up on technical data changes on applicable work packages and WCDs as required.

14.22.7. Prepare and maintain WCDs; review MWRs for O&A work.

14.22.8. Develop and maintain resource standards for labor and material.

14.22.9. Perform periodic labor standard reviews on permanent workloads (reference **Chapter 2**).

14.22.9.1. Develop task sequencing compatible with technical data, work requirements, and work specifications.

14.22.10. Provide data, updates, and recommendations to management, when requested.

14.22.11. Review and coordinate on actions of the AMR.

14.22.12. Assists in determining requirements and establishing justification for group modernization projects and programs.

14.22.12.1. Provide planning support as required during the development and implementation of new technologies, and review new industrial processes for impact to the current production process.

14.22.12.2. Update associated logistics data, (e.g., process flow charts, labor standards, flow day computations, and WCDs).

14.22.12.3. Provide Planning support to safety and health related programs as needed.

14.23. Exchangeable Component Item Control.

14.23.1. The basis for pricing end items is determined 12-15 months in advance of the actual generation of those items for repair. Because of this time-phasing and the necessity of establishing the pricing rates approximately 14 months in advance of workload generation, the customer has no reliable visibility of serviceable component availability, nor can maintenance rely upon such availability when establishing labor standards for repair of the end items. Such situations force consideration of concurrent repair of exchangeable components. The ALC is responsible for disposing of the exchangeable components, and concurrent repair of the items must be approved by the ALC. Repair concepts for exchangeable items are normally agreed upon between the material management and ALC during the initial pre-production planning accomplished after TRC assignment or when new major end item repair requirements are made known through major modification/engineering change. Those requirements may be of such magnitude or sophistication as to require a pre-production planning effort. The preplanning effort will determine and establish the repair process of those agreed upon items.

14.23.2. Job Routed Items (Exchange Items).

14.23.3. Field Level Repair. This type of repair, when done in support of serialized end items, should be costed as O&A work to the end item with the approval of the PAO (reference AFMCI 65-101) normally, and a block of hours per end item will be identified for this type of effort. Once repair on a component has been made by the maintenance activity, and the component leaves maintenance, but subsequently fails for reasons other than material failure, any follow-on repair of that item will be costed as rework. The labor and material used in rework are charged to operations overhead in the RC/CC doing the work.

14.23.4. Other End Item Repair. These end items are sold to the customer at a predetermined EISP. The material standards also normally include the exchangeable component. The component repaired on its own MISTR identity must be issued as material to the job order applicable to the NHA. Multiple turn-in and issue documents are required in this case. The

TO for repair of the end item may have to be supplemented by use of the sub-indentured item TO to complete the repair process.

14.24. Pre-Production Planning (New Workloads).

14.24.1. Absolute Prerequisite. Pre-production planning is an absolute prerequisite to establishing a successful depot repair process. It is done after TRC workload assignment and before a new weapon system becomes operational or at least concurrently with the operational phase. When TRC workload assignments are transferred from one ALC to another, some preproduction planning is required by the receiving TRC for a smooth and efficient transfer with minimum impact on customer requirements.

14.24.2. Pre-Production Planning, New Workload Assignment Required to be completed prior to new workload acceptance for all depot level maintenance, including but not limited to new acquisition, new work, modification installation, modification follow-on, overseas workload, and workload shifts, reference AFMAN 63-122.

14.24.2.1. Pre-production planning teams are composed of representatives from Cognizant (Systems) Engineering, MX Process Engineering, Production, Scheduling, QA, Planning, SE, Bioenvironmental Engineering, PAC, Training, and Supply. Cognizant (Systems) Engineering leads the effort. When additional expertise is desired, other organizations possessing the skills required may be included. These additional members may serve on either a full-or part-time basis. Pre-production personnel are responsible for the initial resource development and system input of workplace facility layouts, process flow charts, BOM requirements, work structure breakdowns and associated WCDs, labor standards operations, identification of training and certification requirements for production personnel, overseeing all prototype first article demonstrations, review of all hardware and software technical data, review of all associated equipment and hand tools, review of all special processes, finalization of direct costs, reporting of shortfalls that prohibit organic start, and requesting work authorization documents for programmed workload start.

14.24.3. Ongoing Pre-Production Planning. Pre-production planning will also be applied to:

14.24.3.1. Cognizant or MX Process Engineer is responsible for new major end item repair requirements that generate after the initial TRC assignment. These items may be the result of modification, product improvement, or engineering change proposals.

14.24.3.2. Major modification requirements may be of such magnitude and sophistication as to require the effort of a PPPT.

14.24.3.3. Safety of flight, life support, or QA verification requirements. When items have been identified as a safety of flight, loss of life support item, or QA verification requirements, the items will receive formal PPPT.

14.24.3.4. DFT activities. Special planning may be required depending on the tasks that will be done in the field by DFT. Therefore, WCDs are developed and used during kit proofing of a modification that will be done in the field. Other work done in the field by the DFT will be planned and will result in a planned package that will contain all required specific operations and quality verification inspection requirements (reference **Chapter 5** on DFT).

14.24.4. The magnitude of pre-production planning is determined by the complexity of the weapon system/end item and by the requirements established and negotiated by the responsible Product Support Manager (PSM). The team will:

14.24.4.1. Identify RC/CC manning requirements, as required. Identify the total required versus available manpower by required skill level and RC/CC. The total standard hours required versus the total manpower available by skills is the basis for determining the depot's manpower capability to accomplish the programmed workload by the desired date. Any new manpower requirements will be identified in terms of personnel equivalents. To accomplish this, it will be necessary to develop labor standards for those items processed within a given RC/CC.

14.24.4.2. The PPPT is responsible to identify tools, equipment, ground handling, and mockup requirements, as required. Review all applicable technical data and determine the availability and adequacy of the above items. Identify any items that are not available locally and take steps to ensure they will be on hand in time to support the programmed workload. Identify the workload to be applied across common test equipment and as a result of that finding, determine the number of test set/stations required to provide support for a smooth repair-line flow.

14.24.4.3 When a 3-shift operation will not satisfy negotiated requirements, take action to obtain additional test equipment or test stations not provided for initially. For temporary workloads, the Cognizant Engineer will determine if a PPPT is required and the IETs will determine if a PPT is required. The PPPT is responsible to identify facility requirements as required. Review the technical data and flow process requirements to determine whether or not existing facilities are adequate for the proposed workload. Consider any peculiar needs such as light, heat, power, water, ventilation, floor drains, compressed air, cleaning booths, paint booths, clean room, noise suppression, special safety considerations, etc. Take action to ensure peculiar facility needs are provided in time to support the programmed workload.

14.24.4.3.1. A layout of work areas by RC/CC is required. Prepare area layout drawings with floor space required, showing all workbenches and the location of equipment, test stations, machines, utilities, etc., as required.

14.24.4.3.1.1. Capacity Utilization (reference DoD 4151.18-H, *Depot Maintenance Capacity and Utilization Measurement Handbook,* and **Chapter 16**).

14.24.4.3.1.2. The following steps outline the procedures for calculating the physical capacity:

Table 14.1. Steps that outline the procedures for calculating the physical capacity.

Step	Procedure
1	Obtain a detailed shop layout print which identifies the functions of the shop, its boundaries, its area, and its equipment/workbench locations. Verify and update as necessary the layouts to reflect the current situation.
2	Work Breakdown Structure (WBS) Codes can be found in paragraph 16.6.
3	Facility Code. Developing and maintaining the RC/CC to Facility Code requires identifying every WBS and Building Number combination in which the RC/CC performs

	work (**See Note**).
Note: A unique Facility Code is then assigned to the combinations as indicated in the sample below. These codes are assigned independently within each RC/CC. Numbers 1 through 9 are used to identify up to nine Building and PSC Code combinations. If additional codes are required, alpha characters A through Z may be used.	

Table 14.2. Code Example.

RC/CC	Bldg No.	WBS Code	Facility Code
MTPCC	3001	1.2.6	5
MTPCC	3001	1.2.3	6
MTPCC	3001	1.1.3	7
MTPCC	3123	1.3.1	8
MTPCC	3108	6.1	A

14.24.4.3.1.3. The RC/CC/Facility Code master file changes must be coordinated with the E046B and G004L systems prior to implementation.

14.24.4.4. Repair requirements should be an integral part of the project directive, work order, or SOW. The PPPT should ensure that these requirements are clearly stated and technical data covering these requirements is available. Technical data will be reviewed, homogeneous end items assigned to given RC/CCs, and Process Flow Charts developed for each item. The team will identify and establish shipping/receiving areas as end item storage for each RC/CC. Storage will accommodate those items AWM or AWP. A first article/prototype inspection will be scheduled and a walk-through disassembly/assembly will be accomplished to:

14.24.4.4.1. Verify the repair process.

14.24.4.4.2. Determine which sub-indentured items will be repaired/replaced.

14.24.4.4.3. Determine which sub-indentured items will be routed, for what purpose, and at what frequency. Identify support RC/CCs required and manpower for each.

14.24.4.4.4. Identify all items to be processed across the same test equipment/test stations and locate that equipment/test stations within the facility so as to be readily accessible to all or most of the related repair lines. Identify and quantify any additional equipment/test stations required to support the programmed workload.

14.24.4.4.5. Validate the use of designated ground handling equipment, special tools, test equipment, etc.

14.24.4.4.6. Determine Personnel Equivalent and types of skills required.

14.24.4.4.7. Determine standard man-hours required.

14.24.4.4.8. Identify any required special tools, equipment etc., not previously identified. Consult with Bio-environmental engineering regarding any special requirements to meet OSHA/Industrial Hygiene standards that apply.

14.24.4.4.9. Determine what additional inspection requirements and quality verifications are necessary.

14.24.4.4.10. Verify the exchange items that require turn in for movement to the responsible TRC/SOR. This is considered a 'remove and replace' concept due to TRC/SOR assignment to another location.

14.24.4.5. Develop a QA plan. All commodities and work areas covered by established QA methods. The development of a planned QA plan is an integral part of the pre-production planning function. The QA representative, with the planning activity, will develop and refine the planned QA plan IAW **Chapter 8**.

14.24.4.6. Develop resource standards.

14.24.4.6.1. Develop material standards for each end item programmed for repair. Should formal illustrated parts breakdown TOs not be available, blue line TOs or provisioning documents may be used to identify parts for material standard development.

14.24.4.6.2. Labor standards may be developed from blue line copies of the overhaul TOs if the formal TOs are not yet published (reference **Chapter 2**).

14.24.4.6.3. WCDs may be developed and validated during the first article/prototype inspection. WCD inspection points and required support shop routes may be identified and provided for (reference **Chapter 7**).

14.24.4.7. To make necessary changes as approved by AFLCMC Engineering. Ensure proper technical data is available in sufficient quantity to support the scheduled repair. The PPPT will review preliminary technical data and make the necessary changes to provide adequate repair coverage, and will also review the preliminary illustrated parts breakdown data to ensure all replaceable parts are identified. In addition to the depot overhaul technical data reviews pertaining to the items scheduled for repair, the PPPT will also ensure, where appropriate, that the test station data will be available and adequate to support operation and maintenance. **Note:** A production technician should be present when technical data, test station data, or process procedures are being discussed.

14.24.4.8. Determine personnel training requirements. As a result of technical data review and the first article/prototype inspection, the PPPT will determine any training requirements that need to be accomplished before starting the repair schedule.

14.24.4.9. Determine Special Safety Consideration and Requirements.

14.24.4.10. Identify the tasks/operations that will require data collection provisions on the WCD or attached data sheet.

14.25. Production Planning. Production planning is started after new workload acceptance for all depot level maintenance, including but not limited to new acquisition, new work, modification installation, modification follow-on, overseas workload, and workload shifts.

14.25.1. Labor Standards. The appropriate planning activity ensures adequate labor standards are reviewed and revised. **Chapter 2** outlines procedures for developing permanent labor standards.

14.25.2. Material Standards. Material standards are reviewed and revised by the appropriate planning activity and are used to calculate material requirements for a given workload. Each

workload assigned a permanent production number established in G004L system must be evaluated for component material items to be used in the repair process. Material standards are then prepared and input to the G005M system. If indirect items, such as bench stock, are added to G005M, ensure the expense code is overridden. These standards are an integral part of the Uniform Cost Accounting (UCA) System and provide a means to compute an EISP.

14.25.3. Data Collection. The PPT will review the tasks/operations that require data collection to ensure they are still accurate. If necessary, identify the operations/tasks to add or remove data collection provisions.

14.26. Work Control Documents (WCDs). WCDs are not technical data. The WCD is an official and authorized document with the technical data reference. All programmed and non-programmed work will be documented on an approved WCD. The WCD is the official record for work including control, identification, and routing operations. The completed WCD provides an audit trail of work performed. This control is applicable to all production organizations processing temporary and programmed workloads except for PME and PM scheduling control, for aircraft workload control, and for the mechanized temporary workload control document defined in preceding paragraphs (reference **Chapter 7**).

14.26.1. Types of WCDs:

14.26.1.1. AFSC Form 959.

14.26.1.2. The AFSC Form 959 can be hand-scribed or generated by the Inventory Tracking System (ITS) - G337 System, Lean Depot Management System (LDMS), or PDMSS for aircraft.

14.26.1.3. AFSC Form 173.

14.26.1.4. D012, Management, Planning and Control System (MPCS), generated WCDs.

14.26.1.5. Maximo generated WCDs.

14.26.1.6. Impresa generated WCDs.

14.26.1.7. Contractor supplied WCDs may not conform to this manual (reference **Chapter 7**).

14.26.2. The assigned RC/CC Planning Organization is responsible for WCD specified task information within their respective area(s) of responsibility. When the responsible RC/CC Planning organization is not the primary organization for the WCD (Imbedded Process Routes), the production planning technician responsible for the RC/CC where the task is performed will notify the primary WCD IET of required WCD changes using an AFSC Form 957.

14.26.3. Move Item Control. When a maintenance organization requires support in the repair of end items from organizations outside the primary RC/CC, coordination between the primary and supporting organization is essential. Locally developed Move Item Control Documents may be used to request and coordinate support within the product management groups. Policy, instructions, and procedures for use of Move Item Control Documents will be governed by locally developed publications, instructions, OIs, etc.

14.26.4. Non-programmed Workload. Non-programmed AFMC Form 206 or AFSC Form 206 workload WCDs will comply with **Chapter 7**.

14.26.5. Programmed Work. AFSC Form 600 (WAD) and 801 transactions are completed for each end item identified as a requirement. This workload is presented to maintenance by a project directive.

14.27. Planning Jackets (Non-Aircraft).

14.27.1. Each planning section must develop and maintain a master jacket for each permanent production number within their assigned area of responsibility and the jacket must meet requirements IAW **Chapter 2**. The production number and EII will be shown on the face of the jacket. Backup material can be stored in a different location and on a media different than paper as long as a consistent procedure is followed and an audit trail is maintained. The use of electronic storage is encouraged with the ability to print documentation on demand.

14.27.1.1. Permanent Production Numbers. The permanent production number jacket will contain the following:

14.27.1.1.1. AFSC Form 600 (optional) screen print.

14.27.1.1.2. Current labor standard.

14.27.1.1.3. Project Directive (as required).

14.27.1.1.4. DD Form 1723, *Process Flow Chart*, or a flow process diagram.

14.27.1.1.5. Flow Day Computation (required by **Chapter 2**).

14.27.1.1.6. Other Backup Documents as Required. **Note:** If the labor standard development function is separate from the normal planning function and separate folders must be maintained, then a copy of the labor standard is desirable in the planning jackets but not mandatory.

14.27.1.2. Temporary Production Numbers (except local manufacture). The jacket will contain the following:

14.27.1.2.1. AFMC Form 206 or AFSC Form 206 screen print.

14.27.1.2.2. Special Instructions screen print (optional).

14.27.1.2.3. Initial L3A report (i.e., Temporary Job Record) and any subsequent L3As due to changes.

14.27.1.2.4. Other backup documents as required.

14.27.1.3. AMARG uses Maximo for both Permanent and Temporary Production.

14.28. Planning Jacket (Aircraft, Missile, or OMEI).

14.28.1. Each planning office must develop and maintain a master jacket for each aircraft, missile, or OMEI. The permanent production number will be shown on the face of the jacket. Backup material can be stored in a different location, on a media different than paper as long as a consistent procedure is followed and an audit trail is maintained. The use of electronic storage is encouraged with the ability to print documentation on demand. At a minimum, the planning jacket will contain the following:

14.28.1.1. AFTO Form 103 and incoming AFTO Form 781A write-ups.

14.28.1.2. Incoming Correspondence (i.e., TCTO Approval Sheet).

14.28.1.3. Pre-Induction Meeting Minutes/Amendments.

14.28.1.4. Incoming Aircraft History.

14.28.1.5. Fixed Price Work Sheets (FPWSs). Initial FPWS is the responsibility of the SPO and the final FPWS is the responsibility of the Planner. Both should be maintained in the planning jacket file.

14.28.1.6. AFMC Form 202 and other technical information.

14.28.1.7. Copy of JON closeout sheet.

14.29. Support Shop Application.

14.29.1. Routing may involve multiple RC/CCs or may occur within a single shop. Routing may be classified as either job routing or process routing. The determination of job and process routing is defined in **Chapter 6**.

14.29.1.1. Process routing is the movement of an item (exchangeable, non-exchangeable) through a conditioning/reconditioning process. Typical examples of process routes are defined as follows:

14.29.1.1.1. Cleaning.

14.29.1.1.2. Plating.

14.29.1.1.3. Heat Treating.

14.29.1.1.4. Battery Servicing.

14.29.1.1.5. Grinding.

14.29.1.1.6. Machining.

14.29.1.1.7. Check and Testing.

14.29.1.2. Job routing is similar to process routing except that the repair does not involve a sequence of conditioning processes. Job routing consists of removal, repair, and reinstallation of a LRU without including a supply transaction in the process. Job routing is not permitted between ALCs. The proper procedure is to exchange the unserviceable for a serviceable with a supply transaction (reference **Chapter 6**).

14.29.2. Items removed for accessibility purposes will be reinstalled, when possible, on the end item from which removed.

14.29.3. Unserviceable exchangeable components from aircraft and engines are normally removed, turned into supply, and a serviceable replacement acquired (reference **Chapter 18**). Exchangeable components are processed according to **Chapter 6**.

14.29.4. To ensure the ALC recoups operating costs under the industrial fund (reference AFMCI 65-101) for the production of each end item, timely reporting of all support must be affected. Selected types of workload, including items removed from complete aircraft, complete missiles, and complete engines under modular control, or inertia, guidance systems, require serial number reporting. A WCD must be prepared for each item (i.e., one of a kind) identified to a serial number controlled end item. Multiple units of a like stock number removed from the same serial number end item may be included on one WCD.

14.29.5. All direct material transactions used in support of moved items will contain the 9position JON of the supported end item. This data is mandatory to comply with costing of material by JON, reporting requirements, supply posting control, stock balance reporting procedures, and material standard refinement.

14.29.6. WCDs are required to ensure proper control of all support work, to ensure required maintenance, and to ensure return of the items to the final destination. AFSC Form 137, Routed Order (Proj Dir), WCDs are used to document work completed. WCDs may be initiated by ALC production personnel for battery and hydrostatic services when accomplished for resident organizations (e.g., fire department, air base wing, etc.)

14.29.7. Routed Order (Aircraft) (AFSC Form 127).

14.29.7.1. Preprinting of AFSC Form 127. When preplanning has established the necessary support on programmed workloads, preprinting of AFSC Form 127 may be done. Entries that may be preprinted are:

14.29.7.2. Block 1 - Enter the control number and job designator and the control number portion only. Use the job designator portion to insert the JON suffix/aircraft identity code.

14.29.7.3. Blocks 3, 5, 7, 9, 11a, 12, 13a and b, and 14 may be completed, if known.

14.30. Cost Awareness. The IET ensures proper costing through accurate planning of the labor, material required, and WCD preparation. A WCD will be used for negotiated workloads and permanent control numbers as assigned. End item prices will be included in the JONs utilizing Unburden RC/CC Rates except for serial number controlled items, and an average hourly sales rate/end item price for temporary JONs dependent upon the UOM. The IET will review these prices/rates to determine when a change is required as the intent under the CSAG-M is to break even.

14.30.1. Temporary JONs. The IET prepares and inputs the labor plan and the BOM into the G004L system. The system will output the Temporary Job Record (i.e., G004L-L3A) containing all pertinent control data, the man-hour cost for A-prefix control numbered JONs, and end item price for M-prefix JONs. Based upon the UOM, the system will compute an average hour P sales rate or end item price for T-prefix JONs. The PPT must review these documents to ensure completeness before release to scheduling.

14.30.1.1. Various computations must be made by G004L to provide an EISP or an average hourly sales rate. Funded material is known as expense (nonexchange) material. On temporary job orders, cost code is A and 100 percent of stocklist price is used. Unfunded material is known as exchange or investment material. Cost codes applicable are D/E/M/T/X or Z codes. Cost code E is costed at the average repair cost. Cost codes M/D/T/X and Z are costed at 100 percent of the stocklist price. The computer will do the computation based upon planning input. For cost codes M/D/T/X or Z, the unfunded material cost by operation equals the stocklist price times the material quantity. For cost code E, the unfunded material cost per operation equals the stocklist price times the material quantity times average repair cost. To compute the labor cost per operation, multiply the operation count limit times the operation standard hours times the RC/CC rate provided by the G004C system. Reference paragraph 14.29. for G004L computations.

14.30.1.2. To compute an end item price for all jobs with UOM equal to each (EA), G004L will summarize the total funded material cost and other direct cost, summarize the total labor cost, add the two summary figures, and divide that result by the JOQ.

14.30.1.3. To compute an average hourly rate for all jobs with the UOM equal to HR, G004L will summarize the total funded material cost, the total labor cost, and the other direct costs, and divide the result by the total labor hours for the job.

14.30.1.4. The system will re-compute the hourly sales rate or EISP as required for all temporary JONs when any element affects the cost of a labor operation such as added or deleted material from an operation or when the total job quantity is changed. When a new labor operation is added in a new RC/CC, the current rate for that RC/CC as provided by G004C is used. All other computations are made using the applicable RC/CC rate in existence at the time the record for the labor operation was set up on the master record.

14.30.1.4.1. Establishing and Revising AFMC Form 206 or AFSC Form 206. Sample screens and instructions are as follows:

Figure 14.1. Temporary Work Request (AFMC Form 206 or AFSC Form 206).

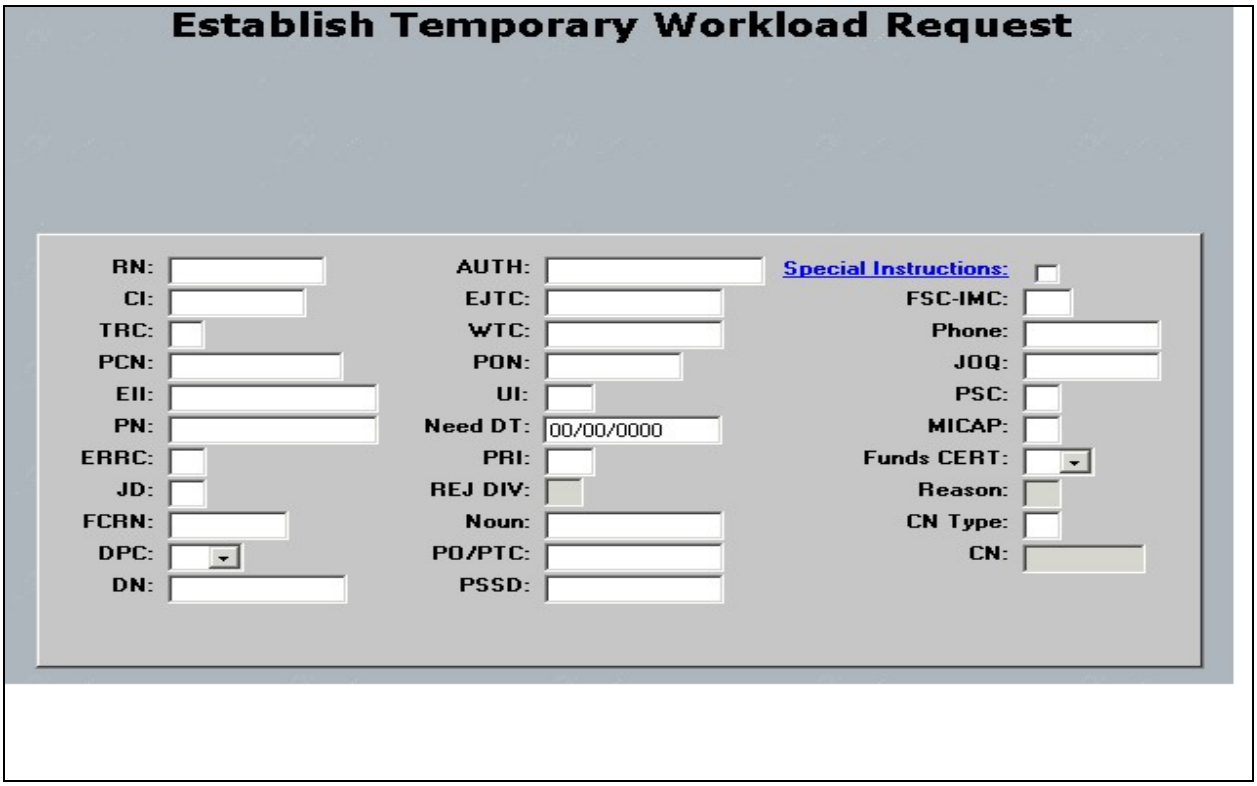


Figure 14.2. Temporary Plan Header (screen shot from G004L).

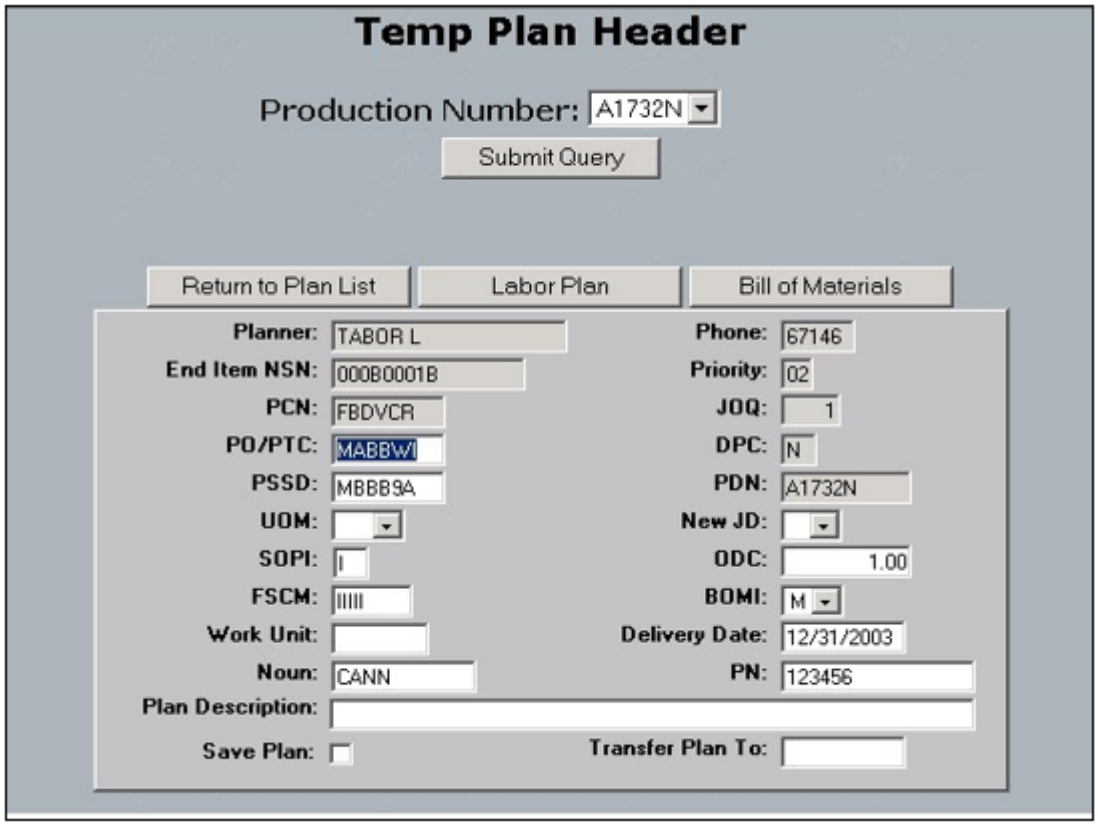
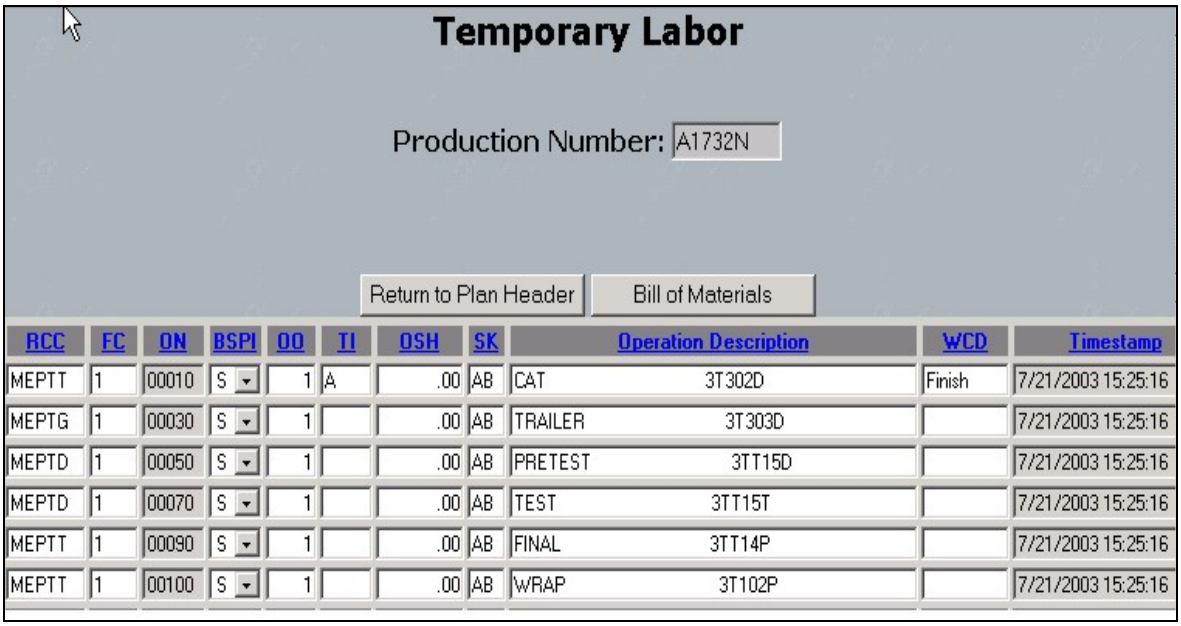


Figure 14.3. Records Do Not Exist.

AB00003: NO MORE RECORDS EXIST FOR THIS SELECTION

(1) Control Number.
(2) Planning Organization/Planner Technician Code (PO/PTC).
(3) Job Designator (New).
This is that last chance to change the Job Designator.
(4) Production Section/Scheduling Designator (PS/SD).
(5) Other Direct Costs.
In dollars & cents.
(6) Production Count Indicator (PCI).
A = Automatic; B = Manual (Usually A).
(7) Bill of Material Indicator (BOMI).
M = Material; R = Hourly (Usually M).
(8) Unit of Measure (UOM).
EA if sold at EISP, or HR if sold at hourly rate (Usually EA).
(9) Delivery Date.
(10) Status of Planning Indicator.
C = Complete; I = Incomplete (Must be C before JON will be assigned).

Figure 14.4. Build Temporary Labor Plan (screen shot from G004L).



Temporary Labor

Production Number: A1732N

Return to Plan Header | Bill of Materials

RCC	FC	ON	BSPI	QQ	TI	OSH	SK	Operation Description		WCD	Timestamp
MEPTT	1	00010	S	1	A	.00	AB	CAT	3T302D	Finish	7/21/2003 15:25:16
MEPTG	1	00030	S	1		.00	AB	TRAILER	3T303D		7/21/2003 15:25:16
MEPTD	1	00050	S	1		.00	AB	PRETEST	3TT15D		7/21/2003 15:25:16
MEPTD	1	00070	S	1		.00	AB	TEST	3TT15T		7/21/2003 15:25:16
MEPTT	1	00090	S	1		.00	AB	FINAL	3TT14P		7/21/2003 15:25:16
MEPTT	1	00100	S	1		.00	AB	WRAP	3T102P		7/21/2003 15:25:16

Figure 14.5. Record Not On File.

AB00008: REQUESTED RECORD NOT FOUND ON FILE

(1) Resource Control Center (RCC).

(2) Facility Code.

(3) Operation Number.
Must be numerical for *T* prefix Control Numbers.

(4) Batch/Single Processing Indicator (BSPI).
B = Batch; S = Single

(5) Operation Occurrence.
If Batch BSPI, the number of time per 206; if Single BSPI, the number of times per End Item.

(6) Type of Inspection (TI).
To be filled in by the Quality Assurance organization.

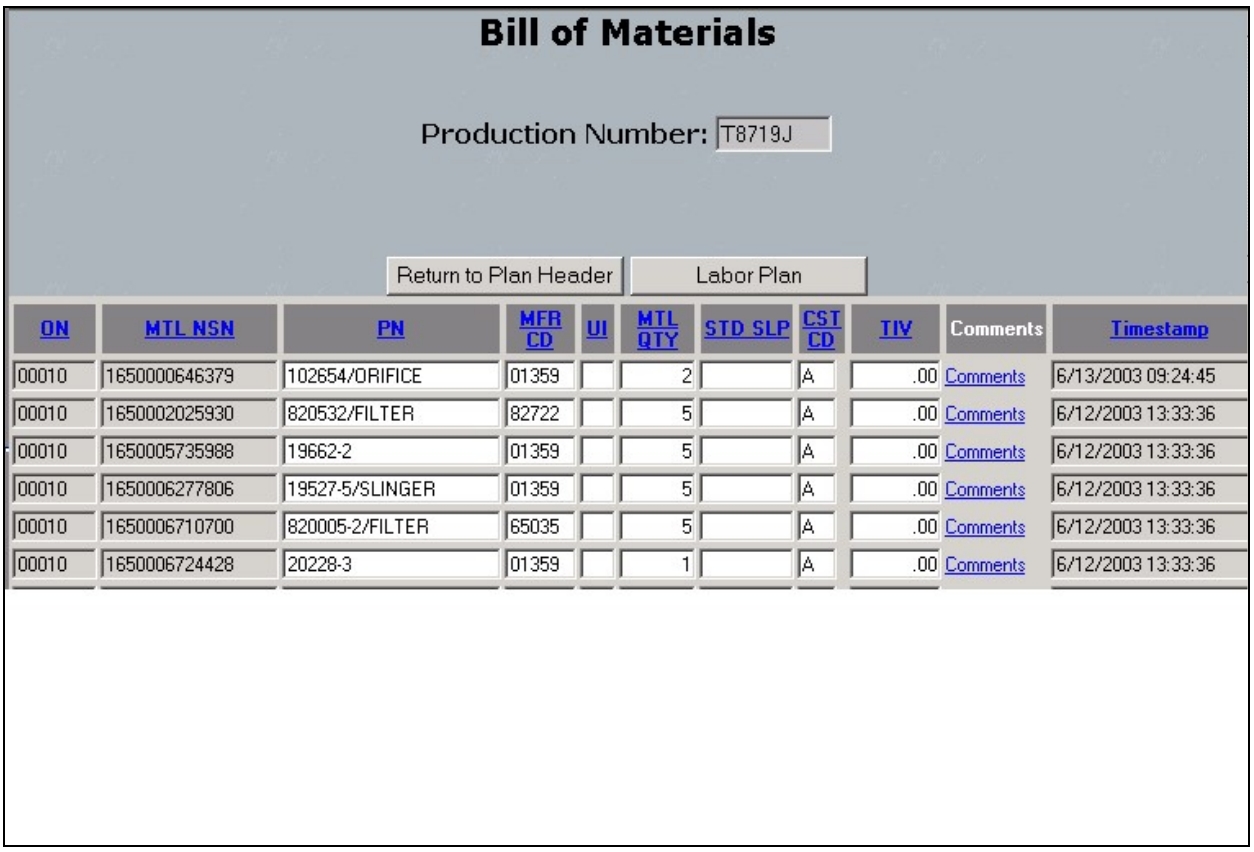
(7) Operation Standard Hours.

(8) Skill Code.

(9) Operation Description.

(10) Last 6 positions will contain the WCD No.

Figure 14.6. Build Temporary Material Plan (screen shot from G004L).



Bill of Materials

Production Number: T8719J

Return to Plan Header | Labor Plan

ON	MTL NSN	PN	MFR CD	UI	MTL QTY	STD SLP	CST CD	TIV	Comments	Timestamp
00010	1650000646379	102654/ORIFICE	01359		2		A	.00	Comments	6/13/2003 09:24:45
00010	1650002025930	820532/FILTER	82722		5		A	.00	Comments	6/12/2003 13:33:36
00010	1650005735988	19662-2	01359		5		A	.00	Comments	6/12/2003 13:33:36
00010	1650006277806	19527-5/SLINGER	01359		5		A	.00	Comments	6/12/2003 13:33:36
00010	1650006710700	820005-2/FILTER	65035		5		A	.00	Comments	6/12/2003 13:33:36
00010	1650006724428	20228-3	01359		1		A	.00	Comments	6/12/2003 13:33:36

Figure 14.7. Requested Record Not Found.

AB00008: REQUESTED RECORD NOT FOUND ON FILE

(1) Operation Number.
Must match a Labor Operation Number.

(2) Material National Stock Number.
NOTE: The REVIEW TEMP BILL OF MATERIAL, Screen No. AB2011, has a place to add Planner's comments if desired; for instance, denoting if this NSN is an authorized substitute.

(3) Part Number.
NOTE: Use the Part Number found in Tech Data; D043 may have several P/N's tied to one NSN & the Part Number required by Tech Data may not be listed in the D043 under a sub NSN.

(4) Federal Supply Code for Manufacturers (FSCM).
FSCM or CAGE of P/N; from D043. NOTE: If NSN is an authorized substitute, use the Part Number found in Tech Data and *99999* for the FSCM (or CAGE).

(5) Unit of Issue (UI).
From D043 Unit/Issue.

(6) Material Quantity.
Total quantity needed for the whole 206.

(7) Stock List Price.
From D043 Unit Price.

(8) Cost Code (CC).
Generally *A* for Direct, *B* for Exchange, *L* for Indirect, etc. (see page 87 of AFMC R 66-61 for complete list)

(9) Net Price.
For *B* Cost Code items only; from the D043 *P* Screen; Exchange Price.

14.30.2. Permanent JONs. The G004L system will interface to the SPG in DMAPSIE system for existing permanent JONs. For new workloads, the IET must compute the EISP based upon known labor and material planned for each end item and input the price into the G004L system by an AFSC Form 600 transaction.

14.30.2.1. Establishing a Permanent JON Workload. The forms used for workload management are computer screens generated by G004L. Samples and process procedures to open new workload in G004L are as follows:

14.30.2.1.1. The Actual NSN is the item that will be produced. The Master NSN is used for filling linked requirements and does not necessarily have an open Control

Number. If any Modification NSNs are listed, they must be modified to the Actual NSN before being sold.

14.30.2.1.2. Determine work requirements. If no prototype was performed within the last two years, another may be required as decided by the Program Manager. Make sure all support equipment, technical data, material, skills, routed support, etc., are available before accepting the work. This is a function of the planning team.

14.30.2.1.3. Determine an estimated EISP. This price cannot be changed for approximately two years, so it should be as accurate as possible and also anticipate future events. The EISP is calculated by multiplying the standard hours by the RC/CC labor rate and adding the material cost. The material cost is calculated by multiplying the price of each line item on the BOMs by the UPA and by the replacement percentage and then summarizing. The EISP includes all routed labor and material support required. Preliminary labor standards may be established in the E046B system using a Pseudo Control Number. Preliminary BOMs may be established in the G005M system using a P Job Designator.

14.30.2.1.4. Complete AFSC Form 600 transaction to establish end item in G004L.

14.30.2.1.5. Complete planning tasks. This includes completing the labor standards, BOMs, WCDs, Routed Support requests, etc. The AFSC Form 600 must be completed and overlay the E046B and G005M systems before labor standards and BOMs can be input.

14.30.2.1.6. When all planning tasks are complete, send the 801 to workloading who will open a Control Number in G019C. Before sending to workloading, annotate Special Instructions/SOW with a projected implementation date which is the date that all elements will be ready for the shop to start work.

Figure 14.8. Establish Work Authorization (MISTR) (AFSC Form 600).

(1) End Item Identity (EII).

(2) Noun. A brief description of the EII unless the 801 screen has a Miscellaneous Code of X (PP72-10 or FEMS). Then the noun will be the 2 position MMAC followed by the 3 position IMC for the EII.

(3) Planning Organization and Planning Technician Code.

(4) Production Section/Scheduling Designator.

(5) Federal Supply Class-Item Manager Code. The appropriate code for the ALC which is the prime for the EII: OC-ALC = SK; OO-ALC = SU; & WR-ALC = TG.

(6) Data Processing Code. Usually T. If Miscellaneous Code is X then DPC is X.

(7) Program Control Number.

(8) Control Number.

(9) Funds Classification Reference Number.

(10) Priority. Reference AFI 23-101 for identification of priority codes.

(11) Future JON Classification Code. Usually A for high volume; B for low volume.

(12) End Item Sales Price. In whole dollars. (Labor Standard times RCC Rate plus Material costs) Make sure this is correct before the 600D is sent as this price is fixed for the first full Fiscal Year and cannot be changed except by authorization from headquarters.

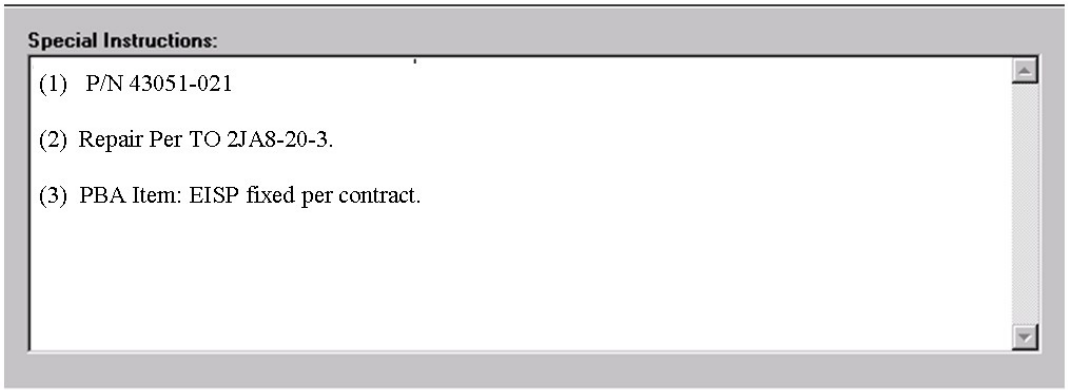
(13) Expendability-Recoverability-Reparability Category Code.

(14) Procurement Source Code. Applicable to EII.

(15) Workloader Technician Code.

(16) Job Designator

Figure 14.9. Special Instructions for Establish Work Authorization (MISTR) (AFSC Form 600).



(1) Add Part Number of item being repaired.

(2) Add Tech Order number containing instruction for work being performed.

(3) Add any other pertinent information.

14.31. Workload Control Methods. For each workload requirement, it is necessary to set up a means of identification for allocation of material, reporting labor used, and accounting for sales of production. These accounts are basically established by workloading through assignment of control numbers. There are two types of control numbers: permanent (all numeric) and temporary (an alpha prefix and 4 numerics). When a job designator is assigned, the combination of control number and job designator is called a production number.

14.31.1. Permanent Production Numbers. Any workload requirement negotiated and/or driven by EXPRESS, of a continuing duration, and counted in separate increments and processes, will have a permanent production number assigned. Workloads usually included under this concept are major end items, exchangeables (PME included), and long flow time end items.

14.31.1.1. Material Standards. Each workload assigned a permanent production number established in G004L for control of the workload must be evaluated for the component material items to be used in the repair process. Material standards must be prepared and input into the G005M system. Ensure the expense code is overridden to indirect for bench stock items in G005M. These standards are an integral part of the UCA System in that these standards provide a means to compute an EISP.

14.31.1.2. Labor Standards. Labor standards for workloads assigned a permanent production number will be input into E046B (reference **Chapter 2**). MDS/PDM labor standards are input to G097.

14.31.2. Temporary Production Numbers. Temporary production numbers are established for all AFMC Form 206 or AFSC Form 206 requirements. One-of-a-kind, one-time

requirements, workloads of very short duration, and manufacture are the types of work authorized for customers under this concept. The AFMC Form 206 or AFSC Form 206 is established through G004L. The initiator will enter all element values from Request Number in the left column to Job Designator in the right column and forward for Funds Certification. When approved, the AFMC Form 206 or AFSC Form 206 is sent to Workloading/WTC. The system will automatically assign a Control Number. Workloading/WTC will forward the AFMC Form 206 or AFSC Form 206 to the appropriate planning organization for additional processing.

14.31.2.1. An A- prefixed temporary control number is applied to job orders covering technical assistance requirements off base (i.e., TDY). The costs charged to these job orders will include direct labor, direct material, other direct costs, and the applicable overhead. The work must be done outside the base/station on which the depot is located. An exception, which allows use of an A-prefixed job order for work performed on the base/station, is when that work is performed by personnel on TDY from another ALC. Only one A- prefixed job order will be established for each area technical assistance request. Personnel from supporting ALC RC/CCs will be loaned to the responsible production RC/CC. All A- prefixed job orders must contain a valid CAI, MDS, or NSN as the EII.

14.31.2.1.1. For normal TDY job orders, the JOQ should be the total number of man-hours required for the TDY requirement. The labor operation on the AFSC Form 237 must reflect a valid production RC/CC, operation number 00001, BSPI of S, the operation occurrence of 001 and cost (ODC) will include travel and per diem costs, and the cost of any material requisitioned in support of the TDY not supplied by the host unit.

14.31.2.1.2. For TDY job orders where a special unit job sales price is negotiated or established, the following procedure should be used for establishing the labor standard and other direct cost. The ALC receives several work requirements for support to which a unit job sales price should be applied. Among these are special projects, FCFs where the ALC provides a pilot to another facility including contract sites, and other similar applications. The job order records can be set up by OBW from processing the AFMC Form 206 or AFSC Form 206 initiation and processing of the support AFSC Form 237, and forwarding both directly to the administrative control desk. The unit sales price may be negotiated or established by including the travel, per diem, and token labor. (**Note:** Overhead labor is included in the RC/CC rates). The JOQ on the AFMC Form 206 or AFSC Form 206 must be a minimum of 00001. The AFSC Form 237 must reflect a production RC/CC, operation number 00001, the batch single processing indicator of S, and the operation occurrence must be 001 with the operational standard hours of 1.0. To complete the AFSC Form 237, enter the header data, compute the ODC, and input. **Example**: A negotiated job cost of $900 has been accepted. The RC/CC rate is $30 per hour. Multiply the operation standard hours (OSH) (1.0) times $30 (RC/CC rate) = $30. Job cost $900 less the operation dollars ($30) = $870. This value is entered in the ODC block. Labor exceptions will not be processed for jobs using the job cost concept unless personnel are direct labor assigned.

14.31.2.2. C Prefix. A C-prefixed temporary control number will be used to accumulate production costs to a specific customer account code for an area, base/tenant customer for PME only. The CAI must be used for all C-prefixed control numbers. To accumulate support man-hours, the C-prefixed production number must always be contained in the origin production number field of the G004L output tape for G004L processing.

14.31.2.3. M Prefix. An M-prefixed temporary control number will be used for the overwhelming majority of manufacture work. Manufacture in support of suggestion items and tools/equipment for use within the ALC will be accomplished as a result of initiation of an AFMC Form 206 or AFSC Form 206 for that manufacture.

14.31.2.4. T-Prefix. This prefix will be assigned to all temporary repair work done on base within the ALC shop and all off base modification programs under serial number control.

14.32. Reorganization Functions. Planning must provide timely support to workloading for all organizational changes. Due to the need to pass valid production and actual hour data to other systems, it becomes necessary to closely manage the data systems update preparation relative to organizational change. The net result is to limit organizational changes to being effective at the beginning of a fiscal quarter (FQ).

14.33. Job Designator/Work Performance Category Application (reference paragraph 14.29.).

Section 14D - Planning Procedures

14.34. Address Tables. To ensure proper distribution of data system products, establish address tables for maintenance IET and tenant organizations in G004L. Timely updates upon personnel changes must be accomplished. The planning organizations will maintain the Planner Address Table (PAT).

14.35. Planning Priorities. The priority code is used to rank different requirements and to provide processing priority for backlogged requests. Priority code may consist of 01 through 15 with 01 being the highest priority. For depot generated support requirements worked under temporary job orders, priority 01 will not be used if the scheduled completion date of the end item is more than eight days away (reference AFI 23-101 for identification of priority codes).

14.36. Backlog.

14.36.1. Backlogs of AFMC Forms 206 or AFSC Forms 206 may exist for any workloading or planning organizations. Workloading backlog/control number assignment/backlog of work requests is listed on the G004L-G5B report. The planning backlog of temporary job requests is shown on the G004L-G5C listing. These backlogs occur when workloading or planning technicians accept work requests, and other pressing negotiated requirements override the workload or planning effort. Ranking of the backlogged requests will be by priority and delivery date.

14.36.2. Production delay codes must be input by workloaders for any backlogged temporary work requests with overdue delivery dates in workloading and by schedulers for any temporary jobs where the JOQ has not been completed by the delivery date. Production delay codes will also be input for permanent JONs except for MISTR, serialized, and engine workloads, and will be input for permanent JONs when a scheduled or negotiated completion

date has not been met, or as soon as it is known that the JON quantity cannot be completed by the scheduled date of completion. The production delay codes are necessary to provide feedback to the customer and to internal management units. These codes are input by the scheduler with a transaction in G004L Temporary JON Master Maintenance Screen.

14.37. Work Authorization Documents (WADs).

14.37.1. AFSC Form 600 transaction is used to establish the G004L master record for all workloads on which a permanent production number is used. This form is computer generated and one copy may be maintained in the jacket file.

14.37.1.1. End-items selected for working on a preplanned basis must be of sufficient volume and have a predictable work content to justify the establishment of the required planning data and labor standards. There are certain types of workload which due to their generation sources or inherent support systems must be worked on a preplanned basis. These include items worked under Program Depot Maintenance Scheduling System (G097); MISTR, (G019C); PME (G004L); etc., where use of a permanent control number is a system requirement. A production number will be effective and valid as long as the item and type of repair is required regardless of when the production number is established in relation to the beginning or end of the FY. There are different specified applications of the production number for different types of end items and controls essential to workload processing. Like end items worked under a serial number control concept, but for a different customer, require only one production number to be opened. A non-serialized controlled like end item requires a separate production number to be opened for each customer using a different project order. The PCN will be different and the FCRN may be different. The source for the FCRN and PCN identity is the workloader. This match is made through use of the proper PCN code. The following are specific line items requiring separate work authorizations for each job designator level of work:

14.37.1.1.1. Each line item stock number negotiated and accepted for work in the MISTR system.

14.37.1.1.2. Project directive workloads for which there is a recurring production requirement on each MDS of aircraft, aircraft engines, missiles, or inertial guidance system; and OMEI identified to a stock number.

14.37.1.1.3. Base and tenant support requirements by MDS or NSN.

14.37.1.1.4. Each line item meeting the programmed criteria in paragraph 14.37.1.1.5., regardless of the type of source of generation.

14.37.1.2. Reference **Figure 14.8.** AFSC Form 600 can be used for non-MISTR processing.

14.37.2. Temporary Workload Forms. An AFMC Form 206 or AFSC Form 206 is initiated by the customer of the CSAG and processed by the workloader (reference **Figure 14.1.**). The AFMC Form 206 or AFSC Form 206 is sent to the responsible planning organization for processing and the IET prepares an AFSC Form 237 (reference **Figure 14.2.** and **Figure 14.4.**). Edit errors are rejected to the IET on the G004L-L3B, *Daily Planner's List*. Valid data input processed will be printed out as the official job master record (i.e., G004L-L3A) and included in the planning jacket. Details of the data element entries for AFMC Form 206

or AFSC Form 206 are in G004L. An AFMC Form 206 or AFSC Form 206 is processed by workloading to establish follow-on JONs in support of blanket requests for services/support.

14.37.3. Temporary Labor and Material Plan. An AFSC Form 237 and AFSC Form 240, *Temporary Labor and Material Plan Addendum*, transaction is prepared by the IET to support approved AFMC Form 206 or AFSC Form 206 transaction customer requirements. Addenda to planned labor or material are authorized on M or T prefixed temporary job orders using AFSC Form 240 transaction when the JON status code is 0. The EISP will be recomputed on M prefix JONs (reference Manufacture section listed below). The EISP may be recomputed on T prefix (non-serialized) JONs until the EISP is greater than the customer's estimated cost. An example is: JOQ = 5, Inductions = 5 and Completions = 4. If the inductions are 5 and the completions are 5, the addendum will process validly; however, the EISP will not be updated. The PON on non-serialized JONs will be updated to the current FY and FQ when the AFSC Form 237 is submitted. However, the customer and DM workloading have an opportunity to review the JON and revise the assigned PON if deemed necessary. This revision can be accomplished via the Customer Release and File/Maintenance Transaction, however if a reject occurs, the IET will contact workloading to make correction.

14.37.3.1. Planned Material. Planned material is an integral part of the UCA System. However, for temporary work requirements, the material needed for each job must be input into G004L with AFSC Form 237 transactions. For all additions to the original labor or material BOM, an AFSC Form 240 transaction is used. This input is used to compute job cost and sales rate/EISP for all temporary JONs. The G004L system uses the planned material to allow comparison of actual material costed to the JON. All material to be charged as direct material to a JON must have been included in the BOM on AFSC Form 237/AFSC Form 240 transactions for that JON. An alternate method to compute the material cost to a JON is the use of a BOMI = R as explained below. An AFSC Form 930 transaction may be used to change previously input transactions. Ensure the expense code is overridden to indirect for bench stock items in G005M or G004L.

14.37.3.2. Direct Material Rate. A provision is made for using a standard RC/CC hourly material expense rate for computing the EISP on temporary JONs. This is done by use of the BOMI = R. If the BOMI = R, the material cost is computed by multiplying the total standard hours for each operation by the direct material rate for the applicable RC/CC. If the BOMI = M, only the cost of the material listed in the BOM portion of the AFSC Form 237/AFSC Form 240 transaction will be computed into the EISP. Caution must be used in selection of the BOMI because this entry cannot be file-maintained.

14.37.3.3. Planned Labor. Labor requirements for temporary work requests must be input by the IET on AFSC Form 237/AFSC Form 240 transactions as labor operations for each RC/CC involved. This labor plan must be input into the G004L system for computation of hourly sales rates/EISP. An AFSC Form 930 transaction may be used to change previously input transactions.

14.37.3.4. Manufacture.

14.37.3.4.1. Local manufacture (i.e., M-Prefix) planning procedures have been divided into two categories determined by the first position of the PCN. Only reimbursement codes R and W apply to these planning procedures.

14.37.3.4.1.1. A fixed EISP is the basic requirement of the procedures. To achieve this, a complete planning package, both labor and material, must be developed. The SOPI will not be marked complete (C) until all the direct material is received or is available to be ordered and the estimated total labor plan is input. Failure to plan completely any workload in the FY of funding will result in the cancellation of the project order and return of funds to the customer.

14.37.3.4.1.2. The IET will input all AFSC Form 237 transactions for labor and material requirements. This establishes the EISP.

Table 14.3. Planning Package Considerations.

Item	Consideration
1	The scheduling jacket will be prepared and forwarded to the scheduling function. If the SOPI is incomplete, a JON suffix and the Temporary Job Record (G004L-L3A) will not be included with the jacket but the jacket must include two copies of the AFSC Form 237 transaction. A copy of the AFSC Form 237 will be provided to the PST for material requisition. The PST will order and store the required material at the Production Number Level. The planning activity is notified when all required material is received. This is a key function as it is the only notification the IET receives on the availability of the materials.
2	The IET should verify the material both for accuracy and price variance. AFSC Form 240 and/or AFSC Form 930 change documents may be required to correct any deficiency.
3	When the SOPI is changed to complete (C) by the IET, a JON suffix and G004L-L3A is furnished to the scheduler and the jacket moved to the normal files. A JON Status Code (JSC) of zero 0 will be assigned automatically and work can begin on these items. The JSC S is not applicable for M-prefix JONs with reimbursement codes of R or W. All suspended actions will be resolved between IET, workloader, and the customer.
4	Any changes after the JON assignment must have workloader approval, and may create a new EISP. At end of the FY, all EISP are frozen and file maintenance may be only for record update.
5	All requests for cancellation or JOQ reduction must be processed through workloading. When a JON is canceled, the labor plan will require file maintenance allowing for actual hours expended.
6	The JON Master List by JON/FY (G004L-G1A) method of recording OWO and AWM for reimbursement codes R and W has been modified. When the AFMC Form 206 or AFSC Form 206 is committed to G004L, the JOQ is assigned to the AWM for PDNs with job designator (JD) 'K' and reimbursement code R or W. When the AFSC Form 237 SOPI is changed to C, the JOQ is assigned to OWO and the AWM is set to 0 for M-prefix PDNs with reimbursement code R or W.
7	Local Manufacturing Planning Jacket File. The jacket file is a suitable envelope used to maintain and accumulate technical and production data on the production number and JON suffix. The jacket file is prepared by the responsible planning function concurrent with input of the AFSC Form 237 transaction. This envelope must be of sufficient size and capacity to contain the anticipated quantity of cumulative data. The production number and EII are shown on the face of the jacket file. A copy of the file is furnished to the scheduler. Each valid transaction processed by the G004L system appears on the

	G004L-L2A. These daily reports are retained in the scheduling area. Copies of the AFMC Form 206 or AFSC Form 206, AFSC Form 237, and the G004L-L3A list are inserted in the jacket files. For local manufacture jobs awaiting material or technical data, two copies of the AFSC Form 237 and/or AFSC Form 240 are inserted in the jacket files.
8	When production has been completed and the G004L record closes properly, the completed jacket file is sent to the designated records function for filing.

14.38. Job Order Number (JON) Master. The JON master record, established for each end item or other type workload requirement, provides the basis for management visibility. The source of assets to be repaired, the level of repair to be accomplished, who will do the repair, methods to be used, and the necessary tooling and skills required are items that the IET must know to ensure valid master record establishment.

14.39. End Item Sales Price (EISP).

14.39.1. Permanent Job Order EISPs. The G004L system contains an EISP file (i.e., SPM) at the control number/job designator level for permanent control numbered end items. At the end of each FY and on demand, this file is updated by the file generated by the SPG in the DMAPSIE system.

14.39.1.1. New Item EISPs. When an AFSC Form 600 transaction is initiated for a new inventory item (i.e., new production number is established in the G004L master record), the IET will enter the estimated sales price on the form. The G004L system will then enter the production number, FCRN, and estimated price in the SPM. Consideration of the standard material and labor rates for each RC/CC involved must be made to determine this price. (**Note:** Serial number controlled items are exempt.) This sales price remains with the new item until either the ALC approves a change for the item or the next annual SPG in the DMAPSIE computed EISP is established in the SPM. If the ALC approves, a quarterly update of the SPM can be accomplished by using the newly computed SPG in DMAPSIE EISP values to replace the existing values in the G004L SPM. This update will result in new JONs acquiring the approved EISP.

14.39.1.2. New MISTR Item Procedures. When new JONs are entered into G004L with an induction transaction, the G004L JON establishment procedure will first access the Permanent JON Master (PJM) file for an existing PDN record (skeleton record). If the PDN exists, G004L sets the EISP and the FCRN of the new JON to the EISP and FCRN of the PDN record. If a PDN record does not exist, G004L finds the most recently created JON for the PDN. If the existing JON is found, G004L sets the EISP and FCRN of the new JON to the EISP and FCRN of the existing JON. If an existing JON is not found, the induction is rejected. G004L also checks to see if the PDN exists in the SPM with the FY of the established FY of the skeleton or existing JON. If the SPM record exists, then G004L sets the EISP and the FCRN of the new JON to the EISP and the FCRN of the SPM. For MISTR policy and procedures, reference AFMCI 23-112, *Management of Items Subject to Repair (MISTR)*.

14.39.1.2.1. G004L-S1B. G004L versus SPG in DMAPSIE EISP Mismatch Report. This report will reflect those control number/job designator records contained in G004L for which SPG in DMAPSIE does not have an EISP. The MISTR monitor (i.e., workloader) will work with the budget analyst to research these records and

work with the specific IET to determine the EISP. The IET will review the variance report and provide input to the workloader/budget analyst as requested.

14.39.1.2.2. G004L-S1C. Deleted Control Number (CN)/Job Designator (JD) Records. This report will reflect those records in the SPG in the DMAPSIE which have been deleted from G004L. The MISTR monitor (i.e., workloader) will coordinate all actions required to delete the labor and material standards that created this condition. The MISTR monitor (i.e., workloader) will coordinate with planning and program management prior to deleting any CN/JD records.

14.39.1.3. Processing of New MISTR Unit Repair Cost (URC). New MISTR items generated during the FY require the ALC planning function to determine an estimated price for each item. That estimate will be entered on an AFSC Form 600 transaction and forwarded to the G004L data system. The estimate is then made available to G019C on the following interface cycle. The recommended technique for determining the estimated repair price is identified below. **Note:** Once the price is input to the G004L data system on a permanent production number, it will not be changed without ALC commander/director approval.

14.39.1.3.1. Process sufficient quantities on a temporary production (T-prefix) number to determine the actual cost of repair and adequacy of labor and material standards for later establishment on a permanent production number.

14.39.1.3.2. Establish the labor and material standards in the appropriate data systems. Using the G004C approved RC/CC rate less the direct material portion and the RC/CC labor standard, determine the dollar value for each RC/CC through which the end item is processed. Determine the direct material costs by NSN. Then summarize the extended labor and material values to a whole dollar amount. This value will be entered on an AFSC Form 600 and sent to G004L for input to the PJM and SPM files.

14.39.1.3.3. For the purpose of determining material cost, reference **Chapter 18** for the definition of cost codes and how they are applied.

14.39.2. Sales Rates/EISPs. All end item production or services saleable to a customer must have a means to recover the cost thereof. For this purpose, an hourly sales rate or an EISP is used. On temporary JONs that are not serialized, the G004L system will use the planned labor and the BOM to compute the hourly sales rate or the EISP. The G004C system provides a table of the RC/CC approved rates to G004L for this purpose. The MDS rate is used for organic work. The G004L computed rate or EISP is based on the UOM being input as HR or EA. Depot field team job orders will always use an A-prefix temporary job order (i.e., not serialized) and will be priced at an EISP per standard hours with UOM of each. The cost of travel, per diem, and planned material will be added to the total job cost and input by an AFSC Form 237 transaction as other direct cost. The C-prefixed JONs are priced at a computer determined hourly rate and apply to all non-ALC owned PME. M-prefixed JONs are priced at an end item computer determined price only. DMAPS-DIFMS will compute labor summary and effectiveness (reference **Figure 14.17.**).

14.39.2.1. Drop-in-maintenance base assigned or chase aircraft, when serial number control is used, must have the ALC approved rate applied by input to the serial number

master file. When accomplishing crash/battle damaged workload on a serialized basis, with either a permanent or T-prefixed temporary production number, the ALC approved hourly rate for that specific workload will be applied and entered into the serial number master file (reference AFMCI 65-101).

14.39.2.2. Rate Computation. The G004L system will compute the cost of all non-serialized A, M, or T-prefixed JONs. A description of the elements and machine formulas is listed below. These computations provide an EISP or an hourly sales rate to the SPG in DMAPSIE at the end of the month. When any element affects the cost in a labor operation, or the material associated with an operation, or the JOQ is changed, the below computed elements will be recalculated for the given JON. When a labor operation is added, or when the associated RC/CC (an RC/CC rate) is changed, the current RC/CC rate will be extracted from the G004C funded RC/CC rate table for use in the calculations. All other computations will be performed with the RC/CC rate that was in effect at the time the labor operation was established on the temporary labor standard file which means that the vast majority of labor costs will be calculated at the rates that prevailed when the job was opened in G004L.

14.39.2.3. Computation Routines (Reference paragraph 14.29.).

14.39.2.4. Reasons for Re-computation. Whenever any element that affects the cost of a job is changed by file maintenance, all of the above computed elements will be recalculated for the given JON. When a labor operation is added through an addendum or when the associate RC/CC is changed by file maintenance, the current RC/CC rate will be extracted from the validation stack table for use in the calculations. All other computations will be performed with the RC/CC rate that was in effect at the time the labor operation was established on the temporary labor standard file which means that the vast majority of labor costs will be calculated at the rates that prevailed when the job was planned and opened in G004L.

14.39.2.5. Temporary JONs are restricted to one JON suffix per production number. For non-serialized JONs, the suffix is assigned normally when the AFSC Form 237 data is processed validly by G004L for A, M, and T-prefixed job orders. In this case, G004L assigns the suffix as the current FY, current FQ, and the last position from the reimbursement code. If the current calendar date is equal to or is later than the project order number (PON) (FY and FQ) on the Request Number Master (RNM), G004L assigns the suffix as the current FY and FQ. If the data is processed before the PON (FY and FQ) in the RNM, the AFSC Form 237 data will be rejected. An exception to the above allows G004L to assign a monthly suffix for C- prefix JONs. The non-serialized A, M, and T-prefixed JONs stay the same until the total JOQ is completed. These JONs are closed electronically when the completion value equals the JOQ. Serialized temporary JONs are normally T-prefixed and the suffix is assigned through the serialized master record. The normal serial numbered JONs remain in work until the end item is completed. The sales indicator in this case is C. Some end items, due to variance in work content such as base assigned aircraft or extremely long flow time, make it more desirable to create sales commensurate with the applicable project order period. The JON suffix created by the G004L system is input to the serialized JON master record. Each quarter, G004L will electronically create the applicable PON. This application will generate quarterly sales and is limited to the type 6 and 7 project orders. Recurring work for base

tenant support will be accomplished using an S DPC and a T prefixed control number. These transactions will be assigned a QSI of M and a UOM of HR by the G004L system. The JON suffix will be computer assigned and updated each quarter with a new JON suffix and PON.

14.39.2.6. Permanent JONs may have more than one suffix on a given production number at one time. The JON suffix (e.g., quarterly or monthly) is assigned automatically. When the G004L system receives a JON suffix that is new, it will create a new JON record using all the data on the previous JON or WAD and the new JON suffix.

14.39.3. OMEI Pricing. The following method will be used to price the programs and specific jobs included in the category OMEI. The current method of computing sales prices in the G004C system will be continued. The published rate for OMEI, however, will identify the labor and burden rate per hour plus the average historical material rate, i.e., the same rate as currently published but with a breakout of the two elements. This will be used by the customer for planning purposes. Actual job pricing will be done in two phases.

14.39.3.1. An E&I will be authorized and performed at the published rate per hour exclusive of the direct material portion of the rate.

14.39.3.2. When the E&I has determined the amount of material required for the specific job, a repair job hourly rate will be computed. The project total expense material cost will be divided by the project DPSH and the resultant expense material rate per hour will be added to the published labor and burden rate per hour. This total rate for the job will be entered into the serial number master in the G004L system and the job will be completed and sold at this job rate. This method will be used whether the repair is performed on a permanent or temporary production number.

14.40. Base Tenant Support. All base tenant support should be IAW local Host-Tenant agreements. Where differences occur between the written agreements and DMS, CSAG, and UCA policy and procedures, the DMS, CSAG, and UCA policy and procedures take precedence. Also, whenever Host-Tenant agreements are initially established or revised, the maintenance personnel involved will be familiar with the DMS, CSAG, and UCA procedures and will consider these procedures/policies in their agreement. Recurring work is requested on AFMC Form 206 or AFSC Form 206. The DPC S, T Prefix C/N is used; BOMI = R or M; only one labor operation with OSH = 1.00 hour; RGC will be N; and Unit of Measure (UOM) of HR is computer assigned. In the Job Qty block, the originator will show the first quarter's man-hour requirement, and the tenant requests an AFMC Form 206 or AFSC Form 206 for each RC/CC doing work for that tenant and sends to workloading. Workloading will electronically send the AFMC Form 206 or AFSC Form 206 to the Planning Office to prepare the AFSC Form 237 transaction. Temporary production numbers with DPC S are not closed automatically but are updated each succeeding quarter. Completions are reported by the G004L system. At the end of each quarter the computer reduces the JOQ to what has been completed and allows the JON to go to sales. The computer then reestablishes the production number with the next quarterly PON and JON suffix. If the man-hour requirements change at the beginning of each quarter, the tenant will request a new AFMC Form 206 or AFSC Form 206 to workloading depicting the new man-hour requirement in the JOQ blocks. Workloading will then input an AFSC Form 930 to file-maintain the new JOQs for each JON established for that tenant.

14.40.1. Base tenant support JONs, T-prefix with DPC S, will use BOMI = R or M. When BOMI = R is used, the EISP is computed using the RC/CC labor rate plus the RC/CC direct material rate. When the BOMI = M is used, the EISP is computed using the RC/CC labor rate only.

14.40.2. Tenant support jobs. Where it is known that the direct material rate will not cover excessive direct material required for the job, it should be put on a separate AFMC Form 206 or AFSC Form 206, and AFSC Form 237 transaction with material planned accordingly. These work requests should use RGC N and DPC N. If these type tenant support jobs are recurring, consideration should be made to making them permanent jobs with project order 7, RGC N, and DPC N.

14.40.3. If a decision is made to make tenant support jobs permanent, then the appropriate IM/PMS should be informed.

14.41. Cost Class IV Type Workload ('S' JONs). (Reference AFMCI 65-101).

14.42. Serial Number Application.

14.42.1. End items processed under serial number control may have either a temporary (i.e., T-prefix) or permanent production number assigned. A- or C-prefix numbers are not authorized. All negotiated end items will have a permanent production number assigned when serial number controlled. Normal application can be for aircraft, missiles, aircraft jet engines, and OMEI. Labor and material requirements are established accordingly.

14.42.2. Serial Number Record File. It is important that the JON master and the serial number data be established before any production count is taken to preclude rejection. This file is established electronically. The responsible planning activity will establish, maintain, and change serial number data on the JON master for the ALC. If a reject occurs, the input transaction will be reflected on the G004L-L3B listing with an indication of the invalid entry. Correction will be made electronically with the correct data. If erroneous data is depicted on the G004L-L3F listing, the data will be corrected by inputting an AFSC Form 930 transaction. The G004L-L3F listing reflects transactions added to this file. This listing will be retained until a new one is received. The verification of data elements in this file is necessary as the key elements for costing and sales billing are contained on it and is extracted for use by the SPG in DMAPSIE and G004L production count editing.

14.42.3. Input Data Elements.

14.42.4. G097 Programmed Depot Maintenance Scheduling System (PDMSS). The serial number data on the JON master must contain an entry for each aircraft worked under G097. The JON suffix must be the same as the aircraft identification code in all three positions.

14.42.5. Missiles and OMEI. These end items must have a separate JON suffix for each serial numbered item.

14.43. File Maintenance. Several files are maintained in the G004L system. An AFSC Form 930 transaction is input for file maintenance of data contained in the various files. Action codes with specific record identifying data will be used to overlay the desired data elements.

14.43.1. Permanent Production Numbers.

14.43.1.1. Labor standards for permanent production numbers do not reside in G004L but are contained in E046B and G097 or other systems.

14.43.1.2. Material standards for permanent production numbers do not reside in G004L but are contained in G005M or other systems.

14.43.1.3. Serial Number Data. Permanent production numbers must be established in the G004L JON master before input of the serial number data. Serial Number Record Maintenance via an AFSC Form 930 is input to update the serial number data on the JON master file.

14.43.1.3.1. The control number/job designator must be previously established in the JON master file with a DPC equal to 2 or 9. There can be no duplicate serial numbers within a given JON.

14.43.1.3.2. JON suffixes for G097 items will be all numeric and must correspond to the G097 aircraft identity code. Serialized items that are non-G097 involving supply, DPC 2, will have a JON suffix of all numerals. The last position, if DMISA, must be the OPC. For serialized Air Force items, use 0. Other OPCs are Army-1, Marine-4, Navy-5, Unassigned-O, and Air Force and other services-A. Serialized items that are non-G097 not involving supply, DPC 9, will have a JON suffix of all alpha or all numeric.

14.43.1.3.3. The production section/scheduling designator must be on the scheduler's address table contained in G004L.

14.43.1.3.4. The PCN must be on the PCN table in the validation stack reflected on G004L.

14.43.1.3.4.1. The FCRN must be on the FCRN table reflected on the G004L.

14.43.1.3.5. The completion date will be created by G004L on the day the end item completion is reported to G004L. The serial number record on the JON master will migrate to a JSC=1 at the end of month after the month in which the completion occurred.

14.43.2. Temporary Production Numbers. The temporary production numbers reside in the G004L system. Electronic AFSC Form 240 and/or AFSC Form 930 are used for file maintenance.

14.43.2.1. Other Direct Cost. These costs are travel cost and per diem in support of TDYs being performed. For material issued and requisitioned to the A-prefix job order number at the home station, the material must be entered in the BOM segment of the AFSC Form 237. A change in the other direct cost, a change in the number of man-hours, or a change to labor content or material requirements will cause the G004L system to re-compute a new hourly sales rate. Any change to labor, travel, or material cost must be entered into the G004L system by inputting an AFSC Form 930.

14.43.2.2. Cancellation of work. There are two types of work cancellation. One type is deletion of the JOQ requirement. If this occurs while the job is still in planning, the IET will input an AFSC Form 930 with a zero entered in the JOQ block. The second type is a reduction of the original requested JOQ. In this case, the IET inputs an AFSC Form 930 with control data and the revised quantity to be produced. The IET or scheduler will

contact workloading prior to reducing JOQ if completions and/or costs exceed requested cancellations that occur during the production process.

14.43.2.3. Increased JOQ. All JOQ input with an AFMC Form 206 or AFSC Form 206 may be increased by the initiator only prior to the AFSC Form 237 input. **Note:** All requests for JOQ increases should be substantiated with proper documentation from workloader and maintained in the jacket file.

14.44. Bill of Material (BOM). Manufacture, overhaul, or repair workload must be evaluated for component material items to be used in the process and are known as Material Standards. These standards are an integral part of the UCA System and provide a means to compute an EISP. Each IET is responsible for creating and maintaining the required BOM for each production number assigned to their workload. The BOM is a descriptive and quantitative listing of planned material and components required to manufacture, overhaul, or repair a designated end item, assembly, or subassembly.

14.44.1. The purpose of establishing a BOM is to plan for material in support of production maintenance workloads, initiate costing for the depot maintenance systems, and provide a mechanism to control material usage.

14.44.2. Accurate material standards are mandatory. It is the responsibility of the IET to ensure accurate BOMs are established and maintained. This includes TO part number changes, replacement factors, occurrence factors, and units per assembly which are to be maintained and accurately updated on each BOM. BOMs that are analyzed to 70 percent or less accuracy should be investigated by the PPS where necessary for the possibility of abnormal or excessive usage of components parts. Other possibilities are a significant increase in workload, material price increases, material price errors, or use of substitute material. Material usage shall be monitored continuously.

14.44.2.1. BOMs for end items or components designated as classified (i.e., confidential, secret, or top secret) shall be entered into MIS as repair/overhaul BOMs only, not as 100 percent complete Illustrated Parts Breakdown (IPB) BOMs. End item/component data contained in D043 [e.g., Noun, NSN, part number (P/N), Cage Code, etc.] may be entered as part of a repair/overhaul BOM. Technical data identification (e.g., TOs, blueprints, drawings, etc.) of classified end items or components shall not be entered on a repair/overhaul BOM.

14.44.2.2. IETs may assign an Alternate Planner to their BOMs so that changes can be made in case the owning IET is not available to change a BOM assigned to them for approved technical changes.

14.44.3. There are different types of BOMs that are created. Information systems assist the IET in creating and managing the BOMs.

14.44.3.1. The Planning BOM (P-BOM). A Planning BOM, often referred to as a P-BOM, is a BOM containing a P job designator established as a work area to allow a planner to build a static BOM that is never analyzed and is only used to create a BOM that will later be established under a valid G004L production number. P-BOMs are normally established when a negative response is received from D200F. The material forecasting process is contingent on clean BOMs therefore use of P-BOMs can be

beneficial to support the forecasting process. P-BOMs will be manually deleted by the owning planner once the actual BOM is created.

14.44.3.2. The Permanent BOM. The Permanent BOM is created for permanent workload and can be created at component/end item level or aircraft level.

14.44.3.2.1. Permanent BOMs located in G005M for permanent workloads/end items are repair BOMs that contain only a portion of the components/material that are required to complete an assembly. The Permanent BOM can be used as a major input into the Material Requirements Planning (MRP) process. The Permanent BOM can provide the composite database that identifies the material required for repair workload. The Permanent BOM can be used to calculate material requirements for a given maintenance workload.

14.44.3.2.2. The Permanent BOM must be created in conjunction with the setup of a new workload, PDN, and/or assembly. The permanent BOM must be created prior to an induction against the new workload/PDN.

14.44.3.3. The Temporary BOM. The temporary BOM is created for temporary workload and can be created at component/end item level or aircraft level. These BOMs contain both direct and indirect components and/or material.

14.44.3.3.1. Temporary jobs are not placed under configuration control and can be updated and managed as needed directly by the Planner.

14.44.3.3.2. Temporary BOMs do not require periodic review.

14.44.3.4. Indirect BOM. Indirect materials are usually not part of the permanent BOM although they can be part of the BOM for visibility purposes if desired. Indirect material is not analyzed. Check with the planning section to determine the accepted practice in regards to indirect materials placed on permanent BOMs. For end items where a large percentage of components are planned as indirect, it may be beneficial to the planning function to carry indirect material on the BOM. The preferred method is to reclassify it as direct if visibility and control is desired.

14.44.4. BOM Planning.

14.44.4.1. The BOM is used to link material usage to the RC/CC where it is consumed. Components must be structured under the appropriate routing labor operation and corresponding RC/CC where they will be ordered.

14.44.4.2. Setting the Production Analysis Quantity (PAQ). The PAQ is the quantity for a BOM that when reached triggers a quarterly usage analysis. IETs must set and maintain the PAQ. Low volume workloads will have a lower PAQ while higher volume workloads may be set higher. The goal is to set the PAQ at a level to allow analysis to be performed at least twice a year. By default, analysis will be performed each year on the anniversary date of the BOM establishment.

14.44.4.3. Determine the Material Classification. The IET must make the determination of what is to be planned as direct and indirect by changing the material classification and cost code. Cost is not a factor in this determination. IETs can also do this when initially planning the material by assigning a cost code override. Material should be classified as

direct whenever possible to facilitate the tracking of usage to the end item level. Costing analysis may be affected by material classification.

14.44.4.4. Determine Interchangeability and Substitutability (I&S). There are physical and functional qualities which describe the intended use, operating conditions, tolerance and range, purpose, and capability of an item which are considered inherent to an item. I&S determination is critical to effective BOM development and maintenance, and to maximize parts supportability. IETs will plan the least preferred item in an I&S group that will perform the intended function.

14.44.4.5. Suppression of component NSNs that are part of a BOM will require Production Manager or Group level approval. The purpose of analysis suppression is to provide the IET the ability to retain the established standard replacement percentages on a component in place of the automatic adjustment as a result of the system analysis.

14.44.5. BOM Review. IETs must continually review permanent BOMs to validate their accuracy in terms of correct components, UPA, replacement factors, occurrence factors, and I&S planning. BOM reviews are not necessarily calendar-driven. Event-driven reviews should occur on an exception basis or when changes to the work scope, materials, or WCD content dictate. The MXG/CC or Director will ensure that formally documented reviews of all permanent BOMs are performed at a minimum of annually to validate the accuracy of components, UPA, replacement factors, occurrence factor, and I&S data. During formally documented BOM reviews, all BOM components will be reviewed.

14.44.5.1. The IET will make sure that a 'line by line' BOM review is performed periodically for each PDN assigned to their workload. BOM reviews should take place shortly after each quarterly analysis cycle. Each component item that will be part of the BOM must be established and maintained with the correct set of attributes to further identify the material classification. The Air Force Master Item Identification System helps to provide information to identify the material classification. Formally documented BOM reviews will be maintained electronically (e.g., Microsoft Word®, Excel®, or Access®), and can be displayed electronically and printed out (i.e., planning jacket file) to be made readily available for auditor/inspector review.

14.44.5.1.1. The IET will audit the BOM using the most current TOs and drawings to verify that the correct components and component quantities are reflected on the BOM.

14.44.5.1.1.1. The Component Part Number/NSN must be the primary part number currently used and coincide with the TO primary or alternate part number. Part numbers on the BOM not referenced in the TO must have a supporting and approved AFMC Form 202 or AFTO Form 252 in place.

14.44.5.1.1.2. Alternate part numbers referenced in the TO must be referenced on the BOM as such.

14.44.5.1.1.3. Quantity/UPA is the number of units that an end item will require of a part number. Verify the quantity against the most recent version of the TO for the end item. **Note:** If a component quantity is greater than 1 and each item needs to be dispositioned independently by the shop floor, multiple lines with a quantity of 1 must be listed until the total quantity is met. Components with a

multiple quantity that do not require independent dispositioning by the shop floor can be listed on one line with the total quantity required.

14.44.5.1.1.4. Replacement Factor, also known as Failure Factor, is the percentage at which a part is replaced (i.e., thrown away and bought new) as opposed to being refurbished. Replacement factors are computed based on actual material consumption. The variance between planned and actual usage/demand of material for a production number will be used to calculate BOM accuracy.

14.44.5.1.1.5. Occurrence Factor is the percentage of time that each operation is selected for repair of an assembly.

14.44.5.2. BOM Stock List Changes must also be researched, verified, and updated on the appropriate BOM.

14.44.5.2.1. AAC V or X are terminal items to be used until stock is exhausted. Since the component is a terminal item, a substitute is required. The IET should research these items to find a suitable substitute before the item is discontinued by the supply chain.

14.44.5.2.2. AAC Y is a component that has gone terminal and is no longer authorized for procurement. The IET should research these items and work with the Equipment Specialist (ES) to come up with a new replacement part number/NSN.

14.44.5.2.3. When researching a stock number or adding a new component item, it is possible to interrogate the I&S database and display the total I&S family. The IET will add an I&S linked new substitute item to the BOM since the I&S grouping was completed by the ES via the updated drawing by the cognizant engineering authority. The IET will notify the engineer/ES through the '202' process if an I&S linked part does not appear to meet the requirements of the original part.

14.44.5.3. Unplanned Issues. The IET should review unplanned issues and correct them on the BOM to ensure usage is captured correctly. If it is determined that material currently not planned on the BOM will be used on a recurring basis, action will be taken to add the material to the BOM.

14.44.5.4. It is imperative that BOMs contain accurate data given that BOMs affect usage projections and yearly EISP development. It is strongly recommended that formally documented BOM reviews be performed to precede the SPG run that occurs at the end of January, in preparation for the Iterative Pricing Process for the next FY's EISP development.

14.44.5.5. The IET will audit the BOM using the most current TOs, drawings, and D043 Master Item Identification Control System I&S information to verify that the correct components and component quantities are reflected on the BOM.

14.44.5.5.1. Component Part Number/NSN must be from primary TO or as alternate/substitute I&S linked in D043. Part numbers on the BOM not referenced in the primary TO or I&S linked in D043 must have an approved AFMC Form 202 or AFTO Form 252.

14.44.5.5.2. Primary, alternate, substitute, and interchangeable part numbers must be referenced on the BOM as such.

14.44.6. Material Ordering. When ordering material not planned on the BOM, the requisition will go to the IET for review and approval. When planning assistance is not available for IET approval on a non-BOM item and the situation is a work stoppage, authorization must be obtained from the PSS/PST supervisor prior to requisitioning the material. This authorization must be provided to the IET for records purpose.

Section 14E - Scheduling and Control

14.45. General. Scheduling within each ALC provides control of in-process workloads to allow timely completion of jobs. This function entails requisitioning/turn-in of production assets. Induction of the end item against an established control number opens the JON in G004L and the DIFMS for cost accounting. DIFMS is the system of record for funding control and cost accounting. When the end item is inducted, WCD printed, and operation track points are sent to TAA, production can begin tracking labor, processing production completions of the planned operations, and material can be ordered through ABOM/NIMMS. DIFMS accumulates costs incurred for work-in-process. Completion of the end item results in the sale to CSAG-M customers. Scheduling prerequisites include technical knowledge of data systems, ability to allocate manpower, knowledge of production processes, and the ability to interpret directives. The goal is to provide meaningful feedback data to other levels of management for decision making purposes. G004L accounts for end items input to work during the repair process, creates work-in-process records, and accumulates production units completed for output to the SPG in DMAPSIE at the job order level which results in revenue to offset costs incurred. The system provides many data products for use at different levels of management which track production completions. AMARG uses a COTS system that provides similar services.

14.46. Relationship with Other Functions. The scheduling function depends upon support from the item management, production management, and supply areas as well as the coordination between the workload control organization, the planning units, the production shops, and applicable control centers.

14.46.1. Workload Control. For Exchangeables/Missiles/OMEI areas, the scheduler depends upon the production management team (i.e., IM, PMS, and ES) to provide identification of workload requirements through EXPRESS, as applicable, and PDMSS for aircraft. The production management team serves as the liaison between the customer and the scheduler for matters concerning workload requirements and status of production.

14.46.2. Planning. Scheduling depends upon the IETs to provide the required work documents, labor and material identification, and standards. IETs also identify and provide special tooling, etc., through coordination with Engineering, which enables the shop to repair end items or components. The scheduler relies upon the IETs to update the labor and material requirements when unpredictable work operations arise.

14.46.3. Production. The scheduler depends upon the production supervisor and the shop workers to identify unplanned parts requirements and labor operations. The scheduler also relies upon production personnel for notification of labor operations and end items completed.

14.47. Operating Policy.

14.47.1. Workload management includes control of all work being done in the maintenance shops.

14.48. Production Support Concept. The exchangeable scheduler of a shop organization is a designated member of the Production support team. The scheduler assists with the determination of flow time, manpower allocation, shop-loading, and placement of production material support function personnel to expedite the processing of components removed for repair by the support shops, assets into shops, control of holding area functions, and establishment of return points for items which are to be reinstalled. The scheduler also provides the required support for the prototyping necessary to set up the production line.

14.49. Cost Awareness. Each exchangeable scheduler must maintain proper accounting and reporting procedures. Fulfillment of the responsibility of production completion reporting will promote cost awareness. All material consumed on a JON must be charged to that JON. Variances within JONs will be discernible when erroneous charges are made. Schedulers must ensure that the production support unit and other personnel in their area of control are knowledgeable of proper identification of items inducted, items completed, component items forwarded to support shops, materials issued, and labor used.

14.50. Shop Workload. Shop workload generates from many sources.

14.50.1. Project Directive. This workload consists of maintenance support of items such as aircraft, missiles, engines, and OMEI. The majority of this work is predictable and therefore it can be negotiated. Planning for material and shop work loading can be determined from negotiations.

14.50.2. MISTR (Contract and Organic). Exchangeable items must be produced on time. This workload is contained in the G019C system as negotiated workload. The organic workload is managed in EXPRESS (reference AFMCI 23-120). The Squadron Commander/Director is the single person accountable and responsible for assets in the production shop and for the assigned resources to accomplish Depot repairs.

14.50.2.1. Line Support. This workload in most cases is identifiable as an end item for which some shops in the ALC have an established production process. Normally these items are removed from major end items such as aircraft, missiles, or engines. Job routed repair is not authorized if serviceable assets are available unless previously approved. The end item material standard will reflect a ‘remove and replace’ concept. When it becomes apparent that serviceable assets cannot be made available for timely support, job routing will be accomplished with prior approval from the IM and the appropriate documented justification will be maintained in the IET jacket file.

14.50.2.2. O&A, Line Support. This workload in most cases is identifiable as an end item for which some shops in the ALC have an established production process. Normally these items are removed from major end items such as aircraft, missiles, or engines.

14.50.2.3. Other Workload items in this category include all non-programmed workloads, i.e., area, base, contract, tenant support, software support, Cost Class IV, DMISA, and local manufacture. These categories by their inherent nature create a workload mix with different priorities and require actions by each scheduler involved to ensure timely production without disrupting the production line. Proper processing of these workloads along with line production provides full line work loading of the shops.

14.51. Workload Control. The schedulers are responsible for all production items within their area. Several forms are used to maintain status of these items:

14.51.1. AFSC Form 105, *Workload Record,* or AFSC Form 130, *Production Asset Control Record*. This form is initiated by the scheduler to document the necessary information concerning schedule and production status of each end item processed through repair. This includes all items issued from or turned-in to supply by G004L OPR transactions, and support shop productions are also recorded on these forms. PME items scheduled and processed are exempt from being recorded on AFSC Form 105 or AFSC Form 130. These forms provide an auditable progressive inventory record of end items processed through the repair shops. Forms may be filed by JON, master NSN, or actual NSN sequence which is at the option of each scheduling activity. The forms will be filed IAW AFRIMS.

14.51.2. PQDR Exhibit Processing. Reference TO 00-35D-54. If the processing ALC has a MISTR workload established, the same control number may be used with a G job designator assigned. This designator will include the cost of the cause determination (analysis) and report preparation. If the processing ALC does not have an established MISTR workload, a temporary JON (i.e., AFMC Form 206 or AFSC Form 206) with a job designator G assigned will include the cost of the cause determination (analysis) and report preparation. An AFMC Form 206 or AFSC Form 206 must be issued by the IM/ES. No repair is authorized on G job designator. PQDRs will be worked as soon as possible before 'like' MISTR items to identify possible systemic deficiencies.

14.51.3. To provide the proper audit documentation, a written notification of exhibit numbers with NSN must be provided to the ALC. This notice may be maintained centrally by the ALC QA or in the responsible schedulers' files as per local option. DD Form 2332, *Product Quality Deficiency Report Exhibit*, will accompany each exhibit sent to the ALC for processing. A copy of the tag and a communication notice (e.g., message or other) will suffice for audit documentation. No exhibit will be accepted by the ALC without the DD Form 2332.

14.51.4. Any material deficiency detected by the ALC quality organization during the repair process should be reported according to TO 00-35D-54.

14.51.5. When analysis of the PQDR exhibit determines that the TRC was not at fault, the work will be done by that ALC if a funded requirement exists. If there is a requirement, funding will be coordinated with the EXPRESS office and the item will be wash posted to the MISTR repair control number. If a funded requirement does not exist, the item will be turned into supply as a repairable asset. When analysis of the PQDR exhibit determines that the TRC was at fault (i.e., workmanship), the item is designated rework and will be turned in using the G job designator. The scheduler will provide production with a WCD for rework. Rework will be tracked in TAA with the work JON X51112614000 which applies to all three ALCs.

14.51.6. Awaiting Parts (AWP). This is a holding account for non-serialized/serialized items awaiting parts. It is essential that this account be used to de-obligate customer funds for assets that were OWO and work has been stopped due to lack of parts. The de-obligation of funds releases that fund value to allow the induction for other assets that are supportable. The vehicle to evaluate resource supportability is the supportability module in EXPRESS. After passing the supportability module, repair requirements are entered into the D035K EXPRESS table and sent to J025A for funds applications (reference **Chapter 18**).

14.51.7. Rob-back. This is defined as the removal of an assembly, subassembly, or component from an end item inducted for maintenance and placed on another end item. If rob-backs are accomplished, the shop mechanic is responsible for providing DLA/PST with the end item document numbers of the part/component involved. DLA/PST will file maintain the backorder to the designated end item in D035K (reference **Chapter 18**).

14.51.8. The AFSC Form 959, AFSC Form 173, D012, or computer generated WCD. These documents are the only ALC approved WCDs. This document will be printed for each item inducted. A separate document may be required for different levels of repair on a specific stock number. The WCD is a record of all work performed on an end item and will be maintained in IAW AFRIMS (reference **Chapter 7**).

14.51.9. Routed Order. The AFSC Form 127 is for the identification of items being moved or components sent to support shops for repair.

14.51.10. Temporary Job Record. The G004L-L3A document is produced from the AFMC Form 206 or AFSC Form 206; AFSC Form 237; and G004L transactions. WCDs are the official job record and are required for each end item.

14.51.11. PDMSS (G097). Reports are provided for control of end items processed under this system.

14.51.12. Production Item Control. The scheduler must ensure that proper documentation of production receipts and turn-ins are maintained. The G004L-L2A daily listing provides visibility of all transactions and transaction errors. The G004L-L2A will be reconciled to the AFSC Forms 105 and AFSC Forms 130. Quantities by stock number and document number are recorded for both issues and turn-in transactions. The G004L system provides W-series products to show those stock number OPC relationships which require research for reconciliation. D035K and G402A systems provide a transaction history to aid in the reconciliation of the AFSC Forms 105 and AFSC Forms 130.

14.51.13. Awaiting Maintenance (AWM). It is a delay status for items that are pre-positioned in the ALC awaiting maintenance. **Note:** This should not be confused with RWM delay code in ITS which is the upfront awaiting maintenance time from when the end item is inducted until the mechanic actually begins work.

14.52. Responsibilities. The scheduler is responsible for accomplishing the proper assessment and balancing of factors including production manpower skills, available equipment, and the induction of workloads into production shops. Equally important, the scheduler is responsible for ensuring that only authorized, funded EXPRESS driven, or negotiated workload is produced.

14.52.1. In-Process Visibility. The scheduler is responsible for the accountability of end item assets in the proper accounts, i.e., AWM, AWP, and OWO. The scheduler will assist with DIOH reconciliation when requested by the DLA/PST. Reporting of completions will be made against the JON on which inducted. Schedulers must use the various systems products to maintain visibility of those items within the shops for which they have direct workload responsibility. These products used along with end item production turn-ins and shop capacity enable the scheduler to better control the production process and flow days.

14.52.2. Material and Production Items. The production shop is directly responsible to provide parts requisitioning data to the DLA/PST. Customer requirements coupled with the shops' capability dictate the scheduling time frame for production items. The scheduler

provides the surveillance, feedback, and notification of problems for resolution or for making higher-level management decisions.

14.53. Local Manufacture. All local manufacture requires that AFMC Form 206 or AFSC Form 206 and AFSC Form 237 be processed validly by the G004L system before work can begin. The AFMC Form 206 or AFSC Form 206 gives the basic authority for manufacture. These requests, regardless of source of requirement (i.e., MXSG, SCMW, or tenants) must be processed through SCMW. This type work is funded on type 6 or 7 project orders. The AFSC Form 237 or AFSC Form 240 provides the labor and material data required for costing. Work requests will be processed on a temporary JON using M control number prefix and K job designator. The UOM is normally EA. The computer will create an EISP for each unit of the JON quantity. Local manufacture for line support of a one-time requirement (i.e., non-recurring) on serialized workloads, when included in the work package negotiated with the ALC or approved by the PAO for O&A accomplishment, does not require the processing of an AFMC Form 206 or AFSC Form 206. This line support may be accomplished as a labor operation on the JON applicable to the end item and worked under the G097 system. A computer generated AFSC Form 127 or AFSC Form 173 may be used by the supporting shop for processing the manufacturing requirement. The analysis of unpredictable operations will also be used to determine recurrence and when applicable, will be used as the basis for preparation of AF Form 86, *Request for Cataloging Data/Action* (reference **Chapter 18**).

14.54. Special Job Processing. High priority type items may be input to work before processing the AFMC Form 206 or AFSC Form 206 or AFSC Form 237. Required paperwork should be processed as soon as possible.

14.55. Data System Interfaces. Scheduling is responsible for providing input to several data management systems. Examples of these systems are as follows:

14.55.1. D035K, Stock Control and Distribution/Central Material Locator System. Receipts and turn-ins of production items and material from supply sources will be accomplished by input of the receipt acknowledgement (RA) or turn-in transaction to ITS/G337 or EPS/G402A which passes to D035K. Production item transactions are passed electronically from D035K to G004L.

14.55.2. G019C, MISTR-Organic. This system produces the MISTR consolidated schedule and is used to identify end item quantities for the quarterly MISTR drive.

14.55.3. G004L, Job Order Production Master System (JOPMS).

14.55.4. G337, Inventory Tracking System (ITS).

14.55.5. G402A, Exchangeables Production System (EPS).

14.55.6. D087X, Execution and Prioritization of Repairs Support System (EXPRESS).

14.55.7. G097, Programmed Depot Maintenance Scheduling System (PDMSS).

14.56. Data Reliability. Scheduling depends upon the planning function to provide a valid means of reporting standard labor used and valid identification of material requirements to enable reporting for costing accurately. Revenue received from sales should equate to the cost of actual resources consumed on each JON. Daily management reports are available to the schedulers to maintain data integrity. Erroneous transactions processed must be corrected upon receipt of the error listings.

14.57. Job Order Cancellation/Reduction. The customer may determine that the quantity requested is more than needed or that total requirement must be cancelled. The change of the JOQ to the new value is accomplished electronically in G004L. When the JOQ is reduced to zero, the G004L system will assign job status code 3. If material has been received and will not be used, this material should be returned to supply before cancellation (reference AFMCI 65-101 and **Chapter 18**). Review all backorders for cancellations.

14.58. Suspended Temporary Jobs for Customer Job Order Release. After the AFSC Form 237 is processed into G004L for a temporary job with the SOPI marked complete, if the resulting planned cost (EISP X JOQ) exceeds the estimated job total costs entered by initiator of the AFMC Form 206 or AFSC Form 206, the job will go into suspense status with an S JON status code. While the job is in suspense, production asset and material transactions will reject from the D035K system. The workloader must contact the initiator to accept cost over and above that originally planned. The workloader submits a customer job order release to accept as is with planned costs moved to the estimated cost field to increase dollars allocated or decrease the job. The following jobs are exceptions and will not go into suspense when planned costs exceed estimated costs:

14.58.1. C – Prefix JONs.

14.58.2. M – Prefix JONs with R and W reimbursement code.

14.58.3. T – Prefix JONs with S DPC.

14.58.4. T – Prefix JONs serialized except those with DPC 7.

14.58.5. Priority 1A transactions.

14.58.6. A – Prefix JONs.

Section 14F – Scheduling Procedures

14.59. Data Processing Codes (DPCs). All AFMC Form 206 or AFSC Form 206 and AFSC Form 600 transactions will contain the applicable DPC as per the usage assignment. The scheduler will use these codes as the basis for determining how and what to report to the G004L system. The DPC can be changed file maintained as shown in WAD edit extension. Reference **Table 14.5.** for DPCs.

14.60. JON Suffix Establishment. The method of establishing inductions depends upon the DPC assigned to the production number and the type of work.

14.60.1. Permanent Serialized. The suffix is established upon the input of Serialized Record Establishment.

14.60.2. Permanent Non-serialized. The suffix is established upon input of the RA transaction for each JON period (monthly or quarterly).

14.60.3. Temporary Serialized. The suffix is established upon input of serialized Record Establishment.

14.60.4. Temporary Non-serialized. The suffix is established upon input of AFSC Form 237, with SOPI = C. C prefix production numbers automatically regenerate with a new suffix monthly. T-prefix production numbers with DPC S regenerated with new JON suffixes quarterly.

14.60.5. If a monthly JON suffix has been established in a FQ, a quarterly JON suffix cannot be established in the same FQ. If a quarterly JON suffix has been established in a FQ, a monthly JON suffix cannot be established in the same FQ. If the EISP is greater than or equal to $25,000, a monthly JON suffix must be used. If the EISP is less than $25,000, a monthly or quarterly suffix may be used. Any transaction that fail these edits will be rejected with asterisks over the JON.

14.61. Job Order Quantity (JOQ). This quantity reflects the customers negotiated requirements for funding. The G004L system reflects a JOQ on all temporary production numbers.

14.62. Annual Customer Order Quantity (ACOQ). This quantity reflects the customer's requirements for funding.

14.62.1. Systems that provide a combination of data to determine the amount of customer funds used are G019C for exchangeables and G004L for customer order quantity (COQ) and inductions during the first three quarters of the FY.

14.62.2. The scheduler must ensure that items that have been delivered to maintenance from supply are inducted by dates established by local FY Year End Close Out Procedures to satisfy the customer's requirement and obligate funds.

14.62.3. UCA and G004L system procedures cause repair funds to be set aside against inducted work ordered by the customer.

14.62.3.1. The customers repair funds are known as DPEM funds.

14.62.3.1.1. These funds are projected and programmed by the ALC requirements.

14.62.3.1.2. The customer's funds are considered 1-year funds in that these funds must be used to order work in the FY in which provided.

14.62.4. To ensure customer's funds can be used to order work for MISTR items before FY end, the G004L system provides data from G019C reflecting fourth quarter input as an ACOQ.

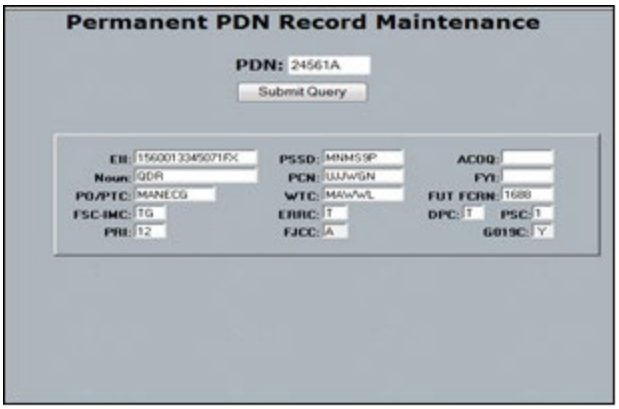
14.62.4.1. To determine customer funds, G004L fourth quarter inductions are compared to the ACOQ.

14.62.4.2. Items inducted during the fourth quarter that are turned in unserviceable after 30 September and not inducted on an 'M' suffix JON before 31 December will result in unused FY funds.

14.62.4.2.1. Unused FY funds are called fallout funds.

14.62.5. The scheduler must populate the ACOQ in the G004L, Permanent PDN Record Maintenance Screen (reference **Figure 14.10.**), to reflect actual inductions for the fourth quarter by the date established by local FY Year End Close-Out Procedures for all MISTR control numbers for assigned PSSD. The scheduler will insure the inducted quantity listed on the G004L/L2B report is populated and saved.

Figure 14.10. Permanent PDN Record Maintenance Screen.



14.62.6. At close of business 30 September, the G004L system will stabilize the ACOQ inductions and set the Remaining Annual Customer Order Quantities (RACOQ) values to 0 unless they are negative.

14.62.7. Remaining Annual Customer Order Quantities (RACOQ). This quantity is electronically computed by subtracting inductions from ACOQ.

14.62.8. From 1 September through 31 December, G004L produces the L2B product RACOQ listing in Production Section/Scheduling Designator (PSSD) sequence.

14.62.8.1. This product is used by the scheduler to monitor RACOQ quantities.

14.62.8.2. It reflects only the production number for which the scheduler is responsible and which have a RACOQ value other than 0.

14.62.8.3. For permanent production numbers, the system reflects ACOQ during the fourth quarter only.

14.62.8.4. From 1 October through 30 December, the L2B will only reflect RACOQs which have had non-serviceable turn-ins occur.

14.62.8.4.1. These condition codes are: F, J, K, L, P, G, E, and H.

14.62.8.4.2. If requirement exists, inductions to replace the non-serviceable turn-ins will be inducted using an annual JON 'M' in lieu of monthly/quarterly JON.

14.62.8.4.2.1. M' JONs are only allowed in October, November, and December.

14.63. Schedulers' Jacket Files. The scheduler will maintain a jacket file on each temporary production number for which the scheduler is responsible. Contents of the jacket will include as a minimum:

14.63.1. AFMC Form 206 or AFSC Form 206 screen print.

14.63.1.1. AFSC Form 237 screen print and AFSC Form 240 (when applicable) (2 copies).

14.63.1.2. Other backup documents as deemed necessary.

14.63.2. Disposition of the jacket file will be:

14.63.2.1. When JON completions equals JOQ on the G004L-L2A report, the jacket file is maintained IAW paragraph 1.12.1. The exceptions on temporary workload are:

14.63.2.2. C-Numbers.

14.63.2.3. T-Numbers when DPC is S.

14.64. Inductions. These types of inductions and method used to establish them depend on the DPC assigned to the production number and the type of work involved. Reference **Table 14.5.**

14.64.1. T-DPC and all permanent production numbers have the induction value established from a RA transaction.

14.64.2. Temporary Production Numbers:

14.64.2.1. N-DPC JON inductions and OWO balances are electronically established equal to JOQ when an AFMC Form 206 or AFSC Form 206 is processed to establish the production number.

14.64.2.2. M-prefix with R and W reimbursement codes (i.e., first position of PCN) will establish inductions and OWO balances equal to JOQ when G004L is updated to reflect SOPI as C (i.e., complete).

14.64.2.3. All other M-prefix production numbers establish JON inductions and OWO balances equal to JOQ when the AFMC Form 206 or AFSC Form 206 is processed to establish the production number.

14.64.2.4. C prefix numbers with DPC P reflects inductions equal to completions as received.

14.64.2.5. A DPC T and all other temporary production numbers have the induction value established from RA transactions.

14.65. Induction Transaction Processing.

14.65.1. Receipt Acknowledgement (RA) Transaction Inductions. The RA transaction is used for all source production items inducted from supply (i.e., D035K), Nuclear Ordnance Commodity Management (NOCM), and for engines that are directly inducted into G004L. ITS electronically sends the RA transactions through G402A which feeds into the D035K system. The D035K system sends a tape daily to the G004L system. For engines and NOCM items, the RA transaction must be input directly to G004L (reference **Chapter 18**).

14.65.2. D035K edits the RA transaction for valid stock number, document number, production number, and quantity in transit to maintenance. If the JON suffix is missing or any of the above is in error, the input will reject with the appropriate error code. G004L edits the transaction for compatibility of pertinent data in the master files. Any reject will be error coded to identify the reason for reject. The error code will print out on the G004L-L2A report. When the reject appears on the G004L daily, D035K has been updated. To prevent a due in from overhaul/in Air Logistics Complex (DIOH/IN ALC) out-of-balance condition, correct the G004L data only and leave the D035K data unchanged. Reference **Table 14.14.** for G004L status advice codes and **Table 14.11.** for D035K status advice reject codes.

14.65.3. Maintenance/Supply Generated (971) Transaction – Temporary Production number with DPC N, K, and U System inductions. All items generating from sources other than supply not having inductions posted automatically by the G004L system are reported by the system as each item or group of items is inducted. Valid and invalid inductions are reflected on the L2A report.

14.65.4. Misidentified Production Item Inductions. When a production item is received from supply and is truly misidentified, the following options/actions are available to the scheduler: Option 1 - turn-in misidentified; Option 2 - if a requirement exists and is repaired in the scheduler's shop, coordinate with EXPRESS office for funding and then perform wash post to the correct control number.

14.65.5. Daily Verification of Production Transaction, visibility of the end-item induction/completions transactions, is reflected on the Daily Visibility and Cross Referenced list (i.e., G004L-L2A).

14.65.6. Awaiting Maintenance (AWM).

14.65.7. Purpose. This balance can be used for one purpose:

14.65.7.1. Account for assets prepositioned into maintenance without obligation of customer funds and retain visibility of assets accounted for under DIOH in the D035K system. Not to be used for EXPRESS driven items.

14.65.7.2. To allow de-obligation of customer funds when assets are OWO and work is discontinued for a period of time for whatever reason except AWP. This action will enable schedulers to use the de-obligated funds for induction of other assets that the IM/PM has a requirement for. This process can be used for EXPRESS driven items.

14.65.7.3. Restrictions.

14.65.7.3.1. Assets can be inducted from supply directly to the AWM balance but cannot be returned directly from AWM to supply. Before returning the assets to supply, the assets must be transferred from AWM to OWO, using current JON suffix, then the D6 turn-in transaction processed to return the assets to supply.

14.65.7.3.1.1. Refer to the ITS procedures in the ITS On-line Help menu using EXPRESS.

14.65.7.3.2. Work is not to be performed on assets while in AWM status.

14.65.7.3.3. The use of AWM is not applicable to serialized workloads and if attempted will appear on the G004L-L2A with asterisks over the JON.

14.65.7.4. Procedures.

14.65.7.4.1. Supply to AWM (Prepositioning). The use of the receipt transaction (D7/RB) transaction with a JON suffix will cause the D035K system to plus the DIOH value, decrease the IB1 (MW) value, and pass the transaction to G004L. The D7/RB transaction will cause G004L to plus the AWM field. This transaction will not affect the OWO, inductions, or remaining annual COQ.

14.65.7.4.2. AWM to OWO. A D7/RC transaction with the current JON suffix and action suffix PK will be input to D035K and passed to G004L. The G004L system logic will minus the AWM value, plus the OWO and JON inductions values, and decrease the remaining ACOQ by the quantity indicated. The D035K system will not change any values in its record.

14.65.7.4.3. OWO to AWM. A D7/RD transaction with a JON suffix and action suffix PK will be input to D035K and passed to G004L. The D035K system will not

change any of its balance values in the G004L system minus the OWO value, plus the AWM, minus the JON induction value, and increase the remaining COQ. This transaction will also minus the values of the weekly induction, monthly induction, and quarterly induction fields.

14.66. Formal Awaiting Parts (AWP). Taken Off of OWO.

14.66.1. Purpose. The purpose of the AWP balance is to decrease inductions/OWO due to lack of parts supportability and at a work stoppage. Assets in AWP status must be maintained in a secured area. This transaction is processed through D035 system by DLA personnel with a RBOG transaction.

14.66.2. Restrictions:

14.66.2.1. Assets cannot be moved from supply to AWP.

14.66.2.2. Work is not to be performed while in AWP status.

14.66.2.3. The use of AWP is not applicable to serialized workloads.

14.66.3. Procedures. The following procedures identify production/supply transactions required for AWP processing (reference AFI 23-101 for detailed procedures). DLA will process a D7/RF transaction with a JON suffix and action suffix PK will be input to D035K and passed to G004L to move an item from OWO to AWP. This transaction will be passed by D035K without any change in the D035K balances. G004L will minus the OWO value, plus the AWP value, plus the RACOQ value, and minus the JON induction value by the quantity indicated. This transaction will also minus the values of weekly induction, monthly induction, and quarterly induction fields. **Note:** All transactions on G004L-L2A should be validated by the scheduler.

14.66.4. AWP to OWO. Upon receipt of move notice (MN), the scheduler will process a D7/RE transaction that will be input with a current JON suffix and action suffix PK to the D035K system and passed to G004L. D035K will not change any balances. G004L will minus the AWP value, plus the OWO, plus the JON induction, and decrease the RACOQ by the quantity indicated. Perform JON file maintenance in ITS. For EXPRESS items, it must be fully funded. **Note:** All transactions on G004L-L2A should be validated by the scheduler.

14.67. Job Order Number. The G004L JON master records will carry a status code which indicates the production status of each record.

14.67.1. Status Code = Blank. There is no JON suffix. For permanent and temporary workload, a blank status code is established only at CN/JD level. For temporary workload, valid input of AFMC Form 206 or AFSC Form 206 Part II established the CN/JD and a blank status code on the appropriate master file.

14.67.2. Status Code = 0. The JON is open and active. For permanent JONs, this status code is established when the first induction is processed. For temporary non-serialized JONs, the status code will be set at 0 when an AFSC Form 237 with the SOPI marked complete processes validly. For temporary serialized workload, the status code will be set at 0 when the transaction processes. On temporary workloads, when JSC=0, the G004L-L3A is produced for the schedulers use. Completions, labor, and material transactions are allowed.

14.67.3. Status Code = 1. The JON is completed and sold. The JOQ has been inducted and all items have been completed for temporary JONs. For permanent JONs, all inductions have been completed at or after the end of the JON period (month or quarter). For temporary JONs, this code will be assigned regardless of JON period during the end-of-month processing cycle in which completions equal JOQ. Trailing labor and material transactions are still authorized. Action C- prefix JONs will open with status code of 1 and are sold when they migrate to JSC 2 at the end of the month.

14.67.4. Status Code = 2. The JON is closed. The code is assigned at EOM after the JON has been sold (i.e., SC=1 for a full month). No further actions are allowed. Trailing labor and material transactions are not allowed. MISTR JONs may be closed in G004L but remain open in DIFMS until all subordinate WCDs have been completed against the generating JON. Structured WCDs have disassemble, repair, and assembly WCDs. The repair WCDs are known as 'child' WCDs and a 'parent' JON will remain open in DIFMS for cost accounting until all 'child' documents have been completed and consumed into a 'parent' item.

14.67.5. Status Code = 3. The JON is cancelled. This code is assigned only at EOM. When this code applies to permanent JONs, it is assigned at the end of the JON period when the inductions, completions, and OWO balance are 0. When this code applies to temporary JONs, it is assigned at the EOM when the JOQ equals 0. Trailing labor and material transactions are not allowed.

14.67.6. Status Code = 7. The JON is history. The JON will be kept on the appropriate G004L master file until the end of the quarter so appropriate data can be passed to interfacing systems.

14.67.7. Status Code = S. The JON is suspended. This applies to manufacture work accomplished on other than R or W reimbursement codes (i.e., first position of PCN). This status code is assigned on any processing day during the month when an AFSC Form 237 with the SOPI marked complete processes validly and the planned cost is greater than the estimated job total cost. A customer release (H1) transaction is required to return the JON to active status and labor and material transactions to be valid.

14.68. Defense Industrial Funds Management System (DIFMS). DIFMS will carry a status code which indicates the production status of each record.

14.68.1. DIFMS JON Status Codes. The code values are:

14.68.2. 1 = Open.

14.68.3. 2 = Reopened.

14.68.4. 3 = Closed.

14.68.5. 6 = Canceled.

14.68.6. 7 = Termination.

14.68.7. 8 = Pending (No Customer Order).

14.68.8. 9 = Purge.

14.68.9. The DMAPS Conversion Engine (CONEN) provides a means for data transfer between the DMAPS suite of systems and the AF legacy systems. CONEN sends JON Status originated in G004L to DIFMS.

14.68.10. G004L JON Status Code (JSC). 1, 2, 3 are sent as status code '1' (closed, awaiting trailing costs for thirty days) in G004L but remains in status code '1' (open) in DIFMS. G004L JON Status Code changes at the end of 30 days to JON Status Code '2' (financially closed).

14.68.10.1. ONs may be closed in G004L but remain open in JOST and DIFMS until all started operations have been completed against the generating JON. Once JOST finds there are no open tasks in TAA (i.e., all tasks are completed), the JON is closed in JOST. The direct JON is closed in DIFMS after receiving the financial closed status from JOST (status code '3'). The JON cannot be financially closed in DIFMS without passing the JOST edits for JON closure.

14.68.10.2. JONs that cancel as a result of unserviceable turn-ins or official AWP in G004L will not automatically close in DIFMS. Maintenance, OB, FMM, and FMRD must work closely to insure costs over $2,500.00 are moved if possible.

14.68.10.3. Insufficient communication between production and cost accounting may result in cancelled JONs being written off. When the DIFMS status code is changed to '7', activity terminated, the ALC absorbs the cost. A 'write off' should be a rare situation and must be approved in writing by the chief of cost accounting.

14.69. Priority Codes. These codes have been established for use in scheduling workload. This is a two-position code assigned by the initiator of the AFMC Form 206 or AFSC Form 206 or AFSC Form 600. Reference **Table 14.7.** for the description of codes.

14.70. Production Delay Codes. Production delay codes in G004L may be input by the schedulers for any temporary jobs where the JOQ has not been completed by the customer's delivery date. Codes will be input for permanent JONs when a scheduled or negotiated completion date has not or will not be met. The production delay codes are necessary to provide feedback to the customer and to the ALC internal management units. Production delay codes are input with the ASC Form 930. Reference **Table 14.7.**

14.70.1. To release, the productions delay code should be replaced with an 'X' production delay code when the job is back in work.

14.70.2. For visibility, production delay codes are reflected on the G004LG1A/G3A/G3B/G3F/G5C/G6A/L2A/L3B/L3C and L3G reports.

14.71. Authorized, Completed, and Acceptable Work.

14.71.1. Production data obtained from production completion procedures are required for the accumulation of standard costs for the ALC and will only be compiled on work that is authorized, completed, and acceptable.

14.71.1.1. Authorized Work. Authorized work is any production effort which can be supported by the appropriate work authorization document. The work requirement may originate from base tenant or from the MXSG (Cost Class IV)/routed work.

14.71.1.2. Completed Work. Normally RC/CCs earn labor as operations are complete.

14.71.1.3. Acceptable Work. Work is defined as acceptable when it has been completed and inspected as conforming to specifications. Acceptable work will not be interpreted

to broaden or limit in any manner the QA functions. These functions will continue to be carried out IAW applicable directives.

14.71.1.4. When direct labor is expended, whether in the process of determining condition status or in the performance of a task which does not necessarily result in the production of serviceable end items, this type of effort must either be authorized by one of the service job designators E, F, G, J, L, and T or by the combination job designator H for non-MISTR production.

14.71.2. Supporting Production Documents.

14.71.2.1. The determination that authorized, completed, and acceptable production has been performed will be supported by a WCD.

14.71.2.2. Validation of WCDs. Work acceptance is indicated with a stamp and date by an authorized person on applicable work forms or source documents (reference **Chapter 7**).

14.71.2.3. Supporting documentation for production will be maintained IAW AFRIMS at **https://www.my.af.mil/afrims/afrims/afrims/rims.cfm** after production is completed.

14.72. Completion Transaction Processing. To ensure proper end item reporting, input of receipt and turn-in documents must be accomplished on time. The production reported to the JON master system by a supply or maintenance generated transaction in G004L will be used along with other G004L production to update the project order register and produce sales billing in DIFMS.

14.72.1. Supply or Maintenance Generated Transaction in G004L (Completions). Direct input of a Turn-In/244/971 transaction input to the G004L system is limited to engines, NOCM items, and manufactured items not sent to supply. All other production items are turned into supply (D035K) by use of a Turn-In/244 transaction, Material Request/Turn-In/Custody Receipt, to electronically update G004L from D035K. These completions are input through remote devices to the D035K system. G004L is updated by tape interface. The update appears on the G004L-L2A data products.

14.72.2. System Completions. All JON master records with inductions from non-supply sources including serial-numbered items with DPC 9 on the master record will be reported to G004L. This production will include but will not be limited to items processed for area support, base support, central acquisition, and renovating testing.

14.72.3. Verification of Production Transaction. Visibility of the end-item completions transactions is reflected on the Daily Visibility and Cross Referenced List (i.e., G004L-L2A). The scheduler must verify all daily transactions by comparing the L2A and AFSC Forms 105 and/or AFSC Forms 130. Retain documents as required IAW AFRIMS at **https://www.my.af.mil/afrims/afrims/afrims/rims.cfm**.

14.73. Exchange Component Item Control. Reference paragraphs 14.20 through 14.47.

14.74. Other Services, Depot Maintenance Interservice Support Agreement (DMISA), Production Item Processing. Production items repaired by the ALC in depot maintenance that are owned by a service activity other than the Air Force require special control for accounting purposes. The G004L system requires a separate production number to be established for each customer when the same stock numbered end item is repaired for other than the Air Force because

the reimbursement code for each service is different and the end item accountability is maintained under different OPCs in the D035K system. The requisition transaction (i.e., 244) for these items must carry the ownership purpose code in the OPC block. If the last digit of the job order suffix in the JON block is not the same as the entry in OPC block, the system will reject the transactions. It is imperative that the JON identity that is in the D7/RA transaction be maintained with the end item during the repair process so that production completion and material costs can be accurately charged to the appropriate JON. The proper identification is also necessary to maintain the correct DIOH/IN ALC relationship. Reference **Table 14.7.** for the OPCs.

14.75. Rework (For Items Still In Maintenance). Rework is the labor to repair or replace failed material or end items, or to correct a work discrepancy, after the acceptability or completion of the work step (i.e., operation), or end item has been stamped on the WCD by production personnel. The following categories are not rework:

14.75.1. Unavoidable periodic calibrations and adjustments.

14.75.2. Work normally required to hand-fit or select-fit parts in an assembly. This type of work will be included in the labor standard by means of an occurrence factor.

14.75.3. Work required repairing material received with existing defects or deficiencies which would require a PQDR or AFMC Form 202/AFMC Form 206 or AFSC Form 206. When completing an AFMC Form 202, reference AFMCMAN 21-1_AFSCSUP, *Air Force Materiel Command Technical Order System Procedures*, which enhances the AFSC implementation of AFMCMAN 63-1202 by defining the relationship between AFMC Form 202 work stoppage assignment and maintenance critical path management.

14.75.4. Work done as a result of incoming or preliminary diagnostic tests and inspections which are made to determine necessary repairs and replacements. When an item fails a particular step in a diagnostic test composed of a number of sequential steps, is then repaired, but subsequently fails a later step in that test, rework will not be charged unless the subsequent failure is attributed to a discrepancy in the earlier repair.

14.75.5. Additional work performed as part of the most economical method of doing a job if substantiated by a process engineering economic analysis. The exclusion does not apply when the additional work is required to correct work previously done on an item.

14.76. Local Manufacture Procedures. Local manufacture (i.e., M-prefix) planning procedures are divided into two categories. These categories are R or W and all others. The reimbursement code, which is the first position of the PCN, determines the category (reference **Chapter 18**).

14.76.1. When the reimbursement codes are R or W, the following procedures apply:

14.76.1.1. When direct material is required, the jacket file furnished by the planning organization will be incomplete. The JON suffix and the Temporary Job Record (G004LL3A) will not be included but the jacket file must be filed in the local manufacture awaiting material file. The jacket will remain incomplete until all the direct material is received and the IET indicates in G004L that planning is complete.

14.76.1.2. The IET will provide the DLA/PST with a direct material list and the DLA/PST will order material at production number level using local manufacture procedures contained in **Chapter 18**.

14.76.1.3. The planning activity is notified when all required material has been received. This is a key function as it is the only notification the IET receives on the availability of material.

14.76.1.4. After the SOPI is changed to complete by the IET, a JON suffix and G004L-L3A is furnished and the jacket moved to the normal files. A JSC of zero will be assigned automatically and work can begin on these items. The JSC S is not applicable for M-Prefix JONs with reimbursement codes of R or W.

14.76.2. When the reimbursement codes are other than R or W, the following procedures apply:

14.76.2.1. The jacket file will not be forwarded to the scheduler until the SOPI is marked complete. The JON suffix will already be assigned and the G004L-L3A will be included in the package.

14.76.2.2. Material can be ordered and work can begin under normal procedures.

14.76.2.3. Manufactured Items. Manufactured items will be turned-in according to DPC and special instructions.

14.77. Due In From Overhaul (DIOH) In Maintenance Control. General: Production items subject to DIOH/In Maintenance Control are those items with DPCs of T, 2, or X (excluding job designator K).

14.77.1. All items enter the DIOH/In Maintenance balances at time of RA of property at MXSG and are reduced from these balances at the time of turn-in. The To and From in-transit systems in D035K control and account for assets enroute from DLA/Supply to MXSG, and from MXSG to DLA/Supply, and changes to these accounts are caused by maintenance production transactions entering the D035K system.

14.77.2. The DIOH account is reflected as an M balance on the document transaction image. DIOH reductions are reflected as a minus (-) between the quantity and the M. Increases are reflected by a quantity preceding the M with no sign in between. DIOH/In Maintenance reconciliations identify this quantity as DIOH.

14.77.3. The in-transit from DLA/Supply to MXSG is reflected as an MW balance on the daily document control register. Reductions contain a minus (-) sign, while increases contain no sign. The DIOH/In Maintenance reconciliation listing identifies this balance as in-transit to (INTR TO).

14.77.4. The in-transit from FM MXSG to DLA/Supply is reflected as an MM balance on the daily document control register. Reductions contain a minus (-) sign while increases contain no sign. This balance is reflected on the DIOH/In Maintenance reconciliation listings as INTR FM.

14.77.5. Production type transactions that do not change the DIOH, MW, or MM, balances will be reflected on the document control register with an asterisk between the quantity and the balance symbol.

14.77.6. The keys to proper management to these balances are the document control register, the reject management products provided by the G004L system on a daily basis, the AFSC Form 105, AFSC Form 130, and the G004L-L2A report. Errors not corrected on a timely

basis become extremely complicated, require excessive research, and consume an unnecessary amount of man-hours to correct.

14.77.7. G004L products specifically designed for DIOH/In Maintenance control include the following:

14.77.7.1. G004L-W5C-W1-MWW, DIOH/In Maintenance Out-Of-Balance Records by PSSD. Minor sequence is stock number. This report identifies those stock numbers and associated JONs that are out of balance.

14.77.7.2. G004L-W5D-W1-MWW. Erroneous Production Transactions by PSSD. Minor sequence is stock number. This report identifies production transactions that are rejected in G004L with a code indicating the reason for reject. Only those transactions related to out of balance records will be retained in the G004L transaction history file.

14.77.7.3. G004L-W5B-W1-MWW. Maintenance Production History. Contains all transactions for the current week plus the same rejects described above by stock number. This product could prove useful in determining whether or not a reject has been corrected.

14.77.7.4. Reject and Error Corrections. **Note:** These corrections can adversely affect D035K balances and should be only accomplished by a journeyman scheduler.

14.77.7.4.1. An error on the RA which passed D035K edits but rejected in G004L. This type of rejection is usually caused by JON (i.e., control number, job designator, and JON suffix) error. A new RA with corrected information must be input with an action suffix of PK.

14.77.7.4.2. Quantity on the RA exceeds the JOQ in G004L. If any portion of JOQ remains unissued in G004L, establish a new RA for that quantity and re-input with a PK action suffix. Prepare D6 for remaining quantity with 00000A CN/JD and JON suffix of 00A, and return item to Supply. The new RA for the authorized quantity will bypass DIOH and post in G004L. The D6 turn-in for the remaining quantity after input will pass the G004L, and reject. This turn-in will reduce DIOH for the quantity unauthorized in G004L. Contact the DLA/PST for assistance.

14.77.7.4.2.1. RA is prepared and input in error on post-post or wash post type issues. On action suffix PP or washpost (WP), no RA is needed. If one is submitted in error and rejects in G004L, it will require reversal with 00000A CN/JD and 00A JON suffix. If the RA was accepted in G004L, it will be reversed with the correct JON to reduce both DIOH and OWO. Both these reversals must be input by DLA/PST.

14.77.7.4.2.2. For other type production issue errors, the type of correction will depend on whether or not G004L rejects the transaction. When G004L rejects and OWO increase is required, the action suffix must be PK. If the transactions are duplicates and rejected in G004L, the reversal must have 00000A CN/JD (LZR input) and 00A JON suffix. Contact DLA/PST.

14.77.7.4.2.3. Post-post or wash post rejects in G004L. Prepare a duplicate copy of D7 with PK action suffix and resubmit after reason for reject is cleared.

14.77.7.4.2.4. Turn-In Errors. Most common errors and required corrections are as follows:

Table 14.4. Common Errors.

Item	Error
1	D6 document is input more than one time.
2	If the duplicate transaction input reduced G004L, the transaction must be reversed by DLA/Supply using JON on original document.
3	If the duplicate transaction rejected in G004L, the transaction must be reversed by DLA/Supply and have 00000 CN/JD and 00A JON suffix to suffix to correct DIOH only.
4	D6 document is input but rejected in G004L. The cause of reject must be corrected and new inputs made with action suffix PK and correct JON. This will correct OWO only.
5	D6 document is input but items are not turned in. Either the items must be turned in or the transaction reversed by Supply. The advice code must be blank T on the reversal.
6	Process misidentified items IAW AFI 23-101.

14.77.8. D035K Error Reject Codes. The error code will appear on the transaction history. See **Figure 14.11.**

14.77.8.1. G004L 244 Transaction Reject Codes. Reference **Table 14.15.**

14.77.8.2. DIOH/In Maintenance Reconciliation/Inventory. (**Note:** Reference **Table 14.25.** for detailed procedures and process narrative guidance which the ALCs will follow for audit compliance.) Scheduling personnel and DLA/PST will reconcile DIOH/OWO and in-transit records weekly. Those items that cannot be reconciled will be researched and inventoried as appropriate. Production Support personnel may assist in this inventory under the direction and supervision of the responsible scheduler.

14.77.8.2.1. Whenever a discrepancy cannot be resolved through records research, DLA will perform a joint Maintenance and Supply reconciliation of DIOH/OWO (reference AFI 23-101). DIC DF1 transactions will not be used to adjust DIOH/OWO balances.

14.77.8.2.2. The scheduler will be requested to accomplish the following:

14.77.8.2.3. Provide a copy of AFSC Form 105 or AFSC Form 130 for the 90 days preceding the count.

14.77.8.2.4. Accompanied by the shop supervisor, physically count assets in shop, enter count in the right-hand corner of the form, date, and sign the form. The shop supervisor will sign the form as the MA authenticating official.

14.77.8.3. The DLA/PST person will reconcile data, research discrepancies, and prepare increase/decrease adjustments on unresolved discrepancies. If required, the appropriate Master Balance Record will be frozen and an in-warehouse special inventory conducted concurrently. Recounts will be conducted on adjustments exceeding $10,000.

14.77.9. DIOH/In Maintenance/In-transit Records. (**Note:** Reference paragraph 14.32. for detailed procedures and process narrative guidance which the ALCs will follow for audit

compliance). Corrections of in-transit balances and deletions of in-transit details will be made by DLA/PST by file maintenance transactions.

14.77.9.1. In-transits not cleared in seven days will be reviewed by DLA/PST/Scheduling and action taken to correct all in-transit balances with unsupported details. Full documentation in support of these transactions will be maintained by the maintenance section. Complete coordination between DLA/PST/Scheduling will be accomplished prior to processing of such actions. In-transit control will be a part of the self-inspection program for supervisors.

Table 14.5. Data Processing Codes.

Data Processing Codes (DPCs). All opening AFMC Form 206 or AFMC Form 206 and AFSC Form 600 will contain the applicable DPC as per the usage assignment described below. The scheduler will use these codes as the basis for determining how and what to report to the G004L system.	
Item	**Description**
1	Code 2 signifies that production for serial numbered end items will be reported through the D035K system to the End Item Production segment of the G004L data system by a 244 transaction. Reference DPC 9 for those serial numbered items in repair group category H and L requisitioned from supply on a 244 transaction.
2	Code 6 signifies the workload is on a serialized JON to be sold at the unit price entered in an AFMC Form 206 or AFSC Form 206. JON completions will be reported to the G004L system by a 971.
3	Code 7 signifies a serialized workload to be limited to the cost entered in block 14 (Estimated Job Total Cost) of the AFMC Form 206 or AFSC Form 206. JON completions will be reported to the G004L system by a 971.
4	Code 9 signifies that production for serial numbered end items will be reported to the end item production segment of the G004L system by a 971. Those serial numbered items in repair group category H and L requisitioned from supply by a 244 transaction must have inductions reported to the G004L system by a 971 and items turned in to supply by a 244 transaction.
5	Code K signifies that production will be reported directly to the end item production segment of G004L by a 244 transaction. DPC K applies only to complete aircraft engines, gas turbine engines, and engine gearboxes at the overhaul ALCs.
6	Code N signifies that production will be reported to the end item production segment of the G004L system by a 971.
7	Code S signifies the workload is a T-prefix tenant support JON which is of a continuous nature and is reinitialized at the beginning of each quarter. Production will be reported to the G004L system by a 971. The G004L system will assign QSI=M and UOM=HR to these transactions.
8	Code T signifies that production will be reported through D035K to the end item production segment of G004L by a 244 transaction and applies to base support (DIOH and local manufacture) item records maintained in the D035K system except those

	items that are controlled and reported by serial number or items with a job designator F, L, M, N, or T.
9	Code U means that production will be reported directly to the end item production segment of G004L by 244 transaction to update the 244 transaction IN Maintenance (IN-MA) balance. DPC U will be used for Nuclear Ordnance Commodity Management (NOCM) items [materiel management code (MMC) CM or federal supply group (FSG) of 11] that require turn-in to special weapons supply. NOCM items not requiring turn-in to special weapons supply will have DPC N. DPC U is used for manufactured items returned to a customer when not processed through the D035K system.
10	Code X signifies that production may be reported by either 244 transaction or 971. This code applies only to XD items that are engine components and are being worked as MISTR items. The 971 will be used to report engine components that are removed from an engine reparable (card code R) and returned to an engine serviceable or condemned (card code S). If the item also generates as reparable from the field, 244 transaction will be used to request the item from D035K (document identifier D7) and to turn in the item to D035K (document identifier D6). The D035K system will pass these transactions to the end item production segment of G004L by a daily tape. However, the majority of MISTR items are not engine components so the DPC will remain T. (Only 244 transactions reporting through D035K to the end item production segment of G004L is allowed.) Also, code X applies only to the engine TRCs (OCALC).
Note: DPC changes are authorized when no inductions have been made. The following conditions apply: a. If the code indicates a supply sourced item, the data code may be changed to reflect a non-supply source if IN/MA balance is zero. b. If the code indicates a non-supply sourced item, the data code can be changed to a supply source. c. If the code indicates serial number control, the data code cannot be changed to non-serial number control. d. If the code indicates non-serial number control, it cannot be changed to indicate serial number control unless the JON suffix is blank (applicable to both temporary and permanent control numbers).	

Table 14.6. Ownership Purpose Codes.

Item	Code
A	Air Force and other services
1	Army
4	Marine
5	Navy
0	Unassigned

Note: Code 0 is used as the last position of the JON suffix for Air Force items worked under serialized control and issued from supply stock. The JON master record must contain DPC 2.

14.78. Priority Codes. Reference AFI 23-101 for identification of priority codes.

14.79. Production Delay Codes (PDC). The PDC is a one position alpha code which denotes a delay in processing work requirements or item production within the shops.

Table 14.7. Production Delay Codes.

Code	Descriptions
A	Lack of Technical Data
B	Equipment (Lack, broken, or saturated)
C	Lack of Shop Capability
D	Higher Priority Work
E	Planning Backlog
F	Item Complete-Hold for Reassembly
G	Insufficient Manpower
K	Awaiting Maintenance (Production Backlog)
L	Workload Leveling
M	Awaiting Parts Status
N	Parts/Material Not Available
O	Assets Not Available
P	Work Now Completed
Q	Backlog
R	Skills Not Available
X	Back in Work
Z	Revised Requirement

14.79.1. Production delay codes are input with a G004L transaction by workloader or scheduler.

14.79.2. To input a delay code for temporary JON, complete a G004L transaction and use **Table 14.8.** as follows:

Table 14.8. Delay Code for Temporary JON.

Position Used	Entries
2	Control Number
3	Job Designator
12	Production Delay Code (PDC)

14.79.3. To input delay code for a Permanent JON, complete a G004L transaction and use **Table 14.9.** as follows:

Table 14.9. Delay Code for Permanent JON.

Position Used	Entries
2	Control Number
3	Job Designator
4	JON Suffix
8	Production Delay Code (PDC)

14.79.4. To input a delay code for backlogged Part II of AFMC Form 206 or AFSC Form 206, workloaders will prepare an AFMC Form 206 or AFSC 206, Part II as follows in **Table 14.10.**

Table 14.10. Delay Code for Backlogged Part II of AFMC Form 206, or AFSC Form 206.

Position Used	Entries
27	Request Number of Original/Corresponding Part I.
28	Appropriate Delay Code (A Thru E, T, V or W)
35	Workloader's Signature
36	Approving Official's Signature

14.79.5. When workload is released to work after being delay coded, an X entry will be input using an AFSC Form 930 by IETs or schedulers to remove delay codes from the pertinent record.

14.80. Production Item Cost Codes. These transactions are for the issue of items for depot repair and for turn-in of these items after completion of repair. Production items which are returned in a non-serviceable a condition are also coded as production turn-in transactions. Transactions bearing production cost codes will not result in charges or credits for inclusion in actual material cost accumulation.

Table 14.11. Production Item Cost Codes.

Cost	Description
F	Quality Control of Prototype Analysis. For the issue of items for QA, inspection, analysis, UR exhibits, prototype analysis, and the return of items previously issued for these purposes. This code will be used along with the appropriate production RC/CC code. Items removed from the production line for quality analysis and return to line will be turned in under the P rather than the F code.
P	Production. For the issue of reparable, TOC, or incomplete assets to be made serviceable or issue or serviceable assets with job designator R, resulting with the turn-in of serviceable, TOC, incomplete, and condemned assets.
H	Disassembly or Renovation Testing. For the issue of recoverable assets for disassembly or reclamation and the return of reclaimed components. This code will apply to the issue of assets for renovation proof testing purposes and for the turn-in of the remaining items following the test evaluation.
V	Production Correction. For the return of production items that are received misidentified as to stock number or condition. (Incorrect item is turned in as a V cost code under control number of item originally requested. Correction issue is on a P, F, or H cost code, as appropriate.).

14.81. Material Cost Codes. These codes are used by the IET during the preparation of the BOM segment and BOM Adjustment (G005M). Materials are classified as investment and expense. Investment material includes all recoverable assemblies, installed equipment items, and modification kits acquired from investment (CP) appropriation. Expense material consists of all material and parts used in maintenance not categorized by investment or production cost codes. Special purpose codes X and Z are established for unusual issue/turn-in requirements.

Table 14.12. Material Cost Codes.

Cost	Description
E	EXCHANGE MATERIAL - Planned. For the issue of planned serviceable recoverable material on an exchange basis to replace like unserviceable items. For the turn-in of these unserviceable items, the return of excess serviceable items originally issued under the E cost code, and the return of items received under this code which were misidentified as to stock number when depot supply initiates warehouse denial (reversal) action.
J	EXCHANGE MATERIAL - Unplanned. For the issue of unplanned serviceable recoverable material on an exchange basis to replace like unserviceable items. For the turn-in of these unserviceable items, the return of excess serviceable items originally issued under the J cost code, and the return of items received under this cost code which was misidentified as to stock number when depot supply initiates warehouse denial (reversal) action.
V	EXCHANGE MATERIAL - Maintenance of MXSG Equipment. For the issue of direct serviceable recoverable material on an exchange basis for repair of MXSG shop and test equipment. For the turn-in of unserviceable recoverable items generated from exchange, the turn-in of excess serviceable items originally issued under Y cost code, and the return of items received under this cost code which were misidentified as to stock number when depot supply initiates warehouse denial (reversal) action. Y cost code is not used for material planning.
M	NONEXCHANGE MATERIAL – Missing, Excess, or Initial Installation Components. For issue of serviceable recoverable material on other than an exchange basis. This includes issues for initial installation, modification (other than modification kits), and the replacement of missing recoverable components on items received in an incomplete condition. For the turn-in of recoverable items on other than an exchange basis. This includes turn-in of dissimilar or obsolete recoverable items replaced by serviceable recoverable items issued on a non-exchange basis, and the turn-in of excess serviceable items originally issued under the M cost code. Turn-ins will also include the return of items received under this cost code which were misidentified as to stock number, when depot supply initiates warehouse denial (reversal action). This does not include the installation or removal of items covered by the T cost code.
T	AF Form 2692, *Aircraft/Missile Equipment Transfer/Shipping Listing,* Items. For the issue of items for reinstallation and for the issue of AF Form 2692, items to replace items previously removed and not reinstalled. For the turn-in of recoverable components removed and the turn-in of aircraft items recorded on AF Form 2692, that were removed and not reinstalled, and the return of items received under this cost code which were misidentified as to stock number when depot supply initiates warehouse

	denial (reversal) action.
D	Modification Kits. For the issue of modification kits which change the configuration or operating capability of an end item. This includes overhaul kits, TCTO kits, etc., which serve to facilitate repair or maintain the serviceable status of an end item. Investment items removed and not replaced due to modification will be turned in under cost code M. For the turn-in of modification kits originally issued under the D cost code that are intact and excess to immediate requirements, and the return of items received under this code which were misidentified as to stock number when depot supply initiates warehouse denial (reversal) action.
A	Expense Material - Planned. For the issue of planned serviceable expense material for use in depot maintenance, repair, modification, assembly or manufacture operations. For turn-in of excess serviceable material originally issued under the A cost code, and for the return of items received under this cost code which were misidentified as to stock number when depot supply initiates warehouse denial (reversal) action.
R	Expense Material - Unplanned. For the issue of unplanned serviceable expense material for use in depot maintenance repair, modification, assembly, or manufacture operations. For the turn-in of excess serviceable expense material originally issued under the R cost code, and for the return of items received under this cost code which were misidentified as to stock number when depot supply initiates warehouse denial (reversal) action.
W	Expense Material – Maintenance of MXSG Equipment. For the issue of direct serviceable expense material for repair, modification, assembly, and manufacture of MXSG shop and test equipment. For the turn-in of excess serviceable expense material originally issued under W cost code, and for the return of items received under this cost code which were misidentified as to stock number when depot supply initiates warehouse denial (reversal) action. Cost code W is limited to the request/turn-in of direct material and is not to be used for material planning.
N	Expense Material, Non-applicable to Repair Cost. For the turn-in of serviceable expense material removed as excess from assets which are undergoing maintenance, and for the turn-in of removed unserviceable items specifically requested by base support. It includes removed serviceable, unserviceable expense material of a dissimilar, obsolete, or alien nature (**See Note 1**).
L	Expense Material – Indirect or Overhead. For the issue of expense material for use as indirect or overhead material. Identify these issues to appropriate accounts by entry of the applicable U account in the (CN) space on material document. For turn-in of excess serviceable and excess expense material originally issued under the L-cost code for the return of items received under this cost code which was misidentified as to stock number when depot supply initiates warehouse denial (reversal) action.
X	Expense Material – Free Issue. For the issue of stockfund and non-stockfund (CP) expense material without charge to DMBA for use in depot maintenance repair, modification, assembly, or manufacture operations. For turn-in of expense materials previously issued under cost code X. This code applies to expense material direct and indirect, such as NSG11 and NSG13 from sources other than AF stock divisions, and AF stock fund division material issued without charge (**See Note 3**).
Z	Customer Furnished Material. Material furnished by customer is to be included in the

	depot maintenance work as specified by the customer. Cost will be determined by the customer, and accountability maintained as directed by the customer. The customer's determination of costs will be based on current standard catalog price or acquisition price for non-catalogued items. Customer furnished material will be costed as an unfunded direct material cost. Any residue of customer furnished material upon completion of the job order will be disposed of as directed by the customer. Inventory abandoned by the customer and not immediately turned over to the supply system for disposal should be charged to inventory and credited to the general and administration expense account, gains or losses from physical inventory.

Note:
1 – The N cost code will not be used for the turn-in of serviceable expense items initially issued under expense material cost codes A, R, L, or W or special purposes code X; or the turn-in of expense material received in other than serviceable condition or misidentified as to NSN.
2 – Two items returned under this cost code will not be considered for credit by the Air Force Stock Fund Divisions. The N cost code with Uprefixed control number will be used for the turn-in of unserviceable indirect material issued with L cost code when the turn-in is requested by base supply.
The U-prefix control number with N-cost code will cause a reject to DMAPSDIFMS and will require delete action and subsequent reconciliation with
DMAPS-DIFMS.
3 - Cost code X material will not be distributed to production as funded expense. However, the DMAPS-DIFMS products will report these transactions as direct, indirect GS, SS and investment, and accumulates non-funded expense material costs for material usage analysis. Requisitions for cost coded X material from stock funds will carry reimbursement code Y

Figure 14.11. Depot Maintenance Type Transaction Code/Cost Code/Job Designator/Cross Reference Table (D035).

Mechanical assignment of columns 3 and 7 is based upon job designator and cost code of the input transaction (D6, D7, and DG, except D6AN/D7H, D6AN/D7AN, and D6AN/D7AN) in accordance with this table. Data contained in this table are furnished by AFMC/DCS Maintenance and will be revised only upon direction of AFMC/DCS Maintenance.

Col 3	Col 7	Job Desg Col	Cost Code Col	Col 3	Col 7	Job Desg Col	Cost Code Col
A	C	Blank	Blank	A	N	Blank	Blank
A	F	Blank	Blank	A	X	Blank	M,N
A	M	A,B,C	A,D,M, N,R,T, X,Z	G	M	F	H,V
A	M	D,E	A,D,M, N,R,T,X	G	Blank	Blank	F
A	M	F	A,R,X	L	P	C, Q	P,V
A	M	G	A,E,J,R				
A	M	H	A,M,N, R,X,D,Z	L	R	L	H,V
A	M	I	A,D,M N,R,T, W,X,Z	M	P	A,B,R	P,V
A	M	K	A,M,N, R,W,X,Z	M	P	G,E	F,V,P
A	M	M	A,D,M, N,R,T,Z	M	P	J	P,V
A	M	N	A,D,M, N,R,T, X,Z	N,Q R	Blank M	Blank A,B	Blank E,J,Y
A	M	Q	A,D,M N,R,T, W,Z	R R	M M	C,H,I Q,D,E, M	E,J,Y E,J
A	M	R	A,N,R, E,J	R	M	N	E,J
A	M	T	A,M,N, R,W,Z	Z	P	T K	P,V
A	M	Blank	L,W,X, Y				

Note 1: When X cost code is used on D7 transactions, a Y credit indicator must be entered in column 69 to assure free issue. Column 69 must contain numeric 2 for manufacture P/N item issues.

Note 2: Direct material will be issued to production RCCs only.

D035 Status, Advice, and Reject, Transaction Codes:

Table 14.13. D035 Status, Advice, and Reject, Transaction Codes.

Code	Description
BB	Item backordered. Place status receipt in suspense pending receipt of new status receipt or material.
BG	Back order item. Stock number changed due to stocklist change processing. Adjust records accordingly and place in backorder suspense file.
BH	Cancellation of backorder due to supply of substitute or interchangeable item. Purge backorder (BB) suspense file of matching receipt and destroy both advice/status receipts.
BI	Item backordered in I&S family.
BJ	Backorder item. Unit of issue and/or quantity changed due to stock list change (SLC) processing. Adjust records as necessary and place in backorder suspense file.
BM	Notice of issue action from another DLA/PST or from depot supply for DLA/PST line issue requests. Advice/status receipt will be held in suspense pending receipt of material. When material is received, the BM status receipt will be removed from file and destroyed.
BP	Item on backorder or acquisition for direct delivery. Shipping action delayed. Revised estimated shipping date.
BQ	Deferred issue backorder canceled as requested by customer. Match to BB advice/status suspense file and pull matching receipt. Destroy BQ and matching backorder receipt.
BW	Deferred issue backorder status. Quantity still remaining on backorder after partial backorder release or no release action. Place backorder suspense file; destroy original backorder receipt.
BY	Assets on hand (partial or total) status to support deferred issue backorders after normal off base receipt and mechanical backorder release processing from IM. (Notification of long supply material received in depot supply.)
BZ	Deferred issue backorder quarterly asset availability status. The quantity indicated is available or on backorder, whichever is smaller.
B7	Unit price change. The latest unit price for the item.
C(Blank)	Rejected. Material condition code of transaction is invalid. Prepare new input transaction with correct condition code and re-input.
CA	Item requested is rejected. Explanation for rejection is stated in the remarks block.
CB	Requisition rejected. Initial requisition requested cancellation of that quantity not available for immediate release. This code is specifically applicable in response to requisitions submitted with advice codes 2C and 2J.
CC	Deferred issue backorder canceled as a result of source of supply cancellation of depot supply deferred issue MISSTRIP requisition. Remove BB status receipt from suspense file and destroy both receipts. Also assigned to issue requests submitted for items coded critical and assets are not available. When cancellation occurs as a result of this criteria, second space in the action suffix will also contain a C.
CD	Canceled due-out to unit of issue not converted by computer. The new unit of issue is shown in the action suffix. Review the initial requirement, remove BB status receipt from suspense file and re-requisition the item using the document number and the unit of issue if requirement still exists.

CE	Item requested is an item of equipment and not authorized for DLA/PST stock.
CF	Rejected. Erroneous job designator category code, document identifier, type transaction code, or demand code. Correct erroneous elements of data and resubmit request.
CG	Rejected. Item is non-stocklisted (JCD). Unable to identify requested item. Re-requisition and furnish correct NSN or part number (including reference to appropriate publication or drawing), or end item application and justification of usage. This status manually assigned. CH tem requested is not authorized for use by the customer submitting the request. Status manually prepared and mailed to the customer.
CJ	Rejected. Items requested are coded JCD, JCR, JCK or the exception requisition code is N and no advice code in local request.
CK	Backorder item. Canceled receipt of DD 1348, *DoD Single Line Item Requisition System Document*, (Mechanical), and CK status. The BB status will be removed from suspense and destroyed and the NHA, component, or kit will be requisitioned.
CL	Backorder item. Canceled by receipt of DD Form 1348. CL status or source category to JCR (breakdown into) during SLC processing. The BB status will be removed from suspense and destroyed. Re-requisition component parts if practicable.
CM	Regulated or classified item requiring specific elements of data. CN Backorder is cancelled due to a SLC of the ERRC from C, T, L, or P to N, S, or U or from N, S, or U to C, T, L, or P.
CO	Rejected. Item has been identified as a COCESS item.
CP	Information received from source of supply that the item would no longer be procured. Check for substitute that can be used and submit new requisition for substitute stock number. CR Quantity requested appears excessive. Recheck validity of requirements and resubmit. This status is manually assigned and mailed to the customer.
CS	Deferred issue backorder cancellation. Quantity indicated (canceled) is greater that the quantity on backorder.
CT	Rejected. DLA/PST availability card issued. Assets available within a DLA/PST center.
CU	Backorder item. Canceled by receipt of DD Form 1348 CU status. Remove BB status from suspense file and destroy. Re-requisition appropriate repair kit.
CX	Rejected. Base Service Store item.
CZ	Deferred issue backorder canceled. Request for backorder release from depot maintenance with no matching deferred issue backorder detail record.
DD	Transaction S/N is unmatched to DIFM suspense S/N and all I&S stock numbers controlled. Check document number for transposition of digits. Then correct or contact OPR for new document number. Prepare new input after error is detected and retransmit DH. Quantity of turn-ins transaction that exceeds the DIOH balance recorded in D035.
DT	Duplication of transaction.
ED	Rejected. (Repost issues and DLA/PST post-post issues and turn-ins). Invalid document number and day received. Correct quantity field and re-input.
EI	Document not showing in D035K.

EQ	Rejected. (Repost issues and DLA/PST post-post issues and turn-ins). Invalid quantity (alphas, blank columns, or all zeroes). Correct quantity field and re-input.
ES	Quantity in the INT (in-transit) card is greater than the suspense detail record.
FC	Rejected. Depot maintenance D7 repost requests containing cost codes A, R, N, W, or L for ERRC codes C, T, L, S, and U items, or cost codes B, D, E, J, M, T, or Y for ERRC code N or P.
F(Blank)	Rejected. Format of input transaction is incorrect. Check input document for missing elements of data, errors, invalid routing identifier (that is F*B on a DLA/PST replenishment request), invalid document identifier (when all three positions are manually assigned), type transaction code (when manually assigned), ownership and purpose code and project code. When error is detected, prepare a new input document with the correct date elements and re-input.
FH	Rejected. Input RC/CC unmatched on D035 organization table. Correct and re-input.
FJ	Rejected. Used wrong delivery priority of 1, 2, or 3.
FK	Rejected. Local request is a duplicate.
FL	Item delayed. Supply action being continued. Controlled exception has been generated to the depot supply component for review of the transaction. Normal reasons for FL status card are that the stock number is not recorded on the base support master record; the requested item requires review by the depot supply IM, etc. Retain this receipt in suspense pending receipt of status indicating final action taken by depot supply.
FR	Canceled Invalid MICAP requirement. Not reported in RCS: HAF-LEY (AR) 7113.
FS	Rejected. Floating stock quantity over floating stock authorization.
FZ	Rejected. Force or activity designator used in 244 transaction is lower than the one in the organization detail record.
II	Fill or kill (2C/2J) suspended. Partial or total quantity available; however, the master balance record contains a freeze/blockage code.
I( )	Request for issue (other than 2C/2J suspended). Partial or total quantity available; however, the master balance record contains a freeze/blockage code. Issue will be released when freeze/blockage code removed.
JN	Rejected. JON error. MI Rejected. DLA/PST request for other than serviceable.
N	Rejected. NSN not in D035K.
NB	Rejected. No backorder detail record.
ND	Rejected. No DIFM/DOTM on file. No DLA/PST detail record.
NN	Rejected. Erroneous MICAP identity. If first space in the Rq of Del Date is 9, the second and third spaces must be 99. If first space in the Rq of Del Date is N or E, the second and third spaces must be AA, AB, AC, AD, AE, AF, AG, AH, AM, or AY.
TW	Rejected. Demand suffix of M must be entered in demand suffix.
U(Blank)	Rejected. Invalid Unit of Issue.
UM	Rejected. Invalid Unit of Issue.
WR	Rejected. Invalid input from sending remote station. Normally, the DLA/PST designator code is not compatible with the functional code or scheduling designator. WW Rejected. Turn-in quantity exceeds the DIOH quantity; or D7 RA greater than

	in-transit to maintenance quantity.
P(Blank)	Transaction quantity exceeds item record balance. Quantity that could be processed has been posted to decrease the DLA/PST detail record balance. Partial or total quantity which was not posted is rejected and shown. This status may be received in response to a turn-in from the DLA/PST to depot supply. When this status receipt is generated, the DLA/PST details balance is frozen with a numeric 1 blockage.
2B	Requested item only will suffice. Do not substitute or interchange.
2C	Do not backorder. Reject all unfilled quantity not available. Suitable substitute acceptable.
2D	Furnish exact quantity requested; i.e., do not adjust to unit pack quantity.
2F	Item known to be coded 'obsolete' but still required for immediate consumption.
2J	Do not substitute or backorder any unfilled quantities.
2N	Item required in one continuous length as expressed in quantity and unit of issue.
6C	If unable to ensure availability before expiration of priority, reject and furnish a supply source from which purchase may be made.
6N	Item is required for an AWP end item.
6Z	Routed repair replacement requirement (fill or kill) (for AFRAMS only).

Table 14.14. G004L Message Codes/Purpose Message.

Codes	Purpose
*A	Denotes a manual production count transaction which was rejected because it was processed against a JON with a PCI equal to A.
ERR*	Denotes a transaction has data element error.
ERR-D	Denotes that the control data (request number, CN/JD, operation number, JON, etc.) is duplicate of a record already on a master file in the G004L system. The master record which this transaction duplicates is printed for visibility so that analysis can be accomplished to determine if just the control data duplicated on the entire transaction duplicates the master record already in the file. The master record which has the same control data as the rejected transaction will appear on the product with a REF-D message code. Those transactions which completely duplicate an existing record need no further action. Those which duplicate only the control data must be corrected by assigning no duplicative data.
ERR-F	Denotes that an AFSC Form 237 C transaction was submitted in a calendar time frame that is prior to the project order period indicated on the request number master file as input on the AFMC Form 206 or AFSC Form 206. The AFSC Form 237 C transaction cannot be input until the project order period is equal to the processing period of the AFSC Form 237 C transaction. ERR-I denotes an erroneous transaction in an attempt to update a JON Master Record.
ERR-J	Denotes an erroneous JOQ change to a DIOH-related record which would decrease the JOQ value below the JON induction balance (AFSC Form 930 transaction).
ERR-U	Denotes a transaction was processed which was unmatched to the JON Master files.

ERR-B	Denotes a valid AFMC Form 206 or AFSC Form 206 B transaction processed which established a temporary JON Master Record. EST-C denotes a valid AFSC Form 237 transaction was processed which established a temporary JON Master Record only after AFMC Form 206 or AFSC Form 206 was valid as EST-B.
EST-F	Denotes a valid AFSC Form 600 transaction processed and established in the permanent JON Master (PJM) Record. EST-G denotes a valid transaction processed which set up a serialized JON Master Record (G transaction).
EST-P	The first valid induction has been made to open a new permanent JON.
CHG-A	Addendum has been processed and changed the EISP. It appears on the L2A report with pound signs over the EISP.
CHG-D	Denotes a deletion transaction (H6/H8) which processed against a JON Master Record.
CHG-H	Denotes an AFSC Form 930 transaction was processed which changed data in the Master Record (# over data element denotes a change in that element).
CHG-M	Denotes that the element with #s over it has been mass changed.
REF-A	Denotes a valid AFMC Form 206 or AFSC Form 206, part I (A transaction) processed which establish Request Number Master Record.
REF-B	Denotes a valid transaction was processed to a temporary JON Master Record.
REF-D	Denotes a master record which has had a transaction attempt to duplicate the control data for this record. The transaction was rejected with an ERR-D message. The master record is printed for visibility so that the initiator of the transaction can determine if the input transaction completely duplicates this record or whether just

Table 14.15. 244 Transaction/971 Error Codes (G004L-L2A).

Code	Error Code	Description
L	C	Purpose: This 244 transaction was rejected because its JON (CN/JD/JON suffix) had been closed.
		Cause: The JON in the original 244 transaction may be wrong.
		Action: If the JON is wrong, obtain the scheduler's suspense file copy of the rejected 244 transaction, correct JON (including CN/JD and suffix), and change the action suffix to PK. The document identified, document number, condition code, cost code, stock number, and quantity must be identical to these elements in the rejected 244 transaction. Input this correction to D035 over an MXSG remote.
L	N	Purpose: This 244 transaction was rejected because the completion had already been reported against the serial number in the transaction.
		Cause: This condition was identified by the current serial number master showing JON is closed.
		Action: Research must be initiated to ensure the correct serial number and JON was reported. If the correct number was reported and the serial number was completed by the turn-in of this transaction, the MA G004L system monitor must be notified immediately to help resolve any problem resulting from the incorrect posting to the serial number master and the end item master.

L	E	Purpose: This code indicates that some data element in the end item master record is in error and, therefore, this transaction was rejected. For reference purposes, the data on the master record for this JON will also be printed as a 2 and ERR* reason code on the Daily End Item Production Account Visibility and Cross-Reference Listing (G004L-L2A).
		Cause: In most cases the FCRN or PCN is invalid.
		Action: Call the workloader for assistance in correcting the master record. When the record is corrected, re-input the rejected transaction with Action suffix.
L	J	Purpose: This 244 transaction rejected because its quantity would have made the production issued exceed the job order quantity.
		Cause: Either the JON on the 244 transaction D7 issue transaction was wrong or the original JOQ was wrong.
		Action: If the JON was wrong, obtain the scheduler's suspense file copy of the rejected 244 transaction, correct the JON, and change the action suffix to PK. The document identifier, stock number, quantity, condition code, and cost code must, be identical to the rejected transaction. Input the corrected 244 transaction through D035 to G004L. A temporary JOQ cannot be increased once a job has a JON assigned. If the JOQ is wrong, process an AFSC Form 930 with action 2 through the workloader to adjust the JOQ. After G004L-L2A is received by the scheduler to show that the correction processed, prepare and input a 244 transaction correction (action suffix PK) as above.
L	K	Purpose: This 244 transaction rejected because the master record for this

Table 14.16. Material Condition Codes.

Code	**Description**	Definition
A	Serviceable balance (issued without qualification)	New, used, repaired, or reconditioned material which is serviceable and assumable to all customers without limitation or restriction.
B	Serviceable balance (assumable without qualification)	New, used, repaired, or reconditioned material which is serviceable and assumable for its intended purpose but which is restricted from issue to specific units, activities, or geographical areas by reason of its limited usefulness or short service life expectancy.
C	Serviceable balance (priority balance)	Items which are serviceable and assumable to selected customers but which must be issued prior to issuing material condition coded A and B to avoid loss as a usable asset.
D	Technical Order Compliance (TOC) balance	Serviceable material which requires test, alteration, modification, conversion, or disassembly. This does not include items that must be inspected or tested immediately prior to issue.

E	Unserviceable balance (limited restoration)	Material which involves only limited expense or effort to restore to serviceable condition which is accomplished in the storage activity where the stock is located. May be issued to support ammunition requisitions coded to indicate acceptability of usable condition E stock.
F	Unserviceable balance (reparable)	Economically reparable material which requires repair, overhaul, or reconditioning. Includes reparable items that are radioactively contaminated.
G	Unserviceable balance (incomplete)	Material requiring additional parts or components to complete the end item prior to issue.
H	Unserviceable (no balance) (condemned)	Material determined to be unserviceable and is uneconomical to repair. Includes condemned items that are radioactively contaminated.
J	Suspended balance (in stock)	Material in stock that has been suspended from issue pending condition classification or analysis, where the true condition is not known.
K	Suspended balance (returns)	Material returned from customers or users and awaiting condition classification.
L	Suspended balance (litigation)	Stocks held pending litigation or negotiation with contractors or common carriers.
M	Suspended in-work balance (due-in from overhaul - DIOH)	Material identified on inventory control records but which has been turned over to a maintenance facility or contractor for processing.
P	Unserviceable balance (reclamation)	Material determined to be unserviceable or uneconomically reparable as a result of physical
		inspection, teardown, or engineering decision. Item contains serviceable components or assemblies to be reclaimed.
Q	Suspended balance (Material Deficiency Report - EI exhibit)	EI exhibits returned by customers/users as directed by the IM as a result of reported material deficiency.
R	Suspended balance (reclaimed items awaiting condition determination)	Assets turned in by reclamation activities which do not have the capability to determine the material condition.
X	Unserviceable balance (IM hold)	Unserviceable material placed in condition X by inter-condition transfer only, as directed by the IM (reference AFI 23-101 for further definition, control, and handling).
Y		In-transit to Maintenance
Z	Condition A, B, C	In-transit from Maintenance
Z1	Condition E, F, G, J, K, L	In-transit from Maintenance
Z2	Condition H, P, S	In-transit from Maintenance

Table 14.17. AFSC Form 105 – Special Instructions for Maintenance of Workload Record.

Block / Column	Entry
1	Enter the stock number of the end item as assigned to the production number on the G004L-G1A.
2	Enter the production count indicator reflected on the latest G1A.
3	Enter the standard labor hours required to produce one end item.
4	Enter the number of flow days required to produce one end item.
5	Enter the delivery date as shown on the latest G004L-L3A product for temporary jobs. No entry required for permanent jobs.
6	Enter the appropriate CN/JD. Also enter JON suffix.
7	Enter the stock number of the item within a family group that must be modified to the master stock number configuration shown in block 1 if conversion is applicable.
8	Optional entry. Several NSNs may be contained in a family group.
9	Enter the appropriate DPC.
10	Enter the appropriate nomenclature of the item entered in block 1.
11	Enter the part number of the item entered in block 1.
12	Optional entry. Several NSNs may be contained in a family group.
13	Encircle the appropriate document to be used for production transactions.
14	Enter the appropriate product; in section/scheduling designator.
15	Enter the negotiated customer order quantity (input and output) and actual production for this JON period.
A	Enter the Julian date of the G004L-L2A which reflects the valid transaction.
B	Enter the last eight digits of the appropriate document number as indicated on the 244 transaction or 971 for both issues and turn-ins.
C	Enter the quantity of assets ordered on the applicable 244 transaction or the 971.
D	This column is divided by a diagonal to provide for two entries. The top portion of column D is provided so that the actual quantity of assets received for a transaction is recorded. The bottom portion of column D is provided to keep an accumulative total asset inducted against the JON. All assets (straight job designators) returned to supply in other than serviceable condition would be subtracted from the quantity shown in the bottom half of column D. If the assets are received after other document entries have been made in column B, an X is placed on column A and the document number, quantity ordered, and quantity received are re-entered as a new line entry in the appropriate columns.
E	Enter the quantity of assets that have been drawn into maintenance but have not been placed in work. These assets are awaiting maintenance (AWM), are not on work order (OWO), and are not awaiting parts (AWP).
F	Enter the quantity of assets that have been drawn into maintenance, but are AWP. These assets are not OWO and are not AWM. These assets must have been OWO before being transferred to the AWP balance.
G	Column G is used to keep an accumulative account of assets in the shop that are in work and are not AWM, and are not AWP. The quantity OWO in this column must be decreased according to the following criteria:

	(1) When the asset is returned in serviceable condition.
	(2) When the asset is returned in reparable condition. (Only if the asset is OWO; does not apply if the asset is part of the AWM balance and is returned in reparable condition from AWM.)
	(3) When the asset is returned in non-serviceable condition (except condition code G).
	(4) When the asset is returned in G condition. (Only if the asset is OWO: does not apply if the asset is part of the AWP balance and is returned in G condition from AWP.)
	(5) When the asset is transferred to either the AWI or AWP balance from OWO.
H	The top portion of the diagonal will indicate the serviceable production quantity (no cumulative) for the specific 244 transaction or 971 line item transaction. The lower portion will show the accumulative total date. A V should be entered beside the no cumulative quantity to denote the turn-in of a misidentified item. In these instances, the cumulative total from the previous entry must be brought forward and the misidentified quantity deducted from the cumulative quantity received total to date, (column D).
I	The top portion of the diagonal will indicate the quantity (no cumulative) of reparable items returned to supply on a specific reparable document number turn-in. The lower portion will show the cumulative total to date. A V should be entered beside the no cumulative quantity to denote turn-in of a misidentified item. In these instances, the cumulative total from the previous entry must be brought forward and the misidentified quantity deducted from the cumulative quantity received total to date, (column D).
J	The top portion of the diagonal will indicate the quantity (no cumulative) of condemned items for specific 244 transaction or 971 line item transactions. The lower portion will show the cumulative total to date. A V should be entered beside the no cumulative quantity to denote the turn-in of a misidentified item. In these instances, the cumulative total from the previous entry must be brought forward and the misidentified quantity deducted from the cumulative quantity received total to date (column D).
K	This column is for optional use, remarks, etc.

Table 14.18. AFSC Form 130 – Special Instructions for Maintenance of Production Asset Control Record.

Block / Column	Entry
1	Enter stock number of the end item as assigned to the production number on the G004L-G1A.
2	Enter the appropriate CN/JD. (A single form may be used for multi suffixes on the same CN/JD.)
3	Enter the appropriate production section/scheduling designator.
4	Enter the appropriate nomenclature of the item entered in block 1.
5	Enter the appropriate DPC.
6	Enter the production count indicator of “A” for automatic or “M” for manual.

7	Enter the standard labor hours required to produce one end item.
8	Enter the appropriate number of flow days required to produce one end item.
9	Enter the part number of the item entered in block 1.
10	Enter the delivery date as shown on the latest G004L-L3A product for temporary jobs. No entry required for permanent jobs.
11	Enter the negotiated customer order quantity (input and output) (244/971 transaction) and actual production (244/971 transaction) by quarter.
12	Enter the stock number of the item within a family group that must be modified to the master stock number configuration shown in block 1 if conversion is applicable.
13	Optional entry. Several NSNs may be contained in a family group.
A	Enter the Julian date of the G004L-L2A which reflects the valid transaction.
B	Enter the last eight digits of the appropriate document number as indicated on the 244 transaction or 971 transaction for both issues and turn-ins.
C	Quantity ordered.
D	This column is divided by a diagonal to provide for two entries. The top portion is provided so that the actual quantity of assets received for a transaction is recorded. The bottom portion is provided to keep an accumulative total of assets inducted against the JON. All assets (straight job designators) returned in other than serviceable condition will be subtracted from the quantity shown in the bottom half.
E	Enter the quantity of assets that have been drawn into maintenance, but have not been placed in work. These assets are AWM and are not OWO and are not AWP. Identify transaction type, 244 transaction or 971.
F	Enter the quantity of assets that have been drawn into maintenance but are AWP. These assets are not OWO and are not AWM. These assets must have been OWO before being transferred to the AWP balance. Identify transaction type, 244 transaction or 971.
G	Column G is used to keep an accumulative account of assets in the shop that are in work and are not AWM, and are not AWP: The quantity OWO in this column must be decreased according to the following criteria:
	(1) When the asset is returned in serviceable condition.
	(2) When the asset is returned in reparable condition. (Only if the asset is OWO; does not apply if the asset is part of the AWM balance and is returned in reparable condition from AWP.)
	(3) When the asset is returned in non-serviceable condition (except condition code G).
	(4) When the asset is returned in TOC condition.
	(5) When the asset is returned in G condition. (Only if the asset is OWO; does not apply if the asset is part of the AWP balance and is returned in G condition from AWP.)
	(6) When the asset is transferred to either the AWM or AWP balance from OWO.

H	The top portion of the diagonal will indicate the serviceable production quantity (no cumulative) for the specific AFTO Form 244, *Industrial/Support Equipment Record,* transaction or 971 line item transaction. The lower portion will show the accumulative total to date. A V misidentified item. In these instances, the cumulative total from the previous entry must be brought forward and the misidentified quantity deducted from the cumulative quantity received total to date (column D).
I	The top portion of the diagonal will indicate quantity (no cumulative) of repairable items returned on a specific document number turn-in. The lower portion will show the cumulative total to date. A V should be entered beside no cumulative quantity to denote the turn-in of a misidentified item. In these instances, the cumulative total from the previous entry must be brought forward and the misidentified quantity deducted from the cumulative quantity received total to date (column D).
J	The top portion of the diagonal will indicate the quantity (no cumulative) of condemned items for the specific 244 transaction or 971 line item transaction. The lower portion will show the cumulative total to date. A V will be entered beside the noncumulative quantity to denote the turn-in of a misidentified item. In these instances, the cumulative total from the previous entry must be brought forward and the misidentified quantity deducted from the cumulative quantity received total to date (column D).
K	The top portion of the diagonal will indicate the quantity (noncumulative) of technical order compliance (TOC) items returned on a specific document number turn-in. The lower portion will show the cumulative total to date. A V should be entered beside the noncumulative quantity to denote the turn-in of a misidentified item. In these instances, the cumulative total from the previous entry must be brought forward and the misidentified quantity deducted from the cumulative quantity received total to date (column D).
L	This column is for optional use, remarks, etc.
Note: Column E through K 244 transaction and 971 balances must be maintained separately.	

14.82. WAD Edit Notes.

14.82.1. Type of Work, Position 5 of PON see **Table 14.19.**

Table 14.19. WAD Edit Notes.

Type	Meaning
1	Aircraft
2	Missiles
3	Engines
4	MISTR
5	Other Major Ends Items
6	Other System Manager/Item Manager (SM/IM) Workload
7	Non-SM/IM Directed Workload
Note: Types 1, 2, and 5 require serialized reporting (DPC 2 or 9). Types 6 and 7 may have serialized reporting. Types 3 and 4 may not have serialized reporting.	

Table 14.20. End Item Identity Configuration Numbers.

Code	Meaning
1	Mission Design Series; used for aircraft, missiles and engines.
2	BPO; Blanket Process Order; used for item control numbers on PME and non-PME Cost Class 4 work.
3	NSN; NC or ND; National Stock Numbers: Non-cataloged or Non-listed numbers.
4	K-numbers for Kits; L – numbers, and Part Numbers CAI; Customer Account Identity; used on C- prefix work.

14.83. JON Suffix Edit for Permanent JONs.

14.83.1. JON Suffix Edit for positive induction transactions (J/R and D7 transactions) against permanent JONs.

14.83.2. To prevent the induction of assets against a JON for a prior period, apply the following edits:

14.83.2.1. If the JON suffix is all alpha or all numeric, the JON record must carry a DPC 2 or 9 (serialized). The exception to this rule is when the suffix is all-numerical because a DMISA job is involved (reimbursement codes of G, H, I, or N and ownership purpose codes of 1, 4, or 5).

14.83.2.2. Those transactions with alpha or numeric JON suffixes and DPC of 2 or 9 will not have the suffix edited. Those with numeric JON suffix and a reimbursement code of G, H, N, or I will have the FY and quarter edit applied as reflected below. Those transactions with an all numerical suffix and other than above will be rejected with '*' over the JON.

14.83.2.3. If the JON suffix is alphanumeric, the edits below are applied:

14.83.2.3.1. If a monthly JON suffix has been established in a fiscal quarter, a quarterly JON suffix cannot be established in the same fiscal quarter. If a quarterly JON suffix has been established in a fiscal quarter, a monthly JON suffix cannot be established in the same fiscal quarter for the same end item.

14.83.2.3.2. If the EISP is greater than or equal to $15,000, a monthly JON suffix must be used. If the EISP is less than $15,000, a monthly or quarterly suffix may be used. Any transaction that fails these edits will be rejected with '*' over the JON.

Figure 14.12. JON Suffix Edit for Permanent JONs.

If As of Month is Then FY/FQ of JON suffix must be:
_____when (**Note:** CFY=current fiscal year, PFY=previous fiscal processing year)

Oct CFY/1 or A or PFY and an M in the second position (for replacement of nonserviceable assets only)
Nov CFY/1 or B or PFY and an M in the second position (for replacement of nonserviceable assets only)
Dec CFY/1 or C or PFY and an M in the second position (for replacement of nonserviceable assets only)
Jan CFY/2 or D

Feb CFY/2 or E Mar CFY/2 or F Apr CFY/2 or G May CFY/3 or H Jun CFY/3 or I Jul CFY/4 or J Aug CFY/4 or K Sep CFY/4 or L

14.83.3. This edit will be applied to all positive induction transactions (D7/244 transactions, J and R/971s) with permanent control numbers.

Table 14.21. Computer Assignment of Production Count Indicator (PCI) for Temporary JONs.

JON Prefix	PCI Assigned
A	A
C	M
M	As Input
T (Serialized)	M
T (Nonserialized)	As Input
T (DPC S)	A

14.84. D035 System Edits Against 244 Transactions.

14.84.1. Material Transactions. (Type trans code must not equal P).

14.84.1.1. Permanent Control Numbers: Must match G004L on nine positions if JON Classification Code (JCC)=A; six positions if JCC=B.

14.84.1.1.1. D6 transaction: JON status code (JSC) must be 0, 1, Z, or D.

14.84.1.1.2. D7 transaction: JSC must be 0 or 1.

14.84.1.2. Temporary Control Numbers: Must match G004L on CN/JD.

14.84.1.2.1. D6 transactions: no edit on JSC.

14.84.1.2.2. D7 transactions: JSC must be 0 or 1. Edits do not apply to backorders. Above edits do not apply to backorders.

14.84.2. Production Item Transactions. (Type Trans code is P and M for DF1.)

14.84.2.1. Permanent JONs: Must match G004L on nine positions and JSC must not equal D.

14.84.2.1.1. All D6 or DF1 (+ or -).

14.84.2.1.2. D7 reversals.

14.84.3. Permanent JONs: D7 positive transactions may match G004L on all nine positions.

14.84.3.1. If matched, JSC must not equal ‘D’ or ‘1’ and the transaction must pass the JON suffix edit (reference paragraph 14.18. for Priority Codes).

14.84.3.2. If unmatched, must match on CN/JD and pass JON suffix edit. The JSC is not examined.

14.84.4. Temporary JONs: Must match on CN/JD. The JSC will never be blank. A 125 must be input into G004L so that JSC will become 0. Assets or material cannot be drawn out of supply until JSC is 0.

14.84.4.1. JSC 0 is an active JON.

14.84.4.2. JSC 1 is a completed JON.

14.84.4.3. JSC D is a deleted JON.

14.84.4.4. JSC Z is a cancelled JON.

14.84.5. Additive Production Item Edit. The transactions (D6) for production items will also be edited to contain PSSD in the organization identify field for cost codes P, F, H, or V (position 79). Transactions without a nine in position 34 will cause an 'F' coded reject.

Table 14.22. D035 JON Suffix Edits 244 Production Transactions.

3d Position =		OPC must =	
If	O	Then	A
If	A	Then	A
If	1	Then	1
If	4	Then	4
If	5	Then	5

14.85. Data System Products and Descriptions.

14.85.1. Data Products. Reports are prepared daily (D), weekly (WK), monthly (MO), quarterly (QTR), and as required (AR). A listing of G004L products is as follows:

Table 14.23. G004L Products.

FILE ID/PCN/RCS	Full Title	Freq
A-G004L-A2X-D1-MAA	ALPA2 Control List	D
A-G004L-A3X-D1-MAA	ALPA3 Control List	D
A-G004L-A4X-D1-MAA	ALPA4 Control List	D
A-G004L-A5X-D1-MAA	ALPA5 Control List	D
A-G004L-B1X-D1-MAB	ALPBl Control List	D
A-G004L-B2X-D1-MAB	ALPB2 Control List	D
A-G004L-D1X-D1-MAA	ALPD1 Control List	D
A-G004L-D2X-D1-MDD	ALPD2 Control List Part 1	D
A-G004L-D2X-D1-MDD	ALPD2 Control List Part 2	D
A-G004L-E1A-RO-MAE	Validation Stack Visibility List	AR/WK
A-G004L-E1B-RO-MAE	Validation Stack (on Microfiche)	AR/WK
A-G004L-E1X-RO-MAE	ALPE1 Control List	AR/WK
A-G004L-E2X-RO-MAE	ALPE2 Control List	AR/WK
A-G004L-E3A-E3-ME3	Mass Change Error List	QTR/AR
A-G004L-E3X-E3-ME3	ALPE3 Control List	AR
A-G004L-F1X-W1-MFF	ALPE1 Control List	MO

A-G004L-F3A-M1-MFF	Maintenance Earned Hours Analysis RCS: LOG-MA (M) 8101	MO
A-G004L-F3B-M1-MFF	Monthly Production Count Summary List	MO
A-G004L-F3C-M1-MFF	Cost Class 4 Man-hour Summary by List Performing RC/CC, Part 1, and by Requesting Organization, Part 2	MO
A-G004L-F3X-M1-MFF	ALPF3 Control List	MO
A-G004L-G1A-W1-MGG	JON Master List JON Sequence	WK/MO
A-G004L-G1X-W1-MGG	ALPG1 Control List	WK/MO
A-G004L-G2X-W1-MGG	ALPG2 Control List	MO
A-G004L-G3X-W1-MGG	JON Master/Temp Lbr Std/Valid End Item Production	WK/MO
A-G004L-G3A-W1-MGG	JON Master/Temp LSM/Temp BOM PSSD Seq	WK/EOM
A-G004L-G3B-W1-MGG	JON Master List Stock Number Sequence	WK/MO
A-G004L-G3D-W1-MGG	Temporary Workload Status by PCN/JON (Totals by PCN)	WK/MO
A-G004L-G3F-W1-MGG	AFMC Form 206 or AFSC Form 206 work ALCXX by RSC: LOG-LO (AR) 8211 PCN/Req No. (Totals by PCN)	WK/MO
ALCXX by Req No. RSC: LOG-LO (AC) 8211		
A-G004L-G3X-W1-MAG	ALPG3 Control List	WK/MO
A-G004L-G5A-W1-MGG	Temporary Production Number Deletions/and Permanent Production Number Deletions	MO
A-G004L-G5B-W1-MGG	Temporary Work Loading/CN Assignment Backlog of Job Request	WK/MO
A-G004L-G5C-W1-MGG	Planning Backlog of Temporary Job Request	WK/MO
A-G004L-G5D-W1-MGG	Planning Backlog of Temporary Request	WK/MO
A-G004L-G5E-W1-MGG	Temporary Workloads by PCN/RC/CC (Summary line by PCN)	WK/MO
A-G004L-G5F-W1-MGG	Planned Temporary Workloads by PSSD/RC/CC	WK/MO
A-G004L-G5G-W1-MGG	G- and H- coded Items	MO
A-G004L-G5H-W1-MGG	Status of 72-10 Exchangeables/MISTR Items by MMC/Item Manager Code (IMC)	WK/MO
A-G004L-G5I-W1-MGG	Status of 72-10 Exchangeables/MISTR Items by PSSD	WK/MO
A-G004L-G5J-W1-MGG	Planned Temporary Workloads by RGC/RC/CC	WK/MO
A-G004L-G5K-W1-MGG	Planned Temporary Workloads by RC/CC/PSSD	WK/MO
A-G004L-G5X-W1-MGG	ALPG5 Control List	WK/MO
A-G004L-G6A-W1-MGG	Responsibility Scheduler's Review List	WK
A-G004L-G6X-W1-MGG	ALPG6 Control List	WK
A-G004L-G7X-W1-MGG	ALPG7 Control List	WK
A-G004L-H1X-M1-MHH	ALPH1 Control List	WK
A-G004L-K1X-D1-MLK	ALPK1 Control List	D

A-G004L-L2A-D1-MAA	Visibility and Cross Reference List	D
A-G004L-L2B-D1-MAA	RACOQ Listing – EOY (Sep-Dec)	D
A-G004L-L2C-D1-MAA	Daily Valid/Invalid Production Count	D
A-G004L-L2D-D1-MAA	Month-to-Date Transaction/Error Analysis Report	D
A-G004L-L2E-D1-MAA	AFSC Form 600A Listing	D
A-G004L-L3A-D1-MAA	All 2G Control List	D
A-G004L-L3B-D1-MAA	Temporary Job Record	D
A-G004L-L3C-D1-MAA	Daily Planner's List	D
A-G004L-L3F-D1-MAA	Serial Number Listing Parts 1 and 2	D
A-G004L-L3G-D1-MDA	Workloader's Review List-Permanent/Temporary Workloads	D
A-G004L-L3X-D1-MAA	ALPL3 Control List	D
A-G004L-L4A-D1-MAA	Reduced Temporary Job Report L4A	D
A-G004L-S1A-SP-MAE	EISP F/M Report	AR
A-G004L-S1B-SP-MAE	EISP Mismatch (Not in Sales Price Generator (SPG) in DMAPSIE)	AR
A-G004L-S1C-SP-MAE	EISP Mismatch (Not in G004L)	AR
A-G004L-W3A-W1-MWW	DIOH/In Maintenance Summary List (Exempt from	WK
Assignment of RSC by AFR 178-7		
A-G004L-W3B-W1-MWW	Maintenance Production History	WK/MO/ AR
A-G004L-W3C-W1-MWW	Maintenance Production History	WK/MO/ AR
A-G004L-W5A-W1-MWW	DIOH/In MA Out of Balance Supply Manager Sequence	WK
A-G004L-W5B-W1-MWW	Erroneous Production Transaction by SMC	WK
A-G004L-W5C-W1-MWW	DIOH/In MA Out of Balance PSSD/SN Sequence	WK
A-G004L-W5D-W1-MWW	Erroneous Production Transactions PSSD/SN Sequence	WK
A-G004L-W5E-W1-MWW	Non MISTR Asset Availability PSSD SM/SN Sequence	WK
A-G004L-W5E-W1-MWW	PS/SD Division DIOH/In Maintenance (Exempt from assignment of RCS by Out of Balance Recap IAW AFR 178-7)	WK

14.85.2. G004L-E3A. Mass Change Error List.

14.85.2.1. Specifications. This data is provided only when mass changes which contain invalid data are processed, or the quantity exceeds table capability.

14.85.2.2. Purpose. This list provides visibility of change problems requiring immediate action to correct. Reorganization or re-designation of identity is the normal situation for

use of mass changes. This necessitates valid table or file establishment to enable the production reporting to be accomplished.

14.85.2.3. Action. Research the erroneous data, determine who is responsible for correction, and ensure the timely submission of the proper transactions. The above will be coordinated with the appropriate organization.

14.85.3. G004L-F3B: Monthly Production Count Summary List

14.85.3.1. Specifications. The Monthly Production Count Summary List (F3B) is produced at the end of the month. It is listed in RC/CC, FC, JON, and operation number (ON) sequence.

14.85.3.2. Contents. The F3B report shows number of operations completed, operation standard hours, and earned hours for each operation against which production count was processed through the G004L system during the previous month. The earned hours are computed by multiplying the operations completed times the operation standard hours. An earned hour total is also shown for each FC within an RC/CC, and for each RC/CC.

14.85.3.3. Purpose. Maintenance management uses the F3B report to determine RC/CC activity in terms of workload done as compared to workload planned.

14.85.4. G004L-G1A: JON Master List by JON/FY.

14.85.4.1. Specifications. The G1A report is produced weekly and at EOM in JON sequence.

14.85.4.2. Contents. The GlA list shows all records from the PJM and the TJM. The records may be inactive production numbers without a JON suffix, or they may be active JONs in various stages of completion, as shown by the JON status code. This list will also show the financial (FCRN, PON, PCN, EILS) and identification data (EII, DPC, JON Status Code, PSSD, SOPI, etc.) associated with each JON as well as the quantitative data for each JON (inductions, completions, OWO balances, and JON).

14.85.4.3. Purpose. The G1A identifies all JONs currently in use. This is helpful in assigning CN/JD for new workloads, as well as a convenient cross-reference to learn the current status of a job when only the CN/JD or JON is known.

14.85.5. G004L-G3A: JON Master, Temp LSM, Temp BOM.

14.85.5.1. Specification. The G3A is an on-line/microfiche report. Its sequence is PSSD, JON, and ON.

14.85.5.2. Contents. The G3A consists of all records from the PJM, TJM, Temporary Labor Standard Master (LSM), and Temporary BOM files.

14.85.5.3. This report provides the schedulers information on the status of jobs for which they are responsible.

14.85.6. G004L-G3B: JON Master by EII.

14.85.6.1. Specifications. The G3B is a weekly/monthly summary report. It is sequenced by Stock Number and JON.

14.85.6.2. Contents. The G3B report shows all records from the PJM and TJM. The records may be inactive production number without a JON suffix or they may be active

JONs in various stages of completion, as shown by the JON status code. This list will also show the financial (FCRN, PON, PCN, EILS) and identification data (EII, DPC, JON Status Code, PSSD, SOPI, etc.). Associated with each JON as well as the quantitative data for each JON (inductions, completions, OWO balance, and JOQ).

14.85.6.3. Purpose. The G3B identifies all JONs that are currently in use. This is a convenient cross-reference to find out the current status of a job where only the stock number/EII is known.

14.85.7. G004L-G3D: Temporary Workload Status List by PCN/JON.

14.85.7.1. Specifications. The G3D report is an on-line/paper summary report. It is sequenced by PCN and JON, and distributed to MXSG personnel at local option.

14.85.7.2. Contents. The G3D report will show the current status of all A- and C- prefix JONs, local manufacture (M-Prefix), and non-serialized temporary T-Prefix JONs. Each line item will also show end item, earned hour, and cost data in three categories (i.e., planned, completed, and remaining) as well as the number of end items inducted. This quantitative data will also be summarized to PCN level.

14.85.7.3. Purpose. The G3D is to provide the current status of all A - and C- prefix JONs, manufacture (M-Prefix Jobs) and non-serialized temporary (T-Prefix) JONs. The data is sequenced and summarized by PCN to help maintenance workloaders determine whether to accept or to reject new job requests (AFMC Form 206 or AFSC Form 206).

14.85.7.4. Action. The report is primarily for use by workloaders, however, it is valuable to the IET to assess skill availability on new requirements and to determine if the delivery dates on new requests can be met.

14.85.8. G004L-G3F: Temporary Work at XX/ALC.

14.85.8.1. Specifications. This product is produced and is sequenced by ALC, PCN, and

Request Number. It contains a page break by ALC. The report is distributed weekly/end of month to MXSG Squadrons.

14.85.8.2. Contents. The date of the transaction affecting the system record is shown. A summary total by PCN is displayed and contains the planned total units and hours with expense material, DMS, CSAG-M monthly production quantity, total completions to date, current quarter earned hours, and the remaining planned units and hours.

14.85.8.3. Purpose. To provide visibility of temporary work requirements after planning has been complete and display work planned or in process by PCN.

14.85.8.4. Action. The hourly data are used to match to the PLA hours to maintain dollars status related to budgeted dollars for the PCN. The dollar cost for each request may vary from the anticipated cost and the obligated dollar value may require update. The delivery dates are checked to ensure timely support for requirement levied by each request.

14.85.9. G004L-G5A: Temporary Production Number Deletions/and Permanent Production Number Deletions.

14.85.9.1. Specifications. The G5A is sequenced by production number.

14.85.9.2. Contents. The product displays those temporary production numbers that have been deleted from the JON master file. At end of month, those numbers deleted will have carried status code 7 with no Quarterly Serviceable Completions (QSC) or Quarterly Condemnations (QC). At the end of the quarter, all temporary numbers with status code 7 will be deleted regardless of QSC or QC.

14.85.9.3. Purpose. To be used by OBW to maintain the temporary control number deck.

14.85.9.4. Action. Workloading will use the G5A list to file maintain the Temporary Control Number Assignment Cards.

14.85.10. G004L-G5C: Planning Backlog of Temporary Job Requests.

14.85.10.1. Specifications. The G5C is sequenced by PO/PTC, priority, delivery date, and request number with a page break by PO/PTC.

14.85.10.2. Contents. This report will show one line item for each B transaction that has processed validly but has not received a corresponding C transaction (AFSC Form 237 header segment with the same production number). The report will display all the data from AFMC Form 206 or AFSC Form 206, parts 1 and 2 if a full PO/PTC has been entered by the workloader that data will be shown and it will be the primary sequence (major key) of the report. If the workloader only entered the planning section, the G004L system will develop that into a temporary PO/PTC like MA__EXX where the planning section is substituted for the underscore (_). In this case, the appropriate IET must enter his/her actual PO/PTC in the header segment of and produce a temporary job record (G004L-L3A).

14.8.10.3. Purpose. This list identifies all AFMC Forms 206 or AFSC Forms 206 that represent a backlog for individual IETs and the planning function as a whole. This data will also be printed in the sequence that the job request should be processed; that is, priority, delivery date, and request number (within each PO/PTC).

14.85.10.4. Action. This list is used by the planning unit supervisor and item IETs to determine which request should have the labor and material requirements planned next. It is provided as of the end of the week and contains those requests that OBW has accepted and given control number assignment. The delivery date and priority of the requirement are used to determine the ranking sequence. Data reflected from parts 1 and 2 of accepted, valid AFMC Forms 206 or AFSC Forms 206 are listed for each request number. A Status of Planning Indicator (SOPI) column has been added to the G004L-G5C product. When the AFSC Form 237 is checked as incomplete by the IET, an 'I' will appear in the SOPI column.

14.85.10.5. This record will remain on the G004L-G5C until completed planning action is submitted. A blank in the SOPI column will indicate no planning action has been taken.

14.85.11. G004L-G5G: G and H Coded Items.

14.85.11.1. Specifications. The G5G report is sequenced by POPTC/JON with a page break by PO/PTC.

14.85.11.2. Contents. Condition code G means reparable incomplete, and it is used when an end item cannot be made serviceable due to a prolonged parts shortage. Condition

Code H means condemnation. Both codes mean that maintenance cannot be paid for the end item on straight job designators including MISTR work with a job designator.

14.85.11.2.1. The G5G report will show data on completed JONs when the JON has had one or more turn-ins with a G or H condition code. The G5G report will also show the computed condemnation factor using the following formula: Condemnation Factor = (H Code Turn-Ins) / (H Code Turn-Ins + JON Completions).

14.85.11.3. Purpose. The purpose of the G5G report is to display the G coded turn-ins for better control in maintenance. This report will also aid the IET in developing a more accurate condemnation factor.

14.85.11.4. Action. The IET will use the computer developed condemnation factor to evaluate the adequacy of the labor standards and update as required to ensure a breakeven position between cost and end item prices. The workloading control technicians will use the G code data to determine the appropriate action required to ensure a viable financial status for the end items. Negotiation with the IM and schedulers may be desired to maintain asset availability and proper shop workloading. In some cases, sales for G code items may be negotiated.

14.85.12. G004L-G5H: Status of 72-10 Exchangeable/MISTR Items by MMC/IMC. This listing is furnished to the appropriate MM and produced weekly and at the end of the month. This product displays the same data as the G5I except the sequence is MMC/IMC.

14.85.13. G004L-G5I: Status of 72-10 Exchangeables/MISTR Items for PSSD.

14.85.13.1. Specifications. G004L-G5I report will be produced weekly and at the end of the month on line.

14.85.13.2. Contents. This report summarizes the 244 and 971 transactions. It also shows the current status of the 244 and 971 OWO balances.

14.85.13.3. Purpose. This report is used for review to ensure the data are compatible with the 72-10 exchangeable/MISTR checklist for the applicable engine/MDS. The report is also used to verify that the data are compatible with the Daily End Item Production Account Visibility and Cross-Reference List, G004L-L2A data.

14.85.14. G004L-G5K: Planned Temporary Workloads by RC/CC/PSSD.

14.85.14.1. Specifications. This product is sequenced by RC/CC and PSSD.

14.85.14.2. Contents. This report shows planned hours, earned hours, and remaining hours for JONs overdue and for JONs due in the next 30, 60, 90, and over 90 days.

14.85.14.3. Purpose. To provide visibility of planned Temporary Workloads (JON status code 0) by RC/CC this will be summarized by RC/CC, Production Flight, Squadron, Group, and ALC.

14.85.15. G004L-G6A: Responsible Scheduler's Review List.

14.85.15.1. Specifications. The G6A is a weekly product sequenced by PSSD and JON.

14.85.15.2. Contents: The G6A reports reflect the following information in JON sequence:

Figure 14.13. G6A JON Sequence.

Current status code. Data record established End item identity. Data processing code. Date of last action. Production delay code. JON inductions/job order qty/JON completions. JON earned hours. Monthly earned hours. Total planned hours. Remaining hours. Reasons for review. Permanent JON summary. Non-programmed JON summary.

14.85.15.3. Purpose. Provide a report that will identify JONs that require attention and provide a review of total hours for JONs inducted into the production section.

14.85.16. G004L-L2A: Daily End Item Production Account Visibility and Cross-Reference List.

14.85.16.1. Specification. This report is produced in PSSD and/o rJON and/or EII card code sequence.

14.85.16.2. Contents. This product shows all transactions submitted for G004L processing. All valid transactions appearing on the report will display a message indicating the type action taken. All invalid transactions will have the appropriate error code displayed, and if applicable, will have * indicators placed over the field(s) in error. Each valid and invalid transaction appearing on this report will trigger printing of the matching master record after all transactions for the JONs have been processed. It will display erroneous transactions generated, AFSC Form 930 transaction action codes 2, 3, 6, 7, or 8 (card code H), and interrogation transactions (card code T) which were submitted for processing against the master record. Each line on the report will display the reason for printing the entry. CHG will prefix the reason on those entries printed because a data overlay (AFSC Form 930 H transaction), or a PSSD/PO/PTC mass change has been processed against the master record. This entry displays the JON master record as it appears after the valid processing and update of the record. The fields that were changed on the record will be flagged by a # sign for facilitating verification of the change action. ERR will prefix the reason for erroneous entries, either a master record of an H or T type transaction, which was to have been processed against the JON master.

14.85.16.3. Purpose. To provide schedulers visibility of all valid and invalid transactions that affect production items for which they are responsible.

14.85.17. G004L-L2B: RACOQ Listing-EOY.

14.85.17.1. Specifications. The L2B is produced daily from September until 31 December.

14.85.17.2. Contents. The L2B contains a list of Permanent Non-serialized control numbers with RACOQ not equal to zero.

14.85.17.3. Purpose. The report is used to provide visibility of items that need to be inducted to satisfy the customer's requirements during year-end-closing-out processing.

14.85.18. G004L-L2C: G004L-L2C: FEMSs Valid and Invalid Transactions.

14.85.18.1. Specifications. The L2C report is produced daily. It is sequenced by RC/CC, FC, JON, and ON.

14.85.18.2. Contents. The L2C report displays valid and invalid FEMs transaction records and is sequenced by RC/CC/FC/JON/CN. The report also depicts production count source message. Count attempted for serialized workload without an induction will reflect asterisks over the JON.

14.85.18.3. Purpose. The L2C is prepared for review and correction of errors for re-input to the system.

14.85.19. G004L-L2D: Month to Date Transaction Error Analysis.

14.85.19.1. Specifications. The L2D product is produced on-line/paper daily.

14.85.19.2. Contents. The L2D displays, on a daily basis, the number of valid and invalid opening WADS, 244 and 971 transactions, and production count transactions. These quantities will be broken out by product group and a percent in error will be computed for each input.

14.85.19.3. Purpose. This report is to be used by management in ALC for transaction analysis.

14.85.20. G004L-L3A: Temporary Job Record.

14.85.20.1. Specifications. The L3A report is produced daily. Its sequence is

PO/PTC/JON/RC/CC/FC/ON with a page break by PO/PTC/JON. This product is produced when AFSC Form 237 has been processed validly and SOP1=C. A new L3A is produced when an LSM or BOM addendum or certain file maintenance transactions process.

14.85.20.2. Contents. This list shows all established data elements, labor operations, and material requirements for temporary JONs (Non-PME).

14.85.20.3. Purpose. This listing is used for record of new workloads or changes in existing workloads. Space is provided for signature/stamps as required for verification of work done.

14.85.21. G004L-L3B: Daily Planner's List.

14.85.21.1. Specifications. The L3B report is produced daily. The sequence is PO/PTC, JON, ON. The report will portray all valid/invalid transactions from AFSC Form 237 and AFSC Form 600 transactions, AFSC Form 930 transaction changes, and Part II of AFMC Form 206 or AFSC Form 206. Likewise; the L3B report is produced as a result

of the annual input of the FCRN mass change action to the PJM record by AFSC, Maintenance Cost Accounting, and the daily match of the PCN in the master JON record against the PCN table in the validation stack in G004L.

14.85.21.2. Contents. This report is structured with three tiers of data. One tier reflects AFSC Form 237 header and AFSC Form 600 transaction additions as well as AFSC Form 930 transaction changes to these data. The second and third tiers will contain LSM and BOM transactions input by AFSC Form 237 as well as AFSC Form 930 transaction changes to these data.

14.85.21.3. Purpose. The listing provides the IET a printout of all transactions rejected or processed resulting from processing of AFSC Form 237, AFSC Form 600, or AFSC Form 930 transactions. For permanent JONs, the listing tells the IET that labor and material standards can now be submitted. If the L3B is produced as a result of the annual FCRN mass change action, it will inform record under his/her jurisdiction for the subsequent year. However, processing the input document could produce an error message. If the PCN in the JON master record is not on the validation stack during the daily match, an error message will be reflected for the PCN on the L3B product.

14.85.21.4. Action. The IET must correctly input errors by pulling the suspense copy of the input data and verifying the entry on the list as being what should be contained; that is, rate, serial number, JON, EII, DPC, etc. If an FCRN change is reflected, this is for information only. No action is required. If an FCRN error is reflected as a result of the mass change action by AFSC, contact workloading personnel for corrective action. If a PCN error is reflected as a result of the daily mechanical match and the JON record is required, contact OBWW for reentry of the PCN to the validation stack. If the production number is not required, initiate deletion action on the permanent production number, immediate corrective action is required. Errors in data fields affecting EISP can result in an erroneous computation by the G004L system. This incomplete data will be forwarded to the customer by the G004L-L3C product. To avoid this, the IET should input the initial AFSC Form 237 and addenda with the incomplete planning status block checked, until the IET is sure all entries are valid. Planning completed can then be input with an additional addendum.

14.85.22. G004L-L3F: Serial Number Record Listing.

14.85.22.1. Specification. The L3F report is produced daily. Part 1 sequence is by JON and serial number. Part 2 of the report is sequenced by PON and serial number.

14.85.22.2. Contents. The product contains all serialized controlled workload being done on DPCs 2, 6, 7, 9.

14.85.22.3. Purpose. The L3F provides the visibility of valid serial number records and JON cross-reference which allows production count for serial number controlled end items.

14.85.23. G004L-S1A: EISP File Maintenance Report.

14.85.23.1. Specifications. This report is produced on-line/paper.

14.85.23.2. Contents. The S1A report reflects the new EISP and new FCRN by CN/JD and FY.

14.85.23.3. Purpose. The purpose of the report is to reflect all EISP changes input or those changed by the end-of-year overlay.

14.85.23.4. Action. Review this report to ensure the changes input were done properly. If an input was made to change an EISP or FCRN, and the change does not print out on the S1A report, it will have shown on either the S1B-S1C report. Those reports will then be reviewed and action taken.

14.85.24. G004L-S1B: G004L versus Sales Price Generator (SPG) in DMAPSIE EISP Mismatch Report.

14.85.24.1. Specifications. This report is produced on-line/paper.

14.85.24.2. Contents. The S1B report reflects the EII, PO/PTC, DPC, date established, date of last action, EILS, EISP, JON induction, source code, and FCRN.

14.85.24.3. Purpose. The purpose of this report is to reflect the JON of any item where an attempt was made to change the EISP of a record found in G004L, but no EISP was received from SPG in DMAPSIE. When the G004L picks up new EISPs from SPG in DMAPSIE at the end-of-year overlay, it will pick up only those changes that were in SPG in DMAPSIE before annual overlay prices were established. Any production numbers opened in G004L after this time will appear on the S1B report, not in SPG in DMAPSIE.

14.85.24.4. Action. For these items, immediate action is required to provide an input to the SPM.

14.85.25. G004L-S1C. S1B/S1C: G004L -VS- DDS EISP Mismatch Report.

14.85.25.1. Specifications. This report is produced on-line. It is issued when an EISP change has been input during the end of the FY overlay and the records were found in the SPG in DMAPSIE but the CN/JD is not found in G004L. The report is in CN/JD sequence and shows the applicable EISP.

14.85.25.2. Contents. The S1B/S1C report reflects CN, JD, JON SUF, FCRN, EISP, FYI, FUT FCRN, End Item Identity, POPTC, DPC, Date ESTAB, EILS, JONI, JSC, and error messages.

14.85.25.3. Purpose. The purpose of this report is to reflect the mismatched sales between the DDS system and G004L. Records from DDS that do not have a matched control number/job designator in G004L are flagged as such. Records that are on the G004L without a matching EISP in DDS are flagged as well.

14.85.26. G004L-W3A: DIOH/In Maintenance Summary List.

14.85.26.1. Specifications. This report is produced weekly and reflects a status summary of the DIOH records on the end item master file.

14.85.26.2. Contents. The list reflects the following:

Figure 14.14. G004L-W3A List.

1. Total number of supply-oriented JONs on the end item master. 2. Number of G004L stock numbers/OPC unmatched to the D035K system.

3. of G004L stock numbers/OPC with no long master in the D035K system.
4. Number of G004L stock numbers which should be changed to be compatible with D035K system.
5. Total number of G004L stock number/ownership purpose code (OPC) whose IN-MA equaled DIOH for stock number/OPC in D035K system.
6. Total number of G004L stock numbers/OPC whose IN-MA did not equal DIOH for stock number/OPC in D035K system.
7. Percentage of G004L records in balance at the stock number/OPC level.
8. Percentage of G004L records out-of-balance at the stock number/OPC level.
9. Total number of supply generated JONI/NONC erroneous transactions suspended.
10. Total number of maintenance generated JONI/JONC erroneous transactions suspended.
11. Percentage of JONs with stock number/POC out-of-balance by group.

14.85.26.3. Purpose. To indicate the number and percentage of out of-balance records between the IN-MA G004L and DIOH D035K.

14.85.27. G004L-W3B: Maintenance Production History by SN.

14.85.27.1. Specifications. The W3B is produced weekly and at end of-month. The sequence is SN/OPC/JON and D035K date.

14.85.27.2. Contents. This product reflects all valid maintenance production transactions that have appeared in the G004L-L2A. It also reflects, in the same sequence, valid and invalid production transactions that have appeared in the G004L-L2A.

14.85.27.3. Purpose. This product is used in researching transactions that need correction to determine whether or not a document was input to the system, and for any other purpose required in maintaining records in balance between D035K and G004L. It may also be used by scheduling personnel to reconcile AFSC Form 105/AFSC Form 130 balances.

14.85.28. G004L-W3C: Maintenance Production History by PSSD.

14.85.28.1. This product reflects the same data as the W3B except the sequence is by PSSD/JON.

14.85.29. G004L-W5A: DIOH/IN-MA In Maintenance Out-of-Balance Records by SMC/EII Sequence.

14.85.29.1. Specification. The W5A report is produced weekly and is sequenced by depot supply class manager code, stock number, ownership purpose code, and JON.

14.85.29.2. Contents. This product is produced to portray those JON records whose summarized IN-MA balances do not match the DIOH balance for the same stock number/OPC. The report may reflect that D035K has changed the stock number but that has the old SN recorder. The report also identifies by JON those stock number/OPC records which have no D035K record. It also identifies those JONs which are unmatched by SN/OPC to D035K. These are reflected by the message ‘No record in D035K’.

14.85.29.3. Purpose. This listing is a reference document to aid communication between the production scheduler and supply personnel.

14.85.30. G004L-W5B: Erroneous Production Transactions, by SMCISN Sequence.

14.85.30.1. Specifications. This report reflects all G004L erroneous production transactions. The report is sequenced to immediately follow the W5A report within supply manager class code.

14.85.30.2. Purpose. This report will be used to help reconcile the DIOH/IN-MA balances.

14.85.31. G004L-W5C: DIOH/IN—MA In Maintenance Out-of-Balance Records by PSSD.

14.85.31.1. Specifications. The W5C report is produced weekly and is sequenced by production section, scheduling designator, end item identity, ownership purpose code, and job order number.

14.85.31.2. Contents. This report reflects those JON records whose summarized IN-MA balances do not match the DIOH balance for the same stock number/OPC. Balances in transit to MA and Supply are also shown as well as individual OWO, AWM, and AWP balances by JON.

14.85.31.3. Purpose. This report is to be used by scheduling personnel and Supply personnel in reconciliation of out-of-balance conditions.

14.85.32. G004L-W5D: Erroneous Production Transactions by PSSD Report.

14.85.32.1. Specifications. This report is produced weekly and is sequenced to immediately follow the W5C report within PSSD.

14.85.32.2. Contents. All erroneous production transactions which have been suspended by the G004L system are reflected on this report until corrected or deleted.

14.85.32.3. Purpose. This report will be used to assist in reconciling the DIOH/IN-MA balances.

Table 14.24. Supporting Systems and Directives.

System		Directive
D012	Management, Planning and Control System (MPCS)	Pending
D035K	Retail Stock Control and Distribution Central Material Location	
D046	Base Account Screening Exercise System	AFI 23-101
D071	Stock Number User Directory	Chapter 18 of this manual
D087X	Execution and Prioritization of Repair Support System (EXPRESS)	Chapter 18 of this manual
D143B	Central Edit, Index, and Routing Subsystem	Chapter 18 of this manual
D143C	Air Force/FLIS Edit and Routing System	AFI 23-101
D200	Recoverable Consumption Item Requirements System	
E046B	Labor Standard Mechanization System	Chapter 2 of this manual
G004C	Workload Programming, Planning, and Control	AFMCI 65-101
G004L	Job Order Production Management System	Chapter 14 of this manual
G005M	Depot Maintenance Material Support System	Chapter 18 of this manual
G019C	MISTR Requirements, Schedules, and Analysis System	
G020	Mechanized Scheduling and Control System	Local Directive
DMAPSDIFMS	DMAPS-DIFMS Depot Maintenance Accounting and Production System - Defense Industrial Financial Management System	AFMCI 65-101
SPG/DMAPSIE	Sales Price Generator System (SPGS) in DMAPSIE	AFMCI 65-101
G097	Programmed Depot Maintenance Scheduling System (PDMSS)	AFMCI 21-133
G337	Inventory Tracking System (ITS)	

14.86. Supporting Systems and Functions.

14.86.1. D012 - Make IT–Management Planning and Control System. The 78th ABW/SC at WR-ALC is using D012 to provide the following functions: Quote/Order Processing, Processing Planning, Bill of Materials, Shop Floor Control (Labor Tracking, Quality), and Resources Control (Inventory, Shipping). D012 is not used by the Air Force (3 sites), Navy (1 site), and Private Industry.

14.86.2. D035K - Retail Stock Control and Distribution (SC&D) Central Material Location. The Retail SC&D system is designed to improve materiel management and customer support through standardization of distribution decisions and depot processes and provide rapid and positive response to logistics demands.

14.86.3. D046 - Base Account Screening Exercise System Interrogations. The D046 interrogation process is designed to provide an interrogation capability by stock number and by Federal Supply Class Manufacturer (FSCM)/reference number for data maintained in:

Figure 14.15. FSCM Items.

1. The Master Item Identification Control System (D043)
2. The Interchangeability and Substitutability Data Maintenance System (D097)
3. Defense Logistics Services Center (DLSC) files when the NSN or FSCM/reference number is not resident in the D043 system and with selected option codes
4. The Base Account Screening Exercise System (D046)
5. The Stock Number User Directory (SNUD) System (D071). It affords a means of obtaining current stock number related management data on a five-day-a-week basis and current FSCM/reference number related data and SNUD user registration data once a week.

14.86.4. D071 - Stock Number User Directory (SNUD). The SNUD is an ALC-operated data system which provides selective automatic distribution of stock number oriented management data. It is a means of associating stock numbers with stock record account numbers (SRANs) or assigned user account numbers to provide tailored automatic distribution of management data to meet the individual needs of each user registered in SNUD. This tailoring is based on user established interest in a specific stock number and type of management data registration established by the user, with selection of required transactions being accomplished electronically by SNUD. The need for manual research of reference documents, such as stocklists, machine listings, etc., to keep base records current has been minimized.

14.86.5. D087X – Execution and Prioritization of Repair Support System (EXPRESS). EXPRESS, an automated tool to support Pacer Lean and the Depot Repair Enhancement Program (DREP), performs the following functions: Prioritization of Aircraft Repairables (PARS); EXPRESS Prioritization Processor (EPP) and the supportability module. EXPRESS provides a single integrated priority list of all repair requirements. At an ALC, determines the ability of existing resources to support repair actions and provides the data and the mechanism to move item into repair. The source of repair/supply uses a mathematical model in PARS to prioritize repair and distribution of assets to the users from the source of the CSI. PARS take into account base flying activity, asset position, and the corporately established aircraft availability goals. EPP sets priorities for the repair of items which are not addressed in PARS and combines all priorities into a single integrated list for each repair shop. Assets which do not have aircraft availability goals are prioritized using Deepest Hole logic to try to fill the most critical need. EPP also provides the prioritized list to the distribution module, which identifies propositioning actions for serviceable parts as they come out of repair. The supportability module takes the prioritized repair list form the EPP and determines whether the required items can be repaired based on four evaluation criteria: Carcass availability, repair parts availability; repair funds availability and repair resources availability. Items which meet all of these criteria are entered onto the D035K EXPRESS table for transfer to the shop. Items which fail one or more of these criteria are identified to Shop PRO, where workload managers can resolve supportability constraints.

14.86.6. D143B - Central Edit, Index and Routing Subsystem. The D143B system is a key feature of the Air Force Recoverable Assembly Management System (AFRAMS). It is designed to provide all using systems with current and consistent management data for all stock numbers for which the ALC has AF item management (wholesale) responsibility [D032, Stock Control and Distribution System (SC&D)] and all stock numbers applicable to the local

special support system (D034A). The D1438 subsystem verifies SRANs and routes incoming products to appropriate data systems and ALCs.

14.86.7. D143C – Air Force/Federal Logistics Information System (FLIS) edit and routing system (AFERS). Provides the ALC with a single source for the input and routing of material identification data destined for Air Force, Defense Logistics Services Center (DLSC), and other services or agencies and cataloging systems participating in the Federal Logistics Information System (FLIS). DLSC/FLIS is also a source of input transaction to D143C. D143C has one job that runs at all 3 ALCs to handle the D143C Key plus input. All other batch jobs, including all interface processing, run only at WPAFB, Monday through Friday.

14.87. Added the following systems.

14.87.1. D200 – Requirement Data Bank. The Requirements Data Bank (RDB) system comprises a set of major logistics processes and models integrated by a large relational database. (RDB) automates and integrates the Air Force material requirements determination process which computes procurement and repair requirements for spares, repair parts, and major equipment items. RDB uses a planning period of 38 quarters and re-computes quarterly. The RDB is the repository of detailed information showing the indentured application of every individual part of each particular aircraft type or end item. Within this structure the system holds the historical and planning data needed to support computation of quantities for buy and repair. The data includes: Past and projected weapon system operating programs, future readiness goals, maintenance and modification schedules, item failure rates and condemnations. Data query, modeling, and management report generation are on-line.

14.87.2. E046B - Labor Standard Mechanization System. The E046B system provides the capability to set up and maintain labor standards for the ALC within the Air Force Materiel Command.

14.87.3. G004C - Workload Programming, Planning, and Control. The G004C system reflects the capability of the MXSG to perform all assigned workloads. This effort is supported by ALC/OBWW and the MXSG Resource Management Section (OBW) and Maintenance Industrial Fund Cost Section (ACFCI) at the various ALCs. The primary effort within OBW is the planning of depot level maintenance workloads to efficiently use available resources while satisfying the needs of its customers. This effort supports the MXSG customer negotiations process and allows a determination as to which of the stated workload requirements can be supported by the MXSG. This system provides the mechanized data in which the workload and resource posture is portrayed for the current plus four years.

14.87.4. G004L – Job Order Production Master System. Provides the basis for job order costing by end item identity. The system accounts for end items input to work, accumulates hours earned during the repair process, outputs these hours to other data systems for computation of effectiveness, creates work-in-process records, and accumulates production units completed for output to SPG in DMAPSIE at the job order level which results in revenue to offset costs incurred. The system provides many data products for use at different levels of management. **Note:** These products track production and how earned hours.

14.87.5. G005M - Depot Maintenance Material Support System. The G005M system is used to store, update, and retrieve data on standard Bills of Material, developed by MXSG material planning technicians, in direct support of items repaired by the ALC.

14.87.6. G019C - MISTR Requirements, Schedules, and Analysis. (MISTR = Management of Items Subject to Repair). The purpose of the G019C system is to provide the IM and SOR ALC with management information needed to respond to the short repair turnaround time required by the depot repair cycle. The system is used to schedule items for repair and monitor.

14.87.7. G020 – Mechanized Scheduling and Control System. To provide maintenance with scheduling and analysis data on reparable items.

14.88. DMAPS-DIFMS Depot Maintenance Accounting and Production System - Defense Industrial Financial Management System.

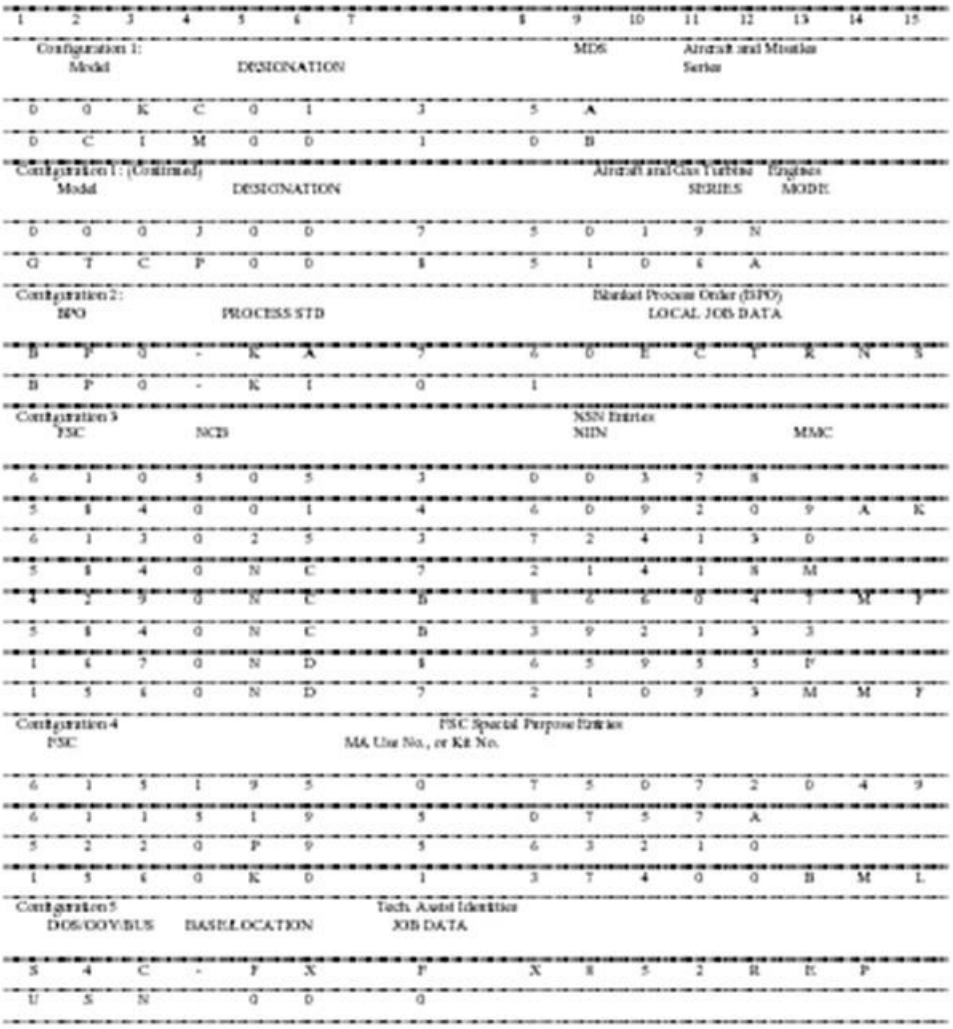
14.88.1. G097 – Programmed Depot Maintenance Scheduling System (PDMSS). The USAF standard project management information system, which facilitates planning, tracking, scheduling and execution, and performance measurement activities for programmed/unprogrammed Depot Maintenance Workload at Air Logistics Complexes (ALCs). The defense depot maintenance council Joint Policy Coordinating Group-Depot Maintenance (JPCG-DM) requirements supported by PDMSS include: Facilitate workflow scheduling by operation and major job, optimize resource allocation, manage capacity and labor utilization more effectively, facilitate competitive positioning, and strengthen performance measurement visibility.

14.88.2. G336 – Maintenance Workload Management System (MWMS). Provides personnel in the Production Groups the capability to establish and file maintain both the permanent workload requirements master records and the temporary work authorization records necessary to validate and authorize the accomplishment of workloads. IT also provides capability to electronically initiate, coordinate, and track current quarter renegotiations and quarterly negotiations. In addition, IT provides the capability to electronically initiate planning documents and file maintain existing planning data. Each of these transactions can be electronically transferred from one ALC to another along with data retrieval and data updates. MWMS was designed, written, and implemented by the systems prototype laboratory at OO-ALC.

14.88.3. G337 – Inventory Tracking System (ITS). Tracks repairable end items from time of induction to time of turn-in. IT assigns item tracking number to all parts as they come in and subsequently tracks them through disassembly, repair, and assembly. The system provides management information to all levels of management and provides inventory control. G337 legacy will be decommissioned upon full implementation of the G337 technical refresh (FY04).

Figure 14.16. G004L Edits.

End Item Identify Configuration Number Edit.



End Item Identity Configurations.

Variant A

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
2/ MDS Aircraft and Missiles	A	A	A	A	N	N	N	N				1/			
	0	A	A	A	0	0	0	1							
	0	0	A	A		to									
	0	0	0	A	9	9	9	9							

Variant B

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
2/ MDS Engines	A	A	A	A	N	N	N	N		AN		1/			
	0	A	A	A	0	0	0	1							
	0	0	A	A		to									
	0	0	0	A	9	9	9	9							

Configuration 2: Blanket Procure Order (BPO) identities are used for procure and services that apply to classes of end items.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
BPO	B	P	O	-	K	A	N	N				1/			
					to		0	1							
					K	I	to								
							9	9							

Configuration 3: Noncatalogued numbers (NC), Nonsignificant Numbers (NO), and national Stock Numbers (NSN).

	FSC 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
NC or NC	N	N	N	N	N	C	A N	N	N	N	N	N	AN	A	A
	1	0	0	5		or		0	0	0	0	0	1		
		to			N	D				to					
	9	9	9	5				9	9	9	9				

1/ Blank, Alphabetic or numeric characters are allowed. No special characters are allowed. After a blank occurs. The remaining positions of the end item identity must be blank.

2/ For proper formatting of all MDS entries, see the MDS table on the validation stack (AC004L-E1A/E1B).

	FSC 1	2	3	4	NCR 5	6	7	NIIN 8	9	10	MMC or blank 11	12	13	14	15
	N	N	N	N	N	N	N	N	N	N	N	N	N	A	A
	1	0	0	5	0	0	0	0	0	0	0	0	1		
		to			to										
	9	9	9	5	9	9	9	9	9	9	9	9	9	9	9

Configuration 4: K numbers (kit numbers), L numbers (locally assigned), or P numbers (part numbers).

	FSC				SERIAL NUMBER						MMC or Blank				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
K-Number	N	N	N	N	N	N	N	N	N	N	N	N	AN	A	A
	1/														
			FSC												
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
L-Number	N	N	N	N	L	N	N	N	N	N	N	N	N	N	N
	N	N	N	N	L	N	N	N	N	N	N	N	N	N	N
	1/														
		FSC													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
P-Number	N	N	N	N	P										
	1/														

1/ The first position of the K-, L-, and P- numbers cannot be zero(0)

2/ May contain A, N, blanks, or dashes. After a blank occurs, the remaining positions of the end item identity must be blank.

Configuration 5: Customer Account Identity (CAI).

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	A	A	A	-	A	A	A	A			2/				
											or				
	1/				0	0	0	0							

1/ All the allowable CAI codes are shown on the CAI table in the Validation Stock (A0704L-E1A/E1B).

2/ Blank, alphabetic, or numeric characters are allowed. No special characters are allowed. After a blank occurs, the remaining positions of the end item identity must be blank.

Work Authorization Document (WAD) Edit.

PDN 5th Position	Repair Group Category	Data Processing Code	End Item Identity Config. No.	Job Designator
1	A – Negotiated Aircraft	9	1	A-B-C-D-E-H
6	B – Other Aircraft	2-9-N-6-7	1	A-B-C-D-E-G-H-I-L-M-N-T
2	C – Negotiated Missile	2 – 9	1-3	A-B-C-D-E
6	D – Other Missile	2-9-N-T-6-7	1-3	A-B-C-D-E-G-L-M-N-T-H
3	E – Negotiated Engines	K	1	A-B-I
6	F – Other Engines	K – N	1	A-B-C-D-E-G-I-J-L-M-N-T-H
5	G – Negotiated Other Major End Items	2	3-4	A-B-C-D-E-J-M
6	H – Other Major End Items	9-K-N-T-U-6-7	3-4	A-B-C-D-E-G-H-I-J-K-L-M-N-Q-R-T
4	J – MISTR	T-X-U	3	A-C-H
5-6	K – Negotiated Project Directive	2-9-N-T	3-4	A-B-C-D-E-G-H-I-J-L-M-Q-T
6	L – Other Miscellaneous	9-N-T-U-6	3-4-5	A-B-C-D-E-G-H-I-J-L-K-M-N-Q-R-T
6	M – Area Support	2-N-P-T-U	1-3-4-5	A-C-G-H-I-J-M-N-R-T-K
7	N – Base Tenant Support	2-9-N-P-T-U-6	1-3-4-5	C-E-F-G-H-I-J-K*-L-M-N-R-T
6-7	P – Manufacture	T-U	3-4	K
6	R – Manufacture – Non AFSF	T-U	3-4	K
6-7	S – Special Support	2-N-T-9-U-6-7	1-3-4-5	N-G-I-J-K-M-N-T-U
0	W – O-M Overhead	N-P	2-3-4-5	I-T

* On local manufacture WADs (M Prefix & K JD) the DPC must be U on this line.

WAD Edit Extension (Temporary Jobs).

CN	EEICN	TYPE OF WORK	RGC	DPC	JD	COST CLASS	PCI
A-PREFIX (TYPE 7)	CAI #5	7	N/S	N	N	2	A
A-PREFIX (TYPE 6)	SEE WAD EDIT	6	SEE WAD EDIT	N	SEE WAD EDIT	2	A
C-PREFIX	CAI #5	6, 7	M/N/S	P	T	1	M
M-PREFIX	3,4	6, 7	VARIOUS PER WAD EDIT	T (D035) U (NON-D035)	K	1	A/M
S-PREFIX (PMI)	CAI #5	0	W	P	1	4	M
S-PREFIX (OTHER)	CAI	3, 4, 5	0	W	N	1	4
T-PREFIX SERIALIZED		SEE WAD EDIT				1, 2	M
T-PREFIX NON SERIALIZED		SEE WAD EDIT				1	A/M (23TC Transaction)
T-PREFIXED NON SERIALIZED TENNANT SUPPORT	S	7	N	S	1	1	A

WAD Edit Extension – Permanent (Logic Applied to DPC Changes).

CONTROL NUMBER	J/D	JON SUFFIX	OLD DPC	NEW DPC	OLD OWO	OLD AWM	OLD AWP	COMMENT/ ACTION
PERM	NA	BLANK	ALL	ALL	244/971=0	244/971=0	244/971=0	WAD Edit Applied
PERM	NA	NON-BLANK	K	T	N/A	244=0	244=0	WAD Edit Applied. Overlay (JONI with JONC) and (JONI-244 with JONC-244) and (JONI-971 with JONC-971), 0 the 244/971 OWO's.
PERM	NA	NON-BLANK	K	U	NA	NA	NA	WAD Edit Applied
PERM	NA	NON BLANK	K	X	NA	244=0	244=0 244/971	WAD Edit Applied. Overlay (JONI with JONC) and (JONI-244). 0 the OWO's.

PERM	NA	NON-BLANK	K	N	NA	NA	NA	WAD applied. Overlay (971-OWO with 244-OWO) and (JONI-971 with JONI-244) and (AWM-971 with AWM-244) and (AWP-971 with AWP-244). 0 the 244-OWO/AWM/AWP/JONC/JONI.
PERM	NA	NON-BLANK	N	T	NA	971=0	971=0	WAD edit applied. Overlay (JONI with JONC) and (JONI-971 with JONC-971). 0 the 244/971-OWO/AWM/AWP/JONI/JONC.
PERMN	NA	NON-BLANK	N	K,U	NA	NA	NA	WAD Edit Applied. Overlay (244-OWO with 971-OWO) and 244-JONC with 971-JONC) and (244-JONI with 971-JONI) and (244-AWM with 971-AWM) and (244AWP with 971-AWP).0 the 971-OWO/AWM/AWP/JONI/JONC
PERM	NA	NON-BLANK	T	K, N, U	244=0	244=0	244=0	WAD Edit Applied
PERM	NA	NON-BLANK	T	X	NA	NA	NA	WAD Edit Applied
PERM	NA	NON-BLANK	U	X, T	NA	244=0	244=0	WAD Edit Applied. Overlay (JONI with JONC) and (244-JONI with 244-JONC) and (971-JONI with 971-JONC). 0 the 244.971-OWO's.
PERM	NA	NON-BLANK	U	N	NA	NA	NA	WAD Edit Applied. Overlay (971-OWO with 244-OWO) and (971-JONC with 244-JONC) and (971-JONI with 244-JONI) and ((971-AWM and 244-AWM) and (971-AWP with 244-AWP). 0 the 244-

								OWO/JONC/JONI/AWM/ AWP
PERM	N A	NON-BLANK	U	K	NA	NA	NA	WAD Edit Applied
PERM	N A	NON-BLANK	X	T	971=0	971=0	971=0	WAD Edit Applied
PERM	N A	NON-BLANK	X	N	244=0	244=0	244=0	WAD Edit Applied
PERM	N A	NON-BLANK	X	K, U	244/971=0	244/971=0	244/971=0	WAD Edit Applied

WAD Edit Extension – Temporary (Logic Applied to DPC Changes).

CONTROL NUMBER	J/D	JON SUFFIX	OLD DPC	NEW DPC	OLD OWO	COMMENT/ACTION
TEMP	is K	NA	ALL	ALL	NA	Wad Edit Applied.
TEMP	is not K	NA	P	NA		WAD Edit Applied. Overlay JONI, OWO with o. Overlay JOQ, and JON Stat with 1.
TEMP	is not K	Blank T, U, S	K, N, P,T, U, S	K, P, T, U	NA	WAD Edit Applied. Overlay JONI, OWO with O. (Previous Rule applies P to N).
TEMP	is not K	Blank	K, P, T, U	N, S	NA	WAD Edit Applied. Overlay JONI, OWO with JOQ.
TEMP	is not K	Non-Blank	N, S	K, U	NA	WAD Edit Applied. Overlay WOW with O. Overlay JONI with JONC.
TEMP	is not K	Non-Blank	K, U	K, U	NA	WAD Edit Applied.
TEMP	is not K	Non-Blank	T	N, S	0	WAD Edit Applied. (1) Overlay JONI with JOQ (2) Compute OWO = (JONI - JONC).
TEMP	is not K	Non-Blank	T	K, U	0	WAD Edit Applied. Overlay JONI with JONC.
TEMP	is not K	Non-Blank	K, U	K, S	NA	WAD Edit Applied. (1) Overlay JONI with JOQ. (2) Compute OWO = (JONI - JONC)

TEMP	is not K	Non-Blank	K, N, U, S	T	NA	WAD Edit Applied. Overlay JONI with JONC. Overlay OWO with O.
TEMP	is not K	Non-Blank	2, 9, 7	2, 9, 7	NA	WAD Edit Applied.

PJM Trial Balance Criteria.

Request from supply D035 G004L

SEQ OF INPUT WHO	DOC ID	STOCK NO	JOB RDER NO.	ADV STA CODE	COST CODE	ACT SUF	ON HAND	DIOH	SUP TO MAIB 1 (MW)	MA TO SUP IB 2 (MM)	244 OWO	JON IND	JON COMP
1 MA	D7	Actual	Item JON		P/F		-		+				
2 MA	D7	Actual	Item JON	RA	P/F			+	-		+	+	
3	AFM "B" IN 7	INPUT/ OUTPUT	Item JON			- INPUT + OUTPUT	Automatic G004L TO D035						

Normal Induction Leg showing all transactions for a normal issue of an end item to Maintenance.

Seq. #1, Request for issue of an item from Supply. Action suffix is blank.

Seq. #2, Issue receipt acknowledgement by Maintenance when assets arrive. Action suffix is blank.

Seq. #3, KIOH adjustment only when issued SN (input) differs from SN to be turn-in (outputs). Seq. #3 is machine-generated as a result of the D7/PA finding a different stock number on the end item master.

Note: For serialized Eng. items that are also DIOH items, the quantity of the request from Supply (Seq #1) may be more than 1. However, the receipt acknowledgement (Seq #2) must have quantity of 1.

TJM Trial Balance Criteria.

C/C	TSC	SAC	JOB DESIGNATOR	RQC	COND CODE	JONI	JONC	OWO	WI	MI	OI	WSC	MSC	QSC	QCTI	QC	SCTI	WSC	ORO	AWM	AWP	RACQ	AWP – PIM VS AWP – ASP	MSGC	NOTE
ILIR	BG	BA				+		+	+	+	+								+	+		-		I	4
ILIR	DE	BB																						A	
ILIR	CF	BC				+		+	+	+	+								+	+		-		B	4
ILIR	FC	BD				-		-	-	-	-								-	+		+		E	4
ILIR	CF	BE				+		+											+		+	-		D	4
ILIR	FC	BF				-		-											-		+	+		F	4
IL	All					-		-	-	-	-											+		M	5
ILKS	All				ABCU		+	-				+	+	+										C	
ILKS	All		ABCDEFGHIKL MNTU		B		+	-										+						C	
ILKS	All		H		E	-		-										-				+		X	
ILKS	All		ABCDEKMNTU		FKLP	-		-										+				+		X	
ILKS	All		ABCDIKMNTU		G												+1	+1			+1		Note 5	X	*
						-2		-3									+1	+1			-2	+		X	*
ILKS	All		GHU		G		+	-									+	+				5	+	C	
ILKS	All		ABCKHKMNT		H	-		-										-						X	
ILKS	All		GFLTU		H		+	-										+4						C	
ILKS	All		EFGHLTU		BDF		+	-										+						C	

Explanation of Notes:

*1. Total Quantity of Transaction.

*2. The AWP Master Record Balance before transaction update.

3. Carry over quantity which is derived by subtracting the AWP master balance from the transaction quantity.

4. Org value refers only to "E" cards.

5. The document identifier of the transaction must be "DF1"

Figure 14.17. D035 and G004L Updates.

D035 and G004L Update For 244 Transaction Production Items.

Request from supply D035 G004L

SEQ OF INPUT WHO	DOC ID	STOCK NO.	JOB RDER NO.	ADV STA CODE	COST CODE	ACT SUF	ON HAND	DIOH	SUP TO MA IB1 (MW)	MA TO SUP IB2 (MM)	244 OWO	JON IND	JON COMP
1 MA	D7	Actual	Item JON		P/F		-		+				
2 MA	D7	Actual	Item JON	RA	P/F			+	-		+	+	
3	AFM "B" IN 7	INPUT/ OUTPUT	Item JON			- INPUT + OUTPUT	Automatic G004L TO D035						

Normal Induction Leg showing all transactions for a normal issue of an end item to Maintenance.

Seq. #1, Request for issue of an item form Supply. Action suffix is blank.

Seq. #2, Issue receipt acknowledgement by Maintenance when assets arrive. Action suffix is blank.

Seq. #3, KIOH adjustment only when issued SN (input) differs from SN to be turn-in (outputs). Seq. #3 is machine-generated as a result of the D7/PA finding a different stock number on the end item master.

NOTE: For serialized eng items that are also DIOH items, the quantity of the request from Supply (Seq #1) may be more than 1. However, the receipt acknowledgement (Seq #2) must have quantity of 1.

D035 and G004L Update For 244 Transaction Production Items.

Turn-In By Maintenance D035 G004L

SEQ OF INPUT WHO	DOC ID	STOCK NO.	JOB ORDER NO.	ADV STA CODE	COST CODE	ACT SUF	ON HAND	DIOH	SUP TO MA IB1 (MW)	MA TO SUP IB2 (MM)	244 OWO	JON IND	JON COMP
1 MA	D6	Actual	JON	RT	P/F			-		+		-	+
2 05	D6	Actual	JON	RT	P/F		+			-			

Normal Completion Log.

Seq. #1. Turn-in by Maintenance (needs RT in status code, D0035 will blank out R if 5 station remote). Action suffix is blank.

Seq. #2. Receipt acknowledgement input by Supply personnel when item arrives in Central Receiving. Action suffix is blank.

NOTE: For serialized eng items that are also DIOH items, both the turn-in (Seq #1) and the turn-in receipt acknowledgement (Seq #2) must have quantity of 1.

D035 and G004L Update For 244 Transaction Production Items.

TURN-IN REPARABLE ITEM WHICH WAS ORIGINALLY ISSUED FOR MODIFICATION TO ANOTHER STOCK NUMBER D035 G004L

SEQ OF INPUT WHO	DOC ID	STOCK NO.	JOB ORDER NO.	ADV STA CODE	COST CODE	ACT SUF	ON HAND	DIOH	SUP TO MA IB1 (MW)	MA TO SUP IB2 (MM)	244 OWO	JON IND	JON COMP
1 MA	DFI M in Col 7	Stock No. After MOD.	JON	RT	V			-			-		+
2 MA	D6	Actual Stock Number	JON	RT	V	PB				+			
3 Supply	D6	Actual Stock Number	JON	RT	V	PB	+			-			

D035 and G004L Update For 244 Transaction Production Items.

TURN-IN OF CONDEMED ITEM ORIGINALLY ISSUED FOR MODIFICATION TO A NEW STOCK NUMBER IDENTY D035 G004L

SEQ OF INPUT WHO	DOC ID	STOCK NO.	JOB ORDER NO.	ADV STA CODE	COST CODE	ACT SUF	ON HAND	DIOH	SUP TO MA IB1 (MW)	MA TO SUP IB2 (MM)	244 OWO	JON IND	JON COMP
1 MA	DFI M in Col 7	Stock No. After MOD	JON	RT	V			-		-	-		
2 MA	D6	Actual SN	JON	RT	V	PB			+				
3 Supply	D6	Actual SN	JON	RT	V	PB	+		-				

D035 and G004L Update For 244 Transaction Production Items.

MISIDENTIFIED ITEM, BOTH BALANCES POSTED AND KEPT IN MA D035 G004L

SEQ OF INPUT WHO	DOC ID	STOCK NO.	JOB ORDER NO.	ADV STA CODE	COST CODE	ACT SUF	ON HAND	DIOH	SUP TO MA IB1 (MW)	MA TO SUP IB2 (MM)	244 OWO	JON IND	JON COMP
1 MA	DFI M in Col 7	Requested SN	Wrong JON	Blank & T	V			- Wrong DIOH			- Wrong OWO	-	
2 MA	D7	Actual SN Received	JON	RT	V	PB		+ Correct DIOH			+ Correct OWO		

Misidentified items already posted to the wrong DIOH/OWO and to be retained in MA for overhaul/modification on another SN.

D035 and G004L Update For 244 Transaction Production Items.

MISIDENTIFIED ITEM, BOTH BALANCES POSTED TO BE RETUREND TO Supply D035 G004L

SEQ OF INPUT WHO	DOC ID	STOCK NO.	JOB ORDER NO.	ADV STA CODE	COST CODE	ACT SUF	ON HAND	DIOH	SUP TO MA IB1 (MW)	MA TO SUP IB2 (MM)	244 OWO	JON IND	JON COMP
1 MA	DFI M in Col 7	Requested SN	JON		V			- Wrong DIOH			- Wrong OWO	-	
2 MA	D6	Actual SN Received	JON	RT	V	P B				+			
3 Supply	D6	Actual	JON	RT	V	P B	+			-			

Misidentified items already posted to DIOH/OWO and returned to Supply without exchange.

Seq #1. Correct both the DIOH and OWO balances.

Seq #2. Establishes an intransit balance for the actual item being returned to Supply.

Seq #3. Is the receipt acknowledgement input by Supply personnel when the item arrives in central receiving?

D035 and G004L Update For 244 Transaction Production Items.

POST-POST ISSUE TRANSACTION D035 G004L

SEQ OF INPUT WHO	DOC ID	STOCK NO.	JOB ORDER NO.	ADV STA CODE	COST CODE	ACT SUF	ON HAND	DOH	SUP TO MA IB1 (MW)	MA TO SUP IB2 (MM)	244 OWO	JON IND	JON COMP
Supply	D7	Actual	Item JON		APPR CIST CIDE	PP	-	+			+	+	

D035 and G004L Update For 244 Transaction Production Items.

WASH POST CLASS #1, INDUCTION D035 G004L

SEQ OF INPUT WHO	DOC ID	STOCK NO.	JOB ORDER NO.	ADV STA CODE	COST CODE	ACT SUF	ON HAND	DOH	SUP TO MA IB1 (MW)	MA TO SUP IB2 (MM)	244 OWO	JON IND	JON COMP
1 MA	D6	Actual	Origin JON	Blank & T	E	WP	*						
2 MA	D7	Actual	Item JON		P	WP		+			+	+	

Wash Post Class #1. Induction. A repairable end item is washed form its next higher assembly (origin job order number) to an item job order number for repair.

* The material WP turn-in on the induction leg established a DOTM tied to its document number.

D035 and G004L Update For 244 Transaction Production Items.

WASH POST CLASS #1, COMPLETION — D035 — G004L

SEQ OF NPUT WHO	DOC ID	STOCK NO.	JOB ORDER NO.	ADV STA CODE	COST CODE	ACTSUF	ON HAND	DIOH	SUP TO MA IB1 (MW)	MA TO SUP IB2 (MM)	244 OWO	JON IND	JON COMP
1 MA	D6	Actual	Item JON	Blank & T	P	WP	-			-			+
2 MA	D7	Actual	Origin JON	E	WP	*							

Wash Post Class #1. Completion. A serviceable end item is washed form its item JON back to its next higher assembly (origin JON).

* The material (cost code E) WP turn-in on the induction leg established a DOTM by its document number. The material WP issue on the completion leg clears the DOTM. To do this it must have the same document number as the material turn-in.

D035 and G004L Update For 244 Transaction Production Items.

WASH POST CLASS #3, CN to CN — D035 — G004L

SEQ OF INPUT WHO	DOC ID	STOCK NO.	JOB ORDER NO.	ADV STA CODE	COST CODE	ACT SUF	ON HAND	DIOH	SUP TO MA IB1 (MW)	MA TO SUP IB2 (MM)	244 OWO	JON IND	JON COMP
1 MA	D6	Actual	J Job	Blank & T	P	WP		-			-		+*
2 MA	D7	Actual	A Job		E	WP	+				+	+	

Wash Post Class #3, CN to CN. An end item is washed form one job order number to another job order number (usually with condition code F, reparable). This may involve condition determination (J job designator) on one JON and overhaul of just the reparables on the other JON. Although other job designators may apply, our example shows J and A jobs. Items found serviceable during the bench check or condemned will be turned in from the J job following the normal completion/up date procedures.

* Maintenance receives production credit regardless of the condition code when the job designator is E/F/G/H/J/L/Q.

D035 and G004L Update For 244 Transaction Production Items.

WASH POST CLASS #4, EXCESS REPARABLES TO BE KEPT IN MA D035 G004L

SEQ OF NPUT WHO	DOC ID	STOCK NO.	JO B O RDER NO.	ADV STA CODE	COST CODE	ACTSUF	ON HAND	DIOH	SUP TO MA IB1 (MW)	MA TO SUP IB2 (MM)	244 OWO	JON IND	JON COMP
1 MA	D6A X in 7	Actual	Blank	Blank & T	M-Inv N-Exp	WP							
2 MA	D7	Actual	Item JON		P	WP		+			+	+	

Wash Post Class #4, (Induction lead only), excess reparables to be kept in MA. This class applies only to reparable end items that are excess to DIOH/OWO and that will be retained for overhaul/modification.

Seq #1. Checks for a master record of the item.

Seq #2. Creates KIOH/OWO for the item. When the items are made serviceable, the normal completion leg will be followed. Both transactions will be input by MA personnel.

D035 and G004L Update For 244 Transaction Production Items.

EXCESS ITEM NOT REQUIRED IN MA D035 G004L

SEQ OF INPUT WHO	DOC ID	STOCK NO.	JOB ORDER NO.	ADV STA CODE	COST CODE	ACT SUF	ON HAND	DIOH	SUP TO MA IB1 (MW)	MA TO SUP IB2 (MM)	244 OWO	JON IND	JON COMP
1 M A	D6A X in 7	Actual		Blank	Blank & T	M-Inv N-Exp		+					

Excess items not required in MA. These items are not recorded in either DIOH or OWO and they are not required in MA for overhaul/modification. Process through normal found-on-base procedures. The D6A with an X in column 7 will accompany the item and be input by Supply personnel.

D035 and G004L Update For 244 Transaction Production Items.

LOCAL MANUFACTURE, PHYSICAL TURN-IN TO SUPPLY D035 G004L

SEQ OF INPUT WHO	DOC ID	STOCK NO.	JOB ORDER NO.	ADV STA CODE	COST CODE	ACT SUF	ON HAND	DIOH	SUP TO MA IB1 (MW)	MA TO SUP IB2 (MM)	244 OWO	JON IND	JON COMP
1 Supply	D6A	Actual	JON	RT	P	Blank	+				-		+

Local Manufacture, (M-Prefix) Physical Turn-In to Supply. A percentage of items manufactured by MA are physically turned into supply. Maintenance personnel will input any transactions for these items, but they will obtain as signature receipt when the items are picked up for delivery to Supply. Supply personnel will input the 244 transaction as soon after pickup as possible (not later than 3 days). If the scheduler does not receive a G004L-L2A showing a valid 244 transaction turn-in within 5 days of the pickup, he will telephone his SupplyDM contact to request initiation of follow-up action. If the transaction has not shown on the L2A within 10 days, the scheduler will notify the MA G004L monitor in MASP for formal follow-up (by letter).

D035 and G004L Update For 244 Transaction Production Items.

REQUEST FROM SUPPLY TO PREPOSTION ASSETS (AWM) D035 G004L

SEQ OF INPUT WHO	DOC ID	STOCK NO.	JOB ORDER NO.	ADV STA CODE	COST CODE	ACT SUF	ON HAND	DIOH	SUP TO MA IB1 (MW)	MA TO SUP IB2 (MM)	244 OWO	244 AWM	244AWP	JON IND	JON COMP
1 MA	D7	Actual	Item JON		P/F		-		+						
2 MA	D7	Actual	Item JON	RB	P/F			+	-			+			
3	ZFM "B" IN 7	Input/ Output	Item JON					- INPUT + OUTPUT			Automatic G004L TO D035				

Issue from supply for Prepositioning in MA.

Seq #1. Request for issue of an item from supply. Action suffix.

Seq #2. Issue receipt acknowledgement by Maintenance, when assets arrive. Advice code is PB and action suffix is blank.

Seq #3. DIOH adjustment only when issued SN (input) differs from SN to be turned-in (outputs). Seq #3 is machine generated by G004L as a result of the D7/RB finding a different SN on the end item master.

D035 and G004L Update For 244 Transaction Production Items.

OWO TO AWM D035 G004L

SEQ OF INPUT WHO	DOC ID	STOCK NO.	JOB ORDER NO.	ADV STA CODE	COST CODE	ACT SUF	ON HAND	DIOH	SUP TO MA IB1 (MW)	MA TO SUP IB2 (MM)	244 OWO	244AWM	244AWP	JON IND	JON COMP
1 MA	D7	Actual	Item JON	RD	P/F	PK					-	+	-		

D035 and G004L Update For 244 Transaction Production Items.

AWM TO OWO — D035 — G004L

SEQ OF INPUT WHO	DOC ID	STOCK NO.	JOB ORDER NO.	ADV STA CODE	COST CODE	ACT SUF	ON HAND	DIOH	SUP TO MA IB1 (MW)	MA TO SUP IB2 (MM)	244 OWO	244AWM	244AWP	JON IND	JON COMP
I MA	D7	Actual	Item JON	RD	P/F	PK					+	-		+	

D035 and G004L Update For 244 Transaction Production Items.

OWO TO AWP — D035 — G004L

SEQ OF INPUT WHO	DOC ID	STOCK NO.	JOB ORDER NO.	ADV STA CODE	COST CODE	ACT SUF	ON HAND	DIOH	SUP TO MA IB1 (MW)	MA TO SUP IB2 (MM)	244 OWO	244AWM	244AWP	JON IND	JON COMP
I MA	D7	Actual	Item JON	RD	PF	PK					- +		-		

D035 and G004L Update For 244 Transaction Production Items.

AWP TO OWO — D035 — G004L

SEQ OF INPUT WHO	DOC ID	STOCK NO.	JOB ORDER NO.	ADV STA CODE	COST CODE	ACT SUF	ON HAND	DIOH	SUP TO MA IB1 (MW)	MA TO SUP IB2 (MM)	244 OWO	244AWM	244AWP	JON IND	JON COMP
I MA	D7	Actual	Item JON	RD	P/F	PK					+		-		+

D035 and G004L Update For 244 Transaction Production Items.

G CONDITION TURN -IN TO SUPPLY — D035 — G004L

SEQ OF INPUT WHO	DOC ID	STOCK NO.	JOB ORDER NO.	ADV STA CODE	COST CODE	ACT SUF	ON HAND	DIOH	SUP TO MA IB1 (MW)	MA TO SUP IB2 (MM)	244 OWO	244 WM	244 WP	JON IND	JON COMP
1 MA	D6	Actual	Item JON	RT	P/F			-	+		* *		-		
2 Supply	D6	Actual	Item JON	RT	P/F	+			-						

Seq #1. Turn-in maintenance needs *RT* in status code; D035 will blank out R if 6 station remote.

* G004L will only minus the OWO and JON IND when the AWP balance is not sufficient to cover the quantity in the D6 transaction.

Seq #2. Receipt acknowledgment input by Supply personnel when item arrives in central receiving.

Trial Balance and Update on Permanent JONS.

AFMC FORM 244	CARD CODE	JOB DESIGNATOR	CONDITION CODE	COST CODE	JONI	JONC	OWO	MI	MSC	QSC	QC	HCTI	GGTI
Inductions	I-L	ALL	ALL	ALL	+		+	+					
Misadmitted	J-L	ALL	ALL	V	-		-	-					
Completions													
Service Jobs	I-L	HF-JT	ALL	P-V		+	-						
	I-L	F-G	ALL	F		+	-						
	I-L	L	ALL	H		+	-						
			A-B-C-E-	P-F					+	+	+H	+H	+G
			H-G	P-F									
Cannibalization													
Supply	I	L	G	H-V		+	-						+
Straight Jobs	I-L	All Others	A-B-C-E	P-F		+	-		+	+			
			D-F-G-H-J-K-L	P-F			-	-			+H	+H	+G
AFMC Form 971													
Inductions	J	All	All	N/A	+		+	+					
Completions													
Service Jobs	K	L	All	H-V		+	-						
	K	H-F-G-H-J-T	All	N/A		+	-						
			A-B-C-E	N/A					+	+			
			H-G	N/A							+H		
Straight Jobs	K	All Others	A-B-C-E	N/A		+	-		+	+	+H	+H	+G

Trial Balance and Update on Temporary JONS.

AFMC FORM 244	CC AO RD DE	JOB DESIGNATOR	COND CODE	COST CODE	JONI	JONC	OWO	WI	MI	QI	WSC	MSC	QSC	OWO	WI	MI	QI	WSC	MSC	QSC	HCTI	QC	GCTI	NSR	ORG
Inductions	I-L	All	All	All	+		+	+	+	+															
Misidentified	I-L	All	All	V	-		-	-	-	-															
Completions:																									
Service Jobs	I-L	H** F-J-T	All	P-V		+	-																		
	I-L	E-G	All	F		+	-																		
	I-L	L	All	H		+	-																		
			A-B-C-E								+	+	+												
			G																						
			H																					+	
			D-F-J-K-L		-																			+	
Cannibalization																								+	
Supply	L	L	G	H-V		+																			
Straight Jobs	I-L	H* All Other	A-B-C-E	P-F		+					+	+	+											+	
			D-F-G-H-J-K-L																						
			G																					+	
			H																					+	
AFMC Form 971																									
Inductions	J-R	All	All	N/A	+									+	+	+	+								
	R																								+
Completions																									
Service Jobs	K-S	L	All																						
	K-S	H** E-F-G-J-T	All	H-V		+																			
			A-B-C-E	N/A		+																			
			G		-																				
			H																						
			D-F-I-K-L																						
Straight Jobs	K-S	H* All Other	A-B-C-E	N/A		+																			
			D-F-G-H-J-K-L		-																				
			G																						
			H																						

14.89. G004L Computations.

14.89.1. Control of Manufacture at the ALC. Manufacture is the fabrication of an item through the application of labor, machines, and tools to material. During manufacture, raw (i.e., general purpose) material is transformed into an item with a specific form, fit, and function.

14.89.2. Authorization to Manufacture. Items to be manufactured must meet at least one of the following criteria:

14.89.2.1. Organic accomplishment is necessary for the Air Force to maintain an in-service depot maintenance capability for mission-essential items as provided by AFMCI 21-100.

14.89.2.2. Acquisition of the part from a commercial source will result in higher cost to the Air Force.

14.89.2.3. The product or service is not available through inter-service or other Federal agencies.

14.89.2.4. Acquisition from private commercial sources will disrupt or materially delay an Air Force program.

14.89.2.5. A satisfactory commercial source is not available and cannot be developed in time to provide the part when needed.

14.89.3. IM/ES or DLA/PST Function. For stock listed P coded items (procured by stock number requisition) are managed by the Air Force. Stock listed M coded items (M code is manufacture) are processed through Supply for action.

14.89.3.1. When stock listed items are to be routinely provided through manufacture, they will be identified through source coding. The ES codes these items for either organizational level manufacture (Code MO), Field Manufacture (Code MF) or Depot Manufacture (Code MD). Generally, these items are limited to low usage or casual replacement type items that are more economical and practical to manufacture than they are to acquire, store and distribute for use. The manufacture of such items generally enhances the logistics support process and results in greater economy.

14.89.3.2. The decision to manufacture stock listed items not source coded MO, MF, or MD, is made on a case-by-case basis by the IM/ES only on AF-managed items.

14.89.3.3. Other items are not stock listed because failure or a recurring demand for their replacement has not been anticipated. Normally these items will be manufactured until sufficient information becomes available to warrant cataloging action and making a source-coding decision.

14.89.4. ALC Maintenance Guidelines. Since the basic responsibility for manufacture rests with the MXSG, the MXSG may undertake manufacture only when a properly completed work request is received from Supply.

14.89.4.1. The basic source for all material requirements is Supply. Accordingly, all material requests will be submitted to Supply. This includes material requests that are likely to be satisfied through depot maintenance manufacture.

14.89.4.2. Supply will review all material requests from the MXSG, tenants, and other organizations they support and will determine the proper source of supply. When source coding does not exist, consultation with the appropriate ALC may be required. When Supply determines that manufacture is the proper source of supply, they will process an AFMC Form 206 or AFSC Form 206 to the ALC for the manufacture.

14.89.4.3. The ALC will manufacture and upon completion turn in the materials to Supply. The requesting appropriation will be billed for the labor, raw material, and indirect/overhead expenses.

14.89.4.4. Manufactured items issued by Supply to the MXSG will be charged to the using job order as material using the D035 issue price.

14.89.5. Line Support Manufacture.

14.89.5.1. NSN Items Coded for Manufacture:

14.89.5.1.1. The D035 system will maintain demand data for NSN items source coded for manufacture in the same manner as items having another source of supply. When the demand is sufficiently recurring, a stock level and reorder point will be computed. Supply will maintain this stock level by submitting an AFMC Form 206 or AFSC Form 206 to the ALC for the required manufacture.

14.89.5.1.2. Material standards maintained in the G005M system will not influence the supply stockage of NSN items source coded for manufacture. However, material standards are required for use in computing the sales prices of the using end item.

14.89.5.2. Local manufacture for line support of one-time requirements (nonrecurring) on serialized workloads, when included in the work package negotiated with the ALC or approved by the Project Administration Officer for over-and-above accomplishment, does not require the processing of AFMC Form 206 or AFSC Form 206. This line support may be accomplished as a labor operation on the JON applicable to the end item and worked under the G097 system. Prepare a hand-scribed AFSC Form 173 or AFSC Form 127. This AFSC Form 127 or AFSC Form 173 may be used by the supporting shop for processing the manufacturing requirement. The analysis of unpredictable operations will also be used to determine recurrence and, when applicable, will be used as the basis for preparing AFMC Form 206 or AFSC Form 206.

14.89.6. Work Authorization.

14.89.6.1. All manufacture requests submitted on AFMC Form 206 or AFSC Form 206 must have AFMC Form 206 or AFSC Form 206 processed validly by the G004L system before work may begin. The AFMC Form 206 or AFSC Form 206 establishes the basic authority to accomplish manufacture. The AFSC Form 237 and AFSC Form 240 provide the labor and material data required for costing.

14.89.6.2. Issue a separate JON according to DoD 7000.14-R, *DoD Financial Management Regulation*, Chapter 14 and Chapter 63, for the manufacture of an item. Prepare AFSC Form 237 using an M control number prefix and K job designator. Input, using an M control number prefix and K job designator, from AFSC Form 237 into the G004L system will result in the automatic assignment of the JON suffix based upon the computer processing date with Status of Planning Indicator (SOPI) marked Complete (C). The EII will be by NSN or NC, ND, or part number (FSC, P in position 5, followed by the item part number).

14.89.7. Pricing. The G004L system will compute a unit price for each unit of the JON quantity when the SOPI is marked Complete (C). The UOM is always Each (EA). Update of the D035K record by tape interface from G004L.

14.89.8. Local Manufacture of Equipment.

14.89.8.1. All ALC proposals for the local manufacture of depot maintenance shop equipment must be prepared by the appropriate production engineering and planning offices and submitted through the responsible equipment custodian to the Installation Equipment Management Office (IEMO) on AF Form 601, *Equipment Action Request*.

14.89.8.2. In compliance with **Chapter 4**, actions by the IEMO will be based on the following:

14.89.8.2.1. The manufacture of stock listed local manufacture equipment items prescribed by allowance documents will be authorized and controlled as prescribed by those documents.

14.89.8.2.2. Stock catalog data will be researched by IEMO Research Unit to determine if a standard locally or centrally acquired item will meet the requirements for non-stock listed equipment items instead of local manufacture.

14.89.8.2.3. The manufacture of non-stock listed items is contingent upon IEMO approval when the estimated unit cost is less than $249,999.99 and upon Command Equipment Management Office (CEMO) approval when the estimate cost is $250,000 or more. Approval requires that adequate justification be provided by the ALC on the AF Form 601 request submitted to the IEMO.

14.89.8.2.4. Non-stock listed equipment items may be authorized for local manufacture when the ALC existing resources are inadequate and any of the following occur:

14.89.8.2.4.1. The equipment is required to meet a locally unique requirement.

14.89.8.2.4.2. The use of spares and related accessories is required by technical order to perform maintenance checks or repairs.

14.89.8.2.4.3. An emergency condition exists and the equipment is required to preclude an adverse effect on mission accomplishment.

14.89.9. If the local manufacture request is approved, an AFMC Form 206 or AFSC Form 206 will be processed to the ALC by Supply. After the manufacture of the equipment item, the ALC will contact Supply for disposition instructions. The use of an L number in the EII field is mandatory when the end item being manufactured has an assigned ERRC code of either S or U.

14.89.10. Costs associated with the local manufacture of equipment will be treated as follows:

14.89.10.1. The unit price entered into supply records determines whether the manufactured item is expense or investment equipment. If the unit price is less than $249,999.99, the item will be classified as expense equipment and it is a stock fund item. If the unit price is $250,000 or more, the item will be classified as investment equipment and it is a non-stock-fund item.

14.89.10.2. The unit price of locally manufactured equipment consists of the actual manufacturing cost of the unit plus the supply surcharge.

14.89.10.3. The actual unit cost is computed from planning data entered on AFSC Form 237 via G004L before the manufacture of the equipment item. In rare cases, the computed cost may result in a change in the original classification of an item as either expense or investment equipment. When this occurs, action must be taken to cancel and reinitiate all actions related to the item.

14.89.10.4. The CSAG-M will bill the customer for the actual manufacturing cost.

14.89.11. Control of Quarterly Sales of End Items.

14.89.11.1. Once the quarterly sales indicator (QSI) has been assigned, it cannot be changed through a simple file maintenance action. For example, if the QSI for a specific serial number record must be changed from M to C, a new production number must be established as well as a new serial number record with the new QSI = C. There is no G004L function that allows for QSI file maintenance.

14.89.12. Product Quality Deficiency Report (PQDR) Control.

14.89.12.1. Reference TO 00-35D-54, *USAF Material Deficiency Reporting and Investigation System for Category Descriptions*. PQDR exhibits will be processed IAW TO 00-35D-54 and by locally developed procedures (e.g., base regulations, etc.) to ensure funding, analysis, report preparation, rework (if applicable), and/or return to service is accomplished in a timely manner to support our customers. PQDR analysis and report preparation is funded by the prime ALC. The JON established for processing these items will have a job designator G assigned (if the repair ALC has MISTR workload established, the same JON with job designator G will be utilized). The prime ALC is the ALC that manages the asset in question. The repair ALC will not perform PQDR investigations without being reimbursed IAW the no free work policy on the CSAG-M (reference AFMCI 65-101). The Labor Standard will cover the cause determination (analysis) and the report preparation; no repair is authorized on these permanent JONs with the G designator. If the repair ALC does not have an established MISTR workload, an AFMC Form 206 or AFSC Form 206 will be issued by the technical focal point,(e.g., IM, ES, quality specialist, etc.,) and a temporary JON established to include the cost of restoring the exhibit to a serviceable condition, if applicable.

14.89.12.1.1. Documentation. To provide a proper audit documentation trail, written notification of the exhibit numbers, by NSN, must be provided to the processing group. This notice may be maintained centrally or in the responsible scheduler's file per local option. DD Form 2332 will accompany each exhibit sent to the repair ALC for processing (no exhibit will be accepted for processing by the repair ALC without the DD Form 2332). A copy of the DD Form 2332 and the communication notice (message or other) is sufficient information for an audit documentation trail.

14.89.12.1.2. Rework of PQDR exhibits. When the analysis of the PDQR exhibit determines the TRC where the work was accomplished was not at fault, the effort to restore the exhibit to a serviceable condition will be accomplished by the TRC as new work and will be inducted into the MISTR line. When the analysis of the PQDR exhibit determines that the TRC where the work was accomplished was at fault, the work to restore the exhibit to a serviceable condition will be accomplished by that TRC as rework IAW **Chapter 2**. For those items undergoing rework for which the analysis has determined that the TRC to be at fault, production count will not be taken. The material utilized in this particular case will be charged to unload with cost code L for those items normally costed under codes A or L. To unload with cost code X for those items normally costed under codes D or M and to unload with cost code X for those items normally costed under codes E or J (blank job designators in all cases), the direct labor expended for this effort will be charged to duty code .26 with special project code 14 in the RC/CC where expended.

14.89.12.1.3. Restoration Policy. The restoration of the exhibit item to an ALC reported PQDRs. When a deficient item is discovered by an ALC user from an ALC repair line (the discovering ALC becomes the initiator), the item must be processed with proper notification to the prime or managing ALC (reference TO 00-35D-54 for routing and processing control procedures). No work will be accomplished on these items without proper prime or managing ALC direction. When an ALC initiates a PQDR on material provided or repaired by another TRC, the above procedures apply. When the ALC management elects to correct the deficiency without the prime or managing ALC direction, the item will be processed and costed as rework. In this case, the labor expended will be charged to duty code .26 with special project code 14 in the responsible RC/CC and any direct material used will be charged. No earned hour credit to a JON or charges to a customer will be made.

14.89.12.2. Policy for costing PQDR MISTR workload. Each quarter an AFMC Form 181, *Project Order*, will be issued by the prime ALC to cover this workload. Each repair ALC performing this type of workload must receive the AFMC Form 181 from each prime ALC.

14.89.12.3. Restoration Policy. The restoration of the exhibit item to a serviceable condition will be accomplished as follows:

14.89.12.3.1. If the TRC was not at fault for the deficiency, wash post procedures from the analysis job order (G designator) will be used. To the MISTR overhaul job order A job designator will be used.

14.89.12.3.2. If the TRC was not able to duplicate the reported deficiency and the unit passed all functional test requirements. The unit will be condition tagged as serviceable and returned to the supply system. Wash post procedures form analysis job designator G to MISTR overhaul job designator A will not be used.

14.89.12.3.3. When the TRC is at fault for the deficiency, charging the customer is prohibited. The restoration to a serviceable condition will be accomplished and direct labor will be charged to duty code .26 with the special project code 14 in the RC/CC where performed. Material will be costed in accordance in the RC/CC where used.

14.89.12.3.4. If the work is accomplished at a TRC which does not have assigned workload responsibilities, charges will be made on a temporary job order number on the type 6 project order. In this case, an AFMC Form 206 or AFSC Form 206 must be received from the technical focal point prior to the start of the restoration process.

14.89.13. Job Designator/Work Performance Category Application.

14.89.13.1. The job designator is an alpha code used in the maintenance data systems which has been redefined to equate to the work performance category described in DoD 7000.14-R, Chapter 14 and Chapter 63. This code is used for the aggregation of data for all organic workloads for reporting to DoD. The job designator signifies the type and extent of repair authorized to be done. Application of the job designators is critical in relation to generation of sales billing to CSAG-M customers. Organic sales are based upon two categories of production:

14.89.13.1.1. The completion of serviceable end items.

14.89.13.1.2. The performance of maintenance services, not necessarily resulting in the production of serviceable end item.

14.89.13.2. The specific job designators are directly related to the foregoing categories. The various interfacing maintenance data systems are programmed to treat production in relation to job designators as follows:

14.89.13.2.1. Straight job designators. These job designators, A, B, C, D, I, K, M, and N, require production of serviceable end items as the basis for CSAG-M sales.

14.89.13.2.1.1. U is used for software support, W is for CLS use.

14.89.13.3. Service Job Designators. These Job designators authorize maintenance tasks for which the ALC must be reimbursed regardless of the condition of the end item service. Reparable Technical Order Compliance (TOC), and condemned as well as serviceable end item returns, will generate sales to customers. These job designators are E, F, G, J, L, and T. **Note:** At AGMC, job designators D, F, G, J, K, L, M, N, and T are considered as service job designators.

14.89.13.4. Combination job designator. This is job designator H, Modification (alteration or physical makeup change, TOC). Depending upon the type of workload, job designator H will be either straight or service. The distinction is made as follows:

14.89.13.4.1. The MISTR items (RGC J, PON 4) covered by job designator H require serviceable end item completions to generate CSAG-M sales revenue. The basis is that:

14.89.13.4.1.1. The MISTR scheduling logic gives first priority to select inventory items in TOC status for input to the MXSG shops.

14.89.13.4.1.2. The MISTR system will affect sales only for the return to supply of serviceable end items.

14.89.13.4.2. Job designator H is treated as a service accomplishment for non-MISTR workloads. All end item completions, regardless of condition, will generate SPG in DMAPSIE CSAG-M sales.

14.89.14. Authorized job designator codes are found in this chapter (reference para 14.10.).

14.89.15. ATE and Master Layout (MLO) [Numerically Controlled Equipment (NCE)]. This type effort requires development of programs for application. The cost of this development, if significant and performed for a customer, is identified as a service and cost to a temporary JON using code R.

14.89.16. PME is used by many of the maintenance RC/CCs and outside agencies. Work done on items contained in the maintenance PME inventory, if owned by an outside agency, the work is costed to a C-prefix JON with JDT.

14.89.17. Sales Rates/End Item Sales Prices.

14.89.17.1. DMAPS-DIFMS will compute earned hour costs and distribute them to owning RC/CCs when identified to legitimate RC/CCs. If earned hours are identified to owning RC/CC, DMAPSDIFMS will compute the earned hour costs and move them into G&A. T-prefixed JONs, if serialized, are priced at an hourly sales rate from the serialized

master record. All non-serialized T-prefixed JONs are end item priced by G004L computation. Rate guidance for use with Tprefixed JONs (serial numbered) is provided in this chapter (reference paragraph 14.42.2.2.). In some cases, accomplishment of some workloads by serial number control is required to preclude over/under costing to the customer. Refer to AFMCI 65-101 for policy on applying special rates for these areas.

14.89.17.1.1. Serial Number Work (Temporary). The Application of serial number control is limited to T-prefixed temporary production numbers. These temporary production numbers may be applied to aircraft, missiles, inertial guidance systems, and OMEI including long flow time items on which the work content varies considerably from one item to the next (e.g., same NSN, MDS, etc.).

14.90. G004L Computation Costs.

14.90.1. Expense Material Cost. To compute the Expense Material Cost (EMC) for an operation (for all operations with cost code A), multiply the Stocklist Price (SLP) times the Material Quantity (MQ), then summarize the results up to operation number level (there can be multiple different items of material for any given operation).

Figure 14.18. Expense Material Cost Equation.

EMC = SLP x MQ

14.90.2. Investment Material Cost. To compute the Investment Material Cost (IMC) for an operation (for all operations with cost code M/D/T/X/Z), multiply the SLP times the MQ, then summarize the results up to operation number level. If the Cost code is E, use the average repair cost in the same formula. In both cases, the product may contain up to six-dollar positions and two cents positions. Transactions exceeding these limits will be error coded and output on listing.

Figure 14.19. Investment Material Cost Equation.

If the cost code is M/D/T/X/Z: IMC = SLP x MQ If the cost code is E: IMC = Average Repair Cost x SLP x MQ (Round to two decimal places)

14.90.3. Budgeted Labor Cost (BLC). To compute the BLC for an operation (the cost of the labor required for completing that operation on all end items in the JOQ), multiply the Operation Count Limit (OCL) times the Operation Standard Hours (OSH), and multiply the result times the rate (from G004C) for the RC/CC. The product may contain up to six-dollar positions and two cents positions. Transactions exceeding these limits will be error coded and output on a listing.

Figure 14.20. Budgeted Labor Cost Equation.

BLC = OCL x OSH x RC/CC Rate

14.90.4. EISP. To compute the EISP (the EISP is needed on all WADS with UOM = EA), summarize the Expense Material Cost (total EMC) for the job; summarize the BLC for the

job; add these two totals to the Other Direct Cost (ODC), and divide the result by the JOQ. The product may contain up to six-dollar positions and two cents positions. Transactions exceeding these limits will be error coded and output on listing. If BOMI = M.

Figure 14.21. EISP Equation.

EISP = (EMC+BLC+ODC)/JOQ If BOMI = R, the BLC must include the RC/CC direct material rate (Basic RC/CC Rate + Direct Material Rate) EISP = BLC + ODC

14.90.5. End Item Hourly Rate. To compute the End Item Hourly Rate (EIHR needed on all WADS with UOM = HR), add the total expense material cost (EMC), the total labor cost (BLC), and the ODC. Divide this sum by the total standard hours (TSH) for the job, round the result to whole dollars, rejecting any job with over three significant digits. Also, round the results to three decimal positions.

Figure 14.22. End Item Hourly Rate Equation.

HSR = (EMC + BLC + ODC)/TSH

14.90.6. End Item Labor Standard (EILS). To compute the end item labor standard, divide the total standard hours for the job by the JOQ, round the result to three decimal positions.

Figure 14.23. End Item Labor Standard Equation.

EILS = TSH/JOQ

14.90.7. Standard Expense Material Cost (SEMC). To compute the standard expense material cost for an operation, divide the total EMC for the operation by OCL for operation, round the result to three decimal positions.

Figure 14.24. Standard Expense Material Cost Equation.

SEMC = EMC/OCL

14.90.8. Standard Investment Material Cost (SIMC). To compute the SIMC for an operation, divide the total IMC for the operation by the OCL for the operation, round the result to three decimal positions.

Figure 14.25. Standard Investment Material Cost Equation.

SIMC = IMC/OCL

14.90.9. End Item Identity (EII) Configuration. The G004L system edits each EII relative to the RGC, and JD. These identities relate to type of end item and funds source.

14.90.9.1. The end item stock number, MDS, or technical assistance identities (customer account identity) description must be entered in the FSC/stock number blocks of each WAD. The accuracy and correct application of these entries are essential to the continued integrity of the data system and end item production reporting to DoD. The finite structuring of this entry is such that if an erroneous entry is made in any of the designated fields, the computer cannot adequately interpret and provide useful data.

14.90.9.2. The MDS entry must match the established Air Force approved MDS table of standard configurations. The establishment and maintenance of the MDS master file is the responsibility of the ALC. This MDS validation table must include each MDS end item in work in the depot, or to be input on future program. System OPR will maintain the table of acceptable MDS identities in the G004L system in coordination with ALC. Locally assigned identities will not be entered in the MDS master file or on the WAD. However, if two or more WADs have the same MDS, the noun entry (8 alphas or numeric) may be used to identify each separately by customer, etc.

14.90.9.3. Each WAD that is prepared for an end item or group of items will reflect entries in the class code and stock number block as prescribed.

14.91. Due In From Overhaul (DIOH) Reconciliation Process Narrative.

14.91.1. The Air Logistics Complexes (ALCs) utilize a variety of production management reports, maintenance information systems (MISs), and D035K to manage organic depot maintenance processes, such as maintenance scheduling and financial management. The DIOH On Work Order (OWO) Reconciliation process is documented in this manual. The DIOH Reconciliation process involves two organizational entities: Defense Logistics Agency-Aviation (DLA-A) and the organic depot repair activity. MISs range from AF standard systems to systems unique to a single ALC. The scheduler is responsible for keeping the DIOH in balance between the following systems: D035K, G402A, G004L, Impresa, Lean Depot Management System (LDMS), and ITS/G337. The tracking and control of exchangeable items is accomplished through the material management system D035K DIOH program as the supply accountable property system of record (APSR), but G004L is the accountable maintenance financial system.

14.91.2. The DIOH Reconciliation process is a systematic approach to determining the correct decision regarding the mismatch of balances between the aforementioned systems. The three ALCs have established a weekly reconciliation process to determine out of balance quantities for AF owned/managed supply accountable items in the organic depot repair cycle, i.e., DIOH and OWO. More specifically, the reconciliation is focused on balances between the materiel management system (D035K) and the various MIS at the ALCs.

14.91.3. By using this process, one can identify, research, formulate, correct, and verify that correct balances are maintained. The DIOH Reconciliation and correction process is a five step systematic approach to determining the correct decision regarding balances:

14.91.3.1. Identify the type of error: The first step to identifying DIOH out of balances is to access the G004L L2A report. Erroneous transactions that could affect the balances initially appear on this report. This report should be worked daily and reconciled to the AFSC Form 105, *Workload Record*, or AFSC Form 130, *Production Asset Control Record*, in accordance with (IAW) AFSCMAN 21-102 paragraphs 14.55.12 and 14.82.6. Corrections to rejected transactions should eliminate a DIOH out of balance. The DIOH out of balance will appear on the weekly G004L W5C report.

14.91.3.2. Research and gather information: Researching DIOH out of balances is the process of using various production systems to obtain information and support for any correcting transactions. Systems used to research out of balance errors may include G004L, D035K, G402A, Impresa, LDMS, and ITS/G337. Other reporting tools are used, as required, such as Center of Parts Activity (COPA) and the manual records (AFSC Form 105 and AFSC Form 130).

14.91.3.3. Formulate the process of correction: The process of correction is the analytical process of evaluating the information gathered and analyzing it to determine the cause and corrective course of action. In most cases, it requires that a comparison of the AFSC Forms 105 or AFSC Forms 130 with the G004L L2A/W5C reports and D035K to ensure that all transactions have processed correctly in each of the systems.

14.91.3.4. Correct the out of balance: Correcting the DIOH out of balance is the process of finding, creating, and processing a transaction in one of the aforementioned systems to bring that system or systems back into balance. This correction may require support from DLA-A with the use of an AFMC Form 37, *Inventory Research Worksheet*, and/or Report of Survey (ROS).

14.91.3.5. Verify the correction: Verifying the DIOH error correction achieves accurate accounting by comparing the balances in all of the affected systems after the correction or corrections have been processed.

14.91.2. This process flow narrative addresses the daily/weekly data reconciliation process between D035K and key production systems relevant to organic depot repair activity. It is incumbent upon the scheduler to follow this process to keep DIOH balanced between the systems and ensure paper records (AFSC Forms 105 and AFSC Forms 130) are kept up to date. The scheduler will at a minimum:

Table 14.25. DIOH Reconciliation.

1.	Pull the L2A report daily and the W5C report weekly from the G004L system for the Production Section Scheduling Designator (PSSD) assigned.		
	a.	If there is a L2A report for the day, further research must be taken to compare AFSC Forms 105 or AFSC Forms 130 to ensure the transactions contain all the correct data elements such as production number (PDN), job order number (JON), national stock number (NSN), end item document number, and quantity. (Reference AFSCMAN 21-102 paragraph 14.70.2., **Table 14.14.**, *G004L Message Codes/Purpose Message*, for status advice codes, and **Table 14.11.**, *Production Item Cost Codes*, for D035K status advice reject codes.)	
		i..	Verify all reject and error corrections in the effected systems, and attach supporting documentation to the L2A report that shows the reject or error (**See**

			Note 1).
		ii.	Determine if above data elements match from the AFSC Forms 105 or AFSC Forms 130.
		iii.	If above data elements match from the AFSC Forms 105 or AFSC Forms 130, then annotate 'no corrections required' on the L2A report, sign, and date.
		iv.	File the L2A report (either paper or electronically) within the immediate work area for quick access.
		v.	Retain documentation (e.g., L2A report, AFMC Form 105, etc.) either paper or electronically IAW paragraph 1.12.1. for audit compliance (**see Note 2**).
		vi.	If corrections had to be made, annotate them on the L2A report once all corrections and documentation have been completed, with the corrective action taken, sign, and date. Retain documentation (either paper or electronically) IAW paragraph 1.12.1. for audit compliance.
2.	If there is no W5C report, which means there are no system imbalances and the scheduler is in balance with the systems, the scheduler will:		
	a.	Annotate such on a blank sheet of paper stating there was no W5C report for the week of (using the date of that week), record their PSSD on the paper, sign, and date.	
		i.	File this documentation (either paper or electronically) within the immediate work area for quick access and retain IAW paragraph 1.12.1. for audit compliance.
	b.	If out of balances are listed on the W5C report, done by a comparison between the prior week's report and the current week's report, and are seven days or older, the scheduler will research the out of balance using the various production systems to obtain information to identify where the out of balance exists.	
		i.	If the out of balance is because of an in-transit to maintenance, see in-transit process flow.
		ii.	If the out of balance is because of an in-transit to supply, see in-transit process flow.
		iii.	If the out of balance is a MIS out of balance, the scheduler will determine which of the MIS is out of balance knowing that D035K is the APSR.
	c.	If the out of balance exists from an errant sale of inputting an incorrect NSN, PDN/JON, and/or end item document number, the scheduler will email DLA-A a request for a transaction reversal in D035K that contains the following minimum information: document identifier code (DIC) (i.e., D6M), document number, quantity, PDN/JON, erroneous date of transaction, and condition code. Retain a suspense copy of the email.	
		i.	DLA-A will accomplish the necessary transaction in D035K.
		ii.	DLA-A will notify the scheduler by email of the action taken.
		iii.	Scheduler will verify the reversal in the MIS, re-input the correct transaction in the appropriate MIS, verify all corrections, and attach supporting documentation to the W5C report.
		iv.	Once all corrections and documentation have been completed, annotate on the W5C report the corrective action taken, sign, and date. File this documentation (either paper or electronically) within the immediate work area for quick access and retain IAW paragraph 1.12.1. for audit compliance.

3.	Reconcile the AFSC Forms 105 or AFSC Forms 130 to the MIS to ensure all match. If the AFSC Forms 105 or AFSC Forms 130 do not match with the MIS, the scheduler will research and determine if the AFSC Form 105 or AFSC Form 130 or MIS is out of balance.	
	a.	Make appropriate corrections to the AFSC Form 105 or AFSC Form 130 or take corrective action in the appropriate MIS.
	b.	Scheduler will verify all corrections and attach supporting documentation to the W5C or L2A report.
	c.	Once all corrections and documentation have been completed, annotate on the W5C report the corrective action taken, sign, and date. File this documentation (either paper or electronically) within the immediate work area for quick access and retain for two years for audit compliance.
4	Review the W5C report to identify out of balance conditions and then research/compare to D035K to determine if the M balance is too high or too low in comparison to what is on work [Awaiting Maintenance (AWM), OWO, or Awaiting Parts (AWP)] in the MIS.	
	a.	If the M balance against a NSN in D035K needs to be adjusted, the scheduler will complete an AFMC Form 37.
	b.	Send the AFMC Form 37 to DLA-A, and retain a suspense copy on file. Follow up with DLA-A within five business days on status.
	c.	DLA-A will accomplish the necessary adjustments in D035K.
	d.	DLA-A will notify the scheduler by completing the AFMC Form 37 with the action taken.
	e.	Scheduler will verify all corrections in the appropriate MIS and attach supporting documentation to the W5C or L2A report.
	f.	Once all corrections and documentation have been completed, annotate on the W5C report the corrective action taken, sign, and date. Close out the report by filing it (either paper or electronically) and retain IAW paragraph 1.12.1. for audit compliance
5.	It is incumbent upon the scheduler to keep the systems balanced as well as keeping AFSC Forms 105 and AFSC Forms 130 in line with the MIS and D035K. Whenever adjustments are made in the MIS and D035K which affect an AFSC Form 105 or AFSC Form 130, the scheduler must make the appropriate corrections on the form in question. It is incumbent upon the scheduler to ensure that all assets OWO end item document numbers match in the MIS and D035K as well as on the forms.	
6.	To ensure audit compliance, the scheduler will retain records (either paper or electronically) of the G004L L2A/W5C reports that are worked on a daily and weekly basis, respectively, and AFSC Forms 105 or AFSC Forms 130 as back up records IAW paragraph 1.12.1. If a scheduler is reassigned or moved from the PSSD in question or the workload is moved, the records must remain or accompany the workload in question. If the workload is terminated, the files will be retained either paper or electronically in the shop where the PSSD is assigned and kept IAW paragraph 1.12.1. All records must be available if requested by an auditor.	
Note: 1 – Failure to provide corrective action to a reject or error can effect asset accountability and Financial Improvement and Audit Readiness (FIAR). 2 – Electronic forms used in lieu of hard paper copies are acceptable		

14.92. In-Transit Reconciliation Process Narrative.

14.92.1. This process flow narrative addresses the weekly data reconciliation of the DIOH transactions with outstanding in-transits to and from maintenance greater than seven days. This process details the reconciliation process between D035K and the maintenance information systems (MISs) for outstanding in-transits. It is incumbent upon the scheduler to follow this process to ensure audit compliance with item accountability. Inductions and completions of production end items from supply sources will be accomplished by a D7M-RA-CL, receipt acknowledgement or turn–in transaction, or by a D6M_T in ITS/G337, Impresa, or G402A which passes to D035K. Once an end item is receipted back into supply, there will be a D6M RT in D035K.

14.92.2. When conditions exist due to an in-transit to maintenance, the scheduler will at a minimum:

Table 14.26. Receipt Acknowledgement (RA).

1.	At least weekly, pull the G402A RA Suspense list and either of the two following reports:		
	a.	Center of Parts Activity (COPA) DIOH D7M In-Transit with no RA report	
	b.	OC/OO/WR In-Transit report	
2.	Use the above documents to determine if there are any transactions older than seven days for the Production Section Scheduling Designator (PSSD) assigned.		
3.	If there are no items greater than seven days, the scheduler will annotate on the G402A RA Suspense list 'No RAs to clear' for week of, using the date of that week, sign, date, and file the G402A RA Suspense list within the immediate work area for quick access, and retain (either paper or electronically) for a period IAW paragraph 1.12.1. for audit compliance (**See Note).**		
4.	If there are items on the G402A RA Suspense list or either of the In-Transit reports that are greater than seven days old, the scheduler will:		
	a.	Perform a physical search and consult MRO Tracker to determine if the item has been delivered to the shop and collaborate with Defense Logistics Agency-Aviation (DLA-A) when appropriate.	
	b.	If the item is located, the scheduler will clear the RA (D7M-RA-CL) in the appropriate MIS and attach the applicable L2A or applicable D035K RINA screenshot to the G402A RA Suspense list and sign, date, and file the G402A RA Suspense list within the immediate work area for quick access, and retain (either paper or electronically) IAW paragraph 1.12.1. for audit compliance.	
	c.	If the missing item is not located, the scheduler will complete either an AFMC Form 37, Inventory Research Worksheet, to notify DLA-A of the missing item or a Web Supply Discrepancy Report (SDR) to notify Defense Logistics Agency-Depot Distribution (DLA-DD) of the missing item. The scheduler will:	
		i.	Retain a suspense copy of the AFMC Form 37 or the WebSDR.
		ii.	Follow up with DLA-A or DLA-DD within five business days on the status of the missing item.
		iii.	Verify the corrections in the appropriate MIS, attach supporting documentation to the G402A RA Suspense list, annotate on the G402A RA Suspense list the

			corrective action taken, sign, date, and file documentation within the immediate work area for quick access, and retain (either paper or electronically) IAW paragraph 1.12.1. for audit compliance.
5.	If an incorrect item (misidentified) is delivered to the shop, the scheduler will:		
	a.	Clear the RA Suspense in the appropriate MIS.	
	b.	Try to identify the correct national stock number (NSN) for the item.	
	c.	Process a DF1 in G402A (EPS) for the misidentified item to correct the balance.	
	d.	Determine if the shop will retain or return the misidentified item.	
		i.	If the misidentified item is to be returned to supply, a D6M transaction will be processed using the correct NSN.
		ii.	If the item is retained for repair, the item will be put on work order (OWO) in accordance with this chapter.
	e.	Verify corrections in the appropriate MIS and attach supporting documentation to the G402A RA Suspense list. Annotate on the G402A RA Suspense list corrections and documentation has been completed with the corrective actions taken, sign, date, and file the G402A RA Suspense list and supporting documentation within the immediate work area for quick access, and retain (either paper or electronically) IAW paragraph 1.12.1. for audit compliance.	
Note: Electronic forms used in lieu of hard copies are acceptable providing the forms fulfill the intent of the hard copies and provide the required reporting data.			

14.92.3. When conditions exist due to an in-transit to supply, the scheduler will at a minimum:

Table 14.27. Receipt Transaction (RT)/Turn-In.

1.	At least weekly, pull the W5C report and either the Center of Parts Activity (COPA) DIOH D6M In-Transit with no RT report for the Production Section Scheduling Designator (PSSD) assigned or the OC/OO/WR In-Transit report.	
2.	Determine if items greater than seven days old.	
3.	If there are no items greater than seven days old, which means there are no intransit receipts (D6M RT) pending processing by DLA-DD, the scheduler will annotate the PSSD on the report and 'No RTs pending to clear' for week of (use the date of that week), sign, date, and file the report within the immediate work area for quick access, and retain (either paper or electronically) IAW paragraph 1.12.1. for audit compliance (**See Note**).	
4.	If there are items on either of the reports which are seven days or older, the scheduler will perform a physical search within the shop to validate that the item was handed off to DLAA/DLA-DD to return to supply. Scheduler will also work with DLA-A/DLA-DD to search for the missing item to see if the item is still awaiting processing in any of the various DLA staging areas.	
	a.	If the missing item is located, the scheduler will work with DLA-A/DLA-DD to have the item processed and monitor the transaction history in D035K for the RT.
	b.	Once the RT is verified in D035K, the scheduler will attach the D035K RINA screenshot to the report and annotate on the report the corrective action taken, sign, date, and file the report within the immediate work area for quick access, and retain (either paper or electronically) IAW paragraph 1.12.1. for audit compliance.
	c.	If the missing item is not located, the scheduler will complete either an AFMC Form

		37, Inventory Research Worksheet, to notify DLA-A of the missing item or a WebSDR to notify DLA-DD of the missing item. The scheduler will:	
		i.	Retain a suspense copy of the AFMC Form 37 or the WebSDR.
		ii.	Follow up with DLA-A or DLA-DD within five business days on the status of the missing item.
		iii.	If the item has been found, the scheduler will ensure the receipt is input into the appropriate MIS, attach supporting documentation to the report, annotate on the report the corrective action taken, sign, date, and file documentation within the immediate work area for quick access, and retain (either paper or electronically) IAW paragraph 1.12.1. for audit compliance.
	d.	If the missing item is still not located after all exhaustive research has been completed, the scheduler will follow DoD 7000.14-R Financial Management Regulation; Volume 12/Chapter 7: Financial Liability For Government Property Lost, Damaged, Destroyed, or Stolen, to determine if a report of survey (ROS) is required.	
		i.	The scheduler will submit the original AFMC Form 37 with documentation of the research conducted to notify DLA-A of the missing item and request to drop the in-transit to supply balance. The scheduler will retain a suspense copy of the AFMC Form 37 pending action taken by DLA-A.
		ii.	If a ROS is required, the scheduler will submit a request for a DD Form 200, *Financial Liability Investigation of Property Loss*, to the ALC ROS Point of Contact (POC) to assign to the investigating organization. The scheduler will retain a copy of the request for a ROS and other supporting documentation in a suspense file pending results of the ROS.
Note: Electronic forms used in lieu of hard copy are acceptable providing the forms fulfill the intent of the hard copy and provide required reporting data.			

14.92.3.1. Scheduler will follow up with DLA-A within five business days on DLA-A accomplishing the necessary adjustments. The scheduler will then verify all corrections in the appropriate MIS, attach all supporting documentation to the report, and annotate on the report the corrective action taken, sign, date, and file the report within the immediate work area for quick access, and retain (either paper or electronically) IAW paragraph 1.12.1. for audit compliance.

14.92.4. Supply Inventory held for Repair by Organic Depot Maintenance.

14.92.4.1. This guidance provides details in conducting the annual 100% inventory, and the required documentation to support it. This guidance applies to the inventory process for Air Force owned assets undergoing maintenance, repair and overhaul (MR&O) by the Air Force Sustainment Center's (AFSC) Air Logistics Complexes (ALC) depot maintenance activities.

14.92.4.2. AFSC/LZDB will provide oversight of the annual 100% inventory execution and ensure the required supporting documentation is maintained. AFSC/LZDB will provide the baseline inventory list to the Air Logistics Complexes (ALC). The baseline is a list of all assets undergoing MR&O at the ALCs. These assets are tracked in D035K as condition code "M" and in the maintenance information systems as OWO, AWM and/or AWP status.

14.92.4.3. The ALCs will task the maintenance activities with the inventory requirements and the baseline list. The inventory reporting dates will also be provided to the groups. This inventory will be a floor-to-book inventory. D035K is the “book” and the maintenance shops/maintenance information systems (MIS) will be the “floor”. ” The Inventory Count Sheet will be used to conduct and document the inventory for each individual item. If there are multiple NSNs undergoing the count, the additional NSNS may be attached to the form.

14.92.4.4. All assets on the baseline inventory list will be physically counted and documented on an AFSC Form 400.

14.92.4.5. For assets that are out-of-balance (OOB), another count will be conducted and transactional research will be performed to determine if an asset was inducted, sold, or misidentified after the baseline inventory list was provided. Inducted assets will show a D7M receipt acknowledgment (RA clear) and a sold will show a D6M with a minus the M (-M) and a Z in-transit.

14.92.4.6. If the NSN is still out of balance, an AFMC Form 37, Inventory Research Worksheet; will be initiated to indicate the research actions taken and results of research actions.

14.92.4.7. The AFMC Form 37 will be signed by the appropriate level of leadership (Flight Chief, Squadron CL Group DD, or Complex CC) depending on the cost of the asset. NOTE: the approval is certifying that complete and adequate research has been accomplished and there is no reason to believe there is theft, fraud and misdemeanor.

14.92.4.8. Once the AFMC Form 37 has been signed, it will be given to DLA-A to make the adjustments to the appropriate condition code in D035K.

14.92.4.9. All supporting documentation will be maintained for two years with the scheduling documentation in accordance with the depot maintenance records retention rule.

Chapter 15

DEPOT MAINTENANCE PLANT MANAGEMENT

15.1. Mission Functions. This chapter provides guidance, procedures, and responsibilities for the MXSG in performing the management, repair, and maintenance of assigned non-real property facilities and equipment used in the depot maintenance industrial operations and activities. The MXSG has management oversight and support of those activities traditionally referred to as plant management and industrial services which includes support equipment (SE)/Depot Industrial Plant Equipment (DIPE) and facilities maintenance, inspection, repair, installation, and engineering. The core MXSG mission functions include:

15.1.1. Perform installations, shop relocations, and removal and modifications of non-real property facilities and equipment.

15.1.2. Manage and perform repair/maintenance of non-real property facility maintenance and equipment.

15.1.2.1. Perform inspection and maintenance, i.e., PM, predictive maintenance (PdM), corrective maintenance (CM), and on condition maintenance (OCM) on DIPE.

15.1.2.2. Establish maintenance program strategies that utilize diagnostics, prognostics, and health management techniques (i.e., Reliability Centered Maintenance (RCM) and Condition Based Maintenance Plus (CBM+) when feasible and proven effective in reducing cost and while increasing availability and reliability, and mitigating risk of DIPE failure.

15.1.3. Receive work requests, plan, engineer, schedule, control, and manage material in support of paragraphs 15.1.1., 15.1.2., and 15.1.3.

15.1.4. Manage and operate the industrial Tool Management Center (TMC) IAW **Chapter 10**.

15.1.5. Assist the Air Base Civil Engineering Group (BCE) in the development and management of DMAG facility maintenance, repair, and minor construction programs.

15.1.6. Provide a focal point for requesting and monitoring BCE support of industrial real property facilities and equipment.

15.1.7. Provide non-real/real property engineering support to ALC/Groups/Host Tenants.

15.1.8. Manage, operate, and support the MXSG Laboratory (also known as the physical science laboratory services).

15.1.9. Manage the ALC/Groups' industrial process energy and conservation program.

15.1.10. Manage other DMAG workloads as determined appropriate by the individual ALC.

15.1.11. Utilize the FEM within ALC depot maintenance for documenting, scheduling, and tracking of the facility and equipment maintenance activities.

15.2. Local Instruction (LI). Each ALC will establish and/or maintain current LIs that outline/supplement local procedures deemed necessary to meet the requirements and intent of this chapter. (**Note:** Existing LIs will be reviewed and updated within 180 days from the publication of this manual and reviewed every four years from the LIs' last published date. ALCs are requested

to include AFSC/LZDA in each technical and functional review). The LI will provide specific procedures for the following:

15.2.1. Processing, controlling, and accomplishing support of depot maintenance equipment and facilities that are managed, assigned to, and processed through and/or by the MXSG.

15.2.2. Determining strategies and requirements for monitoring and accomplishing PM, CM, and PdM for depot equipment IAW applicable TOs, manufacturer's recommendations, and historical maintenance data.

15.2.3. Developing plans and performing MXSG functions.

15.3. Categories of Work Performed by MXSG.

15.3.1. Repair. Repair is work normally generated as a result of utility, facility, or equipment failures. The MXSG will operate a trouble call desk or virtual electronic equivalent to receive work through the FEM for the receipt and processing of repair work on non-real property. Instructions on repair work are in section 15.5.

15.3.2. Project Work. Project work is work resulting from management planning efforts. Examples of typical project-type workloads include the installation of new equipment and relocation of a Maintenance Group shop. The planning, scheduling, and control functions will receive and process requests for this type of work in section 15.9.

15.3.3. Preventive Maintenance (PM) and Predictive Maintenance (PdM). PM and PdM is work planned, scheduled, and performed to protect the capability of equipment by identifying and removing the cause of failure and making adjustments for normal wear before failure occurs. This work is performed on a predetermined time schedule according to the instructions contained in section 15.5.

15.3.4. Direct Product. Direct product is work normally resulting from a requirement of a MXSG customer for skills peculiar to the MXSG defined responsibilities. When this occurs, procedures applicable to the direct production activity will apply to the MXSG resources involved. A direct production RC/CC may be established in the MXSG where it permits the most efficient use of skills and wing/group resources.

15.4. Relationship to BCE (Work Accomplishment). BCE is responsible for maintaining real property, roads and grounds, RPIE, and utilities. Real property facilities and equipment are defined as lands, buildings, structures, utility systems, improvements, and accessories as accounted for in real property records. The BCE obtains project approval, executes facility projects, establishes and maintains programs to prevent real property deterioration, and develops and conducts a facilities and infrastructure maintenance and operations program based on mission requirements and cost effectiveness.

15.4.1. MXSG Support Vs. BCE Responsibilities. Availability of resources may drive changes to BCE and MXSG responsibilities listed in **Table 15.1.** A local memorandum of agreement will be developed to reflect these changes and formalized into the LI.

15.4.2. Requests for BCE Support. MXSG will serve as the liaison between the Maintenance Groups and the BCE.

Table 15.1. MXSG Support Vs. BCE Responsibilities.

TASK				MXSG	BCE
1.	Equipment Repair and Maintenance				
	a.	Real Property Installed Equipment (RPIE)			X
	b.	Depot Industrial Plant Equipment (DIPE)		X	
2.	Equipment Installation: (for DIPE)				
	a.	a. Installation/Relocation of Prefabrication Screens, Partitions, and Dividers		X	
	b.	False Floors and Platforms		X	
	c.	Excavation		C	
	d.	Anchorage to Floors		X	
	e.	Foundation and Pads		C	
	f.	Temporary Removal and Reinstallation of Existing Roofs, Walls, Utility Systems, and Appurtenances			C
	g.	Ventilation and Separate Exhaust System Requiring Wall or Roof Penetration		C	
	h.	Utilities:			
		(1)	Electrical less than 600 volts from the equipment to first service disconnect	X	
		(2)	Electrical greater than 600 volts all connections		X
		(3)	Other utilities, e.g., compressed air, chilled water, steam, potable water, natural gas, to and including the first shutoff inside the building, etc.		X
		(4)	High pressure compressed air (process air)	X	
		(5)	Industrial gases, e.g., argon, hydrogen, nitrogen, all government-furnished DIPE, valves, fittings, gauges, etc.	X	
		(6)	Air conditioning strictly for equipment operation (DIPE)	X	
3.	Permanent Real Property Facilities and Installed Equipment Repair and Maintenance (RPIE)				X
4.	Portable Buildings/Offices				
	a.	Repair and Maintenance		C	
	b.	Exterior Site Determination			X
	c.	Interior Site Determination		X	
	d.	Utility Connections		C	
5.	Painting				
	a.	Industrial Plant Equipment (DIPE)		X	
	b.	Process Related Areas and Structures		X	
	c.	Real Property Facilities and Equipment			X
6.	Pavement Construction, Repair, and Maintenance				X
7.	Sign Construction, Modification, and Replacement				
	a.	Facility and Exterior Organizational Identification			X
	b.	Interior Organizational Signs		X	
8.	Duplicate Keys				
	a.	Real Property Facilities Integral Type Locks			X
	b.	Non-Integral Type Padlocks and Organizations' Equipment		X	

9.	Grounds Keeping (Mowing and Policing)			
	a.	Within 50 feet for assigned facilities or as designated		X
	b.	Other as agreed upon in a MOA		C
10.	Landscaping (Planting, Spraying, and Fertilizing)			X
11.	Interior Lighting			
	a.	Up to 10 feet in height	X	
	b.	Greater than 10 feet		X
12.	Exterior Lighting			X
Note: X or C indicates the task OPR. C tasks require BCE coordination/support prior to MXSG performing work. Local coordination procedures will be jointly determined by MXSG and BCE and documented. C tasks may vary based on the extent and/or nature of the work. These areas are negotiated if the OPR is not clear. This listing of MXSG responsibilities versus BCE responsibilities was modified to require additional coordination. This increased coordination will protect utility systems from overload and help to maintain the structural integrity of real property.				

15.4.3. Interpretation of Utility Tasks. The juncture point where the utility systems meet for real property and non-real property require close coordination on the overall responsibilities and actions by either the BCE or MXSG. The following paragraphs are intended to help clarify the interpretation of utility tasks performed by the BCE or MXSG and promote additional coordination between these activities.

15.4.3.1. Electrical less than 600 volts. MXSG will maintain all branch circuits within a Maintenance Group occupied facility from power distribution panel or buss way to non-RPIE utilization equipment. BCE will be responsible for power supply and electrical components to the first buss switch on the main distribution service and all electrical installations to RPIE. BCE will make all connections to the supply point in electrical vaults for RPIE and non-RPIE unless approval is granted to MXSG through an AF Form 332.

15.4.3.2. Electrical greater than 600 volts. BCE will be responsible for maintenance and repair of all power supply, electrical equipment, and connections to RPIE as well as nonRPIE.

15.4.3.3. Potable Water Systems. BCE will be responsible for maintenance and repair of the systems to be used for personnel and sanitary installations as well as the supply and complete distribution system up to and including the backflow preventing device at the service connection to all process and non-RPIE industrial systems. **Note:** Fire water supply and distribution systems are BCE responsibility.

15.4.3.4. Chilled Water and Hot Water Systems. Chilled water and hot water are considered utility systems if any part is being used for typical facility HVAC and/or RPIE support. As a utility, BCE will be responsible to maintain the chilled water plant or boiler plant supply and return piping main loop as well as all RPIE support secondary distribution systems. Process and other non-RPIE hot or chilled water supply and return DIPE systems will be maintained by the MXSG from the service connection at the supply main to the service connection at the return main or first valve installation in service loop if no disconnecting means is available at the service connection. The chilled water will be of such a quality that it meets a maximum standard of 45 degrees F with a particulate

of 5 micron or less at point of use. Unique systems that support a weapon system are not to be considered utility support.

15.4.3.5. Steam and Condensate Return, Natural Gas, and Compressed Air (Non-Breathing Air). All plant and main distribution is the responsibility of the BCE. Secondary branch systems to support non-RPIE will be maintained by MXSG from the service connection at the main distribution system or closest valve in the branch line if no service disconnect is available to the non-RPIE or utilization process. BCE will make all connections to the source of supply. The compressed air will be of such a quality that it meets a minimum standard of 32 degrees F dew point with a particulate of 5 micron or less at point of use.

15.4.3.6. Industrial Gases (e.g., Argon, Hydrogen, Nitrogen, etc.) and High Pressure Compressed Air. All plants, storage reservoirs, DIPE systems, gauges, etc. will be maintained by MXSG.

15.4.3.7. Waste Water Collection Systems. BCE will be responsible for all collection systems supporting sanitary/personnel comfort facilities and that from industrial process point sources. Waste water discharge from industrial processes will be conveyed by non-real property process piping or other means to the BCE industrial waste collection system (IWCS). MXSG will be responsible to maintain all IWCS conveyance systems that are not RPIE. Below grade sumps that have no gravity fed connection to the IWCS and only collect waste water from non-RPIE sources will be considered the same as floor drains and maintained by the BCE. Small waste water forwarding pumps affiliated with DIPE with discharge piping, valves, fittings and controls will be a MXSG responsibility. BCE will be informed by process owners within the ALC anytime a change in production processes will result in increased volume of waste collection.

15.4.3.8. Storm Water Collection System. Maintenance of storm drains is a BCE responsibility. Only non-polluted rain water run-off shall be conveyed to the storm water collection system. Oil-water separators in the storm water systems will be maintained and repaired by BCE.

15.4.3.9. Irrigation Sprinkler Systems. Maintenance and repair of automatically or manually controlled irrigation and sprinkler systems is a BCE responsibility and as RPIE will be a part of landscaping.

15.4.3.10. Newly-Constructed Facilities and Substantial Additions or Alterations to Existing Facilities. MXSG will be notified when BCE has accepted the formal issuance of a certification of beneficial occupancy. Prior to occupying a new facility, MXSG and BCE will meet to confirm all BCE responsible equipment and MXSG responsible Initial Outfitting Equipment (IOE). When responsibility is determined, MXSG and BCE will install a tag on their identified equipment to indicate recognition of their maintenance responsibility. BCE will turn over to the MXSG representative all Operator Maintenance (OM) manuals, spare parts lists, drawings, start-up instructions, etc., for industrial equipment which are provided by the contractor as a requirement of the construction contract. To assure that warranty conditions are properly satisfied, it is imperative that BCE promptly surrenders all non-RPIE PM and OM data to MXSG and timely arranges for the preoccupation meeting with MXSG representatives. MXSG will in turn provide data access to other organizations within ALC.

15.5. Equipment Maintenance and Inspection Program. The following paragraphs provide guidance for maintenance and inspection procedures and practices to ensure reliability and mission support capability of all assigned SE/DIPE. This guidance supplements TO 00-20-1, other applicable TOs, engineering/commercial specifications, and AF standards by clarifying terminology for the plant management and industrial service activities. This guidance documents and tracks maintenance actions of the equipment maintenance and inspection program established by the MXSG.

15.5.1. Types of Equipment. The term SE is used frequently to define or categorize a set or grouping of equipment used to support a weapon system, vehicle, function, or activity (i.e., test). Similarly, DIPE will refer to that equipment used in support of the depot maintenance mission and operations to maintain, repair, overhaul, and test of AF weapon systems and components at the depot maintenance industrial activities.

15.5.1.1. SE may include powered and non-powered ground equipment, IPE, test equipment, measurement equipment, diagnostic equipment, machinery and shop equipment, and special handling and tooling. The MXSG in collaboration with the users will determine which equipment requires specific OM and the equipment to be included in their PM and PdM program. Equipment such as bench grinders and bench drill presses may only require OM because of its simplicity and intermittent use. However, more complex equipment such as numerically-controlled machine tools, lathes, milling machines, boring machines, surface grinders, hoists, and test stands must be capable of producing to specific tolerance. This equipment will require specific PM or PdM in addition to OM.

15.5.1.2. DIPE (or generically IPE) is permanently affixed (i.e., fixed location) equipment that is not readily movable and typically used in an industrial maintenance area. Other equipment as determined by MXSG may be categorized as DIPE and documented in the LI. DIPE is used for but not limited to cutting, abrading, grinding, shaping, forming, joining, testing, measuring, heating, treating, or otherwise altering the physical, electrical, or chemical properties of materials, components, or end items, entailed in manufacturing, maintenance, supply, processing, and assembly operations. Machine shop and common industrial equipment such as material conveyance systems, process compressed air and vacuum systems, specialized industrial gas systems, and hoists/bridge cranes may be included. DIPE will be identified with an MXSG identification number IAW paragraph 15.7.1.2.

15.5.1.3. Non-DIPE will include all SE required to perform support functions except when it is or becomes an integral part of mission equipment. SE does not include any equipment required to perform mission operation functions. SE will include test equipment and automatic test equipment when it accomplishes a support function, field SE, and related computer programs and software. Examples are direct SE and powered/non-powered AGE.

15.5.1.4. Machinery and shop equipment (3400 Series) include small bench grinders, buffers, drill presses, or other equipment that requires only OCM. The equipment that does not require specific OM, specific servicing inspections, or for which technical data does not exist will be documented IAW TO 34-1-3, *Inspection and Maintenance*

Machinery and Shop Equipment, and TO 00-20-3, *Maintenance Process of Reparable Property and the Repair Cycle Asset Control System*.

15.5.2. Program Criteria. MXSG, with the aid of the Maintenance Groups, will use inspection techniques, engineering/technical data (i.e., TOs), commercial technical manuals, work cards, or checklists to determine the applicable maintenance/inspection requirements, accomplishment intervals, and frequencies for assigned equipment. The maintenance and inspection program may include the statistical analysis of maintenance and inspection data, i.e., cost, mean-time-between-failure/repair, use, and other data elements in FEM to make sound decisions.

15.5.2.1. The following criteria will be applied to determine if equipment will be included in the maintenance management PM or PdM program:

15.5.2.1.1. Equipment subject to breakdown repairs that are expensive compared to PM or PdM will be included.

15.5.2.1.2. Equipment critical to production and where failure would result in costly downtime will be included.

15.5.2.1.3. Equipment not critical to the depot maintenance process (e.g., small drill press, etc.) and can be repaired without regard to downtime or equipment availability should be excluded.

15.5.2.1.4. Equipment of small dollar value where the cost of PM or PdM is likely to exceed the replacement cost upon failure should be excluded.

15.5.2.2. The use of diagnostics, prognostics, and health management techniques (i.e., RCM and CBM+) can be considered when the use of these techniques are feasible and proven effective in reducing cost, while increasing availability and reliability, and mitigating risk of DIPE failure.

15.5.2.3. Machinery and shop equipment for which technical data does not exist will be maintained IAW TO 34-1-3 and TO 00-20-3. Examples of this class of machinery and shop equipment include small bench grinders and buffers, drill presses, etc.

15.5.2.4. Follow all prescribed periodic maintenance instructions addressed by AFMAN 91-203 or other AFOSH policy.

15.5.3. Maintenance and Inspection Processes. PM and PdM are common terms describing the techniques used by the MXSG to perform and meet scheduled inspection and lubrication/periodic maintenance requirements (reference TO 00-20-1). Depending on the type of equipment and maintenance requirements identified, the MXSG will use other techniques such as RCM, CBM+, CM, OM, or OCM when applicable. Maintenance, inspection, and repair data will be maintained in FEM to the maximum extent possible unless specified in TOs and other directives.

15.5.3.1. PM is the normal upkeep and preservation of equipment through systematic inspection, detection and correction of discrepancies to prevent failures, to verify serviceability, or restore complete serviceability of equipment that has been subjected to usage, wear and tear, or deterioration caused by environmental elements. It is performed on a periodic basis according to a specific set of instructions and a predetermined time schedule and includes such actions as locating and correcting minor vibrations or tool

chatter, adjusting or replacing drive belts, accomplishing lubrication requirements, making adjustments in gibs, bearings, and lead screws, and the leveling of machines.

15.5.3.1.1. PM frequency is determined IAW paragraph 15.5.2.

15.5.3.1.2. PM inspections should be spaced as far apart as possible to reduce cost yet stay within safe time limits during which defects do not ordinarily develop to the point of needing attention.

15.5.3.1.3. Follow TO prescribed frequencies when weapon system peculiar equipment is covered by a TO.

15.5.3.1.4. Manufacturer's recommendations, commercial operating manuals, historical data, or specifications will be used to determine PM instructions if no maintenance TOs exist or are no longer applicable due to approved modifications that have been done to the equipment and the maintenance TO updates have not been approved. Any unique requirements to prevent voiding the manufacturer's warranty will be sustained to the fullest extent possible.

15.5.3.1.5. Historic data or judgment may be used for equipment that has no technical data available. Apply historical maintenance data and judgment based upon similar equipment to establish and/or adjust PM frequencies in the absence of data sources. If frequent repair is required, increased PM may be justified. Conversely, lack of repair may indicate the PM frequencies should be reduced. Repair data is maintained in FEM. Use the AFSC Form 388 as an option to FEM only if required.

15.5.3.1.6. The PM is overdue when the original PM due date has been exceeded.

15.5.3.1.6.1. Conditions may exists that prevents a PM scheduled inspection/lubrication being accomplished on or before its due date. IAW TO 00-20-1, a 'red dash' entry will be annotated in the AFTO Form 244, *Industrial/Support Equipment Record*/AFTO Form 245, *Industrial/Support Equipment Record (Continuation)*, or FEM electronic equivalent indicating a required inspection has not been made or it is overdue. This will allow the due inspection to be accomplished as soon as the condition preventing its completion no longer exists but NLT during the next scheduled major inspection as documented in FEM or as directed by TOs, checklists, or LIs.

15.5.3.1.6.2. MXSG PM inspections not completed by the next scheduled inspection will be upgraded to a 'Red X' indicating equipment is unsafe or unfit for use and taken out of service until the unsatisfactory condition is corrected or the symbol is cleared by the MXSG/CC or designated authority per procedure in the LI.

15.5.3.1.6.3. When local conditions (e.g., utilization, type of mission, personnel, periods of inactivity, environmental conditions, longer PM/inspection intervals, etc.) dictate, it is the prerogative and responsibility of the MXSG to increase the scope and/or frequency of maintenance or inspections as necessary to ensure safe operation and mission effectiveness. Procedures and criteria will be established when necessary and documented in the LI.

15.5.3.1.7. For MXSG maintained equipment, the MXSG ESs will prepare PM instructions which are reflected on AFSC Form 306, *Preventative Maintenance*

Instructions, or FEM generated/computer equivalent. A FEM generated/computer work order may be used in lieu of AFSC Form 306 and is not required to be attached to the equipment. The FEM generated/computer work order should contain the PM number, due date, and next due date or when OCM and/or the minimum interval of inspection for the specified equipment is required.

15.5.3.1.8. Using organizations preparing internal PM instructions may utilize the AFSC Form 306 to identify these inspections. Using organizations will identify on the AFSC Form 306 all organizational inspections.

15.5.3.2. PdM is the process of using electrical and mechanical testing and diagnostic devices to predict when a piece of equipment is deviating from its normal operating parameters. It is designed to protect equipment capability and investment by removing causes of failure and making adjustment to compensate for normal wear before failure or an unsafe condition occurs. PdM technology may aid in optimizing PM frequencies by utilizing data trends.

15.5.3.2.1. When analysis shows to be feasible and cost effective, MXSG may develop and incorporate PdM strategy and procedures using applicable DoD maintenance concepts, technologies, and processes based on readiness requirements, life-cycle cost, and reliability-based functional analysis for MXSG maintained equipment. For example, two DoD supported concepts often referenced and considered are as follows:

15.5.3.2.1.1. RCM can provide a logical analysis and structured approach to determine the optimal failure management strategy based on what must be done to achieve the desired levels of safety, reliability, environmental soundness, and operational readiness at best cost. Reference paragraph 15.12.

15.5.3.2.1.2. CBM+ can allow routine PdM based on the evidence of need through enhanced reliability analysis and forecasted by analyzing data collected through automated sensors and systems to ensure desired levels of safety, reliability, availability, and reduced cost are met.

15.5.3.3. CM is the unscheduled repair or service of equipment to verify serviceability or to restore complete serviceability of equipment that has been subjected to usage, wear and tear, component failure, or deterioration caused by environmental elements. MXSG will perform CM on a customer demand basis.

15.5.3.4. OM requirements are documented and maintained with the equipment or are readily accessible. As a minimum, OM requirements will include the nomenclature of the equipment, equipment identification number, frequency of maintenance action, and the actions required. Maintenance performed by the equipment operator falls into one of the following categories:

15.5.3.4.1. General OM. General OM applies to all equipment to ensure serviceability and safety of the equipment prior to use. It consists of a review of equipment documentation for current status and visual inspection of the equipment for defects, adequate servicing, and general state of cleanliness.

15.5.3.4.2. Specific OM. Specific OM is equipment maintenance or inspection of a specific nature or OM of a critical nature that, if neglected, could result in costly

equipment damage or create an unsafe condition for shop personnel. The owning organization/operator performs and documents the OM which is attached to the equipment or is in a readily accessible location IAW LIs.

15.5.3.5. On Condition Maintenance (OCM). OCM generally applies to equipment that does not have any published technical data requiring specific inspections. It may also apply to less costly and less complex equipment whereby the cost of scheduled PM is not feasible and only requires general OM. Equipment of this type may be repaired by MXSG personnel as required. Documentation will be IAW TO 34-1-3.

15.6. Maintenance Initiation.

15.6.1. Maintenance Group personnel (i.e., production shop) and MXSG maintenance personnel will follow AFMAN 91-203 and specific equipment/maintenance TOs regarding lockout/tagout for DIPE on any safety hazard.

15.6.2. Requesting organization will provide the following information when contacting the maintenance organization for repairs.

15.6.2.1. Status of the equipment (operational or inoperative).

15.6.2.2. Type or nature of repair service required.

15.6.2.3. Equipment type and the equipment identification number.

15.6.2.4. Justification to establish priority code IAW paragraph 15.7.1.12.

15.6.2.5. Name of the reporting individual.

15.6.2.6. Equipment location including building number, post or room number, shop name, shop RC/CC, and any other pertinent information.

15.6.2.7. Name and telephone number of requesting organization, point of contact, and alternate to be contacted at repair site.

15.7. Responsibilities. The following paragraphs outline the responsibilities of the MXSG and the MXG production or equipment using organization.

15.7.1. MXSG will:

15.7.1.1. Establish a PM program using the SE specific technical data, work cards, checklists, or commercial manuals. When SE does not have specific technical data, MXSG will develop and document inspection criteria in the LI.

15.7.1.2. Assign identification numbers for MXSG maintained equipment IAW ALC developed procedures. These procedures will be documented in the LI.

15.7.1.3. Establish a PdM program for MXSG maintained equipment, if and where applicable, justifiable, and risk mitigated.

15.7.1.4. Perform CM, PM, and PdM on MXSG maintained equipment.

15.7.1.4.1. Follow lockout/tagout procedures IAW AFMAN 91-203 and specific equipment/maintenance TOs for equipment discrepancies that endanger personnel safety.

15.7.1.5. Maintain a master listing of DIPE requiring OM, PM, and PdM by equipment number. The master listing may be maintained within the FEM.

15.7.1.6. Input updates into FEM.

15.7.1.7. Maintain maintenance technical data required for MXSG to perform PM and CM of SE. Technical data includes commercial technical publications, TOs, engineering specifications, and other technical data the ALC deems necessary to maintain the equipment.

15.7.1.8. Ensure PM and CM status for MXSG maintained equipment is made available to the using organizations through a web access interface to the FEM.

15.7.1.9. Receive work request and determine applicable repair shop.

15.7.1.10. Initiate the work order by entering the data into FEM.

15.7.1.11. Track equipment maintenance history and costs in FEM.

15.7.1.12. Assign priority code IAW the following criteria:

15.7.1.12.1. Priority Code 5 – Repair work that demands immediate response to prevent injury to personnel due to a safety hazard. Equipment will be secured IAW AFMAN 91-203. If additional ALC procedures are used, then document these procedures in the LI.

15.7.1.12.2. Priority Code 4 – Repair work that demands immediate response to correct critical workload stoppage and for a condition that must be repaired to prevent damage to equipment if operated. If a condition exists that could damage the equipment, it will be secured IAW AFMAN 91-203. If additional ALC procedures are used, then document these procedures in the LI.

15.7.1.12.3. Priority Code 3 – Routine maintenance that is scheduled or unscheduled. This would include actual work stoppage of a non-critical workload.

15.7.1.12.4. Priority Code 2 – Potential for minor property damage.

15.7.1.12.5. Priority Code 1 – Repair work that can be deferred.

15.7.1.13. Ensure MXSG personnel are provided familiarization training on ALC standard documents and operating procedures for the equipment and inspection program, using the AFTO Form 244/AFTO Form 245, AFSC Form 355, *Operator Maintenance Certification,* operation of the FEM web access interface, and other related training IAW training outlined in the local procedures documented in the LI.

15.7.1.14. Ensure records or FEM electronic equivalent of inspection, lubrication, and maintenance of industrial equipment are maintained IAW TO 00-20-1 and any local procedures documented in the LI.

15.7.2. MXG (i.e., production)/equipment using organization will:

15.7.2.1. Ensure equipment operators review and verify equipment status prior to use by reviewing attached maintenance forms (e.g., AFTO Form 244, AFSC Form 355, FEM generated/computer forms, etc.) and FEM.

15.7.2.2. Report the acquisition, installation, relocation, modification, and removal of all industrial production equipment to MXSG in writing.

15.7.2.3. Perform specific operator inspection and document IAW TO 00-20-1 and local procedures documented in the LI. The AFSC Form 355, , AFTO Form 244/AFTO Form 245 should be located on or in close proximity to the equipment if not maintained in FEM. The AFSC Form 355 will be kept on file for one year.

15.7.2.4. Ensure FEM, AFTO Form 244/AFTO Form 245, or AFSC Form 355 will be used on equipment identified to document PM actions. The AFTO Form 244/AFTO Form 245 and/or AFSC Form 355 will be located on the equipment or readily accessible.

15.7.2.5. Confirm all assigned DIPE is clearly identified with an identification number before being released for operation.

15.7.2.6. Ensure MXSG PM equipment specialists are notified of actions concerning new, relocated, modified, and turned-in DIPE and provided technical data. An AFSC Form 388 or a local equivalent will be used on all newly acquired equipment to provide data necessary for input/update to FEM along with the applicable technical manuals and commercial data.

15.7.2.7. Report any changes in owning organizational symbols in writing to MXSG as they occur.

15.7.2.8. Ensure all OM and inspections are accomplished at the prescribed frequencies and IAW TO 00-20-1.

15.7.2.9. Release equipment in a timely manner to ensure that PM and CM are completed promptly and as scheduled.

15.7.2.10. Ensure form documentation is maintained for equipment under their control.

15.7.2.11. Evaluate maintenance quality, personnel qualifications, and training of assigned personnel.

15.7.2.12. Ensure personnel are provided familiarization training on ALC standard documents and operating procedures for the equipment and inspection program, using the, AFTO Form 244/AFTO Form 245, AFSC Form 355, operation of the FEM web access interface, and other related training IAW training outlined in local procedures documented in the LI.

15.7.2.13. Ensure TMDE PM is accomplished IAW TO 00-20-14 in the use, care, handling, transportation, and calibration of TMDE owned by the flight, and comply with TO 33K-1-100-2-CD-1, TMDE Calibration Notes, Calibration Interval, and Work Unit Code Reference Guide and applicable calibration measurement summaries.

15.7.2.14. Ensure records of inspection, lubrication, and maintenance of industrial equipment are maintained IAW TO 00-20-1 and any local procedures documented in the LI.

15.8. Equipment Maintenance Documentation.

15.8.1. All mobile SE will use the AFTO Form 244 or AFSC Form 355 for documenting maintenance actions to include discrepancies, corrective actions, periodic and special

inspection due dates, or other actions as required by any local procedures documented in the LI.

15.8.2. For non-mobile SE, the AFTO Form 244 or AFSC Form 355 may be maintained electronically until one of the conditions in TO 00-20-1 arises. At that time, the AFTO Form 244 or AFSC Form 355 must be maintained with the affected piece of SE.

15.8.2.1. For SE, the ALC may elect to use the AFSC Form 355 instead of the AFTO Form 244. The same requirements that apply to the AFTO Form 244 will apply to the AFSC Form 355.

15.8.3. At a minimum, FEM will contain the same data elements as described on the AFTO Form 244/AFTO Form 245.

15.8.4. DIPE Documentation.

15.8.4.1. DIPE will use FEM for equipment maintenance documentation purposes, the AFTO Form 244/AFTO Form 245, or a combination of both.

15.8.4.1.1. At a minimum, FEM will contain the same data elements as described on the AFTO Form 244/AFTO Form 245.

15.8.4.2. DIPE with OM and PM inspections and tracked in the FEM will not require an AFTO Form 244/AFTO Form 245 unless the AFTO Form 244/AFTO Form 245 is being used in conjunction with FEM to document the inspections and equipment conditions IAW TO 00-20-1 and any local procedures documented in the LI. DIPE status will be made available to production shop supervisors by Industrial Services through a web access interface to FEM. FEM web access interface will be visible as 'read only' and will be printable by DIPE users. DIPE user change requests to FEM will be made to the Industrial Services function.

15.8.4.2.1. Specific OM for DIPE must be performed and documented by the operator on AFSC Form 355 or the AFTO Form 244/AFTO Form 245 and attached to the equipment or readily accessible.

15.8.4.2.2. For DIPE, Industrial Services personnel will ensure all instructions for current inspection and PM requirements are reflected on a FEM generated/computer work order, AFSC Form 306, or a FEM generated/computer equivalent. The work order should contain the PM number, due date; or when the minimum interval of inspection for the specified DIPE is required.

15.8.5. Support Equipment Documentation (Non-DIPE).

15.8.5.1. Non-DIPE with specific OM or PM requirements will use the AFTO Form 244/AFTO Form 245 or AFSC Form 355 IAW paragraph 15.8.2.1. of this manual.

15.8.5.1.1. AFTO Form 244/AFTO Form 245 will be documented IAW TO 00-20-1.

15.8.5.1.2. Shop supervisory review of AFTO Form 244/AFTO Form 245 will be documented in Part IV. Review intervals will be at ALC discretion.

15.9. Engineering and Installation Projects. MXSG or contractors perform equipment installation, relocation, removal, and facility modifications in response to DMAG submitted

requests. In general, except for unpredicted situations, installation projects are designed, planned, scheduled, and implemented in an orderly manner to provide the best use of MXSG resources.

15.9.1. Project Initiation.

15.9.1.1. Initiator/Requesting Organization. The requesting organization will perform the following functions:

15.9.1.1.1. Submit written requests to MXSG for project work through a coordinated AFSC Form 304, *Service Order*, or IAW locally developed procedures.

15.9.1.1.2. Provide proposed shop layouts/drawings. Utilize official 'as built' drawings if available.

15.9.1.1.3. Provide equipment installation manuals when applicable.

15.9.1.1.4. Prepare and coordinate AFMC Form 299 IAW local procedures documented in the LI.

15.9.1.1.5. Prepare and coordinate AF Form 813 when applicable IAW local procedures documented in the LI.

15.9.1.1.6. Prepare and coordinate AF Form 332 if BCE work/approval is required.

15.9.1.2. Project Review/Validation. MXSG shall review projects for completeness and applicability using criteria in paragraph 15.4 and paragraph 15.9.1.1. Projects not meeting the criteria shall be returned to the requesting organization for corrective actions.

15.9.2. Control.

15.9.2.1. Project Folders. Project folders are created for each valid request and assigned a unique project number. The project folder should contain the following:

15.9.2.1.1. A written request submitted to the ALC designated MXSG organization.

15.9.2.1.2. Engineering drawings or sketches.

15.9.2.1.3. AFSC Form 305, *Plant Management Work Order,* or a FEM generated/computer equivalent.

15.9.2.1.4. BOM when required.

15.9.2.1.5. AF Form 813, if needed, with proper coordination obtained by the requesting organization.

15.9.2.1.6. AFMC Form 299 with proper coordination.

15.9.2.1.7. Vendor or manufacturer data or copies of current catalog sheets of material required when appropriate.

15.9.2.2. Prioritization/ALC Established Working Group. An Industrial Working Group shall be established to review and monitor project requests. The Industrial Working Group will coordinate all facility/equipment work priorities and accomplishments. The charter and membership of the Industrial Working Group will include representatives from all Maintenance Groups, BCE, and other organizations, or IAW local procedures documented in the LI. MXSG will chair the Industrial Working Group.

15.9.2.3. Tracking and Monitoring.

15.9.2.3.1. FEM shall be used to track and monitor projects to ensure efficient use of resources and maximum responsiveness to customer needs.

15.9.2.3.2. Project history, backlog, and status shall be obtained using updated FEM data, and reports may be generated for Maintenance Groups.

15.9.2.4. Project Closure. Project closure includes the following:

15.9.2.4.1. The completed AFSC Form 305 or FEM generated/computer equivalent is reviewed for completeness and accuracy.

15.9.2.4.2. Work accomplished shall be reviewed by MXSG Engineering or IAW local procedures documented in the LI to ensure the customer approved work was performed according to design.

15.9.2.4.3. Maintenance documentation is updated in FEM and all documents are assembled for the completed project folder.

15.9.2.4.4. The project folder is closed out and placed in the completed project file.

15.9.2.5. Record Disposal.

15.9.2.5.1. Completed project folders are to be disposed of IAW paragraph 1.12.1.

15.9.2.5.2. Project files are disposed of IAW AFI 33-322, *Records Management and Information Governance Program*.

15.9.3. Design/Engineering.

15.9.3.1. ALC requests for facility and equipment installation, relocation, modification, or removal are processed through MXSG Engineering.

15.9.3.2. Pre-Design Consultation.

15.9.3.2.1. Pre-design consultations with Maintenance Groups shall be held when appropriate.

15.9.3.2.2. Projects shall be reviewed to ensure the feasibility of meeting the customer's intent.

15.9.3.2.3. Alternatives shall be offered when considered to be in the government's best interest.

15.9.3.3. Site Survey. As required, MXSG Engineering shall perform site surveys to review project requirements, consider utility requirements within the facility (e.g., electrical, air, water, steam, etc.), and for location suitability.

15.9.3.4. Design Drawings.

15.9.3.4.1. All engineering, drafting, and planning associated with project design shall be accomplished taking into account load calculations on existing utility distribution systems and any safety/environmental concerns.

15.9.3.4.2. Good judgment must be exercised in preparing engineering drawings and sketches to be used by the MXSG organizations. Design drawings and sketches should be no more sophisticated than necessary to accomplish the project.

15.9.3.4.3. Engineering design drawings or sketches are developed to support BCE work requests for tasks required by the MXSG and Maintenance Groups that do not have an engineering staff.

15.9.3.5. Customer Design Review. When applicable (e.g., BCE involvement, significant changes after pre-design consultation, etc.), final design drawings will be sent to the customer for approval.

15.9.3.6. Project Consultation. MXSG Engineering duties shall include the following:

15.9.3.6.1. Provide general oversight as needed during the entire project process (e.g., material selection/substitution, customer coordination, adaptation, removing constraints, etc.).

15.9.3.6.2. Provide technical guidance to the installation function on execution of project designs detailing sequence of accomplishment and/or best methods. If professional certifications are required to comply with applicable directives, MXSG Engineering will specify the type of certifications required.

15.9.4. Planning.

15.9.4.1. Labor and Skill Requirements.

15.9.4.1.1. The planning function determines the skills required, the organization to perform each project task, and estimates the work hours required.

15.9.4.1.2. Labor hour estimates are based on available standards, the engineer's and/or planner's experience, and discussions with shop personnel.

15.9.4.1.3. Estimated labor hours are entered into FEM.

15.9.4.2. Material Requirements.

15.9.4.2.1. Material required for a project will be entered on a BOM.

15.9.4.2.2. The planning functions will determine the type and quantity of material required by the installation function to complete each project. The quantity of material must be determined with care to avoid both material shortages and undue excesses. The MXSG Engineering is responsible for developing the material specifications used in developing the BOM. The BOM shall be entered into FEM.

15.9.4.2.3. The planning function will review on-hand and residue material inventories for utilization in the performance of installation, removal, or repair projects requiring a BOM. Projects will be planned to utilize on-hand or residue material inventories whenever possible to reduce on-hand inventories and generate stock turnovers.

15.9.4.2.4. The BOM will serve as a source document for use by the material control function to issue and requisition materials, and will also be used to accept the return of unused material from the installation function at the completion of the project.

15.9.5. Execution.

15.9.5.1. Scheduling.

15.9.5.1.1. Determine Material Supportability. FEM will be updated to reflect project status. Project status will be reviewed on a regular basis to determine supportability.

15.9.5.1.2. Workload Labor Review. Workload labor review will consist of the following:

15.9.5.1.2.1. Availability of labor resources by skill.

15.9.5.1.2.2. Satisfying the mission through time phased work accomplishment.

15.9.5.1.2.3. Updating schedules in response to changing production requirements, availability of resources, and work progress.

15.9.5.2. Project Accomplishment. Generally all projects should be both material and labor supportable prior to the installation phase.

15.9.5.2.1. Receipt of Work Package.

15.9.5.2.1.1. Project work packages including drawings, AFSC Form 305, BOM, and AFMC Form 299 will be provided to the installation function by the scheduling function.

15.9.5.2.1.2. No installation work shall be conducted without an approved AFSC Form 305 or FEM generated/computer equivalent. This form authorizes the installation function to perform the work, provides information on the major tasks, and denotes planned skills required to accomplish the project.

15.9.5.2.2. Assignment of Resources.

15.9.5.2.2.1. Pre-construction meetings will be held as required.

15.9.5.2.2.2. The installation function shall allocate appropriate skills to accomplish work according to the AFSC Form 305 or FEM generated/computer equivalent.

15.9.5.2.2.3. Skills not planned on AFSC Form 305 or FEM generated/computer equivalent shall be adjusted by the planning function.

15.9.5.2.3. Installation. The installation function will perform the following:

15.9.5.2.3.1. Initial the AFSC Form 305 or FEM generated/computer equivalent when the task is completed.

15.9.5.2.3.2. Report project status as required to the scheduling and control function.

15.9.5.2.3.3. Ensure FEM is updated with the previous workday’s actual hours expended on each project.

15.9.5.2.3.4. Return all excess materials (i.e., project residue) to the material control function.

15.9.5.2.3.5. Return all project documents to the scheduling and control function when the project is completed.

15.10. Maintenance Support Group Laboratory. The laboratory mission is to provide a vast array of analytical support to on-base engineering, manufacturing, and repair organizations as well as to other DoD, Federal Aviation, Federal Law Enforcement, Allied Forces, and North Atlantic Treaty Organization (NATO) agencies. The chemists, engineers, technicians, and support staff share broad expertise in aircraft mishap and industrial accident investigation, failure analysis, manufacturing process monitoring, engineering test and analysis, prototype and first article evaluation, metallurgical analysis, evaluation of shelf life items, and material analysis.

15.10.1. The MXSG Laboratory includes versatile Metallurgical, Material, Chemistry, Precision Dimensional Measurement, Engineering Testing, and Prototype Development Laboratories that are an indispensable resource in today's logistics support environment. **Note:** Not applicable to 76th MXSG.

15.10.2. Functions.

15.10.2.1. The MXSG Laboratory provides scientific and engineering skills and instrumentation necessary for the maintenance of assigned weapon systems, aerospace items, and industrial processes.

15.10.2.2. The laboratory tests and evaluates a wide variety of chemicals, materials, weapon system components, and shop processes that are integral to the Air Force mission and must be tested in a timely manner to maintain safety, reliability, and quality.

15.10.2.2.1. Skills may include chemical engineering, electronic engineering, industrial engineering, materials engineering, mechanical engineering, chemistry, metallurgy, and physics.

15.10.2.2.2. Testing capabilities may include chemical, composite material evaluation, dimensional, electronic, environmental, Joint Oil Analysis Program (JOAP), material, mechanical, metrology, non-destructive, and structural analysis.

15.10.2.2.2.1. These capabilities are vital to meeting today's technologically advanced weapon system sustainability demands, the Command's environmental challenges, aircraft mishap analysis, and the industrial process optimization requirements.

15.10.2.2.3. The MXSG Laboratory personnel perform some minimum level of overhead support functions including clerical, supply, compliance, and safety.

15.10.3. Instruction.

15.10.3.1. Workload Planning and Scheduling. The following is a sequence of events utilized by planning, scheduling, and laboratory personnel to ensure uniformity of methods and processing control from the initial receipt of laboratory support projects to final close-out by production scheduling. 15.10.3.2. Laboratory Planning.

15.10.3.2.1. The planner will assist and coordinate on new or transferring workloads that require MXSG Laboratory support.

15.10.3.2.2. The planner shall process the appropriate documentation for all new or renewing workload.

15.10.3.2.3. The planner will perform the following planning operations upon receipt of all AFSC Forms 206:

15.10.3.2.3.1. Verify Schedulers Code, Planners Code, Funds, JOQ, and Need Date are all correct upon receiving the SOW or special instructions with an assigned Temporary JON from the work loader.

15.10.3.2.3.2. In conjunction with appropriate technical personnel, review all work requests and any referenced technical data/specifications for shortfalls such as peculiar tools/equipment, skills, and special processes. Confer with appropriate laboratory supervisor and scheduler to verify organizational capability for total performance as required. Return the work request that cannot be planned with an explanation as to why and it must be processed back to the appropriate organization and initiator.

15.10.3.2.3.3. SOW or special instructions and labor hours will be planned within the G004L system.

15.10.3.2.4. Create two work jacket files on each workload requirement (one electronic copy and G004L), one for the planner's master file, and one hard copy for the scheduler's file. The assets are then turned over to the scheduler for scheduling into the applicable shop for work along with a copy of the Temporary Job Record and SOW or special instructions from the requesting customer. If the planner and scheduler in the MXSG Laboratory are one in the same person, one work jacket file on each workload requirement is sufficient.

15.10.3.2.5. Review completed jobs to validate accuracy of estimated labor hours. If there is a difference between estimated hours and actual hours, the planner will contact the appropriate work loader, negotiate any changes, and adjust labor hours within the G004L system to correlate with the actual hours expended when necessary. The planner shall release the Temporary Job Record to the scheduler for the closeout process and notify the MXSG work loader of adjusted labor hours.

15.10.3.2.6. Maintain a closure file on the project work jacket after the scheduler takes a production count and closes the Temporary Job Record.

15.10.3.2.7. The planner shall process AFSC Form 127 and AFSC Form 137 for incoming workloads.

15.10.3.2.7.1. The planner will review and evaluate AFSC Form 127 or AFSC Form 137 (i.e., T-jobs, M-jobs or S-jobs) for adequate data. The planner will provide the scheduler with a copy of the AFSC Form 127 or AFSC Form 137 for necessary action.

15.10.3.3. MXSG Laboratory Scheduling.

15.10.3.3.1. The scheduler shall participate in the negotiation of laboratory workloads.

15.10.3.3.2. The scheduler receives AFSC Form 206, AFSC Form 127, or AFSC Form 137 (i.e., T-jobs, M-jobs or S-jobs) from the planner and schedules the work into the appropriate laboratory area.

15.10.3.3.3. The scheduler shall maintain a jacket file on each temporary workload for which the scheduler is responsible. Contents of each jacket file will be kept IAW

Chapter 14. The scheduler shall notify the planner of the JON closure. Guidance on the JON closure and closeout checklist can be found in AFMCI 65-101.

15.10.3.3.4. The scheduler shall receive the G004L-L3A from the applicable working shop, signed and annotated with actual hours expended upon completion of work. The scheduler shall review completed jobs for disparity of estimated hours and actual hours expended. If a disparity exists, the scheduler shall notify the planner to take appropriate action to correct.

15.10.3.3.5. The scheduler shall production-count earned hours in G004L received on T-jobs, S-jobs, M-jobs, or the control number that the laboratory employees have logged time against for each week as necessary. The scheduler will also complete jobs in G004L when instructed to do so by laboratory personnel. The scheduler shall ensure only authorized, completed, and acceptable production count is reported.

15.10.3.3.6. After verifying that all work is complete, forms have been annotated/signed, and estimated hours and actual hours correlated, notify the planner of JON closure.

15.10.3.3.7. The scheduler performs closure of the completed AFSC Form 206 in G004L. Closure is then verified in G004L.

15.10.3.3.8. Upon request, the scheduler will provide a documented copy of the amount of hours input for production counted against each job number to the appropriate section chief.

15.10.3.3.9. The scheduler will provide a listing of all jobs that have been closed to each section supervisor when requested. The scheduler will interrogate the appropriate system as requested by laboratory managers for validation of JONs owned by other organizations.

15.10.3.4. MXSG Laboratory Services.

15.10.3.4.1. All MXSG Laboratory services shall be conducted IAW accepted engineering and/or scientific practices, any locally developed test methods documented in the LI, TOs, specifications, or commercial technical publications.

15.10.3.5. Maintenance of MXSG Laboratory Instrumentation.

15.10.3.5.1. The maintenance of MXSG Laboratory instrumentation requires special skills provided by trained operators or manufacturer technicians. In most cases, this will be accomplished via laboratory initiated service contracts.

15.10.3.5.2. Specialty tools are often required for the maintenance of these systems and are provided at the time of purchase or are the property of the manufacturer trained technician. Specialty tools/accessories maintained by the laboratory will be neatly organized in close proximity to the instrumentation on which the items are utilized. A means for quickly determining missing tools will be utilized (i.e., shadowing or labeling).

15.10.3.6. Management of Items/Materials in Support of Engineering Prototype Shop Functions.

15.10.3.6.1. Management of tools, expendables, consumables and other items or materials utilized in the Engineering Prototype Shop will be governed by guidance provided in local procedures documented in the LI.

15.10.4. Records.

15.10.4.1. Records stating results of the analysis or providing evidence of activities performed are maintained as required by technical publications, internal laboratory procedures, or customer specified requirements.

15.11. Material Control. This paragraph provides guidance for material control procedures and practices to ensure identification, cataloging, ordering, receiving, storing, issuing, replenishing, and disposition of material used by the MXSG.

15.11.1. Program Responsibilities.

15.11.1.1. Identify the responsible organization and local procedures documented in the LI to perform material functions.

15.11.1.2. Individual shop supervisors may manage material IAW local procedures documented in the LI.

15.11.2. Material Types.

15.11.2.1. Shop Support Material (U6300). Those parts ordered on a planned basis to ensure replacement parts are available to maintain facilities and equipment.

15.11.2.2. Project Material (U6910). Material ordered specifically to support a work request that is managed, controlled, and segregated from shop support material.

15.11.2.3. Hazardous Material (U7000). A substance which is explosive, flammable, poisonous, corrosive, oxidizing, irritating, or otherwise harmful and may cause personal injury or harm.

15.11.2.4. Residue Items. Serviceable items not used or reclaimed from work orders that may be retained for future use. Residue items may be any of the three material types identified in paragraphs 15.11.2.1. through 15.11.2.3.

15.11.3. U6300 Requirements.

15.11.3.1. Material control personnel are responsible for the following:

15.11.3.1.1. Research and identify material requirements.

15.11.3.1.2. Determine general locations and establish contents and levels for material issue points.

15.11.3.1.3. Review data management products to determine past or future consumption and establish adequate inventory levels.

15.11.3.1.4. Review management products to determine excess or inactive items and take appropriate disposition or deletion action IAW local procedures documented in the LI.

15.11.3.1.5. Replenish material based on the quantity remaining on hand.

15.11.3.1.6. Determine past consumption in order to compute inventory levels and reorder points using the material management computer system.

15.11.3.1.6.1. Conduct a review at least annually to initiate inventory level and reorder point changes.

15.11.3.1.6.2. Coordinate with the MXSG shop supervisors and/or PM office prior to deletion of line items from material inventory.

15.11.3.1.7. Verify stock number/item number and quantity received with material delivery document.

15.11.3.1.8. Update bin cards or tags to reflect stock number/item number changes.

15.11.3.1.9. Maintain a paper or electronic copy of inventory listings for use in the event of a computer outage. A new listing will be produced as necessary.

15.11.4. U6910 Project Material Requirements.

15.11.4.1. Develop a BOM for each involved shop in support of a project. The BOM shall be annotated with the following:

15.11.4.1.1. Quantities required.

15.11.4.1.2. Unit of Issue.

15.11.4.1.3. Item Number.

15.11.4.1.4. Description.

15.11.4.1.5. Part Number.

15.11.4.1.6. Storeroom (if material on hand).

15.11.4.1.7. Bin Location (if material on hand).

15.11.4.1.8. Bin Quantity (if material on hand).

15.11.4.1.9. Unit Price.

15.11.4.1.10. Line Cost.

15.11.4.2. Fill BOMs from material on hand to the maximum extent possible.

15.11.4.3. Inventory BOMs prior to reporting the project being supportable.

15.11.4.4. Notify appropriate personnel when all material is on hand for a particular project.

15.11.4.5. Material shall not be issued to the shops until the project is released.

15.11.4.6. Identify raw stock material that does not have legible mill markings or other identifying characteristics using DD Form 1574, *Serviceable Tag - Materiel*, or IAW local procedures documented in the LI.

15.11.4.7. Segregate project material from all other material types.

15.11.4.8. Coordinate and approve additional project material requirements not available or planned on the original project BOM IAW local procedures documented in the LI.

15.11.5. U7000 Hazardous Material Requirements.

15.11.5.1. Manage hazardous material IAW AFMAN 32-7002 "Environmental Compliance and Pollution Prevention", and local procedures documented in the LI.

15.11.5.2. Control of hazardous material is the responsibility of the material control function. When material is issued, responsibility is transferred to the individual receiving the item.

15.11.5.3. Hazardous materials essential to MXSG workloads may be maintained in MXSG work centers IAW local procedures documented in the LOI.

15.11.6. Residue Material Requirements.

15.11.6.1. Review residue material IAW local procedures documented in the LI to determine if material should be retained for future use.

15.11.6.2. Return residue material to individually identified bin locations.

15.11.6.3. Inventory and track stored residue material in the material management system.

15.11.6.4. Dispose of material IAW local procedures documented in the LI if a future requirement for the material does not exist.

15.11.7. Shelf Life Material Requirements.

15.11.7.1. Shelf life item control is performed as follows:

15.11.7.1.1. Ensure 'age control' and 'cure dated' materials are stored, updated, and purged IAW local procedures documented in the LI.

15.11.7.1.2. Remove outdated items from inventory unless documentation or re-inspection IAW applicable directives permits retention.

15.11.8. Material Acquisition Requirements.

15.11.8.1. Request material not available from existing inventory using a FEM generated/computer form or computer notification system IAW local procedures documented in the LI.

15.11.9. Labeling and Tagging Requirements.

15.11.9.1. Bin labels will at a minimum contain the item number, nomenclature, and bin location.

15.11.9.2. Material on hand will only contain serviceable assets so individual tagging is not required. If a condition tag is used, one tag will suffice for the entire quantity in a bag, box, or bin. A DD Form 1574 or ALC developed form may be used.

15.11.10. Inventory Requirements.

15.11.10.1. Conduct random inventories at least monthly using the material management computer system inventory reports. Inventory results will be analyzed and retained by the material control function to identify and implement corrective actions IAW local procedures documented LI.

15.12. Practices in Reliability Management. A collection of practices in reliability management from government, DoD, and industry for implementing a tailored maintenance program are assembled and provided in **Sections 15A – 15I** These practices are for 'REFERENCE ONLY' and may be considered by HQ AFMC personnel when investigating alternative PDM maintenance program strategies. **Note:** The use of the practices in **Sections 15A – 15I** must be compliant with any subject related DoD and AF governing policy, directives, instructions, manuals, and TOs/work specifications. The material is maintained by the HQ AFMC Reliability Management of the Industrial Plant Equipment Council (POC: 76th MXSG, Tinker AFB).

Section 15A—Reliability Management of Industrial Plant Equipment

15.13. Reliability Management of Industrial Plant Equipment.

15.13.1. The information throughout the rest of Chapter 15 is used for 'REFERENCE ONLY' and provides recommended practices reliability management from government, DoD, and industry for implementing a tailored maintenance program. These practices may be used by all HQ AFMC personnel and RCM practitioners for industrial plant equipment and facilities when feasible and proven effective in reducing cost; while increasing availability and reliability, and mitigating risk of DIPE failure. The material is maintained by the HQ AFMC Reliability Management of the Industrial Plant Equipment Council (POC: 76th MXSG, Tinker AFB).

15.13.2. The reliability, safety, and mission effectiveness of AF assets depends on an approach to asset management that includes maintenance concept development and asset strategies as part of planning, design for maintainability of new assets, and reliability centered maintenance practices that include condition based maintenance. From the time that a new asset is 'needed' through the new asset planning, design, and development cycle and on to delivery, operation, maintenance, and eventual disposal phases, maintenance must be considered and made one of the higher priorities for resource and mission decision makers. This table was developed to provide those personnel, who maintain and support depot, test center, and other industrial complex assets, a comprehensive document to refer to as maintenance programs are developed, personnel are trained, and standardization across AFSC is achieved. References

are provided in **Attachment 1** along with Acronyms and Terms defined that are used throughout this handbook. The Defense Acquisition University (DAU) provides an Acquisition Guidebook that is helpful in understanding terms, definitions, as well as the processes applied to weapon system acquisition, many of which are common processes that may be applied to industrial plant maintenance. Reference: https://dag.dau.mil/.

Section 15B—Maintenance Planning and Design

15.14. Maintenance Planning.

15.14.1. Developing the Maintenance Plan. The first step in the development of an effective and efficient maintenance program should be the development of a maintenance plan or Asset Management Plan (AMP). Maintenance planning should be tailored to the maintenance organization's mission, workforce, assets, and core processes. It should identify required maintenance actions throughout the asset life cycle, the strengths and weaknesses of the organization, strategic factors including internal and external influences on maintenance, tactical strategies addressing the different types and categories of assets to be maintained, processes critical to maintenance performance, financial management, programming requirements, tools and technologies to be applied, configuration and data management, and finally, a method for evaluating performance.

15.14.2. Design Phase. Maintainers must participate in design reviews where design alternatives and trade-off studies will be presented. During the design phase maintainers make their greatest contribution to improving reliability, maintainability, efficiency, and overall maintenance effectiveness by ensuring the life cycle cost based maintenance and performance alternatives are analyzed and incorporated, where feasible, in the design. Cost-benefit analysis must prove that over the life-time of an asset, costs for maintainability are justified and will have a return on investment. Many programs institute a 'value engineering' process in order to motivate design personnel to look for long term savings during the design process.

15.14.2.1. From the DoD Reliability, Availability, and Maintainability (RAM) guide, the key objectives of the design phase are:

15.14.2.1.1. Developing a comprehensive program for designing and manufacturing for RAM that includes people, reporting responsibility, and a RAM Manager.

15.14.2.1.2. Developing a conceptual system model that consists of components, subsystems, manufacturing processes, and performance requirements. Use the model throughout development to estimate performance and RAM metrics.

15.14.2.1.3. Identifying all critical failure modes and degradations and address them in design. Using data from component-level testing to characterize distribution of times to failure. Conducting sufficient analysis to determine if the design is capable of meeting RAM requirements.

15.14.2.1.4. Designing diagnostics for fault detection, isolation, and elimination of false alarms; redundant or degraded system management for enhanced mission success; modularity to facilitate remove-and-replace maintenance; accessibility; and other solutions to user related needs such as embedded instrumentation and prognostics.

15.14.2.1.5. To ensure the equipment specifications meet the requirements for both functionality and ease of maintenance, Project Engineers should write the

specifications to ensure functionality and MXSG Engineers should review the specification packages to ensure supporting utilities in a facility can support the proposed equipment; ensure ease of maintenance; and verify safety requirements are included the specification.

15.14.2.2. Maintainability. Maintainability ensures assets requiring maintenance are designed and configured in a way that will facilitate the effective and efficient accomplishment of required maintenance. Providing access to repairable parts, accessible tools, intelligently located spare parts, and other innovative decisions can make a significant difference in mean time to repair.

Figure 15.1. Design for Maintainability Checklist.

Item	Yes	No	N/A
Considerations for Maintainability in Design (acquisition of new equipment):			
System level maintenance concept based on operational concept has been developed or considered in development of an Asset Management Strategy.			
Equipment being acquired has an Asset Management Strategy developed for use in specifying maintenance requirements.			
Methodology for repair (in-house, outsourced, etc.).			
Spare parts (number of, part number, manufacturer/supplier, serial number, model number, location of stored spare parts, and requirements for storage e.g., hanging drive shafts to prevent bending or warping, hermetically sealing electronic components, humidity, etc.).			
Personnel performing maintenance (qualifications, availability of skilled workforce).			
Training (training documentation under configuration control and available, training available to new hires and for remedial or refresh of existing workers).			
Access (availability of system, system components to workers has been considered and alternatives in design proposed to fasten versus weld or rivet access panels, consideration for isolating with shut off valves gauges and devices to facilitate replacement of equipment requiring regularly scheduled calibration or repair during operations, considerations for redundancy to allow continued operations while accessing for repair or maintenance).			
Condition Based Maintenance (design analyzed to integrate health monitoring ports or access points for vibration measurement or other measurements during operations, planned work instructions that integrate ultrasound, thermography or other technologies to allow for CBM vice calendar based maintenance).			
MSDS/SDS provided).			

Documentation (work instructions or procedures supported by drawings, schematics, process specifications and other technical data is complete, current and available to maintenance personnel and is placed under configuration control).			
Rights in data (review vendor's proprietary or limited rights that will limit the in-house personnel performing maintenance and assess the impact of unavailable technical data).			
Automation (consideration of electronically generated device lists in lieu of full size drawings to support field update of sources of supply and serial number effectiveness, automation of maintenance information to include wireless technologies that will make maintenance information available at the equipment's location).			
Calibrations (assess requirements and scope of calibration requirements, establish recall lists and send instruments to PMEL for initial calibration and calibration determination).			

15.14.2.2. Reliability. Reliability is the probability that an item can perform its intended function(s) without failure for a specified time under stated conditions. Reliability is a measure of whether or not an item will function properly when used by typical users in its operating environment. The specification of reliability and the design for reliability requires the identification of the conditions of use and what constitutes proper functioning (i.e., when is a failure a failure). For systems that are repairable, the rate of recurrence of a problem is an important characteristic. For systems or components that are replaced when they fail, the lifetime of the component is important. Analysis of recurrence data from repairable systems and analysis of lifetime data for components and non-repairable units require different statistical models and methods of analysis. In all cases reliability should be defined with respect to a well-defined mission and conditions of use. Reliability is a function of the environment and the stresses it places on a system. The conditions of use include, but are not limited to the environment of operation (i.e., such things as temperature, season of the year, operating time, dust, vibration, acoustic environment, and geographic location), maintenance performed as specified, and operation within the design specifications. For example, if users consistently operate a system outside the design specifications (e.g., higher than designed for speeds, etc.), this may lead to reliability problems when in use. An operational perspective must be present as early as possible in the design reviews. A reliability specification requires a description of what constitutes mission success or failure for equipment when it is operational. For additional information, reference www.reliabilityweb.net.

15.14.2.3. Electrical maintenance information is provided in Military Handbook (MILHDBK)-338B Electronic Reliability Handbook. The DoD worked closely with both industry and the Government Electronics & Information Technology Association (GEIA) on the development of a new standard, GEIA-STD-0009, *Reliability Program Standard for Systems Design, Development, and Manufacturing*. GEIA-STD-0009 consists of the essential reliability processes that simply must be performed in order to design, grow, build, and field reliable systems. GEIA-STD-0009, at its core, is a reliability engineering and growth process that is fully integrated with systems engineering.

Table 15.2. Popular Reliability Metrics.

Item	Metric
Failure Rate (λ).	The total number of failures within an item population, divided by the total time expended by that population during a particular measurement interval under stated conditions.
Hazard Rate.	Instantaneous failure rate.
Mean Time Between Failure (MTBF).	A basic measure of the reliability of repairable items.
Mean Time Between Maintenance (MTBM).	The average time between all system maintenance actions.
Mean Time Between Repair (MTBR).	A basic measure of reliability for repairable fielded systems. The average time between all system maintenance actions requiring removal and replacement or in-situ repairs of a box or subsystem.
Mean Time Between Critical Failure (MTBCF).	A measure of system reliability that includes the effects of any fault tolerance that failure (MTBCF) may exist. The average time between failures that cause a loss of a system function defined as 'critical' by the customer.
Mean Time Between Operational Mission Failure (MTBOMF).	A measure of operational mission reliability for the system. The average time between operational mission failures which cause a loss of the system's 'mission' as defined by the customer. This parameter may include both hardware and software 'failures.'
Mean Time To Failure (MTTF).	A basic measure of reliability for non-repairable systems. Average failure free rating time, during a particular measurement period under stated conditions.

15.14.2.4. There may be several different ways to view the reliability of a system, depending on its function and complexity. One perspective focuses on the probability that no failure will occur during a mission that would prevent the system from successfully completing its operational mission (i.e., MTBOMF), while other perspectives focus on failures that require maintenance (i.e., MTBR). The first case emphasizes mission capability and the latter illustrates operational support. Both measures are important and both are a direct result of how the system and its constituent elements were designed, manufactured, and how their maintenance support is structured.

15.14.2.5. Failure Modes and Effects Analysis (FMEA). A FMEA considers the effects of individual failure modes of every part or function in a designated system. FMEA is a methodology to analyze and discover: (1) all potential failure modes of a system, (2) the effects these failures have on the system and (3) how to correct and/or mitigate the failures or effects on the system. The correction and mitigation is usually based on a ranking of the severity and probability of the failure. The FMEA may be suitable to aid failure analysis, to identify the root cause, implement corrective action, failure modeling, and engineering change development. The data collected during the FMEA process should be available to the In-Service Manager during the O&S Phase.

15.14.2.5.1. The FMEA may also act in its traditional role as a design aid when considering modifications or upgrades to a product or process. FMEAs performed during the original design help establish inherent RAM metrics for the product. Revised FMEAs when available should be used to analyze proposed design changes. Design changes should not adversely affect the system's RAM, so potential failure modes and causes associated with the design changes should be thoroughly analyzed. Since FMEAs are performed on a specific system or asset's configuration, it is recommended that FMEAs be filed and their status accounted for along with other configuration controlled documentation.

15.14.2.6. Analytical Tools. There are many suppliers of analytical tools in industry and across the government today, i.e., ANSYS, ALTA, RGA, Matlab, Minitab, and BlockSim. Analysis methods include root cause, reliability, and Weibull Analysis. Information on Weibull Analysis may be found at website www.weibull.com. These tools and methods may be characterized as either inductive or deductive methods.

15.14.2.6.1. Inductive methods of analysis include human factors analysis, FMEA, and reliability analysis. Essential to inductive methods are identification of critical items, documenting and researching hardware and software failures, and understanding the interactions and interrelationship of workers. Deductive methods include fault-tree analysis, event tree analysis, and probabilistic risk analysis.

15.14.2.6.2. Other analytical tools are becoming more prevalent in the maintenance industry today and provide a means of Modeling and Simulation (M&S) industrial systems and equipment, processes and procedures, workflow, and other plant processes. The Institute of Electronic and Electrical Engineers (IEEE) and other organizations support M&S to improve maintenance, design, and safety process performance.

15.14.2.7. Alternatives Analysis. Analysis of alternatives is essential to the delivery of a best value asset where Total Operational Cost (TOC) has been evaluated. Tradeoffs must be presented by the design team to address alternative approaches for accomplishing maintenance and ensuring reliability. The decision to use rivets instead of screws may result in significant increase in TOC if the device inside a riveted component requires access repeatedly during O&M phase for repair. While initial cost to deliver may be less, alternative analysis considering the complete life cycle through the O&M phase and on into disposal may reflect a difference in decision by program managers.

Table 15.3. Other Maintenance Targeted Alternatives.

Item	Alternative
1	Choice between in-house, contracted, or original equipment manufacturer repair.
2	Access to sub-systems and components.
3	Human factors i.e., will electricians wear heavy suits for high voltage work or will systems be shut down?
4	The degree to which wireless and condition based maintenance technologies are utilized.
5	Safety and PPE requirements.
6	Location of spare parts and special tools.
7	Calibration requirements.

15.14.2.7.1. Pre-planned product or process improvements should be identified and documented where ever possible. Over the life of the system, technological changes, changes in organization, changes in the regulatory environment, etc. may lead to a different outcome of alternative analysis.

15.14.2.8. Design Guides. Design guides are helpful in creating purchase descriptions or development of work statements. The Whole Building Design Guide, available thru website www.wbdg.org, is a joint venture of DoD, NASA, the Department of Energy (DOE), and the US Army Corps of Engineers (COE) to standard specifications for the government and industry. Another useful guide is MIL-STD-961, *Defense and Program Unique Specifications Format and Content*. Another useful guide is MIL-STD-1472, *Human Engineering*.

15.14.3. Delivery Phase. Once a design has been agreed to, submitted to contracting for procurement, and an award made for delivery of the designed asset(s), the delivery phase begins. For the maintainer, this means submittals must be reviewed, construction, or fabrication site visits are conducted and data is collected. The initial operation and maintenance of equipment during this phase is performed by the original equipment manufacturer or integrating construction contractor. Their objective is to deliver a 'complete and useful' asset on day one, not for the life-cycle of 20 to 30 years. The measurements taken at this critical delivery point prove initial operation capability but they do not confirm the asset will last through a long operational phase. It is a recommended practice that a complete video and photographic record of the fabrication and installation process be developed. Having records of construction, as well as materials, and fabrication process information available to the maintainer may provide valuable insight into how and why equipment was installed. This insight may provide the critical information needed to support removal of equipment during an outage dramatically reducing time to repair or replace.

15.14.3.1. It is also recommended that operations and maintenance personnel visit the construction or fabrication location frequently, in order to witness checkout tests, ensure design compliance, identify materials used that may not have been specified explicitly in technical data, etc.

15.14.3.2. Checkout, Acceptance, Validation, and Transfer to O&M. The old adage that those who do the work must be part of the plan was never truer than during the transition of a new asset to operation and maintenance. O&M personnel must be present and provide input to the development of the checkout processes and procedures, they must receive training, and perform initial operations with draft procedures. They must understand that after the fabricator leaves the site, it will be their responsibility to provide configuration management and sustain the assets and their operation. Through system validation during check-out, the user, maintainer, and other stakeholders receive direct feedback on the validity (i.e., correct and complete) of requirements.

15.14.3.3. Commissioning. American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Guideline 0-2005*, The Commissioning Process*, defines commissioning as 'a quality-oriented process for achieving, verifying, and documenting that the performance of facilities, systems, and assemblies meets defined objectives and criteria'. Commissioning typically occurs during transfer of newly developed assets through Interim Operational Capability to the operators and maintainers.

Commissioning is an 'umbrella' process for all the planning, delivery, verification, and managing risks to critical functions performed in or by facilities (e.g., assets, systems, etc.). Commissioning uncovers deficiencies in design or installation using peer review and field verification. Commissioning also accomplishes higher energy efficiency, environmental health, operator/maintainer safety, and improves system performance. Commissioning is a quality assurance-based process that delivers preventive and predictive maintenance plans, tailored operating manuals, and training procedures. The commissioning process formalizes review and integration of all project expectations developed during planning, design, construction, and occupancy phases by inspection and functional performance testing along with oversight of operator training and record documentation. It takes a multi-disciplined effort involving owners, design professionals, constructors, and commissioning providers to achieve optimal results from the commissioning process.

15.14.4. Operations and Maintenance Phase. This is the phase in the SE process where the asset is put to work producing products, providing services, or delivering goods. During O&M, the planned PM is performed, logistics support is provided, and operational data is collected as well as collection of maintenance data from health monitoring systems. CM and change control efforts are critical in keeping all the stakeholders informed and aware of historical, current, and proposed changes. Coordination with operations, investment groups, customers, and maintainers is required to optimize downtime availability for the given mission requirements. Central planning and scheduling through a Tactical Integration Group or Mission Operations Control Center, as well as standing up a routine Configuration Control Board, will dramatically reduce program risk and increase organizational effectiveness. During O&M, continuous improvement and performance feedback is essential.

15.14.5. Disposal Phase – When disposal of an asset is required, recommend contacting the base DLA Disposition Services organization for assistance. In addition, recommend contacting base civil engineering, particularly environmental compliance, to ensure facility issues are appropriately resolved and wastes or hazardous materials are disposed of properly. CM is required to ensure removal of equipment or demolition is managed as a controlled change, fully coordinated, with updated documentation released or vaulted.

15.14.5.1. Disposal processes should account for the transfer of equipment ownership from the using production operation organization to DLA Disposition Services. It includes draining fluids, testing fluids for potential environmental concerns, disposal of contaminated materials, cleaning up the equipment, and the eventual turning over of the equipment to DLA Disposition Services for final disposal. Most of this work is performed at the using organization's request by the maintenance organization with the user organization's assistance as required. Documentation and coordination are handled within the using and maintenance organizations which for COTS equipment is more cost effective and timely for this situation.

Section 15C—Program Support Functions

15.15. Program Support Functions.

15.15.1. Financial Management. Maintenance requires funding. The maintenance plan should address the essential business planning tasks of programming, budgeting, and accounting. Many organizations today are employing earned value techniques to assess

performance of work versus cost and budget. The maintenance plan should include current FY plus five years of program requirements broken out for PM, CM, major investments (i.e., renewals and replacements), continuous improvement, and administration. The maintenance plan should be used to develop base or center level programming documents for annual budget submission.

15.15.1.1. Once maintenance needs are identified, they should be prioritized by representatives from maintenance, operations, production, and other stakeholders. Criteria for prioritization may include impact on mission, schedule, safety or environmental impact, production capability, or other similar requirement. Prioritized needs should be inserted into the organizations overall requirements process as programmed projects. Competition for funding is expected, therefore justification statements, cost estimates, need dates, etc., must be complete, clear, concise, and valid. The need information should facilitate a quick turnaround on funding as well as establishing preliminary requirements for the design phase.

15.15.2. Procurement. Maintainers must develop a strong working relationship with their Procurement Division organization. The Procuring Contracting Officer (PCO) and Administrative Contracting Officer (ACO) will help you decide on the best acquisition method for new, spare, or repair parts. They can advise you on competition in contracting, when sole source is required, contract data requirements, and other important contract requirements.

15.15.2.1. Contract Performance Measurement. Performance measures, metrics, or indicators must be considered during planning as they will serve management in determining areas for improvement or needed changes during an asset's life. Performance measures are referred to as KPIs or Operating Indicators. The maintainer must plan for a structured approach to performance measurement. The cost of performance measurement can be high so every effort must be made to measure only what is important. One of the best sources for performance measurement input is the customer. Maintenance metrics such as Mean Time To Repair (MTTR), MTBF, etc. are being used throughout industry today to give management a sense of success. In some industries, these measures are identified as leading or lagging indicators or given more management friendly titles such as Lost Test Time, Maintenance Scheduling Effectiveness, or Unscheduled Downtime. Whatever the method, planning must address the daily or monthly data collection and reporting of this information. One of the most difficult aspects of measurement is the determination of planned versus actual performance. It is relatively easy to record information from an odometer or run-time meter but it is very difficult and costly to track once an asset is slated to start and remain running. This is especially true of organizations with highly dynamic and complex missions where customers dictate many changes to the operational schedule.

15.15.3. Legal. Legal review of maintenance activities ensures the effective management of issues related to labor rights and conditions, limited rights in maintenance data, proprietary data, and other regulatory issues. Including representatives from the Judge Advocate General (JAG) office when conducting maintenance planning and activities will greatly improve the maintenance management effort and help avoid regulatory pitfalls.

Section 15D—Test and Inspection Methods

15.16. Test and Inspection Methods.

15.16.1. Test and Inspections Overview. Previously discussed is the need to plan for maintenance specific to the asset, the lifecycle of the asset, the type of maintenance activity, and the people/organizations performing the maintenance. Next is the discussion regarding the tools and technologies that can be planned or 'designed into' the maintenance process in order to maximize the maintenance program's efficiency, effectiveness, and enhance inspection for in-service problems with plant equipment. Example: Using ultrasound technologies and tools to inspect for leaks instead of the soap box method may reduce the man-hours required to perform inspection by 80 percent and reduce MTTR by an equal amount.

15.16.2. Non-Destructive Inspection (NDI). The Air Force uses NDI methods such as liquid penetrant, magnetic particle, ultrasonic, radiographic, and eddy current. The definition of NDI can be found in TO 33B-1-1, *Non-Destructive Inspection Methods, Basic Theory*. The TO is devoted to NDI theory and AF personnel are certified IAW AIA NAS-410, *NAS Certification and Qualification of Nondestructive Test Personnel*. These tools involve non-intrusive means of inspection and testing structures and components to identify and characterize indications of potentially harmful defects.

15.16.3. Visual Inspection (VI). Visual inspection is the most readily available, lowest cost, and commonly used method of inspection. Visual inspection may be used to verify the physical characteristics of an asset and compares the current condition of an asset to the current approved design. This form of inspection may be augmented with measuring devices such as rulers, micrometers, and enhancements such as binoculars or other aides. Results from visual inspection may include identification of leaks, corrosion, incorrect configurations, aging, damage from weather, or other potential failure modes.

15.16.4. Soap Bubble (Leak) Testing. Soap bubble testing is an inspection process where a soapy solution is applied to the surface of a pipe, tube, or pressure containing system and bubbles are produced by the escaping air, gas, or liquid thereby indicating a leak. This method may be modified by applying a negatively pressurized box on the outside of a component to locate leaks in a non-pressurized system or component. The box is placed over the area for inspection after a soap solution is applied to the surface. If a leak is present, the vacuum generating box will draw air through a leak and bubbles will appear where the leak is located.

15.16.5. Infrared Thermograph. Infrared thermograph is a non-destructive, in-service, inspection process requiring an experienced operator/technician and heat sensing measurement equipment. It is used to identify 'hot spots' or changes in temperature which may relate to poor connections or arcing in electrical components. Thermograph has also been used to identify leaks in flat roofs. National Fire Protection Association (NFPA) 70E, *Standard for Electrical Safety in the Workplace*, is the industry standard for arc flash and safe and efficient thermograph practices. Electrical maintenance requirements are provided in NFPA 70B, *Recommended Practice for Electrical Equipment Maintenance Committee Report*.

15.16.5.1. One of the more recent advances in infrared inspection has been through the use of infrared (IR) windows. By installing IR windows in switchgear or electrical system cabinets, technicians are able to take IR photographs of the equipment through the window. This technique eliminates the arc flash hazard associated with inspection of an

open cabinet and energized system. It also facilitates inspection of many electrical cabinets in a shorter amount of time. IR inspections should be set up in routes to maximize the cost effectiveness of inspection. Groups or sets of equipment can be inspected in one shift given a consistent pattern of data collection and reporting. IR inspection like other inspections is best performed when commissioning equipment in order to create a baseline signature. This baseline signature is compared to future IR readings to understand the change in aging equipment.

15.16.6. Ultrasound. Ultrasound monitoring is a non-destructive, in-service, inspection method requiring an experienced operator/technician who uses an ultrasound sensor to inspect for high frequency sound associated with pressure system leaks and arcing of electrical equipment. Applications of ultrasound inspection include area-wide leak check for compressed gas systems, vacuum, sealed units, traps, valves, and heat exchangers. Ultrasound has been found to be an effective method for locating leaks in lieu of soap bubble testing. Another current application is locating of arcing, tracking, and corona issues for electrical systems which emit high frequency noise that is detectable by ultrasound. Mechanical inspection for bearings, gears/gearboxes, valves, pumps, and motor conditions is also currently being enhanced using ultrasound.

15.16.7. Balancing. Motor and equipment balance is essential to the life of a rotating piece of equipment. The following standards are available for successful motor balancing. International Organization for Standardization (ISO) 21940-11:2016, *Mechanical Vibration — Balance Quality Requirements For Rotors In A Constant (Rigid) State*, gives specifications for rotors in a constant (rigid) state. It specifies balance tolerances, the necessary number of correction planes, and methods for verifying the residual unbalance. Recommendations are also given concerning the balance quality requirements for rotors in a constant (rigid) state, according to their machinery type and maximum service speed. These recommendations are based on worldwide experience. ISO 1940-1:2003 is also intended to facilitate the relationship between the manufacturer and user of rotating machines, by stating acceptance criteria for the verification of residual unbalances. Detailed consideration of errors associated with balancing and verification of residual unbalance are given in ISO 1940-2, excluding flexible motors. The balance quality requirements for rotors in a flexible state are covered by ISO 11342/CORI:2000.

15.16.8. Aligning. Machine alignment equipment is used to align rotating or moving parts and machine components. Alignment sets the tolerance range and incorporates target specifications for equipment. There are many types of machine alignment equipment, i.e., a wheel alignment machine, front end alignment machine, truck alignment machine, CNC machine tool alignment and test equipment, and laser performance parameters alignment. A wheel alignment machine employs diagnostic systems that are used to measure the toe, camber, caster, and ride height. A front end alignment machine is used to align the directions of the wheel such that the vehicle points in a straight line. A truck alignment machine allows personnel to align the truck by adding or removing the shims behind the upper mounting bracket of both the front and rear wheels. CNC machine tool alignment and test equipment is used to improve a machine's accuracy and performance where tight tolerances are required to be maintained.

15.16.8.1. There are several ways in which machine alignment equipment functions. During the alignment process, minimum movement is made but still the alignment is

obtained. A wheel alignment machine is very robust and is available with two measuring heads, non-contacting lasers, or the contacting rollers on the tires that are used to view the sidewalls of the tire. A wheel alignment machine requires less maintenance and is highly reliable and accurate. A machine tool alignment is done for machine calibration and to increase the performance of the tool. Machine alignment equipment is designed and manufactured to meet most industry specifications. Machine alignment equipment is used in many applications. Examples: Automotive transfer lines, steam and gas turbine bore alignment, and aerospace and process mill roll alignment. Machine alignment equipment should adhere to ISO standards. A recommended best practice is provided by John Piotrowski – *Shaft Alignment Handbook*, Third Edition available. ISBN-10:1574447211ISBN-13:9781574447217Pub. Date:03/26/2006Publisher:Taylor & Francis

15.16.9. More Machine Vibration Monitoring. Today significant advances have been made in vibration signal characterization. Vibration monitoring is the most reliable method of assessing the overall health or changes in health of a rotor system. In some applications, accelerometers are attached (i.e., permanently or temporarily) to the equipment and both frequency and direction of movement of the equipment are detected and transmitted to a signal processor. By installing alarms within the signal processing software or a Machine Conditioning Monitoring (MCM) system, operators/technicians can be alerted to out-of-tolerance vibrations. In order to benefit fully from a vibration monitoring system, it is important to appreciate what vibration is, how it is measured, how vibration measurements are presented, and what can be learned from each presentation format. ISO 10816 -8:2014 provides vibration severity standards.

15.16.10. Lubrication. A lubrication program is a proactive, systematic, and integrated approach to enhance equipment reliability, increase lubricated component life, and reduce internal power losses. The proactive approach of eliminating contaminants from lubricating oils and greases has proven to be a major factor in extending component life and improving equipment reliability. This approach allows for advanced planning of corrective maintenance activities based on lubricant analysis trends rather than conducting unplanned corrective maintenance. The systematic approach refers to continuous monitoring of the program efficiency, lubricant analysis, and applied corrective actions.

15.16.10.1. The integrated aspect refers to cooperation between different organizations and existing programs in order to achieve efficient services, adequate communication with various stakeholders, and effective execution of the corrective actions when required.

15.16.10.2. The Lubrication Program identifies Industrial Plant Equipment, facility programs, and procedures that interact and impact lubricant quality and equipment reliability. The focus is not only on the lubricant itself but rather on the whole lubrication systems including the lubricant, lubricated components (i.e., bearings, seals, and filtration systems) and the surrounding environment.

15.16.10.3. As noted with other maintenance process improvements, a successful lubrication program will require commitment to change culture in the field or point of lubrication all the way up and through management. Everyone must recognize it is no longer acceptable to pour tainted, undocumented, or untested lubricant from a bent soda

can into a piece of sensitive equipment. Once the planned and designed lubrication process is put into place, all implementing personnel must manage lubricants in the approved manner consistent with lubrication training. Disciplined adherence to process and procedure is imperative.

15.16.11. Motor Testing. Modern electrical maintenance practices often do not take into account the importance of electric motor testing for proper equipment uptime and plant competitiveness. Motor testing increases equipment reliability by identifying problems before the force an outage. Recommend organizations responsible for electric motor assets consider implementing a motor testing program. Electric motor testing maintenance and management programs are designed to improve equipment readiness and uptime while reducing capital overhead. Motor testing programs consist of specific maintenance management tools designed to aid the maintenance engineer in electric motor systems and their care. For additional information: http://www.electricityforum.com/test-equipment/electric-motor-testing.htm1

15.16.11.1. The following are some important electric motor testing items:

15.16.11.1.1. Electric Motor Impulse Testing. Electric motor impulse testing is an integral part of predictive maintenance of electrical motors. Through the following questions, the influence that extensive impulse testing has on a motor is investigated:

Figure 15.2. Electric Motor Impulse Testing.

Can impulse testing damage healthy or deteriorated insulation?
Can direct current (DC) resistance, inductance, Megger or HiPot tests diagnose weak turn-to-turn insulation?
After failing an impulse test, are motors with weak insulation able to operate? Are motors with a turn-turn short capable of continued operation?

Electric motor impulse testing is accomplished by putting a low voltage motor through extensive testing rigors until a failure is induced. Following the failure, additional testing investigates the possible deteriorating effects on turn-turn insulation due to impulse testing beyond the motor's dielectric breakdown.
Note: This Section was edited from the original version of the IEEE paper published in 2003.

15.16.11.2. Electric Motor Rotation Testing. Check a fan and pump motor rotation offline. Fans may continue to slowly rotate due to a drafting effect a plenum, and a pump may rotate if connected to a common header line that processes other pumps in operation. Either of these scenarios may adversely affect the standard test results possibly creating higher than normal resistive and inductive imbalances.

15.16.11.3. Wound Rotor Motor Testing. Wound rotor motors have a three-phase winding on the rotor which is connected to three phases of start-up resistors that provides the current and speed control on start-up. Failed components in the resistor bank are common and often overlooked when troubleshooting. These faults can have a significant impact on the overall operation of the motor and should be given considerable focus when troubleshooting these motors.

15.16.11.4. Electric Motor Insulation Resistance Testing. Electric motor insulation exhibits a negative temperature coefficient, i.e., as temperature increases, resistance decreases. This would lead one to believe that insulation resistance of a de-energized motor will decrease after starting the motor. However, generally the resistance will initially increase after running due to evaporated moisture caused by increasing temperature of the windings. The governing standard, IEEE43, *IEEE Recommended Practice for Testing Insulation Resistance of Electric Machinery,* on insulation resistance testing requires a temperature correction to 40 degrees C which could quickly turn acceptable measured resistance readings into unacceptably low corrected resistance readings.

Figure 15.3. Electric Motor Tests.

The recommended off-line, in-service, electric motor tests and spare electric motor test are:

Stator winding resistive imbalance.
Stator winding insulation resistance (Meg-Ohm checks).
Polarization Index (PI) .
Step Voltage test.
Surge test.

Figure 15.4. New/Refurbished Electric Motor Tests.

The recommended new/refurbished electric motor tests are:

Stator winding resistive imbalance.
Stator winding insulation resistance (Meg-Ohm checks).
Polarization Index (PI).
Step Voltage test.
Surge test.

15.16.12. Circuit Testing. Whenever working with electricity, make it an ironclad rule to ensure that power to the equipment is turned off at the service entrance panel or subpanel.

15.16.12.1. Before touching bare wire ends, use a neon tester in order to confirm that the circuit is dead. Touch one tester probe to a hot wire or terminal and the other probe to a neutral wire or terminal, the grounding conductor, or the grounded metal box. The tester will light if the circuit is live.

15.16.12.2. Be careful: If by some chance the right circuit is not off or if there is a short in the system, the wires may still be hot. Make sure to hold the tester probes by the insulation and not the metal ends or the result may be a shock or short circuit.

15.16.12.3. If a lamp or appliance does not work, that does not mean the circuit is dead but it could be that the appliance itself is faulty. Insert the neon test probes into the receptacle slots. If the test light is on, the circuit is still hot.

15.16.13. Destructive Testing. While equipment and component destructive testing may be the last resort to gain, in many cases examining a failed component with this method can provide insight into failure modes or may be applicable to similar equipment. Metallographic tests, tensile testing, and materials analysis are valuable tests of first article equipment or parts of failed equipment. In many cases, chemical analysis may be destructive. However if samples from insulation, lubricants, and base materials can be obtained and tested for compatibility, failures may be prevented.

15.16.14. New Technology Application. The ability to reduce mean time to diagnose (MTTD) potential failures is driving new CBM techniques and methods development. Accurate and quick troubleshooting of complex systems, e.g., machine tools, industrial plant equipment, etc., requires sophisticated analytical capabilities and multifaceted skills on the part of the maintainers. The operational health of complex equipment is often dependent on different factors including the complex interaction of the different components, system usage, routine maintenance, replacement part quality, and the ability of our maintainers to correctly diagnose failures. Early efforts to assist the maintainer with troubleshooting have ranged from built in test (BIT) and built in test equipment (BITE) to sophisticated test equipment and electronic interactive technical manuals. Some organizations have employed low level intelligent rule systems to provide the maintainer with more systematic methods of diagnosis. Most often the classical troubleshooting paradigm of ‘identify fault and take action’ is unacceptable and must be replaced with system level diagnostic processes and tools. While simple ‘poke yoke’ measures work well for simple quality measurement tasks, understanding vibration caused by misalignment or operating frequencies that affect sets and groups of equipment within a system requires more advanced quality measurement techniques. Fourier analysis techniques

married with accelerometers and specially developed software to translate raw data into alarms and alerts may provide a better method for equipment condition monitoring.

15.16.14.1. Through Small Business Innovative Research (SBIR) and related programs, maintainers are working with technology developers to deliver these new processes and tools. The goal is to develop, test, and evaluate an advanced and innovative troubleshooting technology that appears to the user as a systems expert. Such advanced and automated troubleshooting technologies will be able to interpret and use both numerical and textual information. The system will be able to direct the maintainer through a series of interconnected actions to identify correctly and rapidly the failed component. Inherent to this intelligent troubleshooting technology will be its ability to integrate with existing CBM inputs, i.e., system/component health monitoring and health management approaches. This integration will reduce the associated ambiguity in identifying correctly the failed component. The introduction of such advanced troubleshooting technologies into the AF maintenance infrastructure will result in a quantum leap towards the adoption of newly emerging test hardware/software and will provide substantial benefits to the maintainer of complex systems.

15.16.14.2. The use of wireless technologies in industrial maintenance has greatly expanded over the years. The government is working collectively to ensure that the use of wireless technologies will not intrude in information security yet allow maintainers to access equipment health information in real-time. Wireless maintenance data acquisition will avoid the cost of expensive construction, installation of conduits, and miles of wiring.

Section 15E—Configuration and Data Management

15.17. Configuration and Data Management.

15.17.1. Configuration Management (CM) Overview. CM is defined as a process for establishing and maintaining consistency of a product's performance, functional, and physical attributes with its requirements, design, and operational information throughout its life. It includes identifying, documenting, and verifying the functional and physical characteristics of an item; recording the configuration of an item; and controlling changes to an item and maintaining the documentation. The CM process as support to the systems engineering activity provides a complete audit trail of decisions and design modifications to an asset throughout its lifecycle. The configuration management process ensures the asset's condition, as it exists in the field, is accurately and completely identified by the technical documentation used to perform maintenance. Electronic Industries Alliance (EIA)-649, *National Consensus Standard for Configuration Management*, as a replacement for MIL-HDBK-61A (SE), *Configuration Management Guidance*, provides excellent information for tailoring a CM program. **Rationale**: Definition as provided in EIA-649 and MIL-HDBK-61A (SE). Process characteristics as defined in MIL-HDBK61A (SE) and EIA-649.

15.17.2. Configuration Identification. The process of developing technical documentation that defines the physical and functional characteristics of hardware and software is configuration identification. Assets to be placed under Configuration Control are referred to as Configuration Items (CI). The key to understanding configuration identification is that all parts and components required for the CI to meet required functional performance and satisfy fit and form requirements must be identified in configuration documentation. Many people make the mistake of assuming one can control the configuration of an asset by only

documenting higher level performance information. Configuration identification must include all the characteristics: form, fit, or function, that must be verified as delivered or to be operated and maintained. A simple component such as a bolt, screw or light bulb if not properly included and verified in the identifying technical documentation, can lead to an unreliable system. The successful operation of an asset depends on disciplined CM and complete configuration identification.

15.17.2.1. Configuration Documentation. Documents to be controlled when used by maintainers are:

15.17.2.1.1. Operating Procedures.

15.17.2.1.2. Maintenance Instructions.

15.17.2.1.3. Drownings.

15.17.2.1.4. Specifications (performance, procurement, material, process, etc.).

15.17.2.1.5. BOMs (or device lists).

15.17.2.1.6. Hazard, FMEA, and other analyses (if to be kept current).

15.17.2.1.7. Logistical support information (to ensure the operational configuration and spares/logistics support are consistent with each other).

15.17.2.1.8. Training manuals and information.

15.17.2.1.9. Training manuals and information.

15.17.2.2. Baseline Management. Baseline management refers to the development of configuration identifying documentation at various milestone points in an asset's life- cycle from which changes to the configuration may be tracked. The initial baseline typically associated with definition of a system's functional requirements is known as the Functional Configuration Baseline (FCB) or Functional Configuration Identification (FCI) which is established after agreement is reached during planning at a system requirements review for a new asset. The next baseline established is the Allocated Configuration Baseline or Allocated Configuration Identification (ACB/ACI) which is established after decomposition of a system's requirements into sub-systems and major equipment or end items. The configuration identifying interface documentation, performance specifications for equipment purchase, and schematics are brought under configuration control after successful completion of a preliminary design review. The final configuration baseline is typically the product configuration baseline or product configuration identification which signifies the successful fabrication, test, and inspection through Physical Configuration Audits and Functional Configuration Audits (PCAs/FCAs) as well as full up System Verification Reviews (SVRs). At this point, all the technical data described in paragraph 15.17.2.1. is verified complete, current, and accurate as it represents the configuration transferred to operations and maintenance. All verified technical documentation to be used in operation and maintenance is vaulted and released to operators, maintainers, and support personnel through a Configuration Status Accounting (CSA) system.

15.17.3. Configuration Control. During the life-cycle of plant and equipment, changes occur for various reasons. It is essential to manage the change process to ensure all configuration documentation is kept complete, current, and accurate. It is unacceptable and unsafe for

maintenance, operations, and plant support personnel to be working from different versions of technical data. For this reason, a robust configuration control process is needed.

15.17.3.1. The following steps are essential to the configuration control process:

15.17.3.1.1. Propose. Develop and submit a Configuration Change Request (CR) to the personnel or organization assigned responsibility for processing changes. Enter change information in the CSA system.

15.17.3.1.2. Review. Conduct a thorough review of proposed changes to the assets included in the scope of the change and corresponding technical data. If necessary, convene a formal Configuration Control Board (CCB) to review changes involving interfaces external to as well as internal to the plant and equipment. It is essential that CCBs represent all the major functions performed within the organization including financial, administrative, operation, maintenance, quality, training, logistics, procurement, safety, and environmental.

15.17.3.1.3. Approve. Once a recommendation for approval is achieved, the CR is submitted to a designated plant or senior system level asset owner who has authority to implement the approved change. Update the CSA.

15.17.3.1.4. Implement. This phase involves the performance of work identified in the CR with special attention paid to verification audit at the close-out of work as well as verification and release of revised documentation into the CSA. This phase may be broken into two phases: a phase for 'work performance' and a phase for 'ready to operate'.

15.17.3.2. The CR should be tracked in the CSA/Computerized Maintenance Management System (CMMS) throughout the process to ensure personnel are aware of proposed or pending changes as well as the current approved or implemented configuration.

15.17.4. CSA. The CSA provides the maintainer with information about the configuration of assets and their documentation. The primary role of the CSA should be to identify the change history; proposed, in-review, approved, and implementation status for assets and documentation. The CSA should also be able to provide:

15.17.4.1. Plant-Facility-System-Equipment vertical and horizontal indenture location relative to each component and interfaces within the system hierarchy.

15.17.4.2. All configuration identifying and related operation and maintenance or support documentation by document title, number, type, and the asset it identifies at all levels of the hierarchy.

15.17.4.3. The status of the configuration documentation in terms of revision or change control. Status should identify the proposed, pending change board review, approved, implemented, and incorporated (i.e., verified and vaulted) configuration.

15.17.4.4. The serial and lot numbers which identify specific versions of like form, fit, or function configurations and their effective dates.

15.17.5. Configuration Audits and Reviews. As noted earlier, configuration audits are essential to ensure assets developed and added to the operational inventory are as defined by

specifications and drawings. The audit associated with confirming performance specifications have been met is known as the functional configuration audit (FCA). FCAs may be performed at the OEM's location or at the site of intended operation. FCAs are usually conducted on individual pieces of equipment. PCAs are conducted to verify that form and fit characteristics of CIs are documented completely and accurately.

15.17.5.1. A recommended best practice for maintenance is to perform periodic CIVRs to ensure on-going change management during operations is being successfully accomplished, and ensures that operations and maintenance documentation is maintained in a complete, current, and accurate manner. CIVRs are also applicable to vendors who supply equipment by vendor part number. The government has found fault with many vendor CM systems resulting in interferences and lack of performance.

15.17.6. Maintenance Information. Maintenance information provides the maintainer with an understanding of the condition of the asset as well as the status and effectiveness of the maintenance program. Maintenance information should include cost of maintenance activities and materials/equipment, schedules of PM and corrective actions, and maintenance performance information.

15.17.6.1. The following data elements provide important information to the conduct of maintenance activities:

15.17.6.1.1. Asset – design document numbers, serial number, model number, manufacturer's identification number or name, date of manufacture, spare and/or repair parts and replacement, consumable materials and their corresponding manufacturer's identification, serial number, etc.

15.17.6.1.2. Documentation – identifying numbers, revision, date of original release, title or description, author/owner.

15.17.6.1.3. Personnel – identification number, certifications/qualifications, organizational assignment or identifier, skill code.

15.17.6.1.4. Operation – run-time, expected run-time, peak, design and average operational limits, actual use and run information from which MTBF can be calculated.

15.17.6.1.5. Maintenance – scheduled dates for PM actions, days PMs overdue, time between failure, time to repair, condition codes, expected and actual failure codes/modes.

15.17.6.1.6. Financial – purchase cost, current asset replacement value, cost to repair, annual operating and maintenance cost

15.17.6.1.7. Safety – PPE required, risk assessment code.

15.17.6.1.8. Environmental – permits, hazardous materials associated with operation and maintenance failure modes and effects.

15.17.7. Computerized Maintenance Management System (CMMS). An effective CMMS provides the maintainer with the ability to access maintenance information provided as data elements as well as links to configuration identifying and procedural information. CMMSs are used to perform analysis of mean time to failure, mean time to repair and other metrics.

CMMS, in conjunction with CSA and Work Management and Personnel Management information systems, provides complete, current, and accurate information for assets, documentation, and personnel in support of maintenance planning and task accomplishment.

15.17.8. Work Management. Work management requirements are discussed in **Chapter 2**, however, the maintainer depends on accurate and complete configuration information to ensure kitting and other planned maintenance activities are performed correctly. Work management information and management of the work related data elements including cost and schedule data is critical to maintenance program success. Many organizations use an automated tool or computerized system to assist their work management effort. Since maintenance activities require planning and scheduling, there is a need to integrate maintenance work into the overall organization's work management process.

15.17.9. Government Industry Data Exchange Program (GIDEP). GIDEP is a cooperative activity between government and industry participants which seeks to reduce or eliminate expenditures of resources by sharing technical information essential during research, design, development, production, and operational phases of the life cycle of systems, facilities, and equipment. Proper utilization of GIDEP data can materially improve the total quality and reliability of systems and components during the acquisition and logistics phases of the life cycle and reduces costs in the development and manufacture of complex systems and equipment. GIDEP is sponsored by the US Army, US Navy, USAF, NASA, DoE, Defense Contract Management Agency, Canadian Department of National Defense, and DLA.

15.17.9.1. Diminishing Manufacturing Sources and Material Shortages (DMSMS) notices originate when a part manufacturer announces that a part or a production line will be discontinued. The majority of GIDEP DMSMS notices have been issued on piece parts especially in the electronics area (i.e., primary microcircuits), however DMSMS also occurs at the module, component, equipment, or other system indenture level. GIDEP is designated as the DoD centralized database for managing and disseminating DMSMS information. The database contains data for not only parts manufactured IAW military or government specification but also commercial parts.

15.17.9.2. GIDEP is working closely with various government activities on several DMSMS projects which will eventually be migrated to GIDEP system. Among these projects are the DMS Shared Data Warehouse, the DMSMS Prediction Tool, and the Army DMS Info System. Future migration of these systems in GIDEP would facilitate GIDEP's role as the central repository of data for DMS management.

15.17.9.3. Reliability and maintainability (R&M) data within GIDEP contains reports on theories, methods, techniques, and procedures related to reliability and maintainability practices. This also contains failure rate, failure mode, and replacement rate data on parts and subsystems based upon field performance and demonstration tests of systems, sub-systems, and equipment. In addition to electronics, the database also includes R&M information on mechanical, electro-mechanical, hydraulic, and pneumatic items. It is incorrect to assume that GIDEP only provides information related to military products. GIDEP has data on commercial products as well. GIDEP would like to expand its information on COTS products.

15.17.9.4. GIDEP information is available on its web-site at: www.gidep.org

Section 15F—Tool Control, Training and Safety

15.18. Tool Control.

15.18.1. Tool Control Overview. The purpose of tool control is to increase productivity, reduce the cost of lost or missing tools, improve tool accountability, ensure tools are in good working order, ensure the tool kits are complete, and reduce the possibility a tool may be ingested into equipment or otherwise cause detrimental impact on operations. Tool control and management should be established using the guidelines in **Chapter 10** and further specified in TO 32-1-101. Tool management must provide a cost-benefit to the maintenance organization. Tailoring of the tool control program and procedures must consider the cost-benefit for each 'value-added' requirement included. The following activities may be implemented to effectively manage tools:

15.19. Training.

15.19.1. Overview. Successful maintenance requires the most vital resource, i.e., people who will conduct the work must be fully trained and ready to perform maintenance tasks. Maintenance training must be tailored to the needs of the organization and is dependent on the maintenance and operations concept for assets as well as its configuration and condition. Maintenance personnel must work closely with their training organizations to identify, prioritize, and justify required maintenance. Maintenance training typically falls into one of the following categories:

15.19.2. Basic Theory. The training required to understand the concepts such as physics, math, and sciences associated with the technologies involved. Basic theory training is provided at the scholastic level through undergraduate and graduate level training courses such as operations research, calculus, physics, chemistry, plant layout, engineering economics, thermodynamics, heat transfer, fluid mechanics, etc. There are many training opportunities available to maintenance personnel to learn the basic theories associated with maintenance performance and management.

15.19.3. Applied Theory. Applied theory is the training that takes basic theory and applies the concepts to actual work performed in the field. Understanding chemistry and the relationships between chemicals is necessary for the chemist but the maintainer must apply those concepts to equipment lubrication in order to develop an understanding of material compatibility, corrosion control, and the hazardous materials found in the workplace. There are many courses available to technicians, engineers, and operator/maintainers in industry and throughout the DoD and AF training programs. Many of these courses have the word 'maintenance' in their title and specialize in asset types or systems and configurations.

15.19.4. On the Job Training (OJT). OJT takes place at the work-site or locally and is geared to specific issues, practices, and policies of the organization. OJT qualification may be as advanced as a Standards Evaluation program where operator/maintainers are trained using training materials, then in a simulator, and finally with over the shoulder senior technicians, journeymen, or craftsmen participating in qualification. OJT combines basic, applied, and on-site experience and knowledge to focus in on the specifics of job performance. In many cases, training is performed using current work instructions or procedures.

15.19.5. Computer Based Training (CBT). CBTs are a relatively inexpensive method for recording system level maintenance information which can be reviewed as needed by

personnel. CBTs allow use of graphics, maps, pictures, and procedural steps to assist maintenance personnel in initial training and to refresh their knowledge in a particular area of work.

15.19.6. Certification Programs. Certification in reliability or CBM technologies provides many benefits. Recognition at a national level for accomplishment and understanding is important. Certification ensures other members of the RCM team and organization that you have qualified to perform the work. In many cases, the work to be performed involves hazards and establishes system operational safety. In most cases, certification requires continuing instruction in the latest technologies associated with the subject matter. Finally, certification is a discriminator between people who have and have not been qualified to perform work. The Society for Maintenance and Reliability Professionals offers certification as a Certified Maintenance and Reliability Professional (CMRP). CMRP is an accepted certification by the RCM industry. American Society of Nondestructive Testing (ASNT) offers certification in many of the CBM technologies. **Note:** Training materials must be maintained under the same rigid and disciplined configuration control process as technical data being used to operate and maintain production or fielded systems. Failure to maintain consistency of training materials with current technical data may lead to accidents that could have been avoided.

15.20. Safety.

15.20.1. Safety Overview. Safe operations and reliable operations are synonymous. The goal in system safety is to control operational risk wherever possible. The five progressive steps to risk reduction are (taken from AFMAN91-203):

15.20.1.1. Eliminate the hazard.

15.20.1.2. Reduce the risk in design.

15.20.1.3. Provide safeguards

15.20.1.4. Implement administrative controls.

15.20.1.5. Use PPE.

15.20.2. Personal Protective Equipment (PPE). All maintenance personnel must receive indoctrination training in PPE. The basic PPE is a hard hat, hearing protection, gloves, eye protection, and hard toed safety shoes. Additional PPE may include radiation film badges, coveralls, knee pads, welding shields, breathing apparatus, and other equipment. It only takes a minute to put on PPE and failure to protect one-self may result in a lifetime of pain and suffering.

15.20.3. System Safety Hazard Analysis (SSHA). The recommended practice is for the development of an SSHA for each asset or system of assets. Operators, maintenance personnel, and system engineers provide valuable input to the SSHA development process by identifying hazards and establishing mitigating procedures, PPE, or other action to allow work when a known hazard is present. FMEAs, fault-trees, and system process diagrams are useful in developing SSHAs.

15.20.4. Voluntary Protection Program (VPP). The most recent initiative in industry and DoD involves VPP. VPP involves team based safety awareness. The VPP promotes effective worksite-based safety and health. In the VPP, management, labor, and OSHA administration establish cooperative relationships at workplaces that have implemented a comprehensive

safety and health management program. Approval into VPP is OSHA's official recognition of the outstanding efforts of employers and employees who have achieved exemplary occupational safety and health. Incidents are reported and hazards identified. Reference: http://www.osha.gov/dcsp/vpp/index.html.

15.20.5. Operational Readiness Review (ORR). In order to reduce the risk of bringing systems on-line or in a 'return to service' effort, it is essential that the engineers, maintainers, operators, test personnel, and other system stakeholders meet and review checklist items, i.e., are all configuration changes incorporated, have operating personnel been trained on the current operational configuration, are all subcontractors and nonassigned personnel clear from the area and work completed, and has the SSHA been updated. One of the most critical times in the life of a system is initial operation after installation, modification, or an extended period of downtime. From birds building nests in relief vents to inoperative emergency eyewash units, a great number of system components can fail during maintenance periods without being readily observable. An ORR is an opportunity to bring fresh eyes, experience, and knowledge into the reactivation process in order to reduce risk and ask the right questions.

15.20.6. Risk Management (RM). RM is defined in AFI 90-802, *Risk Management*. When performed in conjunction with the development of an RCM program, RM assists in the identification and classification of hazards associated with operations and maintenance. The checklist provided below is a recommended best practice in assuring RM and risk assessment has been completed for operating systems. RM and FMEA or root cause analysis supports the development of SSHAs and serves as a means of not only improving system reliability but ensures safe operations as well.

Figure 15.5. Risk Management (RM) Assessment Checklist.

Activity/Department:			
Work Process:			
Step 1. Identify Hazards.			
	Yes	No	N/A
Has a flowchart been completed identifying major steps of the work process? Attach copy of documentation/comments.			
Have applicable hazards of each step with possible causes for those hazards been documented? Attach copy of documentation/comments.			
Step 2. Assess Hazards.			
	Yes	No	N/A
Has each hazard been assigned a Hazard Severity Category?			
Has each hazard been assigned a Mishap Probability Rating?			
Has each hazard been assigned a RAC?			
Step 3. Risk Decisions.			
	Yes	No	N/A
Have risks been prioritized and internal controls selected to reduce process risks?			

Do selected internal controls provide benefits that outweigh risks?			
If risk outweighs benefit, does the process warrant reporting to higher authority as a material weakness? Discuss issues and attach documentation.			
Step 4. Internal Control Implementation (more than one type internal control may apply).			
	Yes	No	N/A
Have 'Engineering Controls' been implemented that reduce risks by design, material selection, or substitution when technically or economically feasible?			
Have 'Administrative Controls' been implemented that reduce risks through specific administrative actions, such as:			
Providing suitable warnings, markings, placards, signs, and notices?			
Establishing written policies, programs, instructions, and standard operating procedures?			
Training personnel to recognize hazards and take appropriate precautionary measures?			
Limiting the exposure to a hazard either by reducing the number of personnel/assets or the length of time they are exposed? **Note:** Reference 29 CFR 1910 for any restrictions that must be followed or violation of law, and coordinate with bio-environmental.			
Is there use of PPE (serves as a barrier between personnel and a hazard and should be used when other controls do not reduce the hazard to an acceptable level)?			
Step 5. Supervision.			
	Yes	No	N/A
Is there periodic supervisory oversight of internal controls for the work process?			
Attach Department Head ISSUES/COMMENTS and ACTIONS with estimated completion dates.			
Signature:	Date:		
RM Assessment conducted by:			
RM Assessment reviewed by:			

Table 15.4. Hazard Severity Matrix.

Hazard Severity	Description
I	Death, loss, or grave damage.
II	Severe injury, damage, or inefficiencies.
III	Minor injuries, damage, or inefficiencies.
IV	Minimal threat to personnel and property.

Table 15.5. Mishap Probability Matrix.

Mishap Probability	Description
A	Likely to occur immediately.
B	Probably will occur in time.
C	May occur in time.
D	Unlikely to occur.

Table 15.6. Risk Assessment Matrix: Probability Rating.

Risk Assessment Matrix			PROBABILITY			
			Frequency of Occurrence Over Time			
			A	B	C	D
			Likely	Probable	May	Unlikely
SEVERITY Effect of Hazard	I	Death, loss, or grave damage	1	1	2	3
	II	Severe injury, damage, or inefficiencies	1	2	3	4
	III	Minor injuries, damage, or inefficiencies	2	3	4	5
	IV	Minimal threat to personnel and property	3	4	5	5
Risk Assessment Codes (RACs) 1 – Critical 2 – Serious 3 – Moderate 4 – Minor 5 – Negligible						

15.20.6.1. Risk management is a decision-making process to systematically evaluate possible courses of action, identify risks and benefits, and determine the best course of action for any given situation. RM provides commanders, functional managers, supervisors, and individuals the means of maximizing operational capabilities while limiting all dimensions of risk. RM applies a simple process appropriate for all personnel to use whether on or off-duty. Appropriate use of RM increases both an organization's

and an individual's ability to accomplish their mission. Application of the RM process ensures more consistent results while RM techniques and tools add rigor to the traditional approach to mission accomplishment thereby directly strengthening the Air Force's warfighting posture. **Note:** RM will not be used to violate a known standard or regulation.

15.20.7. Confined Space. Many workplaces contain spaces that are considered 'confined' because their configuration hinders the activities of employees who must access them. A confined space has limited or restricted means for entry or exit and it is not designed for continuous employee occupancy. Confined spaces include but are not limited to underground vaults, tanks, storage bins, manholes, pits, silos, process vessels, and pipelines. OSHA uses the term 'permit-required confined space', i.e., permit space, to describe a confined space that has one or more of the following characteristics: contains or has the potential to contain a hazardous atmosphere, contains a material that has the potential to engulf an entrant, has walls that converge inward or floors that slope downward and taper into a smaller area which could trap or asphyxiate an entrant, or contains any other recognized safety or health hazard such as unguarded machinery, exposed live wires, or heat stress. (Reference: OSHA 29 Code of Federal Regulations (CFR) 1910.146/AFMAN 91-203 for Confined Space).

15.20.8. Lock-out/Tag-out (LOTO). LOTO refers to specific practices and procedures to safeguard employees from the unexpected startup of machinery and equipment or the release of hazardous energy during service or maintenance activities.

15.20.8.1. Approximately 3 million workers service equipment and face the greatest risk of injury if LOTO is not properly implemented. Compliance with the energy control LOTO procedures and standard (i.e., OSHA 29 CFR 1910.147/AFMAN 91-203) prevents an estimated 120 fatalities and 50,000 injuries each year. Workers injured on the job from exposure to hazardous energy lose an average of 24 workdays for recuperation. In a study conducted by the United Auto Workers (UAW), 20 percent of the fatalities (i.e., 83 of 414) that occurred among their members between 1973 and 1995 were attributed to inadequate hazardous energy control procedures.

Section 15G—Housekeeping

15.21. Housekeeping.

15.21.1. Housekeeping Overview. Housekeeping is the process of ensuring that the workplace is kept clean and organized. Industrial housekeeping forms part of the manager's general responsibility. It includes the provision of adequate workspace and adequate storage arrangements, both around the workstation and within the unit, in addition to the development of effective administration and procedures to ensure a culture of tidiness and cleanliness within the workforce. A lack of concern with housekeeping can result in an increase in accidents, machine failure, and a reduction in the overall efficiency of the unit. The introduction of the Japanese 5-S concept into Western companies has renewed management interest in industrial housekeeping (Reference: Business Dictionary at http://www.businessdictionary.com/definition/housekeeping.html). The checklist below is an example to be use during housekeeping inspections.

Figure 15.6. Housekeeping Checklist.

HOUSEKEEPING CHECKLIST

Housekeeping and Workplace Stewardship.	Yes	No	N/A
Area Observed.			
Date of Inspection.			
Inspector.			
Housekeeping Element (score 1-10).			
Spaces free of clutter.			
Floors clean.			
Cabinets and lockers organized and properly secured.			
Materials stored properly.			
Cardboard boxes and delivery containers properly disposed of.			
Tools and equipment properly organized and stored properly.			
Exits, stairways, and aisle ways clear of obstructions, no tripping hazards.			
Yard areas clean.			
Smoking in designated areas only, no butts on ground.			
Workplace lighting sufficient for work requirement.			
Confined spaces properly marked.			
Energized electrical cabinets secured when not open for maintenance.			
Emergency lighting operational when tested.			
Eyewash and emergency showers unobstructed, clean, and inspection current.			
Fire extinguishers in place, accessible, and charged.			
Flammable storage cabinets properly labeled, contents match labels, clean.			
Hazardous material cabinets labeled and MSDS/SDS provided at location.			
Fluid leaks and spills labeled and contained.			
Guard rails and rope barriers in compliance with standards.			
K-bottles secured, upright, and caps in place if not in use.			
Scaffolding properly erected and inspected when in use.			
Hoisting equipment in compliance with standards.			
Power tool guards and protective equipment in place and in good working order.			
Note: This checklist is general in nature and not specific to regulated or expanded standard cleaning areas and must comply with requirements of AFMAN 91-203.			

15.21.2. 5-6S. 5-6S is a recommended best practice for housekeeping involving the application of a five or six step process. The 5S program discussed in section 15K.1. has been expanded to a sixth S to include safety. The steps in the process are 1) sort, 2) set in order, 3) shine, 4) standardize, 5) sustain, and 6) safety. By following these steps, gains can be achieved. Gains in productivity often positively affect MTTR by ensuring tools, parts, and

other materials are readily available to perform repairs when needed. A clean workplace is also a safe workplace.

Section 15H—Test, Measurement, and Diagnostic Equipment (TMDE)

15.22. TMDE Overview. TMDE is defined as devices used to maintain, evaluate, measure, calibrate, test, inspect, diagnose, or otherwise examine materials, supplies, equipment, and systems in order to identify or isolate an actual or potential malfunction, or determine if they meet operational specifications established in technical documents. TMDE ranges in scope from equipment used to measure voltage, current, capacitance, temperature, or waveforms to equipment used to measure vibration, force, pressure, vacuum, liquid flow, length, or flatness. Reference TO 00-20-14, Air Force Metrology and Calibration Program and AFMAN 21-113, Air Force Metrology and Calibration (AFMETCAL) Program.

15.22.1. The AFMETCAL Program is an AF program that provides measurement standards and equipment, professional and technical metrologists, performing work centers (PWCs), a system of worldwide Precision Measurement Equipment Laboratory (PMEL) facilities, measurement equipment users, calibration data and integrated planning. This program ensures the reliability and accuracy of systems, subsystems and equipment. The program provides for the calibration and repair of Test, Measurement and Diagnostic Equipment (TMDE). It also ensures measurement traceability of the TMDE through the Air Force Primary Standards Laboratory (AFPSL) to National Institute of Standards and Technology (NIST) or other AFLCMC/WNM (AFMETCAL) approved sources. To accomplish this traceability, the AFMETCAL program requires that Air Force users and Precision Measurement Equipment Laboratories (PMELs) obtain calibration service from Air Force PMELs or the AFPSL. AFMETCAL must approve calibration service from other sources.

15.22.2. TMDE Management/Compliance. Proper management of TMDE ensures compliance with the AFMETCAL program directives. Compliance with the program is a best maintenance practice. Users of the TMDE are often not aware of the Air Force calibration requirements. This lack of awareness, coupled with obstacles such as large inventories, limited procurement control, dynamic testing in Research and Development (R&D) environments, excessive amounts of spares, and no defined life cycle management of TMDE, can make full compliancy a challenge. Processes should be put into place to offset these obstacles.

15.22.2.1. One of the more prevalent contributors to calibration deficiencies is the government's acceptance of COTS systems that are not in compliance with the AFMETCAL prescribed program. Other commonly found deficiencies occur when systems are modified to expand capabilities or to meet external customer needs only to later discover during system operation and maintenance that data quality and integrity has been lost. Failure to develop as part of acquisition and design planning a maintenance concept that addresses periodic calibration will result in costly delays and rework in order to bring the system into compliance with calibration requirements. A disciplined approach for acquisition of new TMDE must be established to include maintenance and calibration support.

15.22.2.2. Right sizing the TMDE inventory should also be considered. TMDE not in use should be turned into supply. Keeping outdated pieces of TMDE in work centers adds unnecessary inventory costs and may contribute to noncompliant TMDE issues. It

may be possible to consolidate TMDE if multiple organizations/facilities share common needs. A TMDE crib methodology similar to the management of common hand tools will reduce the number of TMDE coordinators and reduce ownership costs.

15.22.2.3. Finally, performance measures should be put into place to measure the overall success of the TMDE Management Program. **Example**: TMDE area audits provide onsite assessments and give management insight into each work center's compliance with TO 00-20-14 and provides data to improve the overall health of the program.

15.22.2.4. The international standard for calibration is ISO/International Electrotechnical Commission (IEC) 17025, which is the standard used by testing and calibration laboratories. Also known as ISO/IEC Guide 17025: 1990, *General Requirements for the Competence of Calibration and Testing Laboratories.* It was initially issued by the International Organization for Standardization in 2000. There are many commonalities with the ISO 9000 standard, but ISO/IEC 17025, *General Requirements for the Competence of Testing and Calibration Laboratories,* adds in the concept of competence to the equation and applies directly to those organizations that produce testing and calibration results. Since its initial release, a second release was made in 2005 after it was agreed that it needed to have the quality system wording more closely aligned with the 2000 version of ISO 9001, *Quality Management Systems-Requirements*.

15.22.3. Pressure Gauges. Pressure gauges are used to fulfill a variety of Air Force mission needs. Some gauges are used to collect system data for use in fault, incident, or failure analysis. Some gauges are used as operational indicators to reduce risk of over pressurizing systems or components. Some gauges are used to indicate the presence of pressure to aid in maintenance or operation of the system. For gauges used in an operating concept that includes mission data measurement or indication of hazards present, TO 00-20-14 prescribes the calibration process and TO 33K-1-100-2, *TMDE Calibration Notes, Calibration Interval, Technical Order and Work Unit Code Reference Guide* or TO 33K-1-71 (Arnold Engineering and Development Center (AEDC) Calibration Measurement Summary) describes calibration methodologies.

15.22.3.1. Industry best practices offer alternate solutions for pressure gauge acquisition and calibration. Many use American Society of Mechanical Engineers (ASME) B40, *Pressure Gauges And Gauge Attachments* as the standard when specifying gauge requirements for new purchase. Industry generally recommends that pressure system owner-operators document or record their approved process for gauge management to include periodic calibration. There are no operational standards for gauges however most believe that the calibration requirement becomes more important for service that exceeds the threshold set for Category D fluid service. Category D states that if the pressures are less than 150 psig, the service is not hazardous or lethal [e.g., steam, thermal coefficient of expansion (TCE), etc.] or explosive (i.e., liquid or gaseous propellants) so less stringent calibration is required than is specified in TO 00-20-14.

15.22.3.2. Alternative methods for calibration include calibration by a National Institute of Standards (NIST) certified lab, calibration in the field by qualified personnel using dead weight or other method/standards, or calibration by comparison to a calibrated standard. In all cases, the key to successful gauge management is record keeping and accountability of gauge calibration determination decisions. Work instructions that

describe the calibration methodology and periodicity for each serial number gauges must be developed and maintained current.

Section 15I—Quality Control/Quality Assurance (QC/QA)

15.23. QC/QA Overview. Maintenance quality and equipment reliability is the responsibility of all maintenance personnel. The combined efforts of QC/QA personnel, maintenance leaders, process engineers, and technicians are necessary to ensure high quality maintenance production and equipment reliability. Maintenance leaders are responsible for safe equipment operation and quality maintenance production. The QC/QA staff evaluates the quality of the maintenance accomplished in the maintenance organization and performs necessary audit/inspection functions to manage the organization. These audits provide an objective sampling of both the quality of equipment and the proficiency of maintenance personnel. QC/QA personnel are not an extension of the work force. The evaluation and analysis of deficiencies and problem areas are key functions of QA/QC which highlights and identifies underlying causes of poor quality in the maintenance production effort. By finding the root cause of problems and recommending corrective actions to supervisors, QC/QA can significantly affect the quality of maintenance work performed. Civil service and contracted organizations should use the accepted quality program outlined in their respective contract. Reference AFI 63-101/20-101, Integrated Life Cycle Management; AFI 63-501, Air Force Acquisition Quality Program; AFMCI 21-100, Depot Maintenance Management.

15.24. Contracted Quality Measurement. When developing a PWS for contractor performed QC/QA, recommend including a work statement that ensures clear and concise requirements for quality management. Examples of measured performance might be personnel qualification, maintenance quality, quality control audits and analysis, and improvement. Personnel qualification would include development of training plans, tracking of trained and qualified personnel, and the development of training syllabus to include criteria for pass or fail. Results of quality evaluations for maintenance tasks performed and results of maintenance inspections might be good quality evaluation factors. Quality control audits include housekeeping, tool control audits, foreign object inspections prior to operation and incidents, CMMS data audits for completeness and accuracy, and inspections of TMDE for timely calibration and Calibration Measurement Summary reviews to ensure configuration control of instruments used in a 'build-up' system where calibrated in place. Finally, analysis and improvement may be tracked against corrective action plans (i.e., milestones) trend analysis and implementation of corrective actions. Recorded criteria establishing goals and scoring must be agreed to by the government and the contractor to ensure expectations are well communicated.

15.25. Maintenance Efficiency and Effectiveness. Maintenance efficiency is determined by comparing the actual cost in labor and material resources required to perform maintenance versus the lowest, most expeditious and organized cost to perform maintenance. Higher levels of efficiency are achieved by combining maintenance actions in one outage, having tools available, training personnel, and grouping inspection routes. Maintenance effectiveness is determined by the quality of maintenance performance as measured through re-work and deficiency correction costs.

15.26. Quality Management. Quality management must provide a means of feedback to ensure process improvement. The use of feedback or surveys is a recommended best practice in order to allow workers the opportunity to communicate needed improvements or process deficiencies

requiring management action. Many organizations include quality feedback in cost saving suggestion programs which recognize employees for their recommendations when validated.

Section 15J—Materials Management

15.27. Materials Management Overview. Materials management is a program that includes management and coordination of all logistical functions in an enterprise, ranging from acquisitions to receiving and handling, through internal allocation of resources to operations units, to the handling and delivery of output. This information includes instruction in acquisitions and purchasing, inventory control, storage and handling, just-in-time manufacturing, logistics planning, shipping and delivery management, transportation, quality control, resource estimation and allocation, and budgeting.

15.28. Materials Management Overview. Materials management is a program that includes management and coordination of all logistical functions in an enterprise, ranging from acquisitions to receiving and handling, through internal allocation of resources to operations units, to the handling and delivery of output. This information includes instruction in acquisitions and purchasing, inventory control, storage and handling, just in-time manufacturing, logistics planning, shipping and delivery management, transportation, quality control, resource estimation and allocation, and budgeting.

15.29. Hazardous Materials Management. Hazardous materials management is governed by AFMAN 32-7002 and is managed by Civil Engineering Operations.

15.30. Industrial Supply System. DLA Troop Support provides information through its website: https://www.troopsupport.dla.mil/ce/www.dscp.dla.mil. The link to Construction and Equipment provides professional, personal services and innovative logistics solutions through long term contracts with integrated suppliers/prime vendors offering direct vendor delivery, on-line credit card ordering, and direct customer interface.

15.31. Receiving Inspection. Maintenance personnel must work closely with suppliers to ensure receiving inspections are performed on parts and materials. Receiving inspectors must be trained to perform receiving inspections or inspections must be out-sourced or sent to other organizations for verification that design and purchase description specifications have been met. Warranty information should be reviewed and annotated in the CMMS for received parts and materials. MSDS/SDS and vendor supplied technical data should be forwarded to the systems engineer or responsible maintenance personnel for vaulting in the CMMS or CSA. Receiving inspections may include first article tests, non-destructive examinations, special inspections identified in design or purchase specifications, and other tests or inspections.

15.32. Equipment Storage. Correct equipment storage methods are essential to the long-term reliability of systems and equipment. Several examples noted by maintainers of improper storage are:

15.32.1. Rotors. Rotors that are not stored vertically or placed under an on-going rotation program will warp if stored in one position for extended periods of time.

15.32.2. Hermetically Sealed Devices. Many electrical and controls systems components require storage in hermetically sealed vaults with specific humidity, filtration, and temperature control as well as protection from electro-magnetic discharge.

15.32.3. Protection From Corrosion, Insects, Birds, and Other Contaminants. Equipment stored outdoors is susceptible to intrusion by birds, insects, and the weather. Protection must be provided to ensure wasps do not pack mud nests in equipment. Hard mud dauber nests have been known to completely seal vents and relief devices and ruin electrical circuit cards. Maintainers must consider preventive maintenance activities for stored components to ensure they are ready and available when called out of storage.

15.33. Pre-Qualification of Suppliers Under the Federal Acquisition Regulation (FAR). While the FAR promotes competition in contracting, in some cases, restricted or limited sources may prove cost effective over a life-cycle of equipment support. Pre-qualification of suppliers may be helpful in determining the 'best value' source for spare or repair parts with or after the original equipment source of supply is identified. Recommend consultation with the responsible Procurement Division to identify the best acquisition method for the total life cycle support of maintained systems and equipment. In addition, process engineers need to ensure that selected vendors can meet our customer's technical requirements, i.e., the flow of technical requirements to a sub tier supplier in cases of transferred work. The selection process should include a process engineer validating and/or qualifying a vendor to ensure quality products are received.

15.34. Compatibility of Materials. Maintenance personnel including engineering support must ensure compatibility of materials. Improper selection of gaskets, lubricants, and other parts or materials have been the cause of numerous system and component failures. Failure to perform material analysis in design and during maintenance to verify compatibility may lead to corrosion, excessive wear, contamination, or other deleterious effects resulting in an unreliable system and component. Material compatibility should be a step in the review of all configuration changes during operations and maintenance.

Chapter 16

AIR FORCE MATERIEL COMMAND DEPOT MAINTENANCE CAPACITY AND UTILIZATION MEASUREMENT

16.1. Purpose and Applicability.

16.1.1. Capacity and utilization measurement is required of all DoD depot maintenance activities to quantify organic capacity and capacity utilization providing indicators of the relative size and usage of DoD organic depot maintenance activities. This chapter applies to the organic Depot Maintenance Operations of the ALCs within AFSC: OC-ALC, OO-ALC, and WR-ALC. This chapter provides guidance on measuring, recording, and reporting capacity and utilization of organic depot maintenance operations. This chapter is written in conjunction with DoD 4151.18-H. Areas of application include on-site areas and DFTs in remote locations.

16.1.2. Any reference to 'DoD methodology' in this guidance will refer to the guidance in DoD 4151.18-H.

16.2. Responsibilities.

16.2.1. AFSC/LZDA responsibilities include:

16.2.1.1. Air Force OPR for issues and inquiries pertaining to organic depot capacity.

16.2.1.2. Support the ALCs in the computation and reporting of capacity data.

16.2.1.3. Act as OPR requesting annual capacity data information from the ALCs for reporting purposes to higher headquarters.

16.2.1.4. Summarize each ALC's capacity data and report this information annually to higher headquarters IAW this guidance and DoD 4151.18-H.

16.2.1.5. Conduct capacity verification visits annually or whenever substantial changes in product mix and/or shop configurations occur (reference DoD 4151.18-H). Visits will be conducted in the third fiscal quarter prior to the annual AFSC request for capacity data unless otherwise required at a different time of year.

16.2.1.6. Ensure the ALCs are aware of new and existing DoD and Air Force capacity-related guidance.

16.2.1.7. Host every other year capacity program review meetings for all Depot Capacity Leads (DCLs) and Group Capacity Leads (GCLs). In conjunction with the biennial program review meeting, provide a capacity training session for all personnel newly assigned to measure capacity.

16.2.1.8. Maintain individual ALC capacity data and rolled up AFSC summary data for a minimum of four prior FYs as well as the current FY.

16.2.1.9. Maintain a current level of knowledge regarding DoD and Air Force capacity related guidance and training.

16.2.1.10. Maintain this guidance and related computational templates.

16.2.2. ALC/CC responsibilities include:

16.2.2.1. Each ALC/CC is responsible for identifying a DCL for capacity and utilization measuring purposes. This person will serve as the central POC for their respective ALC. The title DCL is not meant to specify any particular job series or skill. Similarly, any references to capacity representatives in this guidance are not meant to specify any particular job series or skill. It is used in a general sense as a reference to anyone identified by the organization as being involved in the process of capacity measurement.

16.2.2.2. Provide resources to support training requirements and ensure core documents reflect capacity verbiage as prescribed in paragraph 16.3.

16.2.3. DCL responsibilities include:

16.2.3.1. OPR at their respective ALC for inquiries and issues pertaining to organic depot capacity.

16.2.3.2. Act as liaison between AFSC/LZDA and the Groups for issues pertaining to capacity.

16.2.3.3. Each DCL is responsible for identifying the GCLs responsible for capacity and utilization measuring purposes. This person will serve as the central POC for their respective Support Group. The title GCL is not meant to specify any particular job series or skill. Similarly, any references to capacity representatives in this guidance are not meant to specify any particular job series or skill. It is used in a general sense as a reference to anyone identified by the organization as being involved in the process of capacity measurement.

16.2.3.4. Coordinate with each GCL to ensure their respective Support Group's capacity is computed and reported accurately and in a timely manner. The DCL shall be available to help GCLs with determining work positions, preparing shop drawings, identifying RC/CC, WBS designations, etc.

16.2.3.5. Retain capacity data call submittals for all shops involved in depot maintenance activities for two previous FYs and the current FY.

16.2.3.6. Act as the ALC focal point regarding the collection of annual capacity data. The DCL will forward the annual AFSC request for capacity data to the Groups tasking them to provide their capacity data. The DCL will coordinate and compile data submitted by the Groups for the annual data submission. Subsequently, the DCL will forward their summarized data to AFSC in the proper format at the request and direction of AFSC/LZDA.

16.2.3.7. Maintain current level of knowledge regarding DoD and Air Force capacity-related guidance and training.

16.2.3.8. Notify the Groups of annual capacity verification visits and biennial capacity program review meetings.

16.2.4. Support Group's Commander responsibilities include:

16.2.4.1. Each Support Group Commander is responsible for appointing a GCL for capacity and utilization measuring purposes. This person will serve as the central POC for their respective Support Group.

16.2.4.2. Ensure Support Group personnel associated with the collection of capacity data are trained in these duties as prescribed in paragraph 16.3. of this guidance. Identify personnel to the DCL who are new or in need of capacity training.

16.2.4.3. Ensure the Support Group personnel assigned to capacity measurement maintain current level of knowledge of DoD and AF capacity-related guidance.

16.2.5. GCL Responsibilities:

16.2.5.1. Ensure all current shop capacity drawings are properly maintained. Drawings shall be reviewed and updated as necessary but at least once per year in preparation for the annual capacity data call. GCLs will ensure capacity-based shop drawings are available upon DCL request.

16.2.5.2. Summarize and report their respective Groups' capacity data annually upon DCL request.

16.2.5.3. Maintain a current level of knowledge regarding DoD and Air Force capacity related guidance and training.

16.3. Qualifications.

16.3.1. The DCLs and GCLs must have taken and passed the online DAU Continuous Learning Module Capacity course, CLL026, *Depot Maintenance Capacity and Measurement,* available at: **http://icatalog.dau.mil/onlinecatalog/tabnavcl.aspx?tab=CLL.**

16.3.1.1. DCL. Identifies and maintains a methodology for assessing the measurement of organic Depot Maintenance Capacity and Utilization IAW criteria established by DoD Directive 4151.18-H and its supplemental instructions and all applicable AFSC instructions.

16.3.1.2. GCL. Documents and maintains specific measurements of Support Group Level Depot Maintenance Capacity and Utilization data IAW criteria established by DoD Directive 4151.18-H and its supplemental instructions and all applicable AFSC instructions.

16.4. Capacity Data. Capacity is an indicator of the amount of workload based on a 40-hour workweek measured in direct labor hours (DLHs) which can be produced for a particular WBS. It enables comparisons of capacity and utilization data between activities. Capacity is expressed as an index. It is essential that capacity and utilization indices are not used as stand-alone planning tools. Indices are defined as composite numbers used to characterize different sets of data. Accordingly, indices are general indicators rather than precise measures. As index data are aggregated, the significance of the data will further diminish. The capacity and utilization indices are an important part of analyzing depot capability but only when used in conjunction with other planning and management factors such as: operational costs, workloads, facilities, resources, etc.

16.4.1. Elements Used in Determining Capacity Data. Capacity data and calculations rely on two elements: the number of work positions and the associated workload. The measuring

process always starts at the lowest organizational unit typically the RC/CC. At this level work, positions are counted utilizing capacity based shop layout drawings. Sets of shop level data are aggregated to obtain a total for the ALC broken down by the WBS structure. Using these totals, capacity indices are determined.

16.4.1.1. Responsibility Center/Cost Center (RC/CC). The RC/CC is the lowest level at which workload and work positions are tracked. An RC/CC is typically a five or six digit alpha code tied directly to a direct labor shop. RC/CCs are unique to each shop at each ALC. These alpha codes are not duplicated within a depot or among the depots. An RC/CC may be associated with multiple WBSs and thus work positions are allocated between them. In addition, a single WBS may include several RC/CCs.

16.4.1.2. Capacity-Based Shop Drawings. Work positions are counted utilizing capacity based shop drawings. Capacity-based shop drawings are further explained in paragraph 16.5.

16.4.1.3. Work Breakdown Structure (WBS). There are 11 major WBSs most with subcategories used to report capacity to DoD. However, AF reports capacity data for seven WBSs. WBSs are defined in paragraph 16.6. WBSs in this guidance are identical to the WBSs defined within DoD 4151.18-H.

16.4.2. Capacity Data Calculation Recording and Reporting. AFSC calculates, records, and reports two capacity indices: Baseline Capacity Index and the Utilized Workload Capacity Index. The Baseline and Utilized Workload Capacity Indices are expressed in direct labor hour (DLH). The Baseline Capacity Index represents the amount of workload that an ALC can effectively employ annually on a single shift, 40-hour week basis. The individual WBSs added together forming the Baseline Capacity Index for the entire ALC. The Utilized Capacity Index is expressed in DLHs and represents the total number of DLHs required for the ALC to execute the funded annual workload requirements for each WBS.

16.4.2.1. Capacity Calculation Process. The method for determining Capacity data is detailed in DoD 4151.18-H and in the on line DAU Continuous Learning Module Capacity course, CLL026. Capacity shall be tabulated and reported utilizing the formats provided in **Figure 16.3.** In general, capacity is calculated by determining the number of work positions within each shop and then assigning them to one or more appropriate WBS. Subsequently, the Baseline Capacity calculation is applied to produce the various Capacity Indices.

16.4.2.2. Eight Basic Steps Required to Tabulate Capacity Data by WBS. As detailed within DoD 4151.18-H, there are eight basic steps required to calculate Baseline Capacity:

16.4.2.2.1. Step 1: Obtain/update capacity based shop drawings.

16.4.2.2.2. Step 2: For each shop or RC/CC, determine/identify work stations and work positions, and designate one or more WBS (as applicable) for each RC/CC/FC combination.

16.4.2.2.3. Step 3: Multiply the result of Step 2 (the total work positions) by the Availability Factor (AF), which is 0.95. (reference paragraph 16.4.2.3.3).

16.4.2.2.4. Step 4: Multiply the result of Step 3 by the Annual Productive Hours (APH), which is 1,615. (reference paragraph 16.4.2.3.2).

16.4.2.2.5. Step 5: Record the resultant baseline shop capacity index for each RC/CC.

16.4.2.2.6. Step 6: Allocate RC/CC shop capacity to the appropriate WBS.

16.4.2.2.7. Step 7: Allocate any DFT workload to the appropriate WBS.

16.4.2.2.8. Step 8: Tabulate the total DLH by WBS for the ALC.

16.4.2.3. Baseline Capacity Index. The Baseline Capacity Index is calculated by adding the work position-based capacity and the DFT based capacity.

Figure 16.1. Capacity Indices Area Expressed in DLH.

Baseline Capacity Index = Work Position-Based Capacity + DFT-Based Capacity where: Work Position Based Capacity = Work Positions X (APH) X (AF) therefore: Baseline Capacity Index = (Number of Work Positions) X (1,615) X (0.95) + DFT

16.4.2.3.1. Work Positions. The first step in calculating Baseline Capacity is to count the work positions shown on the capacity-based shop drawings. Work positions are converted to DLH by applying the two factors: APH and AF.

16.4.2.3.2. Annual Productive Hours (APH) Factor. This factor represents the potential availability of personnel or the number of productive hours contributed annually by one work position. This factor takes into account that work positions are not continuously manned and will be down occasionally for indirect labor purposes such as meetings, training, holidays, and leave. It does not reflect a worker's performance efficiency but does reflect the DoD average or standard time spent on direct labor by subtracting out all known and estimated indirect labor hours. Therefore, a total of 2,080 annual paid hours is reduced to 1,615 DLHs per work position as follows:

Figure 16.2. Example of A Work Position.

	2,080	Total Annual Paid Hours (52 weeks/yr X 40 hrs/week)
	-80	Holiday Hours
	-274	Leave Hours
	-111	Other Indirect Hours (e.g., meetings, training, etc.)
Annual Productive Hours =	1,615	DLHs

16.4.2.3.3. Availability Factor for Equipment/Facility. The equipment/facility availability factor reflects the percentage of time the equipment and/or facility required by a work position is available for direct production work. Reasons for non-availability include equipment calibration, maintenance/repair, equipment installation, etc. To ensure DoD comparability, this factor is set at 95 percent or 0.95.

16.4.2.3.4. DFT-Based Capacity. DFT capacity is defined within DoD 4151-18H as the workload performed by an individual or group designated to perform maintenance and/or inspection of systems or equipment at an offsite or remote location other than the depot facility. Shop layout drawings are not required for DFT based capacity documentation. The capacity associated with DFT workload is

tabulated and reported by WBS. DFTs may consist of civilian and military personnel, however; only the civilian hours will be used in the baseline capacity calculation. DFT capacity is not adjusted by the availability factor or the APH factor.

16.4.3. Utilized Capacity Index (Funded Workload). The Utilized Capacity Index is an indicator of the capacity expressed in DLH required by a shop or activity to support funded depot maintenance workload requirements. Thus, the Utilized Capacity Index is equal to the total number of DLHs projected for a shop or activity to execute funded workload requirements on an annual basis.

16.4.4. Process for Reporting Capacity Data. DoD 4151.18-H requires that capacity indices be reported annually for the past actual year, the current year, and three planning years. Capacity data will be compiled annually for all organic shops at each ALC.

16.4.4.1. AFSC/LZDA Data Call. Capacity data is to be compiled annually and reported to AFSC/LZDA by each ALC. AFSC/LZDA will send out the annual capacity and utilization data call to each ALC following the close of the FY. The data call will include instructions, funded workload data, and templates to be utilized to summarize the data required for the annual call. Funded workload data will be provided to the ALCs NLT 1 Nov.

16.4.4.2. DCLs shall compile the requested capacity data IAW the AFSC data call tasking instructions. Information is required and templates are provided which detail funded workload, baseline capacity, excessive/deficient capacity, and workload changes. The DCLs will submit their final coordinated and approved capacity data package to AFSC NLT 1 Mar or as requested by AFSC/LZDA.

16.4.4.3. Funded Workload Data. AFSC/LZDA will provide each DCL with the funded workload data totals as obtained from AFSC/FZ for their respective ALC. Funded workload totals will be provided for the past year and will be in DPSHs. The past year data will be summarized after the completion of the FY. Funded current and future year workload totals will be provided and shall include approved funded workload data expressed in DPSH. This data is used by each ALC in completing Section A for the annual data call.

16.4.4.4. Excessive/Deficient Capacity Utilization. Included with the annual capacity data report, each ALC is required to provide narratives for any WBS having utilization less than 75 percent, or greater than 125 percent. The template for this purpose is provided at **Figure 16.3.** Narratives shall include a description of the current situation and reasoning which explains the utilization level for each situation.

16.4.4.5. Workload Changes. Included with the annual capacity data report, each ALC is required to provide narratives detailing deviations of +/- 10 percent between reported FYs. The template for this purpose is provided at **Figure 16.3.** Narratives must identify the causes for the deviations (e.g., work load shifts, shop reconfigurations, Military Construction (MILCON), equipment changes, etc.).

16.5. Capacity-Based Shop Drawings. Each ALC will develop and maintain capacity-specific shop drawings for each shop within the depot maintenance organizations. Drawings will be updated once per year to maintain currency with annual reporting requirements. Updates may be

the result of workload realignment, shop reconfigurations, equipment or facility acquisition, or any other actions which may cause a change in the number of work positions.

16.5.1. Capacity-based shop drawings shall contain as a minimum the following data:

16.5.1.1. Work stations.

16.5.1.2. Work positions within work stations.

16.5.1.3. Support equipment within work stations.

16.5.1.4. Total work positions.

16.6.1. A written summary or out brief shall be provided to the ALC/CC with a courtesy copy to all POCs within 30 days of the visit. The summary of the validation visit will be retained by the AFSC OPR for a minimum of two prior visits.

Figure 16.3. AFSC Capacity Data Call Templates.

Section A for reporting capacity data by WBS

The following spreadsheet must be completed by each ALC in conjunction with the annual AFSC Capacity Data Call. Columns labeled: Work Positions and Funded Workload are to be populated for each WBS. All other columns are self-tabulating and locked. Data is to be provided for the recently closed fiscal year in addition to four projected years. The template (see below) for this purpose is provided by AFSC/LGMI with the annual data call.

ALC	FY##				FY## + 1		FY## + 2		FY## + 3		FY## + 4	
Work Breakdown Structure	# Work Positions	Baseline Capacity	Funded Workload	Utilization	# Work Positions	Funded Workload	# Work Positions	Funded Workload	# Work Positions	Funded Workload	# Work Positions	Funded Workload
1.0 AIRCRAFT	-		-		-	-	-	-	-	-	-	-
1.1 Airframes	-		-		-	-	-	-	-	-	-	-
1.1.1 Rotary												
1.1.2 VSTOL												
1.1.3 Cargo/Tanker												
1.1.4 Fighter/Attack/Trainer												
1.1.5 Bomber												
1.1.6 Aircraft - Other												
1.2 Aircraft Components	-		-		-	-	-	-	-	-	-	-
1.2.1 Dynamic Component												
1.2.2 Hydraulic/Pneumatic												
1.2.3 Instruments												
1.2.4 Landing Gear												
1.2.5 Aviation Ordnance												
1.2.6 Avionics/Electronics												
1.2.7 APUs (on Aircraft)												
1.2.8 Structural												
1.2.9 Other												
1.3 Aircraft Engines	-		-		-	-	-	-	-	-	-	-
1.3.1 Engines												
1.3.2 Aircraft Engine Components												
2.0 GROUND VEHICLES	-		-		-	-	-	-	-	-	-	-
3.0 SEA SHIPS	-		-		-	-	-	-	-	-	-	-
4.0 COMMUNICATIONS/ ELECT EQUIP	-		-		-	-	-	-	-	-	-	-
4.1 Radar												
4.2 Radio												
4.3 Wire												
4.4 Electronic Warfare												
4.5 Navigational Aids												
4.6 Electro-Optics/Night Vision												
4.7 Crypto												
4.8 Computers												
4.9 Other												
5.0 SUPPORT EQUIPMENT, GROUND	-		-		-	-	-	-	-	-	-	-
5.1 GSE												
5.2 Generators												
5.3 TMDE												
5.4 Calibration												
5.5 Other												
6.0 ORDNANCE, WEAPONS, MISSILES	-		-		-	-	-	-	-	-	-	-
6.1 Nuclear Weapons												
6.2 Chemical Weapons												
6.3 Biological Weapons												
6.4 Conventional Weapons												
6.5 Explosives												
6.6 Small Arms/Personal Weapons												
6.7 Strategic Missiles												
6.8 Tactical Missiles												
6.9 Missile Components												
7.0 SOFTWARE	-		-		-	-	-	-	-	-	-	-
7.1 Weapon System												
7.2 Support Equipment												
8.0 FABRICATION/MANUFACTURING												
9.0 FLEET/FIELD SUPPORT												
10.0 SPECIAL INTEREST ITEMS												
11.0 OTHER	-		-		-	-	-	-	-	-	-	-
11.1 Shelter Components												
11.2 Vehicle Components												
11.3 Area/Base												
11.4 OMEI	-		-		-	-	-	-	-	-	-	-
11.5 Storage												

ALC	FY##				FY## + 1		FY## + 2		FY## + 3		FY## + 4	
Work Breakdown Structure	# Work Positions	Baseline Capacity	Funded Workload	Utilization	# Work Positions	Funded Workload	# Work Positions	Funded Workload	# Work Positions	Funded Workload	# Work Positions	Funded Workload
1.0 AIRCRAFT	-		-		-	-	-	-	-	-	-	-
1.1 Airframes	-		-		-	-	-	-	-	-	-	-
1.1.1 Rotary												
1.1.2 VSTOL												
1.1.3 Cargo/Tanker												
1.1.4 Fighter/Attack/Trainer												
1.1.5 Bomber												
1.1.6 Aircraft - Other												
1.2 Aircraft Components	-		-		-	-	-	-	-	-	-	-
1.2.1 Dynamic Component												
1.2.2 Hydraulic/Pneumatic												
1.2.3 Instruments												
1.2.4 Landing Gear												
1.2.5 Aviation Ordnance												
1.2.6 Avionics/Electronics												
1.2.7 APUs (on Aircraft)												
1.2.8 Structural												
1.2.9 Other												
1.3 Aircraft Engines	-		-		-	-	-	-	-	-	-	-
1.3.1 Engines												
1.3.2 Aircraft Engine Components												
2.0 GROUND VEHICLES	-		-		-	-	-	-	-	-	-	-
3.0 SEA SHIPS	-		-		-	-	-	-	-	-	-	-
4.0 COMMUNICATIONS/ ELECT EQUIP	-		-		-	-	-	-	-	-	-	-
4.1 Radar												
4.2 Radio												
4.3 Wire												
4.4 Electronic Warfare												
4.5 Navigational Aids												
4.6 Electro-Optics/Night Vision												
4.7 Crypto												
4.8 Computers												
4.9 Other												
5.0 SUPPORT EQUIPMENT, GROUND	-		-		-	-	-	-	-	-	-	-
5.1 GSE												
5.2 Generators												
5.3 TMDE												
5.4 Calibration												
5.5 Other												
6.0 ORDNANCE, WEAPONS, MISSILES	-		-		-	-	-	-	-	-	-	-
6.1 Nuclear Weapons												
6.2 Chemical Weapons												
6.3 Biological Weapons												
6.4 Conventional Weapons												
6.5 Explosives												
6.6 Small Arms/Personal Weapons												
6.7 Strategic Missiles												
6.8 Tactical Missiles												
6.9 Missile Components												
7.0 SOFTWARE	-		-		-	-	-	-	-	-	-	-
7.1 Weapon System												
7.2 Support Equipment												
8.0 FABRICATION/MANUFACTURING												
9.0 FLEET/FIELD SUPPORT												
10.0 SPECIAL INTEREST ITEMS												
11.0 OTHER	-		-		-	-	-	-	-	-	-	-
11.1 Shelter Components												
11.2 Vehicle Components												
11.3 Area/Base												
11.4 OMEI	-		-		-	-	-	-	-	-	-	-
11.5 Storage												

Section B for reporting workload changes

The following table must be completed by each ALC in conjunction with the annual AFSC Capacity Data Call. The template is to provide detailed information regarding WBS fluctuations of +/- 10% between reported fiscal years. This template is provided by AFSC as an attachment to the annual data call.

ALC		SECTION B: Workload Changes	
FY	WBS	Description of work	Narration is required for WBS showing more than +/- 10% change between fiscal years

Section C for reporting excessive/deficient capacity utilization

The following table must be completed by each ALC in conjunction with the annual AFSC Capacity Data Call. The template is to provide detailed information regarding WBS utilization under 75% and/or over 125% between reported fiscal years. This template is provided by AFSC as an attachment to the annual data call.

ALC		SECTION C: Excessive/Deficient Capacity Utilization		
FY	WBS	Description of work	% Utilization	Narration required for WBS with utilization < 75% or >125% .

AFSC summarized capacity and utilization data for DoD

AFSC/LGMI will summarize the annual capacity data call for DoD submission using the following format.

FY##: DEPOT MAINTENANCE CAPACITY AND UTILIZATION SUMMARY

AF Totals	DoD Fiscal Years				
	current FY	FY + 1	FY + 2	FY + 3	FY + 4
Baseline Capacity Index (DLH)					
Utilized Capacity Index (DLH)					
Funded Operations Utilization Indicator (%)					

OC-ALC Totals	DoD Fiscal Years				
	current FY	FY + 1	FY + 2	FY + 3	FY + 4
Baseline Capacity Index (DLH)					
Utilized Capacity Index (DLH)					
Funded Operations Utilization Indicator (%)					

OO-ALC Totals	DoD Fiscal Years				
	current FY	FY + 1	FY + 2	FY + 3	FY + 4
Baseline Capacity Index (DLH)					
Utilized Capacity Index (DLH)					
Funded Operations Utilization Indicator (%)					

WR-ALC Totals	DoD Fiscal Years				
	current FY	FY + 1	FY + 2	FY + 3	FY + 4
Baseline Capacity Index (DLH)					
Utilized Capacity Index (DLH)					
Funded Operations Utilization Indicator (%)					

16.6. Work Breakdown Structure (WBS) Definitions.

16.6.1. Aircraft.

16.6.1.1. Airframe. Covered and uncovered areas associated with processing the airframe for purposes such as: progressive aircraft rework, inspection/repair, maintenance, crash damage repair or overhaul, modernization, modification, etc. The work includes stripping, disassembly, airframe repair, reassemble, systems check, and refinishing for the following:

16.6.1.1.1. Rotary

16.6.1.1.2. Vertical/Short Take-Off and Landing (VSTOL).

16.6.1.1.3. Cargo/Tanker.

16.6.1.1.4. Fighter/Attack/Trainer.

16.6.1.1.5. Bomber

16.6.1.1.6. Other. Those areas used to perform airframe production work that is not included in categories 16.6.1.1.6. through 16.6.1.1.5.

16.6.1.2. Aircraft Components. Covered and uncovered areas associated with processing aircraft accessories for the following:

16.6.1.2.1. Dynamic Components. All aircraft moving components, such as transmissions, propeller shafts, etc., not otherwise classified.

16.6.1.2.2. Hydraulic/Pneumatic Components. Includes fluid or air pumps and associated plumbing lines, components, air-driven accessories, ram air turbines, fluid driven accessories, etc. (also includes pneudraulics).

16.6.1.2.2.1. Hydraulics. Fluid driven components, pumps, and associated plumbing lines.

16.6.1.2.2.2. Pneumatics. Air pumps and associated plumbing lines and components, air-driven accessories, ram air turbines, etc.

16.6.1.2.2.3. Pneudraulics Components. Hybrid fluid/air pumps and associated plumbing lines and components.

16.6.1.2.3. Instruments. Indicators or measurement devices such as pressure, temperature, and humidity gages; air speed, direction, and other flight control instruments.

16.6.1.2.4. Landing Gear. Wheels, strut assemblies, tires, brakes, etc.

16.6.1.2.5. Aviation Ordnance. Delivery systems such as bomb racks, missile racks, launchers, and guns.

16.6.1.2.6. Avionics/Electronics. Electronic equipment such as radar systems, radios, on-board computers, etc.

16.6.1.2.7. Auxiliary Power Units (APUs). On-board systems not powered by aircraft primary sources used to supply electrical, hydraulic, or air power for short or temporary periods such as starting, heating of crew and passenger compartments, or emergency systems.

16.6.1.2.8. Other. Those areas used to perform aircraft component production work that is not included in categories 16.6.1.2.1. through 16.6.1.2.7. Includes work performed away from production facilities by DFTs.

16.6.1.2.8.1. Aircraft Structures. Airframe skin, spars, stiffeners, etc., that make up the skeleton and outer shell of the aircraft.

16.6.1.3. Aircraft Engines. Covered and uncovered areas associated with processing aircraft engines. The work functions include uncanning, disassembly, cleaning, metals examination, examination and evaluation, parts reconditioning, subassembly, final assembly, test, and preservation.

16.6.1.3.1. Turboprop/Turboshaft. Covered and uncovered areas associated with processing turboprop and/or turboshaft systems.

16.6.1.3.2. Turbofan Bypass. Covered and uncovered areas associated with processing turbofan bypass systems.

16.6.1.3.3. Turbofan/Turbojet Augmented. Covered and uncovered areas associated with processing aircraft turbofan/turbojet augmented systems.

16.6.1.3.4. Engine Exchangeable/Components (i.e., bearings, blades/vanes). Covered and uncovered areas associated with processing engine exchangeable components.

16.6.1.3.5. Other. Those areas used to perform productive work for aircraft engines that are not included in categories 16.6.1.3.1. through 16.6.1.3.4. Includes work performed away from production facilities by field teams.

16.6.2. Ground Vehicles. This WBS is not used for Air Force capacity reporting purposes includes: ground combat vehicles, amphibious vehicles, tactical (wheeled) vehicles, automotive, and/or construction equipment.

16.6.3. Sea Ships. This WBS is for Navy only capacity reporting purposes includes: aircraft carriers, submarines, surface combatants, etc.

16.6.4. Communications and Electronic Equipment. Work functions include disassembly, inspection, cleaning, repair, parts reconditioning and/or replacement, manufacture, calibration, reassembly, and test.

16.6.4.1. Radar. Covered and uncovered areas associated with processing radar equipment for overhaul, repair, conversion, and modification that are required in support of fixed, mobile, and portable electronic and communication systems. Radar equipment categories include navigation, search, surveillance, height finding, and identification.

16.6.4.2. Radio. Covered and uncovered areas associated with processing radio equipment for overhaul, repair, conversion, and modification that are required in support of fixed, mobile, and portable electronic and communications systems. Radio equipment categories include communication, control, navigation, auxiliary, relay, microwave, television, and radiological.

16.6.4.3. Wire. Covered and uncovered areas associated with processing wire communications equipment for overhaul, repair, conversion, rehabilitation, and modification that are required in support of fixed, mobile, and portable electronic and communication systems. Wire and communications categories of equipment include teletype, facsimile, telephone and telegraph, intercom and public address systems, sound recording and reproduction, visible and invisible light communication, and crypto logical systems.

16.6.4.4. Electronic Warfare. Covered and uncovered areas associated with processing electronic warfare equipment.

16.6.4.5. Navigational Aids. Covered and uncovered areas associated with processing of navigational aids.

16.6.4.6. Electro-Optics and/or Night Vision. Covered and uncovered areas associated with processing of electro-optics and night vision equipment.

16.6.4.7. Crypto. Covered and uncovered areas associated with processing of crypto equipment.

16.6.4.8. Computers. Covered and uncovered areas to perform depot maintenance on computer equipment.

16.6.4.9. Other. Covered and uncovered areas to perform depot maintenance on other types of communications-electronics equipment not covered in 16.6.4.1. through 16.6.4.8. Includes work performed away from production facilities by field teams.

16.6.5. Support Equipment.

16.6.5.1. Ground Support Equipment. Covered and uncovered areas associated with depot maintenance of ground support equipment (except aircraft and communications-electronics), accessories, and components.

16.6.5.2. Generators. Covered and uncovered areas associated with the depot maintenance of ground generators, accessories, and components.

16.6.5.3. Test, Measurement, and Diagnostic Equipment (TMDE). Covered and uncovered areas used for depot maintenance of TMDE equipment.

16.6.5.4. Calibration. Covered and uncovered areas used to perform maintenance on all types of calibration equipment.

16.6.5.5. Other. Those areas used to perform support equipment production work that is not included in categories 16.6.5.1. through 16.6.5.4. Includes work performed away from production facilities by DFTs.

16.6.5.5.1. Electronic Support Equipment. Covered and uncovered areas associated with depot maintenance of electronic support equipment and its accessories and components.

16.6.6. Ordnance, Weapons, and Munitions.

16.6.6.1. Nuclear Weapons. Covered and uncovered areas associated with renovation, modification, repair, inspection, test, assembly, and demilitarization of nuclear weapons and associated materiel.

16.6.6.2. Chemical Weapons. Covered and uncovered areas associated with renovation, modification, repair, inspection, test, assembly, and demilitarization of chemical weapons, and associated materiel.

16.6.6.3. Biological Weapons. Covered and uncovered areas associated with renovation, modification, repair, inspection, test, assembly, and demilitarization of biological and/or bacteriological weapons, and associated materiel.

16.6.6.4. Conventional Weapon. Covered and uncovered areas associated with renovation, modification, repair, inspection, test, assembly, and demilitarization of all items of conventional weapons and ammunition.

16.6.6.5. Explosives. Covered and uncovered areas associated with renovation, modification, repair, inspection, test, assembly, and demilitarization of all explosives, including bombs, grenades, weapon warheads, rockets, mines, torpedoes, pyrotechnics, fuses, primers, etc.

16.6.6.6. Small Arms/Personal Weapons. Covered and uncovered areas associated with modification, repair, inspection, test, assembly, and demilitarization of small arms including all hand-held weapons, bayonets, and associated materiel.

16.6.6.7. Strategic Missiles. Covered and uncovered areas associated with processing strategic missile frames, motors, guidance systems and components, payload systems, accessories, launch equipment, and other components.

16.6.6.8. Tactical Missiles. Covered and uncovered areas associated with processing tactical missile frames, solid or liquid propellant, major inspection, and modification. The work functions include disassembling, cleaning, propellant examination and evaluation, parts reconditioning, subassembly, final assembly, and test and calibration.

16.6.6.9. Other. Those areas used to perform ordnance, weapons, and munitions productive work that is not included in categories 16.6.6.1. through 16.6.6.8. Includes work performed away from production facilities by DFTs.

16.6.7. Software.

16.6.7.1. Weapon Systems. Covered and uncovered areas used for depot maintenance of weapon systems software.

16.6.7.2. Support Equipment. Covered and uncovered areas used for depot maintenance of support equipment software.

16.6.8. Associated Fabrication and/or Manufacturing. Covered and uncovered areas associated with fabrication and/or manufacturing in support of depot maintenance.

16.6.9. Fleet Support. This WBS is usually for Navy only purposes. Those covered and uncovered areas used for support services not covered within the aircraft, missile, power plant, component rework, aircraft modification, or manufacturing programs. Fleet support includes services such as salvage, preservation and de-preservation, work incidental to acceptance and transfer of weapon systems at the depot; customer support provided directly to operating forces, component reclamation, and calibration.

16.6.10. Special Interest Items. This WBS is not usually used in reporting Air Force capacity. The items for this category will be identified in the annual capacity data call guidance if applicable.

16.6.11. Other. Those areas used to perform productive work away from production facilities by DFTs and not included in categories 16.6.1 through 16.6.10. above.

Chapter 17

DEPOT MAINTENANCE PRODUCTION LABOR ENTRY

17.1. Time and Attendance (TAA) System Management.

17.1.1. The DMAPS TAA is an information system that processes labor and attendance for CSAG-M funded employees. The development and evolution of TAA has been predicated on the idea of having a standard means of entering labor transactions with minimal effort from the affected employee.

17.1.2. The goal for production labor data entry is accurate and properly formatted data through extensive on-line validation at the field element level such as Employee or RC/CC, JON, Work Order, Operation Number, Environmental/Hazard (EH) Codes, proper leave and overtime authorizations, etc. This is accomplished through the use of extensive validation files and tables. TAA is an application of hours available: direct hours worked by cost center on each job order, indirect hours worked by cost center, and nonproductive (e.g., annual, sick, etc.) hours by cost center.

17.1.2.1. Processes/Procedures for Implementing TAA Labor Standards.

17.1.2.1.1. Management will assure the following labor standards are achieved through TAA.

17.1.2.1.1.1. Collect and accurately record work and leave hours based upon an established tour of duty including alternative work schedule/flextime hour information. This requires pre-approved or positive acknowledgment from the approving official that the employee worked the established tour and that TAA data is approved.

17.1.2.1.1.2. Record and report the number of hours of leave by type, credit hours, and compensating time used.

17.1.2.1.1.3. Collect actual hours or days worked and other pay related data, i.e., piecework, fee basis units/dollars, and differentials for each employee.

17.1.2.1.1.4. Collect data on employees who work temporarily in other or multiple pay classifications.

17.1.2.1.1.5. Capture actual labor data in hours, fractions of hours, or other units of measure as required.

17.1.2.1.1.6. Collect TAA data on a pay period basis, at a minimum daily, weekly, and biweekly.

17.1.2.1.1.7. Collect labor distribution hours based on the required classification code structure to include JON and Labor Operation (i.e., Task/WBS).

17.1.2.1.2. Calculate and adjust weekly, biweekly, and prior pay period hours based on Fair Labor Standards Act (FLSA), Title 5, *Government Organization and Employees,* and other statutory and regulatory requirements. **Note:** TAA Entitlement Process is part of TAA Batch Processing.

17.1.2.1.2.1. Determine premium pay entitlements based on schedule tour, actual hours worked, and leave data (i.e., TAA Entitlement Process).

17.1.2.1.3. Review and correct TAA data daily to ensure that the accountable data is complete, accurate, and IAW legal requirements.

17.1.2.1.4. Support the correction of current/prior pay period TAA records.

17.1.2.1.5. For approval, supervisors use system data contained in a computer file and displayed on a terminal. Supervisors may enter a single automated code to approve the information contained in the file.

17.1.2.1.5.1. TAA provides the functionality to electronically attest and certify employee records. All civilian employees must attest that their time is reflected accurately in TAA. All supervisors must certify each of their employee's time. Certification can be done individually or for a group of the employees belonging to a supervisor once the supervisor has verified each employee's time.

17.1.2.1.5.2. Receive electronic or other appropriately documented approvals from authorized approving officials and then release data for further system processing.

17.1.2.1.6. Accept TAA data through various processing modes, e.g., automated time entry (i.e., bar code), internet, etc.

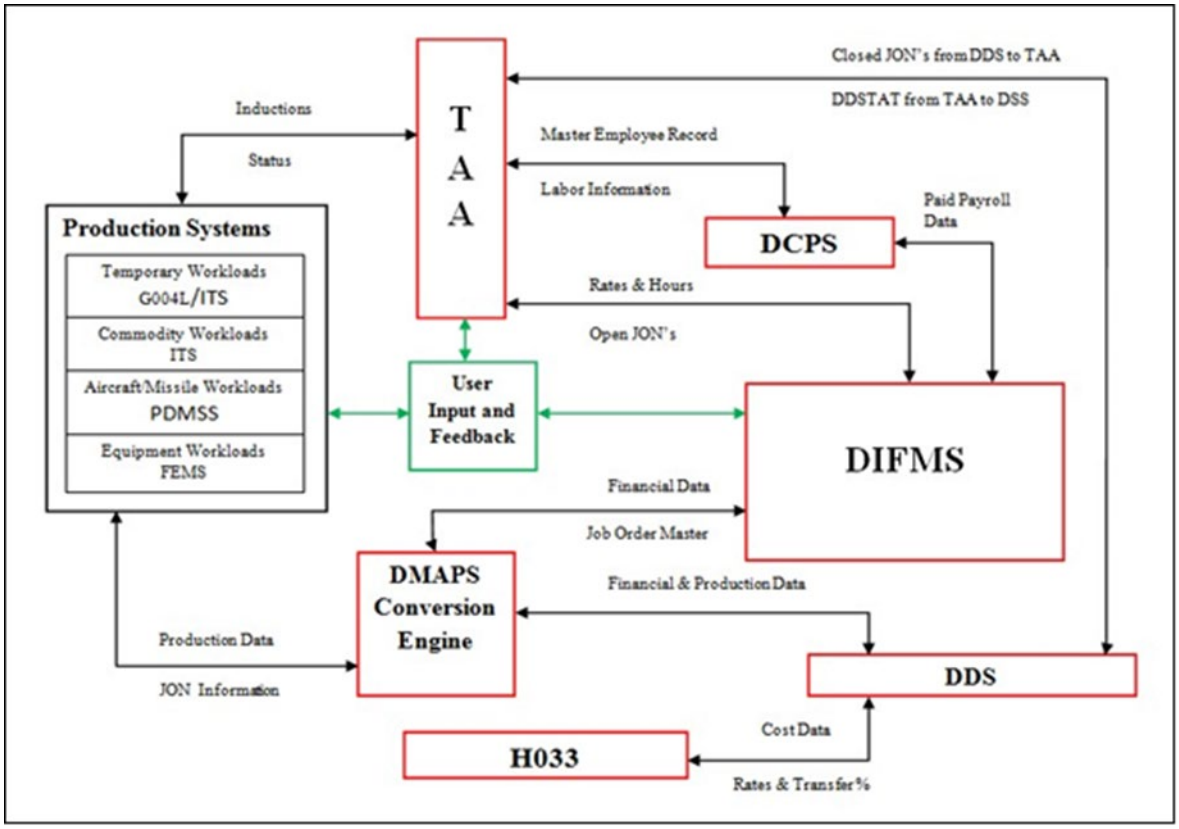
17.1.2.1.7. Use reports generated by TAA to monitor TAA data.

17.1.2.1.8. Protect data from unauthorized changes to completed TAA reports regardless of where they are retained.

17.1.3. Related System Processing.

17.1.3.1. System processing for production labor through TAA and the Maintenance Production systems, ITS, PDMSS, FEM, and JOPMS/G004L is shown in **Figure 17.1.** This processing is related to several other systems which handle payroll, financial, and management information, DIFMS, Defense Civilian Payroll System (DCPS), H033/CPPM, and DMAPS Data Store (DDS). When employees transact labor into TAA, the associated transactional data is then fed to the maintenance production and accounting systems for related processing. TAA sends labor transactions to DIFMS and matching payroll data to the DCPS. DCPS provides rate to TAA which then provides to DIFMS in the labor data. DIFMS passes labor data to DDS which is then viewed in H033. The DMAPS CONEN provides a means for data transfer between DMAPS systems and legacy systems.

Figure 17.1. System Processing.



17.1.3.2. Processing Data Feeds To/From TAA. TAA is a production-oriented, operational information system whose purpose is to provide a standard automated means of collecting and reporting labor data. Processing Data feeds to/from TAA are described in the following paragraphs.

17.1.3.2.1. Programmed Depot Maintenance Scheduling System (PDMSS/G097). PDMSS is the Air Force system for management of serialized repair items applicable to aircraft and missile workloads. PDMSS is used to construct an operational level network showing all tasks and their relationships to other tasks required to complete the depot modification and/or depot repair of an aircraft or missile. When operations are qualified in PDMSS and are properly funded, they are passed to TAA and become available to transact labor against. This same operational data is also passed to the DDS to collect and maintain historical data at the operation level. The DDS uses this data along with status transactions from TAA to calculate earned hours as labor operations are completed.

17.1.3.2.1.1. Q302/PDMSS (G097) to TAA. Workload data for transacting on the shop floor is provided to TAA and DDS via a database link from the Depot Maintenance Consolidated Database (Q302) to TAA on a near real time (NRT) basis. This operational data is written to the 'pdm_wo_in_tbl' and any rejected records are written to the 'pdm_wo_in_error_tbl.' This file transfer is documented in ICD13341.1_Q302/TAAS-A. Site TAA OPRs have

responsibility to review the error table. These tables are some of the first tables checked when issues are raised by shop floor personnel.

17.1.3.2.1.2. TAA to Q302/PDMSS (G097). G097 accepts/processes data from TAA to update WCD status and other associated transactional data via the 'BLUE RUN'. This update is done via a database link from the 'ta_pdmss_out_tbl' to the Q302 TAA_load table NRT. This file transfer is documented in ICD16254.2_TAAS/Q302-B. If at any time something happens to this link, Defense Information System Agency (DISA) Service Desk, DISA Application support, Site TAA OPRs, and DMAPS PMO TAA Lead are notified via email. DISA Service Desk initiates ticket for correction. If processing errors are encountered, system operators will correct the condition or notify the programming resource for assistance in correcting the condition. After the condition is corrected, processing will be restarted at the point determined by the operator or programmer. When the link is restored, DISA Application Support, Site TAA OPRs, and DMAPS PMO TAA Lead are notified via email.

17.1.3.2.1.3. Process/Update G097 Data. G097 accepts/processes data from TAA to update WCD status and other associated transactional data via the 'BLUE RUN'.

17.1.3.2.2. Inventory Tracking System (ITS)/G337-R. ITS/G337 is the Air Force system for management of depot programmed exchangeable items, engines, and routed consumable item repair and is part of the Depot Maintenance Consolidated Operational Database (DMCODB-Q302). When assets are properly funded, inducted, and WCDs have been printed, sub-operations/track points are passed to TAA and become available for labor transactions. This same data is passed to DDS to collect and maintain historical data at the sub-operation/track point level. DDS uses this data along with status transactions from TAA to calculate Earned Hours as labor operations are completed. ICD14899.3_TAAS/Q302-C provides user information from the ITS_logion_view provided to ITS to determine valid users.

Table 17.1. Workload Status Process.

Item	Process
1	Q302/ITS (G337) to TAA. Workload data for transacting on the shop floor is provided to TAA and DDS via a database link from Q302 to TAA on NRT basis. This operational data is written to the ITS_in_tbl and any rejected records are written to the ITS_in_error_tbl. This file transfer is documented in ICD11851.1_Q302-TAAS-B. Site TAA OPRs have responsibility to review these error tables. These tables are some of the first tables checked when issues are raised by shop floor personnel.
2	TAA to Q302/ITS (G337). TAA automatically extracts status transactions (i.e., TAA start/delay/complete) and generates status transactions back to G337 via the 'RED RUN'. This update is done via a database link from the TA_ITS_out_tbl to the Q302 TAA_load table NRT. This file transfer is documented in ICD16253.2_TAAS/Q302-A. If at any time something happens to this link, DISA Service Desk, DISA Application support, Site TAA OPRs, and DMAPS PMO TAA Lead are notified via email. DISA Service Desk initiates ticket for correction. If processing errors are encountered, system operators will correct the condition or notify the programming resource for assistance in correcting the

	condition. After the condition is corrected, processing will be restarted at the point determined by the operator or programmer. When the link is restored, DISA Application Support, Site TAA OPRs, and DMAPS PMO TAA Lead are notified via email.

17.1.3.2.3. Maintenance Business System Modernization (MABSM/Impresa) is a webbased, CAC-enabled, full scale Enterprise Resource Planning (ERP) system. It is a government owned COTS system with Oracle infrastructure and provides highly integrated business modules supporting the management of depot maintenance, repair, and overhaul activities. When depot assets are properly funded, inducted, and WCDs have been printed, sub-operations/track points are passed to TAA and become available for labor transactions. Used at Hill only.

17.1.3.2.3.1. MABSM/Impresa to TAA. Workload data for transacting on the shop floor is provided to TAA and DDS via a database link from MABSM to TAA on NRT basis. This operational data is written to the ITS_in_tbl and any rejected records are written to the ITS_in_error_tbl. This file transfer is documented in ICD14099.1_MABSM/TAAS- A. Site TAA OPRs have responsibility to review these error tables.

17.1.3.2.3.2. TAA to MABSM/Impresa. TAA automatically extracts status transactions (i.e., TAA start/delay/com complete) and generates status transactions back to MABSM/Impresa via the 'WHITE RUN'. This update is done via a database link from the TA_ITS_out_tbl to the QNIFRTAQ table NRT. This file transfer is documented in ICD16255.2_TAAS/MABSM-A. If at any time something happens to this link, DISA Service Desk, DISA Application support, Site TAA OPRs, and DMAPS PMO TAA Lead are notified via email. DISA Service Desk initiates ticket for correction. If processing errors are encountered, system operators will correct the condition or notify the programming resource for assistance in correcting the condition. After the condition is corrected, processing will be restarted at the point determined by the operator or programmer. When the link is restored, DISA Application Support, Site TAA OPRs, and DMAPS PMO TAA Lead are notified via email.

17.1.3.2.4. FEM is the Air Force system for management of facilities and equipment maintenance for all services. PMEL workload is managed through FEM and linked to direct 'C' JONs and indirect Cost Class IV 'S' JONs used for the maintenance of RC/CC equipment. Some plant management workload is linked to 'T' JONs and transacted against using the TAA JON labor transaction window. This operational data is written to the fem_wo_in_tbl and any rejected records are written to the fem_wo_in_error_tbl. Site TAA OPRs have responsibility to review these error tables. This file transfer is documented in ICD14559.2_CONEN/TAAS-B. This same data is passed to DDS to collect and maintain historical data at the work order level. DDS uses this data along with status transactions from TAA to calculate Earned Hours as 'C' JON work orders are completed. Cost Class IV workload (i.e., X511114Sxxxx) does not earn hours.

17.1.3.2.4.1. After funding is created in J025A, FEM sends 'C' customer numbers to the Integration Engine (IE) and the IE in turn sends inductions to

G004L. IE/DDS creates the JON suffix based on the current month and FY. Inductions are sent to G004L daily and the JON is opened in DIFMS overnight when the first induction is made for that JON. Once IE/DDS sees the JON is open, the FEM record is moved to the fem_task_load table. From there it is sent to the TAA fem_wo_in_tbl and the DDS task table. If the JON is already open, then both TAA and DDS are updated NRT.

17.1.3.2.5. Temporary Workloads are always planned in JOPMS/G004L which is part of the DMCODB-Q302. G004L is the Air Force system for planning and management of temporary workloads. Workload such as occasional overhaul or repair, level of effort, inspections, testing, manufacturing, and tour of duty are typical temporary workloads planned only in the G004L system. Unless planned at the task level in PDMSS or ITS, only JON level transacting can be input into TAA for Temporary JONs.

17.1.3.2.5.1. DIFMS-DCPS Payroll Reconciliation. After final payroll processing, DCPS sends the Gross Pay Reconciliation File (P3306D04) to DIFMS (MS236D11) for the biweekly DCPS to DIFMS Reconciliation process. Reconciliation performs comparison by hours/dollars for current pay period. Hours/dollars found in the PAYROLL data (DCPS) with no matching LABOR data in DIFMS will result in DIFMS Labor Errors. Hours/dollars found in DIFMS with no matching PAYROLL data (DCPS) will result in the labor data being reversed from DIFMS. Some of these DIFMS labor errors require research by the TAA users but the final corrective action would be a manual fix in DIFMS by the applicable FM office.

17.1.3.2.6. DIFMS. DIFMS provides valid direct/indirect JONs and RC/CCs to TAA via two daily interface files (i.e., valid JONs MS204D01 and valid RC/CCs MS204D09) which are processed into TAA by DISA using AFDAILY job. To ensure accurate accounting, JONs and RC/CCs missing from this interface data will prevent labor from being transacted in TAA. Labor cannot be transacted in TAA against JONs that were not opened by the date of the labor performed. Labor should never be performed on workload if funding is not in place to allow the completed processing of a JON.

17.1.3.2.6.1. Direct JONs are created in G004L then sent to DIFMS which sends JONs via the MS204D01 file to TAA. Also included in the MS204D01 file are indirect JONs. This file transfer is documented in ICD14585.1_DIFMS/TAAS-B. If an error is detected transferring JON data to TAA, the system aborts and must have the condition corrected and system restarted. ZS204D01 must have a ‘Z’ record. The ‘Z’ record count must equal the number of JON records and include Serial Record on the file. If either condition is not met, the run aborts. If DIFMS encounters problems during processing, OO DISA and the Site DIFMS OPR determine how best to resolve. When the MS204D01 is received by TAA from DIFMS, the TAA AFDAILY job must be run to get any JON updates. TAA uses the JONs established date as validation to prevent labor from being transacted against JONs that were not available at the time of labor. There are times when the shop floor will encounter issues in TAA due to ‘Invalid JON’. The Site TAA OPR is notified of these issues for resolution.

Figure 17.2. Considerations.

- TAA stores all employee data, transacted and static data, in its tables.
- TAA does not have any 'cost' data as that belongs to DIFMS.
- DIFMS labor processing takes the labor data from TAA which includes employee hourly rates and calculates costs associated with the actual labor hours transacted/accumulated by/for each employee.
- DIFMS then passes detailed cost accounting data to the DMAPS DDS which is used to warehouse execution data and provide capability for financial, production, and management reporting.

17.1.3.2.6.2. Valid RC/CCs are created in DIFMS and sent to TAA via the MS204D09 file. (**Note:** RC/CCs are planned in the Budget & Target Module of H033 and then created in DIFMS). If an error is detected transferring shop data to TAA, the system aborts and must have the condition corrected and system restarted. ZS204D09 must have a 'Z' record. The 'Z' record count must equal the number of shop records on the file. If either condition is not met, the run aborts. If DIFMS encounters problems during processing, OO DISA and the Site DIFMS OPR determine how best to resolve. When the MS204D09 file is received by TAA from DIFMS, the TAA AFDAILY job must be run to get any RC/CC updates. This file transfer is documented in ICD14586.1_DIFMS/TAAS-A. Most sites only allow updates to RC/CCs twice yearly, in October and April, but exceptions are made when necessary. There are times when the shop floor will encounter issues in TAA due to 'Invalid Performing RC/CC'. The Site TAA OPR is notified of these issues for resolution.

17.1.3.2.6.3. JONs can be built in DIFMS and restricted for use to authorized RC/CCs. TAA receives this authorized shop information from DIFMS. If an error is detected transferring AUTHORIZED SHOP data to TAA, the system aborts and must have the condition corrected and system restarted. System operators will correct the condition or notify the programming resource for assistance in correcting the condition. After the condition is corrected, processing will be restarted at the point determined by the operator or programmer. ZS204D11 must have a 'Z' record. The 'Z' record count must equal the number of AUTHORIZED SHOP records on the file. If either condition is not met, the run aborts. This file transfer is documented in ICD16093.1_DIFMS/TAAS-C.

17.1.3.2.6.4. DIFMS-DCPS Payroll Reconciliation. After final payroll processing, DCPS sends the Gross Pay Reconciliation File (P3306D04) to DIFMS (MS236D11) for the biweekly DCPS to DIFMS reconciliation process. This reconciliation process uses the DCPS GPR to perform comparison by hours/dollars in DIFMS for current pay period. Reconciliation performs comparison by hours/dollars for current pay period. Hours/dollars found in the PAYROLL data (DCPS) with no matching LABOR data in DIFMS will result in DIFMS labor errors. Hours/dollars found in DIFMS with no matching

PAYROLL data (DCPS) will result in the labor data being reversed from DIFMS. Some of these DIFMS labor errors require research by the TAA users but the final corrective action would be a manual fix in DIFMS by the applicable FM office.

Table 17.2. DIFMS-DCPS Payroll Reconciliation.

Item	
1	During the entitlement processing in TAA which also produces the DCPS payroll file, a file is created and sent to DIFMS for the payroll reconciliation process. This is the ZE300D02, SSN to Employee Number Cross Reference. This file transfer is documented in ICD14874.1_TAAS/DIFMS-E. DCPS will not always provide the input JON information back to DIFMS after they have split various input records into multiple records for an employee. In this case, DIFMS processing requires the Current and Permanent Shops to which an employee was assigned for the last day of the reported pay period. This will allow DIFMS to generate labor charges to the proper shop when labor is reported back from DCPS without the original JON. It is necessary to provide DIFMS a SSN to Employee Number Cross Reference file to allow proper labor charging.
2	If DIFMS encounters problems during processing, OO DISA and the Site DIFMS OPR determine how best to resolve.

17.1.3.2.7. TAA Batch Processing. The scheduling of Labor Batch Processing affects when labor transactions are processed. All ALCs currently process TAA after midnight so the following processing generally occurs. First shift employee transactions are processed the evening of the day that is worked. Second shift employee transactions are processed the evening of the day that is worked, however overtime transactions are suspended until the next day's processing. Third shift employee transactions are suspended until the evening of the day following the shift start. There is an exception for the labor processed for Saturday. Saturday labor would include second shift overtime from Friday, all third shift transactions from Friday night, and all three shifts from Saturday. This labor process occurs on Sunday morning when third shift from Saturday has completed the last tour of duty.

17.1.3.2.7.1. During all TAA batch processing, shop floor personnel can still transact labor but supervisors and timekeepers will be locked out for any changes until processing has completed.

17.1.3.2.7.2. As a result of processing, TAA creates a daily labor detail file (i.e., ZH140D02) that is sent to DIFMS. Additionally, a biweekly file (i.e., ZH440D02) containing all last minute updates for the pay period results from payroll processing cycle. This file transfer is documented in ICD14575.1_TAAS/DIFMS-A. If processing errors are encountered, the system log will reflect the condition. System operators will correct the condition or notify the programming resource for assistance in correcting the condition. After the condition is corrected, processing will be restarted at the point determined by the operator or programmer. Any problem with processing that is not resolved quickly is identified to the DMAPS PMO TAA Lead for resolution and notification to the Site TAA OPRs due to the possibility of downstream systems being affected. Payroll processing creates the DCPS

Payroll File (i.e., ZE332D01) containing data as defined by DCPS for paying employees. This file transfer is documented in ICD14587.1_TAAS/DCPS-A. Payroll processing files are also validated on record count between OKC DISA and DFAS, Mechanicsburg. Previous pay period adjustments allow for corrections or updates to an employee's labor records after TAA has performed final payroll processing at the noon timeframe on Mondays. Supplemental runs are scheduled to process these transactions into the format needed in DCPS. Supplemental runs are scheduled to process Monday evenings before DCPS performs batch processing and again Tuesday evening before DCPS closes for final payroll processing. **Note:** All DCPS processing occurs during Eastern Time.

17.1.3.2.7.3. Prior pay period adjustments are corrections to pay issues that should be entered through TAA. These corrections are processed and sent to DCPS from the Supplemental Job at two different times before DCPS performs final processing on Tuesday evening. Check with your Site TAA OPR to determine the time frames for your site as DCPS processing occurs during Eastern Time. OKC DISA is responsible for Batch Processing and will have knowledge of any files that do not transfer. System operators will correct the condition or notify the programming resource for assistance in correcting the condition. After the condition is corrected, processing will be restarted at the point determined by the operator or programmer. Any problem with processing that is not resolved quickly is identified to the DMAPS PMO TAA Lead for resolution and notification to the Site TAA OPR due to the possibility of downstream systems being affected. TAA stores all employee data, transacted and static data, in its tables; however TAA does not have any 'cost' data as that belongs to DIFMS. DIFMS labor processing takes the labor data from TAA which includes employee hourly rates and calculates costs associated with the actual labor hours transacted/accumulated by/for each employee. DIFMS receives the DCPS Eligibility Table (i.e., ZE806D01) which is recreated in TAA for determination of premium pay. This information is provided to DIFMS via email. DFAS/DCPS is the authoritative source for the T&A Eligibility Table. This file transfer is documented in ICD14641.1_TAAS/DIFMS-D. DIFMS then passes detailed cost accounting data to the DMAPS DDS used to warehouse execution data and provide capability for financial, production, and management reporting.

17.1.3.2.8. DCPS. Under normal conditions, TAA will perform final processing for the 2week pay period on Monday and sends payroll data to DCPS via the ZE332D01 file. Any transactions made directly in DCPS before the TAA payroll file is processed by DCPS will be overwritten by the data from TAA. The time and attendance submitted by an SDA system is edited using the T&A Eligibility Table. If the data entered for each transaction passes all edits, the data is accepted by DCPS for further processing of pay and leave. If the data does not pass all edits, the erroneous data for each employee will be printed on the Invalid Transaction Report. TAA payroll data submission must meet deadlines identified by DFAS. Previous pay period adjustment allows for corrections or updates to an employee's labor records after TAA has performed final payroll processing at the noon timeframe on

Mondays. Supplemental runs are scheduled to process this transactions into the format needed in DCPS.

17.1.3.2.8.1. If processing errors are encountered, the system log will reflect the condition. System operators will correct the condition or notify the programming resource for assistance in correcting the condition. After the condition is corrected, processing will be restarted at the point determined by the operator or programmer.

17.1.3.2.8.2. Master Employee Record (MER) files are received from DFAS on the TAA Batch Servers at each site. TAA receives MER files from DCPS. The MER 21 file contains grades, series, step, and pay rate. The MER31 file contains leave balances. These files are used to update employee data in TAA when the HRATE and MERUPD batch jobs are processed. Unless the HRATE or MERUPD batch jobs were to fail, OKC DISA would have no knowledge if data is processed correctly. When HRATE or MERUPD batch jobs are kicked off, TAA will check the file to ensure the date inside the file matches the date of the pay period. If an error is detected transferring MER data to TAA, the system aborts and must have the condition corrected and system restarted. If HRATE or MERUPD batch jobs fail, OKC DISA notifies the DMAPS PMO TAA Lead for resolution. The run will indicate a successful message of 'GOOD END OF JOB' or an unsuccessful message of 'ABORT'. If the batch jobs fail, the DMAPS PMO TAA Lead is notified for resolution. These interfaces are documented in ICD14582_DCPS/TAAS-A and CD14612_DCPS/TAAS-B.

17.1.3.2.9. IE/DDS provides a relational database repository allowing a variety of functional end users to inquire and retrieve production information. The system is part of DMAPS IE. DDS is the system of record for earned hours and calculates these earned hours during nightly processing using planned data (hours) from the production systems and status transactions of COMPLETE (i.e., DDSSTAT file from TAA) only for permanent workload (i.e., JONs). If transacted correctly, Temporary JONs earn hours based on the actual hours transacted up to the amount of hours planned for the Temporary JON. Upon closure of the Temporary JON, any earned hours not already credited will be credited at that time.

17.1.3.2.9.1. IE/DDS provides closed JONs to TAA via a stored procedure called TAA_closed_jon. When TAA receives the JON, TAA will locate any associated WCD records by matching the incoming JON to the opn jon field within the ta wo opn tbl. When a matching condition occurs, TAA will delete the TA_wo_opn_tbl record. When all TA_wo_opn_tbl records (itn_1 and itn_2) for the associated TA _wo_hdr_tbl records are deleted, TAA will delete the (ITN_1) header record. This file transfer is documented in ICD12525.1_DDSS/TAAS-A. If processing errors are encountered, system operators will correct the condition or notify the programming resource for assistance in correcting the condition.

17.1.3.2.9.2. TAA pulls data from TA_dds_out_tbl to create the DDSSTAT file for transfer to the IE/DDS. This file will contain the tasks statuses needed by IE/DDS to calculate earned hours. This file transfer is documented in ICDs

14566.2_TAAS/CONEN/DDSS-B and 14567.2_TAAS/CONEN/DDSS-E. If processing errors are encountered, the system log will reflect the condition. System operators will correct the condition or notify the programming resource for assistance in correcting the condition. After the condition is corrected, processing will be restarted at the point determined by the operator or programmer.

17.1.3.2.9.3. The IE/DDS also presents data to be processed in the CPPM/H033 system, producing production and financial reporting/analysis tools.

17.1.3.3. Other systems associated with TAA.

17.1.3.3.1. EMPLOYEE ID Generator (EIG) is the tool used to randomly build new employee IDs for input into TAA. EIG is part of the DMAPS IE.

17.1.3.3.2. RC/CC Skill Code System (RSCS) belongs to the IE and is the tool used to align RC/CCs and Skill Codes. This tool has two parts: the creation or maintenance of Skill Codes and the assignment of Skill Codes to RC/CCs. Currently, there is a limitation of 250 total skill codes in the RSCS per site. However, there is a request to have total number of skill codes increased to 500 with each RC/CC being allowed up to 99 skills. TAA will receive updates via a database link from IE/DDS where the RC/CCs and compatible skill codes are written to the rsc_in_tbl. This file transfer is documented in ICD15049.1_DDSS/TAAS-B. When an error is detected transferring data to TAA, an error record is written to the rsc_in_error_tbl. Site TAA OPRs have responsibility to review the error table.

17.1.3.3.3. DMAPS Reporting Environment (DRIDB) extracts data from TAA tables as needed for reporting. The reporting environment resides at WR-ALC only. DRIDB OPR works any issues related to the exportation of data. This file transfer is documented in ICD15216.1_TAAS/DRIDB-A.

17.1.3.3.4. Facilities and Equipment Maintenance Web Interface (FEMWEB). FEMWEB extracts data from TAA to create reports showing unit and individual job completion information for OC-ALC only. FEMWEB OPR works any issues related to the exportation of data. This interface exists only at OC-ALC. This file transfer is documented in ICD14568.1_TAAS/FEMWEB-A.

17.1.3.3.5. Depot Cost and Schedule Tool (DCAST) extracts data from TAA to produce reports used on the shop floor. The DCAST OPR at each site works any issues related to the exportation of data. This file transfer is documented in ICD15559.2_TAAS/DCAST-A.

17.1.3.3.6. Global Combat Support System (GCSS) _ AF Data Services (Q310). TAA automatically extracts ITS status transactions (i.e., TAA start/delay/complete) from the TA_its_out_tbl and generates status transactions back to Air Force Knowledge Services (AFKS) via the 'GREEN RUN'. This file transfer is documented in ICD13621.1_TAAS/Q310-A. Q310 OPRs contact OKC DISA when there are issues with the data transfer.

17.1.3.3.7. Maintenance Windows. Maintenance Windows provide timeframes for software/hardware patches, updates, fixes, etc. The TAA WEB Servers, TAA Batch

Servers, and TAA Database Servers all have Maintenance Windows on Sunday evening.

17.1.4. System User Access.

17.1.4.1. TAA has two basic areas of access: Default and TAA responsibilities.

17.1.4.1.1. Default access to TAA will be granted to all TAA users based on the granting of network access via a DD Form 2875 that is maintained at the sites and will require a CAC to access TAA. Default access users receive only the basic screens in TAA to transact labor and can only view their own information. Default access defaults the employee id field to the user logged onto the system.

17.1.4.1.1.1. All users are expected to log into TAA and associate their CAC with the Employee ID they are assigned upon creation in TAA. Users will need their TAA Site OPR or designee to unlock their account if they have not logged into TAA within 30 days of the receipt of their Employee ID. Also if there is inactivity in TAA for 30 days, their account will be locked. For all civilian employees, there should never be inactivity for 30 days as they are required to attest their labor every two weeks for payroll certification. Extended leave and deployment could be exceptions, however TAA is web-based and can be accessed from any .MIL site.

17.1.4.1.1.2. For TAA responsibilities and any additional need for information or access, use DD Form 2875 to gain access to TAA screens in TAA. Initiate the DD Form 2875 in the user's work area. Send the DD Form 2875 through the supervisor and security manager to the TAA functional OPR to get user access established. The TAA functional OPR will maintain a copy of the DD Form 2875.

17.1.5. System Administration.

17.1.5.1. Provide customer support. Using the system administration capability, provide user notifications of problems, issues, etc. via the SYSTEM MESSAGE and Daily Labor Correction Process (DLCP) MESSAGE. This message board is a good method of notifying all users of UPCOMING EVENTS, like new releases.

17.1.5.2. Employee Identification. The TAA logon window provides user access to the system based on entry of personal identification number (PIN) number associated with a CAC card. If the CAC and employee id are not associated within 30 days, the user's account will be locked. Upon receipt of new employee information, the Site TAA OPRs will create the Employee ID and will create the Employee Master Record that must be present in TAA. This Employee Master Record must be resident in TAA to ensure any DMAG funded employees are processed and sent to DCPS for pay purposes.

17.1.5.2.1. DMAG funded military members must have an Employee Master Record in TAA to allow for capturing of their hours for feedback to DIFMS. DMAG funded contactors working on a DMAG funded contract must have an Employee Master Record in TAA to allow for capturing hours worked for feedback to DIFMS.

17.1.5.2.2. Users must log into TAA and associate their CAC card and their user id within 30 days of the creation of their account or their account will be locked. If a

user finds their account has been locked they will have to request the Site TAA OPR to reset their account. Once an association is made, TAA users must use log into TAA at least once every 30 days or their account will be locked.

17.1.5.2.3. Create Employee ID using the EIG tool resident in the DMAPS IE. This ID will be used throughout TAA instead of the employee's Social Security Account Number (SSAN). The EIG enables the Site TAA OPR to enter the name, SSAN, and organization for new employees and will assign a unique employee number (i.e., first position alpha for Tinker is 'D', Hill is 'E', and Robins is 'J', followed by five numbers). EIG provides the Site TAA OPR capability to view a list of all assigned employee numbers, specify a subset for printing or saving to a file, and capability to mark an Employee ID as inactive.

17.1.5.3. The Site TAA OPRs and any authorized designee of the OPR can reset passwords and CAC associations when access is granted via DD Form 2875. User will need to identify their employee ID and the last four digits of their SSN.

17.1.5.4. The System OPRs or authorized designees will have access to various tables (i.e., Agency Tour of Duty Table, Pattern Table, RC/CC Table and Holiday/Mass Leave) in TAA. These tables are part of the administration of TAA and access must be strictly controlled.

17.1.5.4.1. Agency Tour of Duty Table sets the earliest and latest time that labor can be performed.

17.1.5.4.2. Pattern Table sets a 14-day pay period schedule with shift times, lunch times, including work and non-workdays to make employee schedule changes easier and is used in conjunction with employees whose Alternate Work Schedule (AWS) is other than '0'. The purpose of this table is to allow the OPRs to build schedules to be used as templates to save supervisors/timekeepers from having to make so many key stroke changes for employees with schedules other than AWS0.

17.1.5.4.3. Holiday/Mass Leave Table is used to generate leave charges for Holiday, Annual, Administrative, Furlough, and/or Forced Annual for each employee in the indicated RC/CC. Leave may be generated for full, partial, or half day. Furlough must be in full workdays only. Holiday leave is in full or half days. This table establishes scheduled holidays and mass leave as needed. Transactions for Holiday leave in this table can only be accomplished if the holiday resides on the TA_hol_tbl which is maintained by the TAA contractor Supplier. 'In-lieu of Holiday' transactions will be made by supervisors/timekeepers using **Table 17.4**. Note: Check table for currency.

Table 17.3. 'In Lieu of' Holiday Determination.

All full-time employees, including those on flexible or compressed work schedules, are entitled to an 'in lieu of' holiday when a holiday falls on a non-workday. In such cases, the employee's holiday is the basic workday immediately preceding the non-workday. A basic workday for this purpose includes a day when part of the basic work requirement for an employee under a flexible work schedule is planned or scheduled to be performed. There are three exceptions:	
Item	**Exception**
1	If the non-workday is Sunday (or an "in lieu of" Sunday), the next basic workday is the

	"in lieu of" holiday. (See section 3 of E.O. 11582, February 11, 1971.)
2	If Inauguration Day falls on a non-workday, there is no provision for an "in lieu of" holiday.
3	If the head of an agency determines that a different "in lieu of" holiday is necessary to prevent an "adverse agency impact," he or she may designate a different "in lieu of" holiday for full-time employees under compressed work schedules. (See 5 U.S.C. 6131(b).)
Note: An employee is not entitled to another day off as an "in lieu of" holiday if a Federal office or facility is closed on a holiday because of a weather emergency or when employees are furloughed on a holiday.	

17.1.5.4.4. RC/CC Table links an RC/CC with a schedule consisting of shift start, shift duration, lunch start, and lunch duration (i.e., RC/CC updates write to ta_txn_shop_tbl). If the RC/CC does not reside in the TA_DIFMS_SHOP_TBL in TAA, then the OPR will not be able to establish an RC/CC and shift. The TA_DIFMS_SHOP_TBL is updated with an interface from DIFMS which is the system of record for establishing RC/CCs via the AFDAILY job. The schedule built in the RC/CC table only applies to employees with AWS of '0'. RC/CCs and skill codes will be linked using the RSCS which resides as part of the DMAPS-IE. This item is not a part of TAA and is included here only for informational purposes.

17.1.5.4.5. Employee Master Maintenance screen allows the user to add, modify, or delete an Employee Master Record or backdate an existing Employee Master Record (i.e., start of the current payroll period). This transaction adds an employee to the TAA system with DEFAULT group access. Site TAA OPRs are responsible for adding, modifying, and deleting employees. The TAA Application on-line HELP provides information on the fields that are contained on the Employee Master Screen and the TAA Software User Manual provides guidance on entering data into the Employee Master Maintenance screen.

17.1.5.5. Attendance. The Air Force has decided not to use the Attendance function in TAA. The site will assure the employee assignment codes in TAA do not allow access to this function.

17.1.5.6. Coordinate on Batch Processing Cycles. TAA batch processing is scheduled in coordination between System OPRs and DISA Operations support personnel. Batch processing produces many records segregated by the processing being performed at the time. Often an OPR must rely on files produced during this process to determine problems and answer questions. Consult the DMAPS System Computer Operations Manual (SCOM) for complete details of processes, files, and purpose.

17.1.5.7. Record Retention. TAA is referred to as having two sections: FRONT END which is the area (i.e., database tables) that contains data entered on the TAA screens and the BACKEND which is the area (i.e., batch files) that processes the data that was entered on the TAA screens. There are certain FRONT END tables that gather and maintain data and these tables are not overwritten. To keep the database from growing unmanageably, PURGE routines were built and timeframes were developed for these purge routines which writes purged data to flat files which are stored by DISA Operations. BACKEND files are the results from daily batch processing and are moved to backup folders and

stored in auxiliary memory on the batch server when DISA Operations determines batch processing server could be affected. TAA has an archived database that will allow for the storage of payroll records for the six years that is currently required.

17.1.5.8. Perform periodic monitoring of those groups that have the most privilege. Perform monitoring of any group or user when issues arise that warrants a closer review. This monitoring can be performed through standard reports, ad hoc queries, and the Facility Audit Report. The DMAPS PMO will take the lead for ensuring monitoring is performed and documented.

17.1.5.8.1. The DMAPS TAA PMO Lead will ensure the Pay Period Daily Labor Correction Process Audit Report (ZA026R01), an audit trail created by the Audit Run (AUDT) job process, is stored by DISA and available upon request.

17.1.5.8.2. Site TAA OPRs have on-line access to the Labor Corrections Audit Report to research any input questions. This report records every change to an employee's schedule or their processed labor by who made the change, date, and time change was made. There is also an Alteration of Personal Records which no longer contains data since TAA does not allow users to have DLCP access to update their own records.

17.1.5.9. Bridge Run functions for labor/payroll processing are performed by DISA Operations personnel. All applicable dates and batch job requirements are normally coordinated with the System OPR.

17.1.6. Contingency Procedures.

17.1.6.1. Establish a site contingency operation when the TAA system or segments of the system are temporarily not available. Use AF Form 3126 or local electronic equivalent document as a TAA Data Collection Record to be used when TAA is unavailable.

17.1.6.1.1. The TAA Data Collection Record will be used by shop floor employees to manually capture production labor data for later input into TAA by the employee's supervisor when the system is unavailable or not accessible. Each supervisor or timekeeper should have at least one copy of the current form available within their shop that can be used for making copies when TAA is unavailable. Additional copies should be locally reproduced on an as-needed basis.

17.1.6.1.1.1. When TAA is temporarily unavailable, each employee will complete the top portion of this form indicating the Employee's Name, Assigned RC/CC, Pay Period, and Shift. This form will be used to manually capture the required bar code (operation) data contained on the WCDs being worked in terms of the expended hours for labor tasks started/completed/delayed and any applicable leave data.

17.1.6.1.1.2. If TAA is unavailable at the end of the employee's assigned work shift or once the TAA system is again available for user access during shift, each employee will provide their TAA Data Collection Record to their supervisor. Prior to turning this form over to their supervisor, each employee must sign and date the completed form. Upon receipt, employee supervisors will review for accuracy, then sign and date the form.

17.1.6.1.1.3. Upon receipt of this form, the supervisor will ensure the data is entered into TAA at the earliest opportunity. **Note:** All tasks completed during system unavailability must be transacted complete in TAA when service is restored. This action must be taken to credit the RC/CC with earned hours for completed tasks.

17.1.6.1.1.4. The supervisor should retain these forms long enough to verify that the inputs were accepted within TAA.

17.2. TAA Supervisory Responsibilities.

17.2.1. Labor Review and Correction.

17.2.1.1. Supervisors shall maintain CSAG-M funded employees in TAA. This includes civilians, military, and DOCATs. DOCATs provide direct production support. TAA is the beginning point for providing the labor data to DIFMS for the financial computing of dollars based on hours. Therefore, it is imperative that all CSAG-M funded civilian, military and DOCATs reside in TAA.

17.2.1.1.1. Supervisors and timekeepers must maintain direct employee time records on a daily basis in TAA. This includes checking employee records in TAA to ensure their tour of duty data is correct; i.e., employee data such as employee type [i.e., Wage Grade (WG), General Schedule (GS), Military, DOCAT], employee work schedule (i.e., Full time vs. Part time), employee schedules to include correct shift ID (i.e., 1, 2 or 3), and scheduled hours. If the data in TAA does not match the data in DCPS, DCPS may not accept the employee's data and their pay could be affected. Differences in employee data between TAA and DCPS can be caused by some of the following which could make transactions from TAA fail.

17.2.1.1.1.1. Personnel actions processed cause the employee's schedule to return to DCPS default schedule which is first shift, Monday through Friday. If schedule changes are made in TAA and Personnel actions are not processed before the TAA payroll file is accepted into DCPS, the employee will be returned to DCPS default schedule.

17.2.1.1.1.2. Employees added to TAA on a day other than the first Sunday of the pay period and labor is not input for the days of the pay period that have already processed.

17.2.1.1.1.3. Employee schedule in DCPS was not changed from default schedule when first hired.

17.2.1.1.1.4. Separations, retirements, Permanent Change of Station (PCS), and death transactions not input in TAA accurately or timely, and passing incorrect data to DCPS.

Figure 17.3. Supervisor Responsibility.

It is the responsibility of the supervisor to notify the Site TAA OPR of any employees who retire, reassign outside the Depot Maintenance organization, or transfer to another base as soon as an effective date has been determined.

Email:

When TAA elevated access is no longer needed, DD Form 2875 should be submitted to the Site TAA OPR to have access removed. At the least, an email should be sent to the Site TAA OPR to notify them to remove the employee from TAA. For employees with DEFAULT access, an email or ticket will be sufficient to notify the Site TAA OPR to have the employee removed. Upon receipt of a DD Form 2875, email, or ticket by the Site TAA OPR, action will be taken within three business days.

Payroll:

Due to the nature of TAA which prepares payroll information for CSAG-M employees, immediate removal from TAA may not be performed. If there is any doubt as to an effective date or whether the removal would require 'Pending' transaction or 'Delete' transaction, access for an employee can be terminated by removing the employee from any Group association in TAA. This would assure the supervisor or timekeeper could still reach the employee for any final payroll adjustments but the employee would see a blank screen when accessing TAA.

17.2.1.1.1.5. Personnel actions from WG to GS or vice versa not being made in TAA when employee's change causes a wrong type hour code to be generated in TAA and sent to DCPS. Any changes made to an employee's employee master AFTER labor has processed requires that the labor be changed using the DLCP Adjust Labor screen.

17.2.1.1.1.6. All prior pay period adjustments to an employee's record must be made in TAA. When prior pay period adjustments are processed by DCPS, they are passed to DIFMS. Any changes made to a prior pay period will negate the attest of the employee's record and will require the employee to re-attest their time and will also require the supervisor to re-certify the employee's time.

Figure 17.4. Exceptions.

Updates/corrections in DCPS should be the exception as DCPS payroll information that is not matched in DIFMS will create errors in the payroll reconciliation process that must be researched and corrected. Using DCPS instead of TAA can affect your operational data as corrections to DIFMS errors do not provide a way to update the data field that contains operational data. With the capability to make previous pay period adjustments in TAA, requests for direct inputs to DCPS should not occur. However, all Previous Pay Period Adjustments or direct inputs to DCPS must be made in writing to the DCPS Customer Service Representative (CSR) or designated POC for that area.

17.2.1.2. Supervisors or timekeepers must make inputs/changes to employee's time in TAA before payroll processing, normally done on Mondays, to create the payroll file for DCPS. All erred labor must be corrected or employees will not be able to attest their labor nor will supervisors be able to certify an employee with erred labor. Once TAA has processed payroll, adjustments will have to be made using the Prior Pay Period screens in TAA. If you do not have access to the Prior Pay Period screens, contact your Site TAA OPR to determine who has access to make your corrections.

17.2.1.2.1. 'Unaccounted for Time' errors are a result of transacting employees not inputting a labor transaction at the very least at the end of the work day or supervisors/timekeepers not inputting leave transactions for the employee on leave.

'Unaccounted for Time' errors are coded in the DLCP record as error code number '85'. Care must be taken when correcting 'Unaccounted for Time' errors to ensure accurate information is used. It is the supervisor's responsibility to ensure the correct Tasks and/or JONs are used to accurately apply labor against the erred period and it is the employee's responsibility to verify the accuracy of the data. If TAA processes final payroll data and an employee still has an '85' error on their labor records, TAA will send DCPS the hours needed to cover the employee's schedule to ensure the employee is paid for their regular hours based on their tour of duty schedule. However, the employee will not be able to attest their labor for the pay period nor will the supervisor be able to certify the time. After payroll processes in TAA, '85' errors become 'Missing Time' errors and must be corrected using the Prior Pay Period screens. DIFMS will be sent these hours using G07ER0R in the JON field to indicate an error that must be researched and corrected in DIFMS (**Note:** ZE305D02 for WR/OC and ZE352D07 for OO/Kadena).

17.2.1.2.2. Unauthorized overtime and compensatory time errors will appear when labor is transacted outside the assigned shift, i.e., pre-shift, post-shift, or supplemental shift, and there is not an overtime authorization present. Error code number '22' (i.e., Unauthorized Overtime) is used for these errors. The supervisor or timekeeper is responsible for inputting overtime or compensatory time authorization in TAA before TAA processes on the day of the Overtime/Compensatory Time as TAA must have the authorization to build the employee's schedule for the time being worked. If the error is not properly corrected in DLCP, the employee might not be properly credited with the full amount of overtime or compensatory time worked which could affect their pay. As with missing time errors, it is the supervisor's responsibility to ensure the correct Tasks and/or JONs are used to apply labor against for the erred period and the employee's responsibility to verify the accuracy of the data. Overtime/Compensatory Time worked will be recorded in hundredth hour increments but paid in quarter hour increments. When an error code '22' is corrected, both the TYPE HOUR CODE and the EXPENDED HOURS field will need to be corrected. If these errors are not corrected before final payroll processing, Overtime/Compensatory Time worked by the employee will not be sent to DCPS

17.2.1.3. Supervisors and designated timekeepers will make corrections to employee processed labor records via the DLCP. Supervisors and/or timekeepers must change work schedules, workdays, and other employee schedule transactions to ensure employee presence at work is represented correctly. Supervisors will be granted access to only those aspects of DLCP required to input current data and research and correct errors.

17.2.1.3.1. Labor transacted in error cannot be deleted and requires DLCP correction after labor processing has completed. Since some status transactions are sent to and processed by the production systems NRT, deleting an erred transaction could have detrimental impact to these systems.

17.2.1.4. Supervisors have access to certain status transactions that can be used when STATUS transactions or COMPLETES are transacted in error on the shop floor.

17.2.1.4.1. ITS Labor Corrections. ITS track point completions cannot be reversed in TAA, however, there will be times when status transactions are made in error. For those situations, TAA provides the capability to reverse the WCD status from serviceable, unserviceable, or condemned allowing further labor transactions against any remaining WCD track points. Utilizing the ITS Reversal screen, a new track point type code of 'U' will be passed from TAA to G337. G337 will then change the print flag from a 'Y' to an 'N', remove the ship date, and complete flag on the document ID. The WCD must be reclosed serviceable, unserviceable, or condemned once the additional work is completed.

17.2.1.4.2. PDMSS Labor Corrections. PDMSS operation completions cannot be reversed in TAA, however there will be times when COMPLETES transactions are made in error. For those situations, TAA provides the capability to capture more actual hours against a PDMSS operation by using the 'Authorization for Additional Work' transaction. This transaction removes the complete status in TAA only allowing additional actual hours to be captured. However, EARNED HOURS were recorded on the day of the initial completion and are not changed. Access to this screen is only granted to supervisors and requires that the supervisor transact a 'Terminate Additional Work' when the additional work has been finished.

17.2.2. Certification Procedures.

17.2.2.1. The certification of time and attendance is an authorization for the expenditure of government funds. Employees are responsible for reporting their time accurately and must attest to the accuracy of their time. Supervisors are responsible for reporting their time accurately and must attest to the accuracy of their time. Supervisors are responsible for the accuracy of timekeeping records and must certify the time of each of their employees.

17.2.2.1.1. Certification of time and attendance records, whether automated or manual, is an authorization for the expenditure of government funds.

17.2.2.1.2. Certification of time and attendance data for DCPS should be completed by 1700 Eastern Time (ET) for WR-ALC, 1600 CT for OC-ALC, and 1500 MT for OO-ALC on the Tuesday following the TAA payroll run as DCPS will begin final payroll processing at 2000 ET on Tuesday.

17.2.2.2. For review purposes, there is the Labor/Leave/Labor/Attest (i.e., to be renamed to Labor Review) screen that can be viewed by each employee throughout the pay period. This screen will reflect all labor transacted and processed without consideration to entitlement, e.g., shift differentials, night differentials, etc. Entitlements are applied during the payroll processing and will be seen during the 'Attest and Certify' process.

17.2.2.3. Any employee with errors that have not been corrected will appear on the 'Missing Time' report and will not be able to attest their time nor will supervisors be able to certify the employee's time until corrections have been made or have a message displayed indicating there are errors that need to be corrected. The message will stay on the report until corrections have been made.

17.2.2.4. Payroll records will be stored electronically for six years. Time and attendance records, to include leave application files, source records, inputs records, and leave

records must be retained by the employee's supervisor or activity IAW records retention requirements as set forth in the National Archives, General Records Schedule 2. Reference: http://www.archives.gov/records- mgmt/grs/grs02.html.

17.2.3. Supervisory Employee Master Maintenance.

17.2.3.1. Supervisory Employee Master Maintenance is the maintenance capability assigned to supervisors/timekeepers and 'alternate supervisors' to allow them to make limited changes to their employees master record. New employees cannot be added via this screen.

17.2.3.2. This screen also grays out the SSAN field to accommodate American Federation of Government Employees (AFGE) concerns for 'alternate supervisors'. Supervisors and timekeepers should use this screen to make SHIFT CHANGE updates using the Permanent Shift. This field plays a very important role during payroll processing to determine shift differential pay. Changes to an employee's schedule for short periods should be done via Employee Schedule, i.e., one day change to attend training. This screen should be used to make RC/CC and skill code changes which are important in reporting good production data. Name changes due to marriage, divorce, etc. can also be accomplished using this screen.

17.2.4. Processing Loans Transitions.

17.2.4.1. TAA provides the capability to identify the performing RC/CC and/or skill code as part of each labor transaction which initiates the same process as a loan transaction but remains specific to the task being updated and not the mechanic's RC/CC/Skill Code assignment. Supervisor initiated loan transactions for mechanics are not necessary if labor is transacted correctly. All labor transaction windows (i.e., ITS, PDMSS, FEM, and ITS/PDMSS Group) display the PLANNED RC/CC/skill code where the labor is planned to be executed defaults the ACTUAL RC/CC/skill code to the planned RC/CC value and allows the mechanic to enter in a different RC/CC/skill code when applicable. For JON labor transactions, PLANNED RC/CC/skill code fields will default to the assigned RC/CC of the transacting employee. This is the only time a transacting employee should change the ACTUAL RC/CC field. The TAA labor window validates the RC/CC, skill code, Labor Type, etc. to ensure an accurate resulting labor transaction. For ITS, PDMSS, FEM, and ITS/PDMSS Group transactions, if the ACTUAL RC/CC/skill code field is changed from PLANNED, actual hours will be recorded by the input in ACTUAL RC/CC but EARNED HOURS will be recorded where PLANNED.

17.2.4.2. Loan transactions are still available, require supervisory access, and must be terminated via another loan transaction once the loan is complete. For permanent/long term RC/CC re-assignments, the employee master record should be updated. Shop floor discipline for the transacting employee should be encouraged to minimize the effort required by the supervisor to execute loan transactions.

17.2.4.3. Employees in overhead RC/CCs may need to have RC/CC Loans. If so, the supervisor will need the employee number of the gaining supervisor and the correct RC/CC to assign. While there is no documented end date, personnel loans will be limited to shortest practical time required. The supervisor or timekeeper must transact a loan in order to return the employee to the owning organization. The parties will follow the MLA

with regards to who is assigned and the rotation between all qualified and available employees.

17.2.5. Procedures for Hours Worked Outside of Schedule.

17.2.5.1. TAA covers several categories of overtime, compensatory time, and holiday time worked.

17.2.5.1.1. The supervisor is responsible for authorizing overtime worked, compensatory time worked, and holiday time worked. Procedures will be established at each site based on existing labor agreements.

17.2.5.1.2. If an employee transacts labor before their scheduled shift start, past the end of their scheduled shift, or on a non-workday, TAA will require an authorization transaction prior to the transaction period to avoid 'Unauthorized Overtime' errors. These authorizations are needed for TAA to provide the appropriate Type Hour Code that both DIFMS and DCPS will need to accurately process the labor and subsequent pay.

17.2.5.1.3. If the employee works overtime/compensatory time/holidays and the supervisor never inputs the authorization, the employee's labor will error with a '22' error code 'Unauthorized Overtime'. Error coded labor is never sent from TAA, therefore DCPS will not receive notification of the overtime and the employee would not be properly compensated.

17.2.5.1.4. Overtime/compensatory time/holidays worked will be recorded in hundredth hour increments but paid in quarter hour increments.

17.2.5.2. Supervisors will review employee work schedules before scheduling overtime. The work schedule should only show the employee's regular tour of duty including any shift or night differential. Proper coding of work hours (i.e., regular duty hours plus additional overtime hours) will assure employees receive the correct entitlements for time worked. Improper or incomplete coding can adversely affect employee entitlements causing a debt or underpayment. Regulatory guidance is Title 5 CFR and DoD FMR 7000.14, Volume 8. Various overtime codes are part of DCPS and TAA for use by CSAG-M employees.

17.2.5.2.1. Overtime Scheduled (OS). Overtime that has been scheduled prior to the start of an administrative workweek and is regularly and consistently worked by an employee.

17.2.5.2.2. Overtime Unscheduled (OU). Overtime that has not been scheduled prior to the start of an administrative work week and is not known at time of need. TAA does not allow OU authorization for a NON-SCHEDULED workday (i.e., Saturday).

17.2.5.2.3. Overtime Callback (OC). Overtime worked by an employee when they have completed the end of their duty day and have been called back to the work location.

17.2.5.2.4. Overtime Unscheduled Exception (OX). Use this code for UNSCHEDULED OVERTIME on a NON-WORKDAY.

17.2.6. Holiday Work.

17.2.6.1. Holiday work transactions for scheduled workdays must be made on a valid holiday. The work must be during a scheduled workday that falls on a holiday and must be within the employee's regularly scheduled shift. If not authorized prior to processing, holiday pay (H_) must be entered via the DLCP and the holiday indicator (LH) must be entered first. Holiday hours worked must be paid by Holiday Pay, but once an employee has met the hours of their tour (i.e., 8, 9, or 10), then any additional hours can be paid as Overtime/Compensatory Time (reference DoD FMR 7000.14, Volume 8, Chapter 3).

17.2.6.1.1. Holiday work transactions entered using the Prior Pay Period Adjustment must only reflect the hours worked on the Holiday or in-lieu of Holiday. The LH transaction cannot be present for the hours worked.

17.2.6.2. If a holiday falls on a full-time employee nonscheduled workday, that employee is entitled to an in lieu of holiday. Supervisors must determine the appropriate in lieu of holiday as referenced in **Table 17.3.** for each employee and make the appropriate leave transaction for holiday leave for each affected employee.

17.2.6.3. Holiday work transactions are not authorized for intermittent employees.

17.2.7. Temporary Duty (TDY).

17.2.7.1. Enter TDY by using the TAA TDY screens.

17.2.7.1.1. WG. Direct Labor TDY is normally charged against a non-programmed JON that begins with an 'A'. This direct labor TDY would also include any compensatory time earned [i.e., Type Hours Code (THC) CB] in connection with a direct TDY, and would be transacted on the JON labor screen using the TDY JON. Overtime or compensatory time worked during TDY only requires overtime/compensatory time authorization and it automatically uses the TDY JON data if the TDY is a 'banked' transaction which means one transaction covering more hours than one shift. The TDY screen can only be used for scheduled workdays so TDY travel that falls outside the employee's scheduled tour can only be transacted via the Labor JON transaction.

17.2.7.1.2. GS. Direct labor TDY is normally charged against a non-programmed JON that begins with an 'A'. This direct labor TDY would also include any compensatory time earned (Type Hour Code (THC) CB) associated with travel time in connection with a direct TDY and would be transacted on the JON labor screen using the TDY JON. Overtime or compensatory time worked during TDY only requires overtime/compensatory time authorization and it automatically uses the TDY data if the TDY is a 'banked' transaction which means one transaction covering hours more than one shift. The TDY screen can only be used for scheduled workdays so TDY travel that falls outside the employee's scheduled tour can only be transacted via the Labor JON transaction.

17.2.7.1.3. Indirect Labor TDY is charged against an 'X' or 'Y' Labor JON depending on the support person who is traveling. 'X' is production overhead support and 'Y' is G&A support. The TDY screen can also be used to transact any indirect labor over eight hours such as LONG TERM TRAINING, attendance in Lean events that lasts a week, etc. This will allow one input to cover the entire time

using the correct indirect JON (i.e., X51112700000) rather than using the JON Labor transaction which requires input each day.

17.2.8. Leave.

17.2.8.1. Leave should be input to TAA as requested by the employee and approved by the supervisor. DCPS is the system of record for leave and will determine how the leave will process. It is the responsibility of employees to know their leave balances so time should be input as requested by the employee unless the supervisor specifies differently. Leave codes are described in the drop down menu on the leave screen in TAA.

17.2.8.1.1. Family codes covering the Family Medical Leave Act (FMLA) will be entered in the Family/Rep/Env Code field on the leave screen. This is very important in keeping track of Family leave in DCPS. FMLA codes are described in the drop down menu on the leave screen in TAA.

17.2.8.2. Supervisors and/or timekeepers can enter leave as soon as it has been requested to ensure it is input in a timely manner. Leave transactions can be entered as far in advance of the leave as the last day of the FUTURE pay period. Maximum duration for leave transactions is 992.00 (hundredths). AF policy is leave is taken in quarter hour increments and will be entered into TAA in quarter hour increments.

17.2.8.2.1. When notification is received from Personnel that Traumatic Leave has been approved, check for the day of injury. Until notification is received from Personnel, the employee must use personal LWOP.

17.2.8.2.2. If the injury date is within the current pay period, then transact day of injury type leave (LU) transaction in TAA for the day of injury.

17.2.8.2.3. If the injury date is outside the current pay period, then you must have the DCPS CSR enter LU into DCPS for the day of injury prior pay periods maintained in TAA. TAA Traumatic Injury Maintenance Screen must also be updated to allow subsequent Traumatic Injury type leave (LT) transactions to be performed. Enter the employee ID on the screen which will prompt for the injury date. TAA will build the injury number that will be needed for each LT transaction performed via either the LEAVE screen or DLCP.

17.2.8.3. Definitions of leave types are referenced in DoD FMR 7000.14, Volume 8, Chapter 3, and DODI1400.25V630_AFI36-815.

17.2.9. Environmental/Hazardous (EH) Duty.

17.2.9.1. EH duty codes were established to grant premium pay to employees who meet certain working conditions. Eligibility is built through personnel action. The type of duty requires entry of appropriate codes in the labor transactions. Since eligibility is restricted, TAA has a field on the Employee Master Screen that must be checked to allow users to transact using an EH code.

17.2.9.2. Employees that are allowed to use EH codes are instructed by their immediate supervisor when the use of EH codes are appropriate for manual input by the employee. Employees must input the appropriate code during their TAA labor transaction or they will not receive the hazardous pay. **Table 17.4.** contains EH codes and their percentages:

Table 17.4. The Environmental GS Pay Status/WG Actual Exposure Chart From DCPS That Shows The Percentages Based On The Code Input.

CODE	Description	GS %	WG%	NOTE
EA	Flying	25	100	
EB	High Work	25	25	
EC	Floating Targets	-	15	
ED	Dirty Work	4	4	
EE	Cold Work	4	4	
EF	Hot Work	4	4	
EG	Welding Preheated Metals	-	4	
EH	Micro-Soldering/Wire Welding	-	4	
EJ	25%, 2-Hour Minimum	-	25	***S
EK	Exposure to Hazardous Weather	25	25	
EL	Unshored Work	25	25	
EM	Ground Work Beneath Hovering Helicopter	25	15	
EN	Hazardous Boarding or Leaving Surface Craft	25	15	
EP	Cargo Handling During Lightening Operations	25	8	
EQ	Diving-Extra Hazardous	-	50	
ER	Duty Aboard Surface Craft	25	15	
ES	Work at Extreme Heights	-	50	
ET	Fibrous Glass Work	-	6	
EU	Extreme Cold Work	-		***S
EV	High Voltage Electrical Energy	-	50	
EW	Welding, Cutting, Or Burning In Confined Spaces	-	6	
EX	Working At High Altitudes With Commute From Lower Altitudes	8	8	
EY	Tropical Jungle Duty	25	-	
EZ	25%, No Minimum	-	25	***S
E1	Over Height Pay	-	100	***S
E2	Spray Booth Operation	-	-	***D
E3	Sandblasting	-	-	***D
E4	Painters In Energized Area	-	-	***D
E5	Carpenters In Energized Area	-	23.3	***D
E6	Live Line Maintenance	-	200	***D
E7	Fixed Wing Work	-	25	***D
E8	Protective Clothing Work	-	25	***S

17.3. Labor Collection.

17.3.1. Labor Processing.

17.3.1.1. There are two categories of employees in TAA, transacting and non-transacting.

17.3.1.1.1. 'Transacting' employees are those employees considered to be direct labor and are required to perform daily labor transactions (i.e., ITS/PDMSS/FEM/JON Labor) in TAA. Direct labor must be transacted by the individual performing the work and the employee must account for their entire workday. 'Transacting' employees can be civilian (i.e., WG and GS), military, and DOCAT employees.

17.3.1.1.1.1. Direct labor is labor that increases the value of utility of a product by altering the composition, condition, conformation, or construction of the product, or that provides a service directly to the customer rather than in support of other direct labor in the Maintenance Wings; can be accurately, consistently, and economically identified to a product, group of products, or customer; and is supported by official work requests and authorized by prescribed WADs indicating the specific nature of work to be done. There are certain reports still available that refer to this labor as duty code '11'.

17.3.1.1.1.2. In some reporting instances, duty code '12' will be designated. Duty code '12' represents direct labor performed on TDY. Report logic takes any direct travel (i.e., normally performed against a JON) and converts the time to duty code '12'.

17.3.1.1.1.3. Labor covers that labor performed in a direct shop that does not meet the criteria for direct labor. Indirect JONs have been built to charge this time against. These are 12-digit JONs with position 6 and 7 providing the classification of the labor and position 8 and 9 providing readily identifiable projects. Indirect labor is typically seen in a direct shop. **Note:** Cost Class IV workload is work performed by one organization for another. Accumulated costs will be transferred from the 'Performing' organization to the 'Benefitting' (i.e., owning) organization in DIFMS under the normal cost transfer process.

17.3.1.1.1.4. Production Overhead (POH) is labor expended by personnel performing above the direct shop level in the production divisions. This labor is identified as POH when transacted in a RC/CC above the direct level.

17.3.1.1.1.5. General and Administrative (G&A) Overhead is labor expended outside the production divisions in support of depot maintenance. This labor is identified as G&A Overhead when transacted in a RC/CC that is established to capture G&A cost.

Table 17.5. Supervision (Duty Code 21).

Supervisory time is the actual time expended performing supervisory activities at any level for depot maintenance. Examples of supervisory duties are:	
Item	**Description**
Planning	Planning and scheduling work to accomplish workload
Personnel	Schedule and approve leave, request and authorize overtime, certify timecards, personnel actions
Directing	Checking work areas for compliance with safety, security, and fire regulations; spot checking work
Reporting	Analyzing shop data and preparing reports

Table 17.6. Clerical and Administrative (Duty Code 22).

Clerical and administrative is the actual time expended at any organizational level by personnel doing clerical, administrative, statistical, and messenger activities. This type duty should only be used in an Administrative Overhead Center (AOC). This type duty should never be used in a production RC/CC. Examples of clerical and administrative duties are:	
Item	**Description**
Preparing	Correspondence, briefing charts, and other typing
Recordkeeping	Filing, posting, maintaining personnel records
Receptionist Duties	Answering phones
Messenger Service	Distribute employee information, mail
Administrative	Duties as delegated by supervisor

Table 17.7. Duty Codes 23 – 30.

Item	Duty Code	Description
Staff Mission	23	Staff Mission (Duty Code 23). Staff mission is the actual time expended by personnel doing the primary mission of a staff organization. This type duty should only be used by people assigned to an AOC. This type duty should not be used in a production RC/CC except in those situations where types of duty (i.e., direct and indirect) are combined such as work loading, environmental engineering, plant and industrial engineering, etc. Examples of staff mission are Safety, Security, Process Improvement, and Financial Management.
Repair of Own Resource Control Center Equipment	24	Repair of own RC/CC equipment is time expended by a RC/CC in the maintenance, repair, installation, and rearrangement of that RC/CC's equipment, tools, and other facilities when not authorized by a valid WCD and does not require direct material. Examples of repair of own RC/CC equipment are preventive maintenance operations, minor repairs and adjustments to equipment and facilities, route operational and visual inspections of equipment service, and rearrangement of facilities.
Standby	25	Standby is the cost of productive labor lost because of a failure of utilities, inclement weather, lack of material, fire, fire drill, bomb threats, or awaiting assignment of work.
Miscellaneous	26	Miscellaneous labor is the actual labor expended on work not reportable in other labor categories. Positions 8 and 9 of the indirect JONs provides more insight into the type of indirect labor being captured under this category. Some examples of miscellaneous labor are housekeeping activities not included in direct standards; visiting dispensary, conducting tours, visiting Personnel Office Personnel activities such as welfare activities, employee orientation, etc.; and supervisory meeting attendance and commander's call.
Training	27	Training is the time expended by trainees and instruction in connection with the training of depot maintenance personnel. Examples of training are classroom training time, initial period of OJT learning through observation, RC/CC personnel providing OJT, etc.
Union Activity	29	This duty code applies to personnel conducting official union business which includes grievance case preparation, grievance panel participation, case presentation, and union stewards while in maintenance conducting official

		business.
Leave	30	Leave (Duty Code 30 series). Time expended on leave is captured by the type hour code (LA = Annual Leave) and/or by Z-JONs (Z61613100000).

17.3.2. Labor.

17.3.2.1. The ITS labor, PDMSS labor or FEM/PMEL labor windows are used to account for an individual's actual time spent working on a single track point/operation/work order with a single TAA labor transaction. When using one of these windows, the individual only transacts one track point/operation/work order at a time with a single TAA labor transaction. When using one of these windows, the individual only transacts one track point/operation/work order at a time.

17.3.2.2. The one-for-one transaction method is required for mechanics/technicians with reasonable access to a TAA workstation and is consistently working on shop orders throughout the workday. The TAA Group Processing screen is an approved option when working in a remote location, working on very short duration tasks, one mechanic/technician working on multiple tasks simultaneously or as a group, or when it is not practical to transact as work is completed.

17.3.2.3. Temporary Workload is transacted via the JON labor window or ITS/PDMSS labor windows if planned at the task level in one of the two production systems. To establish a valid JON, temporary workload is always planned in the G004L system.

17.3.2.4. Employees required to enter labor transactions (i.e., transacting employees) must perform, at a minimum, a labor stop against a valid JON (i.e., indirect or direct) within the last 15 minutes of their workday. This allows the TAA system to validate individual labor accounting against employee tour of duty assignments. Transacting employees that do not perform the required minimum end of day transaction will produce an error code 85 (i.e., Unaccounted for Time Error) for their tour of duty labor period being processed.

17.3.3. ITS Labor Transactions.

17.3.3.1. TAA has been designed to provide START/DELAY/COMPLETE status transactions back to ITS allowing ITS to track shop flow as an asset is moving through the repair cycle. TAA does not use START transactions in its internal processing.

17.3.3.1.1. Transaction method for a single mechanic performing work on a single task.

17.3.3.1.1.1. Using a bar coded ITS WCD, the mechanic will transact a START to begin work on a new task or resume work on a delayed task.

17.3.3.1.1.2. Using a bar coded ITS WCD, the mechanic will transact a DELAY or COMPLETE to stop work on a task. End-of-shift stops are transacted as DELAY with 'RLO-Shift Change' code.

17.3.3.1.2. Transaction method for multiple mechanics performing work on a single task.

17.3.3.1.2.1. Using a bar coded ITS WCD, the first mechanic is required to transact a START to begin a new task or resume a delayed task.

17.3.3.1.2.2. Subsequent mechanics working this same task are not required to transact a START. However, each subsequent mechanic will transact a DELAY with an production delay code ('R00') for TAA labor stop when ready to stop their labor. 'R00' delay transactions must be completed prior to the original mechanic transacting an actual DELAY or COMPLETE. 'R00' delay transactions are never sent to ITS.

17.3.3.1.2.3. To avoid confusion, it is recommended that only the mechanic who transacted the START should transact the DELAY or a COMPLETE after all subsequent mechanics have transacted their 'R00' labor stop.

17.3.3.1.2.4. Transaction method for ITS WCD closure in TAA is required in order to complete the WCD and allow the downstream systems to process correctly. TAA WCD closure transaction status' are sent back to ITS.

Table 17.8. Closures.

Item	Closure
1	Closure of 'A' documents (i.e., WCDs ending in 'A'). Start/End Consumes must be transacted in TAA before closure transaction is performed in ITS via the 2168 screen. Use 'A' (i.e., Start Consume) to begin the process of WCD closure in TAA and 'B' (i.e., End Consume) when this process is completed. If the CONSUME transactions are not performed in TAA before the ITS input, the mechanic will not be able to perform CONSUME transactions in TAA.
2	Closure of 'D', 'F', 'P' and 'T' documents (i.e., WCDs ending in 'D', 'F', 'P' and 'T'). Using an ITS WCD, close the WCD by completing the 'Close' track point at the end of the WCD. Not all 'D' documents are transacted as CLOSED in TAA. Depending on the ITS Induction Type, some 'D' WCDs are closed via the ITS 2042 screen and this close is then sent to TAA and DDS.
3	Closure of 'R' and 'W' documents (i.e., WCDs ending in 'R' or 'W'). Using an ITS WCD, close the WCD by completing the 'Close' track point as X=Serviceable, Y=Unserviceable, or Z-Condemned as applicable for the work performed.

17.3.3.2. TAA delay codes for ITS labor, with the exception of 'R00', are the same delay codes that have been approved for use within ITS. The 'R00' delay code is used for an internal TAA Labor Stop and is not sent to or used by ITS.

17.3.3.2.1. Another use of the 'R00' code is when a mechanic performs work on a second item while the first item is also in work such as on an automated machine or tester (i.e., process time). If the labor standard includes observation time, the first item is delay coded using the 'R00' code allowing the mechanic to log work on the second item and continuing the flow time in ITS for the first item. If the labor standard for the first item does not include direct labor time for observation, use the normal production delay code (i.e., 'R09' processing time).

17.3.3.2.2. Tracking of Reworked Items Resident in ITS and TAA . ITS has the capability to send defective items to TAA when they have to be reworked. The labor performed on these defective items will be charged to X51112614000 indirect JON. Indirect JONs do not result in any earned hours.

17.3.4. PDMSS Transactions.

17.3.4.1. TAA has been designed to provide START/LOGON/LOGOFF/DELAY/COMPLETE status transactions back to PDMSS allowing PDMSS to track the asset as it is moving through the repair cycle. TAA does not use START/LOGON transactions for anything other than to send a STATUS transaction to PDMSS. These START/LOGON transactions cannot be viewed in the TAA application as other transactions. The only time START/LOGON transactions can be viewed is while the employee is still in the START/LOGON transaction condition and then it can only be viewed using the TAA/Inquiry/PDMSS WIP screen.

17.3.4.1.1. Transaction method for a single mechanic performing a single operation refers to using a bar-coded WCD but fields are available for typing data also.

17.3.4.1.1.1. Using a bar-coded PDMSS WCD, the mechanic will transact a START to begin a new operation, LOGON for previously started operation, or END DELAY to resume a delayed operation.

17.3.4.1.1.2. Using a bar coded PDMSS WCD, the mechanic will transact a START DELAY, LOGOFF, or COMPLETE to end work on an operation.

17.3.4.1.2. Transaction method for multiple mechanics performing a single operation.

17.3.4.1.2.1. Using a bar coded PDMSS WCD, only the first mechanic is required to transact a START or LOGON for previously started operation to begin an operation.

17.3.4.1.2.2. Using a bar coded PDMSS WCD, subsequent mechanic(s) will transact a LOGON to begin work on the operation.

17.3.4.1.2.3. Using a bar coded PDMSS WCD, each subsequent mechanic will transact a LOGOFF prior to the original mechanic's ending transaction (i.e., DELAY or COMPLETE). To avoid confusion, it is also recommended that the original mechanic transact the DELAY or COMPLETE after all subsequent mechanics have transacted their LOGOFFs to end work on the operation.

17.3.5. FEM Labor Transactions.

17.3.5.1. TAA is not designed to provide status transactions to FEM therefore there is no need for individual START transactions in TAA. Any applicable status transactions required by FEM are directly input into FEM.

17.3.5.1.1. Transaction method for a single mechanic performing a single work order.

17.3.5.1.1.1. Using a bar-coded FEM work order, the mechanic will transact a LABOR STOP or LABOR COMPLETE.

17.3.5.1.2. Transaction method for multiple mechanics performing a single work order.

17.3.5.1.2.1. Using a bar coded FEM work order, all subsequent mechanics must transact a LABOR STOP prior to the original mechanic's transaction. Only the first mechanic is required to transact a LABOR COMPLETE or LABOR STOP which must be done after all subsequent mechanics' LABOR STOP transactions have been executed.

17.3.6. Transacting Using the JON Labor Screen.

17.3.6.1. The JON labor screen is used to account for one person's actual time spent on a direct or indirect JON.

17.3.6.1.1. For Permanent JONs, if workload is planned at the track point/operation level (i.e., in ITS, PDMSS, or FEM) and individuals transact at the JON level rather than transacting track point/operation level completions, Earned Hours will not be calculated for the RC/CCs planned on the JON. All labor costs will accumulate against the JON in DIFMS with production overhead and G&A application applied.

17.3.6.1.2. For Temporary JONs, if workload is planned at the track point/operation level (i.e., in ITS or PDMSS) and individuals transact at the JON level rather than at the track point/operation level, Earned Hours will be calculated for the RC/CCs planned in G004L as actual hours accumulate within those RC/CCs. Upon JON closure in G004L, any remaining hours that were not earned as a result of actual hours execution will be calculated up to the RC/CC planned hours. All labor costs will accumulate against the JON in DIFMS with production overhead and G&A application applied.

17.3.6.1.3. Indirect JONs will accumulate actual hours as labor transactions are executed. **Note:** There are no earned hours associated with Indirect JONs.

17.3.6.2. The JON level transaction is used in the following situations:

17.3.6.2.1. When temporary workload is not planned in ITS or PDMSS.

17.3.6.2.2. When transacting against software development type workload within the Software Engineering Groups as all software development type workload is planned as temporary.

17.3.6.2.3. When performing indirect work, participating in indirect activities such as attending training, shop clean up, guard duty, Cost Class 4, etc.

17.3.7. 'Standing' JON (Non-Transacting employees).

17.3.7.1. There are instances when individuals are not required to transact labor throughout the day to account for their time in TAA. Individuals in this circumstance will have their actual time automatically charged to a JON (i.e., direct, indirect, or leave) by the system during batch processing. Individuals with a standing JON in their Employee Master Record will not show any transaction detail in the TAA Transaction Data Inquiry screen unless a transaction was input through one of the labor or leave transaction windows.

17.3.7.2. Indirect JONs will be used as 'standing' JONs for production overhead and G&A support personnel. A direct employee that performs work on the same direct JON on a continuous basis can be assigned to a 'standing' direct JON in the Employee Master record in certain circumstances (i.e., remote locations or instances where a TAA workstation is not readily accessible). Direct employees residing in a Direct RC/CC should never be assigned to a 'standing' indirect JON. Defense Contract Audit Agency (DCAA) requires direct labor to be transacted by the individual performing the work and must account for their entire workday.

17.3.7.3. ALCs have established indirect JONs to accommodate duty code/shred code combinations to properly segregate indirect activities. Each site will establish a process for management and distribution of approved indirect JONs.

17.3.7.4. If an individual's Employee Master Record is set up in TAA as non-transacting, the 'standing' JON assigned must be valid in TAA. Once the JON is no longer valid in TAA (i.e., 'Closed', 'Cancelled' in DIFMS), the DLCP record of the employee will show a 6A error, (i.e., Invalid JON/CON), for each day in the employee's DLCP record. The employee's labor must be corrected to reflect a valid JON via the DLCP. To prevent additional errors, the employee master record must be updated to reflect a valid JON. Questions on invalid JONs should be directed to the system OPR.

17.3.7.5. Non-transacting employees are normally considered to be the POH and G&A support employees. These employees are commonly referred to as 'indirect' and equate to the old legacy duty codes of 21, 22, and 23.

17.3.8. Group Processing.

17.3.8.1. Group processing transaction windows are used to systematically calculate and distribute a person's actual labor hours to multiple track points/operations/JONs via a single TAA transaction. Group processing was designed to account for labor hours against repetitive type tasks with small labor standards (i.e., 15 minutes or less). Group processing only distributes an employee's actual hours across the operations/tasks included in the transaction. Earned hours are still earned based on the planned hours for that operation/task when COMPLETES are transacted in a group or individually.

17.3.8.2. Each group transaction will contain at least two and a maximum of 40 track points/operations. The 40th entry will generate the system message "No more records are allowed in this batch – the maximum of 40 have been entered." The transactions being grouped may be from a single shop document or many different shop documents.

17.3.8.3. Group processing should be used to group 'like' workloads (i.e., similar labor standard hours). If dissimilar labor standards (i.e., tasks/operations) are grouped together, the distribution of actual hours will result in the larger labor standards (i.e., tasks/operations) receiving the majority of the actual hours applied and the smaller labor standards (i.e., tasks/operations) receiving minimal zero hours applied.

17.3.8.4. TAA has the capability of setting the maximum standard (i.e., base) hours of a track point/operation that will be allowed in a group processing transaction [i.e., maximum is set to 1.0 hour, track points/operations with standard (i.e., base) hours greater than 1.0 hour will not be accepted in the group processing transaction]. The ALC System

OPR coordinates with the TAA system programmers to set the edit criteria for the group transaction.

17.3.9. Bulk Processing.

17.3.9.1. Bulk processing is designed around the concept of 'many people working on many items'. It was developed to simulate TAA labor transactions in process RC/CCs such as plating, heat-treat, and cleaning where it is not practical to have individuals perform continual labor transactions under the previously described process scenarios. Mechanics/technicians working under these circumstances who do not consistently have a shop order to charge time to at the end of the workday can be assigned as bulk processing, eliminating the requirement for them to individually transact labor as work is performed.

17.3.9.2. Bulk processing is used for labor accumulation against ITS track points or PDMSS operations only. It does not include the capability to transact at the JON level (i.e., Permanent, Temporary, or Indirect) or to use FEM work orders.

17.3.9.3. Bulk RC/CCs must be identified in TAA and System OPRs will establish an RC/CC as 'Bulk' via the Bulk Max Hours field in the RC/CC Maintenance Window.

17.3.9.4. Employees assigned to the Bulk RC/CC will be assigned to the standing JON '888888888888' in their Employee Master Record.

17.3.9.5. Bulk processing requires that on a daily basis (i.e., daily labor batch cycle), ITS or PDMSS Bulk labor transactions identifying what was worked in the Bulk RC/CC will be executed in the Bulk labor transaction window in TAA. To avoid over/under application of actual hour expenses, these transactions should contain tasks with sufficient labor standard (i.e., base) hours to cover all Bulk employees' tour of duty available hours for the processing day.

17.3.9.6. Task COMPLETE is the only status processed through Bulk processing transaction (**Note:** START/DELAY/LOGON/LOGOFF are not permitted). Once the Bulk transactions have been executed, task completion statuses are sent to PDMSS on a NRT basis and forwarded to the DDSS during nightly processing. Currently ITS does not receive any Bulk transactions. Receiving Bulk transactions could have adverse effect on AWM delay items.

17.3.9.7. Bulk processing generates a set of labor records for each employee assigned to the standing Bulk JON '888888888888' for the RC/CC where Bulk labor transactions were executed. TAA calculates a Bulk Prorate Factor for each Bulk RC/CC based on the total employee available tour of duty hours (i.e., '888888888888' JON) divided by the total Base hours of Bulk labor transactions (i.e., ITS or PDMSS tasks) processed for that RC/CC. Employee expended hours are calculated during batch processing by multiplying each Bulk task's base hours by the Bulk Prorate Factor of the Bulk RC/CC and systematically distributed to individual labor records as actual hours expended against Bulk labor tasks.

17.3.9.8. Employees in a Bulk RC/CC not assigned to the Bulk JON '888888888888' but performing labor on Bulk items must transact via the JON labor screen against the Bulk JON '888888888888' in order for these actual hours to be included in the Bulk RC/CC Proration Factor calculation.

17.3.9.8.1. For Bulk RC/CCs that have employees assigned to Bulk JON of ‘888888888888’ and no work order data (i.e., Bulk transactions) is transacted for the processing date, Bulk employee labor will be processed as error code 85. These errors will require correction via the DLCP.

17.3.9.8.2. For Bulk RC/CCs where Bulk transactions occur but no available Bulk labor hours exist ‘888888888888’ JON for that processing date, TAA batch processing will flag these Bulk transaction records as LABOR NOT APPLIED. These records will be highlighted in the Bulk Transaction Inquiry screen and may be used for labor corrections via the DLCP.

17.3.9.8.3. Employee labor processed through the Bulk RC/CC is combined with all other employee labor and sent via the ZH140D02 labor file to DIFMS where applicable costs are applied.

17.3.9.8.4. TAA provides visibility of Bulk labor transactions via the Bulk Inquiry Screen and RC/CC Proration Factor calculation and expended hours via the Bulk Prorate Summary Inquiry windows.

Chapter 18

DEPOT MAINTENANCE MATERIEL CONTROL

18.1. Responsibilities. The ALC is responsible for the management and control of depot maintenance material. All personnel are responsible for adhering to principles of supply discipline and for cooperating in accomplishing this material program according to AFI 23-101. Support Groups will follow this guidance when applicable.

18.2. Maintenance Complex. Specific maintenance policy is included in AFMCI 21-100, AFI 20-110 AFMCSUP, and Industrial Plant Management, where applicable.

18.2.1. Maintenance Squadrons are responsible for enforcement of material controls.

18.2.2. Planning. The Planning Function is responsible for establishing BOMs, supporting organic depot manufacturing IAW paragraph 18.37., managing floating stock and spares if applicable IAW paragraph 18.36., managing AFSC Form 137 and AFSC Form 959, and participating in periodic supportability reviews.

18.2.3. Scheduling. The scheduling function is responsible for inducting production items, ensuring DIOH and OWO records for all production issues or turn-ins are accurate, initiating end item turn-in of material, ensuring cannibalization occurrences and costs are tracked by RC/CC, scheduling items from the PSS to the production shops, and scheduling PQDR exhibits into the appropriate production organization.

18.2.4. Material. The Production Support Flight Chief is responsible for ordering and turning in material, processing material issue requests, monitoring the status of material on order, managing backorder reconciliation, and reviewing and monitoring various supply and production systems.

18.3. Major Automated Information Systems. The major automated information systems supporting maintenance material control, accounting, and management are:

18.3.1. Depot Maintenance Accounting and Production System (DMAPS) is an integrated suite of systems providing material, production, and financial functionality for organic depot maintenance. The main DMAPS systems supporting material are covered in the following paragraphs.

18.3.2. The Automated Bill of Material (ABOM) system is a front-end validation and order entry system to the Naval Air Systems Command Industrial Material Management System (NIMMS). ABOM provides on-line batch, single order processing, query capabilities, and administrative background programs for maintenance of data. The volume and cost of material used in organic depot maintenance is considerable. Proper tracking of these costs is essential to assure effective and efficient production and proper financial management. When direct material cannot be identified to a specific operation, the individual requiring the material must coordinate with workload control (e.g., Planning, scheduling, or workloading). Ideally, this coordination should occur before the transaction is processed. ABOM transactions for direct material are tracked to the operations associated with the workload (i.e., end item).

18.3.3. NIMMS is the system used for the overall inventory management of CSAG-M owned material. NIMMS shares a common database with DIFMS for processing material cost and other financial information.

18.3.4. DIFMS is the official Air Force financial system of record for organic depot maintenance. DIFMS maintains general ledgers; records disbursements, collections, and customer orders; tracks cost; bills customers; and supports other general management functions in organic depot maintenance.

18.3.5. Execution and Prioritization of Repair Support System (EXPRESS), D087X, is a daily execution system designed to make critical choices in a constrained depot environment. The system takes a fresh view of customer needs and the repair environment daily using current asset and resource information. Visibility of all recoverable NSNs loaded in the wholesale and retail systems and their location and condition is provided. EXPRESS consists of four modules: Data Services, Prioritization and Repair, Supportability, and Distribution. Reference AFMCI 23-120.

18.3.6. Depot Maintenance Systems Integration (DMSI) includes Depot Maintenance Material Support System (DMMSS) G005M, Inventory Tracking System (ITS) G337, Programmed Depot Maintenance Scheduling System (PDMSS) G097, Exchangeables Production System (EPS) G402A, Job Order Production Number Master System (JOPMS) G004L, and HQ AFMC Labor Standards Data System (ALSDS) E046B.

18.3.6.1. DMMSS (G005M) identifies material to support maintenance workloads through the BOM and provides a mechanism to track material usage.

18.3.6.2. ITS (G337) tracks repairable end items from time of receipt in the maintenance group to time of turn-in to supply. It provides inventory control and assigns item tracking numbers to all parts as they come in and subsequently tracks them through disassembly, repair, and assembly.

18.3.6.3. PDMSS (G097) is the AFSC depot standard project management system used to manage execution of all aircraft and missile programmed/un-programmed depot maintenance and overhaul workload. PDMSS performs planning, maintenance operation resourcing and completion, critical path schedule execution, and performance management.

18.3.6.4. EPS (G402A) is used to order end items for repair and passes orders for repair parts to the supply system. It also provides visibility of workload requirements and end item asset availability.

18.3.6.5. JOPMS (G004L) initiates and manages the JON which is required to begin a maintenance task on the shop floor. The system creates and tracks work in progress, interfaces with financial systems providing visibility of production hours in process and completed (i.e., earned hours), provides a repository for storing the production number master records, tracks customer work requests, records work authorizations, maintains temporary work plans, records end item production, and documents standard labor hours earned during depot level maintenance.

18.3.6.6. ALSDS (E046B) is used by the maintenance functional area to establish and maintain labor standards that are used for planning, forecasting, production count, data validation, and tracking direct product standard hours.

18.3.7. Material Processing System (MPS) (D230) provides the mechanics the ability to order material and view the status of the requests and provides material PSTs the ability to track, update, and fix orders. Material IETs can electronically update, approve, or deny requests

with planning problems. All orders are passed to the standard material ordering system (i.e., ABOM/NIMMS).

18.4. Aircraft and Missiles. Custodial acceptance and release of aircraft and missiles is performed IAW AFI 16-402, *Aerospace Vehicle Programming, Assignment, Distribution, Accounting, and Termination*. Production Flight will ensure update of the Air Force accountable record IAW AFI 21-103.

18.5. Whole Engine. Engine transfers will be recorded in the Air Force Comprehensive Engine Management System (i.e., CEMS—DSD D042) IAW AFI 63-101/20-101*, Integrated Life Cycle Management*.

18.6. Management of Items Subject to Repair (MISTR). Transfers of MISTR products are recorded in the Wholesale and Retail Receiving and Shipping system (i.e., D035K) accounts IAW AFI 23-101.

18.7. Manufactured Items. Items once accepted are added to the Air Force inventory IAW AFI 23-101.

18.8. Exchangeable Items. ERRC codes (i.e., C and T) that are removed from and installed on production items are accountable in D035K under DIFM/DOTM controls IAW AFI 23-101.

18.9. Expendable Items. Items not subject to repair but are required in the repair process are issued from D035K for consumption. These items may be turned in to supply in serviceable condition via NIMMS. This includes bulk items and sheet stock IAW AFI 23-101.

18.10. Floating Stock/Spares. Floating stock/spares are accounted for in NIMMS.

18.11. The Following Material Holding Areas May Be Established Within Each Maintenance Group (MXG). Production items in delay status, routed items, and loan equipment will be segregated and protected from pilferage and damage. The Maintenance Support Squadron (MXSS) tracks MXSS work in FEM only via status changes. When performing Cost Class 1 (CC1) work, the owning organization manages end item status for WCDs. The condition status and identification of end items/removed components parts should be made obvious. This may be accomplished by labeling the storage area (e.g., AWM, Serviceable, etc.), by the presence of a WCD or by tagging the items.

18.11.1. Bench Stock. Bench stock may be stored or displayed in various areas including the Production Flight.

18.11.2. Awaiting Parts (AWP). Production items in delay status will be stored and issued IAW AFI 23-101. AWP occurs when a particular task on an item of production must be stopped or deferred due to a parts shortage.

18.11.3. Awaiting Maintenance (AWM). AWM is the delay between repairable asset induction and the start of the first maintenance action on the asset. Delay status occurs when work on an item of production is stopped due to a resource constraint in labor, facilities, or equipment.

18.11.4. Work in Process (WIP). WIP is defined as any job that has been started but is incomplete. This includes any end item that has been inducted regardless of where it is in the repair process. Once the last operation is completed, WIP is considered serviceable and can be sold.

18.11.5. WIP inventory is any end item, removed component parts, or new material that is being held and stored until it can be processed further. Any material generated from a JON that is not required to meet the repair requirements is considered excess. Once identified, the excess is to be turned in to the PSS for disposition.

18.11.6. The shop supervisor shall ensure material ordered by the shop for end item repair does not exceed repair requirements.

18.11.7. To ensure excess material is not held on the shop floor, WIP inventory must be controlled using one of the following methods:

18.11.7.1. Maintain an electronic or manual list of WIP. This listing will include part number/stock number, noun, quantity, and JON including control number and open JON suffix as a minimum. If material is not located in the immediate shop area, the listing will include and identify the location of that material.

18.11.7.2. Place material held for reinstallation (i.e., end items, removed component parts, hardware, and new material) to an end item in a single storage location (i.e., Vidmar, storage rack). This location will be identified to the specific end item using any unique identifier such as serial number, inventory tracking number (ITN), JON, etc. The material stored in these locations will not exceed the UPA for the end item as outlined in the BOM and/or the IPB.

18.11.7.3. New material, removed component parts, and hardware may be maintained in a separate bin location without the end item. Each bin location will be labeled with P/N or NSN and Noun. This location will be identified to the specific end item using any unique identifier such as serial number, ITN, JON, etc. The material stored in these locations will not exceed the UPA for the end item as outlined in the BOM and/or the IPB. **Note:** These bins will be for WIP purposes and not bench stock, and will be maintained by the production shop.

18.11.7.4. The production supervisor or other designated supervisors will ensure material ordered by the shop for end item repair is ordered through the maintenance material ordering systems.

18.11.7.5. Each depot maintenance production shop supervisor or other designated supervisor will ensure leftover residual material is turned into the PSS for disposition.

18.11.7.6. Any material left over from a completed JON will not be turned into the NIMMS store (i.e., 'Y' store) unless a known requirement exists. It will remain a CSAG-M owned asset and may be re-issued to another JON. **Note**: If the item is true excess that will not be used for a future repair and is never reissued to another JON, CSAG-M will incur that excess inventory cost as overhead regardless if that material is stored in the NIMMS store or turned into DLA supply.

18.11.8. First line aircraft production supervisors have responsibility for the comprehensive effective monitoring and disposition of excess aircraft material. AFI 23-111, *Management of Government Property in Possession of the Air Force*, describes the property management responsibilities applicable to all personnel and organizations.

18.11.9. Facilitate Other Maintenance (FOM). (**Note:** For aircraft only). Direct and indirect material removed for accessibility to facilitate other maintenance will be identified and tagged by production personnel.

18.11.9.1. FOM Holding Area. (**Note:** For aircraft only). FOM remaining on the shop floor in the immediate area of the aircraft must be tagged and identified by tail number and P/N. FOM not maintained on the shop floor in the immediate area of the aircraft will be located in a designated FOM storage area and must be identified by tail number and P/N, and controlled. Identification for material in a FOM storage area will be defined as an electronic or manual list that will be available upon request by part number, noun, and quantity for all items in the designated FOM storage area. The PST/PSS is responsible for control and inventory of materials in a designated FOM storage area.

18.11.9.2. (**Note:** For Landing Gear at OO-ALC only). For reassembling of the end item, Landing Gear is required to have a holding area on the shop floor to collect new parts and parts that have been reclaimed or routed (i.e., repaired component items) that are waiting to be installed on the higher assembly. An electronic or manual list of all material to include location will be maintained. Once all parts are available to support a Landing Gear, the kitting process will be utilized to complete the repair/overhaul process.

18.11.9.3. (**Note:** For Flight Test Operations only). Material used for troubleshooting/testing aircraft in a Flight Test Operation will be protected, stored, and maintained in a secure area with supervisor approval. Storage locations will be labeled with NSN and/or P/N. A list of material will be maintained electronically. The material will be properly identified and tagged. Material will not be left unattended or left on shop floor. When not in use, the material will be returned to secure storage area. When no longer required for aircraft troubleshooting, turn-in procedures will be followed.

18.11.9.4. Operating Stock. Operating stock is any bits and pieces needed to support the maintenance work schedule but which are normally recovered and reused. Residual stock is defined as items that are left over from a completed job that were not consumed during the completion of that job. Both operating stock and residual stock will be controlled by the user as not to become a foreign object to aircraft, engine, aircraft systems, component, tire, munitions, or support equipment which may have the potential to cause FOD (reference **Chapter 13**). Control of work order residue will be accomplished IAW this chapter.

18.11.9.4.1. Items include such things as random length bar stock, fabric dust covers, caps and plugs, items left over from work orders, TCTO, and other reusable items.

18.11.10. Shop Stock. Shop stock is defined as shop operating and housekeeping material required for RC/CC operations such as operation of machinery, equipment, and tools. Shop stock will be stored, protected, condition tagged if applicable, separated, and identified in the storage location.

18.11.11. Reference paragraph 18.46.6. for additional information on NIMMS storage provided by the PSS. This includes the AWP NIMMS store, the production NIMMS store, and the local manufacture NIMMS store.

18.11.12. Kit Management. MXG will document the processes used to build, design, deliver, retrieve, and replenish task kits used in support of scheduled maintenance.

18.12. Material Identification. The planning function is responsible for identifying material as direct or indirect. The IET will strive to minimize the amount of materiel identified as indirect. Standardization of materiel item identification across MXGs at each ALC shall be maximized.

18.12.1. Direct material is material required by and identifiable to a production maintenance job order or end item as specified on a WCD or equivalent. Direct material is ordered and charged directly against the end item. Direct material will become a part of the end item that is undergoing maintenance or being consumed in the maintenance production process, e.g., heat treating, plating, painting, etc., when the consumed material is peculiar to the item produced. Items that must be classified as direct material include ERRC C, T, and S, serial number controlled, investment, TCTO kit, organic manufacture items, those items classified as direct material in the same RC/CC, items that will be maintained on the BOM with a replacement factor and UPA [**Note:** Sometimes referred to as Quantity Per Assembly (QPA) or Quantity per Task (QPT). Various organizations use any one of the three terms to refer to requirements.], and those items considered peculiar or critical that require increased control. ERRC N and P items depending on the application may be classified as direct if they are issued in unit of issue each, pair, or set. There is no minimum or maximum dollar figure that distinguishes a direct material item from an indirect material item.

18.12.2. Indirect Material Accounting. For control of material and costing purposes, the following classifications of material have been established with the associated indirect JONs. Indirect JONs are used to collect costs in the DIFMS system. Reference AFMCI 65-101 for a complete list of JONs.

18.12.2.1. Indirect Production Material (X56326100000). Production material that becomes a part of the product under maintenance or is consumed in the maintenance process but cannot be readily identified to a specific product or the cost to do so is prohibitive. Examples of such material are bolts, nuts, washers, common use paints, etc. The cost of such material is charged to all end items within a cost center on an apportionment basis. Indirect material will always be ERRC N or P. Indirect material shall include all bulk units of issue (e.g., gallons, feet, pounds, etc.) unless it meets the criteria for being peculiar or critical to the end item requiring increased control in which case it should be planned as direct material. Indirect material is not mandatory to be on a BOM since it does not compute a replacement percent, reflect usage, or compute toward the EISP. However, to maintain visibility of all material required for a particular job, indirect material may be included as a nonstandard record in the BOM.

18.12.2.2. Shop Operating Material (X56336300000). Material required for RC/CC operations, e.g., material used in operation, repair and preventive maintenance of machinery, equipment and tools, etc.; supplies incidental to repair, modification, and manufacture of production items; and supplies for maintaining cleanliness of shops and production personnel.

18.12.3. Office Supplies (X56366400000). Material such as pencils and paper required to perform administrative functions or maintain office operations.

18.12.4. Aviation Petroleum, Oils, and Lubricant (POL) (Non Flying) (X56116511000). POL products issued by the Logistics Readiness Squadron (LRS) Fuels Management Flight and used in the Depot Level Maintenance (DLM) repair or overhaul process other than those used in operation of shop machines, equipment, and tools. This includes ground POL products

classified as General Support Division (GSD) material and aviation fuels used in engine test and flight test.

18.12.5. Ground POL (X56126512000). Gasoline and oil consumed by maintenance vehicles and ground power equipment obtained from LRS Fuels Management Flight.

18.12.6. Special Fuels (X56136513000).

18.12.7. Tools and Equipment Expense. Production tools, tools accessories, and equipment other than office equipment having a unit cost of less than $100,000, or a unit cost greater than $100,000 with a useful life of less than two years.

18.12.8. Expendable Tools and Equipment (X56346610000). All hand tools issued through the tool crib for mechanics' tool kits and accessories [i.e., all 5100 and 5200 Federal Stock Classes (FSCs) such as drill bits, hacksaw blades, rotary files, etc.].

18.12.9. Tools and Accessories (X56396620000). Equipment and the associated machinery type tools, tooling, and accessories.

18.12.10. Equipment Machinery (X56396630000). This includes all other tools.

18.12.11. Expendable Office Equipment (X56356700000). Expense office equipment having a unit cost of less than $100,000.

18.12.12. Material-Defective Work and Spoilage (X56406800000). The TRC is responsible to restore defective items to a serviceable condition. Rework consists of restoring an end item to a serviceable condition when that item was repaired by the TRC, placed into stock, and found to be defective due to the TRC's workmanship or use of faulty or improper handling. Use cost code L for expense material and cost code B for exchangeable material.

18.12.13. Facility Preventive Maintenance and Repair (X56376910000). Repair, modification, or construction material used in support of production maintenance.

18.12.14. Precision Measurement Equipment Laboratory (PMEL) Support (X56376920000). Material from or to contract PMEL.

18.12.15. Ground Support Equipment (X56376930000). Material from or to contract government support equipment.

18.12.16. Hazardous Materials (X56707000000).

18.12.17. Protective Clothing (X56388000000). Clothing and individual equipment items worn for protection or safety during the performance of assigned duties.

18.13. Transactional Procedures. The following policy affects material transaction procedures.

18.13.1. Direct expense material is charged to a specific workload by RC/CC, production number, JON suffix, operation number or task, and cost code at the point of issue.

18.13.2. Indirect expense material is billed to CSAG-M at the point of issue from supply. Such material may be ordered through ABOM. Inventory control may be provided using the list of material in ABOM or other enterprise approved systems.

18.13.3. Items with an ERRC code of C or T are considered exchange items and subject to DIFM/DOTM control.

18.14. Managing Indirect Material. This includes bench stock, shop stock, work order residue, and kit residue in production maintenance. This policy is directed in an effort to prevent discarding serviceable material, to encourage cost effective retention, and to properly use Air Force assets. Do not discard items just to show consumption. They are valuable assets. Because of their worth in dollars and utility, these assets will not, under any circumstances, be indiscriminately discarded, used in an unauthorized manner, or wasted.

18.14.1. Residue from kits which can be identified to a stock or part number must be turned into supply using NIMMS turn-in procedures. Maintenance will not receive a credit or noncredit adjustment in this situation.

18.15. General. This portion provides policy guidance on processing material transactions.

18.15.1. Front End Edits. The processing of material to and from the MXGs requires discipline and discretion. The front-end edit process within ABOM and MPS are important tools in preventing the issue of direct material that is excess to production requirements. They are used to ensure job costs are accurate and to minimize inapplicable inventory growth. If the requested amount of material exceeds the UPA, the override approval authority resides with the IET or designated representative. The PSS/PST will advise the shop supervisor of all disapprovals.

18.16. Periodic Reviews. The PSS Chief will ensure ABOM/MPS JON front-end edits are not being bypassed through inappropriate use of ABOM Non-BOM screens, direct entry to D035K, or other methods should not be permitted. The production managers and shop supervisors are responsible to ensure policy regarding BOM management is being followed.

18.17. Assignment of Document Numbers. ABOM automatically assigns a document number which includes the current Julian date and a serial number. ABOM facilitates DIFM/DOTM transactions through on-screen matching before generating a new ABOM assigned document number.

18.18. Repair of ERRC N and P items. When production believes an ERRC N and P item could be repaired beyond what is currently authorized, an AFMC Form 202 will be submitted to SPO engineering requesting authority to repair.

18.19. Material Transaction Processing and Cost Corrections. All material requests and turn-in transactions will be processed through ABOM/NIMMS and/or MPS to record activity between the MXGs and/or supply. These transactions are used to change the accountability records or condition code of government property as it changes ownership from the MXGs to supply. These transactions are also used to determine the cost of material charged to customers, update end-item production from which data is obtained to bill customers for completed work, maintain completeness and replacement parts accuracy, and project valid parts requirements to supply.

18.19.1. Material Support Responsibilities. The accurate and timely processing of material transactions is the responsibility of the PST/PSS. Since data from these material transactions is eventually passed to multiple Air Force and DoD systems, it is imperative that all transactions be validated before being processed. The financial wellbeing of CSAG-M is dependent largely on the accuracy of these material transactions, therefore the importance of valid data cannot be over emphasized.

18.19.2. Requests.

18.19.2.1. Material required by production will be requested by the appropriate maintenance/production personnel through the supporting PST/PSS within the Maintenance Production Support Organization. The PST/PSS and production uses ABOM/MPS or equivalent to process material orders.

18.19.2.2. All direct material requests are edited by ABOM/MPS to ensure the item requested applies to the production item being repaired and is ordered against the correct JON (12 position), operation number, RC/CC, UPA and Unique Identifier (UID) where required. Maintenance/production personnel requesting material will provide NSN or part number, quantity, SRD code, and their name. These may be annotated on AFSC Form 95, Issue Request, or equivalent. When the material is issued, a document with the price of the material will be provided to allow price challenges where warranted.

18.19.3. When ABOM/MPS indicates an item is not planned for the production number or is being requested for a quantity that exceeds the UPA/QPA/QPT, the PST/PSS will:

18.19.3.1. Print or electronically transmit ABOM screen (i.e., the ABOM Permanent or Single Order Response Screen) to the IET. The ABOM Verify functionality also has a set of screens and reports to support this process.

18.19.3.2. The PST/PSS will process the request only after the proper approval has been received from the IET. Non-BOM requests will not be accomplished unless a hard copy or electronic approval has been received from the IET or designated representative.

18.19.4. NIMMS Receipting. Each request submitted through ABOM/MPS that creates a material due record in NIMMS requires a receipt transaction. When material is received, the material due record must be cleared by a receipt transaction. This is done automatically when material is issued from D035K. Costing in DIFMS is done at the time material is received, therefore a receipt transaction must be performed for each shipment. The receipt transaction is also used to establish an accounts payable which is later matched to an incoming bill.

18.19.4.1. If a receipt has been processed with incorrect data, the receipt transaction needs to be reversed. This is done by entering the receipt information and an 'R' in the REV field and then receipt with correct data if required. NIMMS generates financial transactions to DIFMS. A correction in D035K may also be required.

18.19.5. Turn-ins.

18.19.5.1. Turn-In of Excess ERRC N or P Consumable Material. Local procedures will be developed to provide the simplest most efficient methods to turn-in excess ERRC N or P material. Separate procedures for SWEG material are referenced in paragraph 18.50.

18.19.5.2. Turn-in Categories. Serviceable, unserviceable, and unidentifiable ERRC N or P material will be turned in using the following categories.

18.19.5.3. ERRC N or P Unserviceable and Scrap Material. This is material the user has determined to be unserviceable and will be disposed of IAW AFI 23-101.

18.19.5.4. Line turn-in of serviceable ERRC N or P material will be tagged and bagged by production/maintenance personnel and given to the PST/PSS who will use the appropriate NIMMS screen to process the transaction.

18.19.5.5. ERRC N or P Serviceable Material. Direct material with a future requirement will be turned into the NIMMS Store. If no future requirement exists, the material will be turned into supply. Under no circumstance is the material to be maintained on the shop floor. Direct (i.e., CSAG-M owned) excess material is an item that is planned against a work order, is on the BOM, and can be identified to an open production JON but is not consumed in the repair of the end item. Direct material will be turned-in to the 'Y' store if there is a future requirement for the item. Review of the NIMMS store material is required every 180 days. Justification must be submitted for any material to be retained beyond this timeframe. The NIMMS store is not to be used as a storage area for excess material that will not be required for future repairs.

18.19.5.6. The only items that may be disposed of as trash are items that have no potential value to the government through future use or resale by the DLADS. This includes those items in their current configuration including the basic material content and that have no value (e.g., used gaskets or seals, broken plastic lenses, etc.). Unserviceable direct items, those not eligible for reconditioning or repairing, and those items that fail the identification process will be turned in by production either directly to DLADS or to the Base Recycling Program. The preferred method is to use the PSS who will prepare the documentation and arrange for transportation to DLADS.

18.19.5.7. Unserviceable tires will be turned in to DLA.

18.19.5.8. The MXGs will establish and maintain turn-in pick-up points for serviceable or unserviceable material. The PST in support of the individual production areas will be designated as the turn-in point of contact for serviceable direct/indirect material. Each work area pick-up point will be conspicuously marked to show the RC/CC authorized to place material there from production.

18.19.5.9. DIFM/DOTM.

18.19.5.9.1. General. DIFM/DOTM is a term used to track the movement of exchangeable assets used in the repair of aircraft, engines, or OMEI. The main purpose of DIFM/DOTM is to maintain 100 percent accountability from cradle to grave of all serviceable and unserviceable exchangeable assets. The accountability starts when the unserviceable exchange item is removed from the end item and turned in to supply (i.e., D6R) and an issue request (i.e., D7R) is input into the system for a serviceable replacement.

18.19.5.9.2. Turn-Ins. The PST will process turn-ins through the ABOM Exchangeable Module. Turn-in for condition code A and Q will be processed in NIMMS. The PST will maintain turn-in documentation on file until the receipt transaction clears through Distribution Standard System (DSS).

18.19.5.9.2.1. 'Q' condition turn-in. When an exchangeable item is received by the production shop and it is defective (i.e., form, fit, or function), the shop will initiate a QDR. The Q condition turn in will be processed on the original document in NIMMS only on the MN045P Screen. This will credit the JON and reset the UPA (if the UID was entered on the turn in) the following day. Then place a new exchangeable order in ABOM by selecting a 'new document number'. Once the turn in (D6R) has receipted and the order has released,

contact DLA-A to perform a cross reference in D035K. Contact your OBW Material Analyst to move the D7R to history in ABOM.

18.19.5.9.3. Requisition. The PST will use the same document number for the D7R direct line order and the D6R turn in. Both transactions will be processed through ABOM. If a new document number must be created for the D7R, verify that there is a valid credit in D035K and forward that credit document number to the DIFM monitor or the appropriate person in DLA-A to perform a cross-reference in D035K to satisfy the DIFM detail.

18.19.6. Material Cost Corrections. Material cost corrections will be a MXG responsibility accomplished by a designated representative within the MXG. In order for the data in the cost systems to be valid, suspended and erroneous transactions must be corrected daily. Difficult or unusual transactions should be coordinated with ALC supply/designated financial personnel to ensure correct accounting procedures are followed. Records cannot be removed or deleted without a thorough review by financial personnel (i.e., Cost Accounting).

18.19.7. Cost Accounting. ALC cost accounting will be a source of advice to MXG on corrections.

18.19.8. Once an error is submitted for correction, any of the following reports will be reviewed to verify corrective action was taken. Reference AFMCI 65-101.

18.19.8.1. NIMMS Report MN155R01, *Daily Valid Transactions*.

18.19.8.2. DIFMS Report 7310-412, *Daily Material Expenditures By Job Number*.

18.19.8.3. DIFMS Report 7310-427, *Weekly Material Expenditures Distribution By Direct Job Order.*

18.19.8.4. DIFMS Report 7310-469, *Aged Material In Transit*. Received a bill or credit bill from D035K; receipt or turn-in not processed; or cost on receipt or turn-in does not match bill.

18.19.8.5. DIFMS Report 7310-472, *Aged Accounts Payable*. Receipt for material processed but no bill has been received. Do not work anything from the prior month.

18.19.8.6. DIFMS Report 7310-478, *Aged Accounts Receivable*. Turn-in processed but have not received a credit bill or cost on credit bill does not match turn-in.

18.19.8.7. DIFMS Report 7310-484, *Aged Unmatched Bill.* Received bill but has no matching due or receipt.

18.19.8.8. DIFMS Report 7310-495, *Material Mismatched*. Excessive variance in bill, credit bill and receipt, and turn-in.

18.20. Backorder Management. AFI 23-101 provides the policy for effective backorder management through the establishment of management responsibilities and criteria for backorder reconciliation and cancellation. This involves the joint coordination/cooperation of the production personnel and PST/PSS. Under DMAPS, there is an interface from D035K to NIMMS that allows backorder validation on the NIMMS due-in records and proper synchronization of backorders in both systems. This process is also used to update Estimated Delivery Dates (EDDs) and priority changes not generated by NIMMS. Ensure backorders are canceled or file maintained prior to JONs moving to a JON status 2 in G004L. Backorders in excess of the quantity required to support

the number of end items on work will be determined to be excess and cancellation must be requested.

18.21. Teardown Deficiency Report (TDR) Processing. (Reference: AFMAN 91-222, Space Safety Investigation and Reports, and AFMAN 91-223, Aviation Safety Investigation and Reports).

18.21.1. General. ALCs must ensure the quality of procured items and products produced with organic resources. It is necessary for prime wholesale Item Management Specialists (IMSs)/MMs working with production shop schedulers to be aware of the quality of items in the Air Force inventory. This sometimes involves the withdrawal of material from the inventory to test, inspect, teardown, etc., to determine the actual condition, quality, or functionality of a part or assembly. This may be accomplished by initiating a temporary work order specifying analytical evaluation and submission of a TDR.

18.21.2. Policy: After the request and approval of a TDR has been received, the shop scheduler will requisition and turn-in items to support it.

18.21.3. Responsibilities.

18.21.3.1. Production will be responsible for the following actions:

18.21.3.1.1. Assign a maintenance group monitor for TDRs received.

18.21.3.1.2. Establish suspense files.

18.21.3.1.3. File the work requests/project directives and a copy of the G004L-L3A, by Material Improvement Project (MIP) number.

18.21.3.1.4. Ensure TDR documentation is completed and forwarded to the appropriate IM if the TDR was not processed through Joint Deficiency Reporting System (JDRS).

18.21.4. The shop scheduler will schedule exhibits into the appropriate production squadron shop based on assigned priorities.

18.21.5. Turn-in of material will be based on the disposition instructions in the AFSC Form 206.

18.22. PQDR Exhibit Processing.

18.22.1. Introduction. Process PQDR exhibits using the prescribing TO 00-35D-54. Policy in this portion together with TO 00-35D-54 shall be used to ensure funding, analysis, report preparation, rework if applicable, and/or return to service is accomplished in a timely manner to support the customer.

18.22.2. General. PQDR exhibits should be scheduled, inducted, and investigation initiated within 15 days of receipt at the ALC receiving and storage activity. Exhibit investigations shall be completed as expeditiously as possible but NLT than 20 days after receipt of Category I deficiencies and 30 days after receipt of Category II deficiencies.

18.22.3. Guidance. Exhibit investigations should be performed ahead of repairs of like MISTR items. Therefore EXPRESS should not drive nor preclude the investigation process unless required to satisfy MICAP demands. EXPRESS should be used once the investigation is completed to assist in determining if a requirement exists to return the asset to a serviceable

condition. If repair is authorized, the scheduler will contact the EXPRESS system POC and request a funded backout. After the funded backout is accomplished, the scheduler will input transactions to move the end item from the G job designator to the MISTR control number A job designator for repair actions. Exhibits will be returned to serviceable condition as soon as possible by processing them ahead of like MISTR items.

18.22.3.1. The support point will establish a method to monitor the status of PQDR investigations to ensure timely investigation, analysis, and trending. TO 00-35D-54 specifies requirements for providing exhibit investigation analysis results to the action point to prevent deficiency recurrence.

18.22.3.2. PQDR analysis and report preparation/investigation is always funded by the prime ALC regardless of the ultimate findings. The prime ALC is the ALC that manages the asset in question. The repair ALC will not perform PQDR investigations without being reimbursed.

18.22.4. Investigation and Restoration Policy For Un-Programmed Work. Un-programmed work is defined as any exchangeable workload where the repair ALC does not have an established permanent control number. This most commonly occurs where the repair ALC does not have the assigned workload responsibilities. A temporary JON on the type '6' project order is established and an AFSC Form 206 issued by the technical focal point (e.g., materiel manager (MM), equipment specialist, quality specialist, prime IM, etc.) to pay CSAG-M for investigations and/or any required work to return it to a serviceable condition. AFSC Form 206 must be received prior to the restoration process from the prime IM. The exception is where the investigation finds that the repair ALC is at fault (i.e., workmanship). The cost of conducting the investigation is still chargeable to the prime ALC. However, the cost to return the asset to a serviceable condition is charged to the repair ALC as rework (i.e., ALC absorbs costs). Direct charges to the customer are prohibited.

18.22.4.1. The Temporary Work Request process is not to be used for conducting investigations and restoring assets to a serviceable condition for programmed work on a normal basis. The only exception is where the scope of the investigation exceeds the normal PQDR analysis and report requirement covered using the PDN with 'G' job designator. In this instance, the repair activity should request that the Prime IM fund the extra expense using the AFSC Form 206.

18.22.5. Investigation and restoration policy for programmed work. Programmed work is defined as any exchangeable workload where the repair ALC has an established permanent control number. The PDN established for processing these items will have a job designator 'G' assigned. The labor standard for the 'G' job designator will cover the investigation (i.e., analysis and the report preparation). No repair is authorized (i.e., no rework hours in the labor standard) on these permanent JONs with the 'G' designator. Following the investigation, if the repair activity was not at fault for the deficiency and requirement exists to restore the asset to a serviceable condition, the scheduler will send a request for a funded backout to the EXPRESS system POC, the EXPRESS system POC will process a funded backout, and the repair ALC will 'wash-post' from the analysis PDN (i.e., 'G' job designator) to the exchangeable repair/overhaul PDN (i.e., 'A' job designator). This ensures all expenses/revenues move to the 'A' job designator and the customer is charged. If the repair activity is at fault (i.e., workmanship), the repair of the item if a requirement exists is

accomplished using the 'G' job designator as rework. Since the 'G' job designator does not include rework hours in the labor standard, the ALC absorbs this cost. Production count is not taken, direct labor costs are charged to the RC/CC where performed, and direct material is charged to X56406800000 Rework. Expense is recorded but the customer is not charged.

18.22.6. For PQDRs evaluated on a permanent PDN, the CSAG-M has the option to do the following procedures:

18.22.6.1. Develop a control number with 'G' job designator for each item worked in a given shop. This may be required in shops with a wide variety of items where the labor standard and cost for evaluation would differ greatly.

18.22.6.2. Develop a control number with a 'G' job designator for each shop/customer combination (i.e., develop one control number funded by WR-ALC for MAPG9L and one control number funded by OC for MAPG9L). Shops with only one customer would only have one DR control number while shops with 5 customers would have 5 control numbers under this option. The key is the proper shop earns hours and dollars and the proper customer pays for the evaluation.

18.22.7. If the RC/CC was not able to duplicate the reported deficiency and the unit passed all functional test requirements, the unit will be condition tagged as serviceable and returned to the supply system. Wash-post procedures will not be used. This applies to both programmed and un-programmed work.

18.22.8. Rework of PQDR Exhibits. When the analysis of the PQDR exhibit determines that the RC/CC where the work was accomplished was not at fault, the process to restore the exhibit to a serviceable condition will be accomplished by that RC/CC as new work using wash-post procedures to the 'A' job designator as described above. When the analysis of the PQDR exhibit determines that the RC/CC where the work was accomplished was at fault, the work to restore the exhibit to a serviceable condition will be accomplished by that RC/CC as rework.

18.22.8.1. For those items undergoing rework, a production count will not be taken and direct labor costs are tracked in TAA on a rework JON. Induct exhibit into repair process using the 'G' job designator for permanent workloads or a temporary control number (i.e., T-job) funded from an approved AFSC Form 206 for un-programmed workloads. Un-programmed workloads shall be inducted within 15 workdays of approval. Process exhibits ahead of routine production like items.

18.22.9. ALC Reported PQDRs. When a deficient item is discovered by an ALC user from another ALC repair line, the item must be processed with proper notification to the prime ALC. No work will be accomplished on these items without proper prime ALC direction. When an ALC initiates a PQDR on material provided or repaired by another RC/CC, the above procedures apply. When management elects to correct the deficiency without prime or managing ALC direction, the item will be processed and expensed as rework. Any direct material used will be charged according to the same instructions for the rework of PQDR exhibits described above. No earned hour credit to a JON or charges to a customer will be made.

18.22.9.1. Procedures for Costing PQDR MISTR Workload. An AFMC Form 181 will be issued quarterly by the prime ALC where the material management function is located

to cover this workload. Each repair ALC performing this type of workload must receive the AFMC Form 181 from each prime ALC.

18.22.9.2. Documentation. To provide a proper audit documentation trail, written notification of the exhibit numbers by NSN must be provided to the processing MXG. This notice may be maintained centrally or in the responsible scheduler's file per local option. A DD Form 2332 will accompany each exhibit sent to the repair ALC for processing (**Note:** No exhibits will be accepted for processing by the repair ALC without the DD Form 2332). A copy of the DD Form 2332 and the communications notice (i.e., message or other) is sufficient information for an audit trail.

18.23. Reporting Packaging and Handling Deficiencies. Use AFMAN 23-125 (IP), *Stock Readiness* and DoD 4000.25-M, *Defense Logistics Management System (DMLS), Volume 2, Supply Standards And Procedures,* for reporting packaging/handling damage.

18.24. Processing Material Received with Discrepancies. Use AFMAN 23-125 (IP) DoD 4000.25-M, Volume 2, Chapter 17, for reporting material discrepancies.

18.25. Classified Material and Related Documents.

18.25.1. Classified documents are processed and filed according to AFI 16-1404. Document retention is prescribed by DoD 5200.2-R, DoD *Personnel Security Program (PSP)*, AFI 33-364, and AFI 23-101.

18.25.2. Only individuals identified by appropriate receipt authorization may receive property that has a security classification.

18.25.3. NWRM will be handled IAW AFI 20-110. The policies identified in the AFI are additive or enhancements to the existing policies and guidance.

18.25.4. Classified material must be completely declassified prior to turn-in to the DLADS. The specific TO for the item or system may provide declassification/demilitarization instructions. However, the Inventory Control Point (ICP) must be contacted for assistance when the TO is not available or does not provide instructions. Basic declassification/demilitarization guidance is provided in DoD Manual 4160.28 Volume 3 Defense Demilitarization. All personnel must ensure that all classified parts or components of an item must be removed or destroyed prior to release of the material to DLADS. A condemned item beyond economical repair is not a satisfactory substitute for actually performing the declassification/demilitarization actions. After declassification, all references to the classification must be removed or obliterated.

18.26. Reusable Container Management. Conservation and protection of government materials is the responsibility of all government employees (reference AFI 24-602V2, Cargo Movement).

18.26.1. Personnel will comply with appropriate unpacking methods and container reclamation. The following guidelines apply:

18.26.2. Disposal areas for reusable containers, pallets, wooden crates, trash, scraps, etc., must be clearly marked. Serviceable and reparable items must be kept away from these areas.

18.26.3. Reusable containers will be inspected and verified as empty before they are processed out of maintenance to reclamation. AFSC Form 101, *Verification of Content Removal Tag*, and AFSC Form 102, *Verification of Content Removal Label*, are appropriate for verification

that containers are empty. A single AFSC Form 101 or AFSC Form 102 may be used on unitized or consolidated loads of empty containers in lieu of on each individual container. Local printing is authorized to preprint repetitive information.

18.27. Control and Review of High Priority Material Requests. Maintenance personnel may request that a due-in requisition be upgraded to MICAP status when the unavailability of parts exists within 31 days of an operational/functional check (i.e., critical path completion). The PST will complete research before requesting a MICAP upgrade to ensure there is not another source for the parts including alternate part number, suitable substitute, material in the custody of depot maintenance [i.e., Y-Material Inventory Center (Y-MIC)], reclaimed material, or cannibalization opportunity.

18.27.1. Bench stock outages causing a work stoppage situation. DLA should be notified immediately when production personnel require a part and the bin is empty or there is not adequate supply to support the requirement.

18.27.2. Maintenance personnel will document research and approvals for all MICAP requests either electronically or with hardcopy using the worksheet at **Table 18.15.** or a locally developed equivalent. Documentation will be retained IAW the Records Disposition Schedule.

18.28. Critical Item Control. EXPRESS prioritizes the repair requirements for induction and the identification of parts problems and production constraints on a daily basis. This process ensures correct priority process is on track, seeks methods of support improvement, and applies the necessary resources to get the job done. Informal and formal Exchangeable meetings are used to ensure the depot repair. During these meetings, the 'Top 10' problem items (i.e., these are most likely AWP items), as a minimum, will be reviewed.

18.29. Sensitive Item Control.

18.29.1. General. Sensitive items must be controlled, secured from pilferage, and provided to production personnel on an 'as-required' basis. Sensitive items delivered to production will be marked SENSITIVE ITEM. Signatures are required when issuing and turning in sensitive items. The following sensitive item codes are applicable:

18.29.1.1. P - Ammunition and Explosives.

18.29.1.2. Q - Narcotics.

18.29.1.3. R - Precious Metals (i.e., limited to items that contain enough precious metals to make the removal of such metal economically attractive).

18.29.2. Responsibilities. Production shop personnel must participate in the effective control and use of sensitive items. Shop personnel must also ensure that sensitive items are secured from pilferage.

18.30. Processing Storage Restriction Items.

18.30.1. General. Explosive and armament items, AF Form 2692 items, and other items subject to regulatory storage restrictions while end items, primarily aircraft, are undergoing repair will be turned in and withdrawn from hold storage areas using AFSC Form 959. This applies to items temporarily removed by production and later reinstalled. Explosive items

may be stored temporarily in production areas certified by the Base Safety Office. Reference AFMAN 91-201.

18.30.2. Responsibilities. It is the responsibility of the PSS to maintain control over all hold items for the shop being supported. The PSS will assist the production shop in completing and maintaining the required documentation.

18.31. Disassembly and Reclamation.

18.31.1. Disassembly. Disassembly at the ALCs is the authorized removal of an assembly, subassembly, or component part from end items still on property accounting records in the Air Force inventory. Disassembly will be accomplished at the direction of the responsible IM to satisfy reclamation requirements. In all cases, the end item is returned to supply stock in a condition designated by the IM/MM on the AFSC Form 206. Other residual material from the reclaim action will be disposed of IAW the special instructions on the AFSC Form 206. This work normally done in the MXG shop may be done in an area designated by supply in the case of large or bulky end items.

18.31.2. Reclamation Responsibilities to Accomplish.

18.31.2.1. Prime MMs will issue AFSC Form 206 to the responsible exchangeable workloader who will review the AFSC Form 206 to ensure the special instructions are adequate before sending to the IET to prepare the AFSC Form 237. The IET will send the AFSC Form 206 to the appropriate scheduler in the PSS.

18.31.2.2. The scheduler will review the work request and job order, evaluate the required shop resources and the shop resources already committed to other workloads, and schedule the job order into the shop. The scheduler will then order the items to be disassembled from supply and maintain status of the project until completed. Actions will be coordinated between DLA and production shop IAW with disposition instructions on the AFSC Form 206.

18.31.3. Instructions for Disassembly and Reclamation.

18.31.3.1. The prime IM/MM will initiate the AFSC Form 206 and send the AFSC Form 206 to the MXG workload function.

18.31.3.2. The IET will process a G004L-L3A and deliver the work package to the applicable scheduler using an L job designator.

18.31.3.3. The scheduler for the production shop accomplishing the disassembly/reclamation will follow the procedures below:

18.31.3.3.1. Receive the work package from the IET.

18.31.3.3.2. Review resources required to accomplish the disassembly/reclamation, shop resources available, required completion date, and assign a priority or a projected start and completion date to the work.

18.31.3.3.3. Coordinate with the PSS on the delivery of the items.

18.31.3.3.4. Maintain status and location of the project until completed.

18.31.3.3.5. Schedule the items into the shop and arrival of the end items in the MXG.

18.31.3.3.6. Coordinate with DLA on the receiving of parts and end items from the production shop.

18.31.3.3.7. Close out the work package when the project is completed.

18.31.3.4. PSS personnel supporting the disassembly/reclamation production shop will follow these procedures to include cap/cover/plug requirements associated with the FOD prevention program. Reference **Chapter 13**.

18.31.3.4.1. Deliver end items and G004L-L3A to the production shop when directed by the shop scheduler.

18.31.3.4.2. Receive end items, removed parts, and G004L-L3A from the shop.

18.31.3.4.3. Turn in reclaimed parts according to disposition instructions in block 19 of the AFSC Form 206.

18.31.3.4.4. Production shop accomplishing the disassembly/reclamation will follow these procedures:

18.31.3.4.4.1. Receive end items and G004L-L3A from the scheduler and remove parts from end items as specified on the G004L-L3A.

18.31.3.4.4.2. Identify the removed parts with the appropriate condition tag. Turn in disassembled or reclaimed parts according to disposition instructions in block 19 of the AFSC Form 206. These instructions must not allow maintenance to gain financial credit for the turn-in of reclaimed parts. These parts will need to be turned in via G402A's MIS-ID/FOB/Reclaim Stuffer Print Screen, using type trans code D6L. The MN045P screen in NIMMS may also be used to create a Found on Base turn in in NIMMS as a Found on Base (FOB).

18.31.3.4.4.3. The production shop will tag the disassembled end item with the condition code as directed by the prime MM and turn it in to supply. List removed parts on the back of the DD Form 1577-2, *Unserviceable (Reparable) Tag Materiel*. Reclamation instructions on the AFSC Form 206 may not require a turn-in for the end item but may direct the disposal of scrap.

18.31.3.4.4.4. Small reclaimed items with low dollar amount may be kept on the shop floor if it is indicated on the AFSC Form 206 by the prime MM to do so. These items will be owned by maintenance and will be maintained and inventoried by the PST/PSS (manual or electronic) to account for the reclaimed material using the same procedures as specified for controlling of bench stock as prescribed in paragraph 18.43. A demand history adjustment (DHA) transaction process will be used where applicable to ensure DLA is informed of usage. Reclaimed material will require a serviceable tag and locations and will be labeled with NSN or P/N and noun.

18.31.3.4.4.5. Notify the scheduler that disassembly/reclamation is complete.

18.31.4. Reclamation as directed by an AFMC Form 202. If an AFMC Form 202 identifies reclamation actions, piece/parts reclaimed will be managed IAW paragraph 18.31.3.4.4.4. A copy of the AFMC Form 202 will remain with the reclaimed material showing authorization of actions.

18.32. Loan Property Procedures. MXG planning teams will determine loan property requirements.

18.32.1. Obtain written permission from the Air Force prime MM for Air Force managed investment assets. This approval may consist of an AFSC Form 206, a MOA, or other written permission. Notify the appropriate PSS chief of requirements for loan property.

18.32.2. MXG planning team personnel will notify DLA personnel of requirements for loan property and include, RC/CC, NSN, Quantity, Condition Code, and return date as required and agreed upon by the supply activity (IM) and DLA.

18.32.3. Receive loan property and deliver to requestor.

18.32.4. A D6A turn in will be processed in NIMMS with the same document number it was issued on. Provide the asset along with the 1348-1A to DLA-A for the return to supply

18.33. Management of Cannibalization (CANN) Actions.

18.33.1. A CANN action is defined as the authorized removal of a specific assembly, subassembly, or part from one weapon system, support system, or equipment end item for installation on another end item to satisfy an existing supply requisition and to meet priority mission requirements with an obligation to replace the removed item. CANN actions are considered workaround processes that are utilized solely to bridge supply system gaps in providing parts. They are inefficient and drive up the total cost of depot maintenance. The intent of this policy is to ensure that accounting is recorded for all required CANN actions necessary to satisfy operational needs. CANN is one of the last methods for satisfying the part requirement and is meant to be a temporary fix and not a normal process/practice.

18.33.1.1. 309th AMARG Only. Use AFSC Form 206 for each CANN or ROB-BACK action. The technician will complete AFSC Form 206 with required data and the supervisor or designee reviews. The cannibalization authorities approve and the workloader submits a copy to the IM/SOS who will ultimately approve and fund the cannibalization action. The project scheduler will monitor and track cannibalization occurrences and costs. The production flight submits the AFSC Form 206 to Forward Supply for 'Mark For' change on backorder part. The original part request will maintain the WCD number for the gaining aircraft but be modified to show the donor aircraft as the 'Mark For' ensuring the gaining aircraft will be charged the cost of material.

18.33.1.1.1. 309th AMARG Only. Customer funds based on accepted valid customer order from IM/SOS will create a separate project/task to charge the removal/installation of the cannibalized part from the donor aircraft. The planner then will create a WCD for the removal/installation of the parts. No labor transaction should take place until the project is established.

18.33.1.2. 309th AMARG Only. CANN transactions will be managed in MAXIMO through inputs by the project IET and scheduling by the project scheduler. The task field of ACT will be used by entering 'T' for CANN Action Removal and 'U' for CANN Action ReInstallation on the appropriate task. The forward supply technician will input a 'Mark For' change for correct end item. The 309th AMARG Financial Services (OBF) will ensure the cost of the part is charged to the correct end item IAW the WCD.

18.33.1.2.1. 309th AMARG Only. Backrobbing (i.e., 'rob-back'). The gaining aircraft will be charged the cost of the material and labor for installation. The WCD referencing the original part order for the gaining aircraft will include a 'Mark For' in SBSS to reflect the donor aircraft. The work order status for the gaining aircraft will be changed to waiting material (WMATL) until the part is issued to the donating aircraft. This will allow the correct charge to the gaining aircraft customer. The NSN of the 'borrowed' part will be entered in the Work Order Material tab referencing the removal operation and citing the Backrobbing Storeroom.

18.33.1.2.2. 309th AMARG Only. When the part is removed from a donor aircraft to be installed on the gaining aircraft, a work order will be prepared that has a work category of 'UNBILLABLE MAINT' and will cite the donor aircraft's oracle finance (OF) Project and Task.

18.33.2. Approval for CANN of inducted items is within the authority of the ALC group commander/director or designee. The MXG/CC or director/designee will approve all CANN actions prior to parts being removed from any PDM inducted asset.

18.33.3. The mechanic will determine the need for a part, research technical data for the P/N, and complete AFSC Form 95 or equivalent with the following information: P/N, noun, TO, figure, index, operation number, and skill code. This information will be provided to the PST. If the part that is being replaced is an exchangeable asset, condition tag the asset as either 'F' or 'Q' condition and take the part to the PST. If the exchangeable asset is 'Q', initiate a QDR. Provide notification to the ALS and the PST that a replacement will be required.

18.33.4. The ALS will determine if MICAP EDD will support the current maintenance schedule and if not, review what if any CANN options exist. Coordinate with the master scheduler or designated alternate to determine the 'donor' aircraft or end item. The master scheduler will coordinate with production to determine which aircraft will be the donor aircraft. **Note:** When determining 'donor' aircraft, consideration will be given to an aircraft that already has the asset stored in a TNB, FOM cage, or on the shop floor and is early in the repair cycle. The MXG/CC or director/designee must approve the CANN action. The ALS will be responsible for the process to include the management of the CANN information. The ALS will provide mechanic's name, P/N, noun, TO reference, serial number, Work Unit Code (WUC), How Malfunctioned (HOW MAL) code, gaining aircraft number/JON, the 'recommended' donor aircraft number/JON, and operation number. Provide total labor hours and work control WCDs for all required additional work for both aircraft obtained from or entered by the IET for gaining and losing aircraft. **Note:** This includes removing the part to be cannibalized from the donor aircraft, installing the replacement part on the donor aircraft, and then performing the operational check (OPS) if required. Contact the PST of the gaining aircraft to determine the availability of the needed part in the supply system. Ensure that the required part is in backorder status and is established by the correct planned or unplanned operation number. Have the gaining PST complete the information for the SOS, DIFM item, MICAP, backorder document number, NSN, P/N, noun, and cost of the part. Also include the EDD of the ordered part. Ensure proper transfer of the AFTO Form 95 for all items requiring this transaction.

18.33.5. The gaining PST will check the supply system for status of the requested part. Complete the SOS, DIFM item, MICAP, backorder document number, NSN, P/N, noun, and

cost of the part. Include the EDD of the ordered part. Use the NIMMS/MN090P Store Material Record Inquiry by National Item Identification Number (NIIN) screen to check for material available in the maintenance courtesy stores (i.e., X, Y, Z). **Note:** If the asset is available on base, the CANN process stops. Assistance should be requested from DLA-A or DLA-DD to have the part delivery expedited.

18.33.6. Use D035K/RINA Retail Transaction History Inquiry screen for NSN history of material releases. Ensure a D7A/D7R serviceable backorder request is on order in D035K using the RINF Backorder Detail Inquiry screen and ensure a due-in is on order in D035K using the RING Due-In Detail Inquiry screen. Determine the impact of the EDD to the critical path of the aircraft that needs the backordered item. Using the MICAP worksheet (i.e., template provided by DLA MICAP monitor or the Maintenance Complex checklist), notify DLA CSS on the status of the backorder EDD if beyond RDD to have the part upgraded to MICAP status. Ensure mechanic turns in part for a one-for-one exchange if it is an exchangeable asset DIFM or a QDR. Process CANN/rob-back transaction in NIMMS on the MN026P Backrobbing Transaction screen to roll the JON on the backorder from the gaining aircraft to the losing aircraft. This transaction allows for transfer of Material Due Record requirements by changing the Material Due Record JON/Shop from a donor JON/Shop to a benefiting JON/Shop and creating financial records charging the benefiting JON and crediting the donor JON.

18.33.7. The IET will receive a notification from the ALS or CANN monitor. Upon notification and the ALS has initiated a CANN action in the Maintenance Work Request (MWR) system and review the WUC and HOW MAL code for accuracy. It is important that the IET choose 'CANN' when completing work category description. Determine the total labor hours cost for removal and installation on the losing aircraft.

18.33.8. The donor Forward Logistics Specialist (FLS) will notify donor ALS when the part has been removed from the aircraft. Downgrade the MICAP if requirement is not within 31 days of OPS check. Continue to track the part until it is received. Once the part is received, issue the part to the mechanic requiring the part or store it in the aircraft TNB or FOM cage for the correct aircraft until required.

18.33.9. Ensure production personnel document and notify the SCM or SPO/SPDs when CANN of TCTO kit parts are required to meet specific end item production schedules.

18.33.10. Process of Monthly Reporting of CANN Actions to AFSC/LZD. Each ALC will collect and report on a monthly basis the total number of depot maintenance CANN actions for the assigned weapon system to AFSC/LZD for review and compilation. This data shall be segmented as requested and will be reported utilizing two separate attachments: PDM CANN Report (i.e., CANNs completed to support the ALC) and Field CANN Report (i.e., CANNs completed to support the Field). Specifically the data reported to AFSC/LZD in each of these reports will consist of the following:

18.33.10.1. Date. The month, day, and year the action was completed.

18.33.10.2. Number of PDM CANNs (or Field CANNs). The total quantity per action.

18.33.10.3. AFSC Form 206 completed? (Y/N) and AFSC Form 206 Funded? (Y/N). This applies to field CANN requests. PDM CANNs will be charged to the overhead of the benefiting RC/CC.

18.33.10.4. NSN. The NSN of the part removed.

18.33.10.5. Noun (Item Description). The nomenclature of the part removed.

18.33.10.6. Removal Hours. The total hours required by the mechanic/technician to complete the removal of the items.

18.33.10.7. RC/CC. The lowest organized unit within Depot Maintenance at which costs are collected.

18.33.10.8. Reason/Comments. Explanation as to why the action occurred along with any other applicable information.

18.33.10.9. End Item Designator. MDS for aircraft or missiles, TMS for engines and OMEI, or NSN for Exchangeables.

18.34. Recovering Unbudgeted Workaround Costs Caused by Parts Shortages. The following procedures provide guidance for Depot Maintenance and SCMs to recover costs for specific situations involving parts shortages.

18.34.1. Requirements Over and Above Aircraft Missile Requirements Data (AMRD) Specifications. This case applies whenever the organic depot maintenance activity has to remove/refurbish/reinstall material items to make a production end item minimally acceptable until a serviceable item is available because the item was unavailable from the source of supply. The D035K demand counter, NIMMS cost data, and G005M usage history will need to be manually updated to account for the hidden demand.

18.34.2. The PST will notify DLA to capture a DHA when a workaround is required due to non-availability of a DLA managed item at the time of the maintenance need. The PST will report the workaround demand data to DLA by cancelling the backorder in NIMMS. Using the MN123P Backorder Modify/Cancel screen in NIMMS, the PST will cancel the backorder by entering the document number, document ID, and placing a 'Y' in the 'IS THIS A DEMAND HISTORY ACTION?' block. (**Note:** This block will only accept a 'Y' or blank.) The backorder cancellation automatically overlays from NIMMS to G402A, then to D035K, and then back to G402A Component Transaction History. The transaction is also added to the mndhad01 file for processing into G005M. Workarounds include the following: Reclamation, removing material components from an end not being overhauled, GPC, and an AFMC Form 202.

18.35. Procedures for Control of Production Items AWP. Use of the AFSC Form 503, AWP Checklist/Worksheet, is mandatory. When a component part is ordered using the end item document number, the RDD, and the SRD, the backorder will be coded as AWP and linked to that end item. The priority must be B3 or higher to update the end item database in D035K. When the decision is made to move the end item from on-work status to formal AWP status, all backorders are redirected to be delivered to the AWP store and the end item is moved into AWP storage. Additional procedures for the control and processing of AWP end items and AWP component parts are contained in AFI 23-101.

18.35.1. All backorders against an end item are now considered AWP backorders regardless if the end item is in AWP or OWO status. The scheduler in coordination with the production shop supervisor determines if the end item will remain OWO. When work must stop due to parts problems, the end item in most cases and if practical will be moved to the DLA AWP

storage area. The Squadron Commander/Director must weigh the level of risk they are willing to accept that additional customer requirements will generate.

18.35.2. DLA is responsible for storage of Depot AWP.

18.35.3. AWP Management. D035K is the accountable system for the management of AWP. ABOM is used as the input system for parts ordering. D035K will link the end item and component piece parts under program control (electronically) and will pass AWP updates to NIMMS/ABOM. This allows for automatic AWP reporting and management in D035K and ABOM. When AWP items become fully supportable, D035K overwrites AWP with FWP. FWP is a code defined as an item previously in AWP status that is ready for scheduling and repair. The funded end items will always be inducted for work first and the scheduler is responsible to ensure this occurs.

18.35.4. AWP Procedures for Non-Programmed Workloads.

18.35.4.1. All temporary workloads should be processed using AFSC Form 206. When requisitioning material, enter the end item document number, SRD, and RDD just like a permanent workload. D035K will then automatically code piece part requisitions as AWP with advice code 6N. The end items for the non-programmed temporary workload will be assigned an AWP-G condition code in D035K when a backorder exists for component material. (**Note:** This processing and tracking of AWP is totally independent of whether or not the end item remains OWO.) When all the component parts have been received or canceled, D035K will automatically change the AWP-G to AWP-F (i.e., fully supportable). D035K will output a notification to the PSS of the condition change, parts will be delivered, and work can be completed.

18.35.4.2. Typically, non-programmed temporary workload is not inducted unless it is fully supportable. Once it is placed OWO, it typically stays in that condition until completed. The JOQ can be changed based on changes in customer requirements. The AWP process exists, however, for those unplanned occurrences when the JOQ is locked due to customer requirements and a backorder situation exists. The D035K AWP process as supported by ABOM AWP Management allows these component backorders to be tracked under the AWP process. The JOQ is not reduced in these situations.

18.35.4.3. The D035K AWP process as supported by ABOM AWP Management should not be used for T-jobs that are for repair/manufacture. T-jobs for such things as inspections, rework, testing, etc., shall be exempt. The AFSC Form 206 should be negotiated with the customer to reflect a JOQ that can be produced based on best available data. If after opening the T-job material is found to be unavailable, the maintenance activity may use one of two approaches:

18.35.4.3.1. Contact the customer and negotiate a lower JOQ to match what can be produced. If this is acceptable to the customer, reduce the JOQ to actual completions, close out the AFSC Form 206, and cancel any backorders.

18.35.5. Disposition of AWP End Items. When repair parts will not be received to immediately support an inducted end item, the scheduler in coordination with the production shop supervisor must determine the disposition of the end item. The scheduler has three basic options:

18.35.5.1. Leave the end item on OWO if the delivery of piece parts is expected to meet customer requirements for end item delivery.

18.35.5.2. If the current quantity of AWP end items on the D035K records does not exceed the yearly demand rate plus Net Repair Objective (NRO) and the delivery of piece parts will not meet the customer end item delivery requirement, the item will be moved to formal AWP. The end item and piece parts should be stored in the AWP store. EXPRESS will drive another end item to fill the requirement excluding T-jobs.

18.35.5.3. If the current quantity of AWP end items on the D035K record exceeds the yearly demand rate plus NRO and the delivery of piece parts will not meet the customer end item delivery requirement, no further end items should be inducted and no further end items should be placed in AWP status. An action plan is required to resolve the support problems. Maintenance must request disposition action from the IM. CANN of other end items is one of the primary supportability options of the IM/MM to provide support for assets that are constrained for parts. If CANN is chosen, follow the process and procedures in paragraph 18.33. Disposition of the cannibalized end item including the determination of the turn-in condition code is the Prime IM's responsibility. This process is required to prevent the stacking up of end items in AWP-G and F-condition status that have no current repair requirement.

18.35.5.3.1. Within five working days of disposition request, the Prime IM must provide specific disposition instructions, other than F condition, for aged AWP-F end items when there is no NRO through EXPRESS after 180 days. Component piece parts will be dispositioned IAW established guidance.

18.35.5.3.2. Within five working days of disposition request, the Prime IM must provide specific disposition instructions, other than F condition, for aged AWP-G ('Hangar Queens') end items when there are no future requirements or backorder component EDD exceeds 24 months and supply assistance requests have had negative results. Component piece parts will be dispositioned IAW established guidance.

18.35.6. Procedures for Validation and Management of AWP Backorders. The PSS will coordinate with DLA to review all AWP components for AWP end items and use them to ensure as many end items as possible are fully parts supportable. The PSS is responsible for reviewing the Supportability Report and the Exception Report in ABOM. Review entries for components on-hand, positive due-in status for each backorder, and cancel invalid backorders. As a minimum, these reports must be reviewed weekly. The on-hand components will be moved to the AWP end item that can be made fully parts supportable. This may require several components to be moved. Unless all backorders can be filled by this process, the end item will not be repaired and the parts will be used for an end item that can be made fully supportable.

18.35.7. The process for Turn-in of Formal AWP End Items after disposition instructions are received from the IM is as follows:

18.35.7.1. The PSS will coordinate with DLA to review the AWP component part list in ABOM to identify parts received, outstanding due-outs, and cancel AWP component part list for this end item. The AWP Component Part list is reviewed when engineering

changes occur, when cancellation of parts, when CANN for parts occurs, and when items are issued for AWP as part of the component part list.

18.35.7.2. For engineering changes, the PST will coordinate with DLA to review the AWP component part list for the purpose of issuing parts received and canceling or re-allocating existing backorders. The PSS inputs the new JON for the re-induction issues. After engineering review, an Engineering Change Notice (ECN) or an AMRD action may be submitted to allow the use of an existing asset.

18.35.7.2.1. For individual part cancellations, the PST reviews the AWP component parts list and removes the individual part from the list.

18.35.7.2.2. For individual part CANN of inducted items, the PST reviews the AWP component parts list and selects the individual part from the list.

18.35.7.2.3. For AWP component parts list issues, the PST reviews the list for discrepancies before issuing parts.

18.35.7.2.4. The formal AWP process should be completed by the PSS before turning the material over to DLA to manage in the X store to ensure cap/cover/plug requirements associated with the FOD prevention program. Reference **Chapter 13**.

18.35.8. AWP Prevention/Mitigation Guidance.

18.35.8.1. The Scheduler/Supply Chain Representative (SCR) will utilize the following procedures to manage items proposed for transfer to AWP status. The SCR will be used throughout the document to refer to the IM, the Material Management Team Lead (MMTL), or the PM.

18.35.8.2. AWP Flags.

18.35.8.2.1. EXPRESS will be updated to provide AWP Flag information. Pending implementation, the following procedures will be applied. The 448th SCMW will generate a weekly spreadsheet containing a list of all 448th SCMW managed AWP end item NSNs. The 'Enterprise AWP by Components' AWP spreadsheet will be updated weekly and posted on the 948th Supply Chain Management Group (SCMG) SharePoint site at the following link:

https://org.eis.afmc.af.mil/sites/948scmg/428scms/EXPRESS%20Carcass%20Constraint%20Tool/Forms/AllItems.aspx . Reference paragraph 18.35.8.2.2. for spreadsheet procedures.

18.35.8.2.1.1. The spreadsheet will display a color flag to alert schedulers for any End Item (EI) NSNs with a NRO that have existing formal AWP assets being reported. (**Note:** Formal AWP means an EI was inducted for repair but is now being stored in the NIMMS 'X' store.)

Figure 18.1. Flag Information.

- NRO is the difference between total needs (defined as backorders + working level) minus assets available to support the needs (serviceable items + items in work).
- The working level quantity (QTY) is provided by the RBL system. It is the quantity needed in depot repair plus the depot serviceable quantity needed to support worldwide customers.

18.35.8.2.1.2. EXPRESS calculates the total NRO and the supportable NRO.

Table 18.1. EXPRESS NRO Information.

Item	Information
1	The total NRO, generated during the EXPRESS prioritization process, identifies the number of assets that should be repaired.
2	The supportable NRO, derived during the EXPRESS supportability process, identifies the number of assets that should be and can be repaired. The supportable NRO is the induction quantity used in EXPRESS.
3	The spreadsheet imports data from EXPRESS and Stock Control System (i.e., D035) V4 Wholesale and Retail Receiving Shipping (WARRS) System (i.e., D035K/L). When an induction is recommended for an NSN and a formal AWP already exists, a flag is assigned to that induction. There are three types of flags: Green Flag - assigned when the quantity of EIs in formal AWP is equal to or less than 70 percent of yearly demand rate plus NRO. Yellow Flag - is assigned when the quantity of EIs in formal AWP exceeds 70 percent but is less than or equal to 85 percent of yearly demand rate plus NRO. Red Flag - assigned when the quantity of EIs in formal AWP exceeds 85 percent of the yearly demand rate plus NRO.

18.35.8.2.2. Spreadsheet Procedures.

18.35.8.2.2.1. Open the 'Enterprise AWP by Components' spreadsheet at: https://org.eis.afmc.af.mil/sites/948scmg/428scms/EXPRESS%20Carcass%20Constr aint%20Tool/Forms/AllItems.aspx.

18.35.8.2.2.2. Click on the tab 'AWP Not Authorized'.

18.35.8.2.2.3. Use the filter to identify the SOR/location of the AWP EI in the 'D035 Acct' (Column A). SORs are shown below.

Table 18.2. Filter to identify SOR/location.

Filter	SOR/Location
OO	OO-ALC (i.e.M Hill)
OC	OC-ALC (i.e., Tinker)
WR	WR-ALC (i.e., Robins)

18.35.8.2.2.4. Filter by the SOS under 'EI SOS' (Column C) to identify EI management. SOSs are shown below.

Table 18.3. Filter to identify EI Management.

Filter	EI Management
FGZ	748th SCMG (OO-ALC)
FHZ	848th SCMG (OC-ALC)
FLZ	638th SCMG (WR-ALC)

18.35.8.2.2.5. Use the filter to exclude T-jobs under PCN (Column N) by using the custom filter 'does not contain T'. Next, click the option box where it says

'Text Filters' which brings up another option box and click 'Custom Filter'. In the left-hand box, click the down arrow, scroll to where it reads 'Does Not Begin With', select that option, then type 'T' into the text field.

18.35.8.2.2.6. There are other options to filter by PSSD (Column M) or PCN (Column N). These filters may help the scheduler identify and consolidate EI NSNs with flags (Column AQ) that require the notification of the SCR.

18.35.8.2.2.7. There is an option to filter for flags in the 'AWP Pct of Rqmt Color Code' (Column AQ). EI NSNs can be consolidated by selecting specific PSSDs and filtering for an individual flag, multiple flags, or all flags (Column AQ). Another option to aid in the use of the spreadsheet is to filter for type of flags and then filter for PSSD. Flags that can be filtered for are listed below.

Table 18.4. Flag Colors.

Item	Color
1	Green-New
2	Green
3	Yellow-New
4	Yellow
5	Red-New
6	Red

18.35.8.2.3. The scheduler will notify the SCR and the PST of an induction with an assigned flag under the following circumstances:

18.35.8.2.3.1. When a flag is Green-New and it is a first time formal AWP occurrence. A first time occurrence is defined as there are no other assets currently in formal AWP for that NSN. All other occurrences of a Green flag require no SCR notification.

18.35.8.2.3.2. All new Yellow and Red flag occurrences weekly.

18.35.8.2.4. Once notified, the SCR will determine within 48 hours whether an AWP Resolution Team meeting is to be convened.

18.35.8.3. AWP Resolution Team (ART).

18.35.8.3.1. The purpose of the ART is to resolve current and possible future bit and piece part supportability issues for identified NSNs.

18.35.8.3.2. ART Members.

18.35.8.3.2.1. The SCR chairs the ART meeting.

18.35.8.3.2.2. Mandatory ART members are the scheduler, PST, planner, and DLA CSS.

18.35.8.3.2.3. Additional personnel may be included as the need arises to include the members of the DSCM team.

18.35.8.3.3. ART Meeting. The meeting may be held in person, by teleconference, or through coordination between the offices concerned. Multiple meetings may be required to resolve parts supportability issues. An ART meeting is held when the following criteria are met:

18.35.8.3.3.1. Green-New Flagged Items (reference paragraph 18.35.8.2.3.1.). An ART meeting must be held for a first time formal AWP occurrence when an ART meeting has not been held for that NSN within the last six months or AWP worksheet (reference **Table 18.14.**) has not been completed and reviewed during an ART meeting within the last six months. Any other occurrences of a Green flag do not require an ART meeting.

18.35.8.3.3.2. Red-Flagged Items. An ART meeting must be held when an ART meeting has not been held for that NSN within the last six months or an AWP worksheet has not been completed and reviewed during an ART meeting within the last six months.

18.35.8.3.3.3. Yellow-Flagged Items. An ART meeting is not required but may be convened at the discretion of the SCR.

18.35.8.3.3.4. At least three business days prior to the ART meeting, the PST requests updated status on backordered component parts from the DLA CSS to be available at the ART. The DLA CSS should provide status updates within three business days. Status information should include contract delivery dates and delinquencies. Root cause identification should be included to ensure long-term resolution.

18.35.8.3.3.5. Prior to the meeting, the SCR will conduct a requirements review, a root cause determination, and a material solution to the parts issues causing the AWP status. If needed, the SCR can contact the DSCM team to request the strategic outlook on items and what work has been done to prevent future parts problems. The DSCM team will also provide instruction on how to gain access and use the DSCM Analysis Tool.

18.35.8.3.3.6. The following items are discussed at the meeting. This is not an all-inclusive list and other items may also be discussed. These and other topics should be considered for inclusion in the minutes of the ART meeting:

Table 18.5. Meeting discussion topics.

Item	Topic
1	Parts constraint overview with overall asset posture of the EI NSN and status on current piece-part constraints.
2	Purchase requests and contracts (e.g., quantities, first article results, delivery dates, expedite requests, incentive pay, delinquencies, etc.).
3	Forecasting issues.
4	Available work-around actions are: CANN actions, suitable substitute NSNs, availability of a NHA, local purchase, reclamation/testing/local repair/local manufacture, request for engineering action (e.g., reuse, temporarily expanded tolerance limits, etc.), and GPC purchases.

5	Root cause determination/analysis must be conducted for first time Green-New flag and all Red flag conditions and includes completion of the AWP worksheet.
6	Once the AWP worksheet is completed and reviewed and the root cause is identified, the ART can determine a plan of action and assign actions to mitigate the problem and prevent reoccurrence.
7	Placing an item into formal AWP when it exceeds yearly demand plus the NRO will be by exception only and requires Maintenance Squadron level approval and coordination at the SOS Supply Chain Management Squadron level.

18.35.8.3.3.7. Minutes of the meeting will be published by the chairperson/SCR.

Table 18.6. Minutes of the meeting.

Item	What to do/keep
1	A copy of the AWP worksheet is attached to the minutes.
2	The scheduler retains a copy of the minutes and the AWP worksheet with the scheduler's files until the EIs are removed from formal AWP storage.
3	The SCR retains a copy of the minutes and the AWP worksheet in the NSN History Folder.

18.35.8.3.3.8. The ART chairman will brief the root cause analysis and a 'get-well plan' for any Green-New flagged and any Red flagged AWP items at the monthly Exchangeable meeting formerly known as monthly Depot Repair Enhancement Program (DREP).

18.35.8.4. Additional Actions.

18.35.8.4.1. For newly assigned Yellow flag conditions, the scheduler evaluates the EXPRESS Predetermined Acceptance Probability (PAP) switch to determine if the percentage should be changed. The evaluation should include discussions with the PST, planner, and Production Chief.

18.35.8.4.2. For Red-flagged items, the SCR may determine there are excess EIs and discuss with scheduler disposition instructions and the turn-in condition code. EIs should not be moved from formal AWP storage just to achieve a lower quantity in formal AWP but the costs to remove, future requirements, and support of the weapon system should be of paramount consideration. The final decision on disposition and condition code resides with the SCR.

18.36. Process/Procedures for Managing Floating Stock and Floating Spares. Floating stock is material that is issued to production and will not be returned to the Naval Aviation (NAVAIR) Industrial Fund (NIF) 'F' store. Floating spares is material that is 'borrowed' from the 'F' store for use in testing, fault isolation, etc. and will be returned to the store after completion of the task. Floating spares/stock are considered NIF stores and will be managed the same as other NIF stores (i.e., X, Y, and Z).

18.36.1. General. NIMMS 'F' store is the accountable system for management of floating stock/floating spares inventory. Floating stock are ERRC code 'T' items authorized and

retained by the maintenance organization to support maintenance production by acting as replacement components for EIs whose sub-assemblies have repair times that exceed the repair time of the EI. Availability of floating stock reduces the repair flow time for impacted EIs. Items are ordered and maintained as CSAG-M inventory.

18.36.2. Authorization. MXG is authorized to maintain floating stocks supporting items removed from a higher assembly when the time allowed for routing and repairing the component item will impact the repair line critical path. The MXGs are authorized floating spares in support of ATE, initial or final test organizations, fault isolation, shop standard, training, stand-alone, test station, and -21 TO assets. Floating spares are also authorized in support of HQ AFMC engineering flight test organizations that must meet required flight test schedules and delivery range times. A completed AFSC Form 100, *Floating Line Fill Floating Stock,* is required for floating stock/floating spares authorization. The equipment custodian or shop supervisor will maintain the AFSC Form 100 either electronically or hard copy for as long as the floating stock/floating spares are required.

18.36.2.1. Floating stock can be requested and justified when an authorized repair capability for the floating stock item and NHA exists at the same ALC. Follow the procedures outlined in AFI 23-101.

18.36.2.2. When a repair capability for the floating stock items does not exist or when the repair is not authorized, floating stock items will be requested from supply. Floating stock should be used until adequate retail stock levels can be established to support non-job routed repair.

18.36.2.3. For those ALCs that utilize two-level maintenance, floating stock may be retained for job routed repair to support rapid turnaround times required of a primary or a secondary source of repair.

18.36.2.4. Floating stock is a scheduling tool and not a means to increase production's direct labor hour capacity. It should be used only to compensate for timing problems not lack of production capacity. For example, if production has the capacity to repair 10 ERRC T components and 10 higher assemblies per month but the components take 30 days to repair and the higher assemblies take only 15 days, floating stock is a logical option. However, if production has the capacity to repair only five components per month and 10 are needed, then floating stock is inappropriate and gross production capacity must be increased. The financial impacts of ordering floating stock material from the Material Support Division (MSD) must be considered. Floating stock will be utilized on an absolute minimum basis.

18.36.3. Responsibilities. The following responsibilities are provided for floating stock/floating spares.

18.36.3.1. The responsible shop supervisor and equipment custodian except as specified below will:

18.36.3.1.1. Determine floating stock/floating spares requirements and levels based on input from the production shop. The shop supervisor or equipment custodian will prepare, process, and maintain AFSC Form 100s for their respective maintenance groups. The approval authority for all floating stock/spare authorizations for

reparable XD assets is the requesting activity commander or designated representative. Forward a copy of the approved AFSC Form 100 to the applicable SCMS.

18.36.3.2. Validate authorized floating stock/floating spares requirements on the AFSC Form 100s with the balances in the NIMMS 'F' stores annually. A balance report can be requested from the NIMMS functional user. Annotate date of validation on the AFSC Form 100. As requirements change, add, or delete, a new AFSC Form 100 may be required.

18.36.4. Responsible Production Support Flight (PSF) will:

18.36.4.1. Assist in reviews of authorized floating stock/floating spares quantities as requested by DLA.

18.36.4.2. Inventory. The oversight responsibility lies with the PSF, and physical responsibility lies with the signer of the hand receipt electronic or hard copy and the assigned DLA-A Material Support Specialist (MSS). The hand receipt applies to floating spares only. Inventories will be conducted semi-annually at each ALC, and will be led by the shop supervisor or equipment custodian that signed the AFSC Form 100. The inventory will be collaborated with the DLA MSS.

18.36.4.3. Floating Stock/Floating Spares Restriction Code. This type storage is identified by each ALC 'store' to which floating stock/floating spare parts will be diverted and stored. The NIMMS inventory store includes an 'R' restriction code to designate floating stock/floating spares and to restrict issues from them.

18.36.4.3.1. Annual inventories will be conducted based on the inventory rules for the X, Y, and Z stores. ALCs are authorized to create COGNOS queries to extract the on hand floating stock/spares data or can use existing COGNOS tools for floating stock/spares. The ALCs can tailor and develop any required ad hoc floating stock/spares reports as required. Development of standardized floating stock/spares reports to be proposed and utilized across all three ALCs must be coordinated through the locally designated ALC DMAPS reports working group representatives. Preparation and submittal of DMAPS Problem Tracking System (PTS) reports may be utilized for the purpose of proposing new standardized floating stock/spares reports.

18.36.4.4. Issues From Supply, Request From the Store, or Turn-in of Floating Stock/Spares.

18.36.4.4.1. Turn-in of excess floating stock/spares will be given credit based on the item credit indicator. As a result, the cost of increasing or changing the mix of depot floating stock/spares will be absorbed by DMAG.

18.36.4.4.2. Issue to the Store (i.e., Floating Stock). Use the ABOM exchangeable screen in the exchangeable module to request the approved item from D035K using cost code 'S' and an inventory JON. After receipt of the asset, use the NIMMS MN044P, 'Turn-In to NIF Store*',* screen to transfer the asset into the floating stock inventory store.

18.36.4.4.3. Production Request for an Asset From the 'F' Store. Floating stock items are operated under DIFM/DOTM rules, therefore when requesting an asset from floating stock, an unserviceable asset must be available for the turn into supply. The asset will be issued manually from the 'F' store using the MN032P screen in NIMMS to satisfy the immediate requirement. An 'F' store replacement must be ordered by the PSS personnel using the DIFM/DOTM process. When the replacement is received, it will be returned to the 'F' store inventory balance. When requesting floating spares; PSS personnel will place the order in ABOM and contact the 'F' store manager that the 'F' store balance is increasing and when the item is issued from supply, the 'F' store manager will be provided with a copy of the hand receipt that was signed by maintenance. The floating spare may be returned to the 'F' store at the end of the task/shift or may be retained by the shop. If retained by the shop, the person that signed the hand receipt will make sure those assets are returned to the designated location at the end of the shift.

18.36.4.4.4. The 'F' store manager may use the NIMMS MN032P screen to issue floating spares from the NIMMS 'F' store inventory or may elect to use the hand receipt without processing the issue in NIMMS.

18.36.4.4.5. To receive credit for a floating spares turn-in (i.e., Q condition), PSS personnel will prepare and process the requirement through the NIMMS MN045P, 'Turn-in to Supply' screen, using Cost Code 'B' and a production JON. Follow instructions in 18.19.5.9.2.

18.36.4.4.6. Floating stock/spares that no longer have a requirement will be turned in from the NIMMS store to supply using the NIMMS MN041P, 'Returns Processor' screen.

18.36.5. Processing AFSC Form 100. Follow the procedures below for preparing AFSC Form 100 for floating stock and floating spares.

18.36.5.1. The shop supervisor or equipment custodian will file maintain these details to account for the assets. Part one of AFSC Form 100 will be prepared as follows:

18.36.5.1.1. Blocks 1 through 6. Enter appropriate office symbols and date. Signature required. If disapproved, reason for disapproval will be placed in Block 12 (i.e., remarks) and the form will be returned to the shop supervisor or equipment custodian.

18.36.5.1.2. Block 7. Enter the functional symbol (six-letter alpha) of the using/assembly RC/CC.

18.36.5.1.3. Block 8. Enter the noun, NSN, and ERRC of the preferred item.

18.36.5.1.4. Block 9. Enter the noun and NSN of the immediate NHA.

18.36.5.1.5. Block 10. Enter the noun of the production EI (e.g., aircraft engine, etc.) the floating stock supports.

18.36.5.1.6. Block 11. Make the entries in the floating stock computation section as stated on the form by use of the appropriate formula.

18.36.5.1.7. Block 12. Remarks/Source Data. Enter source document, date of data used for computations, and additional information or comments as appropriate.

18.36.5.1.8. Block 13. Authorization Serial Control Number (ASCN). Enter production section RC/CC, year, Julian date, and serial control number (Example: MPJAA-90-3650012). The initiating IET assigns the four-digit suffix code in each ASCN. The suffix is different for each floating stock request and once authorized, change requests and annual revalidations will contain the same ASCN as the initial request. **Note:** This is a serial number for the document and does not in any way relate to a physical serial number, if any, on the actual issued floating stock item.

18.36.5.1.9. Block 14. Point of Contact. Enter the name and telephone number of the MXG person to contact regarding the requirement.

18.36.5.1.10. Block 15. Coordination. For the Initial/Change/Revalidation/No Change area, check the appropriate block. Production/Scheduling supervisor coordination (signature required) and Engineering approval (if signature required) for initial request and upward change on AFSC Forms 100. Revalidation/No Change and downward change AFSC Forms 100 do not require internal coordination if initial request AFSC Form 100 has coordination. Re-accomplished floating stock items designated as 'NO CHANGEREQUIREMENT VALID' will contain the original ASCN.

18.36.5.1.11. Block 15 (continued). Quantity Requested. Enter quantity computed by formula in Block 9 rounded up to the next whole number if a fraction exists. Explain in remarks block if requested quantity is other than the quantity computed by formula in Block 9 rounded up to the next whole number if a fraction exists. For cost, enter product of quantity requested times unit cost.

18.36.5.1.12. Block 16. Approval/Disapproval. The MXG/CC or director will check the appropriate box and sign and date the AFSC Form 100. If the ALC checks either the Approved Other Than Requested or Disapproval box, an explanation will be required in Block 10. (**Note:** Coordination for amounts less than $50,000.00 can be signed by the designated group commander/director and amounts over $50,000.00 require coordination by the designated ALC/CC or director. If ALC signature is required, then the MXG/CC or director or designated representative will initial Block 16).

18.37. Organic Manufacture Procedures. Organic is defined as in-house, government civilian and military personnel work performed by CSAG-M personnel.

18.37.1. Use of Other Directives. Additional guidance for organic manufacture can be found in AFI 23-101 and AFMCI 21-100.

18.37.2. General. Organic manufacture is a significant portion of the total MXG workload within each ALC, therefore, it must be properly identified, documented, and reported to ensure the appropriate funding source is reimbursed for costs accrued in its accomplishment. Major sources for organic manufacture workloads are specific prime Material Management (MM) requirements, including exchangeable and aircraft predictable needs, DLA process, base, area, or line support, and equipment manufacture.

18.37.2.1. Roles and Responsibilities for Organic Manufacturing.

18.37.2.1.1. (Added) Production/Process Engineer will:

18.37.2.1.1.1. Apply roles and responsibilities from AFSCI 21-402, *Industrial Process Control*.

18.37.2.1.1.2. At no time shall the item condition affect form, fit, or function of an aircraft, engine, missile, or commodity without receiving proper documented coordination and approval from the Program Office/Supply Chain Engineering Authority.

18.37.2.1.1.3. Attend PPT meetings IAW paragraph 7.2.9.

18.37.2.1.1.4. Perform analysis on any end items that fail a First Article Test (FAT).

18.37.2.1.2. IET/Planner will:

18.37.2.1.2.1. Obtain technical data package from the Program Office/Supply Chain Engineering Authority, IAW paragraph 6.11.2.10.

18.37.2.1.2.2. In addition to applying roles and responsibilities in para 7.3.2. (PPT requirements apply to 206 workload being accomplished for the first time. PPT requirements are not intended for repeated 206 workload with existing WCDs, unless a WCD needs updating for a work scope change, technical data and/or an engineering change.), construct a WCD for each part. The WCD will include task sequence. See paragraph 7.2. for WCD requirements.

18.37.2.1.2.3. Ensure process sequence steps are noted on drawings, when applicable (during PPT).

18.37.2.1.2.4. Coordinate proposed/updates/additions/substitutions made to aircraft/engine/commodity end item technical data with the Program Office/Supply Chain Engineering Authority (i.e. AFMC Form 202, AFTO 22). Coordination will be documented IAW 18.37.2.1.3.2.

18.37.2.1.2.5. Determine and document verification requirements of raw material conformity. Determine if raw stock certificate of conformance is required or if lab verification of raw materials is required. Seek clarification of raw material verification requirements from the Program Office/Supply Chain Engineering Authority though an AFMC Form 202 if required. Raw material certifications will be tracked and recorded. When raw material cannot be specifically identified as to type, hardness, number, etc., as requested, analysis and proper identification by a qualified lab (e.g. Quality Verification Center (QVC), Metallurgy Lab) is required.

18.37.2.1.3. Production Controller/Scheduler will:

18.37.2.1.3.1. Apply all roles and responsibilities from paragraph 7.3.5. In particular, receive completed WCDs for each part and retain electronically or hard copy in an auditable file IAW paragraph 1.12.1.

18.37.2.1.3.2. Receive all technical data documentation for each part from the planner and retain electronically or maintain a hard copy in an auditable file

(with the applicable WCD) IAW paragraph 1.12.1. **Note:** This paragraph is referenced in **Chapter 10** 10.19.7.2.3. and 10.19.7.2.4.

18.37.2.1.3.3. Ensure end items requiring (from a Program Office Engineer and/or technical drawing) a First Article Test (FAT) are sent to a qualified lab (e.g. Quality Verification Center (QVC), Metallurgy Lab) for testing. Ensure results of the inspection or testing are documented in an auditable file and retained IAW paragraph 1.12.1. Items that pass FAT will be available for service; unless the item has been damaged or destroyed as part of the inspection. Items that fail FAT will be sent back to the shop for corrective action, and the production/process engineer will be notified for analysis

18.37.2.1.4. Quality Assurance Specialist will:

18.37.2.1.4.1. Apply all roles and responsibilities from **Chapter 8**.

18.37.3. Follow local procedures for reporting the completion of organic manufacture/fabrication of an item from raw materials or components (job designator K) for production assets issued from and returned to supply. The Scheduler checks the Special Instructions of the AFMC Form 206 for disposition of completed items.

18.37.3.1. The ABOM Local Manufacturing functions (or equivalent) are used to track transactions for material needed for Local Manufacturing items. These transactions are created against already existing Local Manufacturing BOM records received from a daily G004L (or equivalent) interface. The process allows for BOM transactions encompassing the requisition, receipt and issue of the material once all the requisitions have been satisfied. The Local Manufacturing Menu Screen is used to track Local Manufacturing BOM records created from a daily G004L interface. It provides for various functions, such as ordering and issuing items. One function of the Local Manufacturing Menu screen allows the user to query Local Manufacturing items. The Local Manufacturing Inquiry Response screen lists data for all BOM records fitting the query criteria entered on the Local Manufacturing Inquiry screen. The Local Manufacturing Report Menu screen gives the user report options as listed below.

18.37.3.1.1. Required NIINs with Insufficient Quantity. Lists information for a specific NIIN that has a material quantity on hand less than the quantity due.

18.37.3.1.2. Due Without Requirements. Lists outstanding material due records linked to the Local Manufacturing Stores in NIMMS which are not in ABOM Local Manufacturing.

18.37.3.2. Physical Turn-In. Items requiring physical turn-in will be processed as follows:

18.37.3.2.1. Verify NSN, control number, job designator (K only), and quantity.

18.37.3.2.2. Prepare transaction in required copies. (**Note:** Action suffix fields will be blank.)

18.37.3.2.3. Attach three copies of the output transaction securely to the items.

18.37.3.2.4. When the items are picked up by supply, the PSS will suspense one copy of the turn-in transaction in the jacket file. This transaction will not be input in any

data system. The G004L system will reject all D6 turn-ins with a K job designator and a DPC T. G004L will be updated by tape interface after supply inputs. When more than five workdays have elapsed since the physical turn-in, the PSS will contact supply for follow-up action.

18.37.3.2.4.1. Turn-ins of a K job designator with a DPC U will require the PSS to submit DD Form 250 or three copies of the DD Form 1149 ensuring Block 3 SHIP TO – MARK FOR has the specific instruction as to how to receipt the material in the supply warehouse (Example: 'receipt as D6U', 'receipt as D4U'), Block 6 the FB number only, and Block 9 AUTHORITY OR PURPOSE has the SC0 number. Refer to local ALC/OB office for correct data on filling out DD Form 250 and DD Form 1149.

18.37.3.2.5. Upon receipt of the G004L-L2A product for an organic manufactured turn-in, the PSS will verify all data with emphasis on the CN/JD.

18.37.3.2.6. When the PSS has items returned by central receiving with notification of erroneous NSN, quantities, or other data elements on a turn-in, prepare four copies of a corrected D6 turn-in with a new document number. When items are not returned, the PSS will furnish central receiving with the corrected data on three copies of the turn-in transaction and will annotate the suspense copies. The decision for the physical return of items is the responsibility of the PSS.

18.37.3.3. Wash Post Turn-in. Items requiring wash-post turn-in will be processed as follows:

18.37.3.3.1. Verify NSN, control number, job designator (K only), and quantity.

18.37.3.3.2. Prepare a D6 turn-in with two copies (action suffix, fields 79-80 will be WP).

18.37.3.3.3. The PSS will process the D6 wash-post to subtract the balance in D035K. After the balance is recorded, the Local Manufacturing PSS will review its issue suspense file to determine outstanding requirements, process all suspense D6 requirements, and notify the customer that the respective material is ready for pick up.

18.37.3.4. Errors Rejected in G004L-L2A. The single exception to these error codes for organic depot manufacture is error code S. Normally, the S code indicates that the stock number on a serviceable turn-in does not match the NSN on the EI master.

18.37.3.4.1. For organic depot manufactured items with a P prefix assigned EI identity (i.e., part number), the D035K system receives manual updates from the base support MMs. These manual NSN changes are tabled along with the mechanized stock list changes from D035K for 180 days and are used to automatically update all turn-ins against the old NSNs.

18.37.3.4.2. The G004L system will accept NSN changes from the D035K system on all turn-ins with a K job designator. This automatic NSN change from D035K to G004L depends totally upon the PSS entering the CN/JD in the turn-in transaction to D035K. If an incorrect CN/JD causes G004L to change an EI identity erroneously,

then the PSS must input a corrected transaction with PK action suffix to correct the G004L record for each JON with the identity change.

18.37.3.5. Special Processing Procedures For Line Support Organic Depot Manufacture. Manufacture for supporting the MXG production function will be either an initial requirement or a recurring requirement as explained below. When initiating a request for a part numbered item, the PSS queries the ABOM system through the Local Manufacturing functionality to determine if the item has been established. The ABOM system provides online capability. This action will determine whether to proceed as an initial requirement or a recurring requirement. Reference paragraph 18.31.

18.37.3.5.1. Local Manufacture Initial Procedures. PSS may initiate a DD Form 1348-6, *DoD Single Line Item Requisition System Document*, to DLA. (**Note:** An electronic or manual-long form may be used).DLA source codes the item, assigns a stock number, and loads the D035K ITEM record. After the stock number is assigned, a local issue request and a draft AFSC Form 206 is provided to the PSS to establish the backorder.

18.37.4. Local manufacturing supply parts shortages (both stock and non-stock listed items) shall be approved and funded through the prime MM and/or SCM. The AFMC Form 206 will be used to process these tasks IAW paragraph 6.11.2.10. This is to ensure the depot maintenance manufacturing organization recoups all costs incurred. Under no circumstances is depot maintenance to manufacture items and absorb the cost. The PSS shall track all manufacturing requests, (stock listed items and non-stock listed items shall be tracked separately) done solely to satisfy an emergency requirement for depot maintenance line support due to parts shortages. The number of items manufactured and the cost as shown on the AFMC Form 206 shall be tracked by originating RCC and gaining RCC. The occurrence of emergency local manufacture actions for stock listed items with an established level clearly indicates a supply support problem. This data can be used to analyze trends in supply support and should be discussed during Production meetings with the Supply Chain Manager.

18.38. Processing Issues and Turn-ins of DIOH Assets. Accounting for production EIs and resolving variances between the D035K and G004L can be found in **Chapter 14**.

18.39. Issue Receipt Processing. The PSS will check EIs received in the MXGs for stock number, quantity, and condition code. When production items are received and the RA suspense is not on the RA suspense screen in the G402A (EPS), the PSS will add an RA suspense in G402A (EPS) to the RA suspense screen using the correct CN/JD, quantity, and document number from the issue record.

18.40. Turn-in Processing. Production items received in central receiving from the PSS will be receipted by input of a turn-in RA (RT) to D035K via DSS. From this input, D035K will decrease the in-transit balance, clear the turn-in suspense, and increase the on-hand balance in the D035K system.

18.41. Erroneous Issues and Misidentified Items. Erroneous issues are items received with a different condition code or stock number than that requested before submission of a receipt acknowledgement. Misidentified items are items that have been receipted for by input of an RA transaction before discovering that the condition code or stock number is different from that requested. Production must close the ITS WCD in TAA prior to the PSS processing transactions.

Maintenance will prepare and attach the proper condition tag displaying the correct stock number and condition of the item.

18.42. Processing Overages/Shortages. Quantities received that vary from the quantity shown on the issue document will be reported by DLA.

18.43. Indirect and Bench Stock Material Control and Support. Bench stocks are items that because of repetitive consumption warrant being moved to the POU in advance of the actual need and immediately charged to the customer (i.e., the six-position Maintenance RC/CC). Bench stocks will be restricted to those items classified as indirect material and consisting of ERRC N or P items.

18.43.1. Establishment of Bench Stock Material. Each bench stock area will be identified by a separate and distinct six-position resource and function code by production personnel. (Example: MEPFRA). A lists of the items in the bins of each operating station area must be prepared and attached to the storage bins.

18.43.2. Bench stock material (ERRC N or P items) may be placed in a MXG in advance of actual need. Bench stock material is owned by the MXG. Repetitive consumption patterns may be used for determining material requirements. The using activity will be solely responsible for ensuring the retained or requested items and the quantities are the minimum essential items required to support the mission and future production.

18.43.3. For approved non-IPV bench stock, items may be added to or deleted from bench stock upon coordination with the IET, the production shops, and the PSS. Depot Maintenance Plant Management is exempt from mandatory use of the IPV contract. Reference AFSCI 23-101 "IPV Program". MSXG will manage bench stock as described in paragraph 15.11.3.

18.43.4. The PST, engineering, planning, and production shops should maintain responsibility for all bench stock adds or deletes not just for non-IPV bench stock. Reference AFSCI 23-101 "IPV Program".

18.43.5. Procedures for Bench Stock Operations.

18.43.5.1. Authorized Quantity. The authorized quantity for each item in the bench stock system initially is input when the item is established by the IET. This quantity will be derived from known requirements or based on past experience.

18.43.5.2. Exceptions. Projects and temporary job orders will not be established as bench stock unless there is sufficient history to temporarily establish a bench stock until the project or temporary job is completed.

18.43.5.3. ABOM System Leveling Qualifications. The authorized quantity will be reviewed on a quarterly update. The requirement to maintain levels in ABOM applies only to bench stock that is owned and managed by the MXG. Control of bench stock that is being managed by a contractor (i.e., IPV (AFSCI 23-101 "Industrial Product-Support Vendor (IPV) Program)) will be covered under the governing contract agreement. Any findings during any inspections should be addressed with the local IPV program management focal points as well as AFSC/LZD and DLA.

18.43.5.4. Location of Bench Stock Material.

18.43.5.4.1. Material will be assigned a location. If it is necessary to relocate an item, operating and indirect material/bench stock area locations must be changed. In addition, a reserve location may be established for high volume items and this location noted on the master bin tag in the indirect material/bench stock storage area. For IPV sub-located material (i.e., reserve material that cannot fit into the prime location), the contractor is authorized to store sub-located material in the designated locations provided by maintenance. The sub-located (i.e., reserve location) material will be marked with the prime bench stock location and other related information, and will be locked or secured. Reference AFSCI 23-101 "IPV Program"

18.43.5.4.2. Substitute items will be placed in bins reflecting the substitute item stock number and stored if possible in the same general location as the preferred item stock number. The exact location of the preferred item stock number will be annotated on the applicable local form and placed with the substitute item.

18.43.5.4.3. Each time a bench stock change is made, the bin should be reviewed for proper labeling, authorized material, and level by the PST. At a minimum, this review should take place at least quarterly unless being managed under the IPV contract. Documentation and verification of quarterly reviews may be maintained electronically. Reference AFSCI 23-101 "IPV Program"

18.43.6. Procedures for identifying and tagging material in a maintenance holding area.

18.43.6.1. Procedures for tagging material for storage.

18.43.6.1.1. Bench stock material that is stored in a sub location must be tagged to identify the material and its condition. One tag is acceptable for like items contained in a bag, box, bin, etc.

18.43.6.1.2. Raw stock material does not require condition tags but must have a legible MIL-SPEC marking. When raw stocks cannot be identified or are suspected of being erroneously identified, the PST personnel will ask the office that is qualified to analyze them. Once material is properly identified, it will either be tagged and stored or disposed of as appropriate.

18.43.7. Bench Stock Shelf Life Item Control.

18.43.7.1. Production shops will ensure age control and cure-dated material is stored, updated, and purged according to AFI 23-101 and will segregate the items and mark bins conspicuously with a standard bin label identifying shelf life item stock number, manufacturer's part number, or MIL-SPEC, and shelf life code for the item stored therein. Age-dated material must have the age control date and either the manufacture or expiration date indicated on each container at all times.

18.43.7.2. Control of bench stock in the production area not part of the IPV program is a joint effort between the PSS and production since access to the material requires intrusion into the maintenance shops. The PSS however is the official monitor. If bench stock material items become over-aged or if the expiration date cannot be determined, items must be lab-tested by the SOS or sent to DLADS. Material in other than ‘A’ condition cannot be received in the PSS.

18.43.8. Bench Stock Hazardous Material Control.

18.43.8.1. When material is issued to the production shops for use, this responsibility is transferred to the appropriate production chief. Hazardous material is controlled according to AFMAN 32-7002. Local controls put in place by local environmental management organizations may also have to be considered in the management of hazardous material.

18.43.8.2. Hazardous material will not be stored in bench stock areas or shop stock locations. Production personnel will use the 'first in first out' methodology to ensure shelf life materials do not expire in maintenance. Reference AFI 23-101 for further guidance.

18.43.9. Turn-in and Excess Bench Stock Material. If material on hand exceeds the computed requirements, it will be turned into the PSS for disposition. Only serviceable material in the stock listed unit of issue will be returned to DLA for credit/noncredit and will be condition tagged unless the material is still in the original manufacturer's package. Material with less than-unit of issue will be sent to DLADS.

18.43.10. Procedures for Individual Possession of Bench Stock Material. Ensure any excess quantity does not become a foreign object to aircraft, engine, aircraft systems, component, tire, munitions, or support equipment which may have the potential to cause FOD (reference **Chapter 13**).

18.43.10.1. Mechanics/technicians are authorized to maintain at their station a quantity of bench stock material that is required daily in the performance of their duty assignment. Cotter pins, nuts, bolts, etc., are typical of the type of items they may possess.

18.43.10.2. The maximum quantity allowed per person depends on the type of work assignment and the supervisor's discretion. For items such as pins, nuts, bolts, etc., the quantity allowed will not exceed a one to two day supply. All bench stock containers retained at workstation will be separated and containers will be labeled with part number or NSN. Excess material will be returned to the bench stock bins or follow the procedures in paragraph 18.43.9.

18.44. Exchangeable Components Removed From Aircraft and Engines Are Repaired (Overhauled) As Production Items. When aircraft and engine components are removed from aircraft or engine programs and processed through the MISTR (i.e., Exchangeables) schedule, the following procedures will be accomplished:

18.44.1. Aircraft Components. For items routed to a backshop, ensure item is put OWO in MIS.

18.44.2. Engine Components. (ERRC C and D exchangeables). When the asset is serviceable, a maintenance production transaction with card code R will be prepared and input into G004L. At the same time, another maintenance production transaction with card code S will be prepared for the same item and entered into G004L. The complete maintenance production transaction cycle will be accomplished as if the item were reparable.

18.44.2.1. Reparable Assets. When the item is reparable, a maintenance production transaction with card code R will be prepared to show receipt and another maintenance production transaction with card code S will be prepared to reflect serviceable production when work has been accomplished. These component items will not be accounted for as routed work but will be processed as exchangeable items.

18.44.2.2. Job Routed Repair of Engine Components (OC-ALC only). Engine components which are designated job routed repair require a written request be submitted to the PSS chief for approval/disapproval before any serviceable assets can be bought to replace a job routed item.

18.45. Investment Material Cost Codes S and M.

18.45.1. General. CSAG-M policy requires the CSAG-M Division be paid for all work performed. Replacement of missing items discovered during repair of aircraft, engines, and other assets must be funded by the customer before the work can be completed. Investment material Cost Codes S and M will be used primarily for issues of serviceable exchange material without a corresponding turn-in of a reparable item. The issue transaction will use a cost code S or M to ensure exclusion from DIFM/DOTM control. The procedures for the replacement of missing items found in the repair of assets are referenced in AFI 23-101.

18.45.2. Justification for Using Cost Codes S and M.

18.45.2.1. The appropriate maintenance squadron director will approve all cost code S requests. The AFSC IM/MM will approve or disapprove the use of cost code M.

18.45.2.2. Approval will be by letter and kept on file for six months to provide an audit trail.

18.45.2.3. Cost Code S. Cost Code S is used for the issue of investment material which is planned and funded and for which no reparable turn-in will be made. This would be the situation of an initial installation or for the ordering of a modification item other than a modification kit.

18.45.3. Cost Code M. Cost Code M is used to order investment material which is unplanned and funded but for which no reparable turn-in will be made. The only appropriate use of Cost Code M is to requisition a replacement for missing items. It is typically used for ordering replacements of missing depot level reparables (DLRs) on major end items discovered during organic repair of aircraft, engines, and other assets.

18.45.3.1. The procedure for the replacement of missing MSD assets found during the repair of aircraft, engines, and other assets is described below.

18.45.3.1.1. When major EIs with missing assets are received by the depot for repair, additional funding or the missing component must be obtained from the customer for work that is discovered during the repair process but not originally negotiated. If the IM/MM approves the use of the cost code M, maintenance will order the missing item.

18.45.3.1.2. If the request for funds and the missing asset are denied, the problem should be elevated within the ALC management structure as necessary for resolution. If resolution cannot be made with the customer, then depot maintenance will return the major EI to the customer or the DLR to supply without the missing item.

18.45.3.2. Replacement of a missing DLR will be considered a change in the scope of work. The depot maintenance customer will be prepared to replace a missing item discovered during the depot repair process. This can be done by providing the cost code M for the replacement of all missing DLRs or by shipping all missing items to the depot

for installation on the major EI. In order to maintain the long-term solvency of CSAG-M, the No Free Work Policy must be strictly enforced.

18.45.3.3. Depending on the cost of the missing items involved, management should be flexible to make a decision in the best interest of the depot and the solvency of CSAG-M. There may be cases where management determines that the cost of missing items does not warrant renegotiation of the price of the work. Management should ensure documentation exists to justify the decision.

18.45.4. Appropriate Use of Cost Code M. Depot maintenance-generated assets returned to supply as the result of reclamation actions, kit residue, found on base (FOB) assets, save lists, and mod kit replacements are not subject to credit by the MSD and should be returned to supply using a D6A transaction with an X in position 7 and cost code M (i.e., the transaction for FOB turn-ins). The impact is that CSAG-M will be paid for performing the service of repairing the EI, aircraft, etc., but not for the assets removed and returned to the depot supply inventory.

18.46. PSS and NIMMS Store.

18.46.1. Accountability. CSAG-S material is managed and accounted for by DLA.

18.46.2. NIMMS Inventory Stores are used for CSAG-M-Owned Material.

18.46.2.1. Identification. Disassembled EIs in formal AWP status will be stored in the NIMMS stores. Floating spares are also authorized to be held in NIMMS stores, but at an absolute minimum and only for temporary holding. Long lead exchangeable material (e.g., some floating spares, etc.) may be held indefinitely as long as justification is documented and approved.

18.46.2.2. Authority. Storing other-than-serviceable material in the NIMMS inventory stores is not authorized. Exchangeable assets will not be stored in the Y-Stores.

18.46.2.2.1. Repetitive ordering from the PSS is preferred over the unauthorized buildup of inventories in production NIMMS inventory stores or non-authorized material storage locations (i.e., excess material located on the shop floor). DLA support is contingent on steady ordering history that is compromised by relying on production NIMMS stores for day-to-day requirements. This method of relying on NIMMS stores for day-to-day material is not authorized under NIMMS store procedures.

18.46.3. Point of Sale.

18.46.3.1. The JON is obligated when the material order is placed and charged when the material is issued from supply. When material is issued from supply, an automatic receipt is processed in NIMMS.

18.46.3.2. Excess material (i.e., material leftover from completed jobs) shall not be maintained on the shop floor. The material shall be turned in to the NIMMS inventory stores awaiting evaluation for current needs or immediately returned to DLA in order to maintain proper control and accountability of assets owned by CSAG-M. Local procedures will be implemented to ensure maintenance personnel have sufficient guidance to perform turn in of unused material. If there are no existing requirements, the material will be returned to the warehouse using Document Identifier Code D6A. If there

is a verified future requirement, items should be maintained in NIMMS inventory stores to prevent CSAG-M losses when credit will not be received for a turn-in to supply. Extensive amounts of excess material are an indication that there are problems in the planning of repairs, ordering processes, or shop floor discipline. Material held in the NIMMS inventory store ('Y' store) will be validated every six months by the PSS and the Planner.

18.46.4. Stock Levels. No levels are computed for the items temporarily stored in NIMMS as these areas are used as temporary storage only and not as a stockroom for permanent or longterm storage.

18.46.5. Vending Machine Support Process. ALC depot maintenance supervisors or other designated supervisors will ensure that vending machines deployed in the depot maintenance shops/cells designed for control of pilferable items properly display adequate instructions for depot mechanic use in the event of machine malfunction or failure. If the vending machines contain drill bits, and/or apexes, or other small tools, they must comply with the established standards and guidance of tool control. Clearly displayed instructions will specify the name of the shop supervisors or other designated supervisors, along with office symbols, phone numbers, and physical locations on each shift, who will possess the required keys for entry into the machines in the event of malfunction to ensure parts availability for the depot mechanics. Utilization of a key box system meeting these same objectives is optional. These instructions will ensure coverage for all required work shifts including 'swing' or 'graveyard' time periods. During the acquisition process for these vending machines, ALC depot maintenance personnel or their alternates will also ensure that adequate and timely reporting and maintenance service/repair arrangements including guaranteed response times are included in the contracts with the vending machine contractors. This will preclude unnecessary machine downtime and ensure parts availability for the depot mechanics. The names and phone numbers of the vending machine service contractors will also be displayed clearly on the machines in addition to the guaranteed vending machine contractor response time. Contractors responsible for providing the material designated for vending machine support should be held responsible for stocking and replenishing the vending machines based on ALC depot maintenance product group quantity and schedule requirements. The option to procure or lease the required vending machines will be at the option of each ALC. **Note:** Any item that is being consumed in the repair process (i.e., leaving depot maintenance as a piece of the EI/aircraft) will not be available in the vending machines.

18.46.6. NIMMS Storage Processing.

18.46.6.1. Purpose. NIMMS inventory stores are for CSAG-M owned material.

18.46.6.1.1. All material held in NIMMS inventory storage areas is owned by depot maintenance but is managed by DLA personnel. PSS personnel will use ABOM/MPS when processing a material request. ABOM will query the NIMMS inventory records for material held in the NIMMS inventory stores and ask if material is to be issued from there. In situations where ABOM/MPS is not available (i.e., system down), manually use NIMMS to search the detail records.

18.46.6.1.2. Types of material held in NIMMS inventory storage include AWP components ('X' funded/ 'W' unfunded Stores), Local Manufacturing components ('Z' Store), and backorder released excess material for which there is a known

requirement (‘Y’ Store). Backorder released material is defined as material that was ordered against a planned repair job or work order and was not used in the repair process.

18.46.6.1.3. When it is determined that material is not moving into and out of these areas in a timely manner, joint action between maintenance and DLA should be taken to correct any problems found to include turning in of material. NIMMS temporary storage of items is not to be used as a collection and holding area for material that maintenance cannot use in a timely manner.

18.46.6.1.4. Emphasis should not be on whether credit is received when determining disposition of excess material. Emphasis should be on finding the causes and taking corrective action to prevent future instances. The Pre-Production IET is responsible for conducting investigations as required to determine the causes of excess material. The Production Manager is responsible for implementing corrective action.

18.46.6.2. Approval of Inventory Adjustments. The approval levels for inventory adjustments for depot maintenance owned material (i.e. 'X', 'Y' and 'Z' stores) will be designated by the activity that has custodial responsibility which is DLA-A. DLA-A will notify the production support flight chief when the stores are out of balance (physical balance is less than the record balance), to allow the production support personnel to develop an alternate supportability solution. Production personnel cannot provide authorization for inventory adjustments in these stores.

18.46.6.3. Material Transfer. A turn-in transaction must be processed when material is moved from a NIMMS store to DLA.

18.47. Contractor Acquired Property (CAP) Procedures. CAP provides depot maintenance the authorization and capability to obtain parts not available in the normal supply system [i.e., Federal Supply System (FSS)] to meet production requirements. This includes both MSD and GSD items. Unlike standard local purchase procedures conducted by depot supply, CAP authorizes the use of CSAG-M funds. For centrally managed items, CSAG-M must coordinate with the prime MM (AF managed items) or DLA (DLA managed items) to initiate CAP procedures for like items.

18.47.1. The PSS supporting the CSAG-M organization requesting the material will submit a priority requisition to establish a due-in/due-out. If the EDD is not sufficient to meet workload requirements, the PSS will contact the prime MM (AF managed items) or DLA (DLA managed items) to verify non-availability of the material in the FSS. If material cannot be procured in time to meet production schedules, then a request for approval can be made to the prime MM (AF managed items) or DLA (DLA managed items) to initiate CAP procedures. The IM may authorize local purchase for a central or local procured item for a one-time emergency buy to meet scheduled delivery dates.

18.47.2. CSAG-M inventories will not grow above current levels without ALC/LZD authorization. Only immediate need quantities will be procured. CSAG-M may only purchase that material necessary to satisfy inducted work. Material may not be bought in advance of need or for maintenance inventory. The IM will be kept informed of the transaction so that prior consumption data will be entered into system.

18.47.3. The PSS supporting the CSAG-M organization will provide the justification and the material will be procured by a fully warranted procurement officer. The CSAG-M may direct cite CSAG-M obligation authority on the purchase order.

18.47.4. When the material is received and signed for, the DD Form 250 will be processed to the MXG CAP monitor. The DD Form 250 will be forwarded to the primary contracting officer. At this point, the CAP monitor should contact the retail IM to process the wash post action.

18.47.5. Each CAP monitor will retain copies of the DD Form 250, a copy of the D4/D7 wash post transactions, and a copy of the AFMC Form 36, *Purchase Request*, used to procure the material.

18.47.5.1. CAP monitors will track the number of requisitions processed monthly using CAP procedures, monthly quantity and dollar value for items procured using CAP, and number of man-hours expended monthly on CAP procedures. This data shall be maintained for at least one year and can be either in paper or electronic format. CAP is considered a workaround process only to be used when normal supply functions fail to provide needed parts in a timely manner to support depot production. The above data should be used to determine if trends in supply support are developing and for discussion topics at Exchangeable meetings. SCMs should be notified of all supply support problems driving CAP actions.

18.47.6. After the CAP procedures have been completed, copies of the above documentation (e.g., DD Form 250, etc.) must be forwarded to the ALC financial management organization so that the documentation can be verified in NIMMS/DIFMS for cost adjustment. Cost accounting will then do a cost transfer in DIFMS.

18.48. Part Number Ordering. Reference AFH 23-123, Volume 2, Part 1, AFH 23-123 Volume 2, Part 4, and AFMAN 23-122. The PSS/PST will perform research in D043A for an NSN and if no valid NSN is found, the PST will complete the DD Form 1348-6 either electronically or manually. The PSS/PST will send the request to the Retail Supply Activity (i.e., DLA).

18.49. Bill of Material (BOM). The purpose of establishing BOMs is to provide a composite database of material used in the repair of specific workload. Numerous personnel including production support, AFSC process engineering, item management, and financial/budget analysts, may affect the accuracy of the BOMs which in turn may effect current and out year usage/demand projections and out year EISP development. The Production Support Chief will ensure accurate accounting of material usage through supply discipline in the maintenance repair environment. Replacement factors may be manually changed to fix errors, post workaround data that may not have reached the systems, or to raise a factor that may have dropped due to a parts shortage. Material overrides will be approved by the IET prior to ordering material. Additional guidance on BOMs is located in **Chapter 14**.

18.50. Software Engineering Group (SWEG) Procedures.

18.50.1. Operating Stock Materials. Material used in the day to day maintenance of equipment contained within a research, development, and integration lab such as Software Laboratories, First Article labs, and Prototype labs. Operating stock materials will consist of non-production material used to facilitate the research, development, and testing used in conjunction with the operation of machinery, equipment, and tools.

18.50.2. Storage and Maintaining. Operating stock locations, items, and quantities will be determined by the first level supervisor or assigned lab manager. Locate the stock as close as possible to user for their convenience. Lab personnel will maintain proper housekeeping of operating stock.

18.50.3. Lab Area Support Stock. Operating stock and expendable stock materials compromise Lab Area Support Stock and are ordered for projects to build development items. Materials can be obtained from other sources such as contractor residue, prototype, and SPO funded stock, and have an anticipated use.

18.50.3.1. Development items are assembled or manufactured components representing:

18.50.3.1.1. An item for internal SWEG use only and will not be stock-listed or centrally managed.

18.50.3.1.2. An item that has yet to be designated as an item of supply or an item of production by the designated OSS&E authority and may be delivered to the customer for their use and/or additional testing. In cases where the OSS&E authority is allowing the SWEG activity to use these items to develop software or as a UUT, then the material control rules will apply to identify and segregate these items from other items in the software development environment work areas.

18.50.3.1.3. An item that is not a production item.

18.50.3.2. Production items are assembled or manufactured components designated as reparable, stock-listed, or supply chain managed assets and are the responsibility of authorized maintenance repair activities.

18.50.4. Most work centers involved in the assembly or buildup of test equipment will require bits and pieces of material. These items may be stored at workstations during the assembly or buildup process. Proper housekeeping and the return of excess stock must be practiced at these workstations.

18.50.5. Disassembly for Testing and Research. Disassembled material shall remain under control during development, testing, and research. All parts removed from the component will remain together until testing and research have been completed. Loose, scattered, or poorly controlled material can become lost or damaged increasing the overall cost to the Air Force.

18.50.6. Material removed during development, testing, and research will be placed in a bin or container until re-assembly of the item. An unattended bin of removed material will have an inventory of contents. If co-location of the item and the bin of removed material are impractical, the disassembled item will be labeled with the identity of the item to which the material belongs.

18.50.7. Managing Component Stock. Consists of LRUs, SRUs, gauges, mock up, built up electrical boards, or other items. Throughout the software engineering environment components such as LRUs and SRUs are stocked, stored, and used. These components serve a dual purpose for HQ AFMC. In a depot repair facility, units are considered supply assets and will be repaired by a certified technician and returned to supply/functional aircraft. When these units enter software laboratories, the units become UUT for validation activities as test equipment or components of larger test units. Depot maintenance such as material repair is

never performed in a software environment. The determination of asset serviceability rests solely with approved maintenance/quality inspectors within an authorized maintenance repair activity. Components are handled as UUTs for validation activities, such as test equipment, and local procedures may be written to clarify handling and labeling procedures for components in 'In Use' status.

18.50.8. Classified documents. Classified documents are processed and filed according to AFI 16-1404. Document retention is prescribed by DoD 5200.1-R, *Information Security Program*, AFI 33-364, and AFI 23-101. Only individuals identified by appropriate receipt authorization may receive property that has a security clearance.

18.50.9. Labeling Requirements. Lab materials must be stored in a clearly identified designated location. The operating stock materials storage cabinets and/or Inventory List will be clearly identified as serviceable or unserviceable (reparable) material storage. Lab stock will be segregated and stored in designated storage locations with appropriate labels. Each item stored in a lab will have a label. As a minimum, labels will contain nomenclature, stock number or part number, and shelf life (if applicable).

18.50.9.1. Boxed operating stock materials are to be stored in the designated storage location with the box appropriately labeled with available required information.

18.50.9.2. Small operating stock materials are to be stored in the designated storage locations in a bin appropriately labeled with available required information.

18.50.9.3. Operating stock materials too large for bins are to be stored in the designated lab storage locations appropriately labeled with available required information.

18.50.10. Inventory Requirements. An annual inventory is required for material control. The inventory list will include date of last inspection to aid in declaring excess and will consist of assigned material locations. Operating stock material labeling information may be maintained on the inventory list or stock information maintained at lab location and cross referenced by assigned material location.

18.50.11. Turn-In of Excess Material. Operating stock material determined to be excess must be disposed of properly. Material may contain precious metals, be hazardous, or neither. Disposition of all non-precious and non-hazardous material will be one of the following: transfer to other labs within Group, turn-in to supply, or turn-in to DLADS. Turn in point and local turn-in procedures will be developed to prevent inadvertent disposal of saleable or salvageable government assets or material.

18.50.11.1. Excess Material in Original Packaging. Excess may be turned into supply. Identify staging area for collecting excess material. If quantity/size of excess requires a staging area outside of the Flight Office or labs, contact the Facility Manager who will identify the staging area. Contact supply to confirm supply's need and acceptance of material. Material must be tagged with two condition tags. Condition tags for reparable material must utilize the correct form and have an NSN, part number, and item description. Tags must have unit of issue and quantity. Material in the staging area will not be removed until ready for transport to supply. Follow normal maintenance turn-in procedures.

18.50.11.2. Excess Material to DLADS. Excess material which cannot be turned into supply will be turned into DLADS. Identify a staging area for collecting excess material.

If quantity/size of excess material requires a staging area outside, identify the staging area. Contact DLADS to make an appointment. Material in the staging area will not be removed until ready for transport to DLADS and arrange for transportation by DLADS.

18.50.11.3. Excess Hazardous or Precious Metal Material. Material suspected or known to contain precious metals or hazardous material should be taken to appropriate monitor (i.e., Precious Metals Recovery Program Monitor or Environmental Coordinator) for disposal.

18.50.12. Turn-in of Classified Material. Classified material must be completely declassified prior to turn into DLADS. The specific TO for the item or system will provide declassification/demilitarization instructions. For other basic declassification/demilitarization guidance, reference DoD Manual 4160.28, Vol 3. After declassification/demilitarization, all documents and references to the classification must be removed or obliterated.

18.50.13. Reusable Shipping Containers. Reusable shipping containers may be retained/stored in the lab area when one of the following conditions exist: Container is 'one of a kind' built for specific component stored in the lab, quick turn-around of components, containers used to house fragile components, and climate controlled staging area outside lab environment. The lab area must provide a clearly identified and labeled staging area for containers. **Note:** Shipping containers housing components must be marked and segregated from empty shipping containers.

18.50.13.1. Turn-In Area for Reusable Shipping Containers. Shipping containers and boxes to be reused are to be turned into supply for future use. The staging/disposal area will be identified for reusable containers, pallets, wooden crates, etc., and must be clearly marked. Serviceable and reparable items must be kept away from these areas.

18.50.13.2. Reusable containers will be inspected and verified as empty before they are processed out of maintenance to reclamation.

18.51. Status Codes.

18.51.1. Status codes for base requisitions are contained in AFI 23-101. Local base (customer) status codes for Issue Requests and notices are listed below. This attachment is intended for use as supplemental guidance and is not intended to replace the policy in the prescribing regulations.

18.51.2. The following status codes (indicated by a B in column 65) predict shipment on time as specified by the standard delivery date (SDD) or the required delivery date (RDD); delayed supply action; information on follow-up; or change in data submitted on requisition. The latest status can be determined by the transaction date entered in columns 62-64.

Table 18.7. Status Codes and Reject Transaction Codes.

Shipment Status Codes.	
Code	**Description**
BA	Item being processed for release and shipment.
BB	Item backordered against a due in to stock.

BC	Item on original request containing this document number has been back ordered. Long delay is anticipated and estimated shipping date is in columns 70-73. Item in the stock number field can be furnished as a substitute.
BD	Action on this request is being delayed to verify requirement relative to authorized application, item identification, or technical data. When review is completed, additional status will be provided.
BG	One or more of the following fields have been changed: Stock number changed due to stock list change (SLC) processing; NSN is assigned to part number that was requisitioned; Federal Stock Class (FSC) has changed but NIIN remains the same as originally requisitioned (applies only to DZ9 status); unit of issue changed; or requisitioned P/N has been identified to be replaced. Adjust records accordingly.
BH	Cancellation of backorder due to substitute or interchangeable item being supplied.
BI	Item backordered in an I&S family.
BJ	Quantity changed to conform to unit pack; adjust records accordingly. Unit of issue is not changed.
BK	Requisition data elements have been modified as requested. Examine data field in this status document for current requisition data.
BQ	Deferred issue backorder cancelled as requested by customer.
BR	Cancelled. Requisitioning activity authorized cancellation in response to materiel obligation validation (MOV) request furnished by processing point.
BS	Cancelled. Requisitioning activity failed to respond to materiel obligation validation (MOV) request furnished by processing point.
Code	Description
BY	Assets on-hand (partial or total). Status provided to support deferred issue backorders after normal off base receipt and mechanical backorder release processing from the IM. (Notification of long supply material received in distribution).
BZ	Deferred issue backorder, quarterly asset availability status. The quantity indicated is available or on backorder, whichever is smaller.
B7	Unit price change. The latest unit price for the item is in the last position of the operation number field and extends through the cost code and action suffix fields, i.e., columns 74-80.

18.51.3. The following status codes (indicated by a C in column 65) designate rejected action and will terminate further supply action. The code assigned in column 66 will furnish the appropriate reason for rejection. When still required, resubmit under a new document number, which in turn, may require a more detailed explanation on the new requisition.

Table 18.8. Reject Codes.

Code	**Description**

C_	Rejected. Material condition code of transaction is invalid. Prepare new input transaction with correct condition code and retransmit.
CA	Requisition rejected. Explanation for rejection is stated in the remarks field.
CB	Requisition rejected. Initial requisition requested rejection of that quantity not available for immediate release. This code is specifically applicable in response to requisitions submitted with advice codes 2C and 2J.
CC	Deferred issue, backorder cancelled because of source of supply cancellation of distribution-deferred issue MILSTRIP requisition.
CD	Cancelled due out, unit of issues not converted by computer. The new unit of issue is shown in the last position of the operation number and extends through the cost code and action suffix code fields.
CE	Item requested is an item of equipment and is not authorized for WSSC/SSC/Exchangeable Products Support Center (EPSC) stock. Managed in the D002A (SBSS) system.
CF	Rejected. Erroneous job designator, category code, document identifier, type transaction code, or demand code. Correct erroneous element of data and resubmit request.
CG	Rejected. Unable to identify requested item. Submit new requisition using a new document number with a current Julian date and furnish correct NSN or part number.
CH	Item requested is not authorized for use by the customer submitting the request. Status manually prepared and mailed to the customer.
CJ	Item coded with N exception requisition code (formerly disposed). No advice code in local request.
CK	Rejected. Unable to procure. No substitute/interchangeable item are available. Returned for supply by local issue of NHA, kit, or component. Suggest fabrication or cannibalization. If not available, requisition with current Julian date for NHA, component, or kit.
CL	Rejected. Contractor requisition or related transaction is to be processed initially by a material control authority (MCA). Transaction entries indicate direct submission. Submit a new requisition using a new document number with a current Julian date.
CM	Rejected. Fund code was not cited and/or item is not, or is no longer, free-issue. If still required, submit new requisition using a new document number with current Julian date with appropriate fund code and signal code other than I or M.
CO	Rejected. Item has been identified as a Contract Operated Civil Engineering Supply Store (COCESS) item.
CP	Rejected. SOS is organic manufacture, fabrication, or procurement. If not available locally or activity lacks procurement authority, submit a new requisition with Advice Code 2A.
CS	Deferred issue backorder cancellation. Quantity indicated (cancelled) is greater than the quantity on backorder.

CU	Rejected. Unable to procure item requested. Item is no longer produced by any known source and attempts to obtain item have failed. Item in stock number field can be furnished as a substitute. Unit price of the substitute item is in positions 74-80.
CV	Rejected. Item prematurely requisitioned. The effective date for requisitioning is contained in positions 70-73.
CW	Rejected. Item is not available or is a non-consumable item whose transportation costs are uneconomical. Local procurement is authorized for this requisition only. If item cannot be locally procured, submit a new requisition using Advice code 2A with a new document number and a current Julian date.
CX	Rejected. Unable to identify the Bill To and/or Ship To address as designated by the signal code or the requisition with a new document number and current Julian date and with valid data field entries.
DC	Duplicate cancellation.
DD	Transaction S/N is unmatched to DIFM suspense S/N and all I&S stock numbers controlled. Check document number for transposition of digits. Then correct or contact office of primary responsibility OPR for new document number. Prepare new input after error is detected and resubmit.
DF	In transit due-in or due-out overhaul quantity is less than the reversal.
DH	Quantity of turn-in or receipt acknowledgement exceeds the DIOH balance record.
DL	Quantity of the G004L receipt acknowledgement (RA) is less than the DIOH in transit record.
DT	Duplicate Transaction.
EC	Rejected. Unfilled portion of WSSC/SSC/EPSC replenishment by system are killed back to WSSC/SSC/EPSC. If quantity still required, input (manually) new replenishment card.
ED	Rejected. (Prepost issues and WSSC/SSC/EPSC post-post issues and turn-ins.) Invalid document number and day received. Correct erroneous elements of data and resubmit.
EI	EI document quantity is greater than one.
EQ	Rejected. (Prepost issues and WSSC/SSC/EPSC post-post issues and turn-ins.) Invalid quantity (i.e., alphas, blank columns, or all zeroes), correct quantity field, and resubmit.
ES	Quantity in the INT (in transit) receipt notification is greater than the suspense detail record or unmatched on in transit detail record.
F_	Rejected. Format of input transaction is incorrect. Check input document for missing elements of data, keypunch errors, invalid routing identifier (i.e., F*B on a WSSC/SSC/EPSC replenishment request). Invalid DOC ID (when all three

	positions are assigned manually), type transaction code (when manually assigned), ownership and purpose (O/P) code, and project code. When error is detected, prepare a new input document with correct data elements and retransmit. Also, trying to order 5100 and 5200 class (tools) on other than indirect JON X56346610000.
FC	Rejected. Cost code incompatible with ERRC code. Routine material was ordered exchange or exchange material was ordered routine. Product Group D7 prepost request for a SSC/EPSC backorder containing cost codes A, R, N, W, or L for ERRC code C, T, and U items, or cost codes B, D, E, J, M, T, or Y for ERRC code N or P.
FH	Rejected. Input function code and scheduling designator unmatched on D035K organization table. Correct and resubmit.
FK	Rejected. Local request is a duplicate.
FL	Item delayed. Supply action being continued. A controlled exception has been generated to distribution component for review of the transaction. Normal reasons for FL status are that the stock number is not recorded on the depot supply master record or the requested item requires review by the distribution item manager, etc.
FP	Rejected. Unauthorized use of base delivery priority designator 01 and 02.
FR	Cancelled, invalid MICAP requirement.
FS	Rejected. Floating stock quantity requested greater than floating stock authorization.
FZ	Rejected. Force activity designator (FAD) used in the transaction is lower than the one in the organization detail record.
II	Fill or kill request (2C or 2J advice code) or issue cancelled. Partial or total quantity available; however, the master balance record contains a freeze or blockage code.
IR	No routing identifier.
JN	JON either missing or invalid.
MI	Rejected. WSSC/SSC/EPSC request for other-than-serviceable material.
N_	No master balance record established.
NB	Rejected. No backorder detail record.
ND	Rejected. No DIFM/DOTM record.

NM	Rejected. No WSSC/SSC/EPSC detail record.
NN	Rejected. Erroneous MICAP identity. If the first position of the JON field is 9, the next two positions must be 99. If the JON field is N or E, the next two positions must be AA, AB, AC, AE, AF, AG, AH, AM, or AY.
P_	Transaction quantity exceeds item record balance. Quantity that could be processed has been posted to decrease the WSSC/SSC/EPSC detail record balance. Partial or total quantity, which when posted, is rejected and shown in quantity field. This status may be received in response to a post-post issue transaction or in response to a turn-in from the WSSC/SSC/EPSC to distribution. When this status is generated, the WSSC/SSC/EPSC balance is frozen with a numeric 1-blockage code.
*R	Invalid Document Date.
U_	Unit of issue invalid.
WN	Indicates an output ZFA-X transaction because of a backorder cancellation request. Requires an input of a ZFA-Y transaction (indicating, yes, maintenance wants the material), or a ZFA-X transaction (indicating, no, maintenance does not want the material).
WR	Rejected, invalid input from sending remote terminal. Normally, the WSSC/SSC/EPSC designator code is not compatible with the functional code or scheduling designator.
WW	Rejected, turn-in quantity exceeds the DIOH quantity, or D7 receipt acknowledgement greater than in transit to maintenance quantity.
AK	EI is sold with backorders pending in D035K.

18.51.4. Advice codes for base requisitions are contained in AFI 23-101. **Note:** This attachment is provided as supplemental guidance only and is not intended to replace policy in the prescribing regulations.

Table 18.9. Advice Codes

Advice Codes for Requisitions.	
Code	**Description**
2A	Item cannot be obtained locally through manufacture, fabrication, or procurement.
2B	No substitute allowed. Also applies to obsolete items previously rejected with status code CJ.
2C	Fill or kill requisition. Do not back order. Reject any unfilled quantity not available to meet SDD or RDD. Suitable substitute acceptable.
2D	Furnish exact quantity requested. Do not adjust to unit pack quantity.
2E	Free issue. Stock lists or other publications offer this material without reimbursement. (To be used with signal codes D or M on interservice requisitions).

2F	Item known to be coded obsolete, but still required for immediate consumption. Service coordinated or approved substitute is acceptable. If unable to procure, reject requisition with status code CJ.
2H	Special textile requirements for use in airborne operations where personal safety is involved.
2J	Do not substitute or backorder any unfilled quantities.
2L	Quantity reflected in quantity field exceeds normal demands; however this is a confirmed requirement.
2N	Item required in one continuous length, no other unit pack acceptable.
2P	Item required in one continuous length as expressed in fields 25-29 and the unit of issue in fields 23-24. If requirement exceeds the unit pack length, multiples of the unit packs are acceptable.
2T	Deliver to the ultimate consignee by the SDD or RDD entered or cancel requirement.
6A	Request for shipment of reparable material (fill or kill).
6B	Request for shipment of Technical Order Compliance (TOC) material (fill or kill).
6C	If unable to ensure availability before expiration of priority or RDD, reject and furnish a supply source from which purchase may be made from funds of requisition.
6D	Request for shipment of incomplete (INC) material (fill or kill).
Code	Description
6F	Required for issue to non-Equipment Authorized in Use Detail (EAID) reporting function or agency such as AF Form 2691, *Aircraft/Missile Equipment Property Record*, AF Form 2692, *Aircraft/Missile Equipment Transfer/Shipping Listing,* CE real property, training de **OWO** ice, bench mock-up or other governmental agencies (e.g., Army, Navy, etc.), and contractors.
6G	Required as replacement issue for EAID, authorized for substitute asset due to condemnation or other loss of required asset.
6K	Item is required for an AWP EI (fill or kill).
6L	Item is required for an AWP EI (do not kill/cancel requisition).
6N	Organic maintenance parts shortage related to production items. (ALC distribution only).
6P	Specifies New and Unused Material Only will be shipped to satisfy this specific requirement. This code will be used by Air Force for selected FMS case requisitions and will cause the phrase “New and Unused Materiel Only” to be printed on the DD Form 1348-1.
6Q	Item requires calibration, repair, and return.
6R	Complete overhaul of ND2 item required to ensure performance, safety, and maximum use. Replacement item must be available before the item can be released.

6S	Repair costs for NF2 items exceed economic repair criteria. Operational requirement prevents condemnation until replacement is received.
6X	Used to request backorder of lateral requests authorized only for lateral (base-to base) actions.
6Y	Fill or backorder requested quantity and update cumulative recurring demands economic order quantity (EOQ) items only.
6Z	Routed repair replacement quantity (RRRQ) (fill or kill) for Air Force Recoverable Asset Management System (AFRAMS) only.
7N	Rejected, D7 input for item having a duplicate NIIN on the master balance record.
7M	Health Hazard Item must have bioenvironmental engineering approval prior to requisitioning.
22	Combination of 2L and 2C.
26	Combination of 2L and 2B.
33	Combination of 2L and 2J.

Table 18.10. Local Issue Document.

Block	Column	Description
1	1-3	Document Identifier, a three-position alphanumeric code that acts as an action and financial accounting indicator. Each transaction must contain a document identifier code. Entry in field one will always be D. Entry in field two will be either alpha or numerical: a. An alpha entry field two denotes management action that does not affect the D035K accountable balance record. Code G in this position indicates a backorder is to be adjusted. The G is computer assigned when an item is backordered and will be manually assigned by MXG personnel when the backorder is to be cancelled. b. A numeric entry in field two indicates that the transaction will affect the D035K accountable balance. A '7' in this position indicates a request for issue and a '6' indicates the turn-in to supply by the MXG. The third position entry, an alpha code, is related to the Type Transaction code. Normally this code is left blank for mechanical assignment based on the Cost Code and Job Designator. The MXG personnel always will make an entry in this block for backorder cancellation.
2	4-6	Routing Identifier, a three-position alpha designator that indicates the source of supply to which the transaction will be transmitted. All request transactions submitted will reflect the appropriate WSSC/SSC/EPSC routing designator. All MXG turn-in transactions, other than turn-ins to the WSSC/SSC/EPSC or turn-ins from the WSSC/SSC/EPSC to depot supply, will contain the local distribution routing identifier.
3	7	Type Transaction Code, a one-position alpha code that is normally mechanically assigned on MXG issue and turn-in transactions. Manual assignment will be required when requisitioning or turning in non-EAID equipment (Type Transaction code N), or floating stock items (Type Transaction code F). This code is used to relate and identify category of items or customers.
4	8-22	Stock Number, enter the stock number of the item being requested or turned in.
5	23-24	Unit of Issue, enter the physical measurement, count, or when neither is applicable, that element of data to which the unit price is ascribed.
6	25-29	Quantity, enter the number of units of issue involved in the transaction.
7	30-43	Document Number, in fields 30-35, enter the six position functional code of the organization requisitioning or turning in the material. Leave fields 36-43 blank or manually insert the assigned Julian date and serial number. The RC/CC must be used when requesting indirect material and when wash posting organically manufactured material for WSSC/SSC/EPSC.

8	44	Demand Suffix, a single-digit alpha code designating the item as being applicable to initial installation, a nonrecurring requirement, a recurring requirement, or a nonrecurring maintenance programmed, planned, or projected requirement. Demand codes will be assigned according to **Table 18.12.** When condemned items are being turned in, a disposal authority code of either an H (for directed condemnation and will reflect the TO number) or a T (for condition condemned in inspection and supported by the inspection number) will be entered in this field.
9	45-50	Building or Station Number, the first four positions of this code are provided for use, as locally directed, to indicate the building location (by number) to which the material is to be delivered. The last two positions are to be used to indicate the point in the building to which the material will be delivered to the MXG personnel.
10	51-56	Production Number consists of the Control Number and Job Designator, which the first five positions are used for the EI control number; the last position is used for the one-position alpha job designator. Requisitions for indirect production material, shop operating material, and office supplies will carry X56326100000, X56336300000 and X56366400000, respectively. Enter X56406800000 for defective work and spoilage. Leave blank on requests for slave and loan equipment.
11	57-59	Project Code, a list of approved codes and applicable account codes will be provided at ALC level. These codes will be assigned (when applicable) to work being accomplished by a MXG. Otherwise, leave blank.
12	60	Urgency of Need Designator (UND), an alpha character used to signify the degree of urgency or conditions that cause the initiation of the request. This block should show UND on a request for issue (reference **Table 18.13.**). Credit indicator, if appropriate, is entered on turn-ins. Enter X for organically manufactured turnins to show the item is for serviceable operating stock.
13	61	Force Activity Designator (FAD), a numeric entry used to signify relative importance of user activities. This block should not be blank on a request (reference **Figure 18.2.**). Depot maintenance activities may only use FAD II when providing direct repair and return for FAD I and II non-mission capable requirements. Direct repair and return is defined as those cases in which an unserviceable asset is removed from a FAD I or FAD II unit's non-mission capable equipment, and the only source to fill that requirement is immediate repair and return of that asset. Upon return, that same asset is installed in the combat unit's equipment making it mission capable. The previous authorization does not include repair and return to stock for the FAD I and FAD II units.
14	62-64	JON Suffix, enter the suffix that applies to the appropriate job order. Leave blank when a job order is not required.
15	65-66	Advice Code, enter applicable advice code to stipulate action desired. This field may be left blank (reference **Table 18.8.**). For production item turn-ins, leave position 65 blank and enter T in position 66. Leave blank for all other turn-ins. For critical items, enter CC.

16	67	Base Delivery Priority, a one-position numeric code, assigned by the requisitioner to stipulate the period in which the material is to be delivered. The MXG is not normally authorized a delivery priority higher than 4. Leave blank for turn-ins.
17	68	ERRC code, leave blank.
18	69	Blank, or Credit Indicator on turn-ins.
19	70	Ownership Purpose Code (OPC), the inventory account against which the transaction is to be processed. Transactions normally will carry an A designation. Other ownership accounts may be associated with approved projects and should be included in ALC publications.
20	71	Material Condition Code, a one-position alpha code that indicates the condition of the item being requested or turned in. Each transaction must be coded with one of the codes listed in **Table 18.13.**
21	72	Management Code, this field will normally be left blank.
22	73-77	Operation or Facility Number, when a workload is planned by operation within the control number, a five-position number is assigned to the operation breakout. The operation number will be entered on all line issue and line turn-in documents.
23	78	Cost Code, a material Cost Code will be entered on each line or line turn-in transaction. No Cost Code will be entered on WSSC/SSC/EPSC replenishment requests; WSSC/SSC/EPSC transactions for turning in material to the supply account; floating stock; and loan transactions (reference paragraph 18.55.)
24	79-80	Action or Suffix Code, a predetermined two-position alpha code assigned to an input transaction for the purpose of identifying the computer action. Action or Suffix codes applicable to MXG input transactions are as follows: CC, PP, RP,WF. An XX is DIFM/DOTM follow-up actions that are computer-generated. A C in field 79 indicates critical.
Note: On wash-post transactions, enter current date in fields 67-69. For WSSC/SSC/EPSC replenishment transactions, leave fields 36-44, 51-69, and 72-80 blank.		

Table 18.11. Depot Maintenance Cost Code Job Designator Type Transaction Code Cross Reference.

Depot Maintenance and Job Designator Codes.						
DOC ID	**COL 1-2**	**COL 3**	**Type Trans COL 7**	**Job Designator R Col 56**	**Cost Code Col 78**	**Notes**
D7	D6	R	M	Blank	B	Blank Job Designator requires Investment Cost Codes. These are for recording costs for parts that are being replaced due to mechanic error (U6800 series).
D7	D6	A	M	Blank	D	
D7	D6	R	M	Blank	E	
D7	D6	R	M	Blank	K	
D7	D6	A	M	Blank	L	
	D6	A	X	Blank	M	Found On Base.
	D6	A	X	Blank	N	Found On Base.
D7	D6	A	M	Blank	S	
D7	D6	R	M	Blank	Y	
D7	D6	A	M	A	A	
D7	D6	R	M	A	B	
D7	D6	A	M	A	D	
D7	D6	R	M	A	E	
D7	D6	R	M	A	K	
D7	D6	A	M	A	M	
D7	D6	A	M	A	N	
DOC ID	**COL 1-2**	**COL 3**	**Type Trans COL 7**	**Job Designator R Col 56**	**Cost Code Col 78**	**Notes**
D7	D6	M	P	A	P	
D7	D6	A	M	A	S	
D7	D6	A	M	A	T	
D7	D6	M	P	A	V	
D7	D6	A	M	A	W	
D7	D6	A	M	A	X	

D7	D6	R	M	A	Y	
D7	D6	A	M	A	Z	
D7	D6	A	M	B	A	
D7	D6	R	M	B	B	
D7	D6	A	M	B	D	
D7	D6	R	M	B	E	
D7	D6	R	M	B	K	
D7	D6	A	M	B	M	
D7	D6	A	M	B	N	
D7	D6	M	P	B	P	
D7	D6	A	M	B	S	
D7	D6	A	M	B	T	
D7	D6	M	P	B	V	
D7	D6	A	M	B	W	
D7	D6	A	M	B	X	
D7	D6	R	M	B	Y	
D7	D6	A	M	B	Z	
D7	D6	A	M	C	A	
D7	D6	R	M	C	B	
D7	D6	A	M	C	D	
D7	D6	R	M	C	E	
D7	D6	R	M	C	K	
D7	D6	A	M	C	M	
D7	D6	A	M	C	N	
D7	D6	M	P	C	P	
DOC ID	**COL 1-2**	**COL 3**	**Type Trans COL 7**	**Job Designator R Col 56**	**Cost Code Col 78**	**Notes**
D7	D6	A	M	C	S	
D7	D6	A	M	C	T	
D7	D6	M	P	C	V	
D7	D6	A	M	C	W	
D7	D6	A	M	C	X	
D7	D6	R	M	C	Y	

D7	D6	A	M	C	Z	
D7	D6	A	M	D	A	
D7	D6	R	M	D	B	
D7	D6	A	M	D	D	
D7	D6	R	M	D	E	
D7	D6	R	M	D	K	
D7	D6	A	M	D	M	
D7	D6	A	M	D	N	
D7	D6	M	P	D	P	
D7	D6	A	M	D	S	
D7	D6	A	M	D	T	
D7	D6	M	P	D	V	
D7	D6	A	M	D	W	
D7	D6	A	M	D	X	
D7	D6	R	M	D	Y	
D7	D6	A	M	D	Z	
D7	D6	A	M	E	A	
D7	D6	R	M	E	B	
D7	D6	A	M	E	D	
D7	D6	R	M	E	E	
D7	D6	R	M	E	K	
D7	D6	A	M	E	M	
D7	D6	A	M	E	N	
D7	D6	M	P	E	P	
D7	D6	A	M	E	S	
DOC ID	**COL 1-2**	**COL 3**	**Type Trans COL 7**	**Job Designator R Col 56**	**Cost Code Col 78**	**Notes**
D7	D6	A	M	E	T	
D7	D6	M	P	E	V	
D7	D6	A	M	E	W	
D7	D6	A	M	E	X	
D7	D6	R	M	E	Y	
D7	D6	A	M	E	Z	

D7	D6	A	M	F	A	
D7	D6	M	P	F	P	
D7	D6	A	M	F	T	
D7	D6	M	P	F	V	
D7	D6	A	M	F	X	
D7	D6	A	M	G	A	Job Designator G now valid for Analysis and Prototype (DOD 7000.14) and will require material Cost Codes.
D7	D6	R	M	G	B	Job Designator G now valid for Analysis and Prototype (DOD 7000.14) and will require material Cost Codes.
D7	D6	A	M	G	D	Job Designator G now valid for Analysis and Prototype (DOD 7000.14) and will require material Cost Codes.
D7	D6	R	M	G	E	Job Designator G now valid for Analysis and Prototype (DOD 7000.14) and will require material Cost Codes.
D7	D6	M	P	G	F	Job Designator G now valid for Analysis and Prototype (DOD 7000.14) and will require material Cost Codes.
D7	D6	R	M	G	K	Job Designator G now valid for Analysis and Prototype (DOD 7000.14) and will require material Cost Codes.
D7	D6	A	M	G	M	Job Designator G now valid for Analysis and Prototype (DOD 7000.14) and will require material Cost Codes.
DOC ID	**COL 1-2**	**COL 3**	**Type Trans COL 7**	**Job Designator R Col 56**	**Cost Code Col 78**	**Notes**
D7	D6	A	M	G	N	Job Designator G now valid for Analysis and Prototype (DOD 7000.14) and will require material Cost Codes.
D7	D6	M	P	G	P	Job Designator G now valid for Analysis and Prototype (DOD 7000.14) and will require material Cost Codes.

D7	D6	A	M	G	S	Job Designator G now valid for Analysis and Prototype (DOD 7000.14) and will require material Cost Codes.
D7	D6	A	M	G	T	Job Designator G now valid for Analysis and Prototype (DOD 7000.14) and will require material Cost Codes.
D7	D6	M	P	G	V	Job Designator G now valid for Analysis and Prototype (DOD 7000.14) and will require material Cost Codes.
D7	D6	A	M	G	W	Job Designator G now valid for Analysis and Prototype (DOD 7000.14) and will require material Cost Codes.
D7	D6	A	M	G	X	Job Designator G now valid for Analysis and Prototype (DOD 7000.14) and will require material Cost Codes.
D7	D6	R	M	G	Y	Job Designator G now valid for Analysis and Prototype (DOD 7000.14) and will require material Cost Codes.
D7	D6	A	M	G	Z	Job Designator G now valid for Analysis and Prototype (DOD 7000.14) and will require material Cost Codes.
D7	D6	A	M	H	A	
D7	D6	R	M	H	B	
D7	D6	A	M	H	D	
D7	D6	R	M	H	E	
D7	D6	R	M	H	K	
DOC ID	**COL 1-2**	**COL 3**	**Type Trans COL 7**	**Job Designator R Col 56**	**Cost Code Col 78**	**Notes**
D7	D6	A	M	H	M	
D7	D6	A	M	H	N	
D7	D6	M	P	H	P	
D7	D6	A	M	H	S	
D7	D6	A	M	H	T	
D7	D6	M	P	H	V	

D7	D6	A	M	H	W	
D7	D6	A	M	H	X	
D7	D6	R	M	H	Y	
D7	D6	A	M	H	Z	
D7	D6	A	M	I	A	
D7	D6	R	M	I	B	
D7	D6	A	M	I	D	
D7	D6	R	M	I	E	
D7	D6	R	M	I	K	
D7	D6	A	M	I	M	
D7	D6	A	M	I	N	
D7	D6	M	P	I	P	
D7	D6	A	M	I	S	
D7	D6	A	M	I	T	
D7	D6	M	P	I	V	
D7	D6	A	M	I	W	
D7	D6	A	M	I	X	
D7	D6	R	M	I	Y	
D7	D6	A	M	I	Z	
D7	D6	M	P	J	P	Job Designator J: Only requires these transactions.
D7	D6	M	P	J	V	Job Designator J: Only requires these transactions.
D7	D6	A	M	K	A	
D7	D6	A	M	K	D	
D7	D6	A	M	K	M	
DOC ID	**COL 1-2**	**COL 3**	**Type Trans COL 7**	**Job Designator R Col 56**	**Cost Code Col 78**	**Notes**
D7	D6	A	M	K	N	
	D6	Z	P	K	P	
D7	D6	A	M	K	S	
D7	D6	A	M	K	W	
D7	D6	A	M	K	X	
D7	D6	A	M	K	Z	

D7	D6	L	R	L	H	Job Designator L: This is the only combination required for Reclamation type work there is no transaction passed from D035K to G004L.
D7	D6	A	M	M	A	
D7	D6	R	M	M	B	
D7	D6	A	M	M	D	
D7	D6	R	M	M	E	
D7	D6	R	M	M	K	
D7	D6	A	M	M	M	
D7	D6	A	M	M	N	
D7	D6	M	P	M	P	
D7	D6	A	M	M	S	
D7	D6	A	M	M	T	
D7	D6	M	P	M	V	
D7	D6	A	M	M	W	
D7	D6	A	M	M	X	
D7	D6	R	M	M	Y	
D7	D6	A	M	M	Z	
D7	D6	A	M	N	A	
D7	D6	R	M	N	B	
D7	D6	A	M	N	D	
D7	D6	R	M	N	E	
D7	D6	R	M	N	K	
D7	D6	A	M	N	M	
DOC ID	**COL 1-2**	**COL 3**	**Type Trans COL 7**	**Job Designator R Col 56**	**Cost Code Col 78**	**Notes**
D7	D6	A	M	N	N	
D7	D6	M	P	N	P	
D7	D6	A	M	N	S	
D7	D6	A	M	N	T	
D7	D6	M	P	N	V	
D7	D6	A	M	N	W	

D7	D6	A	M	N	X	
D7	D6	R	M	N	Y	
D7	D6	A	M	N	Z	
D7	D6	A	M	T	A	
D7	D6	R	M	T	B	
D7	D6	A	M	T	D	
D7	D6	R	M	T	E	
D7	D6	R	M	T	K	
D7	D6	A	M	T	M	
D7	D6	A	M	T	N	
D7	D6	M	P	T	P	
D7	D6	A	M	T	S	
D7	D6	A	M	T	T	
D7	D6	M	P	T	V	
D7	D6	A	M	T	W	
D7	D6	A	M	T	X	
D7	D6	R	M	T	Y	
D7	D6	A	M	T	Z	
D7	D6	A	M	U	A	
D7	D6	R	M	U	B	
D7	D6	A	M	U	D	
D7	D6	R	M	U	E	
D7	D6	R	M	U	K	
D7	D6	A	M	U	M	
D7	D6	A	M	U	N	
DOC ID	**COL 1-2**	**COL 3**	**Type Trans COL 7**	**Job Designator R Col 56**	**Cost Code Col 78**	**Notes**
D7	D6	M	P	U	P	
D7	D6	A	M	U	S	
D7	D6	A	M	U	T	
D7	D6	M	P	U	V	
D7	D6	A	M	U	W	
D7	D6	A	M	U	X	

D7	D6	R	M	U	Y	
D7	D6	A	M	U	Z	
D7	D6	A	M	V	A	Job Designator V added to Work Group Categories DOD 7000.14.
D7	D6	R	M	V	B	Job Designator V added to Work Group Categories DOD 7000.14.
D7	D6	A	M	V	D	Job Designator V added to Work Group Categories DOD 7000.14.
D7	D6	R	M	V	E	Job Designator V added to Work Group Categories DOD 7000.14.
D7	D6	R	M	V	K	Job Designator V added to Work Group Categories DOD 7000.14.
D7	D6	A	M	V	M	Job Designator V added to Work Group Categories DOD 7000.14.
D7	D6	A	M	V	N	Job Designator V added to Work Group Categories DOD 7000.14.
D7	D6	M	P	V	P	Job Designator V added to Work Group Categories DOD 7000.14.
D7	D6	A	M	V	S	Job Designator V added to Work Group Categories DOD 7000.14.
D7	D6	A	M	V	T	Job Designator V added to Work Group Categories DOD 7000.14.
D7	D6	M	P	V	V	Job Designator V added to Work Group Categories DOD 7000.14.
DOC ID	**COL 1-2**	**COL 3**	**Type Trans COL 7**	**Job Designator R Col 56**	**Cost Code Col 78**	**Notes**
D7	D6	A	M	V	W	Job Designator V added to Work Group Categories DOD 7000.14.
D7	D6	A	M	V	X	Job Designator V added to Work Group Categories DOD 7000.14.

D7	D6	R	M	V	Y	Job Designator V added to Work Group Categories DOD 7000.14.
D7	D6	A	M	V	Z	Job Designator V added to Work Group Categories DOD 7000.14.
D7	D6	A	M	W	A	
D7	D6	R	M	W	B	
D7	D6	A	M	W	D	
D7	D6	R	M	W	E	
D7	D6	R	M	W	K	
D7	D6	A	M	W	M	
D7	D6	A	M	W	N	
D7	D6	M	P	W	P	
D7	D6	A	M	W	S	
D7	D6	A	M	W	T	
D7	D6	M	P	W	V	
D7	D6	A	M	W	W	
D7	D6	A	M	W	X	
D7	D6	R	M	W	Y	
D7	D6	A	M	W	Z	
D7	D6	A	M	Y	A	Job Designator Y added to Work Group Categories DOD 7000.14.
D7	D6	R	M	Y	B	Job Designator Y added to Work Group Categories DOD 7000.14.
D7	D6	A	M	Y	D	Job Designator Y added to Work Group Categories DOD 7000.14.
DOC ID	**COL 1-2**	**COL 3**	**Type Trans COL 7**	**Job Designator R Col 56**	**Cost Code Col 78**	**Notes**
D7	D6	R	M	Y	E	Job Designator Y added to Work Group Categories DOD 7000.14.
D7	D6	R	M	Y	K	Job Designator Y added to Work Group Categories DOD 7000.14.

D7	D6	A	M	Y	M	Job Designator Y added to Work Group Categories DOD 7000.14.
D7	D6	A	M	Y	N	Job Designator Y added to Work Group Categories DOD 7000.14.
D7	D6	M	P	Y	P	Job Designator Y added to Work Group Categories DOD 7000.14.
D7	D6	A	M	Y	S	Job Designator Y added to Work Group Categories DOD 7000.14.
D7	D6	A	M	Y	T	Job Designator Y added to Work Group Categories DOD 7000.14.
D7	D6	M	P	Y	V	Job Designator Y added to Work Group Categories DOD 7000.14.
D7	D6	A	M	Y	W	Job Designator Y added to Work Group Categories DOD 7000.14.
D7	D6	A	M	Y	X	Job Designator Y added to Work Group Categories DOD 7000.14.
D7	D6	R	M	Y	Y	Job Designator Y added to Work Group Categories DOD 7000.14.
D7	D6	A	M	Y	Z	Job Designator Y added to Work Group Categories DOD 7000.14.
D7	D6	A	F	Blank	Blank	Floating Stock will not be valid with DMAPS.
Note: 1 – Cost Codes G, J, R, and U are dropped when DMAPS is implemented because unplanned work is not allowed. 2 – Job Designator Q no longer valid and must not be used for new workloads.						

18.51.5. Demand Codes.

18.51.5.1. A complete list of demand codes may be found in AFI 23-101. This Table is to be used as supplemental guidance only.

Table 18.12. Demand Codes.

Code	Description	
A	Initial Installation (Nonrecurring):	
	a.	Request for serviceable replacements for recoverable components missing from

		items received in an incomplete status or replacement for turn-in of dissimilar or obsolete recoverable items.
	b.	Request for serviceable replacements for recoverable components missing from repair cycle items, holes in aircraft, initial issue of new requirements, or increased requirements.
	c.	Turn-in of exchange items that are removed and not replaced by exchange items.
	d.	Turn-in of excess recoverable components received on unserviceable end items or serviceable items excess to requirements.
	e.	Turn-in of dissimilar or obsolete recoverable items that were replaced with dissimilar items.
	f.	Turn-in of recoverable material resulting from organizational deactivation.
N	Nonrecurring:	
	a.	Request for one-time requirement (unplanned program), loan, assembly, and floating stock.
	b.	Request for spares and spare parts for modification of equipment, special, planned programs, and one-time repair or rebuild requirements, non-EAID equipment (includes initial build-up of test sets and similar equipment).
	c.	Turn-in of components from reclamation of disassembly.
P	Special Program Requirements (SPRs) (Nonrecurring): This code is used to indicate that the request is for material previously forecast as an SPR. Reference AFI 23-101 for detailed guidance on the use of SPRs.	
R	Recurring:	
	a.	a. Request for material (spares, spare parts or supplies) made periodically or anticipated to be repetitive for consumption or for stock replenishment.
	b.	The R demand code represents both programmed and non-programmed requirements, which, due to the nature of the work, will be requested again in the near future. Therefore, a MXG request with an R demand code is processed as a recurring transaction and will establish a distribution level that will be adjusted accordingly based on future R demand coded requests.

18.52. Urgency of Need Designator (UND).

18.52.1. The initial request for serviceable direct or indirect material with UND A or B must have advice code 2C or 2J, as appropriate, entered in advice code field or blank.

Table 18.13. UND Codes.

Designator	Conditions	
A	(1)	Cannot perform mission.
	(2)	An existing production line stoppage.
B	(1)	Mission capability is impaired.
	(2)	An anticipated production line stoppage.
C	(1)	All other requirements.
	(2)	Routine requests
Note: The prescribing regulation for UND and FAD codes is AFI 23-101. Please refer to that source for official guidance.		

18.52.2. Justification for high priority requests and evidence of certification as applicable will be maintained according to standard procedures.

18.52.3. When certification by the production group chief or designated representative is obtained prior to submitting an initial request; it will not be necessary to use advice code 2C or 2J.

18.52.4. The MXG will conduct a review of high priority requisitions to ensure intent of the UND is not abused.

18.52.5. When FAD I or II is entered in the request; a Z override code must be placed in the management field to prevent rejection of the requisition.

18.53. Force Activity Designator.

18.53.1. Depot level maintenance is assigned FAD III and must use this FAD in determining priority in all cases except the following:

Figure 18.2. Force Activity Designator (FAD) Codes.

UND				
		A	B	C
		Issue Priority Designator		
FAD				
I.	In Combat	01	04	11
II.	Positioned for Combat	02	05	12
III.	Positioned to Deploy/Combat	03	06	13
IV.	Other Active and Some Reserve Forces	07	09	14
V.	All Other	08	10	15
Note: The prescribing regulation for FAD and UND codes is AFI 23-101.				

18.53.1.1. IAW DoDM 4140.01-V8, *DoD Supply Chain Materiel Management Procedures: Materiel Data Management and Exchange*, depot maintenance activities may only use FAD II when providing direct repair and return for FAD I and II non-mission capable requirements. Direct repair and return is defined as those cases in which an unserviceable asset is removed from a FAD I or FAD II unit's non-mission capable equipment, and the only source to fill that requirement is immediate repair and return of that asset. Upon return, that same asset is installed in the combat unit's equipment, making it mission capable. The previous authorization does not include repair and return to stock for the FAD I and FAD II units.

18.53.1.2. A shop may not be given blanket authority to use a higher FAD unless approved by HQ AF. A work stoppage, schedule slippage, or AWP status is insufficient justification for using a higher FAD. You must be directly supporting a unit with a higher FAD.

18.53.1.3. Special projects may carry a FAD other than IV when so specified in programming documents.

18.53.2. The chief of the maintenance production group will stipulate in writing to the scheduling activities when a FAD other than 3 is authorized for certain workloads and the duration of such authorization.

18.53.3. Should the field be left blank on a material request document, designator FAD V will be mechanically assigned. This block will be left blank on production requests, wash-post entries, and turn-in documents.

18.54. Supply Condition Balance Codes.

18.54.1. Reference AFI 23-101. The Table below is provided as supplemental guidance only and is not intended to replace policy in AFI 23-101.

Table 18.14. Supply Condition and Balance Codes.

Code	Description	Definition
A	Serviceable (issuable without qualification)	New, used, repaired, or reconditioned material that is serviceable and issuable to all customers without limitation or restriction. Includes material with more than six months shelf-life remaining.
B	Serviceable (issuable with qualification)	New, used, repaired, or reconditioned material which is serviceable and issuable for its intended purpose, but which is restricted from issue to specific units, activities, or geographical areas by reason of its limited usefulness or short service life expectancy. Includes material with three through six months shelf life remaining.
C	Serviceable (priority balance)	Items which are serviceable and issuable to selected customers but which must be issued prior to issuing material condition coded A and B to avoid loss as a usable asset. Includes material with less than three months shelf-life remaining.
D	Serviceable (Test/Modification) - Also called TOC balance	Serviceable material that requires test, alteration, modification, technical data marking, conversion, or disassembly. This does not include items that must be inspected or tested immediately prior to issue.
E	Unserviceable (limited restoration)	Material that involves only limited expense or effort to restore to serviceable condition, which is accomplished in the storage activity where the stock is located. May be issued to support ammunition requisitions coded to indicate acceptability of usable condition E stock.
F	Unserviceable (reparable)	Economically reparable material that requires repair, overhaul, or reconditioning; includes reparable items that are radioactively contaminated.
G	Unserviceable (incomplete)	Material requiring additional parts or components to complete the EI prior to issue.
H	Unserviceable (no balance) (condemned)	Material determined to be unserviceable and does not meet repair criteria; includes condemned items that are radioactively contaminated; Type I shelf-life material that has passed the expiration date; and Type II shelf-life material that has passed the expiration date and cannot be extended.

J	Suspended (in stock)	Material in stock that has been suspended from issue pending condition classification or analysis, where the true condition is not known. Includes Type II that has reached the expiration data pending inspection, test, or restoration.
K	Suspended (returns)	Material returned from customers or users and awaiting condition classification.
L	Suspended (litigation)	Stocks held pending litigation or negotiation with contractors or common carriers.
M	Suspended (in-work) (due-in from overhaul - DIOH)	Material identified on inventory control records but which has been turned over to a maintenance facility or contractor for processing.
P	Unserviceable (reclamation)	Material determined to be unserviceable or uneconomically reparable because of physical inspection, tear down, or engineering decision. Item contains serviceable components or assemblies to be reclaimed.
Q	Suspended (Quality Deficient Exhibit) Intra AF only.	DR exhibits returned by customers/users as directed by the action point as a result of reported deficiency IAW TO 00-35D-54.
R	Suspended balance (reclaimed items awaiting condition determination)	Assets turned in by reclamation activities that do not have the capability to determine the material condition. Actual condition will be determined prior to induction into maintenance activities for repair/modification.
S	Unserviceable (Scrap)	Material that has no value except its basic material content. No stock will be recorded. This condition is used only on transactions for shipments to DLA Disposition Services. Material will not be transferred to Supply Condition Code S prior to turn in to DLA Disposition Services if material is recorded in Supply Condition Codes A-H at the time the material is determined to be excess. Material identified by NSN will not be identified to this supply condition code
X	Unserviceable (IM hold) (Intra AF only)	Unserviceable material placed in condition X by inter-condition transfer only, as directed by the IM. Reference AFI 23-101.
Y	Maintenance In Transit (Intra AF only for Condition M)	In transit to Maintenance
Z	Maintenance In Transit (Intra AF only for Condition A, B, C)	In transit from Maintenance

Z1	Maintenance In Transit (Intra AF only for Condition E, F, G, J, K, L)	In transit from Maintenance
Z2	Maintenance In Transit (Intra AF only for Condition H, P, S)	In transit from Maintenance
Z3	Maintenance In Transit (Intra AF only for Condition D, Q, R)	In transit from Maintenance

Table 18.15. Supply Condition and Balance Codes (Part II).

Code	Description	Definition
1	Serviceable excess balance (issuable without qualification)	Same as serviceable A condition, but excess to requirements.
2	Serviceable excess balance (issuable with qualification)	Same as serviceable B condition, but excess to requirements.
3	Serviceable excess balance (priority issue)	Same as serviceable C condition, but excess to requirements.
4	Serviceable project balance	Similar to serviceable A condition, but carried as project balance instead of operating balance. It equals the total of the individual detail records for a particular stock number.
5	Serviceable loan balance	Serviceable A, B, or C condition carried as on-loan balance instead of operating balance.
6	Exchange item DIFM balance	Quantity of serviceable material issued to a local product group for which an exchange item is due in to distribution.
7	Serviceable floating stock balance	Serviceable A, B, or C condition carried as floating stock balance instead of operating balance.

18.55. Cost Codes.

18.55.1. The prescribing regulation for cost codes is AFMCI 65-101, *Depot Maintenance Accounting and Production System-Financial Policy and Procedures for Depot Maintenance*. Refer to this source for official guidance/policy concerning material cost codes. The information provided in this attachment is to be used as supplemental guidance.

18.55.2. Investment (direct) material includes all recoverable assemblies, installed equipment items, and modification kits from investment appropriations. This paragraph is for maintenance use only when the using activity has supplied a funds citation to reimburse the DMAG cost.

Table 18.16. Supplied Reimbursement Codes.

Code	Description	
B	Exchange Material (Planned, Funded). Planned, serviceable MSD investment material issued on an exchange basis to replace like unserviceable items, i.e., DIFM/DOTM.	
	a.	Used for the turn-in of planned, unserviceable MSD item to clear a DIFM detail or to establish a DOTM detail in the D035K system.
	b.	Used for the turn-in of excess serviceable MSD items originally issued under cost code B.
	c.	Used for the turn-in of items received under this cost that was misidentified as the NSN when supply initiated a warehouse denial (reversal) action.
D	Modification Kits. Kits that change the configuration or operating capability of an EI.	
	a.	Includes overhaul kits, TCTO kits, etc., which make repair easier or maintain the serviceable status of an EI.
	b.	Used for turning in modification kits originally issued under cost code D that are intact and excess to immediate requirements, and the processing of distribution warehouse denial transactions.
E	Exchange Material (Planned, Unfunded). Planned, serviceable, recoverable material that is issued to replace like unserviceable items. Used for turning in unserviceable items, returning excess serviceable items originally issued under cost code E and processing supply warehouse denial transactions.	
G	Exchange Material (Unplanned, Funded). Unplanned, serviceable investment items issued on an exchange basis under DIFM/DOTM procedures.	
	a.	Used for the turn-in of unplanned, unserviceable MSD items to clear a DIFM detail or establish a DOTM detail.
	b.	Used for the turn-in of excess serviceable MSD items originally issued under cost code G.
	c.	Used for the turn-in of items received under this cost code that were misidentified as to NSN when supply initiated a warehouse denial (reversal) action.
J	Exchange Material (Unplanned, Unfunded). Unplanned serviceable material issued to replace like unserviceable items. Used for turning in unserviceable items, returning excess serviceable assets originally issued under cost code J, and processing supply warehouse denial transactions.	
K	Exchange Material [Maintenance of Depot Maintenance Equipment (DME), Funded]. Serviceable MSD investment material issued on an exchange basis (i.e., DIFM/DOTM) for the repair of depot maintenance shop and test equipment.	
	a.	Used for the turn-in of similar unserviceable MSD items to clear a DIFM detail or to establish a DOTM detail.
	b.	Used for the turn-in of excess serviceable MSD items originally issued under cost code K. Used for the turn-in of items originally received under K cost code that are misidentified as to NSN when supply initiates a warehouse denial (reversal) action.
M	Nonexchange Material (Unfunded). Missing or excess material, or initial installation components. Serviceable, recoverable material issued on an other-than-exchange basis.	
	a.	Includes issues for initial installation, modification (other than mod kits), and for

		replacing missing recoverable components on exchangeable items received in an incomplete condition used for turning in recoverable items on an other-than-exchange basis.
	b.	Includes turning in excess recoverable material received on reparable or serviceable assets, turning in dissimilar or obsolete recoverable items replaced by serviceable items issued on a nonexchange basis, turning in of excess serviceable items originally issued under cost code M, and processing distribution warehouse denial transactions.
	c.	Used for turn-in of MSD, AFSF material, without credit, from project directives for reclamation, save lists, or crash/battle damage repair of HQ AFMC-owned systems, and turn-in of material fitting the category of FOB assets.
	d.	Excludes installation or removal of items covered by cost code T. Demand code A (initial installation) will always be used in conjunction with the assignment of the M cost code. This will ensure exclusion from DIFM or DOTM control.
S	Nonexchange Material (Planned, Funded, Credit Indicator Turn-ins). Planned, serviceable MSD investment material issued on an other-than-exchange basis for initial installation or modification (other than mod kits).	
	a.	a. Used for the turn-in of specified categories of MSD items on an other-than-exchange basis with credit automatically determined based on the stock listed credit indicator.
	b.	Used for turn-in of excess serviceable items originally issued under this cost code and for the return of items received under this cost code that were misidentified as to NSN when supply initiated a warehouse denial (reversal) action.
T	Aircraft/Missile Replacements (AF Form 2692). Items issued to replace items previously removed and not reinstalled. Used for turning in aircraft items recorded on AF Form 2692, that were removed and not reinstalled, and the processing of supply warehouse denial transactions.	
U	Non-Exchange Material (Unplanned, Reclamation Turn-Ins). For issue of serviceable investment material on an other-than-exchange basis to replace missing MSD components discovered on end items received in an incomplete condition. Applies to turn-in of excess MSD items originally issued under U cost code and the return of items, with credit reversal, received under this cost code that are misidentified as to NSN when supply initiates warehouse denial (reversal) action.	
Y	Exchange Material (Maintenance of DME, Unfunded). Direct, serviceable, recoverable material issued on an exchange basis for repair of production maintenance shop and test equipment. Used for turning in unserviceable recoverable items generated from exchange includes turn-in of excess serviceable items originally issued under cost code Y and the processing of supply warehouse denial transactions.	

18.55.3. Production issue or turn-in transactions are for issuing items for depot repair and for turning in these items after completing repair. Production items that are returned in a nonserviceable condition also are coded as production turn-in transactions. Transactions bearing production cost codes will not result in charges or credits in actual material cost accumulation.

Table 18.17. Production Issue or Turn-In Transaction Codes.

Code	Description
F	Quality Control or Prototype Analysis. Items issued for quality control, inspection, analysis, Unsatisfactory Report (UR) exhibits, prototype analysis, and returning items previously issued for these purposes. This code will be used in conjunction with the appropriate production RC/CC code. Items removed from the production line for quality analysis and returned to the line will be returned using cost code P rather than cost code F.
H	Disassembly or Renovation Testing. Recoverable assets issued for disassembly or reclamation and returning reclaimed components. Applies to issuing assets for renovation proof testing purposes and for turning in the remaining items following test evaluation.
P	Production. Reparable, TOC, or incomplete assets issued to be made serviceable. Used for turning in resulting serviceable, reparable, TOC, and condemned assets.
V	Production Correction. Returned production items that were received misidentified as to stock number or condition. Incorrect item is turned in as a cost code V under control number of item originally requested. Correction issues require cost codes P, F, or H, as appropriate.

18.55.4. Expense material consists of all material and parts used in the MXGs and not categorized by investment or production cost codes.

Table 18.18. Expense Material Codes.

Code		Description
A		Expense Material (Planned). Planned serviceable expense material issued for use in depot maintenance repair, modification, and assembly or manufacture operations. Used for turning in excess serviceable material originally issued under cost code A and for the processing of supply warehouse denial transactions.
L		Expense Material (Indirect or Overhead). Material issued for use as indirect or overhead material. Used for turning in excess serviceable and excess expense material originally issued under cost code L and for processing distribution warehouse denial transactions. Identification of these issues to appropriate accounts is accomplished by entering the applicable U-account control number on the material documents.
N		Expense Material (Not applicable to Repair Costs). Serviceable expense material, originally removed as excess from assets undergoing maintenance which is turned in as removed unserviceable items specifically requested by distribution.
	a.	a. Includes removed serviceable or unserviceable expense material of a dissimilar, obsolete, or alien nature.
	b.	Excludes turn-ins of serviceable expense items initially issued under expense material cost codes A, R, L, or W, or initially issued under special purpose code X.
	c.	b. Excludes turn-ins of expense material received in other-than-serviceable condition or misidentified as to its NSN (**See Note**).

R	Expense Material (Unplanned). Unplanned serviceable expense material issued for use in depot maintenance repair, modification, assembly, or manufacture operations. Used for turning in excess serviceable expense material originally issued under cost code R and for processing supply warehouse denial transactions.
W	Expense Material (Maintenance of DME). Direct serviceable expense material issued for repair, modification, assembly, and manufacture of depot maintenance shop and test equipment. Used for turning in excess serviceable expense material originally issued under cost code W, and processing supply warehouse denial transactions. Cost code W is limited to requesting or turning in direct material, not for material planning.
X	Expense Material (Not Charged to the DMAG). Stock fund and non-stock fund expense material issued without charge to the DMAG, for use in depot maintenance repair, modification, assembly, or manufacture operations. Used for turn-in of expense material previously issued under cost code X.
Z	Customer Furnished Material (Unfunded, Direct Material). Material furnished by customers is to be included in the depot maintenance work as specified by the customer. Costs will be determined by the customer and accountability maintained as directed by the customer. This material is costed as unfunded direct material.
Note: Items returned under cost code N will not be considered for credit by the Air Force Stock Fund (AFSF) divisions.	

18.56. Action Suffix Codes.

18.56.1. Action suffix codes will not be entered on normal (pre-post) requests and turn-in documents when the item is physically returned to supply.

Table 18.19. Action Suffix Codes.

Category	Transaction Description	Turn-In	Request
Wash Entry	Production to Non-production	WP	WP
Line Consumption	Equipment to Production (reparable to overhaul C/N)	WP	WP
Line Retention	Production to Equipment	WP	WP
	Production to Production (overhaul C/N to Mod C/N)	RP	RP
	Production to Production (reparable or TOC, i.e., one control number to another)	WP	WP
	Production to Production (wash-entry of misidentified, C/C-V, i.e., one control number to another	WP	WP
	FOB to Production (other-than-serviceable and condemned condition)	WP	WP

	Non-production to Production (reparable, one control number to another)	WP	WP
	Non-production to Floating Stock (serviceable exchange to floating stock	WP	WP
	Floating Stock to non-production (serviceable floating stock to exchange)	WP	WP
Other	Backorder Cancellation		CC
	Walk-through or SSC/EPSC Issue (post-post)		PP
	DIFM Follow-up		XX
	DOTM Follow-up	XX	
	In transit Follow-up		XX

18.56.2. Only five suffix codes normally apply to MXG transactions: CC, PP, RP, WP, and XX. The following action suffix codes will be used on maintenance MXG-initiated requests:

18.56.2.1. Code CC denotes manual request for due-in or backorder cancellation.

18.56.2.2. Code PP denotes post-post, input to D035K only.

18.56.2.3. Code RP denotes records transaction and passes to the D035J system, FIABS.

18.56.2.4. Code WP denotes wash-post inventory balances or adjusts DIOH.

18.56.2.5. Code XX denotes follow-up for line issue of exchange items (DIFM) or follow-up for receipt of local turn-in with no matching debit (DOTM).

18.56.3. The action suffix code and as received stock number will be omitted on the turn-in document for a misidentified asset received on a reclamation or disassembly work order.

18.57. Material Classification.

Table 18.20. Material Cost Code Exit.

Air Force Cost Code	Budget Code	ERRC Code	Definition
Z	Alpha	ALL	Customer Furnished Material – Other Unfunded
B	1	C, S, T	SSD Exchange (Investment)—Funded
K	1	C, S, T	SSD Exchange (Investment)—Funded—Repair of DME
B	8	C, S, T	MSD Exchange (Investment)—Funded
K	8	C, S, T	MSD Exchange (Investment)—Funded—Repair of DME
E	Alpha	C, S, T,	Exchange (Investment)—Other Unfunded

Y	Alpha	C, S, T,	Exchange (Investment)—Other Unfunded—Repair of DME
S	1	C, S, T, U	SSD Non-Exchange (Investment)—Funded
S	8	C, S, T, U	MSD Non-Exchange (Investment)—Funded
M	ALL	C, S, T, U	Non-Exchange (Investment)—Other Unfunded/Funded
D	Alpha	C, S, T, U	Non-Exchange (Investment)—Other Unfunded
T	Alpha	C, S, T,U	Non-Exchange (Investment)—Other Unfunded
A	1	N, P	SSD Expense—Funded
L	1	N, P	SSD Expense—Funded
N	1	N, P	SSD Expense—Funded
W	1	N, P	SSD Expense—Funded
A	4	N, P	Commissary Expense - Funded
L	4	N, P	Commissary Expense - Funded
N	4	N, P	Commissary Expense - Funded
W	4	N, P	Commissary Expense - Funded
A	6	N, P	Fuels Expense - Funded
L	6	N, P	Fuels Expense - Funded
N	6	N, P	Fuels Expense - Funded
W	6	N, P	Fuels Expense - Funded
A	8	N, P	Fuels Expense - Funded
L	8	N, P	Fuels Expense - Funded
N	8	N, P	MSD Expense – Funded-Turn-in only
W	8	N, P	GSD Expense - Funded
A	9	N, P	GSD Expense - Funded
L	9	N, P	GSD Expense - Funded

N	9	N, P	GSD Expense - Funded
W	9	N, P	GSD Expense - Funded
X	Alpha	N, P	Expense – Other Unfunded

Table 18.21. Material Classification.

	(SSD) Funded Material Expense	Commissary Material Funded Expense	Fuels Material Funded Expense	(GSD) Funded Material Expense	(MSD) Funded Material Expense	(MSD) Funded Material Investment
ERRC	N, P	N, P	N, P	N, P	N, P	C, S, T, U
CC	A, L, N, W	A, L, N, W	A, L, N, W	A, L, N, W	A, L, N, W	B, K, S, M
BC	1	4	6	9	8	8
Legend Codes: ERRC – Expendability, Recoverability, Reparability Category CC – Cost Code BC – Budget Code						

Table 18.22. Cost Validation Codes.

COST CODE	**Cost Code Validations for DMAG Stock Orders (Inventory)**	**Cost Code Validations for SRI Orders (line issue)**	**Remarks**
A	ERRC: N, P	ERRC: N, P	Funded
	Budget Code: Numeric	Budget Code: Numeric	
	Inventory Type: N	JON Type: Direct	
B	ERRC: C, T, S	ERRC: C, T, S	Funded—DIFM/DOTM—Indirect JON for Rework.
	Budget Code: Numeric	Budget Code: Numeric	
	Inventory Type: N	JON Type: Direct, Indirect	
D	ERRC: C, T, S, U	ERRC: C, T, S, U	Unfunded—1st position of NIIN must be K
	Budget Code: Alpha	Budget Code: Alpha	
	Inventory Type: C, D	JON Type: Direct	
E	ERRC: C, T, S	ERRC: C, T, S	Unfunded—DIFM/DOTM—Indirect JON for Rework. If JON is Indirect, NIMMS to treat as Funded Material
	Budget Code: Alpha	Budget Code: Alpha	
	Inventory Type: C, D	JON Type: Direct, Indirect	

K	ERRC: C, T, S	ERRC: C, T, S	Funded—DIFM/DOTM –
	Budget Code: Numeric	Budget Code: Numeric	Repair of Depot Maint. Equip.
	Inventory Type: N	JON Type: Direct, Indirect	
L	ERRC: N, P	ERRC: N, P	Funded
	Budget Code: Numeric	Budget Code: Numeric	
	Inventory Type: N	JON Type: Indirect	
M	ERRC: C, T, S, U	ERRC: C, T, S, U	Unfunded and Funded—Must use Y Force Credit Indicator
	Budget Code: ALL	Budget Code: ALL	If JON is Indirect, NIMMS to treat as Funded Material
	Inventory Type: C, D	JON Type: Direct, Indirect	
N	ERRC: N, P	ERRC: N, P	Turn in of serviceable expense material (FOB) removed as
	Budget Code: ALL	Budget Code: ALL	
	Inventory Type: N/A	JON Type: NONE	excess from assets, which are undergoing maintenance.
S	ERRC: C, T, S	ERRC: C, T, S	Funded—Initial Installation— Indirect JON for Rework
	Budget Code: Numeric	Budget Code: Numeric	
	Inventory Type: N	JON Type: Direct, Indirect	
T (Ammo)	ERRC: C, T, S, U	ERRC: C, T, S, U	Unfunded—For issue and turn-in of items for reinstallation and for the issue of AF Form 2692
	Budget Code: Alpha	Budget Code: Alpha	
	Inventory Type: C, D	JON Type: Direct	
W	ERRC: N, P	ERRC: N, P	Funded—Repair of Depot Maint. Equip.
	Budget Code: Numeric	Budget Code: Numeric	
	Inventory Type: N	JON Type: Direct, Indirect	
X	ERRC: N, P	ERRC: N, P	Unfunded
	Budget Code: Alpha	Budget Code: Alpha	If JON is Indirect, NIMMS to treat as Funded Material
	Inventory Type: C, D	JON Type: Direct, Indirect	
Y	ERRC: C, T, S	ERRC: C, T, S	Unfunded—DIFM/DOTM Repair of Depot Maint. Equip.
	Budget Code: Alpha	Budget Code: Alpha	
	Inventory Type: C, D	JON Type: Direct, Indirect	If JON is Indirect, NIMMS to treat as Funded Material

Z	ERRC: C, T, S, N, P, U	ERRC: C, T, S, N, P, U	Costing Determined by Customer. Treat as Unfunded. If JON is Indirect, NIMMS to treat as Funded Material

Figure 18.3. AWP Worksheet Sample.

AWP Item Data AIR FORCE (AF)					
PRODUCTION NUMBER/JON:	INVENTORY TRACKING NUMBER (ITN)/WORK CONTROL DOCUMENT (WCD) NUMBER:	END ITEM NATIONAL STOCK NUMBER (NSN):			
NET REPAIR OBJECTIVE (NRO):	ART CONVENE (Y/N) DATE:	SERIAL NUMBER: INCLUDE ATTACHMENTS AS NEEDED	END ITEM DOCUMENT NUMBER: INCLUDE ATTACHMENTS AS NEEDED		
QTY AWP:	NOUN:		STANDARD REPORTING DESIGNATOR (SRD):		
QTY FWP:	QTY OWO:	QTY QDR:	NSN RO Fill % (SCR)		
SCR:	SCHEDULER:	PST:			
AWP DATE IN		AWP LOCATION			
Actions in List (responsible organization is in parentheses)					
ITEM #	Task/Action		Yes	No	N/A
1	Has rob back or cannibalization of like AWP item(s) been attempted? (AF MXG)				
2	Are all backorders and supporting requisitions showing valid in all systems, with minimum priority of 'B3' (NIMMS, D035K, Enterprise Business System (EBS), if applicable)? (DLA)				

3	Do all backorders NSNs have valid document numbers and sufficient quantity due-in on requisition? (DLA)			
4	Are all piece/component parts backorders against subject end item linked to end item in D035K? (DLA)(AF MXG)			
5	Checked NIMMS MN090P for Y-store balance and DSS for 'hidden' balance? (DLA) (AF MXG)			
6	If the requirement is for a part number, is that part number source coded (JBB, JBD) and cross-referenced to an NSN? (DLA) In some cases, the AFSC planner may utilize a GPC, local manufacture or TMT tasker to satisfy a requirement.			
7	Has the DLA CSS accomplished the DLA Resolution checklist? The DLA CSS should use the DLA Resolution as needed to provide pertinent information while participating in the ART. (DLA)			
8	Has research been conducted to identify substitutes, interchangeable or NHA? (DLA) (AF MXG/SCM)			
9	Has the planner submitted an AFMC Form 202 for Engineering to consider reuse or limited relaxation of tolerances where possible? (AF MXG)			
10	Has reclamation been considered? (AF SCM)			
OTHER TASKS TO BE PERFORMED:				
PRODUCTION SUPERVISOR	NAME: SIGNATURE:		DATE:	
DLA CUSTOMER SUPPORT SPECIALIST	NAME: SIGNATURE:		DATE:	
PRODUCTION SUPPORT TECHNICIAN	NAME: SIGNATURE:		DATE:	
SHOP SCHEDULER	NAME: SIGNATURE:		DATE:	
MATERIAL BACKORDER DATA*				

NSN	MAINT DOC #	QTY	NOUN	RSN CODE	REMARKS

END ITEM RECEIVED BY: DLA Physical Custody of Item	DATE:

*MATERIAL BACKORDER DATA: SEE ATTACHED DOCUMENTATION (RINM screen shot D035K, LDMS AWP Report, EXCEL spreadsheet, etc.) AS NEEDED

REASON (RSN) CODES FOR THE MATERIAL BACKORDER DATA

	Code	Root Cause	Definition
Requirements	2	ENGINEERING CHANGES	Any degraded support or delay that exists because of a gap between the contracting and engineering functions. Actions such as engineering modifications, re-engineering would be considered engineering changes causing constraints or work stoppage in the Program Depot Managed workflow.
	6	INCREASED DEMANDS	Existing requirements exceed historic demand/usage patterns.
	7	INCREASED CONDEMNATIONS	Resulting from an item aging, quality problems, or the EI becomes obsolete thereby increasing usage.
	8	SPORADIC DEMANDS	Wide fluctuations in the demand/usage of an asset over an extended period of time.
	10	UNPLANNED	Item has no replacement factor, no previous demands or is not on the BOM.
	11	OTHER REQUIREMENTS ISSUE	Item fits into the Requirements category; however, none of the sub-categories are applicable.
	14	FORECASTING	Shortages related to Forecasting. Applies to both DLA and AF. Includes untimely forecast, incorrect forecast, untimely or inaccurate DDE inputs or inaccurate historical forecast input/calculations. Includes DHA Inputs.

Acquisition	5	UNTIMELY ACQUISITION	Covers both DLA and AF managed items that are experiencing shortages related to the procurement process. Delays in contract awards, extensive solicitation phase, acquisitions initiated late to published administrative lead time (ALT)/PLT, acquisitions initiated late to meet published demand usage rates. Problem areas associated with Purchase Request (PR) could include such topics as modifications and/or adjustments, delays in purchase initiation, understated lead times, changes in the total dollar value (funding).
	9	NO BIDS/SLOW BIDS	Delays related to due to lack of a vendor(s) or responses to government request for solicitation.
	13	OTHER ACQUISITION ISSUE	Item fits into the Acquisition Process category; however, none of the sub-categories are applicable.
Contractor	1	DELINQUENT OR CANCELLED CONTRACT	Applies once a contract is awarded. Includes vendor not meeting the agreed upon Contract Delivery Dates (CDDs) or agreed upon delivery quantities, vendor cancellations, or contracts cancelled because of quality or legal issues. Any extensions granted or approved by DLA contracting are not to be considered because once it has been determined the customer has experienced an out of stock condition the root cause already exists.
	3	PRODUCTION PROCESS	Addresses the inability to repair AF assets. Capacity may be hindered due to inefficiencies in the flow process, manpower issues, etc. Includes situations when required equipment/test sets are not available (e.g., unserviceable, on loan, obsolete, etc.). Delays attributed to raw material shortages.
	4	FIRST ARTICLE TEST	Delays caused from First Article Test (FAT) requirements. Includes failure to pass the FAT, changes in specifications, lengthy or delayed FAT process, or undefined specifications discovered during FAT.
	12	OTHER CONTRACT RELATED ISSUE	Item fits into the Contractor category; however none of the sub-categories are applicable.
Organic			Applies to AF Managed items. Reason codes under 'Contractor' are used here. Constraints issues in this category are related to Depot (in-house) processes or related actions.

Figure 18.4. Depot MICAP Request Worksheet Sample.

DEPOT MICAP REQUEST WORKSHEET				
PST	1. NSN (National Stock Number)	2. NOUN		3. PART NUMBER
	4. AAC (Acquisition Advice Code)	5. ERRC CODE(Expendability, Recoverability, Reparability	6. SOS (Source of Supply)	7. SMR (Source, Maintenance & Recoverability
	8. DOLLAR AMOUNT $	9. NEXT HIGHER ASSEMBLY:	10. ALTERNATE NSN AVAILABLE	
	11. MAINTENANCE DOCUMENT TO BE UPGRADED:	12 T.O. FIG IND	13. EDD (Estimated Delivery Date)	
	14. WERE THERE ASSETS AVAILABLE?	15. DO35/NSMC SCREEN FOR AF-MANAGED ITEMS:		
	16. HAVE ALL COURTESY STORES BEEN CHECKED?	18. PST (Production Support		
	17. ADDITIONAL COMMENTS:			
SCHEDULER	19. DATE OF MICAP REQUEST	20. SERIAL/TAIL#	21. QTY/UI	22. ROBBACK
	23. WCD (Work Control Document)	24. SRD (Standard Reporting Designator)		25. 202 #/ROBBACK/IPV
	26. JON (Job Order Number)	27. CONTROL #		28. SCHEDULER SIGNATURE &
	29. NEED DATE: AMREP(Aircraft Maintenance Production Compression Report)/MRT (Maintenance Review Team), CRITICAL PATH, END ITEM PROJECTED DELIVERY			
	31. IMPACT STATEMENT/OTHER INFO(IF ASSET IS NOT RECEIVED)			30. FOREMAN SIGNATURE &
				32. PRODUCTION CHIEF SIGNATURE
				& A33. PRODUCTION SUPPORT
	34. DATE MICAP REQUEST REC'D:	35. START TIME:	36. MICAP START TIME:	37. WAS THERE LATERAL AVAILABLE?
	FOLLOW-UP			

38. REQUISTION NO.
39.
40. DLA (Defense Logistics Agency) CSS (Customer Support Specialist) SIGNATURE/DATE/TIME:

Chapter 19

AIRCRAFT GROUNDING (MATERIEL DEFECT) PROGRAM

19.1. Aircraft Grounding.

19.1.1. Definition. On occasion, units may discover conditions in multiple aircraft, engines, missiles, munitions, or related installed flight equipment of sufficient risk to personal injury or equipment damage that warrant fleet grounding consideration from a higher echelon of command until the matter can be properly investigated and resolved. Grounding is an administrative action taken to prohibit aircraft from flying because of a specific condition related to the aircraft or based on requirements of a directive.

19.1.1.1. This portion does not apply to conditions which are clearly limited to the affected unit/base (i.e., lost tool, fluid contamination, aircraft/equipment damage of known origin, or other strictly local event).

19.2. Documentation.

19.2.1. Annotate Aerospace Equipment forms IAW TO 00-20-1.

19.2.2. Grounding Authority. Major Command Commanders (MAJCOM/CCs) may direct grounding of MDS-specific or all aircraft within their commands for maintenance reasons. When a MAJCOM has lead command aircraft responsibility, MAJCOM/CCs may recommend grounding of all aircraft within an MDS-specific fleet. Notification will be provided IAW AFMAN 10-206. Return to normal operations will be initiated by the commander directing the original grounding. The authority for grounding may be delegated by MAJCOMs in supplements to this and other governing AFIs but not lower than MAJCOM/A4s. (**Note**: ANG will follow grounding authority guidance IAW AFI 11-401, *Aviation Management*.)

19.2.2.1. In certain cases, the SPM versus an operational unit will discover a materiel condition with fleetwide impact and will recommend the MAJCOM/CC ground the fleet, or, in some instances direct immediate grounding IAW authority granted to the SPM in TO 00-5-15, *Air Force Time Compliance Technical Order Process.*

19.2.2.2. In the case of a deployed unit that is not assigned/attached to a MAJCOM, the grounding decision will be made by the Joint Force Air Component Commander/Combined Force Air Component Commander (JFACC/CFACC).

19.2.2.3. Documentation. Annotate Aerospace Equipment forms IAW TO 00-20-1.

19.2.3. Release from Grounding.

19.2.3.1. When a grounding condition requires SPM involvement, the SPM engineering function will investigate and recommend a course of action to the submitting MAJCOM IAW TO 00-5-15. The MAJCOM/A4 will consult with the MAJCOM/CC to confirm conditions for the release from grounding via the following methods: For Unclassified Messages: Official non-secure internet protocol router (NIPR) email, digitally signed, and encrypted using the CAC PKI. For Classified Messages: Official secure internet protocol router (SIPR) email. If the corrective action is published as an immediate action TCTO or other certified repair data, individual aircraft compliance constitutes their return to service. If aircraft are grounded by a HAF authority, then coordinate for release through AF/A4L.

19.2.3.2. If the corrective action is issued as a routine TCTO or no corrective action is required for unaffected aircraft (i.e., after investigation, the situation does not pose imminent risk to the entire fleet), the affected MAJCOM/CC will issue a follow-on email to affected units/commands releasing the grounding order and specifying conditions for returning to flying operations.

19.2.3.3. Units will annotate release from grounding by clearing the discrepancy IAW TCTO/repair data and/or TO 00-20-1. If the corrective action is deferred to a routine TCTO, next phase/isochronal, etc., clear the discrepancy IAW MAJCOM/A4 direction and enter the appropriate data for the deferred job.

19.2.3.4. Final reporting for grounding and release status will be accomplished IAW AFI 10206.

19.2.4. Stand-down for Operational Reasons. For these situations, refer to AFI 11-401.

19.3. Aircraft Grounding (Materiel Defect).

19.3.1. On occasion, units may discover conditions in multiple aircraft, engines, missiles, munitions, or related installed flight equipment of sufficient risk to personal injury or equipment damage that warrant grounding their fleet until the matter can be properly investigated and resolved. The ALC/CC shall develop local procedures for depot maintenance support to grounded aircraft, engines, or major end items.

Chapter 20

MAINTENANCE TRAINING

20.1. Maintenance Training.

20.1.1. Maintenance training provides initial, recurring and advanced proficiency, and qualification/certification skills needed by a technician to perform duties in their primary AF Specialty Code/Civilian Job Series. All formal training shall be documented in a Maintenance Information System (MIS) as validation of completion of training. Training is essential to establish, improve, and sustain unit capabilities and is one of the most important responsibilities of commanders and supervisors. Commanders and supervisors must give priority support to training. When balancing resources, (e.g., aircraft, support equipment, facilities, tools, funding, personnel, etc.), maintenance training carries an equal priority with the production workload. For depot maintenance training policy and guidance, refer to AFI 36-2650 AFMCSUP.

20.1.1.1. IAW AFI 36-2650 AFMCSUP, the ALCs' authorized automated MIS will be TSS and shall be used to manage training requirements in support of this instruction and other applicable directives.

20.1.2. The ALCs are the OPRs for the Depot Maintenance Training Program. An MTF shall be established at the ALC level. The ALC/CC will appoint in writing an ALC Maintenance Training Manager, ALC CTP Program Manager, ALC PAC Program Manager, ALC Courseware Program Manager (CPM), ALC Training Systems Program Manager (TSPM), and other officials deemed necessary to effectively develop, implement, and manage the Depot Maintenance Training and PAC programs at the ALCs. These positions will be assigned to the ALC MTF.

20.1.3. Work Center Training. ALCs will develop work center training requirements. Assigned personnel will be evaluated and a determination of their individual training needs will be accomplished. Training requirements will be tracked and personnel will attend required training on time. ALCs will ensure training documentation is accurate. When applicable, AETC developed training materials are used to supplement qualification training.

20.1.4. Information Systems Training. ALCs will ensure that depot maintenance personnel are trained on maintenance and/or supply information systems, or other management information systems required to support the depot maintenance function and as required for job performance of the individual.

20.2. Special Certification Roster (SCR).

20.2.1. The SCR is a management tool providing supervisors a clear and concise listing of personnel who have been appointed to perform, evaluate, and/or inspect work of a critical nature. Only maintenance requirements that have a definite potential for personnel injury or damage to equipment shall be included in the SCR.

20.2.2. SCR Approval. SCR rosters will be approved at the Group level and maintained, at a minimum, by the Group Training Manager.

20.2.2.1. Personnel identified on SCRs will meet all training and certifications required for the task appointed.

20.2.3. Required SCRs.

20.2.3.1. Exceptional Release.

20.2.3.2. Weight and Balance (W&B) Certified (reference TO 1-1B-50, *Aircraft Weight and Balance*).

20.2.3.3. Impoundment Authority.

20.2.3.4. Calibration Limitation Approval (reference TO 00-20-14).

20.2.3.5. Red-X sign-off

20.2.3.5.1. This roster will identify those personnel authorized, as required, to certify Red-X items on aircraft forms. Red-X sign-off does not apply to WCDs.

20.3. Production Acceptance Certification (PAC) Program.

20.3.1. The PAC Program documents employee certification IAW AFMCI 21-100 to perform and accept completion of assigned work. Employees certify (i.e., stamp) that the work they performed meets all technical data, safety, and other applicable directives. Further maintenance training information can be found in AFI 36-2650 AFMCSUP.

20.3.2. Supporting System. Documentation to track employee PAC qualification and certification shall be maintained in TSS-PAC.

20.3.3. Special Skills Qualification (SSQ). SSQs are specialized skills that require formal training and proficiency demonstration. Most of these skills are governed by military specifications and/or higher level regulatory guidance, are safety related, or have a significant impact on cost. An SSQ is a prerequisite for PAC task certification for those skills established by this manual. Additional requirements may be established locally by the ALC.

20.3.4. PAC Program Applicability. The PAC program applies to all depot maintenance personnel certifying WCDs. All depot production WCDs shall be stamped and dated by a PAC certified employee. Other documents directly supporting depot production are designated and certified as locally determined. **Note:** Training and PAC documentation requirements apply to the internal PMEL supporting the on-site test equipment and other on-site production equipment covered by TO 00-20-14.

20.3.4.1. PAC Training. All personnel assigned to AFSC aircraft/missile maintenance units, military and civilian, shall use the TSS-PAC MIS to document recurring training requirements and certifications.

20.3.5. PAC Responsibilities.

20.3.5.1. PAC OPR. AFSC/LGP is the OPR for the Depot Maintenance PAC and SSQ Programs. AFSC shall:

20.3.5.1.1. Provide guidance and set policy for Depot Maintenance PAC and SSQ Programs.

20.3.5.1.2. Direct and approve command-wide Depot Maintenance PAC initiatives.

20.3.5.1.3. Direct policy to promote standardization of SSQs for common MDS across the ALCs.

20.3.5.1.4. Direct policy to promote standardization of PAC Programs across the ALCs.

20.3.5.1.5. Provide oversight of resources for TSS-PAC.

20.3.5.1.6. Ensure compliance with Depot Maintenance PAC directives and policies.

20.3.5.2. AFSC Maintenance Training and PAC Working Group. The AFSC Maintenance Training and PAC Working Group is chaired by AFSC/LZ with representation from AFSC/LGP, ALC Maintenance Training Managers, ALC PAC Program Managers, ALC CTP Program Managers, and other representatives as required. As a minimum, the Working Group shall:

20.3.5.2.1. Advise the ALCs and AFSC/LZ on depot maintenance training and PAC issues.

20.3.5.2.2. Resolve depot maintenance training, PAC, and SSQ related problems.

20.3.5.2.3. Propose standardization of depot maintenance training, PAC, and SSQ activities.

20.3.5.2.4. Establish procedural guidance for implementation of depot maintenance training, PAC, and SSQ initiatives.

20.3.5.2.5. Process revisions to this manual and input on all other directives that impact depot maintenance training, PAC, and SSQ programs.

20.3.5.2.6. Recommend Lead ALC assignments for command SSQs.

20.3.5.3. ALC Maintenance Training and PAC Council. The ALC Maintenance Training and PAC Council is chaired by the ALC/CC/DV or designee with representation from the Maintenance Groups. The ALC Training Office, the AFGE Local, and other senior leaders are represented when deemed appropriate. The ALC Maintenance Training and PAC Council shall:

20.3.5.3.1. Meet at the call of the chair.

20.3.5.3.2. Ensure ALC compliance with depot maintenance training, PAC, and SSQ directives and policies.

20.3.5.3.3. Resolve ALC depot maintenance training, PAC, and SSQ related problems.

20.3.5.4. ALC Maintenance Training and PAC Working Group. This Working Group is co-chaired by the ALC Maintenance Training Manager and ALC PAC Program Manager and includes the ALC CTP Program Manager, Group Training Managers, Group PAC Program Managers, an AFGE Local representative, and other representatives as applicable. At a minimum, the ALC Maintenance Training and PAC Working Group shall:

20.3.5.4.1. Advise organizations on depot maintenance training, PAC, and SSQ issues.

20.3.5.4.2. Standardize ALC depot maintenance training, PAC, and SSQ activities as appropriate.

20.3.5.5. ALC PAC Program Manager. Each ALC/CC/DV designates in writing an ALC PAC Program Manager. The PAC Program Manager shall:

20.3.5.5.1. Serve as OPR for PAC and SSQ issues during the development and revision of directives.

20.3.5.5.2. Co-chair the ALC Maintenance Training and PAC Working Group with the ALC Maintenance Training Manager.

20.3.5.5.3. Serve as liaison between the ALCs and AFSC/LZ on PAC and SSQ related issues.

20.3.5.5.4. Ensure ALC compliance with PAC and SSQ directives and policies by providing guidance and setting policy for the ALC PAC Program.

20.3.5.5.5. Assist Maintenance Groups with PAC Program implementation and elevate PAC problems to higher authority at the ALC and AFSC as needed.

20.3.5.5.6. Administer all command and local SSQs to include approving the development, revision, and revalidation of SSQ guides and worksheets.

20.3.5.5.7. Establish local SSQs as required.

20.3.5.5.8. Forward locally designated SSQs to AFSC/LZ with copies to all ALC PAC Program Managers.

20.3.5.5.9. Process waiver and deviation requests to this and other AFSC or higher directives on behalf of the ALC when such requests are related to the PAC and SSQ Programs, advise organizations involved of higher headquarter decisions, and maintain copies on file for reference and audit purposes.

20.3.5.6. Maintenance Group Commanders (MXG/CCs)/DVs will:

20.3.5.6.1. Appoint in writing a Group Training Manager, Group PAC Program Manager, and other officials deemed necessary to effectively implement the Depot Maintenance Training PAC and SSQ Programs within the Group.

20.3.5.6.2. A copy of the Groups' PAC and Training Manager Appointment Letters will be provided to the ALC MTF.

20.3.5.6.3. Designate SSQ officials in writing IAW this manual and local publications.

20.3.5.6.4. Provide SMEs in support of SSQ, courseware, and CTP development, review, and revision.

20.3.5.6.5. Ensure Group compliance with depot maintenance training, PAC, and SSQ directives and policies.

20.3.5.6.6. Review and analyze monthly training status reports for Recurring Training Requirement (RTR) overdues, no-shows, and training backlog to determine corrective actions.

20.3.5.6.7. Review and analyze monthly PAC program status reports for SSQ overdues and program compliance to determine corrective actions.

20.3.5.6.8. Participate on the ALC Maintenance Training and PAC Council.

20.3.5.7. Group PAC Program Manager. The Group PAC Program Manager shall:

20.3.5.7.1. Serve as a member of the ALC Maintenance Training and PAC Working Group.

20.3.5.7.2. Serve as a liaison between the production Group and the ALC PAC Program Manager on issues related to the PAC and SSQ Programs including TSS-PAC.

20.3.5.7.3. Assist supervisors with PAC and SSQ Program implementation to include qualification, certification, and documentation, and elevate PAC issues to the ALC PAC Program Manager as needed.

20.3.5.7.4. Manage TSS-PAC for the Group.

20.3.5.7.5. Assist supervisors in identifying PAC and SSQ tasks.

20.3.5.7.6. Administer all Group SSQs to include approving the development, revision, and revalidation of SSQ guides and worksheets.

20.3.5.7.7. Provide monthly PAC Program status reports for SSQ overdues and program compliance to the Production Group Chief and the ALC PAC Program Manager.

20.3.5.7.8. Maintain copies of all applicable SSQ qualification official appointment letters.

20.3.5.7.9. Maintain completed SSQ proficiency worksheets for a minimum of one year.

20.3.5.7.10. Participate in all PPPT meetings.

20.3.5.7.11. Participate in PPT meetings as required.

20.3.5.7.12. Ensure WCDs have a supporting PAC task as required.

20.3.5.7.13. Ensure PAC tasks are written in compliance with AFMCI 21-100 and this manual.

20.3.5.8. Maintenance Supervisor. The maintenance supervisor is ultimately responsible for training, qualification, and certification of assigned maintenance personnel. The maintenance supervisor shall:

20.3.5.8.1. Utilize TSS-PAC, Education and Training Management System (ETMS) Web, and/or other authorized automated systems to identify training and qualification requirements/completions.

20.3.5.8.2. Identify the PAC tasks associated with work performed in areas of responsibility, verify that tasks are documented in TSS-PAC, and work with the Group PAC Manager to correct deficiencies.

20.3.5.8.3. Ensure that all of the factors of production and the industrial environment are correct (e.g., training, safety, material, equipment, technical data, work documents, facilities, data systems, etc.) to enable the worker to produce quality products and services.

20.3.5.8.4. Certify, de-certify, and re-certify employees using the certification, decertification, and recertification criteria to ensure consistency among employees.

20.3.5.8.5. Perform an annual PAC record review with each assigned employee. Reference paragraph 20.3.12.

20.3.5.8.5.1. Annual reviews shall be accomplished within 30 days of assignment and annually thereafter.

20.3.5.8.6. Make PAC records available to the gaining supervisor for loaned, transferred, and TDY employees.

20.3.5.8.7. Notify the Group PAC/Training Manager when an employee is transferred, retired, or terminated.

20.3.5.8.8. Ensure training/qualification requirements are identified and applied in TSSPAC/electronic training record (ETR). **Note:** The TSS-PAC/ETR Section II 'Apply' box indicates active work center/mission training requirements that need to be met by employees.

20.3.5.8.9. Notify the appropriate PAC Program Manager of any WCD changes that would affect PAC tasks. This would include any changes to the WCDs, TOs, work descriptions, sub-operations, and definitive lists.

20.3.5.9. Maintenance Employee. The maintenance employee shall:

20.3.5.9.1. Advise management of problems with technical data or other issues that impact technical or regulatory compliance.

20.3.5.9.2. Provide the supervisor and Group Maintenance Training Manager feedback on the training received.

20.3.6. PAC Task Identification. The PAC task title shall be related to the WCD as much as possible regardless of the use of overall headers. Task headers provide a degree of organization for tasks. Headers also help in the sorting/grouping of tasks. The use of headers is highly recommended (though optional) and should be utilized to the maximum extent possible at each ALC. PAC task standardization shall be accomplished to the extent possible for similar work and shall relate to the work described on the WCD.

20.3.6.1. Identifiable. The task must identify the singular component or function being certified.

20.3.6.1.1. Task Titles as a minimum shall have a noun descriptor (i.e., component) and performance statement (e.g., repair, install, set-up, test, operate, etc.). Additionally, tasks that are specific to a weapon system or TMS will contain the weapon system or TMS in the task title or task code. Example: For TMS, F-100 or for MDS, B-1B.

20.3.6.1.2. When the work performed does not lend itself to this kind of task definition, PAC tasks shall be structured to the nature of the service performed. This can be by skill, equipment, type of service, or other logical breakdown.

20.3.6.1.3. SSQ tasks will be designated with the SSQ indicator.

20.3.6.1.4. PAC tasks may be established to document OJT and qualifications for work that does not relate to a WCD or require stamping a WCD such as operating a forklift or operating an aerial lift. However, all tasks must meet the task title criteria.

20.3.6.2. Auditable. The PAC task will provide a direct correlation to that WCD entry.

20.3.6.2.1. The task must reflect conformance to standards by providing a link from certified PAC task to applicable WCD. The WCD will reflect the applicable technical data related to the task.

20.3.6.2.2. One of the primary goals of an audit is to determine if a person, organization, system, enterprise activity, project, process, product, etc., in question, is meeting standards and requirements. Example: If the WCD states "Remove F-15 Left Aileron", the task must be identified in the employee's Section III of their PAC record. The ability to 'audit' the WCD task-to-training/certification relationship is what is being evaluated.

20.3.6.3. Trainable. Ability to instruct an employee on a single task that provides the knowledge, skills, and competencies to successfully perform a function IAW the applicable technical data and other regulatory requirements.

20.3.6.3.1. Tasks must be structured to verify that the employee is properly trained on the task. Example: Task Title states 'Manufacture, Repair, Assemble, Install, or Overhaul Aircraft Components In Shop', therefore this task is not trainable because there is no way for the employee to be trained on all aircraft components. An Example of a trainable task is 'Remove Over Wing Escape Hatch on a E-3 Aircraft', therefore this is a trainable task because it identifies training specific to the weapon system and component. **Note:** There is no timeframe required to PIN a certified task. Employees cannot stamp off a WCD until the PAC task is certified and PINed by the employee and the employee's supervisor. Additionally, due to varying complexity of tasks, there is no time frame required for OJT.

20.3.6.4. PAC Task Bundling. Bundling or placing multiple functions in a single PAC task is authorized as long as the employee, supervisor, and QA/auditor can determine what requirements the tasks were trained on (e.g., WCD, technical data, etc.). Bundled PAC tasks shall meet the PAC task requirements identified in this manual to include the identifiable, auditable, and trainable requirements defined above. New PAC tasks that are bundled will be reviewed and approved by the Group PAC Manager. The supervisor and employee must understand that if the employee becomes de-certified on any portion of the task, then they will become de-certified on all portions of the task.

20.3.6.4.1. AMARG PAC Tasks. PAC tasks related only to reclamation and disposal actions (i.e. AMARG) can be written as logical process groups. AMARG shall develop, implement, and maintain standardized procedures to identify these unique tasks. All other tasks shall follow standard processes previously defined.

20.3.7. Creation/Update of PAC Tasks.

20.3.7.1. The Group PAC Program Manager will document a PAC task request process for use in their group. This request process will be used by Supervisors/Work Leaders to request creation/update of PAC tasks and headers. Reference **Figure 20.1.** for an example

of a request form. Group PAC Program Managers will create/update PAC tasks IAW this manual.

20.3.7.2. The Group PAC Program Manager when notified of changes to WCD work descriptions, sub-operations, and definitized lists, will review all associated tasks and update any PAC tasks to ensure tasks correlate to the updated WCD.

20.3.8. PAC Training. Personnel who perform depot maintenance shall complete applicable training requirements prior to PAC certification. All personnel assigned to AFSC aircraft/missile maintenance units, military and civilian, shall use the TSS-PAC MIS to document training requirements and certifications.

20.3.8.1. Training Prerequisites for PAC Tasks. PAC prerequisites are training requirements that must be completed and maintained current for specific task certification. These include any AF, Safety, TO, or local instruction that directs requirements for specific tasks. Assignment of mandatory training prerequisites shall be documented in TSS-PAC Section II. All SSQ identified tasks shall be linked to the related SSQ. All task related to RTRs listed in this manual and any task related RTRs that are locally identified and listed in the local publications shall also be linked to the tasks they support. Automatic de-certification shall occur if task related recurring training or SSQ re-qualification is not accomplished in the required timeframe. Prerequisite linking is not required for general recurring training requirements.

20.3.8.2. Training and SSQ Prerequisites. Applicable training and SSQ prerequisites shall be assigned and documented in Section II of TSS-PAC. SSQ prerequisites are not required to be linked to tasks.

20.3.8.3. Certification Official for Employee. The first level supervisor is the lowest level authorized to certify employees. Supervisors not qualified in a specific skill or task shall utilize qualified and certified maintenance personnel as task trainers/qualifiers that shall assist in training and verifying proficiency of individual employees.

20.3.9. Employee Certification Criteria. All training and SSQ requirements for task certification shall be completed before an employee is certified. Proficiency at performing the task shall be demonstrated to a task trainer/qualifier or task certifying official. Equivalency cannot be granted for SSQ proficiency demonstration or safety training requirements. A proficiency demonstration is always required prior to certification. The supervisor's minimum certification criteria for employees are as follows:

20.3.9.1. Completion of all required training.

20.3.9.2. Completion of applicable SSQ qualification.

20.3.9.3. Performance of all parts of the task.

20.3.9.4. Knowledge of why and when the task is needed or accomplished.

20.3.9.5. Compliance with technical data and safety precautions.

20.3.9.6. Demonstration of proficiency.

20.3.10. De-certification Criteria. Any level of management can direct a de-certification but the certifying supervisor actually de-certifies an individual. De-certification can be either administrative or workmanship related. Specific de-certification criteria shall be established

and documented at the local level as needed to ensure consistency among employees. All de-certifications are effective immediately upon entering into PAC Section IIIC. The supervisor will not assign tasks related to the de-certification to the employee and the employee is not to perform the duties associated with the task until the conditions that render the technician ineligible for certification have been corrected and the technician is subsequently recertified on the task. Decertified employees may be assigned to perform retraining on the task under the supervision of a trainer/qualifier as part of the recertification process. Supervisors and employees shall acknowledge de-certifications through the PIN process within 3 business days of notification. Employees that are on excused absence, beyond the 3 business days, will acknowledge de-certification through pin process upon return to work center

20.3.10.1. Administrative De-certification. De-certification for administrative reasons is based on such things as non-performance of the task for a prolonged period as determined by the supervisor and the employee, personnel reassignments, medical conditions, workload changes, or overdue recurring training requirements.

20.3.10.2. Workmanship De-certification. De-certification for workmanship reasons is based on such things as failure to comply with technical data and other applicable directives, valid customer complaints or feedback both external and internal, PAC related mishaps, invalid certification of WCD, lack of proficiency, failure to pass SSQ re-qualification, as required by PEs/QVIs IAW **Chapter 8**, de-certification IAW AFMCI 21-100, and TO 00-35D-54 Category I Deficiency Reports caused by workmanship. De-certify the secondary PAC unless it has been determined that the individual could not have uncovered the discrepancy without disturbing the work performed by the primary PAC.

20.3.11. Re-certification Criteria. Re-certification is accomplished once the conditions of decertification have been resolved or removed. The certifying supervisor determines the criteria to be used for re-certification. As a minimum, a demonstration of proficiency of the task or portion of the task that resulted in the de-certification shall be accomplished. The supervisor shall review all de-certification to determine if the employee is required to re-attend formal training in order to meet the re-certification criteria.

20.3.12. PAC/ETR Review. The supervisor shall perform an annual PAC/ETR review with each assigned employee to review and validate assigned training and certification requirements as applicable. The supervisors will conduct this review when an employee is moved from one supervisor to another, within 30 days of assignment, and annually thereafter. Both the supervisor and the employee shall indicate they are satisfied that the data contained in the employee's PAC/ETR record is correct and valid by using an electronic signature PIN. **Note:** If an employee does not have access to TSS, a hard copy will be kept on file by the supervisor with the employee and supervisor signature stating the review was accomplished.

20.3.12.1. When a supervisor and an employee PIN the annual PAC/ETR review of the employee's record, their PIN action signifies that Section II (Training Requirements) have been reviewed/verified; Section III (Task Requirements, if applicable) have been reviewed/verified; and that the Section VII (Assigned CTP, if applicable) has been reviewed by the employee.

20.3.12.2. Personnel NH-04/GS-14 and above, their military equivalent, and contractors are exempted from the requirement to perform an annual review of their own records if they are not covered by the PAC program or do not stamp off WCDs

20.3.13. Certifying WCDs. All WCDs shall be stamped and dated IAW this manual and HQ AFMC requirements. Certification of tasks shall be performed by someone PAC certified in that specific task. Personnel not certified on the task being performed can accomplish the work if they are qualified to the extent necessary and are under the guidance of a PAC certified mechanic or technician. **Note:** Supervisors accepting work by certifying WCDs for maintenance tasks shall meet the same training, qualification, and certification requirements as the PAC certified employee and shall require a PAC record.

20.3.13.1. Secondary Certification. Secondary certification (i.e., second set of eyes) shall be applied and is required for all critical tasks. Exceptions: Some nondestructive testing and where SSQ tasks due to their very nature do not allow for secondary certification (i.e., welding, and soldering tasks) or where it is impossible to inspect or witness the accomplishment of the task (e.g., engine run on single seat fighter aircraft, etc.), a single certification by a fully SSQ qualified and certified mechanic or technician is acceptable. Secondary certification shall be accomplished on the applicable WCD using one of the established inspection codes. Secondary certification requires two PAC certified employees to inspect the work performed, stamp, and date the WCD.

20.3.13.2. Non-Routine Work Certification Criteria. Non-routine work is workload that has not been in production for a long period of time such that PAC certified employees are no longer available. When non-routine work is reintroduced and a PAC certified employee is no longer available, the supervisor will certify a journeyman technician to perform the task(s).

20.3.13.3. Multitask, Subtask, and Team Task Certification. This shall be done by multiple annotations on the WCDs.

20.3.14. PAC Documentation. TSS-PAC is the source data for PAC and shall be used for all official purposes such as audits, investigations, and inspections. The TSS-PAC Program Management Office (PMO) will impound the TSS-PAC records in case of mishaps, formal investigations, or when directed by higher authority. Certification/de-certification/recertification changes made in Section III of an employee's PAC record are not an official part of the record until the employee and supervisor verify them by PIN or signature. Administrative de-certifications due to non-performance or overdue training when the employee is not available for pinning may be accomplished but the reason for not being available must be explained within TSSPAC Section IV. If depot work is performed where TSS-PAC is not available, use of printed copies is permitted. When PAC personnel go TDY to perform depot maintenance, they are required to carry a copy of their PAC record with them. **Note:** DFT requirements are outlined in **Chapter 5**. Automated TSS-PAC contains the following seven sections

20.3.14.1. TSS-PAC Section I, Supervisor Identification. TSS-PAC documents the employee-to-supervisor assignment when an employee is assigned or reassigned.

20.3.14.2. TSS-PAC Section II, Job Knowledge Training. This section contains the employee training and qualification requirements.

20.3.14.3. TSS-PAC Section III, Tasks. This section identifies specific tasks on which the employee can be trained, qualified, or certified.

20.3.14.3.1. Task Title. The task title shall be related to the WCDs as much as possible, and as a minimum, shall have a noun descriptor (i.e., component or system name) and performance statement (e.g., repair, install, set-up, test, operate, etc.).

20.3.14.3.2. OJT Start Date. The date that is entered shall be the actual date the supervisor assigns employees to begin training on the task.

20.3.14.3.3. OJT Completion Date. The date that is entered shall be the actual date the employee completes the OJT and is proficient in the task. For qualification tasks, the OJT completion date shall verify performance demonstration.

20.3.14.3.4. Certification Date. The date that is entered shall be the actual date the employee successfully demonstrates task proficiency to the supervisor or the date the supervisor grants certification based on the verification of demonstrated proficiency by the task trainer/qualifier.

20.3.14.3.5. Re-certification Date. The date that is entered shall be the actual date that the employee successfully demonstrates task proficiency to the supervisor or the date the supervisor grants certification based on the verification of proficiency by the task trainer/qualifier.

20.3.14.3.6. De-certification Date. The date that is entered shall be the actual date that the supervisor de-certifies the employee or the date when TSS-PAC de-certifies the employee for overdue training or qualifications.

20.3.14.4. TSS-PAC Section IV, Notes. This section lists explanations and additional clarifying information on training, task certification/qualifications, and PIN actions.

20.3.14.4.1. IAW AFI 36-2650 AFMCSUP, the Group Training Managers are required to document employee training equivalencies in Section IV. Training equivalencies cannot be granted for SSQs, experience, or safety related courses.

20.3.14.5. TSS-PAC Section V, De-certification Data. This section lists the task, reason, and dates when an employee is de-certified. It can also list what training is needed to re-certify the employee. Entries in this section shall be removed after the re-certification action and retained in history. After a period of one year from the date of de-certification, the information in this section and its history will be deleted even if the person has not been recertified. History on these actions shall only be accessible and viewable by system administrators. The history records shall only be used to provide an audit trail for mishaps.

20.3.14.6. TSS-PAC Section VI, Annual Certification Review. This section documents the annual review of the employee's TSS-PAC record by the employee and supervisor.

20.3.14.7. TSS-PAC Section VII, CTP. This section contains the CTP that is assigned to the employee if applicable.

20.3.14.8. Military Personnel. Military personnel performing depot maintenance are required to comply with all applicable depot maintenance directives. PAC task, SSQ, and depot maintenance training requirements shall apply to these personnel. Military

personnel assigned to the ALCs not performing depot maintenance may track certification and non-depot maintenance training requirements in the Training Business Area (TBA) system. Applicable certifications shall be transcribed into TSS-PAC.

20.3.14.8.1. External training certifications shall be transcribed into TSS-PAC using the transcription date and certified by supervisor and employee.

20.3.14.8.1.1. When non-ALC personnel performing maintenance as specified on WCDs, a review of the individual's qualification/certification will be performed by the ALC production supervisor and Group PAC Program Manager. This can be through training certificates, TBA, AF Form 623, *Individual Training Record Folder*, or equivalent. Non-ALC personnel will document AFTO Form 781A and attach it to the WCD. The production supervisor will make a note on the WCD stating that a record review has been accomplished by the production supervisor and the group PAC Program Manager that personnel are qualified/certified to perform work.

20.3.14.8.2. Military personnel will use stamps authorized in this manual to certify WCDs.

20.3.14.9. Applicable RTR requirements listed in this chapter and in AFI 36-2650 AFMCSUP shall apply to these personnel. Command standard courses shall be used if developed.

20.3.15. PAC and Training Compliance Inspections.

20.3.15.1 Bi-annual PAC /Training Compliance Inspections will be conducted by the Complex PAC/Training Office. These inspections will be accomplished at the execution level of the Group PAC/Training Managers.

20.3.15.1.1. PAC and Training Compliance Inspections performed by the MTF will be entered into an approved MIS. This will ensure all findings are documented and corrective actions performed.

20.3.15.2. Group Training and PAC Program Managers are required to conduct annual face-to-face PAC and Training Compliance inspections. These inspections will be conducted at the point of execution level of first-line supervisors. The number of inspections (sample size) will be based on the number of first level supervisors, within the Group, who are assigned maintenance technicians who stamp off WCDs. The inspection sample size will be 10% of the total number of first level supervisors and then 20% of the employees assigned to that supervisor. These inspections will serve five functions; (1) Ensure oversight at the Group Level that the supervisor can correlate the PAC task with the WCD, (2) Ensure PAC tasks conform to the PAC task structure IAW this Manual, (3) Ensure PAC tasks requiring formal training are appropriately linked to prevent employees from becoming certified on tasks without first completing all required prerequisites which can cause automatic decertification if requirements are not completed on time, (4) Provide assistance to supervisors to help them understand their responsibilities within the PAC Program, and (5) Ensure maintenance technicians and supervisors are aware of any overdue mandatory training requirements. Quality Assurance (QA) personnel may assist the MTF in accomplishing this task at Geographically Separated Units (GSUs). PAC and Training Compliance Inspections

performed will be entered in an approved Maintenance Information System (MIS). This will ensure all findings are documented and corrective actions performed.

20.3.15.2.1. Findings and corrective actions will be reported in the PAC Program status reports as required by this manual to the Group Commander and ALC PAC Program Manager.

20.3.15.3. The ALC Training Manager and PAC Program Manager will track the findings and report them in their scheduled status of training briefing to ALC leadership.

20.4. Special Skills Qualification (SSQ).

20.4.1. SSQs are skills so specialized that they require extensive technical knowledge and proficiency. Most of these skills are governed by military specifications or higher level regulatory guidance, are safety related, or have a significant impact on cost. Qualification and re- qualification requirements for SSQs established by this manual and by local ALCs are mandatory for PAC certification. For SSQ Guide and Worksheet, reference **Figure 20.2**. and **Figure 20.3.** Reference AFI 36-2650 AFMCSUP for additional maintenance training information.

20.4.2. SSQ Applicability. Mandatory SSQ requirements apply to all ALC organizations performing depot maintenance. Special skills require a periodic re-qualification. Individuals who fail the re-qualification or cannot be re-qualified within the designated time frame shall be disqualified for that SSQ skill and de-certified for all PAC tasks related to the SSQ.

20.4.3. SSQ Requirements. Completion of specialized formal training, completion of a written test (if applicable), demonstration of proficiency, and periodic re-qualification are required for SSQ skills. Traditional OJT can be used to augment formal training as needed. Applicable AFIs, AFMCIs, safety, and other regulatory requirements shall be included in SSQ requirements. **Note:** For new workloads, it may not be possible to satisfy all requirements to start work (i.e., experience requirements on the MDS). In these cases, the responsible supervisor shall select the best qualified journeyman technician and will be appointed as the SSQ Official IAW this manual.

20.4.4. Request for SSQ Waivers. Request for waivers to the initial qualification requirement shall be initiated in writing by the Group PAC Program Manager and submitted to the ALC PAC Program Manager for routing to the ALC for action. If approved by the ALC/CC/DV, it shall be submitted through AFSC/LZ for action. The ALC PAC Program Manager shall inform the Group PAC Program Manager of any waivers granted. The ALC PAC Program Manager shall maintain a copy on file.

20.4.5. Request for Temporary SSQ extensions. Request for extensions to re-qualification requirements can be approved by the ALC/CC/DV. Extensions shall be initiated in writing by the Group PAC Program Manager and submitted to the ALC PAC Program Manager for action. ALC PAC Program Managers shall inform the Group PAC Program Manager of any extensions granted. The ALC PAC Program Managers shall maintain a copy on file. Extensions exceeding 90 days will be coordinated and approved through AFSC/LZ.

20.4.6. Local SSQ. Local SSQ requirements shall be established if unique ALC requirements exist.

20.4.6.1. All local SSQs shall be administered by the ALC PAC Program Manager and approved by the ALC CC/DV.

20.4.6.2. Locally designated SSQs shall meet all requirements of this manual.

20.4.7. SSQ Re-qualification. Re-qualification shall be accomplished IAW each independent SSQ requirement established in this manual and in local publications.

20.4.8. SSQ Disqualification. Disqualification shall be accomplished IAW each independent SSQ disqualification requirement established in this manual and in local publications. SSQ disqualification shall result in immediate de-certification on SSQ-related PAC tasks.

20.4.9. Mandatory SSQs. The special skills listed in paragraph 20.4.10. of this manual are mandatory requirements as they apply to each ALC. The references listed for the mandatory skills are not intended to be all-inclusive, and shall be used with other directives and technical publications that apply to the special skill to develop qualification requirements. It is essential that all AFI and other applicable safety requirements are included in the formal training. New or revised Command level SSQ requirements shall be approved by AFSC Maintenance Training and PAC Working Groups before implementation unless directed by higher authority.

20.4.9.1. AMARG shall comply with the following SSQ requirements where possible. When unique aircraft requirements make it impractical for full compliance, AMARG shall document a qualification program that provides the best qualification possible. These procedures shall be approved by OO-ALC/CC/DV.

20.4.10. SSQ Responsibilities.

20.4.10.1. Lead ALC for SSQs. Lead ALC for command SSQs are appointed by HQ AFMC/A4P and coordinated through AFSC/LZD. The SSQ Lead ALC shall:

20.4.10.1.1. Arrange for SMEs to provide technical guidance to the ALC and other organizations on issues related to the subject area of assigned SSQ.

20.4.10.1.2. Serve as the liaison between AFSC/LZ, ALCs, Groups, and other organizations on issues related to assigned SSQ.

20.4.10.1.3. Ensure that ALCs are involved in decisions related to the assigned SSQ.

20.4.10.1.4. Assigned SSQs will be updated as needed and reviewed at least triennially to ensure the requirements identified in this manual are adequate and current to support it, and report changes that require immediate action through AFSC/LZ.

20.4.10.2. SSQ Qualification Official. The SSQ Qualification Officials shall be SMEs in the skills they support, and shall possess the knowledge, skills, and abilities to perform this function. SSQ Officials shall be appointed locally. These officials should avoid qualifying employees they supervise. If a local expert is not available to act as the SSQ official, an outside source may be designated. The order of selection is: Another ALC or AFSC unit, another HQ AFMC unit, another Air Force unit, another DoD source, academia, or other commercial/private source. If none of these sources are available, the responsible system engineers or other technical experts shall be used to develop

qualification requirements, train, and qualify the first SSQ Officials. The SSQ Qualification Official shall:

20.4.10.2.1. Be SSQ qualified in the skill supported or possess the necessary credentials required by the SSQ (i.e., degree, professional/industrial certification).

20.4.10.2.2. Be appointed in writing by the ALC/CC/DV or production Group supported.

20.4.10.2.3. Complete the HQ AFMC SSQ Qualifier Course. **Note:** If the designated SSQ Qualification Official is from an outside source, the individual's education and/or certification shall be documented and current as specified by the governing authority (e.g., recognized professional organization, ANSI, etc.)

20.4.10.2.4. Notify the Group PAC Program Manager when changes to SSQ requirements are necessary.

20.4.10.2.5. Prepare and use the appropriate SSQ proficiency worksheet for each SSQ supported.

20.4.10.2.5.1. Complete all steps of the SSQ proficiency worksheet to include completion dates for all prerequisite training.

20.4.10.2.6. Participate as an SSQ SME in the development and review of SSQ Guides, SSQ worksheets, and formal training supporting the SSQ.

20.4.10.2.7. Witness and evaluate the performance of the skill using the appropriate SSQ proficiency worksheet. The worksheet shall be completed in its entirety with no blanks or N/As.

20.4.10.2.8. Inform the supervisor in writing (i.e., SSQ worksheet documentation or other means deemed appropriate) that the employee is qualified or the employee failed their SSQ or written test.

20.4.10.2.8.1. TSS may be used to notify supervisors in writing if the employee passed or failed.

20.4.10.2.9. Provide completed copies of the SSQ worksheets to the applicable Group PAC Program Manager.

20.4.11. Command SSQs.

20.4.11.1. Aircraft Engine Run-up.

20.4.11.1.1. Regulatory Documents. Compliance with AFMAN 11-218, *Aircraft Operations and Movement on the Ground,* as supplemented, applicable AFI and safety standards, weapons system TOs, job guides, and other directives.

20.4.11.1.2. Lead ALC. OO-ALC, Hill AFB, Utah.

20.4.11.1.3. Application. Applies to all personnel who start, run-up, operate, or test engines installed on aircraft at any power level including co-pilot position.

20.4.11.1.4. Qualification. The following are minimum initial qualification requirements that shall be augmented locally as necessary:

20.4.11.1.4.1. Completion of formal training as it relates to specific MDS engine run-up procedures which shall include the following.

20.4.11.1.4.2. Aircraft systems familiarization as it applies to engine run.

20.4.11.1.4.3. Cockpit/flight deck familiarization to include instrument, switches, circuit breaker functions, and locations for all aircraft equipped with operational egress systems.

20.4.11.1.4.4. MDS specific emergency ground escape procedures.

20.4.11.1.4.5. Engine run procedures.

20.4.11.1.4.6. Emergency procedures including system brake operation.

20.4.11.1.4.7. Abnormal operations.

20.4.11.1.4.8. Aircraft marshaling.

20.4.11.1.4.9. Auxiliary power or starting unit procedures as applicable to each MDS.

20.4.11.1.4.10. Completion of initial simulator (or flight deck procedures trainer) session.

20.4.11.1.4.11. Completion of a written test consisting of two parts:

20.4.11.1.4.12. BOLDFACE/Emergency procedures test, 100 percent correct passing score (committed to memory).

20.4.11.1.4.13. A general knowledge written test, 85 percent correct minimum passing score, corrected to 100 percent.

20.4.11.1.4.14. Proficiency demonstration to an SSQ Qualification Official.

20.4.11.1.5. Re-qualification. Re-qualification is required every 12 months and shall consist of as a minimum:

20.4.11.1.5.1. Completion of one simulator or flight deck procedures trainer/live aircraft session. When the individual is qualified for several similar aircraft, rotate simulators each year if possible to vary experiences. **Note:** If simulator time is difficult/costly to schedule for annual re-qualification, it may be performed at ALC discretion in a flight deck procedures trainer/live aircraft in lieu of a simulator session. If an MDS is not available on the installation, simulator training must be scheduled for re-qualification.

20.4.11.1.5.2. Completion of a written test (same criteria as initial qualification).

20.4.11.1.5.3. Demonstration of proficiency to an SSQ Qualification Official for each similar aircraft/engine configuration.

20.4.11.1.6. Currency. Currency is maintained if an engine run has been performed within 90 days for each MDS. If 90 to 180 days have passed without performing an engine run, a proficiency demonstration to an SSQ Qualification Official is required. If 180 days has passed without performing an engine run, an annual re-qualification is required. **Note:** If low workload volume makes it impossible to meet this

requirement (90/180 day currency), the responsible supervisor will select a MDS SSQ qualified and certified technician to perform the engine run.

20.4.11.1.7. Disqualification. Observed deficiencies or deviations from technical data, safety violations, valid customer complaints, or failure to perform required procedures IAW the applicable technical directives can be grounds for immediate disqualification. Failure to maintain qualification, failure to comply with BOLDFACE items (emergency procedures), and/or failure to maintain the required level of proficiency shall be grounds for disqualification. Re-qualification is granted when the deficiency is corrected and all initial qualifications have been met as described above.

20.4.11.1.8. Special Requirements. When possible, flight test personnel or other rated personnel shall qualify (i.e., initial and annual re-qualification) all SSQ Qualification Officials.

20.4.11.2. Engine Test Cell Operator.

20.4.11.2.1. Regulatory Documents. Applicable engine technical data/job guides, test cell operation instructional manual, applicable safety standards, and other directives.

20.4.11.2.2. Lead ALC. OC-ALC, Tinker AFB, Oklahoma.

20.4.11.2.3. Application. Applies to all personnel who operate aircraft engines and small gas turbines in test facilities.

20.4.11.2.4. Qualification. The following are minimum initial qualification requirements that shall be locally augmented as necessary:

20.4.11.2.4.1. Completion of formal training as it relates to aircraft engines and small gas turbines test procedures.

20.4.11.2.4.2. Completion of a written test consisting of two parts:

20.4.11.2.4.3. BOLDFACE/Emergency procedures test, 100 percent correct passing score (committed to memory).

20.4.11.2.4.4. A written test on the specific type-model engine, 85 percent correct minimum passing score, corrected to 100 percent.

20.4.11.2.4.5. Demonstration of proficiency to an SSQ Qualification Official. At a minimum, this shall include demonstrated knowledge of the test cell fire extinguishing system and the ability to perform normal engine acceptance test.

20.4.11.2.5. Re-qualification. Re-qualification is required every 12 months, and shall include completion of a written test (same criteria as initial qualification) and demonstration of proficiency to an SSQ Qualification Official.

20.4.11.2.6. Disqualification. Observed deficiencies or deviations from technical data, safety violations, valid customer complaints, failure to maintain the required level of proficiency, or failure to perform the required procedures IAW the applicable technical directives shall be grounds for immediate disqualification. Initial SSQ qualification requirements shall be met for re-qualification.

20.4.11.3. Aircraft Towing.

20.4.11.3.1. Regulatory Documents. AFMAN 11-218 as supplemented and applicable safety standards, weapons system technical orders, job guides, and other directives.

20.4.11.3.2. Lead ALC. OC-ALC, Tinker AFB, Oklahoma.

20.4.11.3.3. Application. Applies to all personnel occupying a flight deck position for aircraft towing and operating a vehicle actively towing an aircraft or acting as a tow team chief. Wing walkers, tail walkers, and all other support personnel performing assigned duties during towing operations do not need SSQ. These individuals shall be trained and qualified to the extent necessary to perform the function as determined locally.

20.4.11.3.4. Qualification. Qualification is granted upon successful completion of required MDS specific training, completion of a written test, (85 percent correct minimum passing score, corrected to 100 percent), and a demonstration of proficiency to an SSQ Qualification Official.

20.4.11.3.5. AMARG will document alternative requirements for stored aircraft.

20.4.11.3.6. Re-qualification. Re-qualification is required every 12 months and shall include demonstration of proficiency to an SSQ Qualification Official.

20.4.11.3.7. Disqualification. Observed deficiencies or deviations from technical data, safety violations, valid customer complaints, failure to maintain the required level of proficiency, or failure to perform the required procedures IAW the applicable technical directives shall be grounds for immediate disqualification. Initial SSQ qualification requirements shall be met for re-qualification.

20.4.11.3.8. Special Comments. All personnel occupying a flight deck position during the towing operation shall have completed the applicable emergency ground escape course. If an operational egress system is installed, the applicable egress familiarization course shall be completed and current.

20.4.11.4. Airframe Jacking and Leveling.

20.4.11.4.1. Regulatory Documents. Applicable weapons system TOs, job guides, safety standards, and directives.

20.4.11.4.2. Lead ALC. OO-ALC, Hill AFB, Utah.

20.4.11.4.3. Application. Applies to all personnel performing the following functions: Jacking chief, hydraulic manifold operator, and the leveling member. All other support personnel involved in jacking operations do not need SSQ. These individuals only need to be trained to the extent necessary to accomplish their task.

20.4.11.4.4. Qualification. Qualification is granted upon successful completion of required training, completion of a written test, (85 percent correct minimum passing score, corrected to 100 percent), and demonstration of proficiency to an SSQ Qualification Official.

20.4.11.4.5. Re-qualification. Re-qualification is required every 24 months and shall include demonstration of proficiency to an SSQ Qualification Official.

20.4.11.4.6. Disqualification. Observed deficiencies or deviations from technical data, safety violations, valid customer complaints, failure to maintain the required level of proficiency, or failure to perform the required procedures IAW the applicable technical directives shall be grounds for immediate disqualification. Initial SSQ qualification requirements shall be met for re-qualification.

20.4.11.5. Explosive Devices.

20.4.11.5.1. Regulatory Documents. AFMAN 91-201, AFI 91-202, applicable safety standards, weapons system TOs, job guides, and other directives.

20.4.11.5.2. Lead ALC. WR-ALC, Robins AFB, Georgia.

20.4.11.5.3. Application. Applies to all personnel who remove and install explosive devices.

20.4.11.5.4. Qualification. Qualification is granted upon successful completion of required training, completion of a written test, (85 percent correct minimum passing score, corrected to 100 percent), and demonstration of proficiency to an SSQ Qualification Official.

20.4.11.5.5. Re-qualification. Re-qualification is required every 12 months and shall include demonstration of proficiency to an SSQ Qualification Official.

20.4.11.5.6. Disqualification. Observed deficiencies or deviations from technical data, safety violations, valid customer complaints, failure to maintain the required level of proficiency, or failure to perform the required procedures IAW the applicable technical directives shall be grounds for immediate disqualification. Initial SSQ qualification requirements shall be met for re-qualification.

20.4.11.6. Refuel/Defuel Operations.

20.4.11.6.1. Regulatory Documents. TO 00-25-172, applicable safety standards, weapons system TOs, job guides, and other directives.

20.4.11.6.2. Lead ALC. WR-ALC, Robins AFB, Georgia.

20.4.11.6.3. Application. Applies to all personnel performing refueling or de-fueling of any aerospace vehicle.

20.4.11.6.4. Qualification. Qualification is granted upon successful completion of required training, completion of a written test, (85 percent correct minimum passing score, corrected to 100 percent), and demonstration of proficiency to an SSQ Qualification Official.

20.4.11.6.5. Re-qualification. Re-qualification is required every 12 months. Consists of completion of a written test, (85 percent correct minimum passing score, corrected to 100 percent), and demonstration of proficiency to an SSQ Qualification Official.

20.4.11.6.6. Disqualification. Observed deficiencies or deviations from technical data, safety violations, valid customer complaints, failure to maintain the required

level of proficiency, or failure to perform the required procedures IAW the applicable technical directives shall be grounds for immediate disqualification. Initial SSQ qualification requirements shall be met for re-qualification.

20.4.11.6.7. Special Comments. Due to the criticality of transferring fuel, only those directly involved with the process shall be allowed within the area of the transfer. Periodic monitoring of the actual process in progress is required to ensure adherence to all applicable directives and to verify that the high state of proficiency required in this process is maintained. Training shall include ESD information specific to fueling operations. **Note:** All personnel occupying a flight deck position during the transfer of fuel shall have completed the applicable emergency ground escape course. If an operational egress system is installed, the applicable egress familiarization course shall be complete and current.

20.4.11.7. Aircraft Cabin/Flight Deck/Fuselage Pressurization.

20.4.11.7.1. Regulatory Documents. The applicable weapons system TOs, job guides, applicable safety standards, and directives.

20.4.11.7.2. Lead ALC. OO-ALC, Hill AFB, Utah.

20.4.11.7.3. Application. Applies to all personnel who perform aircraft cabin/flight deck/fuselage pressurization checks or functional tests requiring aircraft pressurization using either aircraft or external sources of pressurization. Applies to all tasks directly related to the pressurization check/test included in applicable TO, job guide, or WCD.

20.4.11.7.4. Qualification. Qualification is granted after successful completion of required training, completion of a written test, (85 percent correct minimum passing score, corrected to 100 percent), and demonstration of the ability to perform the check/test IAW all the requirements of the technical data to an SSQ Qualification Official.

20.4.11.7.5. Re-qualification. Re-qualification is required every 12 months. Employees shall demonstrate the ability to perform the check/test IAW all the requirements of the technical data to an SSQ Qualification Official.

20.4.11.7.6. Disqualification. Observed deficiencies or deviations from technical data, safety violations, valid customer complaints, or failure to perform the pressurization check/test procedure IAW the applicable technical directives shall be grounds for immediate disqualification. Initial SSQ qualification requirements shall be met for requalification.

20.4.11.7.7. Special Comments. Because of the wide variations in MDS, qualification criteria will meet specific weapon systems' needs. **Note:** All personnel occupying a flight deck/cabin position during any portion of the aircraft flight deck/fuselage pressurization process shall have completed the applicable emergency ground escape course. If an operational egress system is installed, the applicable egress familiarization course shall be completed and current.

20.4.11.8. Aircraft Canopy Rigging.

20.4.11.8.1. Regulatory Documents. The applicable weapons system TOs, job guides, applicable safety standards, and directives.

20.4.11.8.2. Lead ALC. OO-ALC, Hill AFB, Utah.

20.4.11.8.3. Application. Applies to all personnel who perform rigging operations on aircraft canopies. In some cases, the canopy rigging task may be part of the egress qualification for that MDS. If this is the case, the egress SSQ is all that is required.

20.4.11.8.4. Qualification. Qualification is granted upon completion of required training and a demonstration of proficiency in the canopy rigging operation to an SSQ Qualification Official.

20.4.11.8.5. Re-qualification. Re-qualification is required every 24 months and shall include a demonstration of proficiency to an SSQ Qualification Official.

20.4.11.8.6. Disqualification. Observed deficiencies or deviations from technical data, safety violations, valid customer complaints, failure to maintain the required level of proficiency, or failure to perform the required procedures IAW the applicable technical directives shall be grounds for immediate disqualification. Initial SSQ qualification requirements shall be met for re-qualification.

20.4.11.9. Flight Control Rigging.

20.4.11.9.1. Regulatory Documents. Applicable weapons system TOs, job guides, applicable safety standards, and directives.

20.4.11.9.2. Lead ALC. WR-ALC, Robins AFB, Georgia.

20.4.11.9.3. Application. Applies to all personnel who perform aircraft flight control rigging (i.e., flight control rigging includes all tasks associated with the operational checkout and adjustment of mechanical, hydraulic, and/or electrical systems which control aircraft flight direction and attitude). Personnel trained in flight control rigging may be specialized in either the mechanical, hydraulic, or electrical skill of rigging. Personnel assisting in the rigging process in a support role may not require SSQ. These individuals only need to be trained to the extent necessary to accomplish their task.

20.4.11.9.4. Qualification. Qualification is granted upon successful completion of required training, completion of a written test, (85 percent correct minimum passing score, corrected to 100 percent), and demonstration of proficiency to an SSQ Qualification Official.

20.4.11.9.5. Re-qualification. Re-qualification is required every 12 months and shall include completion of a written test, (85 percent correct minimum passing score, corrected to 100 percent), and demonstration of proficiency to an SSQ Qualification Official.

20.4.11.9.6. Disqualification. Observed deficiencies or deviations from technical data, safety violations, valid customer complaints, failure to maintain the required level of proficiency, or failure to perform the required procedures IAW the applicable technical directives shall be grounds for immediate disqualification. Initial SSQ qualification requirements shall be met for re-qualification.

20.4.11.9.7. Special Comments. All personnel occupying the flight deck during any portion of the flight control rigging process shall have completed the applicable emergency ground escape course. If an operational egress system is installed, the applicable egress familiarization course shall be completed and current.

20.4.11.10. Aircraft Egress Systems.

20.4.11.10.1. Regulatory Documents. AFMCI 21-100, AFMAN 91-201, AFI 91-202, this manual, applicable safety standards, weapons system TOs, job guides, and other directives.

20.4.11.10.2. Lead ALC. OO-ALC, Hill AFB, Utah.

20.4.11.10.3. Application. Applies to all personnel who remove, repair, install, and inspect egress systems. An egress technician is a civilian series WG-6652 (Aircraft Ordnance Systems Mechanic) or the military equivalent (AF Specialty Code 2A6X3) who meets the requirements of this manual. Other personnel who perform or assist in egress tasks including series WG-6652 when it is not their primary duties are egress augmentees. The augmentees shall meet the requirements of this manual for the tasks performed.

20.4.11.10.4. Qualification. As a minimum, the following are initial qualification requirements for egress technicians and augmentees:

20.4.11.10.4.1. Completion of an aircrew egress systems apprentice course or a waiver based upon equivalent training or experience as specified in AFMCI 21-100.

20.4.11.10.4.2. Completion of an initial weapons safety course as specified in AFI 91202.

20.4.11.10.4.3. Completion of an AETC journeyman/five level egress course (preferred) or a comparable AETC approved egress course for the specific MDS aircraft.

20.4.11.10.4.4. Completion of a written test with a score of 100 percent. Failure to attain 100 percent correct shall require further training and retesting.

20.4.11.10.4.5. Demonstration of acquired knowledge and skill proficiency to an SSQ Qualification Official.

20.4.11.10.5. Re-qualification. All egress technicians and augmentees shall be re-qualified every 18 months. Re-qualification shall consist of:

20.4.11.10.5.1. Completion of a written test (same criteria as initial qualification).

20.4.11.10.5.2. Demonstration of proficiency to an SSQ Qualification Official.

20.4.11.10.6. Disqualification. Observed deficiencies or deviations from technical data, safety violations, valid customer complaints, failure to maintain the required level of proficiency, or failure to perform the required procedures IAW the applicable technical directives shall be grounds for immediate disqualification. Initial SSQ qualification requirements shall be met for re-qualification. Re-qualification is

granted when the deficiency is corrected and all qualifications have been met as described above.

20.4.11.10.7. Special Requirements.

20.4.11.10.7.1. Demand Response Team. All personnel shall use the Demand Response Team when performing an egress task that requires the removal or installation of explosive components, and during egress final inspections as directed by TOs. AFMCI 21-100 provides guidance that shall be followed. All personnel performing egress tasks shall be SSQ qualified and certified. Only egress certified technicians shall certify egress tasks to include secondary certification and sign-off of aircraft status forms. Nonqualified or certified personnel may assist if they are in a training status or when performing ancillary duties in support of and under the direct supervision of fully qualified and certified egress personnel.

20.4.11.10.7.2. Life Support Task. When parachutes and survival kits are integral parts of the ejection seat, either egress personnel or life support personnel (i.e., AFSC 1T1X1 or series WG-4818, Aircraft Flight Equipment Repairer) may install and remove them provided they meet the requirements specified in this manual.

20.4.11.10.7.3. (AMARG Only). Training for Process-In aircraft egress systems tasks of SAFE/DISARM and CAD/PAD Removals (CADRE) shall be managed as critical tasks and training shall include the use of locally developed standard SOJT training guides and worksheets. SAFE/DISARM guides and worksheet shall incorporate the use of MDS specific Explosive Operating Instructions approved by AMARG/SE, AMARG/CC-QA, and 355th Wing Weapons Safety (reference **Chapter 12** for specific egress requirements).

20.4.11.10.8. Aircraft Egress Familiarization and Aircraft Emergency Ground Escape. Personnel who are not SSQ qualified in egress but who access cockpits (e.g., flight deck, cabin, etc.) with operational egress systems installed shall complete the applicable aircraft emergency ground escape and complete/be current in the applicable flight deck egress familiarization course.

20.4.11.11. Fuel Cell Repair.

20.4.11.11.1. Regulatory Documents. TO 1-1-3, AFI and safety standards, applicable weapon systems TOs, job guides, and directives.

20.4.11.11.2. Lead ALC. WR-ALC, Robins AFB, Georgia.

20.4.11.11.3. Application. Applies to all personnel who perform final inspection and closeout, leak detection and repair, and pressure check/test of integral tanks or fuel cells to include bladders. Personnel who perform ancillary duties in support of fuel cell/tank work may not need SSQ but shall be trained to the extent necessary to safely perform the tasks.

20.4.11.11.4. Qualification. Qualification is granted upon successful completion of required training, completion of a written test, (85 percent correct minimum passing

score, corrected to 100 percent), and a demonstration of proficiency to an SSQ Qualification Official.

20.4.11.11.5. Re-qualification. Re-qualification is required every 12 months and shall include completion of a written test, (85 percent correct minimum passing score, corrected to 100 percent), and demonstration of proficiency to an SSQ Qualification Official.

20.4.11.11.6. Disqualification. Observed deficiencies or deviations from technical data, safety violations, valid customer complaints, failure to maintain the required level of proficiency, or failure to perform the required procedures IAW the applicable technical directives shall be grounds for immediate disqualification. Initial SSQ qualification requirements shall be met for re-qualification.

20.4.11.11.7. Special Comments. If the integral, auxiliary, or external tank is removed from the aircraft, the SSQ requirement still applies. Training shall include ESD information specific to fuel cell repair operations.

20.4.11.12. Fiberglass Radome Repair.

20.4.11.12.1. Regulatory Documents. TO 1-1-24, *Maintenance Repair and Electrical Requirements for Fiberglass Airborne Radomes*, applicable safety standards, weapons system TOs, job guides, and other directives.

20.4.11.12.2. Lead ALC. WR-ALC, Robins AFB, Georgia.

20.4.11.12.3. Application. Applies to all personnel who perform repairs to any airborne radome constructed of reinforced fiber and resin impregnated materials.

20.4.11.12.4. Qualification. Qualification is granted upon successful completion of required training, completion of a written test, (85 percent correct minimum passing score, corrected to 100 percent), and a demonstration of proficiency consisting of two parts:

20.4.11.12.4.1. Repairing simulated damage to fiberglass panels of the type of construction normally repaired with the structural integrity verified by destructive testing.

20.4.11.12.4.2. Demonstration of proficiency to an SSQ Qualification Official on work normally performed.

20.4.11.12.5. Re-qualification. Re-qualification is required every 24 months and shall include a demonstration of proficiency to an SSQ Qualification Official using the same criteria as the initial qualification.

20.4.11.12.6. Disqualification. Observed deficiencies or deviations from technical data, safety violations, valid customer complaints, failure to maintain the required level of proficiency, or failure to perform the required procedures IAW the applicable technical directives shall be grounds for immediate disqualification. Initial SSQ qualification requirements shall be met for re-qualification.

20.4.11.13. Parachute Repairer and Packer.

20.4.11.13.1. Regulatory Documents. Regulatory documents consist of TO series 14D1, 14D2, 14D3, 14S1, and other applicable directives.

20.4.11.13.2. Lead ALC. WR-ALC, Robins AFB, Georgia.

20.4.11.13.3. Application. Applies to all personnel who inspect, repair, or pack parachutes.

20.4.11.13.4. Qualification. Qualification is granted upon successful completion of required training, completion of a written test, (85 percent correct minimum passing score, corrected to 100 percent), and a demonstration of proficiency to an SSQ Qualification Official.

20.4.11.13.5. Re-qualification. Re-qualification is required every 12 months and shall include completion of a written test, (85 percent correct minimum passing score, corrected to 100) percent, and demonstration of proficiency to an SSQ Qualification Official.

20.4.11.13.6. Disqualification. Observed deficiencies or deviations from technical data, safety violations, valid customer complaints, failure to maintain the required level of proficiency, or failure to perform the required procedures IAW the applicable technical directives shall be grounds for immediate disqualification. Initial SSQ qualification requirements shall be met for re-qualification.

20.4.11.14. Soldering.

20.4.11.14.1. Regulatory Documents. TO 00-25-234, TO 00-25-259, *Standard Maintenance Practices Miniature/Microminiature (2M) Electronic Assembly Repair*, applicable AFI and safety standards, weapons system TOs, job guides, and other directives.

20.4.11.14.2. Lead ALC. OO-ALC, Hill AFB, Utah.

20.4.11.14.3. Application. Applies to personnel who perform hand-held soldering (i.e., not hot air) on aerospace electrical and electronic equipment. This includes all depot maintenance personnel engaged in repair, maintenance, or test of aerospace electrical/electronic equipment. Personnel who perform hand-held soldering on test equipment and other aerospace equipment that directly support depot production are also included.

20.4.11.14.4. Qualification. The following are minimum initial requirements for soldering technicians, instructors, and SSQ qualification officials:

20.4.11.14.4.1. Technicians. Successful completion of HQ AFMC soldering technician course applicable to specific soldering tasks supported. Successful completion of written tests, (with a passing score of 85 percent, corrected to 100 percent), applicable to the soldering tasks supported. Demonstration of proficiency to an SSQ Qualification Official.

20.4.11.14.4.2. Instructors and Qualification Officials. Successful completion of the 'AFMC Soldering Instructor Qualification Course' applicable to specific soldering discipline they intend to instruct and/or serve as SSQ qualifiers. Successful completion of a written test (with a passing score of 85 percent,

corrected to 100 percent) applicable to specific soldering discipline they intend to instruct and/or serve as SSQ qualifiers. Demonstration of proficiency to the course instructor.

20.4.11.14.5. Re-qualification. The following are minimum re-qualification requirements for soldering technicians, instructors, and qualification officials:

20.4.11.14.5.1. Technicians. Re-qualification intervals shall not exceed 24 months. Requires successful completion of a demonstration of proficiency to an SSQ Qualification Official.

20.4.11.14.5.2. Instructors and Qualification Officials. Re-qualification shall not exceed 36 months and shall include completion of the 'AFMC Soldering Instructor Requalification Course' applicable to the specific soldering disciplines which they instruct and/or serve as SSQ qualifiers; successful completion of written tests with the same criteria as initial qualification (applicable to specific soldering disciplines which they instruct and/or serve as SSQ qualifiers); and demonstrations of proficiency to the course instructor.

20.4.11.14.6 Disqualification. Observed deficiencies or deviations from technical data, safety violations, valid customer complaints, failure to maintain the required level of proficiency, or failure to perform the required procedures IAW the applicable technical directives shall be grounds for immediate disqualification. Additionally, qualification shall be revoked if inspection records or other evidence indicates poor workmanship. Re- qualification is granted when the deficiency is corrected and all qualification requirements as described above have been met.

20.4.11.15. Liquid and Gaseous Oxygen Handling and Equipment Maintenance.

20.4.11.15.1. Regulatory Documents. TO 42B6-1-1, *Quality Control of Aviators Breathing Oxygen/Aviators Gaseous Breathing Oxygen*, 15X and 35 series TOs, applicable AFI and safety standards, weapons system technical orders, job guides, and other directives.

20.4.11.15.2. Lead ALC. OO-ALC, Hill AFB, Utah.

20.4.11.15.3. Application. Applies to all personnel who repair, service, store, transfer, purge, bleed, vacuum, pressure check or otherwise handle or use liquid or gaseous oxygen in maintenance tasks. It also applies to personnel who perform maintenance on liquid and gaseous oxygen equipment. Duties, such as removal and installation of lines, pressure relief valves, regulators and converters removed from the aircraft during the depot maintenance process, prior to pressure check and purging are considered to be ancillary duties and do not require SSQ.

20.4.11.15.4. Qualification. Qualification is granted after successful completion of the required training and demonstration of proficiency to an SSQ Qualification Official.

20.4.11.15.5. Re-qualification. Re-qualification is required every 24 months and shall include a demonstration of proficiency to an SSQ Qualification Official.

20.4.11.15.6. Disqualification. Observed deficiencies or deviations from technical data, safety violations, valid customer complaints, failure to maintain the required

level of proficiency, or failure to perform the required procedures IAW the applicable technical directives shall be grounds for immediate disqualification. Initial SSQ qualification requirements shall be met for re-qualification. Retraining and successful demonstration of proficiency to an SSQ Qualification Official shall be required prior to regaining qualification.

20.4.11.16. Selective Brush Plating.

20.4.11.16.1. Regulatory Documents. Applicable weapons systems TOs, general TOs, MIL-Standard (STD)-865D, *Selective, Brush Plating, Electro-Deposition,* and other applicable technical and safety directives.

20.4.11.16.2. Lead ALC. OO-ALC, Hill AFB, Utah.

20.4.11.16.3. Application. Applies to all personnel who perform the process of selective brush electrode deposition of various metals and alloys on other metals and alloys.

20.4.11.16.4. Qualification. Qualification is granted upon successful completion of required training, completion of a written test, (85 percent correct minimum passing score, corrected to 100 percent), and a demonstration of proficiency to an SSQ Qualification Official.

20.4.11.16.5. Re-qualification. Re-qualification is required every 12 months and shall include demonstration of proficiency to an SSQ Qualification Official.

20.4.11.16.6. Disqualification. Observed deficiencies or deviations from technical data, safety violations, valid customer complaints, failure to maintain the required level of proficiency, or failure to perform the required procedures IAW the applicable technical directives shall be grounds for immediate disqualification. Initial SSQ qualification requirements shall be met for re-qualification.

20.4.11.17. Temper Etch.

20.4.11.17.1. Regulatory Documents. Regulatory documents consist of MIL-STD-867C, *Temper Etch Inspection*, applicable AFI and safety standards, TOs, and other directives.

20.4.11.17.2. Lead ALC. OO-ALC, Hill AFB, Utah.

20.4.11.17.3. Application. Applies to all personnel who perform temper etching and subsequent temper etching inspection on applicable aircraft and missile structural and propulsion system components.

20.4.11.17.4. Qualification. Qualification is granted upon successful completion of required training, completion of a written test, (85 percent correct minimum passing score, corrected to 100 percent), and a demonstration of proficiency to an SSQ Qualification Official.

20.4.11.17.5. Re-qualification. Re-qualification is required every 12 months and shall include completion of a written test, (85 percent correct minimum passing score, corrected to 100 percent), and demonstration of proficiency to an SSQ Qualification Official.

20.4.11.17.6. Disqualification. Observed deficiencies or deviations from technical data, safety violations, valid customer complaints, failure to maintain the required level of proficiency, or failure to perform the required procedures IAW the applicable technical directives shall be grounds for immediate disqualification. Initial SSQ qualification requirements shall be met for re-qualification.

20.4.11.18. Brazing.

20.4.11.18.1. Regulatory Documents. American Welding Society (AWS) B2.2, Specification for Brazing Procedures and Performance Qualification, TO 00-25-252, Intermediate Maintenance and Depot Level Instructions for Aeronautical Equipment Welding, MILSTD-B-12673, Brazing Oxyacetylene of Build-up Metal Structures, applicable safety standards, weapons system TOs, job guides, and other directives.

20.4.11.18.2. Lead ALC. OC-ALC, Tinker AFB, Oklahoma.

20.4.11.18.3. Application. Applies to personnel who perform oxyacetylene, induction and resistance brazing on aircraft, aircraft engines, propulsion systems components, and aerospace components.

20.4.11.18.4. Qualification. Qualification is granted upon successful completion of required training and demonstration of proficiency of the employee's ability to braze a joint on a representative production part to an SSQ Qualification Official.

20.4.11.18.5. Re-qualification. Re-qualification is required every 36 months and shall include demonstration of proficiency to an SSQ Qualification Official.

20.4.11.18.6. Disqualification. Observed deficiencies or deviations from technical data, safety violations, valid customer complaints, failure to maintain the required level of proficiency, failure to perform the required procedures IAW the applicable technical directives shall be grounds for immediate disqualification. Initial SSQ qualification requirements shall be met for re-qualification.

20.4.11.19. Welding.

20.4.11.19.1. Regulatory Documents. TO 00-25-252, AWS D17.1, Specification for Fusion Welding for Aerospace Applications, AWS D17.2, Specification for Resistance Welding for Aerospace Applications, TO 00-25-224, Welding High Pressure and Cryogenic Systems, applicable AFIs, TOs, and other directives.

20.4.11.19.2. Lead ALC. OC-ALC, Tinker AFB, Oklahoma.

20.4.11.19.3. Application. Applies to welding (i.e., not temporary spot/tack) performed on aircraft, aircraft engines, and aerospace components to include propulsion system components and missiles.

20.4.11.19.4. Qualification. All welders shall be qualified IAW ANSI/AWS D17.1, Specification for Fusion Welding for Aerospace Applications, TO 00-25-252, and applicable TOs and directives. Welders who perform electron beam welding, resistance, dabber tungsten inert gas, and plasma arc shall be gas tungsten arc welding (GTAW) qualified if they also perform manual welding within any of these processes. Resistance Welding Machine Operators who perform spot/tack welding IAW AWS D17.2, Specification for Resistance Welding for Aerospace Applications,

do not require SSQ if the weld produced serves as a temporary function of the welding production process. Welders performing welding on high pressure or cryogenic systems shall qualify IAW TO 00-25-224. Qualification is granted upon successful completion of the required training and demonstration of proficiency to an SSQ Qualification Official. Operators shall pass an eye exam as specified by AWS D17.1. Local waivers may be granted on a case by case basis where these vision requirements are not necessary for the work being performed.

20.4.11.19.5. Re-qualification. A welder or welding operator shall be re-qualified every 12 months for resistance and electron beam welding, every 24 months for automated welding processes, and every 60 months for manual welding processes. Re-qualification is also required when there is a specific reason to question the ability of a welder or welding operator to meet the requirements for qualification in a given welding process.

20.4.11.19.6. Disqualification. Observed deficiencies or deviations from technical data, safety violations, valid customer complaints, failure to maintain the required level of proficiency, failure to weld within the qualified process using the appropriate material IAW TO 00-25-252 interval, failure to pass eye exam or obtain waiver, or failure to perform the required procedures IAW the applicable technical directives shall be grounds for immediate disqualification. Initial SSQ qualification requirements shall be met for re-qualification.

20.4.11.20. Thermal Spray.

20.4.11.20.1. Regulatory Documents. ANSI/AWS C2.16, *Guide for Thermal Spray Operator Qualification Programs,* applicable AFI and safety standards, TOs, job guides, and other directives that apply to the process.

20.4.11.20.2. Lead ALC. OC-ALC, Tinker AFB, Oklahoma.

20.4.11.20.3. Application. Applies to all personnel who perform thermal spray on aircraft, aircraft components, propulsion system components, missiles components, and jet engine components.

20.4.11.20.4. Qualification. Qualification is granted upon the completion of required training, completion of a written test, (85 percent correct minimum passing score, corrected to 100 percent), and demonstration of proficiency to an SSQ Qualification Official.

20.4.11.20.5. Re-Qualification. Re-qualification is required every 24 months and shall include completion of a written test, (85 percent correct minimum passing score, corrected to 100 percent), and demonstration of proficiency to an SSQ Qualification Official.

20.4.11.20.6. Disqualification. Observed deficiencies or deviation from technical data, safety violations, valid customer complaints, failure to maintain the required level of proficiency, or failure to perform the required procedures IAW the applicable technical directives shall be grounds for immediate disqualification. Initial SSQ qualification requirements shall be met to be re-qualified.

20.4.11.21. Engine Blade Blending.

20.4.11.21.1. Regulatory Documents. Applicable weapons system TOs, job guides, and other applicable directives.

20.4.11.21.2. Lead ALC. OC-ALC, Tinker AFB, Oklahoma.

20.4.11.21.3. Application. All personnel who perform engine blade blend inspections and repairs. Personnel who blend blades in a dedicated blade blending repair facility do not require SSQ. These individuals shall be trained and qualified to the extent necessary to perform the function as determined locally.

20.4.11.21.4. Qualification. Qualification is granted upon successful completion of required training, and a demonstration of proficiency to a SSQ Qualification Official.

20.4.11.21.4.1. Formal training will as a minimum include care and handling of equipment, applicable technical data, fault isolation/damage, assessment/defect, size determination, and techniques required to correctly inspect and repair blades in the performance of an engine blade blend.

20.4.11.21.5. Currency Requirements. As a minimum, B-1, B-2, F-15, F-16, F-22, F-35, and U-2 personnel must demonstrate blade blending proficiency every 180 days. Work center supervisors ensure personnel who do not meet this requirement are de-certified.

20.4.11.21.6. Re-qualification. Re-qualification is required every 12 months and demonstration of proficiency to a SSQ Qualification Official.

20.4.11.21.7. Disqualification. Observed deficiencies or deviations from technical data, safety violations, valid customer complaints, failure to maintain the required level of proficiency, or failure to perform the required procedures IAW the applicable technical directives shall be grounds for immediate disqualification. Failure to maintain currency requirements, if applicable, will also be grounds for disqualification. Initial SSQ qualification requirements shall be met for re-qualification.

20.4.11.21.8. Special Requirements. Blade blending procedures for installed/uninstalled engines/modules.

20.4.11.21.8.1. Notify the Group/ALC FOD Monitor prior to blade blending anytime FOD is identified other than for minor sand nicks or scratches (i.e., blending with emery cloth).

20.4.11.21.8.2. Fill out Blade Blending/FOD Damage worksheet or applicable form with the following information: Engine serial number, stage number, number of blades blended, depth of damage before and after blend, area of damage, and employee number/stamp number of maintenance personnel.

20.4.11.21.8.3. Notify Engine Management (EM) section and forward Blade Blending/FOD Damage worksheet or applicable form to EM section for filing. The EM section will transcribe information provided in the Blade Blending/FOD Damage worksheet into the applicable engine/module records (i.e., AFTO Form 95 if applicable) and CEMS IAW TO 00-20-1.

20.4.11.22. Auxiliary Power Unit (APU), Air Turbine Motor (ATM), and Gas Turbine Compressor (GTC) Operation.

20.4.11.22.1. Regulatory Documents. Compliance with AFMAN 11-218, Aircraft Operations and Movement on the Ground, as supplemented, applicable AFI and safety standards, weapons system TOs, job guides, and other directives.

20.4.11.22.2 Lead ALC. OO-ALC, Hill AFB, Utah.

20.4.11.22.3. Application. Applies to all personnel who start, run-up, operate or test Auxiliary Power Unit (APU), Air Turbine Motor (ATM) and Gas Turbine Compressor (GTC) installed on aircraft. Those that are current on the Aircraft Engine Run-Up SSQ for the MDS in which the APU is installed, shall be excluded from this requirement.

20.4.11.22.4. Qualification. The following are minimum initial qualification requirements that shall be augmented locally as necessary:

20.4.11.22.4.1. Completion of a two-part closed book written test consisting of the following:

Table 20.1. Two-part closed book written test Parts.

Part	Description
Part I	BOLDFACE/Emergency procedures test, 100 percent correct passing score (committed to memory). Technicians will successfully complete Part I before taking Part II.
Part II	Technicians will be given a written/computer based examination covering normal APU run procedures and limitations requiring a minimum passing score of 90 percent, corrected to 100 percent.
Proficiency demonstration to an SSQ Qualification Official.	

20.4.11.22.5. Currency. To maintain currency (i.e., proficiency), maintenance personnel authorized to operate APU/GTC will perform at least one APU/GTC run every 180 days. Individuals authorized to operate the trim box will perform at least one trim utilizing the trim box every 180 days.

20.4.11.22.6. Re-qualification. Re-qualification is required every 12 months using the initial certification procedures. Re-qualification is not required if the individual is current on the engine run certification process and has maintained annual engine-run certification requirements for the MDS in which the APU is installed.

20.4.11.22.6.1. Supervisors will ensure technicians who fail to maintain proficiency are de-certified.

20.4.11.22.7. Disqualification. Observed deficiencies or deviations from technical data, safety violations, valid customer complaints, or failure to perform required procedures IAW the applicable technical directives can be grounds for immediate disqualification. Failure to maintain qualification, failure to comply with BOLDFACE items (emergency procedures), and/or failure to maintain the required level of proficiency shall be grounds for disqualification. Re-qualification is granted when the deficiency is corrected and all qualifications have been met as described above.

20.4.12. SSQ Guide and Worksheet. An SSQ guide and worksheet shall be developed for all command and local SSQs using the formats in **Figure 20.2.** and **Figure 20.3**. Format and content can be adjusted to meet specific qualification needs as long as the intent of all requirements is met as they apply to the SSQ. At a minimum, SSQ guides and worksheets shall be reviewed every three years for accuracy and completeness of stated requirements and references.

20.4.13. SSQ Qualification/Re-qualification Guide. The SSQ Qualification Official shall use the SSQ guide to identify all SSQ requirements. This guide shall be used every time SSQ qualification or re-qualification is accomplished.

20.4.14. SSQ Qualification/Re-qualification Worksheet. The SSQ Qualification Official shall use the SSQ worksheet as a standard for documenting the employee's demonstrated level of proficiency on each step in the required task. The employee shall demonstrate proficiency to the level required on the worksheet. The SSQ worksheet shall be used each time SSQ qualification or re-qualification is accomplished.

20.5. PAC Task Related Recurring Training Requirements (RTRs).

20.5.1. Task Related RTRs. These RTRs are required to perform specific tasks. Task related RTRs shall be linked to specific tasks as assigned and shall cause automatic de-certification if not completed on time. Employees may have task related training without being assigned the specific tasks. PAC task certification shall not be granted until the applicable task related training requirements are completed. This list is not all inclusive. ALCs shall establish additional task related RTRs specific to the work requirements, as required, and document the requirements in local directives. Command standard training shall be used when available and applicable to the requirement.

20.5.2. Aircraft Egress Cockpit Familiarization.

20.5.2.1. Regulatory Documents. AFMCI 21-100, AFMAN 91-203, AFMAN 91-201, and applicable weapon system TOs, job guides, and other directives.

20.5.2.2. Lead ALC. OO-ALC, Hill AFB, Utah.

20.5.2.3. Application. All personnel who are not SSQ qualified in egress maintenance but who access cockpits/cabins equipped with operational egress systems.

20.5.2.4. Initial Training. If command training is not available, local formal training shall be used. Training shall include aircraft safe for maintenance procedures, location, and installation procedures of egress system safety devices, flight deck entry/exit procedures, and local maintenance concerns identified by the egress supervisor. When an unknown condition of an explosive is suspected or determined, immediately exit the aircraft and contact the egress section. Follow additional guidance in **Chapter 12**.

20.5.2.5. Refresher Training. Formal refresher training is required every 24 months and shall include the same information as initial training. Refresher training does not require use of an actual aircraft or mock-up/trainer. Follow additional guidance in **Chapter 12**.

20.5.3. Aircraft Jet Engine Borescoping.

20.5.3.1. Regulatory Documents. Applicable general and weapon system specific technical data.

20.5.3.2. Lead ALC. OC-ALC, Tinker AFB, Oklahoma.

20.5.3.3. Application. Personnel who perform borescope inspections on aircraft jet engines.

20.5.3.3.1. Personnel who utilize borescope equipment to inspect or perform maintenance on jet engine modules that are not installed on the final engine do not require recurring borescope training. Final borescope inspections of the completed engine must be performed by a certified technician who has completed this recurring requirement.

20.5.3.3.2. Personnel who utilize borescope equipment to inspect or perform maintenance on jet engine modules not installed on aircraft are required to complete initial borescope training for assigned TMS.

20.5.3.3.3. Initial Training. Local formal training shall be used.

20.5.3.3.4. Refresher Training. Refresher training is required every 24 months.

20.5.4. Aircraft Jet Engine Inlet Inspection.

20.5.4.1. Regulatory Documents. Applicable weapons system TOs, job guides, and other applicable directives.

20.5.4.2. Lead ALC. OC-ALC, Tinker AFB, Oklahoma.

20.5.4.3. Application. All personnel who perform flightline jet engine inlet inspections on aircraft with installed engines.

20.5.4.4. Initial Training. Local formal training shall be used.

20.5.4.5. Refresher Training. Formal refresher training is required every 24 months.

20.5.5. Aircraft Marshaling.

20.5.5.1. Regulatory Documents. AFMAN 11-218, TOs, job guides, and other applicable directives.

20.5.5.2. Lead ALC. WR-ALC, Robins AFB, Georgia.

20.5.5.3. Application. All personnel who perform flightline aircraft marshaling.

20.5.5.4. Initial Training. Local formal training shall be used.

20.5.6. Confined Space.

20.5.6.1. Regulatory Documents. AFMAN 91-203, TO 1-1-3, and other applicable directives.

20.5.6.2. Lead ALC. WR-ALC, Robins AFB, Georgia.

20.5.6.3. Application. Personnel who enter, attend, test, monitor, or supervise entry into documented confined spaces as outlined in AFMAN 91-203 and TO 1-1-3.

20.5.6.4. Initial Training. Formal training shall be used. Entrant authorities, entrants, and attendants shall also complete site-specific training.

20.5.6.5. Refresher Training. Site-specific refresher training is required every 12 months.

20.5.7. Weapons/Explosive Safety Training.

20.5.7.1. Regulatory Documents. AFMAN 91-201, AFI 91-202, AFMAN 91-203, and other applicable safety and technical directives.

20.5.7.2. Lead ALC. OO-ALC, Hill AFB, Utah.

20.5.7.3. Application. All personnel who operate, handle, transport, maintain, load, or dispose of missiles, explosives, or nuclear weapons.

20.5.7.4. Initial Training. Initial training shall include all information required to safely perform the job. Initial training is required prior to performing these duties

20.5.7.5. Refresher Training. Follow established guidance in AFI 91-202.

Figure 20.1. New PAC Task Request Worksheet.

All information, excluding signatures, shall be typed
Requester:_____ Organization(s): _____
Date Submitted:_____
HEADER NUMBER:_____
NEW TASK TITLE & NUMBER:
_____
_____
Minimum Grade: _____ SSQ:_____
Workgroup Matrix(s) to add to:_____
COURSES LINKED TO NEW TASK:
_____
_____
_____
_____
_____
TASK DESCRIPTION:_____
_____
SME Concurrence: Flight Authorization:
_____ _____
Name Signature Name Signature
REQUIRED: Attach a copy of the WCD (first page) to this request.
Concur with new task request.
_____ _____

John S. Smith	**Jane D. Doe**
XX AMXG Training Manager	**XX AMXG PAC Manager**

Figure 20.2. SSQ Guide.

SSQ: (Title) (Guide Number)
SKILL/GRADE: Aircraft Mechanic, WG 8852-10 or higher.

APPLICABLE TO: Applies to all personnel who repair, service, store, transfer, purge, bleed, vacuum, pressure check or otherwise handle or use liquid or gaseous oxygen in maintenance tasks. Duties, such as removal and installation of lines, pressure relief valves, regulators and converters removed from the aircraft during the depot maintenance process, prior to pressure check and purging are considered to be ancillary duties and do not require SSQ. Personnel performing these ancillary duties must be trained to the extent necessary to safely perform the tasks (not to the SSQ required level). It also applies to personnel who perform maintenance on liquid and gaseous oxygen equipment (such as removal and installation of lines, pressure relief valves and regulators, purging, bleeding, vacuuming, and pressure checks). Other ancillary tasks can be included as locally determined.

QUALIFICATION OFFICIAL CRITERIA:
- Shall be Subject Matter Expert (SME) in the skills they support.
- Shall be appointed in writing by the Complex or the Group supported.
- Shall be SSQ qualified in the skill supported or possess the necessary credentials required by the SSQ (i.e. degree, professional/industrial certification).
- Shall complete the AFMC SSQ Qualifier Course.

APPLICABLE DIRECTIVES:
- T.O. 1E-3A-2-21-1, Organizational Maintenance, Environmental Control System, 15 July 2013

TRAINING REQUIRED: See worksheet for required prerequisite training.

QUALIFICATION INSTRUCTIONS: Granted after successful completion of the required training and demonstration of proficiency to an SSQ Qualification Official.

DOCUMENTATION REQUIRED: PAC/TSS

DISQUALIFICATION: Observed deficiencies or deviations from technical data, safety violations, valid customer complaints, failure to maintain the required level of proficiency, or failure to perform the required procedures in accordance with the applicable technical directives can be grounds for immediate disqualification. Initial SSQ qualification requirements shall be met for re-qualification. Retraining and successful demonstration of proficiency to an SSQ Qualification Official shall be required prior to regaining qualification.

RE-QUALIFICATION: Required every 24 months and shall include a demonstration of proficiency to an SSQ Qualification Official.

NOTE: This guide is not technical data and must be used in conjunction with the most current versions of the applicable directives. If changes have been made to the technical data, please notify your PAC Program Manager.

Figure 20.3. SSQ Worksheet (Sample).

SSQ ☐ QUALIFICATION / ☐ RE-QUALIFICATION WORKSHEET
PASS ☐ FAIL ☐

E-3 GASEOUS OXYGEN (GOX) HANDLER **SSQ #002545**

Name: _____ **Work Center:** _____

Prerequisite Training: (Insert trainee's completion date.)

1. TSS #MTEMAS0002544OJ SOJT E-3 Gaseous Oxygen (GOX) Handler Date Completed: _____

SSQ performed on: E-3 Oxygen System

Qualification Objectives are listed below. Document completion of qualification objectives by inserting the qualification official's initials. Proficiency Levels are identified in parenthesis following each objective. The proficiency levels are defined at the bottom of the page.

Qualification Objective	**Initials: SSQ Qual/Off**
1. SAFETY PRECAUTIONS AND PROCEDURES	
1a. Complies with all **Safety Warnings, Cautions, and Notes** contained in, and throughout the specified procedures IAW T.O. 1E-3A-2-21-1, Para 8-1 **(3c)**	
1b. Ensures personal safety equipment and tools are clean and free of petroleum products IAW T.O. 1E-3A-2-21-1, Para 8-1, 8-19, and Table 8-2 **(3c)**	
2. OXYGEN SYSTEM MAINTENANCE	
2a. Bleeds the Oxygen system IAW T.O. 1E-3A-2-21-1, Para 8-34 **(3c)**	
2b. Purges Oxygen supply system IAW T.O. 1E-3A-2-21-1, Para 8-32 **(3c)**	
2c. Purges Oxygen distribution system IAW T.O. 1E-3A-2-21-1, Para 8-34 **(3c)**	
2d. Performs operational test for panel mounted regulators IAW T.O. 1E-3A-2-21-1, Para 8-22 **(3c)**	
2e. Performs portable Oxygen system checkout IAW T.O. 1E-3A-2-21-1, Para 8-23 **(3c)**	

Is the individual being Qualified, a Qualifying Official? YES_____NO_____

SSQ Employee Name (print): _____

SSQ Employee Signature: _____ **Date:** _____

SSQ Qualifier Name (print): _____

SSQ Qualifier Signature: _____ **Date:** _____

Chapter 21

DEPOT ENGINE MANAGEMENT

21.1. Engine Management (EM).

21.1.1. EM is responsible for monitoring and developing strategies to sustain the health of the engine and aircraft fleet. EM monitors engine removals and replacements, component tracking, engine TCTOs and Time Change Items (TCIs), engine records in the MIS, CEMS, and REMIS.

21.1.2. The MXG/CC or equivalent will appoint an engine SRAN Manager or a unit engine manager and alternate where applicable to comply with AFI 63-101/20-101, *Integrated Life Cycle Management* and TO 00-25-254-1.

21.1.3. EM will monitor engine removals and replacements, component tracking, engine TCTOs and TCIs, engine records in the MIS and CEMS, and perform engine manager duties; ensure engine inventory control and management procedures are developed for each engine SRAN; manage unit efforts to maintain adequate engine support for mission requirements.

21.1.4. Manage the MIS and CEMS IAW: AFI 63-101/20-101, AFI 10-201, AFI 23-101, TO 00-25-254-1, TO 00-20-5-3, and applicable aircraft dash-6 TOs.

21.1.4.1. Due to the unique complexity of the ALCs, the location of the SRAN Engine Manager will be identified in their local guidance.

21.1.5. Each ALC will designate engine management responsibilities in writing. Minimum requirements include:

21.1.5.1. Ensure engine, module, and component data is reported to EM NLT close of business the first duty day after the event (e.g., part removal, installation, time update, and TCTO status change).

21.1.5.2. Coordinate local policy with the Command Engine Manager (CEM) prior to publication.

21.1.6. Plan, schedule, and document maintenance actions on possessed engines.

21.1.7. Manage time changes and provides TCI information [e.g., cycles remaining, engine operating time (EOT), etc.] on serially controlled items to propulsion maintenance for engine and engine component CANN actions. Manage time changes on all engines and ‘life-limited and serially tracked’ components.

21.1.8. Ensure all engine SIs are loaded in the approved MIS against the engine, not the aircraft.

21.1.9. Ensure all engine/module inspections/TCIs tracked by EOT, calculated cycles (CCY), total accumulated cycles (TAC), etc., are loaded/tracked in the MIS and CEMS.

21.1.10. Manage TCTOs on all possessed engines and components both installed and removed. Comply with TCTO duties and responsibilities for engine items. Maintain records on TCTO kits and status for all engines installed on aircraft sent to depot.

21.1.11. Maintain and update historical documents for all assigned engines, modules, and major assemblies using the approved MIS IAW TO 00-20-1.

21.1.12. Verify engine total time in CEMS against an approved MIS. Reconcile aircraft engine record times in the CEMS database.

21.1.13. Establish a CEMS and MIS contingency plan for when either or both systems are down for extended periods (i.e., more than 48 hours). The plan will include procedures for retaining data in date-time order for input when the MIS/CEMS operation resumes.

21.1.14. The SRAN engine manager is selected from AF Specialty Code 2R1X1 or 2A6X1 with at least a 7- or 9-skill level or civilian equivalent. The assistant will be at least a 7-skill level from the same AF Specialty Codes or civilian equivalent. The SRAN engine manager will:

21.1.14.1. Advise the MXG/CC on administration of the base SRAN Engine Manager Program, and engine maintenance concepts, principles, policies, procedures, and techniques within the maintenance group. Act as the single POC between the ALC and CEM for SRAN EM questions.

21.1.14.2. The SRAN EM shall follow responsibilities and duties IAW AFI 63-101/20-101, this manual, and TO 00-25-254-1.

21.1.15. Ensure aircraft, engine records, and MIS and CEMS database reconciliation occurs after maintenance actions are complete and prior to aircraft, engine, and/or life-limited serially tracked component leaves the overhaul repair facility.

21.1.16. Perform periodic self-inspections to monitor accuracy and timeliness of reporting.

21.1.17. A training plan will be developed to ensure engine management section personnel who report engine status or are responsible for engine documentation and scheduling comply with management responsibilities IAW TO 00-25-254-1, and TO 00-20-1.

21.1.18. Maintain a jacket file of engine shipping documents IAW AFI 33-322, *Records Management and Information Governance Program.*

21.1.19. Perform duties and requirements for engine shipments, protection, and storage IAW AFPD 24-6, *Distribution and Traffic Management*, AFI 63-101/20-101, and TO 00-85-20, *Engine Shipping Instructions*, TO 2J-1-18, *Preparation for Shipment and Storage of Gas Turbine Engines*, and TO 2-1-18, *Aircraft Engine Operating Limits and Factors.*

Chapter 22

CONTRACT SURVEILLANCE

22.1. Introduction.

22.1.1. This chapter establishes guidelines for performance management and surveillance of performance-based activities which include all organizations within the wholesale and base level logistics enterprise that conduct activities related to the manufacture and repair of assets to support weapon systems. This chapter shall be used in concert with AFI 63-101/20-101, AFI 63-138, *Acquisition of Services*, other applicable guidance, FAR, etc., or the instruction in existence at the time of contract award. This includes contracts totaling $250K or more.

22.2. Government Contract Quality Assurance. COR is used to describe all government personnel designated to surveilling service contracts.

22.2.1. AFSC units to include ALC maintenance group and ABWs which have performance based maintenance or maintenance support activities shall establish a single PMO also known as Contract Management Office (CMO). For installations which have performance-based maintenance and maintenance support activities shared between two or more groups, the group which established the contract will be responsible for overseeing and managing the contractor's performance. The PMO will consist of a full time dedicated staff to initiate, oversee, and manage performance-based activities within the maintenance group. The PMO will consist of a program manager, COR chief(s), and COR(s). The Chief COR may serve as both the program manager and Chief COR when the workload does not justify both positions. All contracts will be coordinated with the PMO to ensure consistency and standardization of PWSs and to minimize the number of contracts for similar operations.

22.2.1.1. The PMO will:

22.2.1.1.1. Develop guidance for and coordinate on all QASPs.

22.2.1.1.2. Ensure adequacy of the training program for CORs and track training to ensure currency for Functional Service Manager (FSM), Chief CORs, and CORs.

22.2.1.1.3. Coordinate on all service contracts to ensure contractor operations at least meet AF standards and to minimize disruptions to mission.

22.2.1.1.4. Ensure the adequacy of PWS/SOW by the utilization of the specific, measurable, attainable, realistic, and timely (SMART) concept. This concept when utilized will ensure the PWS/SOW captures SMART goals for the contractor and their QA plan.

22.2.1.1.5. Avoid multiple contracts for the same or similar operations.

22.2.1.1.6. Ensure that AF maintenance standards are included in the PWS where practicable. These standards include but are not limited to tool control, FOD prevention, safety where government resources are exposed to risk by contracted operations, tool and equipment management, and materiel control.

22.2.1.1.7. Ensure AF maintenance data collection and information management systems such as IMIS, FEM, AMCS, IMDS, CEMS, G081, SBSS, and AFEMS are mandated in the PWS where practicable.

22.2.1.1.8. Conduct a quarterly review of activities with COR chief(s), CORs, and ACO/PCOs.

22.2.1.1.9. Develop procedures to ensure standardized Program Model Assessment Process (PMAP) and documentation.

22.2.1.1.10. Keep up-to-date on mission changes that could affect creation of a contract modification and advise the FSM.

22.2.1.1.11. Oversee the development of a PMAP that effectively measures and evaluates contractor, most efficient organization (MEO), or high performing organization (HPO) performance throughout the life of the contract or management plan.

22.2.1.1.12. Ensure PMAP implements the requirements of applicable guidance and this chapter.

22.2.1.1.13. Review problem areas with the PCO/ACO to resolve the problems. If the problem cannot be resolved, advise the FSM and request assistance through command channels.

22.2.1.1.14. Review documents related to default/re-compete prior to the scheduled re-competition; contract Section C, PWS/SOW, requirements document or scope of work modifications; changes to award fee plan if applicable; contractor, MEO, or HPO proposals to new or revised DoD, AF, MAJCOM, and local directives.

22.2.1.1.14.1. Related documents include:

Table 22.1. Related Documents.

Item	Document
1	Intent or consideration to default or re-compete the contract prior to the scheduled re-competition.
2	Modifications to the contract involving changes to the SOW, PWS, or scope of work requirements. Ensure cost estimates are included.
3	Changes to the award fee plan.
4	Locally procured maintenance/service contracts.
5	PWSs/SOWs for all aircraft, aerospace equipment, aircraft engines, support equipment/tools, conventional munitions, nuclear munitions, missiles, vehicles, components, and other non-flying weapon systems and related activities maintenance/service contracts including transient alert contracts.
6	Contractor proposals to new or revised DoD, Air Force, MAJCOM, and local directives.

22.2.1.1.15. Coordinate waiver requests with the MAJCOM/AFSC staff when initiated by the contractor, MEO, or HPO.

22.2.1.1.16. Ensure performance-based contract assessment tools (e.g. process and systems audits, compliance checklists, random sampling, or other frequency-based inspection methods, etc.) are used to the maximum extent possible to monitor contractor, MEO, or HPO submission of required reports according to the contract Section C, PWS/SOW, requirements document, management plan, AFI, or MAJCOM publications.

22.2.1.1.17. Ensure surveillance methods to monitor contractor, MEO, or HPO performance IAW federal, state, and local environmental laws and AF directives.

22.2.1.1.18. Ensure contracts contain a viable contingency plan for tasks identified as essential IAW DoDI 1100.22, *Guidance for Determining Workforce Mix*, and annually coordinate with the PMO and PCO/ACO to revise, change, or update.

22.2.1.1.19. Establish procedures for technical evaluation of contractor submitted value engineering change proposals if applicable.

22.2.1.1.20. Submit surveillance schedules IAW PMAP or QASP guidance to the FSM for approval.

22.2.1.1.21. Review publications for acceptance when contractor generated (i.e., wing-level instructions and group OIs) or developed by the performance-based activity (i.e., contractor, MEO, or HPO) prior to final signature and implementation.

22.2.1.1.22. Establish a standard format for the monthly surveillance summary report.

22.2.1.1.23. Provide government vehicles for centrally located CORs. CORs must have transportation to and from the contractor's location in order to provide timely support.

22.3. Facilities.

22.3.1. When performance-based activity (i.e., contractor, MEO, and HPO) performance is required on base, then facilities are government owned and contractor operated (GOCO). When performance is required off base, then facilities are contractor owned and contractor operated (COCO).

22.4. Financial Management.

22.4.1. The PMO shall annually (usually in March) ensure that the MAJCOM/FM Budget Office includes contract funding requirements in the future years defense program (FYDP). The PMO shall identify MEO and HPO personnel requirements for inclusion in the FYDP. Also, the PMO shall establish procedures to collect reimbursements when a performance-based activity (i.e., contractor, MEO, or HPO) provides support as a support agreement supplier (i.e., host).

22.4.2. Support Agreement Management. Reference AFI 25-201, *Intra-Service, Intra-Agency, and Inter-Agency Support Agreements Procedures*. Performance-based activities (i.e., contractor, MEO, and HPO) cannot negotiate and sign support agreements. The PMO shall negotiate, coordinate, and control support agreements for supported workloads. MEOs and HPOs are authorized to negotiate, coordinate, and control support agreements pertinent to their functional area but shall not without written approval of the government PMO.

22.4.3. Change Management for Performance-Based Activities (i.e., contract, MEO, and HPO). Reference the FAR for contracts. The PMO is the office of contract responsibility (OCR) for issuing and identifying the need for contract modifications. The government PMO is the OPR for changing MEO and HPO management plans.

22.4.3.1. The QASP implements the requirements of applicable guidance and this chapter.

22.4.3.2. Related documents include:

22.4.3.2.1. Intent or consideration to default or re-compete the contract prior to the scheduled re-competition.

22.4.3.2.2. Modifications to the contract involving changes to the SOW or scope of work requirements. Ensure cost estimates are included.

22.4.3.2.3. Changes to the award fee plan if applicable.

22.4.3.2.4. Locally procured maintenance service contracts.

22.4.3.2.5. PWSs/SOWs for all aircraft, aerospace equipment, aircraft engines, support equipment/tools, conventional munitions, nuclear munitions, missiles, vehicles, components, and other non-flying weapon systems and related activities maintenance/service contracts includes transient alert contracts.

22.4.3.2.6. Contractor proposals to new or revised DoD, Air Force, MAJCOM, and local directives.

22.5. Waiver.

22.5.1. Coordinate waiver requests with the AFSC/LZ staff through the appropriate chain of command when initiated by the contractor, MEO, or HPO.

22.5.2. Comply with all requirements.

22.6. PMO.

22.6.1. The PMO will determine procedures to nominate CORs for all service contracts over the simplified acquisition threshold (SAT). The Chief COR has the authority to reject nominations (not technically qualified).

22.6.2. Include performance status of contract activities in maintenance management meetings.

22.6.3. Ensure the appropriate functional reviews (e.g., Safety, Bioenvironmental, etc.) have been performed on the PWS/SOW prior to submission of the requirements package to contracting.

22.6.4. Pre-Contract Award and Pre-Planning for Management Plan Requirements. The requirements of this paragraph are applicable solely to the FSM. These requirements shall be considered for incorporation into all solicitations, initial and follow-on (i.e., re-competitions), and MEO/HPO management plans containing maintenance functions. The guidance in this paragraph is authoritative, but not directive except where noted as mandatory because of public law, executive orders, DoD directives, or AFIs. Existing contracts need not change until re-competition of the function.

22.6.5. Contract/MEO HPO Documentation.

22.6.6. Contract Format. The PCO is the OPR for contract preparation. The Uniform Contract format has 13 sections alphabetized from A to M. The maintainer's primary concern will be with Section C, Description/Specification/Statement of Work, because this section details the service (outputs) the offeror is required to perform and the go/no-go checklist (services summary) for accepting the service (outputs). The FSM is the OPR for Section C and the services summary.

22.6.7. MEO Format. Reference AFI 63-138, *Acquisition of Services*.

22.6.8. HPO Format. Use same format as the MEO management plan, reference AFI 63-138, *Acquisition of Services*.

22.6.9. Solicitation, MEO, and HPO Provisions.

22.6.9.1. Applicability of AFIs and TOs. Section C, PWS/SOW, requirements document and HPO management plan shall include AFI and TO requirements. TOs are mandatory and will be cited in their entirety. Cite mandatory AFI paragraphs or cut and paste text from the AFI into the Section C, PWS/SOW requirements document and HPO management plan. Contact AFSC/LZ staff for assistance when there is disagreement over applicability and use of TOs or 21-series AFIs.

22.6.9.2. Contractors performing operations covered in this chapter or using government resources shall meet the intent of applicable portions of AFMCI 21-100. As a minimum, the following programs will be addressed in the PWS/SOW: Tool control, documentation, FOD prevention, and materiel control and equipment management. It is important to consider the full scope of contracted operations as this attachment may not identify all necessary standards to be considered or may contain standards that are not part of the contracted operations.

22.6.9.3. Contract Data Requirements. The Section C, PWS/SOW requirements document and HPO management plan shall not require data deliverables except when required IAW an AFI or TO. Data deliverables created as a natural consequence of complying with AFIs or TOs shall not be cited in a contract data requirements list (CDRL) or contract line item number. Example: Report data collected IAW an AFI or TO and documented on the appropriate AF Form or equivalent.

22.6.9.4. Support Agreements. Section C technical exhibits and the HPO management plan shall include workload requirements supported via the support agreement (reference AFI 25201).

22.6.9.5. Organization. Contractors and MEOs are exempt IAW AFI 63-138 from organizing their operations as defined in AFI 38-101, Manpower and Organization, however, the Section C PWS/SOW requirements document shall include a requirement mandating use of the AF standardized mailing address format (i.e., 412 CMS/MXMD) to facilitate uniform communication between organic and non-organic activities.

22.6.10. Review documents related to default/re-compete prior to the scheduled re-competition; contract Section C, PWS/SOW, requirements document or scope of work modifications; changes to award fee plan if applicable; contractor, MEO, or HPO proposals to new or revised DoD, AF, MAJCOM, and local directives.

22.6.10.1. The specific number of CORs designated on each contract will be based on the contract's magnitude and complexity.

22.6.10.2. PMO will determine fill requirements.

22.6.10.3. The Chief COR has the authority to reject nomination but must notify the FSM in writing the rejection justification and maintain on file. The PCO has final determination for all COR designations.

22.6.10.4. The Chief COR ensures the development of the schedule. Copies of all schedules may be kept on file electronically in a database.

22.6.10.5. Develop a COR Training Program (**Note:** Sign-in rosters for the training is maintained by the Chief COR) along with a master training plan for CORs and individual training records with AF Form 797, *Job Qualification Standard Continuation/Command JQS,* to document technical training, evaluator training, and ancillary required training. Document training in TSS-PAC IAW AFI 36-2650 AFMCSUP.

22.6.10.6. Serve on or as a member of the multi-functional team (MFT) when required, to ensure Section C PWS/SOW requirements documents and QASP are properly developed utilizing the SMART Concept.

22.6.10.7. Report findings to the PMO for coordination through the Contracting Officer (CO) prior to forwarding to the MAJCOM, when applicable.

22.6.10.7.1. The COR will deliver the schedule to the Chief COR for distribution.

22.6.10.8. The program manager, Chief COR, and COR will complete the HQ AFMC developed COR training requirements. The AETC Quality Assurance Evaluator Course may be attended on a space available basis.

22.6.11. COR's must complete training IAW DODI 5000.72, *DOD Standard for Contracting Officer's Representative (COR) Certification*, Enclosure 5, Qualification Requirements for CORs, Table 2, and Enclosure 6, DOD Standard for Certification of CORs – Type 'A', Table 3, DOD Standard for Certification of CORs – Type 'B', and Table 4, DOD Standard for Certification of CORs – Type 'C'.

22.6.12. CORs, Chief CORs, and FSMs must complete training IAW AFFARS MP 5301.602-2(d), *For Designation, Assignment, and Responsibilities of a Contracting Officer's Representative*.

22.6.12.1. AFSC/LZ will facilitate development of standard MAJCOM initial and refresher general COR training courses at a later date.

22.6.13. Observation area inspections will be accomplished at least annually and listed on the monthly schedule. Requirements will be coordinated/determined by the PMO.

22.7. Corrective Action Request (CAR).

22.7.1. CAR reporting forms will be included/specified in the applicable QASP.

22.7.2. Also follow FAR Part 37, *Service Contracting*, with regards to Transition Plans.

Chapter 23

ALC ENGINEERING ROLES AND RESPONSIBILITIES

23.1. Background Information. Depot operations require science and engineering involvement to ensure mission success through proper planning, design, implementation, execution, and maintenance of the technical and non-technical processes necessary to meet depot customer requirements. These requirements are to be met with ALC of the Future and AFSC methodologies such as Visioneering, Production Machine Science, and Constraint Resolution all focusing on the 'Art of the Possible'. The diversity and complexity of the roles and responsibilities within ALC Engineering drives a requirement for a diverse and highly skilled technical workforce as well as an understanding of the sometimes overlapping nature of these roles and responsibilities. This includes a broad range of science and engineering disciplines including Industrial, Aerospace, Mechanical, Chemical, Material, and Electrical Engineers, as well as Computer Scientists, Physicists, and Chemists. They operate across all components which make up Depot Engineering including ALC Engineers (e.g., AMXG, CMXG, PMXG, etc.), SPO, Supply Chain (i.e., SCMW) Engineers, and Air Force Research Laboratory (AFRL) Engineers, each serving a role and managing its responsibilities.

23.1.1. Requirements. As new workloads develop and existing workloads evolve, depot engineering must be involved from the very beginning to include organic 'repair' determinations primarily through the Depot Source of Repair (DSOR) process and is defined as having the primary responsibility to ensure technical requirements are documented, understood, and achievable.

23.1.2. Process. ALC engineering includes the activity of planning and developing all technical processes required to meet both customer workload requirements and technical requirements for a specific workload or for a series of similar workloads. These processes include engineering processes, industrial processes, supporting both technical processes and non-technical activities, including equipment, facilities, lab services, NDI, process control, surveillance, contracting, planning, etc. This responsibility requires identification of resources and infrastructure (i.e., facilities, equipment, and instruments/tools). Once established, ALC engineering has the responsibility to baseline the process and control change through robust change management procedures. ALC engineering has the responsibility that all developed processes must be verified and validated against the technical requirements.

23.2. ALC Engineering Management Roles and Responsibilities.

23.2.1. Technical Director (TD).

23.2.1.1. Technical Authority. The TD is the technical authority responsible for meeting the customer's technical requirements. The TD serves as the senior functional authority, technical advisor to the ALC/CC, and senior technical authority.

23.2.1.1.1. Senior Functional Authority.

23.2.1.1.1.1. Provide science and engineering (S&E) personnel management through S&E career development.

23.2.1.1.1.2. Establish staffing levels for all S&E positions.

23.2.1.1.1.3. Serve as Organizational Senior Functional.

23.2.1.1.1.4. Develop qualification standards.

23.2.1.1.1.5. Develop and oversee implementation of training plans, career broadening, retention, and mentoring.

23.2.1.1.1.6. ALC senior functional for S&E GS-14 interviews.

23.2.1.1.1.7. Review/approve hiring packages, incentives, and other staffing.

23.2.1.1.2. Senior Technical Authority.

23.2.1.1.2.1. Delegated Engineering Authority.

23.2.1.1.2.2. Assure processes and facilities meet production requirements.

23.2.1.1.2.3. Ensure technical compliance to customer requirements through robust process engineering.

23.2.1.1.2.4. Technology insertion.

23.2.1.1.2.5. Capital investment.

23.2.1.1.2.6. Change management.

23.2.1.1.2.7. ALC level chair/representative for AFMC Form 202s, NDI, ESOH, and metrics.

23.2.1.1.2.8. Acquisition certification official.

23.2.1.1.2.9. Technical advisor for new business, workload, partnerships, etc.

23.2.1.1.2.10. Integrates across groups within the ALC, with other ALCs, and organizations the ALC interacts with.

23.2.1.1.2.11. Provides technical oversight of group engineering chiefs and squadron directors and serves as formal appraisal reviewer.

23.2.1.1.2.12. Chairs configuration control boards for which the ALC has a configuration responsibility to external customers.

23.2.1.1.3. Advisor to the ALC/CC.

23.2.1.1.3.1. Part of the ALC/CC staff and participant in significant ALC senior leader meetings.

23.2.1.1.3.2. ALC oversight for critical technical issues.

23.2.1.1.3.3. Provide strategic guidance, oversight, direction, and problem resolution.

23.2.1.1.3.4. Champion or team lead at the ALC level for strategic initiatives at the commander’s discretion.

23.2.1.1.3.5. Represent the ALC at the Engineering Advisory Board.

23.2.1.2. Delegated Engineering Authority (DEA)/AFMC Form 202 Engineer. The DEA Engineer will be delegated by the Chief Engineer the responsibility of developing the disposition instructions of the AFMC Form 202. The DEA Engineer’s signature means they are attesting that the recommended disposition is accurate and based on sound

engineering. Furthermore, that if the recommendation is approved and implemented as they proposed, there will be no detriment to the OSS&E or airworthiness characteristics of the system. The DEA Engineer provides full spectrum support for the AFMC Form 202 process including review of AFMC Form 202s for completeness, accuracy, soundness of engineering practices/principles, technical resolution proposed, and for cost/schedule and weapon system life cycle considerations; work to reduce the number of AFMC Form 202s, streamline the process and notify the applicable program office when there is a need to correct/update TOs, drawings, and/or work specs.

23.2.2. Group Engineering Chief.

23.2.2.1. The Group Engineering Chief is responsible for overseeing SMEs and all associated subordinate Group engineers/technicians. The Group Engineering Chief will provide technical guidance to the production team to ensure appropriate consideration is given to governing technical information, drawings, process orders, and WCDs. The Group Engineering Chief is responsible for process engineering, and production science, and will perform risk management per AFMAN 91-203 "Air Force Occupational Safety, Fire, and Health Standards" to identify and manage risk and coordinate with safety, bioenvironmental engineering, base fire department, and the appropriate engineering authority as required. The Group Engineering Chief is responsible to support production leadership in design, analysis, improvement, and monitoring of the production machine.

23.2.2.2. The Group Engineering Chief ensures end item test equipment:

23.2.2.2.1. Meets technical information test requirements.

23.2.2.2.2. Is adequately acceptance tested.

23.2.2.2.3. Has an established functional and physical baseline which is maintained as required.

23.2.2.2.4. Proper change control is maintained.

23.2.2.3. The Group Engineering Chief will coordinate with the appropriate software experts as applicable when root cause analysis identifies potential problems originating from software defects or malfunctions that potentially impact systems or interfaces.

23.2.2.4. The Group Engineering Chief and the SPO liaison team will provide guidance to the production team with respect to data gaps as identified in any technical information to clarify repair procedures. Any changes to maintenance processes, procedures, tools, etc. will be documented in writing using the appropriate methods to ensure proper documentation and approval of the change.

23.2.2.5. Group Engineering Chief shall maintain a list of all special processes executed in their respective groups.

23.2.2.6. The Group Engineering Chief or a first level supervisor in the Group Engineering Chief's organization will be the release authority on all process orders prior to distribution to ensure all aspects of technical data have been met.

23.2.2.7. The Group Engineering Chief executes the IPC program for the maintenance group IAW AFSCI 21-402, Industrial Process Control.

23.3. ALC Engineering Roles and Responsibilities.

23.3.1. The Production Engineer is the technical authority behind industrial process development, validation, and maintenance. It is the responsibility of the Production Engineer to ensure production processes meet all customer requirements. Deviations from established industrial processes must be approved by the production engineer prior to implementation. The Production Engineer has both the responsibility and the authority to suspend the operation of an industrial process for being out of approved tolerance, safety issues, violations of technical data, or other conditions that could result in quality deficiencies. The Production Engineer is responsible for workload activation, process improvement/human factors, strategic and tactical planning, specification writing, and cost effective readiness. Within the role of the Production Engineer are several sub-roles that focus on specific duties.

23.3.1.1. Industrial Engineer. The Industrial Engineer is the technical authority on the production machine. The industrial engineer advises production leadership on design, analysis, improvement, and monitoring of the production machine. The Industrial Engineer is responsible for the design layout of equipment, materials, and workspace to illustrate maximum efficiency.

23.3.1.2. Facilities Engineer. The Facilities Engineer is responsible for the readiness of facilities to support the mission assigned. This includes design of shop layouts, reliability management, repair contracts, and preventative maintenance analysis. The Facilities Engineer also maintains building drawings, develops facility health assessments, and writes/submits plant service requests.

23.3.1.3. Equipment Engineer. The Equipment Engineer is responsible for the readiness of equipment to support the mission assigned. Repair contracts, reliability management, and preventative maintenance planning for equipment are some to the Equipment Engineer's responsibilities. Additionally, the Equipment Engineer is responsible for calibration, certification, and recapitalization of equipment.

23.3.1.4. Manufacturing Engineer. The Manufacturing Engineer's responsibilities include tool and tool path design, fixture design, and composite design; prepares product and process reports by collecting, analyzing, and summarizing information and trends. Cutting tool selection and numerical control (NC) programming are also duties associated with the Manufacturing Engineer.

23.3.1.5. The Process Engineering SME is responsible for providing technical expertise in a particular field and/or with a particular process. The SME introduces advanced technology, writes process orders, is responsible for calibration and certification, and is the industrial process control authority. Additionally, the SME works with equipment designers to improve and develop cost effective processes.

23.3.2. Industrial Engineering Technician (e.g. Planner). Under the guidance of the Production Engineer, the Industrial Engineering Technician's role is to assist the Production Engineer with ensuring production processes are designed to meet all customer requirements and to monitor the industrial process. The Industrial Engineering Technician is responsible for workload activation, process improvement, cost effective readiness, and human factors. As well, the Industrial Engineering Technician does strategic and tactical planning, and contributes to production process orders.

23.3.3. Nondestructive Inspection (NDI) Program Management. NDI is the process of evaluating the properties of a material, component or system to determine component integrity without causing damage. AFSC considers NDI a critical process and therefore utilizes trained and certified Level 3s to ensure the individuals managing and executing the NDI program are subject matter experts.

23.3.3.1. The AFSC Commander will establish an AFSC NDI Program and will appoint a senior Level 3 as Program Manager (PM) responsible for ensuring compliance with the requirements of higher level regulatory guidance in the management of the NDI Program. The AFSC Commander will ensure the Program office is adequately staffed and equipped.

23.3.3.1.1. The AFSC NDI Program Manager shall:

23.3.3.1.2. Develop and maintain an AFSC written practice to implement the requirements of NAS 410, *CERTIFICATION & QUALIFICATION OF NONDESTRUCTIVE TEST PERSONNEL*, and AFI 20-114 AFMCSUP.

23.3.3.1.3. Develop an AFSC NDI program plan to include, but not be limited to, long range planning, strategic objectives, equipment master plan, ALC PM succession planning, and Level 3 development.

23.3.3.1.4. Provide AFSC NDI program direction and guidance to the ALC NDI PMs.

23.3.3.1.5. Monitor the actions, effectiveness, and progress of the ALC NDI programs. This may include, but not be limited to, probability of detection (PoD) testing to determine inspection capabilities as it relates to AFLCMC detection capability requirements.

23.3.3.1.6. Provide engineering, subject matter expert, and technical guidance to the ALC NDI PMs and Level 3s on NDI issues.

23.3.3.1.7. Develop and maintain policy that ensures all new or modified NDI procedures are developed IAW established protocols, ensures validation and verification is performed, and that inspector skill level and training requirements have been evaluated. Reference EZ-SB-15-02, *Requirements for NDI Procedure Development, Validation, and Verification for Aircraft Structural Inspections During Operations and Support Phase* for aircraft structures.

23.3.3.1.8. Develop and maintain policy that ensures AFSC provides field level SME support to include, but not be limited to, procedure support, maintenance engineering assistance requests (ETARS/Form 107), training, trouble shooting, evaluation of inspection results, etc.

23.3.3.1.9. Provide support to depot NDI personnel as requested to include, but not be limited to procedure support, training, trouble shooting, and evaluation of inspection results.

23.3.3.1.10. Provide single manager, PM/PGM, etc support to include, but not be limited to procedure development, support to the integrity programs (ASIP, ENSIP, PSIP, MECSIP, LGSIP, etc.), NDI non-conforming engineering support

(202/107/ETAR), equipment supportability, training requirements, MAJCOM coordination, and technology development.

23.3.3.1.11. Participate in and provide support to the AF NDI program to include, but not limited to NDI Advisory Boards, NDI Integrated Process Teams (IPT), Rapid Improvement Events (RIE), AF NDI Working Groups, the annual Corporate Process Activity (CPA), the Executive Working Group (EWG), the Executive Steering Group (ESG), etc., as needed for the resolution of field and depot related issues.

23.3.3.1.12. Promote NDI equipment and process standardization across AFSC and the field.

23.3.3.1.13. Advocate and support NDI technology development, evaluation, maturation and insertion across AFSC and the AF, to include identifying research requirements/gaps, evaluation of newly developed technology or equipment for potential utilization by the depots or the field, etc.

23.3.3.1.14. Advocate to ensure that appropriate ALC NDI PM and Level 3 resources and lab capabilities are maintained to provide responsive technical support to the field, the depots and AFLCMC.

23.3.3.1.15. Plan, program and submit NDI program related budget requests.

23.3.3.1.16. Develop and maintain policy that directs and guides root cause analysis (RCA) investigations are conducted IAW paragraph 23.3.3.4. and that corrective/mitigating actions are implemented.

23.3.3.1.17. Support external agency audit requests such as NADCAP, ISO, FAA, etc.

23.3.3.1.18. Act as the Certifying Official for AFSC NDI Level 3 personnel on staff. May also act as a Certifying Official for the ALC NDI PMs or ALC Level 3s.

23.3.3.1.19. Conduct special projects and studies on NDI as necessary.

23.3.3.2. The ALC Commander will establish an ALC NDI Program and will appoint a senior Level 3 as Program Manager (PM) responsible for ensuring compliance with the requirements of higher level regulatory guidance in the management of the NDI Program. The ALC Commander will ensure the Program Office is adequately staffed and equipped.

23.3.3.2.1. The ALC NDI Program Manager will:

23.3.3.2.1.1. Ensure all new or modified NDI procedures have a robust development IAW established protocols, ensure validation and verification is performed, and inspector skill level and training requirements have been evaluated and implemented where required.

23.3.3.2.1.2. Coordinate field-level SME support to the T.O. change, validation, and verification process with the appropriate MAJCOM NDI functional manager.

23.3.3.2.1.3. Provide field level SME support to include, but not be limited to procedure support, training, trouble shooting, and indication evaluation. Ensure

field level personnel are sufficiently trained on new equipment and procedures before implementation.

23.3.3.2.1.4. Ensure only properly trained and certified personnel perform NDI related activities.

23.3.3.2.1.5. Support, review, coordinate and approve all ALC NDI equipment, facilities, materials and processes, including support processes, such as material handling. Provide updates on ALC unique equipment, facilities, materials and processes to the AFSC NDI PM.

23.3.3.2.1.6. Provide support to depot NDI personnel to include, but not be limited to, procedure support, maintenance engineering assistance requests (202s), training, testing, and certification, trouble shooting, indication evaluation, etc.

23.3.3.2.1.7. Review and coordinate on all changes to NDI facilities, procedures, equipment, materials, and processes at the ALC when they impact inspection capability, or change parameters outside specific technical order limits.

23.3.3.2.1.8. Provide single manager, PM/PGM, etc support, to include but not be limited to, procedure development, support to the integrity programs (ASIP, ENSIP, PSIP, MECSIP, LGSIP, etc.), NDI non-conforming engineering support (202/107/ETAR), equipment supportability, training requirements, MAJCOM coordination, and technology development. (Reference AFI 21-105)

23.3.3.2.1.9. Notify single manager, PM/PGM, etc. of changes to centrally procured equipment and recommend appropriate changes to weapon system-specific and commodity T.O.s.

23.3.3.2.1.10. Develop and maintain Air Logistics Complex NDI policy. Ensure ALC unique policy is essential enough to be separate from AFSC NDI policy and cannot be incorporated beyond the ALC.

23.3.3.2.1.11. Plan, program, and budget for participation in and provide support to the AF NDI Program to include, but not be limited to NDI Advisory Boards, NDI Integrated Process Teams (IPT), Rapid Improvement Events (RIE), AF NDI Working Groups, the annual Corporate Process Activity (CPA), the Executive Working Group (EWG), the Executive Steering Group (ESG), etc., as needed for the resolution of field and depot related issues.

23.3.3.2.1.12. Advocate and support technology development, evaluation and insertion at the ALC and AF level.

23.3.3.2.1.13. Ensure that appropriate PM and Level 3 resources and lab capabilities are maintained to provide responsive technical support to AFLCMC, AFSC and the field.

23.3.3.2.1.14. Plan, program and submit NDI Program Office related budget requests.

23.3.3.2.1.15. Support and participate to ensure root cause analysis (RCA) investigations are conducted IAW paragraph 23.3.3.4. and that

corrective/mitigating actions are implemented for inspection misses. Report findings of all missed crack investigations to the AFSC NDI PM.

23.3.3.2.1.16. Promote NDI equipment standardization across the depot and field to the greatest extent possible.

23.3.3.2.1.17. Support external agency audit requests such as NADCAP, ISO, FAA, etc. Provide external audit support upon request.

23.3.3.2.1.18. Maintain a qualification/certification program per AFSCI 20-114, administer and approve NDI training and testing program and materials, and appoint designated classroom instructors.

23.3.3.2.1.19. Designate NAS 410 Level 3s to perform the above functions in the case that the NDI PM is unavailable for support.

23.3.3.2.1.20. Act as Certifying Official for all ALC NDI Level 3 personnel and track all Level 3 qualifications.

23.3.3.3. AFSC and ALC Level 3s act as NDI subject matter experts and will:

23.3.3.3.1. Obtain and maintain Level 3 certification IAW NAS 410 and AFSC 20-114, for each of the method required.

23.3.3.3.2. Develop and modify NDI technical data as required to include validation and verification. Obtain ALC NDI PM review and coordination prior to submission to the appropriate PM/PSM/PGM/CEAs for approval. Ensure all new Complex NDI workload is properly vetted through ALC Business Office Workload Authorization prior to development of NDI technical data.

23.3.3.3.3. Provide field level support for all weapon systems managed at that ALC to include, but not limited to, procedure support, maintenance engineering assistance requests (ETARS/107), training, trouble shooting, indication evaluation, etc.

23.3.3.3.4. Provide production support to include, but not limited to, ship side engineering support, procedure support, maintenance engineering assistance requests (202s), training, trouble shooting, indication evaluation, DEVPAC review, planning and scheduling, first article testing, capability assessments, process engineering, rapid improvement events, value stream mapping, materials and chemicals, radiation safety, quality assurance, confined space programs, etc.

23.3.3.3.5. Provide NDI SME support to AFLCMC integrity programs such as ASIP, ENSIP, PSIP, MECSIP, LGSIP, etc.

23.3.3.3.6. Provide NDI classroom instruction if designated as an instructor by the ALC NDI PM.

23.3.3.3.7. Qualify/Certify Level 1 and 2 inspectors if designated as a Qualification Official (QO) by administering written and practical examinations, and maintain qualification and certification records IAW with AFSCI 20-114.

23.3.3.3.8. Develop hands-on practical examinations, task specific SOJT/OJT, etc. as necessary.

23.3.3.3.9. Provide engineering, subject matter expertise, and technical consultation for the budgeting, procurement, installation, repair and maintainability of depot NDI equipment and consumables, facility specifications and modifications, refurbishments, repair contracts, maintenance contracts, etc.

23.3.3.3.10. Evaluate new equipment and new technology for the depot ensuring adequate testing is accomplished so that equipment meets depot requirements for safety, sensitivity, repeatability, reliability and maintainability, etc. prior to fielding. Interface with AFRL and other organizations in the development and insertion of new technology.

23.3.3.3.11. Participate in AF, AFMC, AFLCMC and AFSC NDI related meetings, activities and policy decisions as requested.

23.3.3.3.12. Support external agency audit requests such as NADCAP, ISO, FAA, etc. Provide external audit support upon request.

23.3.3.4. Nondestructive Inspection (NDI) Missed Crack Root Cause Analysis (RCA). Cracks missed by NDI represent a serious risk to the safety and integrity of a weapon system. When an NDI miss occurs, the single manager, PM/PGM, etc must reassess risk. Therefore, all cracks missed by NDI, or suspected missed cracks, shall be reported to the appropriate single manager, PM/PGM, etc, the ALC NDI PM and shall be investigated by the ALC NDI PM. The objective of reporting and investigating NDI missed cracks is to determine the root cause(s) and enable the identification of corrective actions required to prevent recurrence thereby protecting the safety-of-flight of AF weapon systems.

23.3.3.4.1. It is the responsibility of the ALC Commander to ensure that the MX leadership and group directors are aware of the requirements for reporting when a missed crack is discovered and the subsequent missed crack investigation.

23.3.3.4.2. The ALC Commander will ensure that all MX personnel understand they are required to, and are responsible for the immediate reporting of any and all suspected NDI missed cracks to the first level supervisor/shop chief. The first level supervisor/shop chief will then immediately notify the ALC NDI PM.

23.3.3.4.3. The ALC Commander will ensure that MX personnel at all levels provide full support to the ALC NDI PM during the missed crack investigation including, but not limited to, access to all involved personnel, component(s) involved, NDI equipment used, records, and other resources as determined by the ALC NDI PM.

23.3.3.4.4. The ALC NDI PM will conduct the RCA, in conjunction with single manager, PM/PGM, etc personnel, IAW with T.O. 33B-1-1, Appendix C.

23.3.3.4.5. The ALC NDI PM will coordinate and work with MX to ensure corrective/mitigating actions are implemented to prevent future NDI missed due to the same root causes/causal factors.

23.3.3.4.6. NDI personnel typically perform inspections on multiple weapon systems. Upon conclusion of the RCA, the ALC NDI PM will contact the single manager, PM/PGM, etc of the other weapon systems serviced by the incident NDI shop of the missed crack and the results of the RCA to enable the single manager, PM/PGM, etc to assess changes to their risk.

23.3.3.4.7 The ALC NDI PM will provide results of the RCA to the AFSC NDI PM.

23.3.3.4.8. For the context of this document, an NDI miss or a missed crack is defined as a crack that was missed by NDI during its prescribed maintenance operation. If NDI missed a crack, but that crack was found later in the maintenance process, it is still an NDI miss and shall be investigated.

23.3.3.4.9. Misses may also apply to other defect types such as corrosion, stress corrosion cracking, defects in composite materials, or other discontinuities that the inspection was intended to detect.

23.3.4. Environmental, Safety, and Occupational Health (ESOH) Engineer. The ESOH Engineer is responsible for the development of the quality, health and welfare, and environmental policies and procedures in compliance with corporate, state, federal, and local regulations. The ESOH Engineer is responsible for programs including air quality, hazardous material/waste, storm/waste water, recycling, fire protection, ergonomics, respiratory protection, occupational noise, and personnel exposure. Additionally, the ESOH Engineer researches, interprets, analyzes, and applies environmental, fire, and occupational health guidelines.

23.3.5. Energy Engineer. The Energy Engineer performs duties as they relate to Federal Energy Management Program (FEMP) requirements and initiatives. The Energy Engineer conducts tactical and strategic planning for energy efficiency and makes sound investments in technology, equipment, facilities, education, and training to accomplish energy and utility reduction and cost savings within the ALC. It is the responsibility of the Energy Engineer to ensure risk assessment and associated mitigation plans are developed for new technologies. Additional duties include:

23.3.5.1. Analyze facility and production system energy requirements.

23.3.5.2. Conduct economic impact analyses.

23.3.5.3. Provide project/program decisions to efficiently meet mission requirements.

23.3.5.4. Measure progress and effectiveness of facility operations against established energy objectives.

23.3.5.5. Delegate energy and utility reduction initiatives.

23.3.5.6. Investigate and evaluate new energy savings technologies.

23.3.5.7. Actively support all forums involved in energy transition/transformation.

23.3.5.8. Analyze/model utility rate structures.

23.3.5.9. Ensure adequate meter coverage.

23.3.5.10. Analyze meter data to determine trends and identify areas of improvement.

JEFFREY R. SICK, SES, USAF
Director of Logistics

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

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AFSC Form 77, *Request for Quality Assistance*

AFSC Form 95, *Issue Request*

AFSC Form 100, *Floating Stock/Spares Requirement and Justification*

AFSC Form 101, *Verification of Content Removal Tag*

AFSC Form 102, *Verification of Content Removal Label* AFSC Form 105, *Workload Record*

AFSC Form 127, *Routed Order*

AFSC Form 130, *Production Asset Control Record*

AFSC Form 137, *Routed Order (Proj Dir*)

AFSC Form 173, *MDS/Project Operation Assignment*

AFSC Form 206, *Temporary Work Request*

AFSC Form 237, *Temporary Labor and Material Plan*

AFSC Form 240, *Temporary Labor and Material Plan Addendum*

AFSC Form 304, *Service Order Request*

AFSC Form 305, *Plant Management Work Order*

AFSC Form 306, *Preventative Maintenance Instructions*

AFSC Form 307*, Temporary Loan Record.*

AFSC Form 309, *AFSC Tool Control Inventory Record*

AFSC Form 311, *Certificate of Responsibility for Government Property.*

AFSC Form 355, *Operator Maintenance Certification*

AFSC Form 388, *Machine Tool and Equipment Historical Record*

AFSC Form 400, *Inventory Control Sheet*

AFSC Form 500, *Documentation of Production Planning Team (PPT) Meeting Minutes*

AFSC Form 500-2, *Work Control Document Checklist*

AFSC Form 501, *Request for Quote/Rough Order of Magnitude*

AFSC Form 503, *AWP Checklist/Worksheet*

AFSC Form 504, *Post Dock Review Checklist* AFSC Form 561, *Process Orders*

AFSC Form 600, *Production Order*

AFSC Form 600A, *Production Count Detail*

AFSC Form 847, *Recommendation for Change of Publication*

AFSC Form 930, *G004L File Maintenance Transactions*

AFSC Form 957, *Work Control Document (WCD) Change Request*

AFSC Form 959, *Work Control Document*

Adopted Forms

AF Form 86, *Request for Cataloging Data/Action*

AF Form 185, *Project Order*

AF Form 332, *Base Civil Engineer Work Request*

AF Form 601, *Equipment Action Request*

AF Form 614, *Charge Out Record*

AF Form 797, *Job Qualification Standard Continuation/Command JQS*

AF Form 813, *Request For Environmental Impact Analysis*

AF Form 847, *Recommendation for Change of Publication*

AF Form 1297, *Temporary Issue Receipt*

AF Form 1800, *Operator's Inspection Guide and Trouble Report*

AF Form 2047, *Explosive Facility License*

AF Form 2691, *Aircraft/Missile Equipment Property Record*

AF Form 2692, *Aircraft/Missile Equipment Transfer/Shipping Listing*

AF Form 3126, *General Purpose*

AF Form 3136, *General Purpose (11 x 8 ½")*

AF Form 3925, *Engineering Order (EO)*

AFMC Form 36, *Purchase Request*

AFMC Form 37, *Inventory Research Worksheet*

AFMC IMT 61, *Missing/Removed Tools and Equipment*

AFMC Form 181, *Project Order*

AFMC Form 202, *Nonconforming Technical Assistance Request and Reply*

AFMC Form 206, *Temporary Work Request*

AFMC Form 299, *Safety Fire and Health Review*

AFMC Form 310, *Lost/Found Item Report*

AFMC Form 343, *Quality Assurance Assessment*

AFMC Form 105, *Workload Record*

AFTO Form 22, *Technical Order Change Recommendation and Reply*

AFTO Form 66, *TMDE Bar Code Label, Polyester Stock*

AFTO Form 95, *Significant Historical Data Record*

AFTO Form 103, *Aircraft/Missile Condition Data*

AFTO Form 244 *Industrial/Support Equipment Record*

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DD Form 200, *Financial Liability Investigation of Property Loss*

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DD Form 448, *Military Interdepartmental Purchase Request*

DD Form 1149, *Requisition and Invoice/Shipping Document*

DD Form 1150, *Request For Issue/Transfer/Turn-In*

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DD Form 1348-1, *DOD Single Line Item Release/Receipt Document*

DD Form 1348-6, *DoD Single Line Item Requisition System Document*

DD Form 1423, *Contract Data Requirements List*

DD Form 1723, *Flow Process Chart*

DD Form 1574, *Serviceable Tag – Material*

DD Form 1577-2, *Unserviceable (Reparable) Tag Material*

DD Form 2332, *Product Quality Deficiency Report Exhibit*

DD Form 2875, *System Authorization Access Request*

DLA Form 1838, *Organic Manufacturing Quote*

Abbreviations and Acronyms

6S—Sort, Set in order, Shine, Standardize, Sustain, and Safety

9a—Capital Investment Summary

9b—Capital Investments Justification

A4—Headquarters Logistics Organization

AAC—Acquisition Advice Code

ABCS—Automated Budget Compilation System

ABOM—Automated Bill of Material

ABW—Air Base Wing

AC-Authorized Contractor

ACB—Allocated Configuration Baseline

ACES II – Advanced Concept Ejection Seat

ACI—Allocated Configuration Identification

ACO—Administrative Contracting Officer

ACOQ—Annual Customer Order Quantity

ADPE—Automated Data Processing Equipment

ADPS—Automated Data Processing System

AEDC—Arnold Engineering and Development Center

AETC—Air Education and Training Command

AF—Air Force

AF—Availability Factor

AFCAIG—Air Force Cost Analysis Improvement Group

AFEMS—Air Force Equipment Management System

AFGE—American Federation of Government Employees

AFI—Air Force Instruction–

AFIF—Air Force Industrial Fund

AFKS—Air Force Knowledge Services

AFLCMC—Air Force Life Cycle Management Center

AFMAN—Air Force Manual

AFMC—Air Force Materiel Command

AFMCI—Air Force Materiel Command Instruction

AFMCMAN—Air Force Materiel Command Manual

AFMETCAL—Air Force Metrology and Calibration

AFOSH—Air Force Occupational Safety and Health

AFPD—Air Force Program Directive

AFPSL—Air Force Primary Standard Laboratory

AFR—Air Force Reserve

AFRC—Air Force Reserve Command

AFRIMS—Air Force Records Information Management Systems

AFSC—Air Force Sustainment Center

AFSCI—Air Force Sustainment Center Instruction

AFSO21—Air Force Smart Operations for the 21st Century

AFTO—Air Force Technical Order

AFWCF—Air Force Working Capital Fund

AGE—Aerospace Ground Equipment

AGMC—Aerospace Guidance & Metrology Center

AI—Activity Inspection

ALC—Air Logistics Complex

ALIS – Autonomic Logistics Information System

ALT—Administrative Lead Time

AMARG—Aerospace Maintenance and Regeneration Group

AMC—Air Mobility Command

AMP—Asset Management Plan

AMR—Aircraft and Missile Requirements

AMS—Asset Maintenance Strategy

ANG—Air National Guard

ANSI—American National Standards Institute

AOB—Annual Operating Budget

APH—Annual Productive Hours

APP—Authorized for Procurement Purposes

AQL—Acceptable Quality Level

AR-As Required

ARMS – Aviation Resource Management System

ART—AWP Resolution Time

AS—Allowance Standard

ASHRAE—American Society of Heating, Refrigerating and Air Conditioning Engineers

ASL – Adjusted Stock Level

ASME—American Society of Mechanical Engineers

ASNT—American Society of Nondestructive Testing

ATE—Automated Test Equipment

ATS—Automatic Test Systems

AUDT—Audit Run

AVDO—Aerospace Vehicle Distribution Officer

AWM—Awaiting Maintenance

AWP—Awaiting Parts

AWS—Alternate Work Schedule

BCE—Base Civil Engineering

BER—Budget Execution Report

BIT—Built In Test

BITE—Built In Test Equipment

BLC—Budgeted Labor Cost

BOM—Bill of Material

BOMI—Bill of Material Indicator

BOS—Base Operating Support

BOW—Bill of Work

BPO—Blanket Process Order

BSPI—Batch Single Processing Indicator

BTM—Budget Target Module

CA/CRL—Custodian Authorization and Custody Receipt Listing

CAC—Common Access Card

CA—Contract Augmentee

CAD/PAD—Cartridge Actuated Device/Propellant Actuated Device (CAD/PAD)

CAFDEx—Centralized Access for Data Exchange

CAI—Customer Account Identity

CAM—Centralized Asset Management

CANN—Cannibalization

CAP—Contractor Acquired Property

CAR – Corrective Action Request

CAT—Customer Address Table

CAVAF—Commercial Asset Visibility Air Force

CBM—Condition Based Maintenance

CBM+-Condition Based Maintenance Plus

CBT—Computer Based Training

CC—Commander

CCB—Configuration Control Board

CCIV—Cost Class IV

CD—Civilian Director

CDDAR—Crash Damaged Or Disabled Aircraft Recovery

CE—Civil Engineering

CEM—Command Engine Manager

CEP—Civilian Employment Plan

CFETP—Career Field Education and Training Plan

CFHS—Carry Forward to Home Station

CFR—Code of Federal Regulations

CFT—Contract Field Team

CI—Configuration Items

CIVR—Configuration Item Verification Review

CL—Civilian Leader

CLS—Contractor Logistics Support

CLSSA—Cooperative Logistics Supply Support Agreement

CM—Configuration Management

CM—Corrective Maintenance

CMM—Commercial Maintenance Manual

CMMS—Computerized Maintenance Management System

CMRP—Certified Maintenance and Reliability Professional

CN—Control Number

CNC—Computer Numerical Control

CO – Contracting Officer

COE—Corps of Engineers

CON—Customer Order Number

CONEN—Conversion Engine

COQ—Customer Order Quantity

COR—Contracting Officer's Representative

COTS—Commercial off-the-shelf

CPBM - Cost and Performance Budget Module

CPIN—Computer Program Identification Number

CPP—Capital Purchases Program

CPPM—Cost and Production Performance Module (H033)

CR—(Configuration) Change Request

CRF—Centralized Repair Facility

CRI—Consolidated Reparable Inventory

CRI OH—Consolidated Reparable Inventory On Hand

CSA—Configuration Status Accounting

CSAG-M—Consolidated Sustainment Activity Group – Maintenance

CSAG-S—Consolidated Sustainment Activity Group – Supply

CSI—Consolidated Serviceable Inventory

CSI—Critical Safety Item

CSI-B-Cyberspace Systems Integrator-Base

CSI OH—Consolidated Serviceable Inventory On Hand

CSR—Customer Service Representative

CSS—Customer Support Specialist

CTK—Consolidated Tool Kit

CTK/TK—Consolidated Took Kit/Tool Kit

CTM—Cost Transfer Module

CTP—Civilian Training Plan

DAU—Defense Acquisition University

DBOF—Defense Business Operations Fund

DC—Direct Current

DCAA—Defense Contract Audit Agency

DCL—Depot Capacity Lead

DCPS—Defense Civilian Payroll System

DDR—Daily Demand Rate

DDSS—DMAPS Data Store System

DEV PAC - Development Packet

DFAS—Defense Finance and Accounting Service

DFT—Depot Field Team

DLA-A-Defense Logistics Agency-Aviation

DLA-DD-Defense Logistics Agency-Depot Distribution

DHS – Department of Homeland Security

DIFM-Due-In From Maintenance

DIFMS—Defense Industrial Financial Management System

DIOH—Due In From Overhaul

DIOH/IN ALC—Due In From Overhaul/In Air Logistics Complex

DIOH/OWO—Due In From Overhaul/On Work Order

DIPE—Depot Industrial Plant Equipment

DISA—Defense Information System Agency

DL – Direct Labor

DLA—Defense Logistics Agency

DLCP—Daily Labor Correction Process

DLE—Direct Labor Efficiency

DLH—Direct Labor Hour

DLM—Depot Level Maintenance

DLR—Depot Level Reparable

DM—Depot Maintenance

DMAG—Depot Maintenance Activity Group

DMAPS—Depot Maintenance Accounting and Production System

DMMSS—Depot Maintenance Material Support System

DMISA—Depot Maintenance Interservice Support Agreement

DMS – Depot Maintenance Systems

DMSI—Depot Maintenance Systems Integration

DMSMS—Diminishing Manufacturing Sources and Material Shortages

DMT—Depot Maintenance Transformation

DO CAT—Depot On-Site Contract Augmentee Team

DoD—Department of Defense

DoDI—Department of Defense Instruction

DO-Dropped Object

DOP—Dropped Object Prevention

DOTM—Due-Out to Maintenance

DPAH—Direct Product Actual Hour

DPC—Data Processing Code

DPEM—Depot Purchased Equipment Maintenance

DPSH—Direct Product Standard Hours

DRCT—Depot Repair Cycle Time

DR—Deficiency Report

DREP—Depot Repair Enhancement Program

DSCM—Depot Supply Chain Management

DSS-Distribution Standard System

DSV—Detected Safety Violation

DWCF—Defense Working Capital Fund

DWMS— Depot Work Measurement Standards

E&I—Evaluation and Inspection

EA—Each

EA—Economic Analysis

EAID—Equipment Authorized in Use Detail

EBS—Enterprise Business System

EH—Environmental/Hazardous

EIA—Electronic Industries Alliance

EI—Engineering Investigation

EI—End Item

EIG—Employee ID Generator

EII—End Item Identity

EILS—End Item Labor Standard

EIM—Enterprise Information Management

EISP—End Item Sales Price

EM—Engine Management

EMSS—EXPRESS MAJCOM Scenario Subsystem

EOM—End of Month

EOQ – Economic Order Quantity

EPE—Evaluator Proficiency Evaluation

EPS—Exchangeable Production System

EPSC—Exchangeable Products Support Center

ERRC—Engine Regional Repair Center

ERRC—Expendability, Recoverability, Reparability Category

ERRP—Engineering Requirements Review Process

ES—Equipment Specialist

ESD—Electrostatic Discharge

ESS-Enterprise Solution Supply

ET-Eastern Time

ETMS—Education and Training Management System

EXPRESS—Execution and Prioritization of Repair Support System

FAA—Federal Aviation Administration

FAD—Force activity designator

FAR—Federal Acquisition Regulation

FAT—First Article Test

FCA—Functional Configuration Audit

FCB—Functional Configuration Baseline

FC—Facility Code

FCF—Functional Check Flight

FC—Functional Commander

FCI—Functional Configuration Identification

FCRN—Funds Classification Reference Number

FD—Functional Director

FEM—Facility and Equipment Maintenance

FIABS—Financial Inventory Accounting and Billing System

FICA—Federal Insurance Contributions Act

FLSA—Fair Labor Standards Act

FMB—Financial Management and Budgeting

FMEA—Failure Modes and Effects Analysis

FMLA—Family Medical Leave Act

FMR—Financial Management Regulation

FMS—Foreign Military Sales

FO—Foreign Object

FOB—Found on Base

FOC—Full Operational Capability

FOD—Foreign Object Damage

FOM—Facilitate Other Maintenance

FQ—Fiscal Quarter

FRM—Funded Requirements Management

FSC—Federal Stock Class

FSG – Federal Supply Group

FSS—Federal Supply System

FT-Functional Test

FWP—A code defined as an item previously in AWP status that is ready for scheduling and repair

FY—Fiscal Year

FYDP—Future Years Defense Program

G&A—General and Administrative

GCL—Group Capacity Lead

GEIA—Government Electronics & Information Technology Association

GIDEP—Government Industry Data Exchange Program

GPC—Government Purchase Card

GS—General Schedule

GSD—General Support Division

HAF—Headquarters Air Force

HAZMAT—Hazardous Material

HC/D—Hazard Class Division

HPO—High Performing Organization

HQ—Headquarters

HQ USAF—Headquarters United States Air Force

HVAC—Heating, Ventilation, and Air Conditioning

I&S—Interchangeability and Substitutability)

IA—Implementation Agreement

IAW—In Accordance With

ICBM - Intercontinental Ballistic Missile

ICP—Inventory Control Point

ID - Identification Designator

IDMS – Integrated Maintenance Data System

IEC—International Electrotechnical Commission

IEEE—Institute of Electronic and Electrical Engineers

IE—Integration Engine

IEMO—Installation Equipment Management Office

IET—Industrial Engineering Technician

IG—Inspector General

ILS—Integrated Logistics Support

IM—Item Manager

IMC—Item Manager Code

IMC-Investment Material Cost

INS/NSO—Insurance/Numerical Stockage Objective

IOE—Initial Out-fitting Equipment

IPB—Illustrated Parts Breakdown

IPI – In process inspection

IPE—Industrial Plant Equipment

IPV—Industrial Product-Support Vendor

IR—Infrared

ISO—International Organization for Standardization

ISO-Isochronal

ITK—Individual Tool Kit

ITN—Inventory Tracking Number

ITS—Inventory Tracking System (G337)

IV—Isolated Violation

JAG—Judge Advocate General

JCC—JON Classification Code

JD—Job Designator

JDRS—Joint Deficiency Reporting System

JOAP—Joint Oil Analysis Program

JON—Job Order Number

JOPMS—Job Order Production Number Master System (G004L)

JOQ—Job Order Quantity

JSC—JON Status Code

JST—Journeyman Shop Technician

KPI – Key Performance Indicator

LCSE—Life Cycle Systems Engineering

LH—Holiday Indicator

LMR—Land Mobile Radio

LOA – Lost on Aircraft

LOM—List of Material

LOTO—Lock-out/Tag-out

LRDP—Logistics Requirements Determination Process

LRU—Line Replaceable Unit

LSM—Labor Standard Master

LSR – Labor Standard Review

LT—Traumatic Injury type leave

LU—Day of injury type leave

LWOP—Leave Without Pay

M&S—Modeling and Simulation

MAJCOM—Major Command

MCM—Machine Conditioning Monitoring

MC—Minor Construction

MDS—Mission Design Series

MER—Master Employee Record

MFR – Memorandum for Record

MGM—Material Group Manager

MI—Management Inspection

MICAP—Mission Impaired Capability Awaiting Parts

MIC – Material Inventory Center

MILCON—Military Construction

MIL-HDBK—Military Handbook

MIL-STD—Military Standard

MIPR—Military Interdepartmental Purchase Request

MIS—Maintenance Information System

MISTR—Management of Items Subject to Repair

MLA - Master Labor Agreement

MM-Material Manager

MMAC—Materiel Management Aggregation Code

MMC-Materiel Management Code

MMHS—Mechanized Materiel Handling System

MMTL—Material Management Team Lead

MO—Monthly

MOA—Memorandum of Agreement

MOC—Maintenance Operations Center

MOD—Modification

MOU – Memorandum Of Understanding

MP&E—Maintenance Planning and Execution

MPS—Material Processing System

MRO—Maintenance, Repair, and Overhaul

MRT—Maintenance Review Team

MSD—Material Support Division

MSDS—Material Safety Data Sheet

MSEP—Maintenance Standardization and Evaluation Program

MSOR—Multiple Source of Repair

MT-Mountain Time

MTBCF—Mean Time Between Critical Failure

MTBF—Mean Time Between Failure

MTBM—Mean Time Between Maintenance

MTBOMF—Mean Time Between Operational Mission Failure

MTBR—Mean Time Between Repair

MTM—Methods Time Measurement

MTO – Made To Order

MTTD—Mean Time to Diagnose

MTTF—Mean Time To Failure

MTTR—Mean Time To Repair

MWR—Maintenance Work Request

MXG—Maintenance Group

MXSG—Maintenance Support Group

NASA—National Aeronautics and Space Administration

NATO—North Atlantic Treaty Organization

NCE—Numerically Controlled Equipment

NC—Numerically Controlled

NDI—Non-destructive Inspection

NEW—Net Explosive Weight

NFPA—National Fire Protection Association

NHA—Next Higher Assembly

NIIN—National Item Identification Number

NIMMS—Naval Air Systems Command Industrial Material Management System

NIST—National Institute of Standards

NLOA – Not Lost on Aircraft

NLT—No Later Than

NOCM—Nuclear Ordnance Commodity Management

NR-Not Required

NRO—Net Repair Objective

NRT—Near Real Time

NSN—National Stock Number

NWRM—Nuclear Weapons-Related Materiel

O&A—Over and Above

O&M—Operations and Maintenance

OC—Overtime Callback

OC-ALC—Oklahoma City Air Logistics Complex

OCC FAC—Occurrence Factor

OCL—Operation Count Limit

OCM—On condition Maintenance

OCR—Office of Contract Responsibility

ODC—Other Direct Cost (TDY, etc.)

OEM—Original Equipment Manufacturer

OI—Operating Instruction

OJT—On-the-Job Training

OLRV—On Line Report Viewing

OM—Operator Maintenance

OMEI—Other Major End Item

OMEI—Other Major Equipment Item

O/M—Organizational Maintenance

OO ALC—Ogden Air Logistics Complex, Utah

OPC—Ownership Purpose Code

OPMD—Output Per Man Day

OPR—Office of Primary Responsibility

ORR—Operational Readiness Review

OSD—Office of the Secretary of Defense

OSHA—Occupational Safety and Health Administration

OS—Overtime Scheduled

OSS&E—Operational Safety Suitability and Effectiveness

OTS – Operation Team Spirit

OU—Overtime Unscheduled

OWO—On Work Order

OX—Overtime Unscheduled Exception

P&A—Procedures and Analysis

PAC—Production Acceptance Certification

PAO—Project Administration Officer or Project Administration Office

PAP—Predetermined Acceptance Probability

PAQ—Production Analysis Quantity

PAT—Planner's Address Table

PB—President's Budget

PCA—Physical Configuration Audit

PCI—Production Count Indicator

PCN—Program Control Number

PCO—Procuring Contracting Officer

PCS—Permanent Change of Station

PDC—Production Delay Code

PdM—Predictive Maintenance

PDM—Programmed Depot Maintenance

PDMC—Planning for DLA Managed Consumables

PDMSS—Programmed Depot Maintenance Scheduling System (G097)

PDN – Production Number

PDRR—Post Dock Records Review

PDRT—Post Dock Review Team

PE—Personnel Evaluation

PEC—Program Element Code

PF&D—Personal, Fatigue and Delay Allowances

PFT—Product Focus Team

PGM—Product Group Manager

PGM—Precision Guided Munitions

PI—Polarization Index

PJM—Permanent JON Master

PLA—Planned Labor Application

PM—Preventive Maintenance

PMEL—Precision Measurement Equipment Laboratory

PME—Precision Measuring Equipment

PMM—Prognostic Maintenance Management

PMO—Program Management Office

PMS—Production Management Specialist

PO/PTC—Planning Organization/Planner Technician Code

POC—Point of Contact

POH—Production Overhead

POL—Petroleum

PON—Project Order Number

POS—Peacetime Operating Stock

POU—Point of Use

PPE—Personal Protective Equipment

PPP—Public Private Partnership

PPPT—Pre Production Planning Team

PPS—Pre Production Section

PPT—Production Planning Team

PQDR—Product Quality Deficiency Report

PS/SD—Production Section/Scheduling Designator

PSC—Product Support Center

PSF—Production Support Flight

PS—Production Section

PSS—Production Support Section

PSSD—Production Section Scheduling Designator

PST—Production Support Technician

PSU—Production Support Unit

PWS—Performance Work Statement

Q/EI—Quality & Engineering Investigation

Q302—Depot Maintenance Consolidated Database

QA—Quality Assurance

QAP—Quality Assurance Plan

QAPC—Quality Assurance Program Coordinator

QAR—Quality Assessment Results

QAS—Quality Assurance Specialist

QASP—Quality Assurance Surveillance Plan

QASP—Quality Assurance Evaluation Program

QAWG—Quality Assurance Working Group

QC—Quality Control

QDR—Quality Deficiency Report

QIMSS—Quality Information Management Standard System

QMS—Quality Management System

QPA—Quantity per Assembly

QPT—Quantity per Task

QSC—Quarterly Serviceable Completed

QSI—Quarterly Sales Indicator

QVI—Quality Verification Inspection

R&D—Research and Development

R&M—Reliability and Maintainability

R00—Production delay code for TAA labor stop

R2D2—Requirements Review and Depot Determination

RAC—Risk Assessment Code

RACOQ—Remaining Annual Customer Order Quantity

RAM—Reliability, Availability, and Maintainability

RBL—Readiness Based Leveling

RCC—Resource Control (Cost) Center

RC/CC - Responsibility Center/Cost Center

RCC/PS—Resource Control Center/Production Section

RCFA—Root Cause Failure Analysis

RCM—Reliability Centered Maintenance

RCS—Reports Control Symbol

RDD—Required Delivery Date

RDO—Redistribution Order

REMIS—Reliability and Availability Information System

RFQ—Request for Quote

RGC—Repair Group Category

RI—Routine Inspection

RIE—Rapid Improvement Event

RIF—Reduction in Force

RIF – Rapid Innovation Funding

RNM—Request Number Master

ROD—Report of Discrepancy

ROI—Return On Investment

ROM—Rough Order of Magnitude

RPIE—Real Property Installed Equipment

RRRQ—Routed Repair Replacement Quality

RSCS—RCC/Skill Code Application System

RTR—Recurring Training Requirement

SAF/FMB—Secretary of the Air Force/Financial Management & Budgeting

SAI—Serviceable As Is

SBSS—Standard Base Supply System

SCM—Supply Chain Manager

SCOM—System Computer Operations Manual

SCR—Special Certification Roster

SCR—Supply Chain Representative

SD—Scheduling Designator

SDS—Safety Data Sheet

SE—Systems Engineering

SECAF—Secretary of the Air Force

SEM—Scheduling Effectiveness for Maintenance

SFD—Shop Flow Day

SGM—Sub Group Master

SI—Special Inspection

SLC—Stock List Change

SLN—System Level Need

SM/IM—System Manager/Item Manager

SMART—Specific, Measurable, Attainable, Realistic, Timely

SME—Subject Matter Expert

SMP—Standard Maintenance Procedures

SMR—Source, Maintenance, and Recoverability

SMXG—Software Maintenance Group

SNB—Serial Number Bin

SNUD—Stock Number User Directory

SOPI—Status of Planning Indicator

SOR—Source of Repair

SOS—Source of Supply

SOW—Statement of Work

SPAWS—Single Prioritization Across Weapon Systems

SPD—System Program Director

SPG—Sales Price Generator

SPM—System Program Manager

SPM—Sales Price Master

SPO—System Program Office

SRAN—Stock Record Account Number

SRD—Standard Reporting Designator

SRRB—Spares Requirement Review Board

SRU—Shop Replaceable Unit

SSAN—Social Security Account Number

SSC—Shop Service Center

SSHA—System Safety Hazard Analysis

SSQ—Special Skills Qualification

STD—Standard

SVR—System Verification Review

SWEG – Software Engineering Group

TAA—Time and Attendance

TCE—Thermal Coefficient of Expansion

TCTO—Time Compliance Technical Order

TDR—Teardown Deficiency Report

TD—Technical Director

TDV—Technical Data Violation

TDY—Temporary Duty

THC—Type hour code

TK—Tool Kit

TMC—Tool Management Center

TMDE—Test, Measurement and Diagnostic Equipment

TMS—Type Model Series

TO—Technical Order

TOC—Total Operation Cost

TOC—Technical Order Compliance

TODO—Technical Order Distribution Office

TPM—Total Productive Maintenance

TPR—Total Productive Reliability

TPS—Test Program Set

TRC—Technology Repair Center

TSS—Training Scheduling System

UAW—United Auto Workers

UCA—Uniform Cost Accounting

UCR—Unsatisfactory Condition Report

UDLM—Unprogrammed Depot Level Maintenance

UOM—Unit of Measure

UPA—Units per Assembly

URC—Unit Repair Cost

USAF—United States Air Force

USC—United States Code

UUT—Unit Under Test

VI—Visual Inspection

VPP—Voluntary Protection Program

W&B—Weight and Balance

WA—Work Authority

WAD—Work Authorization Document

WARRS—Wholesale and Retail Receiving Shipping

WBS—Work Breakdown Structure

WCD—Work Control Document

WCF—Working Capital Fund

WCP—Work Control Package

WG—Wage Grade

WIP—Work in Progress

WK—Weekly

WLR—Workload Review

WMS—Work Management System

WORK SPEC—Work Specification Document

WR ALC—Warner Robins Air Logistics Complex, Georgia

WSS—Weapons Systems Sustainment

WSSC—Wholesale Supply Support Center

WTC—Workloader Technician Code

WW—WorldWide

Terms

Acceptable Quality Level (AQL)/Standards—A standard is the acceptable quality level (number of minor defects) that can be considered satisfactory as a process average or conforming to established criteria.

Accountability—The degree of responsibility for material that has been recorded. This material is then subject to inventory or audit.

Advice Code—A code used by the requestor that tells the source of supply how to fill the requisition. The code assigned should provide sufficient information to the item manager for making a decision on how to support/fill the requirement. The accurate assignment of the code will preclude unnecessary delays in the shipment of needed assets.

Air Logistics Complex (ALC)—An AFSC depot operational activity charged with organically accomplishing repair and modification tasks; contracting with industry for manufacture or repair, as directed by the System Program Manager (SPM) and/or Materiel Manager (MM) for assigned weapon systems, equipment or items of supply; and providing worldwide technical and logistics support for Air Force operational units, Other Services/Agencies, and foreign military customers.

Aircraft Logistics Specialist (ALS)—A standard aircraft repair position in the WSSC/EPSC. The ALS is a member of the aircraft tail team and focuses on tail number scheduling. Among their many duties are to open and close JONs, process engineering, and cannibalization requests, and resolve unpredictable requirements. The ALS joins the aircraft upon arrival and accompanies through Post-Dock. Refer to AFMCI 21-129 and 21-133.

Annual Customer Order Quantity (ACOQ)—Five-digit numeric entry on permanent non-serialized JONs that contains the fourth quarter negotiated net input quantity.

Annual Paid Hours—The annual work hours per worker, including holidays, for a single shift, 40-hour workweek for which an employee is paid.

Annual Productive Hours—That portion of the annual paid hours per production worker that remains for direct application to the job after subtraction of holidays, leave, training, and other recognized indirect hours.

Asset—A plant, facility, system, equipment, part or component thereof that is required by mission need and included in design to perform plant operations. Assets are those items that have well defined configurations, physical and functional characteristics, software and hardware, which must be maintained to ensure overall plant system performance. Assets may be facilities, plants, systems, sub-systems, equipment, assemblies, components or parts of any of the above. Assets may also include tools, special tooling, inspection equipment, measuring devices, test, measurement and diagnostic equipment (TMDE), or other physical or functional items required to produce products or services.

Assessment—The evaluation of a system, component, process, procedure or person.

Attrition—Losses to depot maintenance end strength.

Auditable—A process through which an auditor can examine records to verify their accuracy and or correctness.

Automated Bill Of Material (ABOM)—ABOM utilizes a relational database management system with real-time teleprocessing capabilities and on-line interface with NIMMS. All material requests are made through ABOM. ABOM edits the request against the G005M Bill of Material (BOM) for permanent work and G004L Bill of Material for non-programmed work (M-Jobs and T-Jobs). The material must be tied to the operation number it is consumed on. The request is then passed from ABOM to NIMMS for additional validation and processing.

Availability—Availability is a measure of the degree to which an item is in an operable state and can be committed at the start of a mission when the mission is called for at an unknown (random) point in time. Availability, as measured by the user, is a function of how often failures occur and corrective maintenance is required, how often preventative maintenance is performed, how quickly indicated failures can be isolated and repaired, how quickly preventive maintenance tasks can be performed, and how long logistics support delays contribute to down time. (DoD Guide for Achieving Reliability, Availability and Maintainability (RAM), August 2005). Availability = Uptime (Uptime + Downtime).

Availability Factor—The percentage of a single-shift work year that work positions can be used to accomplish direct productive work. This factor includes reductions for facility and/or equipment non-availability such as calibration, maintenance and repairs of real property and shop equipment, utility failure, unscheduled facility closures, and equipment installation and shop rearrangement.

Awaiting Maintenance (AWM)—A balance which may be used to account for assets prepositioned into maintenance without obligation of customer funds; to retain visibility of assets accounted for under Due In From Overhaul (DIOH) in the D035K system; and to allow de-obligation of customer funds when assets are On Work-Order (OWO) and work is discontinued for a period of time for any reason except awaiting parts, items in maintenance that are received but are not on work order or awaiting parts.

Awaiting Parts (AWP)—A balance which may be used to de-obligate customer funds for assets that were OWO and work has been stopped due to lack of parts.

Backorder—Material that is not available for issue (same as a due-out). It is a D035K computer-recorded obligation to issue the material at a subsequent date when it becomes available.

Batch Single Processing Indicator—A single alpha coded (B for batch-processed and S for single item processing) input on the temporary JON labor plan (AFMC Form 237).

Bench Stock Items—N and P ERRC coded indirect consumption material items authorized for free access in a production shop area to ensure an uninterrupted work flow.

Bill Of Material (BOM)—A descriptive and quantitative listing of components required to manufacture, overhaul, or repair a designated end item, assembly, or subassembly. This input allows costing of all material to a specific JON and can be updated at any time up to completion of the last item on a temporary JON. The G004L contains the BOM for temporary JONs and G005M contains the BOM for permanent JONs. Source document for material required for a project.

Bottleneck—A process in a production flow that restricts the ability to achieve full utilization of other processes preceding or following the bottleneck.

Bulk Material—Material stored and issued by volume, footage, weight, or liquid measurement, such as petroleum, bar stock, and lumber.

Buyer—An organization and its personnel who purchase services from depot maintenance. This term, emphasizing the adversarial role existing in the private commercial world, encompasses those management personnel responsible for complete management of programs for all depot maintenance customers. Such management responsibilities include developing, determining, justifying, programming, reprogramming, ordering, and negotiating customer requirements. The buyer represents the customer and, as such, is responsible for ordering, negotiating, and purchasing from depot maintenance capability to satisfy customers' funded requirements. The buyer is also responsible for checking with depot maintenance to ensure negotiated funded requirements are being produced to meet the needs of the customers.

Cannibalization—Removing an assembly, subassembly, component, or part from an end item by a maintenance activity for use on an end item undergoing depot repair. The end item that will be canned of component part(s) may be drawn from the warehouse, or from items currently in work in the shop. The appropriate supply chain manager/prime Materiel Manager, and/or SPO/SPD must authorize and pay for this action. DMAG is not authorized to conduct cannibalizations without the proper authorizations and payments.

Capability—The aggregation of trained personnel, facilities, equipment, technical data, software, and related items to perform depot-level maintenance, including overtime, DO-CATs, etc.

Commercial Asset Visibility - Air Force (CAVAF)—provides visibility of assets at commercial contractor facilities, status reporting, and capability to process transactions received from asset management subsystem. The status transactions reported are: receipt at a contractor's facility, induction into repair, completion of maintenance, shipment, not economically reparable, request for disposition instructions, scrap transaction, disposition of non- reparable assets, and visibility of NWRM assets. The system uses a standard 180 days for turnaround at a contractor's facility from

the date of induction. There is no provision for reflecting the contractual due date nor for projecting changes in shipping dates.

Certification—The process that authorizes individuals to perform special tasks after they have demonstrated proficiency.

Civilian Employment Plan (CEP)—A monthly hiring plan focusing on end strengths and work-years, required by HAF. HQ AFMC/A4 will complete the CEPs using data from the 8203 Report.

Civilian End Strength—The total number of government civilian personnel on board and being paid at the end of an accounting period.

Civilian Training Plan (CTP)—A comprehensive document that identifies life-cycle education and training requirements, training support resources, career progression paths, and job task requirements for an occupational series.

Clecos—A quick-release, industrial fastener used for holding sheet metal to facilitate welding or riveting.

Component Item—Material, usually stock numbered, which is an identifiable entity contained in the next level of assembly. A component item may be an end item.

Compression—Maximize depot maintenance production delivery through acceleration as well as suspension of routine peacetime work package tasks accomplishing only the absolute minimum depot maintenance essential to the safety of flight and only modifications essential to the weapon's war mission configuration.

Condition Based Maintenance (CBM)—On-going and during service health monitoring, measurements and inspections (ultrasound, wear, infrared) that identify potential failures for reliability engineers who can act to prevent unscheduled or forced outages. **Note:** CBM+ information is contained in DODI 4151.22.

Configuration Item—An item of hardware or software identified by technical data documenting physical and functional characteristics specifically designated by management as requiring configuration control/management.

Consumables—Items used in conjunction with tooling/equipment, yet after limited usage do not maintain their original configuration and are considered used up. Examples are safety wire, solder, tape, sanding disk, string, chalk, etc.

Contingency—A situation requiring military operations in response to natural disasters, terrorists, subversives, or as otherwise directed by appropriate authorities to protect U.S. interests. An alternate plan of operation put in use when a system computer is inoperative. Operations under a contingency plan will begin only at the direction of the system office of primary responsibility.

Contract Logistics Support (CLS)—A method used to provide all or part of a system's logistics support by contract throughout its entire life cycle.

Controlled Area—Any specifically designated building, area, or structure-containing resources, which are lucrative targets for theft, compromise, or destruction, and to which entry, must be limited in order to provide more than routine protection.

Controlled Exception—A transaction that contains a document number that fails to pass computer edits. A serial number is assigned by the computer to this type of exception to permit computer control until corrective action is received.

Controlled Item—Any item of supply for which distribution is monitored by a central authority. Controlled items are normally items, which are scarce, exceptionally costly, highly technical, or peculiar to certain units or missions.

Control Number—A five-position alphanumeric code assigned to a specific item of workload within the MXW production process.

Core—Depot maintenance core is the capability maintained within organic defense depots to meet readiness and sustainability requirements of the weapon systems that support the Chairman of the Joint Chiefs of Staff contingency scenarios. Core exists to minimize the operational risks and to guarantee readiness of these weapon systems. Core depot maintenance capabilities will comprise only the minimum facilities, equipment, and skilled personnel necessary to ensure a ready and controlled source of required technical competence. The Military Services will use the DoD-approved methodology to compute core depot maintenance requirements.

Corrective Action—The action to eliminate the cause of a detected defect or other undesirable condition.

Corrective Maintenance—The process of repairing, replacing or returning an asset to the design condition. (Federal Accounting Definitions)

Cost Avoidance—Action taken to reduce future costs, such as replacing parts before they fail and preventing damage to the system. Cost avoidance may incur higher (or additional) costs in the short-run, but the final or life cycle cost would be lower. (Federal Accounting Definitions)

Cost Class 1 Direct Product—On base. Cost Class 1 is assigned to all earned hour records resulting from expenditure of labor by shop personnel assigned under duty code 11 and accomplished in the maintenance facility.

Cost Class 2 Direct Product—Off Base. Cost class 2 is assigned to all earned hour records resulting from expenditure of labor by shop personnel assigned to duty code 12 in DMAPS-DIFMS and earned for work performed off base or at tenant organization locations. Cost class 2 includes: **Note:** Under DMAPS Phase II this system is obsolete.

Cost Class IV (CCIV)—Maintenance of depot maintenance equipment. Direct labor expended in direct support of depot maintenance, which is the sole beneficiary of the work done, including repair, modification, manufacture, assembly, installation, relocation, or storage of shop equipment, tools, or facilities.

Cost Savings—Decision or action that will result in fulfillment of the objectives of a purchase, at a cost lower than the historical cost or the projected cost.

Custody Receipt—A document used by a responsible property officer to record the loan issue of property to an individual of the unit.

Customer Orders—The workload (in DPSH) that results from Single Managers/Commodity Managers (SM/CM) applying financial programming authority (either actual current year or projected program authority) to the requirement. To derive this number, each SOR must consolidate inputs, in terms of dollars, from the SM/CM. The level of funding is converted to

workload by using approved and planned sales rates and prices. Customer orders added to the Carry-in Net Available is the total amount of support required of a SOR by the various customers.

Customer Order Quantity (COQ)—A numeric value on permanent non-serialized production numbers that represents the negotiated customer's requirements.

D002A Standard Base Supply System (SBSS)—The data system used primarily at base level for equipment or supplies and base aviation fuels accounts throughout the Air Force. It is used at depot level for tools, fuels, lumber, country store items, etc. Management of material through the D002A (SBSS) system at the depot level should be minimized.

D002A: Integrated Logistics System – Supply (ILS-S) provides Joint Command and Air Force warfighters with global visibility of base-level weapon system parts, and other supply assets for planning and accomplishing real-time combat operations world- wide. It is comprised of the following supply applications: Standard Base Supply System (SBSS), Standard Asset Tracking System (SATS), and Air Force Supply Centralized Database (AFSCDB), and Enterprise Solution Supply (ESS). ILS-S supports 15,000 plus supply customers and is an integral part of Air Force Supply Chain Management and Chief Financial Officer financial accounting. ILS-S provides direct supply support to Active, Guard, and Reserve forces anywhere in the world in support of peacetime and wartime operations. ILS-S is a Non ACAT, Mission Assurance Category I (MAC I) sustainment program. It is scheduled to be replaced by the Expeditionary Combat Support System (ECSS) in FY12. In the interim, the ILS-S applications identified above will be maintained as necessary to ensure continued supply support to the war fighter.

D035A: Item Manager Wholesale Requisition Process (IMWRP)—provides a uniform item management capability for worldwide property accounting, inventory control, and distribution/redistribution of material at the wholesale level. Requisitions and related transactions are processed in support of AF bases, security assistance program, other services/agencies, contractors, and depot supply. Document control is maintained to ensure that the customer requisition is fully satisfied. Balances are adjusted as a result of redistribution orders, material release orders, capitalization/recapitalization actions, and logistics transfer actions. Reports of excess are processed on consumable, equipment, and recoverable items.

D035B: Wholesale Management And Efficiency Reports (WMER)—provides transaction history data and management data products for AF managed material. Produces logistics performance information, supply availability, and workload analysis reports, indicating supply effectiveness relative to demands placed on the USAF Logistics System. Measures the HQ AFMC requisitioning pipeline, by segment, against DoD time standards from date of requisition to date materiel is available for shipment. Provides management with performance data at various levels throughout HQ AFMC and HQ USAF.

D035C: Reportable Asset Management Process (RAMP)—has been formally decommissioned, however the Data Systems Designator (DSD) name is retained to represent RAMP functionality in D035 within CDRS, only. RAMP receives and summarizes transactions indicating materiel usage, providing base repair cycle time and usage data for the recoverable consumption item requirements system. Maintains visibility of AF-owned recoverable assets and levels by reporting location, and provides visibility of reparable items in transit between operating accounts until a receipt has been acknowledged by the accountable receiving activity.

D035E: Readiness Based Leveling (RBL)—is being used for Interface Control Document (ICD) purposes to document RBL specific interfaces of D035 within CDRS only. RBL computes users' stock levels for selected recoverable items and provides the levels to the recorded users. When received, the levels are loaded and used in the requisitioning process.

D035K Wholesale and Retail Receiving/Shipping System (WARRS)—The primary data system used to provide material support for the Air Force depot level operations. Supply procedures may be found in AFMAN 23-110, Vol. 3, Part Two, and specific D035K computer screen information may be found in **Chapter 9**; D035K reports are located in **Chapter 14**; D035K supply tables/codes may be found in **Chapter 20**. WARRS is a legacy mainframe D035 subsystem that provides retail customer support including bit-and- piece parts and end-item support to depot maintenance. Maintains historical data for all accountable depot retail transactions and for Air Force receipts into the depot and for shipments out of the depot.

D035J: Financial Inventory Accounting and Billing System (FIABS)—provides financial recording for the accountable item inventory balance of AF investment items and items in the general support, system support, and reparable support divisions of the AF stock fund. Reflects the dollar status of stock fund general ledger.

D043A Master Item Identification System (and CD-ROM FEDLOG)—Provides a central repository of air force materiel managed by local organizations, contractors, NOLSS, PHIL, AFOS, and other military services.

D087X: EXecution and PRioritization of REpair Support System (EXPRESS)—provides a single ALC integrated priority list of all repair requirements, determining ability of existing resources to support repair actions, and providing the data and mechanism to move items into repair. Prioritization of Aircraft Repairables (PARS) prioritizes repair and distribution of assets to the users from the source of the CSI. EXPRESS Prioritization Processor (EPP) sets priorities for the repair of items which are not addressed in PARs and combines all into a single integrated list for each repair shop. Assets which do not have aircraft availability goals are prioritized using a deepest-hole logic to try to fill the most critical need. EPP provides list to the Distribution Module to identify prepositioning actions for serviceable parts as they come out of repair. The Supportability Module takes the EPP list and determines whether the required items can be repaired based on four evaluation criteria availability: carcass, repair parts, repair funds, and repair resources. Items meeting all criteria are entered onto the D035K EXPRESS Table for transfer to the shop.

D200A: Requirement Management System (RMS)—computes procurement requirements for spares and determines depot level maintenance repair needs for the Air Force. RMS forecasts and controls procurement and repair requirements of materiel needed for logistics support of weapon systems operated by the Air Force. RMS maintains visibility on all recoverable and consumable spares while computing buy and repair requirements on a quarterly cycle and contains a Central Secondary Item Stratification process which compares peacetime and war readiness assets against requirements for Air Force recoverable and consumable items and produces the Supply System Inventory Report (SSIR), an annual report to Congress on the status of DoD on-hand inventory at the end of each FY. RECOVERABLE ITEM SIMULATION CAPABILITY (RISC) provides the ability to re-compute selected recoverable consumption items (simulation of D200A).

D230: Materiel Processing System (MPS)—enables mechanics to automatically request material on the shop floor, immediately notifies the planner for approval, and provides the ability for

Production Material Technicians/Forward Logistics Specialists to review the status of all orders placed, as well as correct and process orders with error conditions returned. MPS is intricately tied to the schedule execution and PDM workload management system for aircraft and missiles, and performs material planner support for commodities.

Defense Industrial Financial Management System (DIFMS)—Provides core accounting system portion of DMAPS. System includes several subsystems: Cash, Labor, Other Cost, Material, Cost Summary, Job Order/Customer Order (JO/CO), Billing, General Ledger Accounts, (GLA), Purge & History, System Parameters, and Fixed Asset Accounting (FAA). These subsystems work in concert to provide field level activities with funds control, accounting for budget execution, and management information.

Defense Logistics Agency (DLA)—A central procurement agency of supply for material such as nuts, bolts, screws, electronic parts, etc., or common items with multiple applications, for all DOD agencies. Material may be stocked at various centers within the DLA complex. The DLA activity may be located at an ALC performing distribution functions as a depot supply activity.

Decertification—The removal of certification status from a person for a specific task, which prevents that individual from certifying the task(s) until satisfactory retraining and proficiency demonstration has been accomplished.

Definitized List—A list that provides a detailed step-by-step breakdown of a single operation.

Demand Level—A term used to identify the stockage objective based upon demand history.

Demilitarize—To mutilate, disarm or to prevent use of equipment and material intended for military or lethal purposes.

Demilitarization Code—A code that tells how or to what extent an item must be destroyed before disposal action can be taken.

Denial—Action taken to systematically reverse a transaction.

Depot Field Team (DFT)—An individual or group designated to perform maintenance and/or inspection of systems or equipment at a place other than the depot facility. Teams can consist of civilian, military, or a combination of personnel based on the skills required.

Depot Level Maintenance (DLM)—The maintenance, repair or modification of an end item, equipment requiring major overhaul or complete rebuilding of certain parts, usually provided only at an Air Force depot or contractor overhaul facility.

Depot Maintenance—Any action performed on materiel or software in the conduct of inspection, repair, overhaul, or the modification or rebuild of end-items, assemblies, subassemblies, and parts that requires extensive industrial facilities, specialized tools and equipment, or uniquely experienced and trained personnel that are not available in lower echelon-level maintenance activities, and is a function and, as such, is independent of any location or funding source and may be performed in the public or private sectors (including the performance of interim contract support or contract logistic support arrangements. Depot-level maintenance and repair also includes the fabrication of parts, testing, and reclamation, as necessary; the repair, adaptive modifications or upgrades, changes events made to operational software, integration and testing; and in the case of either hardware or software modifications or upgrades, the labor associated with the application of the modification.

Depot Maintenance Accounting and Production System (DMAPS)—DMAPS is a suite of systems supporting organic depot maintenance for the Air Force, implemented at OO-ALC (Ogden Air Logistics Complex), WR-ALC (Warner Robins ALC), and OC-ALC (Oklahoma City ALC) and DFAS (Defense Finance and Accounting Service) organizations that support the ALCs. The suite provides AFMC the capability to capture actual and planned direct labor and direct material at the task level and report this on a daily basis. Overhead and G&A (General and Administrative) costs will be applied on a planned dollar rate per direct labor hour instead of actual overhead and G&A being calculated and allocated at the end of the month. This will give DMAG (Depot Maintenance Activity Group) the ability to view production costs (direct labor, direct material, applied overhead & G&A) at the task level on a daily basis.

Depot Maintenance Activity—An industrial-type facility established to perform depot-level maintenance on ships, aircraft, weapon systems, equipment, and components.

Depot Maintenance Activity Group (DMAG)—The AFMC depot maintenance function is financed by the DMAG formerly called the Depot Maintenance Business Area (DMBA) of the Defense Working Capital Fund (DWCF). The DMAG (formerly DMBA) performs organic and contract repair services for its customers. Under the MSD of the stock fund, DMAG is both a customer of and a supplier to the MSD. The MSD affects various maintenance processes when DMAG pays for MSD material that is commonly referred to as exchangeables. See also definition for MSD.

Depot maintenance capability—The aggregation of all resources (including facilities, skilled personnel, tools, test equipment, drawings, technical publications, ongoing training, maintenance personnel, engineering support, and spare parts) required for performing depot level maintenance.

Depot Maintenance Working Capital Fund—A working capital account used to finance organic depot maintenance. It operates as a revolving fund by providing working capital for the recovery of operating costs through the sale of products and services, and sets up a buyer-seller relationship with the customer to facilitate the sales.

Depot On—Site Contract Augmentee Team (DO-CAT)—Augment depot workforce at an organic depot by performing depot-level maintenance and modification on a short-term basis. Depot maintenance workload may be accomplished by a combination of organic and contract personnel. DO-CATs are funded with organic depot maintenance funds to help mitigate risk associated with fluctuations in customer requirements and new workloads. Any DO-CAT requirement must be approved by AFSC/LZ.

Depot Purchased Equipment Maintenance (DPEM)—A program covering the method for procuring depot maintenance services from depot maintenance resources. This program involves customer management to determine requirements, obtain financial OA, and provide programming authority for ordering work from organic depot maintenance; including aircraft PDM, engine overhauls, software, etc.

Depot Repair Enhancement Program (DREP)—DREP is the standardized AFMC repair process used for all depot level repairs. The key tenets of DREP are: standardized repair process, focus on throughput, daily repair based on greatest Air Force need, supply support DLA/PST on the shop floor, standardized functions, defined roles and responsibilities, alignment of responsibility/authority of key players, standardized data systems, and customer driven performance measures.

Detected Safety Violation (DSV)—An unsafe act by an individual.

Direct Labor—Workload that can be identified, without undue cost or difficulty, to a specific job order. Direct labor generally includes the hands-on maintenance, repair, overhaul, test, and related direct production effort.

Direct Labor Hours (DLHs)—Work performed solely for the benefit of a single job order. It is only incurred during the period of time that benefits accrue solely to that specific job order. AFMC will use actual hours when reporting capacity DLHs.

Direct Material—Material required by and identifiable to a maintenance job order or end item. Direct material will become a part of the end item or other item which is undergoing maintenance, or it may be consumed in the maintenance production process (e.g., heat treating, plating, or painting) when the consumed material is peculiar to the item produced. Items that must be classified as direct material include serial number controlled, exchange, TO kit, organic manufacture, those classified as direct material in the same cost center, and those considered peculiar, critical, or which require increased control. Although the G005M will attempt to set cost codes and material classification codes based on default logic, the planner/material planners has ultimate responsibility to ensure the G005M reflects reality and makes changes where needed.

Direct Product Actual Hour (DPAH)—The actual number of hours employees expend performing direct labor.

Direct Product Standard Hour (DPSH)—The time it should take a trained direct labor employee or a group of trained direct labor employees, working at a normal pace, to produce a described unit of work of an accepted quality according to a specified method under specified working conditions. Labor standards and development procedures are outlined in **Chapter 2** in this manual.

Distribution—A depot activity or organization (e.g., DLA or a WSSC/SSC/EPSC or depot supply) that performs storage, receipt, issue, transportation or other material related functions in support of stock funded material.

Document Identifier (DOC ID)—A code used to identify the type of action to be accomplished by a particular transaction.

Document Number—A unique number assigned to a transaction to maintain control and accountability of material transactions.

Due-In—A D035K term for the material D035K has on backorder for depot maintenance. The quantity of items on order with a source of supply but not yet delivered.

Due-In From Maintenance (DIFM)—A D035K computer detail record of an exchange item issued to a maintenance customer on a replacement basis from the SSC/EPSC to the production line, for which the requesting organization has not turned in a like item, or issued from DLA as a direct line issue (not from the SSC/EPSCs). The customer must turn in a like item using the same document number as the issue request to clear the DIFM detail.

DIFM Due Out—An item requested on a replacement basis by a maintenance customer and the D035K system has backordered the item. The requesting organization/customer has not turned in a like item using the same document number as the issue request.

Due-In From Overhaul (DIOH)—A D035K term for production end items due in from depot level maintenance (DLM). A turn-in to depot supply is required to cancel the D035K system DIOH quantity.

Due-Out To Maintenance (DOTM)—A D035K computer record of the turn-in of an investment item by a customer/production line and D035K has backordered the requisition due to the unavailability of the part. The customer/production line has turned in a like item using the same document number as the issue request transaction but has not received a like replacement part.

DOTM Due-In—A requesting organization or maintenance customer has not turned in a like item using the same document number as the issue transaction; commonly referred to as a DIFM.

Education Training Management System (ETMS)—A web based training management tool used to establish training requirements, track and document training completion, and project future requirements.

End Item (EI)—Equipment or material of distinct identity handled as an identifiable workload and assigned a control number.

End Item Identity (EII)—The assigned National Stock Number (NSN), Mission, Designation, Series (MDS), or locally assigned number for separate identification of each work requirement within the stocklists or maintenance complex undergoing repair.

Equipment - Items that are generally only available from one source, that is designed to perform a specific task and/or program. Often identified in a T.O. and may require special instruction or training.

Estimated Delivery Date (EDD)—The date the material is expected to be delivered to the base for issue to local customers.

Excess—Any amount of material determined to be over the amount required to support current (workload already inducted) and projected (workload scheduled to be inducted within six months) requirements.

Excess Capacity—Capacity for which no current or future requirement exists.

Excess Capacity Index—An indicator of the capacity, expressed in DLHs, which is available in a shop or depot, but not required to support funded workload requirements or provide essential core capabilities.

Exchange Item—A serviceable replacement for a reparable item, which is turned in to the supply account. (See Investment Material).

Exchange Price—The price charged to customers exchanging a reparable item for a serviceable one. This price is the Latest Repair Cost plus the Center Direct/Indirect Allocable Cost Recovery at the Latest Repair Cost and the General and Administrative Cost Recovery at the Latest Repair Cost plus Material Cost Recovery.

Expendability, Recoverability, Repairability Category (ERRC) Code—A single- or three-digit code used to classify the level of repair of Air Force items.

Expendables—Items that become unfit for use and must be replaced periodically. Examples include blades, drill bits, reamers and apexes.

Expense Material—Material financed and managed under the Depot Maintenance Activity Group(DMAG). It is recorded as an expense to the DMAG upon issuance to maintenance.

Failure Modes and Effects Analysis (FMEA)—Methodology for analyzing potential reliability problems early in the development cycle when it is easier to take actions to overcome these issues, thereby enhancing reliability through design. FMEA is used to identify potential failure modes, determine their effect on the operation of the system, and identify actions to mitigate the failures. A crucial step is anticipating what might go wrong with a system. While anticipating every failure mode is not possible, the development team should formulate as extensive a list of potential failure modes as possible. There are many different types of FMEAs that can be tailored to the system or asset under design.

First Article—A procedure to test and evaluate a new or modified product for conformance with specified contract requirements before or in the initial stage of production under contract. It also validates and verifies capability to repair in accordance with specifications, checkout procedures and identify fault.

Fixer— The Fixer Squadron Commander/Director is responsible for ensuring depot repairs are accomplished in a timely manner by using DREP, workloading, planning, management analysis, financial management, scheduling, quality control, and materiel support functions in support of repair, production, and manufacturing. The Fixer supervises the Shop Chief, Production Planner, and Management Analyst. The SSC/EPSC Chief is matrixed to the Fixer.

Flightline—Any area or facility including aprons, hardstands, and ramps on or in which aircraft may be parked, stored (AMARG gravel storage areas are not considered flight line), serviced or maintained and operated under their own power.

Floating Spares—Investment items purchased for retention in maintenance in support of production. Floating spares support automatic test equipment (ATE), initial or final test organizations, fault isolation assets, shop standard assets, training assets, stand-alone assets, test station assets, and -21 Technical Order (TO) assets.

Floating Stock—Investment items purchased for retention by depot maintenance to support repair of the next level of assembly when they also are repaired on the same production number (job-routed repair). Floating stock may be at the assembly, subassembly, or component level of the end item being repaired. (Also called production line-fill floating stock.).

Force/Activity Designator (FAD)—This is part of the priority established for requesting material. The FAD is determined based on the relative importance of the work done by a particular activity. The FAD is a single-digit numeric and is used in conjunction with the urgency-of-need designator (UND). The FAD is assigned by the Joint Chiefs of Staff (JCS).

Foreign Object (FO)—A substance alien to aircraft, engines, munitions, missiles, drones, space systems, support equipment, AGE, trainers or components thereof that has been allowed to invade the product. Any FO in a maintenance area has the potential to cause damage.

Formal Training—Documented instruction based on established learning objectives and evaluation methods that enable the instructor or trainer to provide accurate, complete and consistent information and to train to the same level of proficiency time after time.

Forward Logistics Specialist (FLS)—A standard aircraft position located in the WSSC/EPSC. Among the many functions of the FLS are to participate in supportability reviews of parts

availability, process serviceable and reparable turn-ins, order material, and backorder and cannibalization reconciliation.

Funds Classification Reference Number (FCRN)—A four-position alphanumeric code that relates to a specific accounting classification code for the activity to be billed by the DMAG for a product or service provided.

Fund Code—A code designating financial management responsibilities. Examples include the following:

— (1) 6C General Support Division (GSD) of the AFSF managed by DLA/GSA. Refers to items that cannot be directly tied to an Air Force managed system.

—(2) 64 Materiel Support Division (MSD) of the AFSF managed by Air Force Prime or Other Agencies/ Services.

Funded Customer Order—The portion of the total requirement designated to receive funding.

Funds Holder—The organization with authority to commit funds and issue a project order or other funding document directing depot maintenance to perform a repair action.

G004L Job Order Production Master System (JOPMS)—This system provides support for management of production workloads. This includes such functions as customer work request tracking, work authorizations, temporary job order plans, recording end item production, and standard direct labor hours earned during DLM. Refer also to **Chapter 6** of this Manual.

G004L: JOB ORDER PRODUCTION MASTER SYSTEM (JOPMS) initiates and manages the Job Order Number (JON) which is required to begin a maintenance task on the shop floor. The system creates and tracks work in progress, interfaces with financial systems providing visibility of production hours in process and completed (earned hours), provides a repository for storing the production number master records, tracks customer work requests, record work authorizations, maintain temporary work plans, records end item production, and documents standard labor hours earned during depot level maintenance.

G005M (Depot Maintenance Material Support System)—This system is used to maintain material standards data and project the future material required by Depot Maintenance through established bills of material (BOMs). Refer to **Chapter 5** of this Manual.

G005M: Depot Maintenance Material Support System (DMMSS) identifies material that must be pre-positioned to support maintenance workloads and manages the BOM, which is required for planning for material in support of production maintenance workloads, initiating costing for the depot maintenance systems, and providing a mechanism to control material usage.

G019C (MISTR Requirements Scheduling And Analysis System)—This system produces the MISTR consolidated schedule and is used to identify end item quantities for the quarterly MISTR drive. Refer to AFMCI 23-112, Management of Items Subject to Repair (MISTR), G019C Users Manual.

G019C: MISTR REQUIREMENTS SCHEDULING AND ANALYSIS SYSTEM – MISTR—provides maintenance with scheduling and analysis data on MISTR reparable items. Schedules and tracks MISTR items and provides management information necessary to respond to the turn- around required by the repair cycle. The system also produces MISTR schedules that

are distributed to maintenance for scheduling repair operations by individual stock number and control number.

G037F: Workload Analysis Planning Data System (WAPDS)—is now an OC-ALC site unique that generates MDS input/output schedules and workload analysis reports for aircraft (LA) and financial (FM) organizations. The maximum quantities in work, monthly input quantities, and learning curves in order to compute aircraft input internal. In addition, a method is provided to summarize the skill and labor standards received from projections of critical path data. The summarized standard data is applied to the input/output schedule producing a graphic representation of the scheduled workload and a computation of monthly work requirements. The requirements are stated in both standard man-hours and personnel equivalents. The system objective is to support the workload analysis process with computer prepared reports and graphics giving optimized input/output schedules, estimated labor standards, critical path facility usage, workload analysis for planned labor applications, and historical analysis.

G081: Malfunction Detection, Analysis & Recording System/Grd Proc System (MADARS)—provides in-flight aircraft status and troubleshooting info while generating a permanent record of line replaceable unit (LRU) status. MADARS shows current performance of selected systems, performs engine health diagnosis, identifies discrepant LRUs, records trend data, determines its own health, calibrates the total monitoring system and provides for data storage and retrieval. A GRD computer system processes in-flight data recorded on tapes, evaluates the trend data, and develops programs to utilize the experience data. System supports base level and logistics for the C-5A/B, C-141, C-17 at Air Mobility Command (AMC) bases, Air Force Reserve (AFR) bases, and Air National Guard (ANG) bases.

G097: Programmed Depot Maintenance Scheduling System (PDMSS)—is the HQ AFMC depots standard project management system used to manage execution of all aircraft programmed/unprogrammed depot maintenance and overhaul workload performed for the warfighter. PDMSS performs planning, maintenance operation resourcing and completion, critical path schedule execution, and performance management and is the critical workload management system for aircraft and missile planners, schedulers, and maintenance technicians.

G337: INVENTORY TRACKING SYSTEM (ITS)—tracks repairable end items from time of induction into the depot to time of turn-in. It provides inventory control and assigns item tracking numbers to all parts as they come in and subsequently tracks them through disassembly, repair, and assembly.

G402A: EXCHANGEABLES PRODUCTION SYSTEM (EPS)—links the maintenance shop floor personnel to Depot Supply for ordering and issuing direct and indirect material, and track maintenance transactions in process. It also provides visibility of workload requirements and end item asset availability. Users of the system are maintenance personnel, planners, schedulers, and cost analysis personnel.

General and Administrative (G&A) Labor—The time expended by employees performing functions external to a Maintenance Group; includes all labor not meeting the qualifications for either direct or production overhead labor.

Hazardous Material—Material identified in ABOM/NIMMS by a 7M Advice Code and processed through the D002A system, which requires unique storage and handling procedures to protect life, health, and property. This material is categorized as one or more of the following:

(1) Explosives/Flammable liquids.

(2) Gaseous (compressed or cryogenic). Liquefied petroleum, and other compressed gases.

(3) Flammable or Combustible. Solids that is liable to produce fire spontaneously by exposure to air, moisture, friction, or moderate warmth.

Oxidizing.

Corrosive.

Poisonous.

Radioactive.

High Performing Organization—A structured activity or group of activities whose performance exceeds that of comparable providers at a reasonable cost, whether public or private. Within the Air Force, the 412 MXG is the only designated HPO.

Index—A composite number used to characterize different sets of data. In accordance with this AFMC instruction, capacity indexes are general indicators expressed in DLHs while the utilization indexes are general indicators expressed as percentages. The indexes are not precise measures and as capacity index data are aggregated, their significance may decrease. Consequently, the indexes are not stand-alone tools and should be used in conjunction with other information.

Indirect Labor Hours—All work performed that is not classified as direct.

Indirect Material—Material that is costed to an overhead U-control number (UXXXX) because it cannot be easily identified to a particular end item or system.

Induction—A term applied to items issued from supply or received from other sources. Inductions are reported to G004L by 244 transactions, 971 transactions (Maintenance Production Transactions), or automatically generated by the G004L.

Industrial Engineer Technician—Per the Office of Personnel Management (OPM) standard dated May 2009, this series covers nonprofessional technical positions engaged in industrial engineering work. Industrial engineering technician positions are concerned primarily with planning, designing, analyzing, improving, and installing integrated work systems comprised of men, materials, and equipment, for use in producing products, rendering services, repairing equipment, or moving and storing supplies and equipment. The work typically involves studies of engineered time standards, methods engineering, layout design of work centers, control systems, materials handling, or manpower utilization. It requires a knowledge of the principles and techniques of industrial engineering and practical knowledge of pertinent industrial and related work processes, facilities, methods, and equipment.

Industrial Plant Equipment (IPE)—Plant equipment with a unit acquisition cost of $15,000 or more. IPE would include equipment items used for cutting, abrading, grinding, shaping, forming, joining, heating, treating, or otherwise altering the physical properties of materials, components or end items entailed in manufacturing, maintenance, supply, processing, assembly, or research and development operations.

IN Maintenance (IN-MA)—A term applied to the sum of the quantities in data fields OWO, AWM, and AWP. This sum reflects the number of assets in the maintenance complex and is used

to reconcile the DIOH balances in D035K by stock number and ownership purpose code combinations.

Interchangeability and Substitutability (I&S) Code—A code used to identify the relationship of one item with another. This means it can be used in place of or as a substitute for a like item.

Inventory—Material stored in an assigned (physical or computer) location. The term inventory also is used as a physical count of material to compare the amount stored in the assigned location with the amount shown on the accountable records in the D035K system.

Inventory Tracking System (ITS)—The command standard automated system for managing exchangeable production.

Investment Material—Recoverable assemblies, modification kits, and other materials procured with investment (Central Procurement CP)) appropriations and assigned ERRC codes C and T.

Issue—A transfer of accountability and movement of material to a requesting organization.

Issue Document—A form that is generated because of a material issue from depot supply, a SSC/EPSC, or courtesy storage.

J025A: AUTOMATED PROJECT ORDER FORM SYSTEM (APO)—automates the HQ AFMC 181 process/coordination and provides an automated routing control for the next in line process step. Emphasis of the system is to provide access for the status of documents as approved, rejected, or canceled; for extraction of summarization data; access to historical data and reports.

Job Designator (JD)—The sixth-position alpha code assigned to a job order number (JON) to signify the type and extent of depot maintenance authorized.

Job Order Number (JON)—A nine-position number used to control workload for the project order period during which funding is provided and is used to collect depot maintenance costs, progress billings, and sales. The number consists of a five-position control number, a one- position job designator, and a three-position JON suffix.

Job Order Quantity (JOQ)—A five digit field denoting the total quantity of end items for a temporary JON.

JON Classification Code (JCC)—This is a single alpha code (A or B) input to the G004L system. Code A indicates production numbers for which material will be used and charged at JON level. Code B indicates material that will be charged and allocated at production number level. All serialized items are coded A. All support JONs (P-prefix, I-job designator) are machine assigned code B. Temporary JONs don't have a JCC.

JON Master File—These files contain the master records for all job orders, temporary or permanent, serialized or non-serialized, production data (inductions and completions), JON-suffixed records, and all identification/control data. These files are:

Permanent JON Master (PJM). Temporary JON Master (TJM). Request Number Master (RNM). Labor Standard Master (LSM). Bills of Material (BOM).

Monthly Production Count (MPC). Production Transaction History (PTH). Sales Price Master (SPM).

JON Production Count (JPC). Support JON Master (SJM).

JON Status Code—These codes are used by the G004L and Sales Price Generator (SPG) in DMAPSIE systems for disposition of Work in Process (WIP) records, progress billing payments, and to relay information to the planner and scheduler.

JON Suffix—A three-position alphanumeric suffix that is added to the six-position production number to form the job order number. The first position denotes the fiscal year or the first character of the weapon system identification, if it is serialized. The second position denotes the fiscal quarter or month, or second position of the weapon system identification. The third position denotes the ownership/purpose code or the last position of the weapon system.

Key Performance Indicator (KPI)—That capability or characteristic being measured in terms of contract or organizational compliance that is so significant that accomplishment of organizational objectives is affected when thresholds are not met.

Leave—Expressed as indirect labor charges and includes annual leave, sick leave, legal holidays, elections, special events (days of leave granted by Presidential Executive Order), administrative leave granted by the base Commander (such as inclement weather), jury duty, and administrative leave for military reservists.

Level of Effort (LOE)— A support type project activity which must be done to support other work activities or the entire project effort. It usually consists of short amounts of work which must be repeated periodically. LOE is used to define the amount of work performance within a period of time and is measured in man days or man hours per day/week/month. Examples of such an activity may be assisting an engineer during pre-test, test, and post test or oiling machinery during manufacturing, etc. Since a LOE activity is not itself a work item directly associated with accomplishing the final project product, service or result, but rather one that supports such work, its duration is based on the duration of the discrete work activity it is supporting -- oiling machinery will start when manufacturing starts and finish when it finishes.

Line Issue—Movement of material from depot supply, a WSSC/SSC/EPSC, or courtesy storage to the production shops.

Loan Property—That property which local organizations request on a temporary basis.

Local Purchase—A source of supply from which material is procured through a local procurement agency. Although sources may be far away, local procurement is used because DOD decided it would be more economical to purchase some items on an as-needed basis rather than keeping them stocked at DOD agencies worldwide.

Locally Manufactured/Modified Tools and Equipment (LM/MT&E)—Only those items developed, manufactured, controlled by the ALCs. This includes locally manufactured/modified tools and equipment (e.g. X numbered tools). LM/MT&E does not include tools.

MABSM: IMPRESA system (MABSM)—is a COTS Enterprise Resource Planning (ERP_ system that includes a Maintenance, Repair, and Overhaul (MRO) module which integrates with Manufacturing and Financial applications. It provides users with access to enterprise-wide information and utilizes a web-based user interface. MABSM is used primarily to manage maintenance functions within the 309 Maintenance Groups at OO-ALC/Hill Air Force Base, Utah. It is currently used to support the 309 Commodities Management Group consisting of Power Systems, Hydraulics, Landing Gear, New Tech Repair, and 309th Missile Maintenance Group. The software system name is IMPRESA and the software release is 7.30.10. The database configuration is Oracle 11.1.0.7 64 bit (11g). The hardware platform is HP Proliant DL585. The

operating system is Red Hat Enterprise/Linux Advanced Server (64 bit). The hardware is located and managed at Hill Air Force Base, Utah within the IT organization. The system is common access card (CAC) enabled with single sign-on (SSO) capability. Access to the system is granted via account/password only when a DD Form 2875 has been approved and processed. Users at locations outside of the Hill2Kdomain can access the system with proper security and firewall access approvals. The system is capable of enforcing report and form level security for government approved vendors, typically used for vendors working on site at aHAFB location

Maintainability—The ability of an item to be retained in, or restored to, a specified condition when maintenance is performed by personnel having specified skill levels, using prescribed procedures and resources, at each prescribed level of maintenance and repair. (DoD RAM Guide August 2005)

Maintenance—The activity whose purpose is to ensure sustainment of the asset to meet its designed physical and functional characteristic.

Maintenance Area—Any area where jet engine, on-equipment aircraft, aircraft assemblies, subassemblies, munitions, missiles, rockets, and support equipment maintenance operations are conducted to include hangars, shelters, docks (closed or semi closed), test cell, hush house, paint barns, fuels barns, back shops, industrial areas, on the flight line or outside maintenance areas such as wash racks, aprons, hardstands and run pads.

Maintenance Group (MXG)—A depot maintenance organization that accomplishes organic repair in support of end items and components.

Major Finding—Defined as a condition that would endanger personnel, jeopardize equipment reliability, or warrant discontinuing process or equipment operation.

Management Inspections (MI)—MIs cover a broad category. These inspections are performed to follow up on trends, conduct investigations, or conduct research to get to the root cause of problems. Any level of management may request MIs. MIs may encompass PE/QVI trends and other inspection data, aborts and trends, in-flight emergency trends, high component or system failure rates, suspected training deficiencies, and tasks outlined in aircraft dash-6 technical orders.

Management Of Items Subject To Repair (MISTR)—Processes developed to control and schedule the repair of investment items on a recurring basis utilizing the G019C system. Exchangeable and reparable are commonly termed MISTR items.

Manager Code—A two-position alpha code (any combination of the letters A through Z in both the first and second positions) used primarily to identify and route computer products to the specific wholesale or retail Item Manager.

Manpower Allocation—The authorized Unit Manning Document (UMD) number of authorizations provided to the Centers as the manpower program prior to the start of the fiscal year.

Manufacturing—The making of something, normally from raw materials, by hand or, especially, by machinery, often on a large scale and with division of labor.

Mark-Up Price (MUP)—The difference between the Standard Price and the Exchange Price that is added to the exchange price customer account if an unserviceable asset is not returned to the supply inventory. This price is a penalty paid by a customer if a Due-In From Maintenance (DIFM)

asset is not returned within 60 days. The MUP will be reimbursed upon receipt of a reparable asset to clear the DIFM detail record after 60 days.

Master Item—An item which is coded in base support records as the most preferred item in the I&S group. Substitution of items coded as interchangeable to the master item will be made automatically.

Materiel Management Aggregation Code (MMAC)—A two-position suffix assigned to a stock number used to identify the system for which the item will be used. Also called MAC code.

Materiel Manager (MM)—The Prime MM has worldwide (wholesale) control over procurement and distribution of a certain designated group of National Stock Numbers (NSNs). The base MM has local (retail) control over procurement and distribution of a designated group of NSNs. The prime MM is within the SCM organizational structure and typically will work for a designated SCM.

Material Requirements Planning (MRP)—The basic principle that identifies stock requirements for a future period. Gross requirements as equal to parts requirements per end items, as indicated by the material standard items multiplied by the expected workload. The net parts requirement equals the gross requirements minus expected on-hand balance.

Material Standard (or Bill Of Material)—A G005M product containing standard material requirements (UPA, replacement factor, and occurrence factor) which, when combined with other management data, enables development of standard costs, material requirements planning (projections), and supportability determinations for permanent bills of material. The G004L system generates products to review management data for temporary bills of material. Accuracy of the material standards is mandatory to ensure compliance with the Uniform Cost Accounting System (CAS).

Materiel Support Division (MSD)—The Supply Management Activity Group (SMAG) contains the MSD. The MSD is the consolidation of the divisions formerly known as the Reparable Support Division (RSD), the System Support Division (SSD), and the Cost of Operations Divisions (COD). These divisions are referred to as the Reparable, Consumable, and Business Operations areas of the MSD. The MSD is responsible for the management of the wholesale inventories that are held and sold to customers. The customers pay the SMAG with Operations and Maintenance (O&M) funding or case country funding for Foreign Military Sales (FMS). Income from sales is used to maintain inventory either through depot level repair or procurement action.

Material Support—This is an individual or organization directly involved in the movement of material or who performs any material support function.

Mean Time Between Failure (MTBF)—The mean or average time measured from failure of an asset to the next failure of an asset. MTBF = uptime = measure of reliability = hours/failure. Failure rate is the inverse of MTBF = failures/hour.

Mean Time To Repair (MTTR)—The time required to return an asset to service after taken or forced out of service for repair. MTTR = downtime = measure of maintainability. MTTR is the total time to repair/number of failures. MTTR is the inverse of Repair Rate.

Military Standard Requisition and Issue Procedure (MILSTRIP)—The priority system developed for the issue and requisition of material to assure that uniform processing is realized.

Minor Finding—Defined as an unsatisfactory condition that requires repair or correction, but does not endanger personnel, affect safety of flight, jeopardize equipment reliability, or warrant discontinuing a process or equipment operation.

Mission Capable (MICAP)—A code used to identify those components that make weapon systems unable to perform the mission for which they were designed.

Mission Design Series (MDS)—A standard seven-position nomenclature assigned to identify specific aircraft/missiles and end items by mission type, model number, and different versions within the model number.

Mobilization—The act of assembling and organizing national resources to support national objectives in time of war or other emergencies.

Modification—A change in an airframe component, end item, piece of equipment, or software that affects the performance, ability to perform the intended mission, flight safety, production, or maintenance.

National Stock Number (NSN)—Is made up of 13 digits. This includes the four digit Federal Stock Class (FSC), and the nine digit National Item Identification Number (NIIN) of which the first two digits are the National Codification Bureau (NCB) code.

Naval Air Systems Command Industrial Material Management System (NIMMS)— NIMMS manages and controls various materials. Material managers use this system to cost, position, and control material to the job and then use the material when needed. NIMMS provides precise accountability for all material and develops information for use in the forecasting of future material requirements, workloads, material norm development, analysis of material/financial problems, and management effectiveness reporting. To accomplish the management and control objectives, NIMMS performs all required material functions from the point at which the need for material is identified. This is done through issuance of material from a storeroom or initiation of a requisition, establishment of a due, and receipt of the material into central receiving and to the storeroom or the shop. NIMMS uses supply principles, policies, and procedures to the maximum extent possible. NIMMS is modified for the industrial environment in which it operates. The procedures used in NIMMS maintain data element compatibility with DOD supply systems using files provided by Inventory Control Points (ICPs) or the Defense Logistics Agency (DLA).

Off-Equipment Maintenance—Maintenance tasks that are not or cannot be effectively accomplished on or at the weapon system or end-item of equipment, but require the removal of the component to a shop or facility for repair.

On-Equipment Maintenance—Maintenance tasks that are or can be effectively performed on or at the weapon system or end-item of equipment.

On Work Order (OWO)—Items in the maintenance repair cycles that have direct relationship to the DIOH record in D035K. (See Due-In From Overhaul). The quantity of items remaining to be worked in maintenance and which have been inducted to work and not completed on an active JON.

On-Board—The total number of civilian personnel present for duty on any given day. On-board does not always equal end strength.

Operation Occurrence (OO)—A three-digit numeric value that denotes the number of times the labor operation will be performed. When the operation is performed on single items in batches,

the operation occurrence will show the number of batches required to complete the total job quantity. When the operation is performed on single items, the operation occurrence will show the number of times the operation is accomplished per end item (one each of the total job quantity).

Organic—Assigned to and forming an essential part of a military organization.

Organic Depot Manufacturing—Term that denotes an in-house government production maintenance facility as the source of supply and where manufacture is accomplished in the maintenance repair shop. Also known as local manufacture.

Organic Maintenance—Depot maintenance performed by AFMC under military control using government-controlled facilities, tools, test equipment, spares, repair parts, and military or government civilian personnel. Other Direct Costs-An eight digit numeric (2 decimals) entry on the Temporary Labor and Material Plan. 1L contains the total other direct costs and applies to A, M, or T jobs. It may be travel costs, material cost from a base (field team site) supporting A- prefix JONs, contract costs, or any combination.

Output Per Man Day (OPMD)—A productivity indicator showing what portion of an 8-hour day was used in producing a revenue-earning product. OPMD equals the DPSH produced, multiplied by 8, and divided by total paid hours times (civilian and military).

Overhead Labor—There are two types of overhead labor: Production Overhead (POH) and General and Administrative (G&A). Labor expended by depot maintenance personnel performing the functions above a production RCC level at the Center is overhead labor. Staff and management functions are overhead labor. Overhead labor is administrative in nature and provides support to all programs involving maintenance responsibilities.

Overtime—Hours over 80 hours per pay period expended to accomplish work that exceeds the normal duty schedule of an individual.

Part Number (P/N)—A number assigned by the items' manufacturer.

Personnel Evaluation (PE)—A PE is an over-the-shoulder evaluation of a PAC certified mechanic/

Pilferable—Material that is especially subject to theft because of value, civilian utility, or personal application. Pilferable material requires a higher degree of control than other material.

Planned Material—Indicates that material is planned by NSN, units per assembly (UPA), and replacement percent on a maintenance BOM.

Planned Workload—Indicates that appropriate standards (labor and material, as required) are established for a workload.

Planning BOMS—Also, known as P-BOMs. Planning BOMs are built by the planner in the initial stages of planning for a new workload. They are static in that they are not analyzed and updated by the G005M system. Normally, P-BOMs are canceled once the workload is in place and production has begun. At this time, the production BOM is in place and is analyzed and updated automatically by the G005M to reflect actual usage of component parts. Planning BOMs may also be used for forecasting of consumable material requirements using RFM when a static BOM is required. In this case, both the P-BOM and the production BOM would co-exist in G005M.

Planning Organization/Planner Technician Code (PO/PTC)—This five-alpha code identifies the planning organization and the one-alphanumeric planner technician code. It identifies the

specific planner to which a temporary job request or an end item is assigned for planning purposes and is used to route data system products.

Post-Post—Updating (posting) a transaction to a record after the material has been received, e.g., when material is moved prior to processing and updating computer records.

Predictive Maintenance (PdM)—The maintenance process that results in determination of the condition of in-service equipment in order to predict when maintenance should be performed. This approach offers cost savings over routine or time-based preventive maintenance because tasks are performed only when warranted.

Pre-Post—Updating (posting) records prior to moving material. The computer is updated and a shipping document is received before the material is released.

Preventative Action—Action taken to identify and eliminate the causes of potential nonconformities (before they occur) or other undesirable potential situations.

Preventive Maintenance (PM)—The activity whose purpose it is to reduce the probability that an asset is unable to perform its designed function without unscheduled interruption of required and scheduled operations. PMs discover incipient failures (latent or hidden that may later become a problem). PMs may include time directed, condition directed, failure finding or run- to-failure approaches.

Priority Code—A two-digit numeric code, from 01 to 15, which results from the combination of an assigned FAD and a locally determined UND.

Priority Designator—A two-digit numeric code, from 01 to 13, which results from the combination of an assigned FAD and a locally determined UND.

Product Directorate (PD)—A depot maintenance organization which accomplishes organic repair in support of end items and components.

Production Acceptance Certification (PAC)—Is a task-related program which ensures employees are certified to perform and accept completion of assigned work. PAC does this through systematic training, qualification and certification of individuals.

Production Control Number (PCN)—A five-position alphanumeric code assigned to a specific end item of workload within the depot maintenance production process. When combined with the job designator it is called a Production Number.

Production Count Indicator (PCI)—A single alpha code to indicate how production count is taken. A is used for automatic count (earned hours are generated when an end item completion is reported) or M is used for manual production count.

Production Delay Code (PDC)—A one position code (alpha) signifying that a job request is backlogged in workloading, planning, or production. Production delay codes will be used for temporary jobs when the JOQ hasn't been completed by the delivery date. They will also be input for permanent JONs except for MISTR serialized, and engine workloads.

Production Item—Item processed through a repair facility for repair, modification, manufacture, etc.

Production Material Technicians—Provides comprehensive and effective materiel support to designated maintenance shops in the form of item research, order placement, and material handling

through the SSC/EPSC. Performs customer order, front-end job order number (JON) edits on all requirements submitted by supported maintenance shops. Maintains appropriate on- hand stock levels to support production. Takes action to ensure SSC/EPSC stocks are replenished when required. Manages SSC/EPSC/shop stocks including bench stocks and floating stocks/spares.

Production Number (PDN or PN)—A number consisting of a five-position control number and a one- alpha job designator assigned to each end item. Purpose of this unique number is to allow proper costing of labor and material to each item through definitive labor and material standards for each production number.

Product Mix—A combination of heterogeneous workloads usually related to major systems, subsystems, components, stock classes, or items.

Product Quality Deficiency Report (PQDR)—A report of quality defects originating from a field activity for which the item received must be tested for repair or modification.

Production Overhead Labor (POH)—Labor expended at the RCC level in the maintenance production functions that does not meet the criteria for direct labor.

Production Support Team—The production support team also consists of DLA (DLA/PST) and they are the standard materiel support function for depot maintenance in AFMC. The DLA/PST is an aggregate of functional components involved in providing materiel to the Squadron Commander/Director, acting as a trouble shooter for solving parts problems, or if possible, preventing them. It also serves as a mini-supply storage area located in or near the Squadron Commander/Director's work area. Frequently used materiel is physically located as close to the Squadron Commander/Director as practical. This material is owned and managed by a depot supply account. Unserviceable end items Consolidated Repair Inventory (CRI) is also prepositioned to expedite repair. This materiel will be stored in the DLA/PST based on need and available storage space. Existing Depot Maintenance Support Centers (DMSCs) are being converted to DLA/PSTs under the Depot Repair Enhancement Program (DREP). New DLA/PSTs based on the requirements of the Squadron Commander/Director, will be established after negotiations with the Squadron Commander / Director. During negotiations, the Squadron Commander/Director and DLA/PST Chief will decide NSNs to be stored, levels required, and the size of the CRI. All actions are performed to provide comprehensive and effective support in the form of materiel planning, production scheduling, workloading, retail item management, item research, order placement, materiel storage, inventory, and distribution, local procurement, process analysis, and other key materiel related processes.

Program Control Number (PCN)—A six-position alphanumeric code used by customers of the Consolidated Sustainment Activity Group-Maintenance Division (CSAG-MD) to identify a specific customer order to be negotiated for workloads within the Maintenance Division. The first character identifies the customer of the Maintenance Division. The second character provides the RGC, and the third character represents the managing ALC for customer orders. The last three characters are assigned by the ALC MP&E OPR for local identification and control of a specific order. The last four characters of the PCN are also referred to as the Pseudo Code.

Programmed Depot Maintenance (PDM)—Depot modification and maintenance of all scheduled depot requirements accomplished normally on a calendar time cycle.

Programmed Workloads—Workloads that are repetitive and negotiated, and for which standards (labor, material, and flow time) are developed.

Projected—Indicates that an appropriate requirement for material or end item production has been made.

Prototype—The analysis of new items accomplished with the objective of developing labor and material standards; establishing economical and logical processing methods; determining adequacy of tooling and test equipment and technical data. Prototype, not to be confused with first article, is required to ensure all phases of depot level repair capability have been established prior to production requirement acceptance.

Pseudo Control Number—A four-position alpha code used to distinguish workloads. This code is the last four characters of a six-position Program Control Number.

Public - Private Partnership (PPP)—An agreement between an organic depot maintenance activity and one or more private industry or other entities to perform work or utilize facilities and equipment. Program offices, inventory control points and logistics commands may be parties to such agreements or be designated to act on behalf of organic depot maintenance activities.

Qualification Tasks—Is a tasks that is used to track training qualifications. They are not certification tasks. Qualification tasks are used to document training qualifications that do not relate to a Work Control Document, requires some type of On-the-Job Training (OJT) and a demonstration of proficiency that the employee can perform the task.

Qualification Training—Training which qualifies a person in a specific duty position. This training occurs both during and after the upgrade training process.

Quality Assessment Results (QAR) Rating—A numerical value reflecting the results of a quality assessment. There are two QAR ratings (1 and 3) each based on the number and severity of defect in the rated area.

Quality Assurance (QA)—Individual who monitors a contractor on a daily basis and who is involved in every aspect of a contract to ensure the contractor is in compliance with that contract.

Quality Assurance Plan (QAP)—The QAP identifies specific detailed quality processes and procedures relative to a particular organization. QAPs provide documentation of an organization‘s day-to-day operational procedures.

Quality Assurance Surveillance Plans (QASP)—The QASP identifies the functions and associated actions performed by a particular organization to ensure that requirements are performed in accordance with specified standards and that an appropriate level of quality control activities are in place and operational.

Quality Control—A function by which conformance to established standards is assured, performance is measured, and in the event of defects, corrective action is initiated.

Quality Information Management Standard System (QIMSS)—A data collection system used to collect and analyze QA data.

Quality Verification Inspection (QVI)—An assessment/evaluation of a maintenance procedure, process, product, or portion thereof, while it is being accomplished, or after it has been completed and the task/WCD stamped.

Quarterly Sales Indicator (QSI)—A one-alpha code used in the serial number master file to enable sales each quarter. M is used for base assigned aircraft JON records and C is used for all other records. This indicator is input-to the serialized records on the JON master. Code M will

cause G004L to create a new JON each quarter and Sales Price Generator (SPG) in DMAPSIE will sell the accumulated hours each quarter.

Reactive Maintenance—The sustainment effort(s) designed to return a system or component thereof to its original service configuration, after a failure or incident has led to an unscheduled or forced outage and corrective costs. Maintenance performed after the fact.

Real Property—Any government owned, leased, or controlled property used to fulfill government research, development, test, evaluation, production, maintenance or modification, or for the storage of supporting production machinery and equipment. Includes land, buildings, structures, utility systems, and improvements. Also includes equipment attached to and part of buildings and structures (such as heating systems) but not movable equipment (such as plant equipment).

Reclamation—The authorized process of disassembling excess end items to recover serviceable or economically reparable spare parts for which requirements still exist. Reclamation involves only the removal of parts and does not include inspecting, cleaning, repairing, packing, or shipping. Process of removing used parts from an end item and returning to the supply line.

Recurring Demand—A periodic or potentially repetitive request by an authorized requisitioner for material for consumption or for stock replenishment.

Reliability—The probability that a system, subsystem, or equipment will perform a required function under specified conditions, without failure, for a specified period of time.

Reliability Centered Maintenance (RCM)—Logic based decision analysis process used to optimize an effective preventative maintenance program for systems and equipment. A systematic, qualitative decision methodology that identifies the most cost effective preventive maintenance tasks for equipment. Four principles of RCM are a) preserve function, b) how are functions defeated (FMEA), c) what are the priorities and for high priority failure modes, d) define the applicable task candidates that prevent, retard, or detect dominant failure modes then select the most effective. The nine steps of RCM are: 1) system selection and information collection, 2) system boundary definition, 3) system description and functional block diagram, 4) system functions and functional failures, 5) FMEA, 6) Logic Tree Analysis (LTA), 7) Maintenance Task Selection, 8) Implementation and, 9) Living RCM (continuous improvement from feedback)

Remaining Annual Customer Order Quantity (RACOQ)—Five-digit numeric entries on permanent, non-serialized JONs which are electronically computed by subtracting inductions from ACOQ.

Repair—Restoring or replacing worn or damaged parts or components to make them serviceable. Unserviceable items that can be repaired for reuse are referred to as reparable. The activity associated with correcting deficiencies that impede accomplishment of the designed performance of an asset.

Repair Group Category (RGC)—A single-position, alpha or numeric code, that identifies specific commodity or effort groupings of AFMC maintenance work requirements.

Resource Control Center (RCC)—The lowest organized unit within depot maintenance for which costs are collected. RCCs can be direct, production overhead, or G&A. A 5 or 6 character alphanumeric code that identifies a direct labor shop and usually represents the lowest organizational unit or level within depot maintenance.

Request for Issue—A transaction initiated by a customer to obtain material from a source of supply.

Request For Quote—A computer document generated by ALC/OB with the customer's requirements to determine the work requirements.

Request Number—An eight-position alphanumeric character number assigned by the initiator of a temporary work request. It is designed to indicate whether the customer is ALC, DMA, DAIS, or tenant and used for routing of data system products to the customer.

Required Delivery Date (RDD)—The required delivery date of materiel as requested by a customer.

Requisition—A transaction initiated by the SSC/EPSC to obtain material from a wholesale level supply source.

Reversal—A transaction that reverses the original computer action.

Rob-Back—A cannibalization action that is defined by Financial Management Instruction as a production-authorized removal of an assembly, subassembly, or component part from an inducted aircraft or end item, within the maintenance repair process, to repair a like inducted aircraft or end item, for the purpose of meeting specific schedules. Rob-backs are internal to maintenance and do not generate revenue to offset the cost of performing the action. Rob-backs will be initiated by the scheduler after all other sources of supply have been exhausted.

Root Cause Analysis (RCA) or Root Cause Failure Analysis (RCFA)—A step by step method that leads to the discovery of a failure or root cause. Every equipment failure happens for a number of reasons. There is a definite progression of actions and consequences that lead to a failure. An RCA or RCFA investigation traces the cause and effect trail from the end failure back to the root cause. Clearly, this method of drilling down could go on almost forever - way beyond the point at which an organization has any control over the method. This method of identifying the cause of the failure should reach the level that an appropriate failure management policy can be applied.

Routing Identifier (RID)—A computer code used to identify ownership and location of a specific source of supply. It may be used to identify local purchase or organic manufacture. A three-position alpha code may be used in a request for issue.

Run to Failure (RTF)—The asset management strategy supported by analytical information that confirms operation of an asset to failure with replacement or system modification is a better alternative than other maintenance strategies in terms of cost, schedule, performance and risk.

Save List—Programmed reclamation of 5 or more aircraft or end items with a project number established by a System Program Office or HQ Air Force. Imps provide AFMC Forms 110 for items to be removed from a select group of assets to fulfill projected requirements.

Seller—An organization and its personnel who sell the services of depot maintenance, and ensures the needs of the customer are met. This term, emphasizing the adversarial role existing in the private commercial world, encompasses those maintenance personnel responsible for developing, identifying, negotiating, workloading, and selling depot maintenance capability to satisfy the funded needs of the customers. Seller responsibilities also include ensuring the negotiated funded customer requirements are produced to meet customer needs.

Sensitive Item—Material that requires a high degree of protection and control due to statutory requirements or regulations. (See AFMAN 23-110, Volume 1, Part One).

Shop—A work center, functional work group, or resource group that contains one or more workstations that perform depot maintenance work.

Shop Machinery Accessories/Attachments—Items such as dies, fixtures, tool holders, chucks, shop aids (locally manufactured items used in conjunction with shop equipment to assist in the production of an end item or product), special machine tooling, end item unique items, equipment that may look like tools, but have been purchased or provided by a manufacture.

Shop Service Center (SSC)/Exchangeable Products Support Center (EPSC)—The SSC/EPSC is the standard materiel support function for DREP shops in AFMC. The SSC/EPSC is an aggregate of functional components involved in providing materiel to the Fixer, acting as a trouble shooter for solving parts problems, or if possible, preventing them. It also serves as a mini-supply storage area located in or near the Fixer's work area. Frequently used materiel is physically located as close to the Fixer as practical. This material is owned and managed by a depot supply account. Unserviceable end items (Consolidated Repair Inventory (CRI)) are also pre-positioned to expedite repair. This materiel will be stored in the SSC/EPSC based on need and available storage space. New SSC/EPSCs based on the requirements of the Fixer, will be established after negotiations with the Fixer. During negotiations, the Fixer and SSC/EPSC Chief will decide NSNs to be stored, levels required, and the size of the CRI. All actions are performed to provide comprehensive and effective support in the form of materiel planning, production scheduling, work-loading, retail item management, item research, order placement, materiel storage, inventory, and distribution, local procurement, process analysis, and other key materiel related processes.

Source of Repair (SOR)—An industrial complex (organic, commercial contract, or interservice facility) with required technical capabilities to accomplish repair, overhaul, modification, or restoration of specific types of military hardware or software.

Source of Supply (SOS)—The person who aggregates the customer funded requirements on Format 1. The agency to which requisitions are sent for resupply action.

Special Inspections (SI)—SIs are inspections not covered by CI checklists, Management Inspections, PEs, QVIs, or checklists accomplished as part of the Annual Technical Compliance Review. SIs can include, but are not limited to, applicable MAJCOM inspection checklists. Special Inspections when driven by the analysis of assessment data may be conducted at the discretion of the local QA. However, observed deficiencies beyond those identified as a checklist question (i.e., stumble on) will be recorded in QIMSS under the category of Special Inspection. SIs will be assigned a rating (QAR 1, 2 or 3) based on severity of the observation. SIs are designed to provide a flexible tool to complement other quality assessment types. The Maintenance Wing Quality Manual or QAP should clearly describe how SIs are conducted as part of an overall QA program.

Special Process—Any production or service delivery process that requires continuous monitoring and control of suitable process parameters and product characteristics during production, installation, and/or servicing to insure that the specific requirements are met. An example of controlled parameters and product characteristics are: Time, Temperature, Pressure, Weight, application of Electrostatics Discharge Control, Critical Dimensions, etc. These processes shall be carried out by qualified mechanics.

Squadron Commander/Director—Squadron Commander/Director is responsible for ensuring depot repairs are accomplished in a timely manner by using DREP, workloading, planning, management analysis, financial management, scheduling, quality control, and materiel support functions in support of repair, production, and manufacturing. The Squadron Commander/Director supervises the Shop Chief, (the DLA/PST Chief is matrixed to the Squadron Commander/Director) Production Planner, and Management Analyst.

Standard Reporting Designator (SRD)—Required for all DM material issue and backorder requisitions. Workload Managers will input SRD code on all ABOM/NIMMS D7X transactions. The SRD code is developed by base level maintenance via the Air Force Technical Order (AFTO) Form 350 card. This card is attached to the material and stays with the material until removed by DM personnel. The SRD entry will greatly improve bit/piece subassembly supportability to maintenance by linking these parts to a specific end item or system. The SRD converts to a Weapon System Designator Code that DLA uses in its buy policy for depot support.

Status Code—A series of codes used for transmitting the status from the material manager or source of supply to the requisitioner.

Stock Fund—A stock fund is a revolving fund established to finance inventories of supplies and other stores. It is authorized by specific provision of law to finance a continuing cycle of operations. Receipts derived from maintenance operations are then available for further use.

Stock Level—A computer requirement for stockage of an item of supply.

Stock List Change (SLC)—Used to correct or update elements of management data on material system records.

Suffix Code—Purpose of the suffix code on a supply transaction is to relate and identify requisitions for partial quantities to the original requisition.

Supply Chain Manager (SCM)—Supply Chain Managers are typically the highest level SES, Colonel or GS-15 at the Wing level that manages NSNs. SCMs are responsible for the following: Ensuring the entire customer base is supported in accordance with command priorities and resources, evaluating pipeline performance characteristics and responding before supportability problems develop, identifying root causes of systemic NSN shortages and building command-wide, process-fixing solutions, communicating supply chain focus and philosophy to all supporting functions, utilizing automated management tools to prioritize work flows and meet customer needs, and taking responsibility/ownership for all relationships to effectively form partnerships that meet command objectives.

Support Equipment—Items used to aid in performing tasks. Examples are drop lights, extension cords, multiple air hose couplings, air hoses, etc.

Support Shop—A maintenance shop which expends resources during the processing of weapon systems, end items, and components during depot maintenance repair. A support shop may accomplish end item repair (responsible for the end item), repair of a component related to an end item for which another RCC is responsible, or unique processes (chemical analysis, plating, etc.).

Surge—The act of expanding an existing repair depot maintenance repair capability to meet increased requirements by adjusting shifts or by adding equipment, spares, repair parts, and skilled personnel to increase the flow of repaired or manufactured materiel to the using activity or for serviceable storage.

System—The combination of people, processes, and/or plant assets that together perform a function. Systems have physical and functional characteristics that define their configuration identity.

System Program Manager (SPM)—The individual appointed by the ALC system manager to ensure that logistic actions within AFMC are in consonance with program objectives and support requirements of commands that will use the weapon system.

Task Certification—The certification by a PAC certified individual that a product or service conforms to all technical requirements and related specifications. Task certification is performed by stamping the appropriate WCDs.

Teardown Deficiency Report (TDR)—The process in which a technical or engineering analysis is performed on equipment as a result of USAF aviation mishaps and events. Reference AFMAN 91-223, Aviation Safety Investigations and Reports.

Technical Data—Approved instructions relating to the management, repair, and/or use of a weapon system or component. Technical data includes, but is not limited to, TOs, Military Standards/Specifications, engineering drawings, schematic diagrams, flow diagrams, manufacturer‘s handbooks, manuscripts of Operations & Maintenance (O&M), Preliminary Technical Orders (PTOs), Commercial Technical Manuals (TMs, Research & Development (R&D) TMs, and other systems or equipment O&M procedures developed under AFMC or other acquisition agency directions during the systems acquisition phase.

Technical Data Violation (TDV)—An observation of any person performing maintenance without the proper technical data available and in use.

Technical Order Compliance (TOC)—Associated to serviceable items that require test, alteration, modification, technical data markings, conversion or disassembly (Supply Condition Code D). Periodic inspection, ownership and location of a specific source of supply. It may be used to identify local purchase or organic manufacture.

Technology Repair Center (TRC)—An activity within the Air Force or authorized by the Air Force to repair or modify specific items.

Temporary Job Record—The G004L-L3A product that serves as the work control document (WCD) on temporary JONs. AFMC Form 237 is authorized for interim use pending receipt of the -L3A product.

Test—A procedure for critical evaluation; a means of determining the presence, quality, or truth of something. A series of questions, problems, or physical responses designed to determine knowledge, intelligence, or ability. A test is the basis for making an evaluation or judgment.

Test, Measurement, and Diagnostic Equipment (TMDE)—Devices used to test, measure, calibrate, evaluate, inspect, or otherwise examine materials, supplies, equipment and systems to identify or isolate any actual or potential malfunctions.

Test program set—An interface that links a unit under test to the test equipment and a software program to initiate, maintain, and execute a test or series of automatic tests.

Time Change Item—These are components of weapon systems which have been identified as having some fixed service life expectancy, and which must be replaced with a new or overhauled

item after accrual of a specified number of hours or cycles of operation, or at the expiration of a given calendar time period.

Time Compliance Technical Order (TCTO)—An authorized directive issued to provide instructions to Air Force activities for accomplishing one-time changes, modifications, inspection of equipment, or installation of new equipment within a given timeframe.

Tool Kit—A container used to store tools or equipment and to maintain positive control and ease of inventory. This grouping of tools is used for a specific task, skill, work area, weapon system, or combination thereof. An individual or a group may use the kit.

Tool Kit Custodial Receipt Listing (TKCRL)—An inventory of all tools and other items in a tool kit. Includes the quantities, the kit ID number and the tool and item location, i.e. drawer or shelf. The original copy of the TKCRL generated by the Tool Management Center (TMC) is the Master TKCRL. This Master TKCRL lists all tools for which the TMC will hold employees responsible, in addition to any tools added to the tool kit.

Tool Management Center (Tool Crib)—The focal point for the procurement, issuance, and management of common hand tools, power tools, and TMDE hand tools purchased for accomplishing the ALC workload.

Total Paid Hours—The number of paid days in the fiscal year multiplied by 8. This is based on a standard, 8-hour day and includes regular time, overtime, leave, holidays, etc. These hours are the basis for accomplishing capability projections and workload negotiations.

Total Productive Maintenance (TPM)—An approach to maintenance characterized by operator ownership and responsibility where operators perform as much maintenance as practical, provide assistance to maintenance professionals (assisted trouble shooting), and are trained by maintenance specialists. TPM is also referred to or combined with Total Productive Reliability (TPR). TPM/TPR is a process which provides a bridge between production and maintenance requirements when a conflict in priorities or access to the equipment occurs.

Transaction—The systematic movement of data between two records in a computer system.

Turn-In—A transaction whereby property is moved from the maintenance production line to supply.

Type, Model, Series (TMS)—A combination of alpha characters and numbers used to identify a specific engine by type, model, and series. The first alpha designator identifies the type of engine as turbojet, turbofan, turboprop, etc. The first numeric designator identifies the engine model.

The second alpha designator indicates the engine manufacturer and the second numeric designator identifies the series. The series is used to identify a particular configuration of a given engine model (ex: J57-P-29).

Unit Of Issue—Denotes the physical measurement or count, or when neither is applicable the container or shape, of an item for issue to the end user. It is that element of management data to which the unit price is ascribed.

Unit Of Measure (UOM)—Limited to two positions for input to the G004L system, HR for hour by sales rates and EA for end items sales prices.

Unsatisfactory Condition Report (UCR)—A UCR is considered a condition other than a DSV or TDV, chargeable to the work center supervisor.

Urgency Of Need Designator (UND)—An alpha designator which signifies the degree of need for the material requisitioned

Utilization Index—An indicator, expressed as a percentage, of the degree of alignment of workload to the designed total capacity of a shop or depot.

Utilized Capacity Index— An indicator of the capacity, expressed in DLHs, required by a shop or depot to support funded workload requirements.

Validation Table—Various G004L tables are used to edit the inputs for JON establishment and production count. These tables contain all valid established MDS identities, CAI identities, planning organizations, planner technician codes, production sections, scheduling designators, Resource Control Centers (RCCs), RCC rates, Program Control Numbers/Project Order Numbers (PCN/PONs), customer organizations, FCRNs, and cost class IV Table.

Washpost (WP)—The transfer of material accountability from one account to another within production maintenance without physically moving material through distribution. This is a paperwork transaction only in which a corresponding issue and turn-in posts as a two-step or four-step process.

Weapon System Support Center/Exchangeable Products Support Center (WSSC/EPSC)—The WSSC/EPSC is the standard materiel support function for AREP shops in AFMC. The WSSC/EPSC is an aggregate of functional components involved in providing materiel to the Fixer, acting as a trouble shooter for solving parts problems, or if possible, preventing them. It also serves as a mini-supply storage area located in or near the Fixer's work area. All actions are performed to provide comprehensive and effective support in the form of materiel planning, production scheduling, workload management, retail item management, item research, order placement, materiel storage, inventory, and distribution, local procurement, process analysis, and other key materiel related processes.

Work Authorization Document (WAD)—A document that authorizes the expenditure of labor, material, and other related costs to do the work requested by a specific customer on AFMC Form 206,; AFSC Form 600D, within G004L.

Work Control Document (WCD)—Also referred to as Work Documents (WD) when associated with some depot maintenance data systems. A WCD or WD is a printed form, work card, or computer generated document used for work control, identification, routing, certification, and accountability of depot maintenance production.

Workload—An amount of work, usually specified in direct labor hours or workdays, that relates to specific weapon systems, equipment, components, or programs and to specific services, facilities, and commodities. Requirements that will generate on a periodic schedule demanding test, fault isolation, disassembly, repair/modification, reassembly, inspection, and final test. Workload is expressed in DPSH and represents the unit of measure to posture the Command. Peacetime maintenance support, expressed in DLHs, by year (past years are actual DLHs produced; current and future years are DLHs projected to be produced), inclusive of funding from all sources (i.e., Operations and Maintenance (O&M), Procurement, and Research Development Testing and Evaluation (RDT&E) appropriations, stock fund, and reimbursables such as other DoD Services and Foreign Military Sales).

Work Position—A designated amount of space and equipment that is occupied by a single direct production worker to accomplish assigned tasks on a full-time basis. A work position may include

more than one location if the worker moves to other locations to accomplish the assigned tasks. A work position does not need to be manned to count towards the work position total. Work positions are only defined by whole numbers, no fractions, fractions will be rounded up.

Work Station—The lowest order of equipment and/or process location that requires separate analysis of workflow and function during the capacity index calculation. It will consist of one or more work positions.

Yield—The productive time of an individual compared to the total available hours in a work- year (2080-2096). There are various yield calculations, both Direct Production Standard Hours (DPSH) and Direct Production Actual Hour (DPAH), including direct labor yield with and without overtime, and total yield with and without overtime. Direct labor yields include only the direct labor hours and work-years; while the total yield includes both direct and overhead hours and work-years.