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AIR FORCE MATERIEL COMMAND

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MAINTENANCE

DEPOT MAINTENANCE PRODUCTION SUPPORT

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This instruction implements Air Force Policy Directive (AFPD) 21-1, *Maintenance of Military Materiel*, and provides directive guidance for maintenance management at the Air Force Materiel Command (AFMC) Centers organic depots as it applies to aircraft and associated aerospace equipment. Air Force Materiel Command Instruction (AFMCI) 21-100 is comprised of three volumes: **Volume 1**, *Depot Maintenance Principles*; **Volume 2**, *Depot Maintenance Production*; **Volume 3**, *Depot Maintenance Production Support*. A Volume and Chapter breakout is provided in **Attachment 2**. For policies and procedures adhered to planning and administering depot level contract maintenance programs, refer to Air Force Instruction (AFI) 63-101/20-101, *Integrated Life Cycle Management*, and AFI 63-138, *Acquisition of Services*. This publication applies to all AFMC Regular Air Force. This publication does not apply to United States Space Force, Air Force Reserve, or Air National Guard units. This publication applies to all AFMC military and civilian members and those with contractual obligation to comply with Air Force publications. However, if an AFRC unit is assigned or associated with AFMC where AFMC is the lead this guidance would be applicable to the AFRC unit. Headquarters (HQ) AFMC and Centers will develop supplements to implement the requirements of this instruction at their level and provide them to the Office of Primary Responsibility (OPR) of this instruction for review and approval before publishing. Supplements and addendums to this instruction will be written in accordance (IAW) with Department of the Air Force Manual (DAFMAN) 90-161, *Publishing Processes and Procedures*, and must be provided to the OPR of this publication for review and approval prior to publication. Supplements are submitted to Air Force Materiel Command, Directorate of Logistics, Civil Engineering, Force Protection, and Nuclear Integration, Maintenance Division (AFMC/A4/10/A4M) @ **AFMC.A4M.Workflow@us.af.mil**. Center-level Supplements must

identify and document all Center required deviations (applicability, variance, exception, and differences in organizational placement of responsibilities/processes) in their supplement and addendums with the abbreviation (DEV). Place the (DEV) entry after the paragraph number and directly preceding the affected text, such as (AFSC) (DEV) Use the..., or (ADDED-AFSC) (DEV) Use the...). Only current and verified technical data, as authorized by Technical Order (TO) 00-5-1, *Air Force Technical Order System*, will be used for depot maintenance. All contractor requirements in this instruction must be included in a contract/grant/agreement to be enforceable. Refer recommended changes and questions about this publication to the OPR using Department of the Air Force (DAF) Form 847, *Recommendation for Change of Publication* (or equivalent). Route DAF Forms 847 (or equivalent) from the field through the Center to the appropriate Major Command (MAJCOM) functional manager. Ensure that all records created as a result of processes prescribed in this publication adhere to AFI 33-322, *Records Management and Information Governance Program*, and are disposed IAW Air Force Records Disposition Schedule (RDS), which is in the Air Force Records Information Management System (AFRIMS). The waiver approval authority for requirements throughout this instruction is the publication Approving Official. Submit requests for waivers through the appropriate chain of command to the Publication OPR for consideration, using DAF Form 679, *Department of the Air Force Publication Compliance Item Waiver Request/Approval*, (or equivalent).

SUMMARY OF CHANGES

This instruction has been substantially revised and restructured into three volumes and must be reviewed in its entirety. Major changes include the incorporation of Guidance Memorandums, corrections, clarifications, and relevant information from other directives.

Chapter 1

DEPOT MAINTENANCE WORK MEASUREMENT

1.1. Depot Maintenance Work Measurement (DMWM). This chapter provides guidance and responsibilities for Air Force Sustainment Center (AFSC) DMWM Standards (DMWMS). The prescribing regulation for labor classification is DoD 7000.14-R, *Department of Defense Financial Management Regulation*, Volume 11B, Chapter 13. Labor standards must accurately reflect the labor required to do a particular job. Labor standards are used to establish production schedules and they have a direct bearing on the cost and length of the repair cycle. Labor standards, operation descriptions, and associated times provide data for analysis that enable the repair process owners to identify prime areas for process improvement. Labor standards are used in scheduling, budgeting, sales rates, manpower requirements, and shop capacity. Work measurement is the means utilized to establish labor standards.

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

1.1.1.1. External Customers. Labor standards are a basis for costs required to perform individual work orders. Labor standards are used to calculate standard Shop Flow Days (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.

1.1.1.2. 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. Standard SFD are used to calculate floating stock, where applicable.

1.1.2. HQ AFSC will formulate the detailed requirements concerning DMWM and facilitate/coordinate on any requests from HQ AFMC to the Air Logistics Complexes (ALCs).

1.1.3. 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.

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

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

1.1.6. Industrial Engineering Technician (IET)/Planner Training.

1.1.6.1. All new IET/Planners must successfully complete course CRXMAO0003200SU, *AFMC Industrial Engineering Technician, Fundamentals*.

1.1.6.2. IET/Planner training requirements are found in the Civilian Training Plan (CTP) and will be accomplished IAW AFI 36-2650_AFMCSUP, *Maintenance Training*.

1.1.6.3. All IET/Planners that perform Bill of Material (BOM) management and labor standard reviews are required to complete the Command approved BOM and Labor Standards refresher training, at a minimum of every two years.

1.1.6.4. DWMS requirements may be waived for personnel having an associate degree in industrial engineering technology or a bachelor's degree in industrial engineering.

1.1.6.5. All training will be documented in the Training Scheduling System (TSS).

1.2. AFSC Responsibilities. HQ AFSC will develop, implement, and maintain guidance and procedures for DMWM which address the following:

1.2.1. ALC Business Office and Maintenance Production Group responsibilities as they apply to DMWM.

1.2.2. Labor Classification. Labor is either direct or indirect. (Reference DoD 7000.14-R, Volume 11B, Chapter 13).

1.2.2.1. 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 General and Administrative (G&A) in nature. Labor not identified as direct labor will be identified as indirect labor.

1.2.2.2. Indirect Labor. There are two categories of indirect cost: Indirect Production and G&A (overhead).

1.2.2.2.1. Indirect Production. Indirect Production is all other labor expended in maintenance that does not meet the criteria for direct labor. This includes all labor expended at the Resource Control Center (RCC) level in maintenance 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.

1.2.2.2.1.1. Indirect production includes all General Schedule (GS) supervision, clerical, and administrative labor. This will also include annual leave, sick leave, and other paid leave. Functions such as attending classroom training or meetings are considered indirect labor when they involve people who are assigned to a direct RCC. The cost of this labor is apportioned over all products in the RCC rather than charged to one or more specific products.

1.2.2.2.1.2. Shop support overhead is labor expended by personnel performing functions above RCC level in support of maintenance, 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 RCC.

1.2.2.2.2. General and Administrative (G&A) (Overhead) is labor expended by personnel performing functions external to maintenance.

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

1.2.2.2.2.2. The duty code assignment of personnel and subsequent man-hour exceptions should be recognition of the proper level at which the direct production labor cost is applied.

1.2.3. Classification of Labor Standards. 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.

1.2.3.1. 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.

1.2.3.1.1. 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.

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

1.2.4. Indirect Labor Factors and Efficiency. Indirect labor factors are established to account for labor expended by and for a Resource Cost Center (RCC) 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 RCC rather than charged to one or more specific products. To fully evaluate the cost of the items repaired by an RCC 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.

1.2.4.1. 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.

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

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

1.2.6. Occurrence Factors Data Collection.

1.2.6.1. Past Occurrence Factors.

1.2.6.2. Defining Occurrence Factors.

1.2.6.3. Time.

1.2.6.4. Expression.

1.2.6.5. Calculation.

1.2.6.6. Development.

1.2.6.7. Documentation.

1.2.7. Task Measurement.

1.2.8. Engineered Labor Standards Methodology.

1.2.9. Accuracy Formulas.

1.2.10. Work Sampling.

1.2.11. Labor Standard Review Requirements.

1.2.11.1. Technical Data.

1.2.11.2. Work Control Document (WCD).

1.2.11.3. Labor Standard Hours.

1.2.11.4. Occurrence Factor.

1.2.11.5. Personal, Fatigue, and Delay (PF&D) Allowances.

1.2.11.5.1. Overview of Allowances.

1.2.11.5.2. Allowance for Personal Time.

1.2.11.5.3. Allowances for Fatigue.

1.2.11.5.4. Allowances for Delay.

1.2.11.6. Shop Flow Days (SFD) Exchangeables.

1.2.11.7. Engineered Labor Standards.

1.2.12. Aircraft Labor Standards.

1.2.13. Sample Size and Rejection Criteria.

1.2.14. Accepted or Rejected.

Chapter 2

DEPOT MAINTENANCE PRODUCTION SUPPORT

2.1. 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.

2.1.1. Depot Maintenance activities must be process-improvement based, must keep the mechanic on-task, and must optimize warfighter support.

2.1.2. HQ AFMC will develop Command policy for depot maintenance production support activities to include workload control, planning, scheduling functions, and documentation requirements.

2.2. Air Force Life Cycle Management Center requirements for Production Support. HQ Air Force Life Cycle Management Center (AFLCMC) will develop, implement, and maintain a standardized process to ensure workloads are supportable and funded. For further guidance; reference AFMAN 63-143, *Centralized Asset Management Procedures.*

2.3. AFSC requirements for Production Support. HQ AFSC will develop implement, and maintain standardized processes and procedures for the Depot Maintenance Production Support process to include:

2.3.1. Processes for Pre-Production Support for items prior to induction.

2.3.2. Processes for Production Support for items that have already been inducted.

2.3.3. Processes for Exchangeable Repair.

2.3.4. Ensure aircraft/missile status documentation is accomplished IAW TO 00-20-1, *Aerospace Equipment Maintenance Inspection, Documentation, Policies, and Procedures*, and TO 00-20-2, *Maintenance Data Documentation.*

2.3.5. Ensure aircrews are debriefed to determine the status of the aircraft.

2.3.6. Establish a single point of entry and exit for Request for Quote (RFQ) forms and data.

2.3.7. Participate in the Spares Requirement Review Board (SRRB) per AFMAN 63-143.

2.3.8. Provide non-parts supportability elements for Aircraft and Missile Requirements (AMR) as part of the Logistics Requirements Determination Process (LRDP) per AFMAN 63-143.

2.3.9. Establish a process to assemble aircraft specific or exchangeable component specific disparate parts and non-parts into one unit to be delivered to maintenance as a part of the critical path for that repair requirement.

2.3.10. Establish a process which outlines the pickup and delivery of pre-positioned parts to the kit staging area for a specific repair requirement.

2.4. Depot Maintenance Job Routing.

2.4.1. HQ AFLCMC will:

2.4.1.1. Ensure decisions to job route/non-job route are made by the Program Office (PO)/Program Manager working with the ALCs and Defense Logistics Agency (DLA).

2.4.1.1.1. 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.

2.4.1.1.2. 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.

2.4.1.2. Ensure all conversions from job routed to non-job routed begin budget lead-time away for anticipated cost changes to the Consolidated Sustainment Activity Group-Maintenance (CSAG-M)/Consolidated Sustainment Activity Group-Supply (CSAG-S).

2.4.1.3. If circumstances still require job routing, approval must be obtained from the PO. Such action must be reported to supply for supply to accurately record the true requirements for stockage. For additional Nuclear Weapons-Related Materiel (NWRM) job routing guidance, reference AFI 20-110, *Nuclear Weapons-Related Materiel Management*, and AFI 20-110_AFMCSUP, *Nuclear Weapons-Related Materiel Management.*

2.4.2. HQ AFSC will develop, implement, and maintain standardized procedures for the following:

2.4.2.1. Job Routing.

2.4.2.2. Non-job Routing.

2.4.2.3. Process Routing.

Chapter 3

OPERATIONAL WORKLOADING, PLANNING, AND SCHEDULING CONTROLS

3.1. Relationship Between the Control Functions.

3.1.1. Planning. 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.

3.1.2. 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 Job Order Number (JON), labor, and material standards.

3.1.3. Scheduling. The scheduling function uses the tools provided by planning to ensure proper shop loading of end items and manpower. Scheduling personnel participate, as required, in the Pre-Production Planning Team (PPPT) and the Production Planning Team (PPT), and as such, support the planning function in the depot production process.

3.1.4. Production. The production organizations produce project orders as assigned. The production organizations provide 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.

3.1.5. HQ AFSC will ensure the control functions record labor, material and cost within their areas of responsibility accurately. Daily management reports will be made available to maintain data integrity. Erroneous transactions processed must be corrected upon receipt of the error listing.

3.1.6. Quality Assurance (QA). QA provides quality guidance during preproduction and production planning and through work completion. Reference **Volume 3, Chapter 8** of this instruction for QA guidance.

Section 3A—Control of Workload

3.2. Control of Workload. 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. Criteria in this chapter 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.

3.2.1. Relationship with Other Functions. Workloading cannot be entirely separated from other internal depot maintenance functions. AFSC personnel involved with the workloading process must also be aware of the required relationship with the planning and scheduling functions.

3.2.2. Operating Policy. The emphasis on workload management includes control of all direct work from point of input through the resulting costs.

3.2.3. Stabilization of Rates. AFMCI 65-101, *Depot Maintenance Accounting and Production System Financial Policy and Procedures for Depot Maintenance*, contains HQ AFMC policy on sales rates. HQ AFSC will ensure all personnel involved with Work Authorization Documents (WADs) are aware that any changes to the rates must be approved IAW AFMCI 65-101.

3.2.4. Workload Requirements. Accurate identification of individual workload requirements is necessary to ensure that each item of inducted workload will be properly categorized throughout the production process. Examples include the Repair Group Categories (RGCs) and reimbursement codes. These types of identifiers apply to each workload accepted from the CSAG-M customer. HQ AFSC will ensure all items have a Project Order established before any work or service is performed. AFMCI 65-101 contains the policies and procedures associated with Project Order management and control.

3.2.5. Workloaders should be aware of the impact of each WAD while it is inducted to the production process. The previous 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.

3.2.6. Depot Field Team Requirements. These requirements are normally within the scope of TO 00-25-107, *Maintenance Assistance*. AFMC Form 206, *Temporary Work Request,* or equivalent, is initiated using the WAD Edit Extension table for temporary JONs. Reference AFMCI 65-101 and **Volume 2, Chapter 10** of this instruction.

3.3. Workload Generation. Depot maintenance workloads may be generated from various sources such as base or tenant organizations, ALC Management of Items Subject To Repair (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. HQ AFSC will develop, implement, and maintain procedures for the use of production numbers for depot workloads.

3.4. Hourly Sales Rates and End Item Sales Price (EISP). The completion of each individual workload will generate revenue for the CSAG-M. That revenue is designed to offset expenses that have been incurred to complete the workload. The generation of the revenue is accomplished by establishing an Hourly Sales Rate or EISP for the products or services provided. AFSC will develop, implement, and maintain processes and procedures for the application of the Hourly Sales Rates or EISPs. Reference AFMCI 65-101 for the criteria applicable to sales rates.

3.5. Responsibilities of the Workloader. HQ AFSC will ensure Workloader responsibilities are developed, implemented, and maintained.

3.6. Work Performance Category Descriptions (Job Designator). HQ AFSC will ensure work performance category descriptions (Job Designator) are developed for the following:

3.6.1. Code A - Major Overhaul.

3.6.2. Code B - Progressive Maintenance/Programmed Depot Maintenance (PDM).

3.6.3. Code C - Depot Performance of all Two Level Organizational and Intermediate Workloads other than Engines.

3.6.4. Code D - Activation of Stored Major Item.

3.6.5. Code E - Inactivation, Storage Preparation, and In Storage Maintenance of Major Items.

3.6.6. Code F - Renovation Proof Testing.

3.6.7. Code G - Analytical Rework Evaluation of Materials and In-Service Items.

3.6.8. Code H - Conversion/Modification.

3.6.9. Code I - Repair.

3.6.10. Code J -Inspection and Test, Condition Determination or Bench Check.

3.6.11. Code K - Manufacture and Fabrication.

3.6.12. Code L - Reclamation.

3.6.13. Code M - Storage.

3.6.14. Code N -Technical Depot Assistance.

3.6.15. Code T - Other Work.

3.6.16. Code U - Software Maintenance/Sustainment.

3.6.17. Code W - Contractor Logistics Support.

3.6.18. Code Y - Scheduled Maintenance.

Section 3B—Procedures for Control of Workload

3.7. Job Order Number (JON). A JON is a nine-position alphanumeric combination composed of the control number, job designator, and a three-position JON suffix. HQ AFSC will ensure procedures are developed for the proper use of JONs to include:

3.7.1. Types of Production Control Numbers.

3.7.2. JON Suffix.

3.8. Production and Control. HQ AFSC will ensure processes and procedures for production and control are developed, implemented, and maintained for the following:

3.8.1. Status for Internal ALC Use.

3.8.2. Production Status for Customer Feedback.

3.8.3. Assignment of Permanent Control Numbers.

3.8.4. Assignment of Temporary Production Numbers.

3.8.5. Maintenance Generated Temporary Work Requests.

3.8.6. Production Number Errors.

3.8.7. Production Numbers for Training (Reimbursable).

3.8.8. Increased Job Order Quantities (JOQs).

3.8.9. File Maintenance of the JON Master File.

3.9. File Maintenance. HQ AFSC will ensure Workloader file maintenance procedures are developed, implemented, and maintained.

Section 3C—Planning and Control.

3.10. The Industrial Engineering Technician (IET). The IETs 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.

3.10.1. 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.

3.10.2. HQ AFSC will ensure IET responsibilities are developed, implemented, and maintained for all IETs within the ALCs.

3.11. Exchangeable Component Item Control. HQ AFSC will ensure repair processes for the following are established.

3.11.1. Job Routed Items.

3.11.2. Field Level Repair.

3.11.3. Other End Item Repair.

3.12. Pre-Production Planning (New Workloads). Pre-production planning is a prerequisite to establishing a successful depot repair process. HQ AFSC will develop, implement, and maintain Pre-Production Planning processes to include:

3.12.1. Pre-Production Planning Team (PPPT) composition.

3.12.2. Ongoing Pre-Production Planning.

3.12.3. PPPT requirements.

3.13. Production Planning. Production planning begins 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. HQ AFSC will develop, implement, and maintain production planning procedures for the following:

3.13.1. Labor Standards.

3.13.2. Material Standards.

3.13.3. Data Collection.

3.14. 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. HQ AFSC will ensure all WCDs are developed IAW **Volume 2, Chapter 2** of this instruction.

3.15. Planning Jackets (Non-Aircraft). HQ AFSC will ensure each planning section develops and maintains a master jacket for each permanent production number within their assigned area of responsibility.

3.16. Planning Jacket (Aircraft, Missile, or Other Major End Item (OMEI)). HQ AFSC will ensure each planning office develops and maintains a master jacket for each aircraft, missile, or OMEI. At a minimum, the planning jacket will contain the following:

3.16.1. Air Force Technical Order (AFTO) Form 103, *Aircraft/Missile Condition Data*, and incoming AFTO Form 781A, *Maintenance Discrepancy and Work Document* write-ups.

3.16.2. Incoming Correspondence.

3.16.3. Pre-Induction Meeting Minutes/Amendments.

3.16.4. Incoming Aircraft History.

3.16.5. Fixed Price Work Sheets (FPWSs).

3.16.6. AFMC Form 202, *Engineer Technical Assistance Request* and other technical information.

3.16.7. Copy of JON closeout sheet.

3.17. Support Shop Application. HQ AFSC will ensure procedures for shop support are developed for workload routing to include:

3.17.1. Routing may involve multiple RCCs 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 **Volume 3, Chapter 2** of this instruction.

3.17.2. Items removed for accessibility purposes will be reinstalled, when possible, on the end item from which removed.

3.17.3. Unserviceable exchangeable components from aircraft and engines are normally removed, turned into supply, and a serviceable replacement acquired from supply. Reference **Volume 3, Chapter 6** of this instruction. Exchangeable components are processed IAW **Volume 3, Chapter 2** of this instruction.

3.17.4. To ensure AFSC recoups operating costs under the industrial fund (reference AFMCI 65-101) to produce each end item, timely reporting of all support must be affected.

3.17.5. All direct material transactions used in support of moved items will contain the 9 position JON of the supported end item.

3.17.6. 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.

3.17.7. Routed Order (Aircraft).

3.18. Cost Awareness. The IET ensures proper costing through accurate planning of the labor, material required, and WCD preparation. 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. HQ AFSC will ensure the IETs apply cost awareness in the following areas:

3.18.1. Temporary JONs.

3.18.2. Permanent JONs.

3.19. 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 numeric). When a job designator is assigned, the combination of control number and job designator is called a production number.

3.19.1. Permanent Production Numbers.

3.19.2. Temporary Production Numbers.

Section 3D—Planning Procedures.

3.20. Planning Procedures. HQ AFSC will ensure planning procedures are developed and implemented for the following:

3.20.1. Address Tables.

3.20.2. Planning Priorities.

3.20.3. Backlogs.

3.20.4. Work Authorization Documents (WADs).

3.20.5. Job Order Number (JON) Master.

3.20.6. End Item Sales Price (EISP).

3.20.7. Base Tenant Support.

3.20.8. Cost Class IV Type Workload (“S” JONs).

3.20.9. Serial Number Application.

3.20.10. File Maintenance.

3.20.11. Bill of Material (BOM).

Section 3E—Scheduling and Control.

3.21. Scheduling. 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 Defense Industrial Financial Management System (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 Time and Attendance (TAA), production can begin tracking labor, processing production completions of the planned operations, and material can be ordered through Automated Bill of Material (ABOM)/Naval Air Systems Command (NAVIR) Industrial Material Management System (NIMMS).

3.21.1. 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

support technician (PST) 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 provides the required support for the prototyping necessary to set up the production line.

3.21.2. 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 flight 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.

3.21.3. Shop Workload Sources.

3.21.3.1. Project Directive.

3.21.3.2. Management of Items Subject to Repair (Contract and Organic).

3.21.4. Workload Control. HQ AFSC will ensure schedulers maintain control for all production items within their area. Control of production items status can be maintained by using the following:

3.21.4.1. Prescribed AFSC Forms for recording workload and asset control.

3.21.4.2. Product Quality Deficiency Report (PQDR) Exhibit Processing.

3.21.4.3. Awaiting Parts (AWP).

3.21.4.4. Rob-back.

3.21.4.5. WCDs.

3.21.4.6. Routed Order.

3.21.4.7. Temporary Job Record.

3.21.4.8. Programmed Depot Maintenance Scheduling System (PDMS/G097).

3.21.4.9. Production Item Control. The scheduler must ensure proper documentation of production receipts and turn-ins are maintained.

3.21.4.10. Awaiting Maintenance (AWM).

3.21.5. Responsibilities. HQ AFSC will develop, implement, and maintain procedures to ensure schedulers accomplish the proper assessment and balancing of factors to include production manpower skills, available equipment, and the induction of workloads into production shops.

3.21.5.1. In Process Visibility.

3.21.5.2. Material and Production Items.

3.21.6. Local Manufacture.

3.21.7. Data Systems Interfaces. Scheduling is responsible for providing input to several data management systems to include:

3.21.7.1. D035K, Stock Control and Distribution/Central Material Locator System.

3.21.7.2. G019C, Management of Items Subject To Repair (MISTR) -Organic.

3.21.7.3. G004L, Job Order Production Master System (JOPMS).

3.21.7.4. G337, Inventory Tracking System (ITS).

3.21.7.5. G402A, Exchangeables Production System (EPS).

3.21.7.6. D087X, Execution and Prioritization of Repairs Support System (EXPRESS).

3.21.7.7. G097, Programmed Depot Maintenance Scheduling System (PDMSS/G097).

3.21.8. HQ AFSC will develop procedures for the following:

3.21.8.1. Job Order Cancellation/Reduction.

3.21.8.2. Suspended Temporary Jobs for Customer Job Order Release.

Section 3F—Scheduling Procedures.

3.22. Scheduling Procedures.

3.22.1. HQ AFSC will ensure procedures are developed for the following scheduling functions:

3.22.1.1. Data Processing Codes (DPCs).

3.22.1.2. JON Suffix Establishment.

3.22.1.3. Job Order Quantity (JOQ).

3.22.1.4. Annual Customer Order Quantity.

3.22.2. Scheduler’s Jacket Files. HQ AFSC will ensure the scheduler maintains a jacket file on each temporary production number for which the scheduler is responsible for.

3.22.3. Inductions. HQ AFSC will ensure procedures are developed for inductions and methods used to establish them depending on the DPC assigned to the production number and the type of work involved.

3.22.4. Induction Transaction Processing. HQ AFSC will develop, implement, and maintain procedures for Induction Transaction Processing to include:

3.22.4.1. Receipt Acknowledgement Transaction Inductions.

3.22.4.2. Maintenance/Supply Generated Transactions.

3.22.4.3. Misidentified Production Item Inductions.

3.22.4.4. Daily Verification of Production Transaction.

3.22.4.5. Awaiting Maintenance (AWM).

3.22.4.6. Formal Awaiting Parts (AWP). Taken Off of on work order (OWO).

3.22.5. Job Order Number Status Codes. HQ AFSC will ensure processes for the following Job Order Number Status Codes are maintained:

3.22.5.1. Status Code = Blank.

3.22.5.2. Status Code = 0.

3.22.5.3. Status Code = 1.

3.22.5.4. Status Code = 2.

3.22.5.5. Status Code = 3.

3.22.5.6. Status Code = 7.

3.22.5.7. Status Code = 8.

3.22.6. Defense Industrial Funds Management System (DIFMS). DIFMS will carry a status code which indicates the production status of each record.

3.22.7. Priority Codes. Priority Codes have been established for use in scheduling workload.

3.22.8. Production Delay Codes. Production delay codes may be input into G004L by the schedulers for any temporary jobs where the JOQ has not been completed by the customer delivery date.

3.22.9. Authorized, Completed, and Acceptable Work. HQ AFSC will ensue production completion data use for the accumulation of standard cost for the ALC will only be complied on work that is authorized, completed, and acceptable.

3.22.10. Completion Transaction Processing. HQ AFSC will ensure proper end item reporting and input of receipt and turn-in documents is accomplished on time.

3.22.11. HQ AFSC will develop, implement, and maintain processes and procedures for Exchange Component Item Control.

3.22.12. 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. HQ AFSC will develop, implement, and maintain processes and procedures for the processing of Other Services, Depot Maintenance Interservice Support Agreement (DMISA) production items.

3.22.13. 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. HQ AFSC will develop, implement, and maintain processes and procedures for Rework.

3.22.14. Local Manufacture Procedures. HQ AFSC will develop, implement, and maintain Local Manufacture processes and procedures.

3.22.15. Due In from Overhaul (DIOH)/In Maintenance Control. HQ AFSC will develop, implement, and maintain processes and procedures for production items subject to DIOH/In Maintenance Control.

3.22.16. Production Item Cost Codes.

3.22.17. JON Suffix Edit for Permanent JONs. HQ AFSC will develop, implement, and maintain procedures for JON Suffix Edit for Permanent JONs.

3.22.18. HQ AFSC will develop, implement, and maintain procedures for D035 System edits against 244 transactions.

3.22.19. Data System Products.

3.22.19.1. Reports are prepared daily, weekly, monthly, quarterly, and as required.

3.22.19.2. HQ AFSC will ensure data system reports are produced and disseminated to all appropriate shops and personnel.

3.22.20. Control of Manufacture. HQ AFSC will develop, implement, and maintain processes and procedures for the control of manufacture of items at the ALCs. Items to be manufactured must meet one of the following criteria:

3.22.20.1. Organic accomplishment is necessary for the Air Force to maintain an in-service depot maintenance capability for mission-essential items.

3.22.20.2. Acquisition of the part from a commercial source will result in higher cost to the Air Force.

3.22.20.3. The product or service is not available through inter-service or other Federal agencies.

3.22.20.4. Acquisition from private commercial sources will disrupt or materially delay an Air Force program.

3.22.20.5. A satisfactory commercial source is not available and cannot be developed in time to provide the part when needed.

3.22.21. G004L Computation Costs. HQ AFSC will ensure the ALCs properly compute cost for the following:

3.22.21.1. Expense Material Cost.

3.22.21.2. Investment Material Cost.

3.22.21.3. Budgeted Labor Cost.

3.22.21.4. EISP.

3.22.21.5. End Item Hourly Rate.

3.22.21.6. End Item Labor Standard.

3.22.21.7. Standard Expense Material Cost.

3.22.21.8. Standard Investment Material Cost.

3.22.21.9. End Item Identity.

3.22.22. Process Narratives. HQ AFSC will ensure process narratives are developed for the following:

3.22.22.1. Due In from Overhaul (DIOH) Reconciliation Process.

3.22.22.2. In-Transit Reconciliation Process.

Chapter 4

SUNSHADE MANAGEMENT

4.1. Purpose. This instruction outlines overall management responsibilities for aircraft sunshades, crew shelters and portable/inflatable shelters. Additionally, it provides guidance and a standardized approach to procure and sustain these equipment items.

4.1.1. Aircraft sunshades and other shelter types as defined below and addressed in this instruction are considered equipment items for accountability purposes and will be tracked/ accounted for on appropriate documents on a Custodian Inventory Report (CIR) and managed IAW DAFMAN 23-122, *Materiel Management Procedures*.

4.1.2. These assets do not require an equipment authorization because sunshades are not required support equipment for the weapons system. These assets are the responsibility of the owning organization.

4.1.3. HQ AFSC will ensure all other applicable organizations with appropriate subject matter expertise are involved in the procurement, installation, repair, sustainment, and replacement of these assets.

4.2. Definitions.

4.2.1. Aircraft Sunshades. Structure with the sole purpose of providing minimal protection for personnel from the elements (sun, wind, rain, snow, etc., excluding lightning) with a roof and a maximum of two sides.

4.2.1.1. Aircraft sunshades are not considered as temporary or relocatable facilities associated with Military Construction *(*MILCON) projects. Procedures for temporary or relocatable facilities associated with MILCON projects are contained in Department of the Air Force Instruction (DAFI) 32-1020, *Planning and Programming Built Infrastructure Projects*. Relocatable buildings are designed to be readily erected, disassembled, stored, moved, and reused to meet a short-term requirement for facilities due to either transitory peak requirements or urgent requirements pending approval, such as construction of facilities via normal military construction programs. According to DAFI 32-1020 the terms temporary and relocatable are interchangeable. Furthermore, DAFI 32-1020 provides guidance on satisfying interim facility requirements using relocatable or temporary facilities. Aircraft sunshades are not incident or interim to a MILCON project, nor are they in place to meet a temporary requirement; therefore, the terms temporary or relocatable as used in DAFI 32-1020 do not apply to aircraft sunshades.

4.2.1.2. Aircraft sunshades are not intended to replace aircraft maintenance hangars and as such there is no requirement associated with aircraft specifications or square footage allowances contained in DAFMAN 32-1084, *Standard Facility Requirement*.

4.2.2. Crew Shelters. Any portable or prefabricated structure placed inside, under or erected to support activities within an aircraft sunshade, hangar, hardened aircraft shelter or protective aircraft shelter. These should not be confused with other shelters that are designed for personnel protection only (e.g., End-of-Runway shacks).

4.2.3. Portable/Inflatable shelters. A structure constructed with connected layers of membrane using pressurized air to produce a structure which covers limited areas (e.g., cargo aircraft engine, open fuel tanks) of an aircraft or equipment.

4.2.4. Stress Tension Shelter. A structure with fabric membrane in tension over a ridged frame.

4.2.5. Allied support: Utilities (e.g., electrical, water, air, Communications (COMM), etc.) provided up to a stub at each aircraft sunshade. Utilities are real property assets. Installation of new utility services carries a work classification of construction.

4.3. Responsibilities.

4.3.1. HQ AFSC will:

4.3.1.1. Ensure standardized processes and procedures are developed, implemented, and maintained to support aircraft sunshade management.

4.3.1.2. Review all plans for procurement, installation, and sustainment of aircraft sunshades for initial procurement or modifications (e.g., lighting, power, compressed air, COMM, etc.) to existing aircraft sunshades with assistance from the submitting Air Base Wing (ABW) Operations (OS)/Civil Engineering (CE)/Safety (SE) offices.

4.3.1.3. Develop weather event baseline criteria if not previously developed so an organization can procure an acceptable aircraft sunshade suitable to its specific location. Consider annual days of sun, average wet bulb globe temperature, annual rainfall, and annual snowfall, Ultraviolet index, snow load, snow removal capability, wind sustainment requirements and temperatures that may affect work-rest cycles and overall productivity, etc.

4.3.1.4. Coordinate with the submitting ABW OS/CE/SE offices and proper civilian airport authorities when applicable prior to approving the procurement or installation of aircraft sunshades.

4.3.1.5. Approve/disapprove submitted request(s) based on information contained under the owning organization responsibilities section of this chapter.

4.3.1.6. Provide direction on the specific types and sizes of aircraft sunshades to use for each application.

4.3.2. Owning Organization.

4.3.2.1. The owning organization is the group level or equivalent organization responsible for the planning, funding, procurement, installation, maintenance, and lifetime sustainment of the aircraft sunshade including any installed utilities (e.g., lighting, obstructions in front of lighting, electrical, COMM, etc.) included in the project scope.

4.4. New Procurements.

4.4.1. HQ AFSC will ensure the owning organizations:

4.4.1.1. Develop plans for purchase, installation, acceptance, and sustainment then submit to ALC/ABW for plan approval. If the owning organization intends to request allied support, the owning organization should include these costs in the forecast. If allied support is required submit an AF Form 332, *Base Civil Engineer Work Request*, to Civil Engineering Customer Service.

4.4.1.2. Use DAFMAN 65-605V1, *Budget Guidance and Technical Procedure*, to determine correct appropriation for procurement and installation of aircraft sunshades or crew shelters described in this publication.

4.4.1.3. Use strategic sourcing, if available, for standardization and to leverage buying power from an enterprise perspective.

4.4.1.4. Consider all facets of aircraft sunshade sustainment; all applicable installation functional areas (CE [e.g., Community Planner], Airfield Management, Comm, SE, Medical, etc.) are involved in the siting and selection process and is approved by the installation's facility board prior to solicitation and procurement.

4.4.1.5. Use retro reflective beads for all apron, taxiway, and taxi lane markings near aircraft sunshades IAW Unified Facilities Criteria (UFC) 3-260-04, *Airfield and Heliport Marking*, Unified Facilities Guide Specifications (UFGS) 32-17-23, *Pavement Markings*, and AFMAN 32-1040, *Civil Engineering Airfield Infrastructure Systems*.

4.4.1.6. Use reflective markings on corner structural supports regardless of lighting used.

4.4.1.7. Perform an evaluation of all proposed sunshade installation plans to ensure requirements in UFC 3-260-01, *Airfield and Heliport Planning and Design*, are met. If waivers are required, those waivers must be approved prior to contract award of the sunshade.

4.4.1.8. Install obstruction lights on aircraft sunshades that penetrate an airfield imaginary surface defined in UFC 3-260-01 IAW UFC 3-535-01, *Visual Air Navigation Facilities,* and conform to requirements contained in AFMAN 32-1040.

4.4.1.9. Comply with fuel servicing safety requirements IAW TO 00-25-172, *Ground Servicing of Aircraft and Static Grounding/Bonding*.

4.4.2. The ALC will submit approved planning materials to include drawings, dimensions, cost estimates and statements of work, as well as ramp work striping and support equipment requirements to Air Force Sustainment Center, Logistics Directorate (AFSC/LG) for review and staffing to AFSC/CA for final approval/disapproval.

4.4.2.1. Installation plan requirements. HQ AFSC will ensure the owning organization addresses the following items and those in **paragraph 4.5** in installation plans submitted to ALC/ABW for approval.

4.4.2.1.1. Aircraft sunshade protection characteristics.

4.4.2.1.2. Compliance with UFC 3-301-01, *Structural Engineering*. **Note:** Consider jet blast potential in aircraft sunshade design and siting.

4.4.2.1.3. Number of spots to be covered.

4.4.2.1.4. Number of parking spaces lost due to aircraft sunshade placement. Consider ramp requirements, future mission changes, and impact on overall aircraft parking plan.

4.4.2.1.5. Design life expectancy and warranty information.

4.4.2.1.6. Expected costs including procurement, installation, and projected annual sustainment costs, to include inspection services.

4.4.2.1.7. Sustainment methodology (owning organization supported, manufacturer supported, supplemental contractor, etc.).

4.4.2.1.8. Foreign Object Damage (FOD) mitigation and prevention.

4.4.2.1.9. Planned storage of Aerospace Ground Equipment (AGE) and other related support equipment in aircraft sunshades within the maintenance area.

4.4.2.1.10. Provisions for electrical power units or powered AGE placement and protection from equipment exhaust and aircraft jet blast while operating in/near aircraft sunshades.

4.4.2.1.11. Environmental impacts and mitigation plans. Environmental impact analysis must be completed prior to contract award or implementation.

4.4.2.1.12. Conduct and include a Risk Management (RM) assessment IAW Air Force Policy Directive (AFPD) 90-8, *Environment, Safety, and Occupational Health Management and Risk Management*, and AFI 90-802, *Risk Management*, to determine potential impact to personnel, environmental, safety, occupational health and airfield operations before procurement and installation activities begin.

4.4.2.1.13. Mitigate any issues affecting control tower visibility or security to include security lighting and illumination and any issues affecting navigational aids.

4.4.2.1.14. Mitigate obstructions to airspace and file Federal Aviation Administration (FAA) Form 7460-1, *Notice of Proposed Construction or Alteration*, with the FAA for new construction.

4.4.2.1.15. Fall protection for personnel working above 4’ off the ground IAW DAFMAN 91-203, *Air Force Occupational Safety, Fire and Health Standards*.

4.5. Design Criteria/Standards of New or Replacement Aircraft Sunshades. HQ AFSC will ensure the following design criteria and standards are addressed.

4.5.1. Type of material used. The owning organization will select materials as appropriate for location, type of aircraft sunshade, and the mission being served.

4.5.2. Aircraft sunshade height and width. Aircraft sunshades must meet minimum clearance requirements for interior aircraft movement, entrances and exit points including taxi lanes or taxiways near the exterior of the structure. Refer to UFC 3-260-01.

4.5.3. Wing tip and tail height clearances will meet the requirements outlined in DAFMAN 91-203 and Unified Facilities Criteria (UFC) 03-260-01, *Airfield and Heliport Planning and Design*.

4.5.4. Bird nesting/roosting mitigation. Ensure no bird roosting or nesting locations are present, all holes in support structure and beneath roof must be covered or screened.

4.5.5. Airfield waivers. The owning organization will make every effort to prevent submission of new airfield waivers.

4.5.6. Terminal Instrument Procedures (TERPS) personnel evaluate plans for potential impacts on aircraft approach/departure procedures.

4.5.7. Lighting requirements. Lighting designs and fixture specifications will be IAW UFC 3-530-01, *Design, Interior and Exterior Lighting and Control.*

4.5.8. Electrical requirements. Electrical power system design will be IAW AFMAN 32-1062, *Electric Systems, Power Plants and Generators,* AFMAN 32-1065, *Grounding and Electrical Systems,* UFC 3-501-01, *Electrical Engineering,* UFC 3-520-01, *Interior Electrical Systems,* UFC 3-550-01, *Exterior Electrical Power Distribution,* UFC 3-600-01, *Fire Protection Engineering for Facilities,* UFC 4-211-01, *Aircraft Maintenance Hangars,* and UFC 3-530-01.

4.5.9. Loss of aircraft parking spots. In no case will the loss of parking spots resulting from the purchase or installation of aircraft sunshades be a primary factor used to propose or construct additional aircraft parking spots or upgrade existing pavements to support aircraft. Procedures on construction of additional parking spots or pavement upgrades will be IAW DAFI 32-1020.

4.5.10. Aircraft sunshades are airfield fixed-structure obstructions and will meet MIL-STD-3007, *Department of Defense Standard Practice for Unified Facilities Criteria and Unified Facilities Guide Specifications (UFGS),* and Air Force criteria included in referenced UFCs and AFIs, local and national fire, safety, and electrical standards and codes as applicable.

4.5.11. Location specific design requirements. location specific design requirements (e.g., snow load, maximum wind ratings, etc.). In addition to the requirements in UFC 3-301-01, for adjacent sunshades which share bracing frames, each fourth frame should provide twice the required lateral bracing strength.

4.5.12. Ventilation. Aircraft sunshades must meet ventilation and exhaust air requirements IAW the International Mechanical Code. **Note:** Achieve minimum exhaust and/or ventilation air requirements utilizing either mechanical or natural systems.

4.6. Current Aircraft Sunshades.

4.6.1. When replacing or repairing currently installed aircraft sunshades, select materials as appropriate for location, type of aircraft sunshade, and the mission being served.

4.6.2. Current aircraft sunshades that don't meet these requirements of current design standardization are authorized for use until time of replacement.

4.6.3. If repairs become significant or not cost effective, owning organizations should consider replacement to the new standard or removal of the aircraft sunshade.

4.6.4. If strategic sourcing is not available, owning organizations should seek guidance from HQ AFSC on aircraft sunshade standardization.

4.6.5. Owning organizations will sustain aircraft sunshades and other shelter types described in this publication IAW DAFMAN 65-605V1 to ensure no degradation of safety to personnel or mission accomplishment occurs.

4.6.6. Owning organizations will conduct an RM assessment IAW AFI 90-802, in conjunction with proper local authorities on current aircraft sunshades for FOD mitigation, markings, bird roosting mitigation, sustainability, safety, structural integrity, wind-load capacity, snow-load capacity, and ability to withstand hail.

4.6.7. There is no requirement to upgrade current aircraft sunshades to meet the full requirements outlined above except where codes apply and are mandatory.

4.6.8. A structural analysis will be conducted by a licensed professional engineer or government structural engineer to ensure alterations to sunshades do not compromise the structural integrity of the structure.

4.7. Sustainment and Accountability. HQ AFSC will ensure owning organization Group Commanders or equivalent:

4.7.1. Appoint a local aircraft sunshade manager and establish an aircraft sunshade user and operations plan. Ensure assets are tracked as equipment items on the appropriate documents on the CIR IAW DAFMAN 23-122.

4.7.2. Obtain acceptance for the installation of aircraft sunshades and allied support IAW manufacturer specifications, contract specifications, and AFIs from the appropriate installation level authorities (e.g., MXG, Contracting, Comm, CE, SE, etc.).

4.7.3. Develop an organically supported or contractor supported replacement/sustainment plan that will be included in the ALC/ABW facility plan.

4.7.4. Develop local policy that establishes periodic inspection criteria as recommended by original manufacturer (interval not to exceed 6 months) approved by a qualified engineering authority for aircraft sunshades and documented on AFTO Form 244, *Industrial/Support Equipment Record*.

4.7.5. Document discrepancies identified during routine, non-routine maintenance, or other visual inspections on the AFTO Form 244 IAW TO 00-20-1.

4.7.6. Establish an emergency evacuation plan to protect both personnel and equipment from inclement/severe weather that would compromise the integrity of the aircraft sunshade roof or support structure.

4.8. Allied Support. HQ AFSC will develop, implement, and maintain procedures for allied support for sunshades to include:

4.8.1. Electrical power. If elected, electrical power will be provided to a connection point at the aircraft sunshade IAW with UFC 3-550-01 and will be installed/maintained by CE as real property IAW DAFI 32-9005, *Real Property Accountability*.

4.8.2. Water. If elected, water lines can be installed to a stub at the aircraft sunshade site and will be installed/maintained by CE as real property IAW DAFI 32-9005.

4.8.3. Communications (COMM). If elected, COMM will be provided to the aircraft sunshade IAW UFC 3-580-01, *Telecommunications Building Cabling Systems Planning and Design,* and will be installed/maintained by qualified COMM personnel.

4.8.4. Lighting. Lighting installation will be considered during procurement and/or sustainment phases and will be purchased and maintained by the owning organization from the light to the power stub. Energy efficient lighting will be considered where allowable.

4.9. Crew Shelters and Portable/Inflatable Shelters. HQ AFSC will ensure owning organizations:

4.9.1. Provide annual procurement and sustainment costs, including allied support infrastructure costs.

4.9.2. Meet all shelter standards and codes as applicable. Crew shelters and inflatable or fabric structures must comply with the minimum requirements of UFC 4-010-01, *DoD Minimum Antiterrorism Standards for Buildings*.

4.9.3. IAW International Mechanical Code; meet minimum ventilation standards for crew shelters when occupied. **Note:** Achieve minimum exhaust and/or ventilation air requirements utilizing either mechanical or natural systems.

4.9.4. Implement a FOD mitigation plan.

4.9.5. Maintain all warranty information for all shelters.

4.9.6. IAW DAFMAN 91-203 and UFC 03-260-01; meet all wing tip and tail height clearance requirements.

4.9.7. Appoint a shelter manager and establish a shelter user and operations plan.

4.9.8. Track assets as equipment items IAW DAFMAN 23-122.

Chapter 5

DEPOT MAINTENANCE PLANT MANAGEMENT

5.1. Mission Functions. This chapter provides guidance, procedures, and responsibilities for the management, repair, and maintenance of assigned non-real property facilities and equipment used in the depot maintenance industrial operations and activities traditionally referred to as plant management and industrial services which includes support equipment/Depot Industrial Plant Equipment (DIPE) and facilities maintenance, inspection, repair, installation, and engineering. HQ AFSC will develop, implement, and maintain procedures for the core mission functions within the Maintenance Support Group (MXSG) to include:

5.1.1. Perform installations, shop relocations, and removal and modifications of non-real property facilities and equipment.

5.1.2. Manage and perform repair/maintenance of non-real property facility maintenance and equipment.

5.1.3. Receive work requests, plan, engineer, schedule, control, and manage material.

5.1.4. Manage and operate the industrial Tool Management Center IAW **Volume 2, Chapter 3** of this instruction.

5.1.5. Assist the Air Base Civil Engineering Group (BCE) in the development and management of Depot Maintenance Activity Group (DMAG) facility maintenance, repair, and minor construction programs.

5.1.6. Provide a focal point for requesting and monitoring BCE support of industrial real property facilities and equipment.

5.1.7. Provide non-real/real property MXSG engineering support to ALC/Groups/Host Tenants.

5.1.8. Manage, operate, and support the MXSG Laboratory (also known as the physical science laboratory services).

5.1.9. Manage the ALC/Groups' industrial process energy and conservation program.

5.1.10. Manage other DMAG workloads as determined appropriate by the individual ALC.

5.1.11. Utilize the Facility and Equipment Maintenance (FEM) system within ALC depot maintenance for documenting, scheduling, and tracking of the facility and equipment maintenance activities.

5.2. Responsibilities. HQ AFSC will develop and publish the responsibilities of the MXSG and the MXGs using the equipment to include the following:

5.2.1. MXSG will:

5.2.1.1. Establish a Preventive Maintenance (PM) program using the support equipment specific technical data, work cards, checklists, or commercial manuals.

5.2.1.2. Assign identification numbers for MXSG maintained equipment IAW locally developed procedures.

5.2.1.3. Establish a Predictive Maintenance (PdM) program for MXSG maintained equipment.

5.2.1.4. Perform Corrective Maintenance (CM), PM, and PdM on MXSG maintained equipment.

5.2.1.4.1. Follow lockout/tagout procedures IAW DAFMAN 91-203 and specific equipment/maintenance TOs for equipment discrepancies that endanger personnel safety.

5.2.1.5. Maintain a master listing of DIPE requiring Operator Maintenance (OM), PM, and PdM by equipment number.

5.2.1.6. Input updates into FEM.

5.2.1.7. Maintain maintenance technical data required for MXSG to perform PM and CM of support equipment.

5.2.1.8. Provide access to PM and CM status for MXSG maintained equipment to the using organizations through a web access interface to the FEM.

5.2.1.9. Receive work request and determine applicable repair shop.

5.2.1.10. Initiate the work order by entering the data into FEM.

5.2.1.11. Track equipment maintenance history and costs in FEM.

5.2.1.12. Assign priority code.

5.2.1.13. Provide familiarization training to MXSG personnel on ALC standard documents and operating procedures for the equipment and inspection program, using the AFTO Form 244/AFTO Form 245, *Industrial Support Equipment Record* or equivalent, operation of the FEM web access interface, and other related training outlined in local procedures.

5.2.1.14. Maintain records or FEM electronic equivalent of inspection, lubrication, and maintenance of industrial equipment IAW TO 00-20-1 and any local procedures.

5.2.2. MXG (i.e., production)/equipment using organization will:

5.2.2.1. Ensure equipment operators review and verify equipment status prior to use by reviewing attached maintenance forms (e.g., AFTO Form 244, FEM generated/computer forms, etc.) and FEM.

5.2.2.2. Perform specific operator inspection and document IAW TO 00-20-1 and local procedures. The AFTO Form 244/AFTO Form 245 should be located on or near the equipment if not maintained in FEM.

5.2.2.3. Document equipment PM actions using FEM or AFTO Form 244/AFTO Form 245.

5.2.2.4. Confirm all assigned DIPE is clearly identified with an identification number before being released for operation.

5.2.2.5. Notify MXSG PM equipment specialists of all actions concerning new, relocated, modified, and turned-in DIPE and provided technical data.

5.2.2.5.1. Document all data necessary for input/update to FEM along with the applicable technical manuals and commercial data for all newly acquired equipment.

5.2.2.5.2. Report the acquisition, installation, relocation, modification, and removal of all industrial production equipment to MXSG in writing.

5.2.2.6. Report any changes in owning organizational symbols in writing to MXSG as they occur.

5.2.2.7. Ensure all OM and inspections are accomplished at the prescribed frequencies and IAW TO 00-20-1.

5.2.2.8. Release equipment in a timely manner to ensure that PM and CM are completed promptly and as scheduled.

5.2.2.9. Ensure form documentation is maintained for equipment under their control.

5.2.2.10. Evaluate maintenance quality, personnel qualifications, and training of assigned personnel.

5.2.2.11. Provide familiarization training on ALC standard documents and operating procedures for the equipment and inspection program, using the AFTO Form 244/AFTO Form 245, operation of the FEM web access interface, and other related training IAW training outlined in local procedures.

5.2.2.12. Ensure Test, Measurement and Diagnostic Equipment (TMDE) PM is accomplished IAW TO 00-20-14, *Air Force Metrology and Calibration Program* 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.

5.2.2.13. Maintain records of inspection, lubrication, and maintenance of industrial equipment IAW TO 00-20-1 and any local procedures.

5.3. Categories of Work Performed by MXSG. HQ AFSC will develop, implement, and maintain procedures for the following categories of work:

5.3.1. Repair.

5.3.2. Project Work.

5.3.3. PM and PdM.

5.3.4. Direct Product.

5.4. Relationship to BCE (Work Accomplishment). BCE is responsible for maintaining real property, roads and grounds, Real Property Industrial Equipment (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. HQ AFSC will develop, implement, and maintain procedures for the relationship between BCE and MXSG to include:

5.4.1. MXSG Support Vs. BCE Responsibilities. Availability of resources may drive changes to BCE and MXSG responsibilities. A local memorandum of agreement will be developed to reflect these changes.

5.4.2. Requests for BCE Support. MXSG will serve as the liaison between the Maintenance Groups and the BCE.

5.4.3. Interpretation of Utility Tasks. The juncture points 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. HQ AFSC will develop, implement, and maintain procedures to clarify the interpretation of utility tasks performed by the BCE or MXSG for the following:

5.4.3.1. Electrical less than 600 volts.

5.4.3.2. Electrical greater than 600 volts.

5.4.3.3. Potable Water Systems.

5.4.3.4. Chilled Water and Hot Water Systems.

5.4.3.5. Steam and Condensate Return, Natural Gas, and Compressed Air (Non-Breathing Air).

5.4.3.6. Industrial Gases (e.g., Argon, Hydrogen, Nitrogen, etc.) and High Pressure Compressed Air.

5.4.3.7. Wastewater Collection Systems.

5.4.3.8. Storm Water Collection System.

5.4.3.9. Irrigation Sprinkler Systems.

5.4.3.10. Newly Constructed Facilities and Substantial Additions or Alterations to Existing Facilities.

5.5. Equipment Maintenance and Inspection Program. Equipment maintenance and inspection programs ensure reliability and mission support capability of all assigned support equipment/DIPE. HQ AFSC will develop, implement, and maintain procedures for equipment maintenance and inspection programs. 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.

5.5.1. Types of Equipment. HQ AFSC will ensure MXSG documents and tracks maintenance actions of the equipment maintenance and inspection program for the following types of equipment:

5.5.1.1. Support Equipment. Support Equipment may include powered and non-powered ground equipment, Industrial Plant Equipment (IPE), test equipment, measurement equipment, diagnostic equipment, machinery and shop equipment, and special handling and tooling.

5.5.1.2. Depot Industrial Plant Equipment (DIPE). DIPE is permanent equipment that is not readily movable and typically used in an industrial maintenance area.

5.5.1.3. Non-DIPE. Non-DIPE will include all support equipment required to perform support functions except when it is or becomes an integral part of mission equipment.

5.5.1.4. Machinery and shop equipment (3400 Series). Machinery and shop equipment (3400 Series) includes small bench grinders, buffers, drill presses, or other equipment that requires only on condition maintenance (OCM).

5.5.2. Program Criteria. HQ AFSC will ensure the use of inspection techniques, engineering and technical data, 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. The following criteria will be applied to determine if equipment will be included in the maintenance management PM or PdM program:

5.5.2.1. Equipment subject to breakdown repairs that are expensive compared to PM or PdM will be included.

5.5.2.2. The use of diagnostics, prognostics, and health management techniques can be considered when the use of these techniques is feasible and proven effective in reducing cost, while increasing availability and reliability, and mitigating risk of DIPE failure.

5.5.2.3. Machinery and shop equipment for which technical data does not exist will be maintained IAW TO 34-1-3, *Inspection and Maintenance, Machinery and Shop Equipment*, and TO 00-20-3, *Maintenance Processing of Reparable Property and the Repair Cycle Asset Control System*. Examples of this class of machinery and shop equipment include small bench grinders, buffers, drill presses, etc.

5.5.2.4. Follow all prescribed periodic maintenance instructions addressed by DAFMAN 91-203 or other Air Force Occupational Safety, Fire, and Health Standards (AFOSH) policy.

5.5.3. Maintenance and Inspection Processes. Maintenance, inspection, and repair data will be maintained in Facility Equipment Management (FEM) to the maximum extent possible unless specified in TOs and other directives. HQ AFSC will develop, implement, and maintain guidance for Maintenance and Inspection Processes for the following techniques when used within the MXSG:

5.5.3.1. Preventive Maintenance (PM). PM is the normal upkeep and preservation of equipment through systematic inspection, detection, and correction of discrepancies.

5.5.3.2. Predictive Maintenance (PdM). 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.

5.5.3.3. Reliability Centered Maintenance (RCM). 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.

5.5.3.4. Condition Based Maintenance Plus (CBM+). 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.

5.5.3.5. Corrective Maintenance (CM). 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.

5.5.3.6. Operator Maintenance (OM). OM is maintenance performed by the equipment operator. OM requirements are documented and maintained with the equipment or are readily accessible.

5.5.3.7. On Condition Maintenance (OCM). OCM generally applies to equipment that does not have any published technical data requiring specific inspections. Equipment of this type may be repaired by MXSG personnel as required. Documentation will be IAW TO 34-1-3.

5.5.3.8. Equipment Requiring Production Engineering Review after Maintenance or Repair.

5.5.4. Maintenance Initiation.

5.5.4.1. Maintenance Group personnel (i.e., production shop) and MXSG maintenance personnel will follow DAFMAN 91-203 and specific equipment/maintenance TOs regarding lockout/tagout for DIPE on any safety hazard.

5.5.4.2. Requesting organization will provide the following information when contacting the maintenance organization for repairs.

5.5.4.2.1. Status of the equipment (operational or inoperative).

5.5.4.2.2. Type or nature of repair service required.

5.5.4.2.3. Equipment type and the equipment identification number.

5.5.4.2.4. Justification to establish requested priority code.

5.5.4.2.5. Name of the reporting individual.

5.5.4.2.6. Equipment location including building number, post or room number, shop name, shop RCC, and any other pertinent information.

5.5.4.2.7. Name and telephone number of requesting organization, point of contact (POC), and alternate to be contacted at repair site.

5.6. Equipment Maintenance Documentation. All equipment maintenance documentation will be IAW TO 00-20-1 and TO 00-20-2.

5.6.1. All mobile support equipment will use the AFTO Form 244 for documenting maintenance actions to include discrepancies, corrective actions, periodic and special inspection due dates, or other actions as required by local procedures.

5.6.2. For non-mobile support equipment, the AFTO Form 244 may be maintained electronically IAW TO 00-20-1.

5.6.3. Support Equipment Documentation (Non-DIPE).

5.6.3.1. Non-DIPE with specific OM or PM requirements will use the AFTO Form 244/AFTO Form 245.

5.6.3.2. AFTO Form 244/AFTO Form 245 will be documented and reviewed IAW TO 00-20-1.

5.6.4. DIPE Documentation.

5.6.4.1. DIPE will use FEM for equipment maintenance documentation purposes, the AFTO Form 244/AFTO Form 245, or a combination of both.

5.6.4.2. At a minimum, FEM will contain the same data elements as described on the AFTO Form 244/AFTO Form 245.

5.7. 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. HQ AFSC will develop, implement, and maintain procedures for MXSG Engineering and Installation Projects to include:

5.7.1. Project Initiation.

5.7.2. Control.

5.7.3. Design/Engineering.

5.7.4. Planning.

5.7.5. Execution.

5.8. 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 agencies.

5.8.1. The MXSG Laboratory includes versatile Metallurgical, Material, Chemistry, Precision Dimensional Measurement, Engineering Testing, and Prototype Development Laboratories.

5.8.2. The MXSG Laboratory provides scientific and engineering skills and instrumentation necessary for the maintenance of assigned weapon systems, aerospace items, and industrial processes. HQ AFSC will develop, implement, and maintain MSXG procedures for testing and evaluating chemicals, materials, weapon system components, and shop processes.

5.8.2.1. Skills may include chemical engineering, electronic engineering, industrial engineering, materials engineering, mechanical engineering, chemistry, metallurgy, and physics.

5.8.2.2. Testing capabilities may include chemical, composite material evaluation, dimensional, electronic, environmental, Joint Oil Analysis Program (JOAP), material, mechanical, metrology, non-destructive, and structural analysis.

5.8.3. Instruction. HQ AFSC will develop, implement, and maintain workload planning and scheduling procedures for use by planning, scheduling, and MXSG 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. These procedures will include:

5.8.3.1. MXSG Laboratory Planning.

5.8.3.2. MXSG Laboratory Scheduling.

5.8.3.3. MXSG Laboratory Services.

5.8.3.4. Maintenance of MXSG Laboratory Instrumentation.

5.8.3.5. Management of Items/Materials in Support of MXSG Engineering Prototype Shop Functions.

5.8.4. Records. 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.

5.9. Material Control. HQ AFSC will develop, implement, and maintain material control procedures to ensure identification, cataloging, ordering, receiving, storing, issuing, replenishing, and disposition of material used by the MXSG.

5.9.1. Material Types.

5.9.1.1. Shop Support Material (U6300). Those parts ordered on a planned basis to ensure replacement parts are available to maintain facilities and equipment.

5.9.1.2. Project Material (U6910). Material ordered specifically to support a work request that is managed, controlled, and segregated from shop support material.

5.9.1.3. Hazardous Material (U7000). A substance which is explosive, flammable, poisonous, corrosive, oxidizing, irritating, or otherwise harmful and may cause personal injury or harm.

5.9.1.4. Residue Items. Serviceable items not used or reclaimed from work orders that may be retained for future use.

5.9.2. Material Requirements. HQ AFSC will develop, implement, and maintain Material Requirements for the following:

5.9.2.1. U6300 Shop Support Material.

5.9.2.2. U6910 Project Material.

5.9.2.3. U7000 Hazardous Material.

5.9.2.4. Residue Material.

5.9.2.5. Shelf-Life Material.

5.9.2.6. Material Acquisition.

5.9.2.7. Material Labeling and Tagging.

5.9.2.8. Material Inventory.

5.10. Practices in Reliability Management. A collection of practices in reliability management from government, DoD, and industry for implementing a tailored maintenance program may be assembled and used for **REFERENCE ONLY**. HQ AFSC will ensure use of these practices is

compliant with any subject related DoD and AF governing policy, directives, instructions, manuals, and TOs/work specifications.

Chapter 6

DEPOT MAINTENANCE MATERIEL MANAGEMENT

6.1. Responsibilities. The AFSC 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, *Materiel Management Policy*. HQ AFSC will develop, implement, and maintain maintenance materiel processes and procedures for the ALCs to include:

6.1.1. Planning.

6.1.2. Scheduling.

6.1.3. Material control.

6.2. Automated Information Systems. The major automated information systems supporting maintenance material management are:

6.2.1. Depot Maintenance Accounting and Production System (DMAPS). 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.

6.2.1.1. The Automated Bill of Material (ABOM). 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). 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).

6.2.1.2. 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.

6.2.2. Defense Industrial Financial Management System. 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.

6.2.3. 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 National Stock Numbers (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.

6.2.4. Depot Maintenance Systems Integration includes Depot Maintenance Material Support System (DMMSS) G005M, ITS G337, PDMSS/G097, EPS G402A, JOPMS G004L, and HQ AFMC Labor Standards Data System (ALSDS) E046B.

6.2.4.1. DMMSS (G005M) identifies material to support maintenance workloads through the BOM and provides a mechanism to track material usage.

6.2.4.2. 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.

6.2.4.3. 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.

6.2.4.4. 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.

6.2.4.5. 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.

6.2.4.6. 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.

6.2.5. Material Processing System (MPS) (D230) provides the mechanics the ability to order material and view the status of the requests. It also provides material PSTs the ability to track, update, and correct orders. Material IETs can electronically update, approve, or deny requests with planning problems. All orders are passed to ABOM/NIMMS.

6.3. Inventory Accountability.

6.3.1. 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.

6.3.2. Whole Engine. Engine transfers will be recorded in the Air Force Comprehensive Engine Management System (CEMS) IAW AFI 63-101/20-101.

6.3.3. Management of Items Subject to Repair (MISTR). Transfers of MISTR products are recorded in the Wholesale and Retail Receiving and Shipping system (D035K) accounts.

6.3.4. Manufactured Items. Items once accepted are added to the Air Force inventory IAW AFI 23-101.

6.3.5. Exchangeable Items. Expendability Recoverability Reparability Category (ERRC) codes (i.e., P and T) that are removed from and installed on production items are accountable in D035K under Due In from Maintenance (DIFM)/Due Out to Maintenance (DOTM) controls IAW AFI 23-101.

6.3.6. 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.

6.3.7. Floating Stock/Spares. Floating stock/spares are accounted for in NIMMS.

6.4. Material Holding Areas. Production items in delay status, routed items, and loan equipment will be segregated and protected from pilferage and damage. HQ AFSC will develop, implement, and maintain processes and procedures for the establishment of materiel holding areas within the ALCs. Materiel holding areas include but are not limited to:

6.4.1. Bench Stock.

6.4.2. Awaiting Parts (AWP).

6.4.3. Awaiting Maintenance (AWM).

6.4.4. Work in Process (WIP).

6.4.5. Facilitate Other Maintenance (FOM).

6.4.6. Operating Stock.

6.4.7. Shop Stock.

6.4.8. Kit Management.

6.5. Material Identification. HQ AFSC will ensure material is properly identified as direct or indirect and the standardization of materiel item identification at each ALC.

6.5.1. Direct material is ordered and charged directly against the end item by RCC, production number, JON suffix, operation number or task, and cost code at the point of issue. 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 will become a part of the end item that is undergoing maintenance or being consumed in the maintenance production process.

6.5.1.1. Items with an ERRC code of P or T are considered exchange items and subject to DIFM/DOTM) control.

6.5.2. Indirect Material Accounting. Indirect material includes bench stock, shop stock, work order residue, and kit residue in production maintenance. 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. 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. 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.

6.5.2.1. Indirect Production Material (X56326100000).

6.5.2.2. Shop Operating Material (X56336300000).

6.5.2.3. Office Supplies (X56366400000).

6.5.2.4. Aviation Petroleum, Oils, and Lubricant (POL) (Non-Flying) (X56116511000).

6.5.2.5. Ground POL (X56126512000).

6.5.2.6. Special Fuels (X56136513000).

6.5.2.7. 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.

6.5.2.7.1. Expendable Tools and Equipment (X56346610000).

6.5.2.7.2. Tools and Accessories (X56396620000).

6.5.2.7.3. Equipment Machinery (X56396630000).

6.5.2.8. Expendable Office Equipment (X56356700000).

6.5.2.9. Material-Defective Work and Spoilage (X56406800000).

6.5.2.10. Facility Preventive Maintenance and Repair (X56376910000).

6.5.2.11. Precision Measurement Equipment Laboratory (PMEL) Support. (X56376920000).

6.5.2.12. Ground Support Equipment (X56376930000).

6.5.2.13. Hazardous Materials (X56707000000).

6.5.2.14. Protective Clothing (X56388000000).

6.5.3. Bench Stock Material Control and Support. HQ AFSC will develop, implement, and maintain standardized procedures for the control of bench stock materials within the ALCs.

6.6. 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. The accurate and timely processing of material transactions is the responsibility of the PST.

6.6.1. HQ AFSC will develop, implement, and maintain processes and procedures for the following:

6.6.1.1. Material Requests.

6.6.1.2. Material Turn-ins.

6.6.1.3. Material Cost Corrections.

6.6.1.4. Cost Accounting.

6.6.1.5. Backorder Management.

6.6.1.6. Front End Edits.

6.6.1.7. Periodic Reviews.

6.6.1.8. Packaging and Handling Deficiencies.

6.6.1.9. Material Received with Discrepancies.

6.6.1.10. Classified Material and Related Documents.

6.6.1.11. Recovering Unbudgeted Cost Caused by Parts Shortages.

6.7. Teardown Deficiency Report (TDR) Processing. HQ AFSC will develop, implement, and maintain processes and procedures for TDR processing. HQ AFSC must ensure the quality of procured items and products produced with organic resources. It is necessary for prime wholesale Item Management Specialists 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. (Reference: AFMAN 91-222, *Space Safety Investigation and Reports*, and AFMAN 91-223, *Aviation Safety Investigation and Reports*).

6.8. PQDR Exhibit Processing. PQDR exhibits are processed IAW TO 00-35D-54, *USAF Deficiency Reporting, Investigation, and Resolution (DRI&R)*. HQ AFSC will develop, implement, and maintain processes and procedures to be used together with TO 00-35D-54 to ensure funding, analysis, report preparation, rework if applicable, and/or return to service is accomplished in a timely manner to support the customer. These processes will include:

6.8.1. Scheduling, induction, and investigation of PQDR exhibits.

6.8.2. Investigation and Restoration Policy for Un-Programmed Work.

6.8.3. Investigation and restoration policy for programmed work.

6.8.4. PQDRs evaluated on a Permanent Production Number (PDN).

6.8.5. Rework of PQDR Exhibits.

6.8.6. ALC Reported PQDRs.

6.9. Reusable Container Management. Conservation and protection of government materials is the responsibility of all government employees. HQ AFSC will develop, implement, and maintain processes and procedures for reusable containers to include:

6.9.1. Personnel responsibilities.

6.9.2. Designated disposal areas.

6.9.3. Verification of container content.

6.10. High Priority Material Requests. Maintenance personnel may request that a due-in requisition be upgraded to Mission Impaired Capability Awaiting Parts (MICAP) status when the unavailability of parts exists within 31 days of an operational/functional check (i.e., critical path completion). HQ AFSC will develop, implement, and maintain processes and procedures for the control and review of high priority material requests.

6.11. Material Control. HQ AFSC will develop, implement, and maintain processes and procedures for the control of the following:

6.11.1. Critical Items.

6.11.2. Sensitive Items.

6.11.3. Storage Restriction Items.

6.11.4. Disassembly and Reclamation.

6.11.5. Loan Property.

6.11.6. Production Items AWP.

6.11.7. Floating Stock and Floating Spares.

6.12. Management of Cannibalization (CANN) Actions. CANN is 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 may be necessary when a condition prevents the accomplishment of a mission, and the required assets are not immediately available from supply. When authorizing a CANN, the expenditure of man-hours and potential damage to equipment must be weighed against the expected benefit. HQ AFSC will develop, implement, and maintain standardized procedures for authorizing and minimizing CANN actions, including identifying and reporting to AFLCMC if the action was necessary to support programmed or unprogrammed workload. See **Volume 2, Chapter 7** of this instruction for CANN actions involving egress equipment.

6.13. Depot Manufacturing. Depot manufacturing includes all forms of ALC manufacturing. It may be the transformation of raw materials into finished products or a component for a higher assembly and accomplished by hand or by machinery either on a large or small scale.

6.13.1. Manufacturing Capability and Processes. HQ AFSC will establish capability and processes for manufacturing items required for immediate needs and for stock when a commercial source is unavailable or unacceptable. These processes will:

6.13.1.1. Document efforts to obtain qualified commercial sources and/or when commercial sources cannot meet cost, performance, or responsiveness. **Note:** This requirement only applies when conducting depot manufacture for a customer within in the AF. Documentation shall include:

6.13.1.1.1. The product support impacts on applicable systems.

6.13.1.1.2. Lack of commercial support items to ascertain changes of status.

6.13.1.1.3. The reverse engineering or redesign of the requirement to produce an adequate data package for re-competition and the minimum quantity required before delivery of assets resulting from competition when the current technical data is not adequate to conduct a competitive procurement.

6.13.1.1.4. Impending material shortages that may endanger life cycle support and capability of a weapon system or equipment due to Diminishing Manufacturing Sources and Material Shortages (DMSMS).

6.13.1.2. Determine and coordinate depot manufacture to ensure ALCs requisition material quantities sufficient to fill outstanding backorders plus the annual buy quantity for worldwide requirements.

6.13.1.3. Document that the quantities of items manufactured are not greater than the total expected peacetime consumption. **Note:** Ensure depot manufacture items are ordered IAW Air Force Materiel Command Manual (AFMCMAN) 23-103, *Cataloging and Standardization*, Part Number Supply Support Request process.

6.13.1.4. Accomplish depot manufacturing with existing equipment, facilities, skills, and capacity to the maximum extent.

6.13.1.4.1. New or expanded manufacturing capability shall be justified in Fund 9B Budget Exhibit through an economic analysis to document alternatives before establishing any new manufacturing capability. These studies shall be included with the Capital Investment Program (CIP), which is funded by the Air Force Working Capital Fund. **Note**: This applies to repair and modification capabilities as well as manufacturing capabilities.

6.13.1.4.2. Capital investment purchases shall be documented and justified with an approved workload.

6.13.1.5. Ensure that a product that does not conform to product requirements/specifications is identified and controlled to prevent its unintended use or delivery.

6.14. Investment Material Cost Codes S and M. 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. HQ AFSC will develop, implement, and maintain procedures for the replacement of missing items found in the repair of assets.

6.15. Production Support Flight (PSF) and NAVAIR Industrial Material Management System (NIMMS) Store. CSAG-S material is managed and accounted for by DLA. NIMMS Inventory Stores are used for CSAG-M-Owned Material. HQ AFSC will develop, implement, and maintain procedures for PSF and NIMMS stores to include:

6.15.1. Point of Sale.

6.15.2. Stock Levels.

6.15.3. Vending Machine Support Process.

6.15.4. NIMMS Storage Processing.

6.16. Contractor Acquired Property. Contractor Acquired Property provides depot maintenance the authorization and capability to obtain parts not available in the normal supply system to meet production requirements. HQ AFSC will develop, implement, and maintain procedures for Contractor Acquired Property.

Chapter 7

FUNCTIONAL CHECK FLIGHT PROGRAM.

7.1. Functional Check Flight (FCF) Program. FCFs are performed to ensure an aircraft is airworthy and/or capable of accomplishing its mission. FCFs are not normally flown when the airworthiness of the aircraft can be determined by maintenance operational checks prescribed by a technical directive. Additional guidance may be found in DAFMAN 11-401, *Aviation Management*, AFMAN 11-202V3, *Flight Operations*, DAFMAN 13-201, *Airspace Management*, AFI 21-103, TO 1-1-300, *Maintenance Operational Checks and Check Flights*, TO 00-20-1, and applicable -6 and -1 TOs. Flying hours for all FCFs, executed by AFSC and by agencies (commercial or other) contracted by AFSC, will be updated in Reliability and Maintainability Information System (REMIS) No Later Than (NLT) the next duty day after occurrence IAW AFI 21-103. Installed engine times will be updated in CEMS or G081, as applicable, NLT the next duty day after the occurrence IAW AFI 21-103.

7.2. AFSC FCF Program Responsibilities. HQ AFSC will:

7.2.1. Develop, implement, and maintain standardized processes and procedures governing the FCF Program. This program is managed by the applicable production squadron and flight test organization.

7.2.2. Ensure a FCF Program Manager is designated at each squadron or geographically separated Group.

7.3. FCF Program Manager Responsibilities. HQ AFSC will ensure FCF Program Manager accomplishes the following:

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

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

7.3.3. Identify deficient areas which may require further analysis or corrective action.

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

7.3.5. 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.

7.3.6. Maintain an information file for briefing aircrews. As a minimum, this file must contain:

7.3.6.1. Directives concerning FCF procedures.

7.3.6.2. Authorization lists for FCF crews.

7.3.6.3. FCF checklist for each Mission Design Series (MDS) assigned.

7.3.6.3.1. A FCF checklist must be used for each FCF. Each discrepancy discovered during the FCF must be documented on AFTO Form 781A.

7.3.6.3.2. After completing the review, the checklist must be included in the aircraft jacket file.

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

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

Chapter 8

QUALITY ASSURANCE

8.1. General. Maintenance 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 of MSEP agency in the maintenance organization, assisting maintenance supervision at all focus areas, programs, and processes. QA personnel are not an extension of the work force and shall not be tasked to perform production or inspections for production organizations. QA serves as an advisory level to resolve quality problems. The evaluation and analysis of deficiencies and problem areas are key functions of QA that identify underlying causes of poor quality in the maintenance production effort. Aircraft, major end items, and equipment condition and personnel proficiency are validated through the MSEP and shall be recorded using a QA database. AFSC will further define and implement this chapter to standardize QA functions across the ALCs. For units performing maintenance configuration requirements of aircrew flight equipment, refer to AFMAN 11-301V1, *Aircrew Flight Equipment (AFE) Program*.

8.2. Depot Maintenance QA Responsibilities.

8.2.1. HQ AFMC/A4/10 will:

8.2.1.1. Oversee the AFMC MSEP and serve as the Command depot maintenance QA POC.

8.2.1.2. Ensure development of and maintain all depot maintenance QA training to include the Depot Maintenance QA course, recurring training, and the GS-1910 CTP.

8.2.1.2.1. HQ AFMC/A4M will provide functional approval for all depot maintenance QA training.

8.2.1.3. Serve as AFMC Functional Advocates for development and maintenance of Logistics Evaluation Assurance Program (LEAP) and training necessary for all levels of users to effectively use the program.

8.2.1.4. Host the bi-monthly Quality Assurance Steering Group (QASG). Mandatory QASG members include HQ AFMC A4M, AFSC Center QA program focal point, and Complex QA Chiefs and deputies.

8.2.1.5. Host a Command Quality Assurance Working Group (QAWG) Technical Exchange for QA community members. QAWG Technical Exchange will convene bi-annually (funding permitting).

8.2.1.6. Assist in the development GS-1910 CTP.

8.2.2. To ensure an effective Center QA program is implemented, HQ AFSC will:

8.2.2.1. Designate a Center QA program focal point.

8.2.2.2. Develop a standardized ALC QA Program IAW this document. The program will ensure that all organizations involved in or supporting depot operations employ a quality management approach to include flow down of AF and AFMC quality requirements.

8.2.2.3. Review results of HQ Air Force Materiel Command Inspection General and Center Commanders Inspection Program (CCIP) inspections for needed policy actions.

8.2.2.4. Host bi-monthly QA Working Group.

8.2.2.5. Develop Management Internal Control Toolkit (MICT) checklist to support the CCIP checklists IAW DAFI 90-302, *The Inspection System of the Department of the Air Force*.

8.2.2.6. Develop, review, and maintain Center Evaluator Proficiency Evaluation (EPE), Personal Evaluations (PE), Quality Verification Inspection (QVI) and Routine Inspection (RI) checklists. Checklists will be reviewed annually or as changes are needed.

8.2.2.7. Review results of HQ AFMC/IG inspections and the MSEP for needed policy actions.

8.2.2.8. Participate in bi-monthly QA Steering Groups.

8.2.2.9. Review MSEP deficiencies and corrective/preventive actions for cross-tell purposes.

8.2.2.10. Ensure the QA function is an independent function.

8.2.2.11. Provide the necessary resources, support, and authority for the QA functions to support the requirements of this instruction.

8.2.2.12. Review and validate Complex MSEP Summaries. Forward validated Summaries to AFMC/A4M for review.

8.2.2.13. Assist in the development GS-1910 CTP when requested.

8.2.2.14. Assist in the development of QA training when requested.

8.2.3. HQ AFSC will ensure Complex QA Chiefs implement an effective QA program IAW this instruction.

8.2.4. HQ AFSC will ensure ALC/CCs provide necessary resources, support, and authority for the ALC QA functions to support the requirements of this instruction.

8.3. Maintenance Standardization and Evaluation Program (MSEP). The MSEP is designed to provide unit maintenance managers with a method of evaluating compliance with AF, Lead Command, and local maintenance directives and policies. AFMC is responsible for developing a MSEP to ensure the AFSC programs, process, maintenance technician proficiency, equipment condition and other focus areas comply with AF and AFMC directives. HQ AFSC will develop, implement, and maintain standardized processes and procedures in support of the MSEP using the following minimum requirements:

8.3.1. Maintenance Quality Manual. The Maintenance Complex Quality Manual is the basic implementation guidance for depot maintenance production and production support quality requirements. It provides an organized way of communicating specific types of quality processes/procedures required, defines specific roles and responsibilities, and how those

quality processes are implemented. This manual provides basic requirements for preparation of the production group's Quality Assurance Plan (QAP) and Quality Assurance Surveillance Plan (QASP). A higher-level quality manual can be used at complex discretion as long as all requirements contained in this instruction are addressed. HQ AFSC will ensure Quality Manuals or QAPs are developed.

8.3.2. Quality Assurance Plan. The QAP identifies specific detailed quality processes and procedures relative to the depot maintenance activity. QAPs are optional if a Complex Manual is used and contains the minimum listed below. QAPs will be reviewed at least annually to ensure currency of existing or new policy requirements to ensure quality program objectives are being met. All programmed production workloads will be addressed in the QAP. At a minimum, the QAP or Complex Manual will address the following:

8.3.2.1. Specific QA processes and procedures.

8.3.2.2. Data collected, type of analysis done, reports to be accomplished, and review level.

8.3.2.3. Personnel Evaluation (PE) interval methodology.

8.3.3. Quality Assurance Surveillance Plan (QASP). The QASP identifies the functions and associated actions performed by a particular group to ensure that the requirements are performed IAW specific standards and that an appropriate level of quality assurance activity is in place and operational. At a minimum, the QASP will contain, Assessment Type, Assessment Areas, Minimum Number of Assessments and Acceptable Quality Level (AQL) Standard. HQ AFSC will ensure QASP are developed for each workload.

8.3.3.1. Assessment Type. Task specific item, procedure or process, frequency, and minimum number of assessments to be performed on a recurring basis.

8.3.3.2. Assessment Areas. Major workloads (e.g., aircraft, engines, and commodities) will be broken down into assessment areas and documented in the QAP and QASP. Assessment areas are segments or portions of a workload, system, component, process, procedure, or subject matter that is investigated, inspected, evaluated, or audited.

8.3.3.3. Minimum Number of Assessments. The methodology (e.g., ANSI/ASQ Z1.4-2008, Sampling Procedures and Tables for Inspection by Attributes) or rationale used to determine assessment type and minimum number of assessments to be performed will be documented in the QAP or QASP.

8.3.3.4. Acceptable Quality Level (AQL) Standard. 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 to receive a "pass" rating. AQLs will be developed for each major workload being assessed. Criticality and complexity will be used when developing/setting AQLs for workload task assessments. AQLs are developed to evaluate the complete task. If the complete task is not evaluated, the process, task, and number of steps being evaluated will be factored in when AQLs are developed. For example, the AQL for a piece/part and for a whole engine would differ. Similar, an AQL for reviewing a portion of a process versus the entire process may also be different. AQLs will be routinely reviewed, analyzed, and adjusted based on historical data. The Group QASP will develop procedures for determining minimum AQL standard levels. **EXCEPTION:** See

AFMAN 11-301V1 for units performing maintenance and configuration of aircrew flight equipment.

8.3.4. MSEP Quality Assessments. MSEP assessments are used to evaluate proficiency, maintenance procedures, processes, and products etc. MSEP assessment types listed below will be used in support of the unit's MSEP:

8.3.4.1. Personnel Evaluation (PE). A PE is an "over the shoulder" assessment of a Production Acceptance Certification (PAC) certified mechanic/technician or PAC qualified AGE mechanic performing a maintenance task. PEs objectively evaluate/assess a technician's or a team of technicians' job proficiency and compliance with technical data requirements (e.g., tools, equipment, WCDs, safety, technical data, material, FOD, training, etc.) during the performance of a specific maintenance task without assistance. PEs will be rated pass or fail and given a Quality Assurance Results (QAR) rating. HQ AFSC will ensure ALCs develop comprehensive processes and procedures for PEs.

8.3.4.2. Evaluator Proficiency Evaluation (EPE). An EPE is an "over-the-shoulder" assessment of a trained and qualified QA inspector performing a PE or QVI on a PAC certified mechanic/technician performing a maintenance task or on a completed product. The intent of the EPE is to objectively evaluate/assess a QA inspector's proficiency in conducting a PE or QVI. The EPE will be accomplished by QA Supervisors or designated leads to ensure the QA inspector appropriately conducts the PE or QVI while ensuring job proficiency and compliance with technical data requirements (e.g., tools, equipment, WCDs, safety, technical data, material, FOD, training, etc.) during the performance of a specific maintenance task without assistance. Each QA inspector, permanent or augmentee, must pass one EPE evaluating a PE and one EPE evaluating a QVI on their qualification. EPEs will be rated pass or fail and given a QAR rating. HQ AFSC will ensure ALCs develop comprehensive EPE processes and procedures.

8.3.4.3. Quality Verification Inspection (QVI). A QVI is an assessment/evaluation of a maintenance procedure, process, product, or portion thereof, while it is being accomplished (In process) or after it has been completed and the task/WCD is certified (End process). While performing a QVI, a PE of a technician or team of technicians may be evaluated/assessed at the same time.

8.3.4.4. Routine Inspection (RI). RIs are assessments of common depot production maintenance programs and processes that require continuous evaluation. RIs for each functional area will be conducted at least once every quarter.

8.3.4.4.1. RI Checklists. All AFSC developed RI checklists must be included in the QASP if applicable. All questions, when applicable to the work center, must be evaluated for the assessment to qualify as a RI. Observed deficiencies within the scope of the RI being performed shall be recorded as part of the RI. Deficiencies beyond the scope of the RI being performed shall be recorded in LEAP under the category of Unscheduled Inspection (UI).

8.3.4.4.2. HQ AFSC will develop the RI checklist content of the following areas and gain AFMC/A4MY approval prior to publishing. AFSC may supplement this list with additional checklists. Units may add local requirements to Center RI checklists. ALCs may develop additional checklists when deemed necessary.

8.3.4.4.2.1. Material Control.

8.3.4.4.2.2. Foreign Object.

8.3.4.4.2.3. Tool Control.

8.3.4.4.2.4. WCDs.

8.3.4.4.2.5. Production Acceptance Certification (PAC)/Special Skills Qualification (SSQ) Training.

8.3.4.4.2.6. Equipment.

8.3.4.4.2.7. Safety (Flightline/Industrial).

8.3.4.4.2.8. Technical Data (AFMC Form 202 or Process Orders).

8.3.4.4.2.9. Engine Management.

8.3.4.4.2.10. Aircraft Forms.

8.3.4.4.2.11. Technical Orders.

8.3.4.4.2.12. Explosive Safety.as applicable.

8.3.4.4.2.13. Maintenance Data Documentation as applicable.

8.3.4.4.2.14. Aircrew Flight Equipment (AFE).

8.3.4.5. Quality Verification Inspection Q-Stamp (QVIQ). The QVIQ is an AFMC, AFSC, or ALC developed list of required inspections to be accomplished by a qualified Quality Assurance Specialist (QAS). QVIQ requirements should address those tasks affecting safety of flight, having historically high failure rates, and/or based on internal and external trend analysis. HQ AFSC, in conjunction with the ALCs, will develop, implement, and maintain a standardized process for QVIQ inspections to include, how QVIQs are identified, the method of accomplishment, measurement, documentation, and MSEP reporting.

8.3.4.5.1. A Q-Stamp is required for the completion of each QVIQ task/operation.

8.3.4.5.2. AFMC, AFSC, or the ALC may further identify minimum QVIQs for each MDS/Type Model Series (TMS) to resolve or prevent quality escapes.

8.3.4.6. Management Inspection (MI). MIs cover a broad category and should be performed to follow-up on trends, conduct investigations, or conduct research to get to the root cause of problems. MIs, when driven by the analysis of assessment data may be conducted at the discretion of the local QA or requested by ALC/CC or equivalent, Maintenance Group Commander (MXG/CC) or equivalent, Squadron Commander (SQ/CC) equivalent, or work center supervisors. MIs will be rated at local discretion. MIs are designed to provide a flexible tool to compliment other quality assessment types.

8.3.4.7. 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 in accordance with established procedures, or in the case of equipment, unfit to operate. QAS will brief workcenter Supervisors of the detected IV. IVs will be rated as QAR-3 and documented as one of the following:

8.3.4.7.1. Detected Safety Violation (DSV). A DSV is an 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 or an In Process QVI since the unsafe act automatically results in a "Fail" rating on the PE or In Process QVI. Use the word "Safety" when a safety violation is committed during a PE or In Process QVI.

8.3.4.7.2. Technical Data Violation (TDV). A TDV is an observation of any person performing maintenance without the proper technical data or not following available technical data. 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 approved technical data automatically results in a "Fail" rating.

8.3.4.7.3. 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.

8.3.4.8. Process Review (PR). A PR is a review of a process from cradle to grave, or a portion of the process. This may include a review of planning, technical data, WCDs, equipment, tools, training, material, and other key areas that affect the process. AFSC/ALCs will develop procedures for PRs.

8.3.4.9. Unscheduled Inspections (UI). Unscheduled inspections are observations that are beyond the scope of a scheduled inspection in progress, not meeting the criteria of a DSV, TDV, or UCR. UI observed deficiencies will be recorded in LEAP under the category of an UI. UIs will be assigned a rating (i.e., QAR-1 or QAR-3) based on severity of the observation and will be analyzed to determine trends. All unscheduled inspections will have a defect class of either of Major or Minor. The deficiencies will be documented on a separate AFMC Form 343, *Quality Assurance Assessment*, as an UI in block 1. When determining the defect class on the AFMC Form 343, reference the applicable RI checklist. If the defect is not listed on the applicable RI checklist, reference the definition of a major or minor below.

8.3.4.10. EPE, PE, QVI, and RI checklists will be used to standardize assessments. ALCs may supplement these checklists as needed. HQ AFSC will develop and maintain these checklists.

8.3.5. Quality Assessment Results (QAR) Rating. A QAR rating is a value reflecting the results of quality assessments. Theses rating shall be input into the Command approved QA database. Assessments will be rated; however, MIs will be rated at local discretion. Observed deficiencies shall be classified as major or minor deficiencies. A minor deficiency 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. Minor deficiencies identified during an inspection/assessment will be documented and remain as minor deficiencies regardless of the assigned QAR rating. A major deficiency is defined as a condition that would endanger personnel, affect safety of

flight, jeopardize equipment reliability, or warrant discontinuing process or equipment operation.

8.3.5.1. QAR-1. This rating indicates the evaluated process/product met the established standard. This rating is considered a pass rating.

8.3.5.2. QAR-3. This rating indicates an evaluated process/product did not meet the established standard because one or more major deficiencies were detected, or the number of minor deficiencies exceeded the AQL. This rating is considered a fail rating. QA personnel must assign a QAR-3 rating if:

8.3.5.2.1. A TO "warning" is overlooked or a safety error that could result in personal injury is detected.

8.3.5.2.2. A TO "caution" is overlooked or an equipment reliability error that could result in equipment or system unreliability or damage is detected.

8.3.5.2.3. The person or team accomplishing the task being evaluated demonstrates a lack of technical proficiency.

8.3.6. Rating Evaluations. Each assessment will be based on the AQL standard. A pass/fail rating applies only to the specific task evaluated.

8.3.6.1. Pass. A Pass rating is the result of an evaluation when the number of minor discrepancies does not exceed the AQL standard.

8.3.6.2. Fail. A Fail rating is the result of an evaluation when any of the following occur:

8.3.6.2.1. The number of minor discrepancies exceeds the established AQL standard.

8.3.6.2.2. Individual fails to detect a major discrepancy while completing with an inspection or work card requirement.

8.3.6.2.3. Individual fails to comply with a step of prescribed technical data that could affect the performance of the equipment involved or cause injury to personnel.

8.3.6.2.4. Individual demonstrates a lack of technical proficiency or system knowledge for the specific task.

8.3.6.2.5. Individual commits a safety violation.

8.3.6.2.6. Individual fails to document maintenance actions in appropriate equipment records.

8.3.7. Data Collection and Analysis.

8.3.7.1. AFMC Form 343, *Quality Assurance Assessment*. Quality assessment data will be documented on the AFMC Form 343 and recorded in LEAP. LEAP collects, indexes, files, stores, and maintains applicable AFMC Form 343 data.

8.3.7.2. Logistics Evaluation Assurance Program (LEAP). LEAP is the approved depot maintenance QA database. AFSC will utilize LEAP to collect and compile QA data. This information will allow management to make informed and responsible decisions about the quality system. The organization assessed is responsible for ensuring the corrective/preventive action plan is input into LEAP. Personnel using LEAP must be

trained to the extent necessary to effectively use the system. AFSC will process assessments in a timely manner.

8.3.7.3. Quality Metrics. The purpose of quality metrics is to measure efficiency, effectiveness, and provide regular feedback to management on the health of the processes, products, systems, programs, and personnel evaluated. HQ AFSC will ensure ALCs establish mandatory metrics, evaluation criteria, level/frequency of reporting, and other pertinent information. The formula for all metrics described below is the number or QAR-1 (pass) assessments divided by the total number of that type of assessment conducted in an organization for a given time period (e.g., total QAR-1 RI Tool assessments divided by the total number of RI Tool assessments performed in a Squadron/Group per month or quarter). IVs will be briefed to ALC leadership as an average of the number of detected IVs per month. Metrics data will be extracted from LEAP database for EPE, PE, QVI, RI, MI, and UI assessments.

8.3.7.3.1. 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 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 Squadron, Group, and ALC.

8.3.7.3.1.1. Outstanding 95%-100%

8.3.7.3.1.2. Excellent 90%-94.99%

8.3.7.3.1.3. Satisfactory 80%-89.99%

8.3.7.3.1.4. Marginal 70%-79.99%

8.3.7.3.1.5. Unsatisfactory 0%-69.99%

8.3.7.4. MSEP Summary. The MSEP summary will be compiled and reported by Group on a quarterly basis. HQ AFSC will ensure ALCs include the following in the MSEP Summary and formatted IAW the MSEP Summary Template in **Attachment 3**:

8.3.7.4.1. An Executive Summary.

8.3.7.4.2. QASP Assessments results.

8.3.7.4.3. Observed Isolated Violations (TDV, DSV, UCRs) as a monthly average.

8.3.7.4.4. Top defect code drivers.

8.3.7.4.5. Number of overdue PEs and EPEs.

8.3.7.4.6. Visual information, graphs, narratives.

8.3.7.4.7. Quality trends identified through all inspection categories and evaluations, discussions of common problem areas, and must contain an analysis of MSEP results, a summary of significant discrepancies, technical inspections, and recommendations for improvement.

8.3.7.4.8. Pertinent internal and customer reported metrics as outlined below. In addition to reporting quality metrics, Complex QAs will collect and report other internal metrics (e.g., QVIQ, and Joint Deficiency Reporting System high profile

deficiencies [i.e., quality escapes] IAW TO 00-35D-54, etc.) related to production quality during the MSEP quarterly review.

8.3.7.4.9. The MSEP summary shall be provided to Complex and Group CC/CL or equivalent. MSEP Summary and supporting LEAP data for the reporting period will be distributed to AFSC/LG and AFMC/A4M by the 20th of the month following the quarter.

8.3.7.4.10. MSEP Summaries and supporting data will be compiled and analyzed for accuracy and trend analysis at Center-level prior to forwarding to AFMC/A4MY. AFSC/LG will provide AFMC/A4M a consolidated AFSC MSEP report by the 1st of the month (30 days after the end of the reporting period).

8.4. Quality Assurance Training.

8.4.1. HQ AFSC will ensure a standardized QA training program is developed and implemented. QA personnel will attend within 60 days of completing required On-the-Job (OJT) to conduct MSEP assessments. Document QA inspector training in individual training records or approved Maintenance Information System (MIS). QA training as a minimum will include:

8.4.1.1. CRXMAO0007000SU *Depot Maintenance Quality Assurance (QA) Program.*

8.4.1.2. CRXMAO0007100SU *Logistics Evaluation Assurance Program (LEAP) (Module 1 – Evaluators).*

8.4.1.3. CRXMAO0007102SU, *Logistics Evaluation Assurance Program (LEAP) (Module 3 – Administrators).*

8.4.1.4. Depot Maintenance QA Course recurring training will be accomplished every three years from the date of initial/last training.

8.4.2. Training shall cover inspection and evaluation techniques, how to document inspection worksheets, and actions to prevent personnel injury or equipment damage. Document QA inspector training in individual training records or approved MIS.

8.5. Deficiency Reporting, Investigating and Resolution (DRI&R). The DRI&R process provides the Air Force with a means of identifying deficiencies, resolving those deficiencies within the bounds of the contractual requirements, program resources and the appropriate acceptance of risk for those deficiencies that cannot be resolved in a timely manner. This process is designed to provide feedback to the warfighters and other users in the field on the resolution of Deficiency Report(s) (DRs) originated by their organizations. Transmittal of system deficiency reports from user MAJCOMs to the program office provides the Program Manager with the information needed to assess the operational risk posed by deficiencies identified on their systems and empowers them to account for the Operational Safety, Suitability and Effectiveness (OSS&E) of their systems. HQ AFSC will:

8.5.1. Define processes and procedures for documenting deficiencies, corrective and preventive action, and follow-up action data into approved QA database.

8.5.2. Define requirements to analyze quality deficiencies and recommend appropriate corrective and preventive action.

8.5.3. Define procedures for QA investigations of internal or external reported DR deficiencies.

LYLE K. DREW, Brig Gen, USAF
Director of Logistics, Civil Engineering, Force Protection and Nuclear Integration

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

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TO 00-35D-54, *USAF Deficiency Reporting, Investigation, and Resolution (DRI&R)*, 15 August 2022

TO 1-1-300, *Maintenance Operational Checks and Check Flights*, 15 October 2021

TO 33K-1-100-2-CD-1, *TMDE Calibration Notes, Calibration Interval, and Work Unit Code Reference Guide*, 1 April 2023

TO 34-1-3, *Inspection and Maintenance, Machinery and Shop Equipment*, 23 August 2019

UFC 3-260-01, *Airfield and Heliport Planning and Design*, 4 February 2019

UFC 3-260-04, *Airfield and Heliport Marking*, 16 May 2018

UFC 3-301-01, *Structural Engineering*, 11 April 2023

UFC 3-501-01, *Electrical Engineering*, 6 October 2015

UFC 3-520-01, *Interior Electrical Systems*, 6 October 2015

UFC 3-530-01, *Design, Interior and Exterior Lighting and Control*, 9 February 2023

UFC 3-535-01, *Visual Air Navigation Facilities*, 11 April 2017

UFC 3-550-01, *Exterior Electrical Power Distribution*, 1 September 2016

UFC 3-580-01, *Telecommunications Building Cabling Systems Planning and Design*, 1 June 2016

UFC 3-600-01, *Fire Protection Engineering for Facilities*, 8 August 2016

UFC 4-010-01, *DoD Minimum Antiterrorism Standards for Buildings*, 12 December 2018

UFC 4-211-01. *Aircraft Maintenance Hangars*, 13 April 2017

UFGS 32-17-23, *Pavement Markings*, 1 August 2016

Prescribed Forms

AFMC Form 206, *Temporary Work Request*

AFMC Form 343, *Quality Assurance Assessment*

Adopted Forms

DAF Form 679, *Department of the Air Force Publication Compliance Item Waiver Request/Approval*

DAF Form 847, *Recommendation for Change of Publication*

AF Form 332, *Base Civil Engineer Work Request*

AF Form 2400, *Functional Check Flight Log*

AFTO Form 103, *Aircraft/Missile Condition Data*

AFTO Form 244, *Industrial/Support Equipment Record*

AFTO Form 245, *Industrial/Support Equipment Record*

AFTO Form 781A, *Maintenance Discrepancy and Work Document*

AFMC Form 202, *Engineer Technical Assistance Request*

FAA Form 7460-1, *Notice of Proposed Construction or Alteration*

Abbreviations and Acronyms

ABOM—Automated Bill of Material

ABW—Air Base Wing

AFI—Air Force Instruction

AFLCMC—Air Force Life Cycle Management Center

AFMCI—Air Force Materiel Command Instruction

AFMCMAN—Air Force Materiel Command Manual

AFMAN—Air Force Manual

AFOSH—Air Force Occupational Safety, Fire, and Health Standards

AFPD—Air Force Policy Directive

AFRC—Air Force Reserve Command

AFRIMS—Air Force Records Information Management System

AFSC—Air Force Sustainment Center

AFTO—Air Force Technical Order

AGE—Aerospace Ground Equipment

AIDR—Acceptance Inspection Deficiency Reports

ALC—Air Logistics Complex

ALSDS—AFMC Labor Standards Data System

AMR—Aircraft and Missile Requirements

ANG—Air National Guard

AQL—Acceptable Quality Level

AWM—Awaiting Maintenance

AWP—Awaiting Parts

BCE—Base Civil Engineering Group

BOM—Bill of Material

CANN—Cannibalization

CBM+—Condition Based Maintenance Plus

CCIP—Commander's Inspection Program

CE—Civil Engineering

CEMS—Comprehensive Engine Management System

CIP—Capital Investment Program

CIR—Custodian Inventory Report

CM—Corrective Maintenance

COMM—Communications

CSAG-M—Consolidated Sustainment Activity Group-Maintenance

CSAG-S—Consolidated Sustainment Activity Group-Supply

CTP—Civilian Training Plan

DAF—Department of the Air Force

DAFI—Department of the Air Force Instruction

DAFMAN—Department of the Air Force Manual

DIFM—Due In From Maintenance

DIFMS—Defense Industrial Financial Management System

DIOH—Due In from Overhaul

DIPE—Depot Industrial Plant Equipment

DLA—Defense Logistics Agency

DMAG—Depot Maintenance Activity Group

DMAPS—Depot Maintenance Accounting and Production System

DMISA—Depot Maintenance Interservice Support Agreement

DMMSS—Depot Maintenance Material Support System

DMSMS—Diminishing Manufacturing Sources and Material Shortages

DMWM—Depot Maintenance Work Measurement

DoD—Department of Defense

DOTM—Due Out To Maintenance

DPC—Data Processing Code

DR—Deficiency Report

DRI&R—Deficiency Reporting, Investigating and Resolution

DSV—Detected Safety Violation

DOTM—Due Out from Maintenance

DWMS—Depot Work Methods and Standards

EISP—End Item Sales Price

EPE—Evaluator Proficiency Evaluation

EPS—Exchangeables Production System

ERRC—Expendability Recoverability Reparability Category

EXPRESS—Execution and Prioritization of Repairs Support System

FAA—Federal Aviation Administration

FCF—Functional Check Flight

FEM—Facility and Equipment Maintenance

FO—Foreign Object

FOD—Foreign Object Damage

FOM—Facilitate Other Maintenance

FPWS—Fixed Price Work Sheet

G&A—General & Administrative

GS—General Schedule

HQ—Headquarters

HQ AFMC—Headquarters Air Force Materiel Command

IAW—In Accordance With

IM—Item Manager

IET—Industrial Engineering Technician

IPE—Industrial Plant Equipment

ITS—Inventory Tracking System

IV—Isolated Violation

JOAP—Joint Oil Analysis Program

JON—Job Order Number

JOPMS—Job Order Production Number Master System

JOQ—Job Order Quantity

LEAP—Logistics Evaluation Assurance Program

LRDP—Logistics Requirements Determination Process

MAJCOM—Major Command

MDS—Mission-Design Series

MI—Management Inspection

MIS—Maintenance Information System

MICAP—Mission Impaired Capability Awaiting Parts

MICT—Management Internal Control Toolset

MILCON—Military Construction

MISTR—Management of Items Subject To Repair

MPS—Material Processing System

MSEP—Maintenance Standardization and Evaluation Program

MXG/CC—Maintenance Group Commander

MXSG—Maintenance Support Group

NAVAIR—Naval Air Systems Command

NCE—Nuclear Certified Equipment

NIMMS—NAVAIR Industrial Material Management System

NLT—No Later Than

NSN—National Stock Number

NWRM—Nuclear Weapons Related Materiel

OCM—On Condition Maintenance

OJT—On the Job Training

OM—Operator Maintenance

OMEI—Other Major End Item

OPR—Office of Primary Responsibility

OS—Operations

OSS&E—Operational Safety, Suitability and Effectiveness

OWO—On Work Order

PAC—Production Acceptance Certification

PDM—Programmed Depot Maintenance

PdM—Predictive Maintenance

PDMSS/G097—Programmed Depot Maintenance Scheduling Systems

PDN—Production Number

PE—Personnel Evaluation

PF&D—Personal Fatigue and Delay

PM—Preventive Maintenance

PMEL—Precision Measurement Equipment Laboratory

PO—Program Office

POC—Point of Contact

POL—Petroleum, Oils, and Lubricant

PPE—Personal Protective Equipment

PPPT—Pre-Production Planning Team

PPT—Production Planning Team

PQDR—Product Quality Deficiency Report

PR—Process Review

PSF—Production Support Flight

PST—Production Support Technician

QA—Quality Assurance

QAP—Quality Assurance Plan

QAR—Quality Assessment Results

QAS—Quality Assurance Specialist

QASP—Quality Assurance Surveillance Plan

QAWG—Quality Assurance Working Group

QASG—Quality Assurance Steering Group

QDR—Quality Deficiency Rates

QVI—Quality Verification Inspection

QVIQ—Quality Verification Inspection Q-Stamp

REMIS—Reliability and Maintainability Information System

RCC—Resource Control Center

RCM—Reliability Centered Maintenance

RDS—Records Disposition Schedule

RFQ—Request for Quote

RGC—Repair Group Categories

RI—Routine Inspection

RM—Risk Management

RPIE—Real Property Industrial Equipment

SE—Safety

SFD—Shop Flow Days

SQ/CC—Squadron Commander

SRRB—Spares Requirement Review Board

SSQ—Special Skills Qualification

TAA—Time and Attendance

TDR—Teardown Deficiency Report

TDV—Technical Data Violation

TERPS—Terminal Instrument Procedures

TMS—Type Model Series

TMDE—Test, Measurement and Diagnostic Equipment

TO—Technical Order

TSS—Training Scheduling System

UCR—Unsatisfactory Condition Report

UFC—Unified Facilities Criteria

UFGS—Unified Facilities Guide Specifications

UI—Unscheduled Inspection

WAD—Work Authorization Document

WCD—Work Control Document

WIP—Work in Process

Office Symbols

AFMC/A4/10—Air Force Materiel Command, Directorate of Logistics, Civil Engineering, Force Protection, and Nuclear Integration

AFMC/A4/10/A4M—Air Force Materiel Command, Directorate of Logistics, Civil Engineering, Force Protection, and Nuclear Integration, Maintenance Division

AFMC/A4/10/A4MY—Air Force Materiel Command, Directorate of Logistics, Civil Engineering, Force Protection, and Nuclear Integration, Maintenance Division, Aviation Support Equipment, Depot Maintenance Policy, and Maintenance Training Branch

AFMC/IG—Air Force Materiel Command Inspector General

AFSC/LG—Air Force Sustainment Center, Logistics Directorate

Terms

Capability—The ability to execute a specified course of action.

Cognizant Engineering Authority—An organization or individual delegated engineering authority by the USAF Technical Airworthiness Authority.

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.

Corrosion Control Facility—A facility where activities are conducted to treat, prevent or repair corrosion control for aircraft or associated components and equipment; these activities may include wash, treatment, repair, stripping, and repainting processes. Corrosion control shops also support vehicles, weapons and munitions, and avionics shops. Additionally, it provides space for the corrosion control shop which includes preparation and drying areas, abrasive blasting rooms, paint booths for mixing and/or applying paint, tool storage, lockers, and administrative areas.

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 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.

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.

Organic—Assigned to and forming an essential part of a military organization.

Organic depot maintenance—Maintenance performed by a military service under military control using government owned or controlled facilities, tools, test equipment, spares, repair parts, and military or government civilian personnel.

Source of repair—An industrial complex (organic or commercial) with required technical capabilities to accomplish repair, overhaul, modification, or restoration of specific types of military hardware or software.

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.

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.

Attachment 2

VOLUME/CHAPTER BREAKDOWN

Table A2.1. Volume/Chapter Breakdown.

Volume/Chapter Breakdown		
VOLUME 1 DEPOT MAINTENANCE PRINCIPLES	**VOLUME 2 DEPOT MAINTENANCE PRODUCTION**	**VOLUME 3 DEPOT MAINTENANCE PRODUCTION SUPPORT**
Chapter 1	**Chapter 1**	**Chapter 1**
Depot Maintenance Management Principles	Depot Maintenance Production Labor Entry	Depot Maintenance Work Measurement
Chapter 2	**Chapter 2**	**Chapter 2**
Roles and Responsibilities	Work Control Documents and Technical Data	Depot Maintenance Production Support
Chapter 3	**Chapter 3**	**Chapter 3**
Safety, Security, and Housekeeping	Tools and Equipment Management	Operational Workloading, Planning, and Scheduling Control
Chapter 4	**Chapter 4**	**Chapter 4**
Maintenance Training	Foreign Object Damage/Dropped Object Prevention Programs	Sunshade Management
Chapter 5	**Chapter 5**	**Chapter 5**
Impoundment	Maintenance Operation Center and Aerospace Vehicle Distribution Officer	Depot Maintenance Plant Management
Chapter 6	**Chapter 6**	**Chapter 6**
Workplace Communications and Maintenance Cyber Discipline	Depot Engine Management	Material Management
Chapter 7	**Chapter 7**	**Chapter 7**
Additional Program Requirements	Aircrew Egress Systems Maintenance Program	Functional Check Flight Program
	Chapter 8	**Chapter 8**
	Maintaining Commercial Derivative Aircraft	Quality Assurance

	Chapter 9	
	Oil Analysis Program	
	Chapter 10	
	Depot Field Teams	
	Chapter 11	
	Ground Instructional Trainer Aircraft	
	Chapter 12	
	Additional Program Requirements	

Attachment 3

MSEP SUMMARY TEMPLATE

Figure A3.1. MSEP Summary Template.

Distribution Statement E: Distribution authorized to DoD components only; Administrative/Operational Use, Operations Security; 06/Dec/2017. Other Requests for this document shall be referred to XX-ALC/QA.

U.S. AIR FORCE

XX AIR LOGISTICS COMPLEX

Maintenance Standard Evaluation Plan Quality Assurance Summary

X QTR FYXX

(Mon-Mon Year)

TABLE OF CONTENTS

EXECUTIVE SUMMARY

Total Quarterly Metrics for the ALC - COMBINED/RATED/NON-RATED and total pass rate percentages (without deduction and with deductions). Number of overdue PEs and EPEs. Any Management Inspection results that are directed by Executive Leadership and 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.

QASP ASSESSMENTS RESULTS

***CHARTS/GRAPHS** broken down by ALC and Group, Rated/Non-Rated and Assessment/Inspection type w/pass rate. Quarterly and FY to date. Also include Number of overdue PEs and EPEs broken down by ALC and Group.*

TOTAL OBSERVED ISOLATED VIOLATIONS (TDV, DSV, UCRS)

CHARTS/GRAPHS broken down by ALC and Group.

TOP 5 DEFECT CODE DRIVERS

Self-Explanatory.

Number of overdue PEs and EPEs

Self-Explanatory.

Visual information, graphs, narratives

Throughout.

Quality trends

Identified through inspections and evaluations, discussions of common problem areas, and must contain an analysis of MSEP results, a summary of significant discrepancies, technical inspections, and recommendations for improvement.

Pertinent internal and customer reported metrics

Include data display or a working link to AIDR/Quality Escapes.

Executive Summary

Quality Assurance Specialists conducted 12,646 assessments supporting the XX-ALC Maintenance Standardized Evaluation Program (MSEP). There were 12,381 rated assessments and 201 non-rated assessments. There were 64 isolated violations (IV). Evaluated groups included the Group (1), Group (2), Electronics Group (3), Group (4), Group (5), Group (6), and Group (7). **Management Inspection Target Areas:**

Quality Assurance Specialists conducted 462 Personnel Evaluations (PE), 4,592 Quality Verification Inspections (QVI), 825 Quality Verification Inspections Q-Stamp (QVIQ), 6,388 Routine Inspections (RI), 15 Unscheduled Inspections (UI), and 99 rated Management Inspections (MI). Of these assessments, 5 PEs, 148 QVIs, 22 QVIQs, 359 RIs, 6 UIs, and 4 MIs received Quality Assessment Ratings of QAR3 (failed rating). MSEP quality assessment pass rates: PEs 98%, QVIs 96%, QVIQs 97%, RIs 94% and MIs 95% ***(ensure evaluation type breakdown order matches Pass Rate sequence in paragraph)***. **Overdue Personnel Evaluations (PE):**

Total Rated

	PE	QVI	QVIQ	RI	UI	MI	All
	Inspections	Inspections	Inspections	Inspections	Inspections	Inspections	Inspections
XX-ALC	462	4592	825	6388	15	99	12381
Group (1)	33	859	443	757	9	4	2105
Group (2)	139	1618	59	1839	5	6	3666
Group (3)	127	996	22	869	0	0	2014
Group (4)	28	286	0	774	0	68	1156
Group (5)	92	461	301	1103	1	21	1979
Group (6)	43	372	0	1006	0	0	1421
Group (7)	0	0	0	40	0	0	40

Overall Rating

ORG	Total Inspections	Total Inspection Passed	% of Compliance	# of Isolated Violations	% Comp - IV (-.5% per IV)
XX-ALC	12381	11837	95.6%	64	63.6%
Group (1)	2105	1984	94.2%	13	87.7%
Group (2)	3666	3448	94.0%	32	78.0%
Group (3)	2014	1904	94.5%	7	91.0%
Group (4)	1156	1128	97.5%	6	94.5%
Group (5)	1979	1968	99.4%	2	98.4%
Group (6)	1421	1367	96.1%	4	94.1%
Group (7)	40	38	95.0%	0	95.0%

Overdue Personnel Evaluations (PE)

	FY22-2				FY22-3		
	Jan	**Feb**	**Mar**		**Apr**	**May**	**Jun**
Group (1)	10	2	1	Group (1)	1	0	0
Group (2)	11	15	10	Group (2)	14	10	6
Group (3)	8	3	3	Group (3)	0	0	0
Group (4)	1	0	0	Group (4)	0	0	0
Group (5)	1	3	1	Group (5)	3	0	0
Group (6)	10	10	3	Group (6)	1	0	0
Group (7)	N/A	N/A	N/A	Group (7)	N/A	N/A	N/A
Total	**41**	**33**	**18**	**Total**	**19**	**10**	**6**

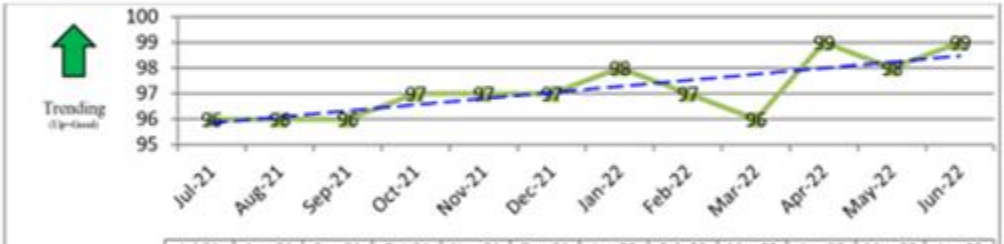
Overdue Evaluator Proficiency Evaluations (EPE)

	FY22-2				FY22-3		
	Jan	**Feb**	**Mar**		**Apr**	**May**	**Jun**
Group (1)	0	0	0	Group (1)	0	0	0
Group (2)	0	0	0	Group (2)	0	0	0
Group (3)	0	0	0	Group (3)	0	0	0
Group (4)	0	0	0	Group (4)	0	0	0
Group (5)	0	0	0	Group (5)	0	0	0
Group (6)	0	0	0	Group (6)	0	0	0
Group (7)	N/A	N/A	N/A	Group (7)	N/A	N/A	N/A
Total	**0**	**0**	**0**	**Total**	**0**	**0**	**0**

Personnel Evaluations (PE)

For FY22-3 the Complex had an overall Outstanding pass rate of 98%.

PE 12-Month Pass Rate Trend



	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22
Monthly Assessments	160	175	179	184	172	201	252	235	131	129	195	115
Monthly QAR-1	155	169	173	179	168	195	248	230	126	128	192	114
Monthly Pass Rate	96	96	96	97	97	97	98	97	96	99	98	99

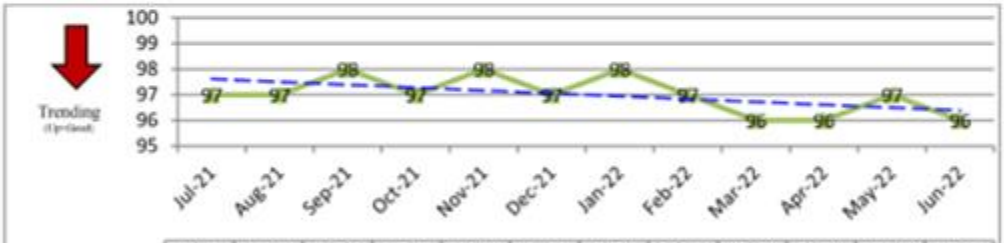
During the past 12 months 2,128 PEs were performed. 2,077 passed for an overall 12 month pass rate of 97%. PE pass rates for 12 months are trending up.

The high drivers for failed PEs over the last 12 months are work performed contrary to technical data and technician failed to demonstrate proficiency.

Quality Verification Inspections (QVI)

For FY22-3, the Complex had an overall Outstanding pass rate of 96%.

QVI 12-Month Pass Rate Trend



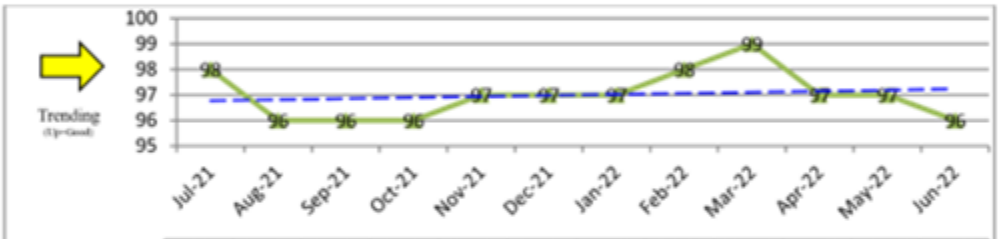
	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22
Monthly Assessments	1667	1671	1594	1611	1634	1652	1644	1590	1621	1601	1550	1441
Monthly QAR-1	1630	1628	1566	1570	1602	1615	1616	1549	1570	1551	1506	1387
Monthly Pass Rate	97	97	98	97	98	97	98	97	96	96	97	96

During the past 12 months 19,276 QVIs were performed, 18,790 passed for an overall 12 month pass rate of 97%. QVI pass rates for 12 months are trending down. The high drivers for failed QVIs over the last 12 months are improper installation, work performed contrary to tech data, secondary certifier failed to identify workmanship defect, work accomplished and not signed off, employee not certified, and product does not meet specifications.

Quality Verification Inspections Q-Stamp (QVIQ)

For FY22-3, the Complex had an overall Outstanding pass rate of 97%.
QVIQs accounted for 16% of all QVI inspections completed.

QVIQ 12-Month Pass Rate Trend



	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22
Monthly Assessments	232	275	217	261	263	240	293	290	314	281	281	263
Monthly QAR-1	228	264	210	252	256	235	286	285	311	275	273	255
Monthly Pass Rate	98	96	96	96	97	97	97	98	99	97	97	96

During the past 12 months 3,210 QVIQs were performed. 3,130 passed for an overall 12 month pass rate of 97%. QVIQ pass rates for 12 months are trending level. The high drivers for failed QVIQs over the last 12 months are foreign objects (FO) discovered in aerospace vehicle, improper installation, and does not meet specifications.

Unscheduled Inspections (UI)

There were 15 Unscheduled Inspections in FY22-3: 9 QAR1 and 6 QAR3. The 6 failed inspections were across numerous programs with no discernable trends. The high driver for UIs over the last 12 months is for tool kits not secured.

Management Inspections (MI)

The Complex had an overall Excellent pass rate of 94% in FY22-3. There were 305 Management Inspections: 98 QAR1, 6 QAR3, and 201 non-rated. The 6 failed inspections were across numerous programs with no discernable trends. The high driver for MIs over the last 12 months is for not meeting specifications/drawings conformance requirements.

Routine Inspections (RI)

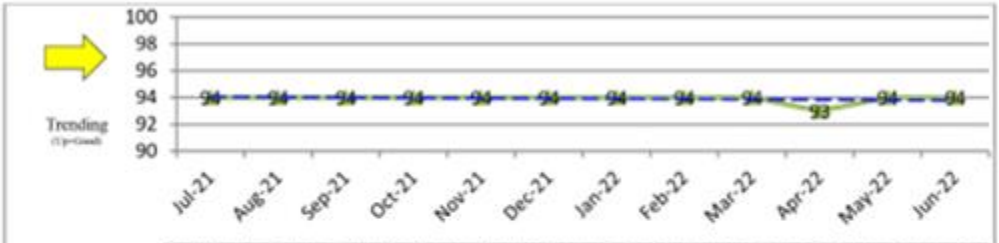
Routine Inspection Score Card FY22-3

	Product Quality							Supportive Programs							
	PE	VI	QVIQ	Tech Data	Training	Form Documentatio	Tech Orders	Material	FOD	Safety	Equipment	Tools	Engine Management	UI	MI
XX-ALC	98	96	97	94	98	94	99	94	86	96	92	92	100	60	95
Group (1)	96	95	96	100	100	90	100	96	78	89	91	95	100	33	25
Group (2)	98	97	94	92	99	95	99	86	79	94	90	89	100	100	100
Group (3)	99	95	95	88	99	90	92	96	96	94	90	88			
Group (4)	100	97		100	100	95	100	97	95	98	87	100			98
Group (5)	100	100	99	100	100	98	100	100	98	100	98	94	100	100	100
Group (6)	97	94		97	92	96		98	100	96	95	96			
Group (7)								100		100	85				

For FY22-3 the Complex had an overall Excellent pass rate of 94%.

Outstanding 95 – 100%	Excellent 90 – 94.99%	Satisfactory 80 – 89.99%	Marginal 70 – 79.99%	Unsatisfactory <69.99%

RI 12-Month Pass Rate Trend

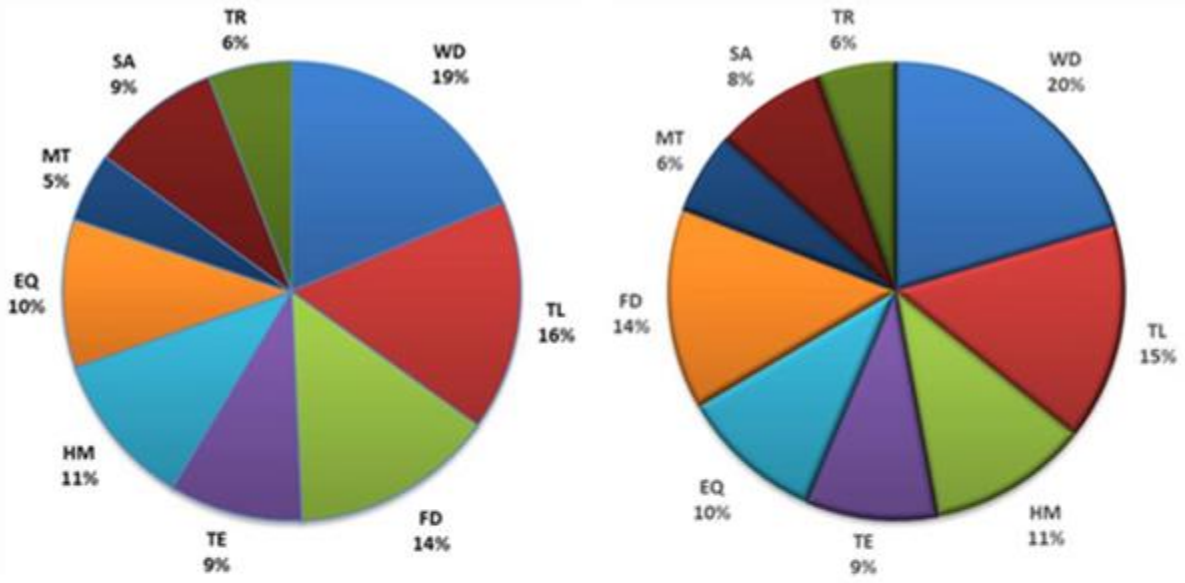


	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22
Monthly Assessments	2090	2076	2087	2064	2072	2132	2241	2153	2080	2112	2158	2118
Monthly QAR-1	1971	1972	1981	1951	1962	2019	2116	2025	1965	1974	2044	2011
Monthly Pass Rate	94	94	94	94	94	94	94	94	94	93	94	94

During the past 12 months there were 25,383 RIs performed. 23,991 passed for an overall 12 month pass rate of 94%. RI pass rates for 12 months are steady.

RI Defect Breakout by Category

FY22-3 12 Months



The high drivers for all RI inspections for FY22-3 as well as the last 12 months are caps, plugs and covers not in use, FO discovered in aerospace vehicle, and tool kits not secured.

Routine Inspection (RI) Summary by Category

Three areas scored 100% for FY22-3: Nuclear Weapons Related Material (NWRM), Nuclear Certified Equipment (NCE), and Engine Management.

There were two areas with an increased pass rate compared to last quarter: Material 94% and Safety 96%.

Three areas had a decreased pass rate compared to last quarter: Equipment 92%, Tech Data 94% and Tools 92%.

Three areas remained the same compared to last quarter: FOD 86%, Tech Orders 99% and Training 98%.

Defect Data Recommendations

The following is the defect data recommendations for each group RI category rated Marginal or Unsatisfactory.

FOD: The Complex had an overall Satisfactory pass rate of 86% with 674 inspections completed: 580 QAR1 and 94 QAR3.

Group (X) had a Marginal pass rate of 79% with 64 of 307 inspections failed.

XX-ALC (QA Group) Recommendation: The main contributors to FOD findings were miscellaneous uncontrolled hardware/metal shavings in aircraft and missing caps and plugs. Ensure technicians are cleaning up during and after task accomplishment (Clean as You Go). Ensure the correct caps and plugs are readily available to technicians and are being used. Caps and plugs can be controlled through an additional step on work control documents. Periodic and focused FOD inspections built into work packages would show improvements in FOD areas. First level supervisors should monitor their assigned aircraft to ensure FOD program requirements are being met.

Group (X) had a Marginal pass rate of 78% with 23 of 106 inspections failed.

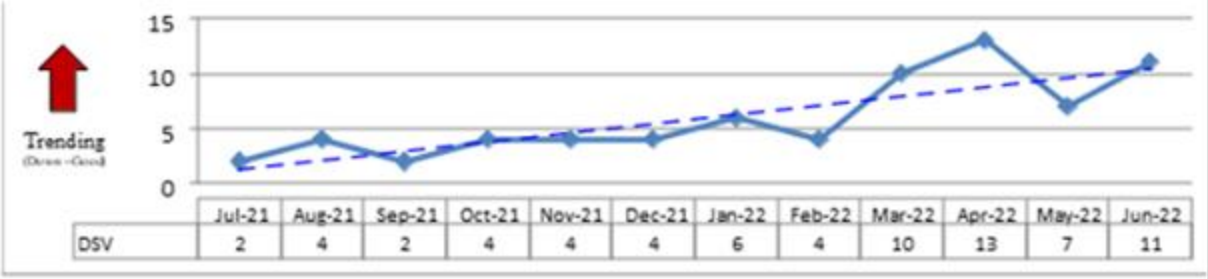
XX-ALC (QA Group) Recommendation: Technicians need to pay attention to detail, ensure secondary certifiers pay attention to detail and follow up with 6S/5S for end of shift clean up, and using the "Clean as You Go" process.

Isolated Violations (IVs) by Group

	DSVs	TDVs	UCRs
Group 1	9	2	2
Group 2	9	2	21
Group 3	4	2	1
Group 4	5	0	1
Group 5	1	1	0
Group 6	3	0	1
Group 7	0	0	0

For FY22-3 there were a total of 64 Isolated Violations: 31 DSVs, 7 TDVs and 26 UCRs.

Detected Safety Violations (DSVs)

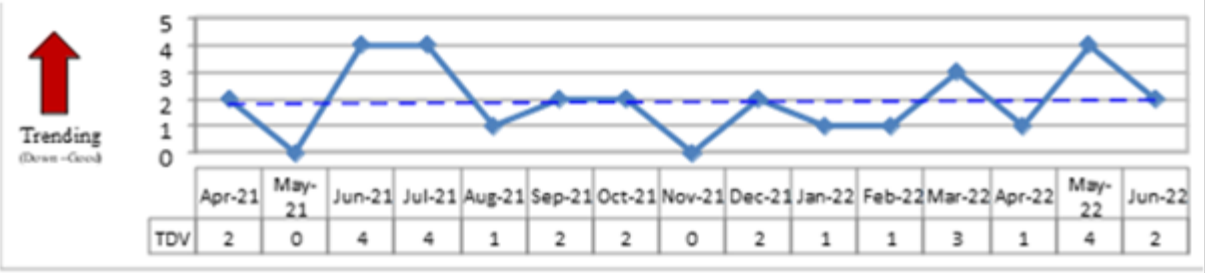


	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22
DSV	2	4	2	4	4	4	6	4	10	13	7	11

The DSVs this quarter included Personal Protective Equipment (PPE) not in use/fitted/worn incorrectly, fall protection equipment not in use and jewelry worn while performing maintenance. DSVs for the past 12 months are trending up.

PPE not in use/fitted or worn correctly accounts for 65% of all DSVs over the last 12 months

Technical Data Violations (TDVs)

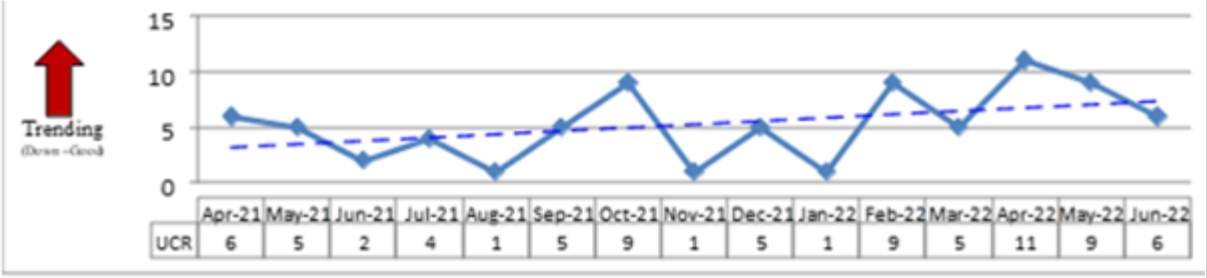


	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22
TDV	2	0	4	4	1	2	2	0	2	1	1	3	1	4	2

The TDVs this quarter included tech data available but not in use as required, work performed without an approved WCD, tech data unavailable, and explosive safety violation. TDVs for the past 12 months are trending slightly up.

Tech Data available but not in use, tech data unavailable, and work performed contrary to technical data are the high drivers for the last 12 months.

Unsatisfactory Condition Reports (UCRs)

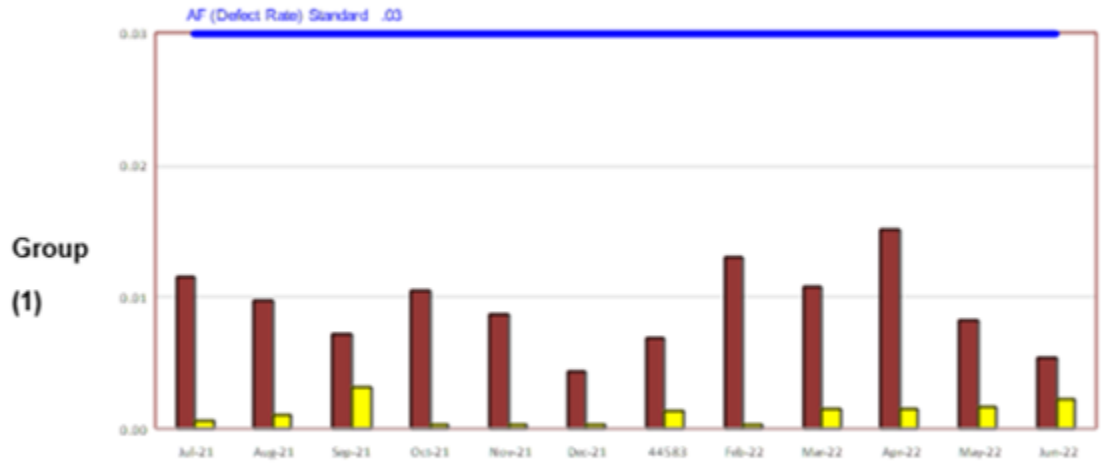


	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22
UCR	6	5	2	4	1	5	9	1	5	1	9	5	11	9	6

The UCRs this quarter included work accomplished and not signed off, safety feature absent, and tool kit not secured. UCRs for the past 12 months are trending up.

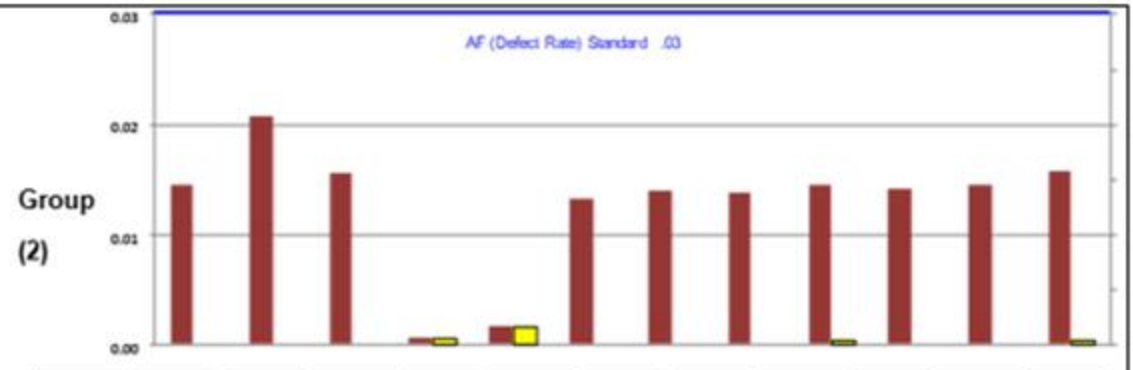
Tool control procedures not followed, work accomplished and not signed off, and safety feature absent were the high drivers for UCRs for the past 12 months.

12 Month Quality Deficiency Rates (QDR)/ Quality Escapes Trends



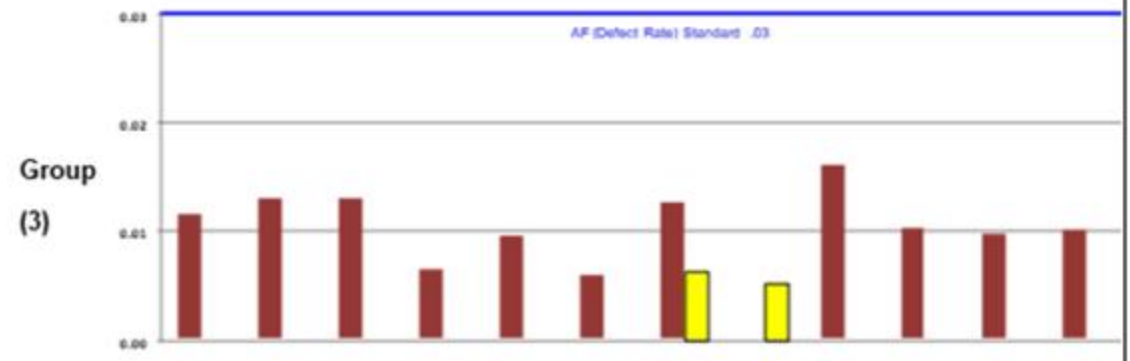
	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	44583	Feb-22	Mar-22	Apr-22	May-22	Jun-22
Units Produced	3178	3556	3208	2683	2893	3035	3037	3083	3772	3182	3547	3092
QDRs Received	37	35	23	28	25	13	21	40	41	48	29	17
	0.0116	0.0098	0.0072	0.0104	0.0086	0.0043	0.0069	0.0130	0.0109	0.0151	0.0082	0.0055
QDR Rate												

Workmanship Def rate 0.0006 0.0011 0.0031 0.0004 0.0003 0.0003 0.0013 0.0003 0.0016 0.0016 0.0017 0.0023



	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	44583	Feb-22	Mar-22	Apr-22	May-22	Jun-22
Units Produced	2076	2224	1931	1725	1821	1909	1875	2108	2476	1987	2144	2100
QDRs Received	30	46	30	1	3	25	26	29	36	28	31	33
QDR Rate	0.0145	0.0207	0.0155	0.0006	0.0016	0.0131	0.0139	0.0138	0.0145	0.0141	0.0145	0.0157

Workmanship Def rate 0.0000 0.0000 0.0000 0.0006 0.0016 0.0000 0.0000 0.0000 0.0004 0.0000 0.0000 0.0005



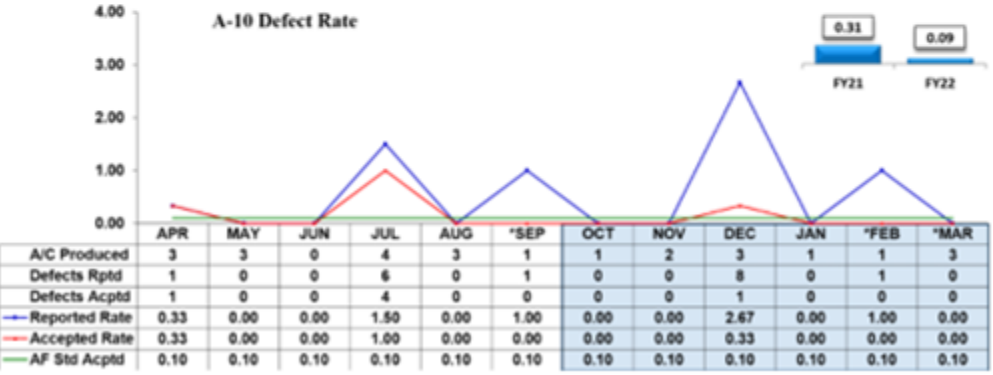
Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	44583	Feb-22	Mar-22	Apr-22	May-22	Jun-22

Units Produced	173	230	230	157	209	168	159	192	247	195	306	395
QDRs Received	2	3	3	1	2	1	2	0	4	2	3	4
QDR Rate	0.0116	0.0130	0.0130	0.0064	0.0096	0.0060	0.0126	0.0000	0.0162	0.0103	0.0098	0.0101

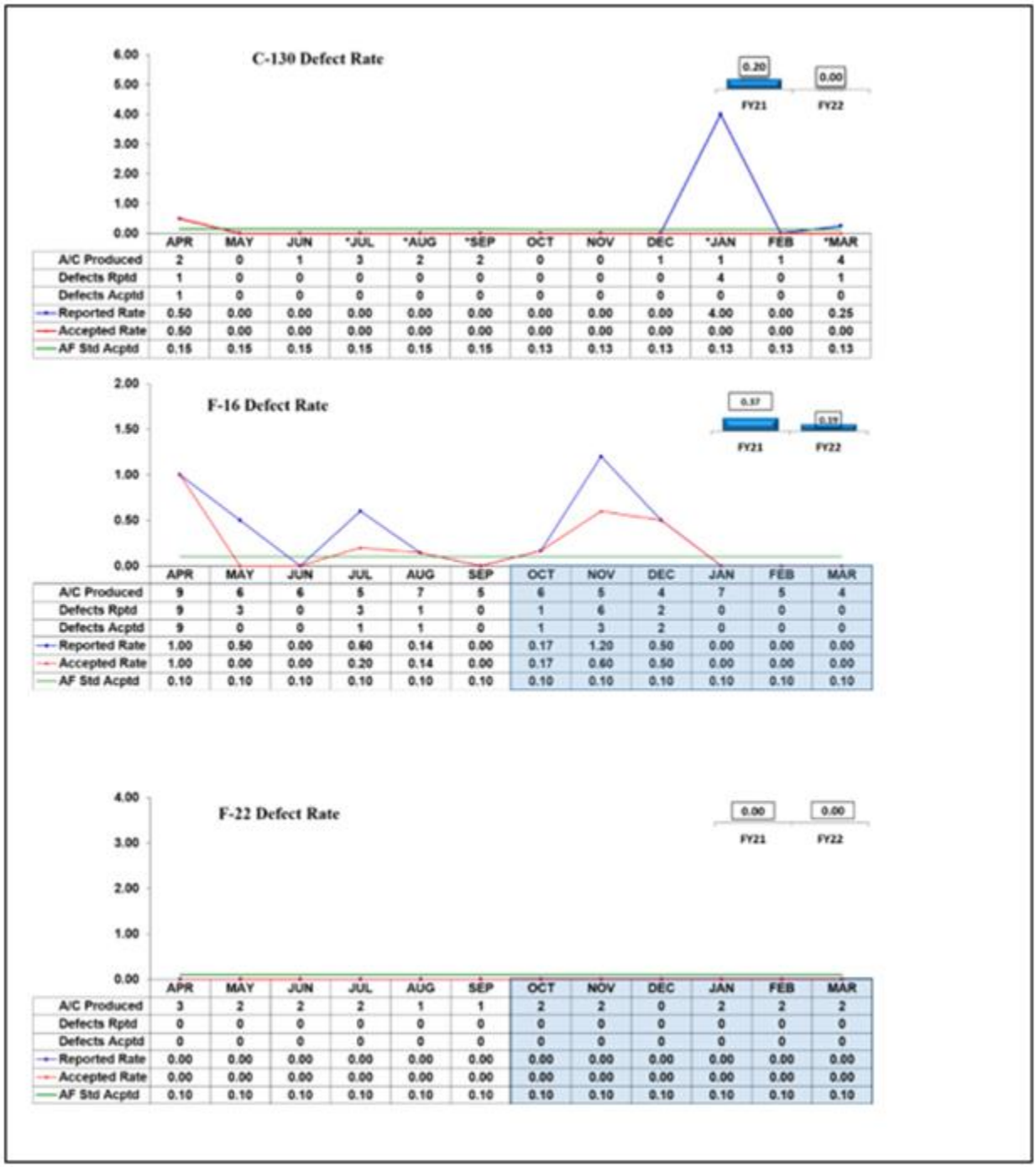
Workmanship Def rate 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0063 0.0052 0.0000 0.0000 0.0000 0.0000

12 Month Group (1) Acceptance Inspection Deficiency Reports Trends (AIDR)

	APR	MAY	JUN	*JUL	*AUG	*SEP	*OCT	NOV	DEC	*JAN	*FEB	*MAR
A/C Produced	20	16	15	18	18	17	12	11	14	17	21	20
Defects Reported	11	3	1	10	1	0	2	6	10	4	1	1
Defects Accepted	11	0	1	6	1	0	1	3	3	0	0	0
Reported Rate	0.55	0.19	0.07	0.56	0.06	0.00	0.17	0.55	0.71	0.24	0.05	0.05
Accepted Rate	0.55	0.00	0.07	0.33	0.06	0.00	0.08	0.27	0.21	0.00	0.00	0.00
Standard	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13



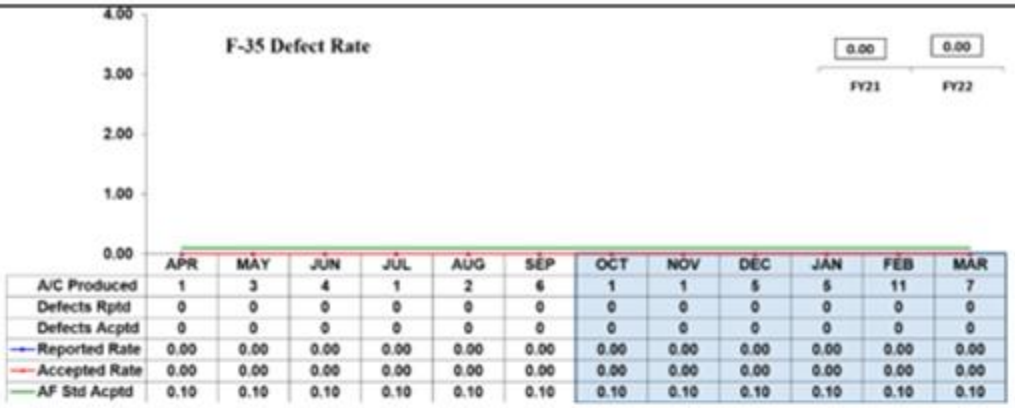
	APR	MAY	JUN	JUL	AUG	*SEP	OCT	NOV	DEC	JAN	*FEB	*MAR
A/C Produced	3	3	0	4	3	1	1	2	3	1	1	3
Defects Rptd	1	0	0	6	0	1	0	0	8	0	1	0
Defects Acptd	1	0	0	4	0	0	0	0	1	0	0	0
Reported Rate	0.33	0.00	0.00	1.50	0.00	1.00	0.00	0.00	2.67	0.00	1.00	0.00
Accepted Rate	0.33	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.33	0.00	0.00	0.00
AF Std Acptd	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10



	APR	MAY	JUN	*JUL	*AUG	*SEP	OCT	NOV	DEC	*JAN	FEB	*MAR
A/C Produced	2	0	1	3	2	2	0	0	1	1	1	4
Defects Rptd	1	0	0	0	0	0	0	0	0	4	0	1
Defects Acptd	1	0	0	0	0	0	0	0	0	0	0	0
Reported Rate	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.25
Accepted Rate	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AF Std Acptd	0.15	0.15	0.15	0.15	0.15	0.15	0.13	0.13	0.13	0.13	0.13	0.13

	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
A/C Produced	9	6	6	5	7	5	6	5	4	7	5	4
Defects Rptd	9	3	0	3	1	0	1	6	2	0	0	0
Defects Acptd	9	0	0	1	1	0	1	3	2	0	0	0
Reported Rate	1.00	0.50	0.00	0.60	0.14	0.00	0.17	1.20	0.50	0.00	0.00	0.00
Accepted Rate	1.00	0.00	0.00	0.20	0.14	0.00	0.17	0.60	0.50	0.00	0.00	0.00
AF Std Acptd	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10

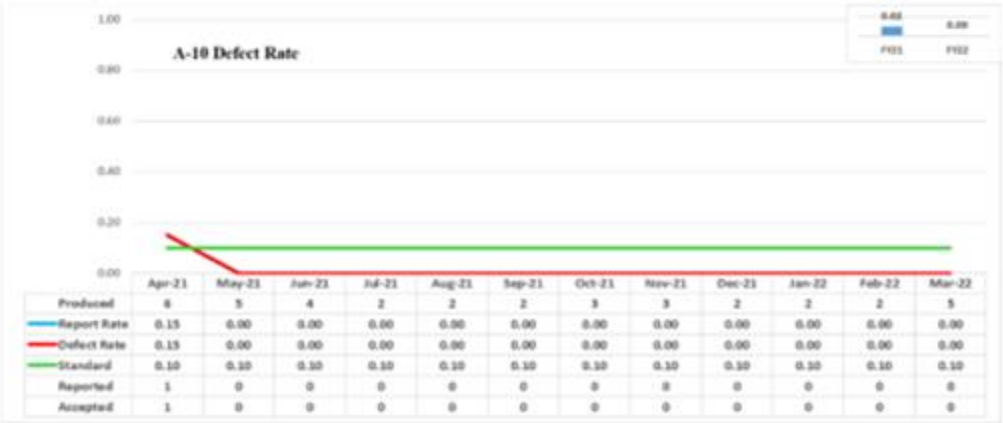
	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
A/C Produced	3	2	2	2	1	1	2	2	0	2	2	2
Defects Rptd	0	0	0	0	0	0	0	0	0	0	0	0
Defects Acptd	0	0	0	0	0	0	0	0	0	0	0	0
Reported Rate	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Accepted Rate	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AF Std Acptd	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10



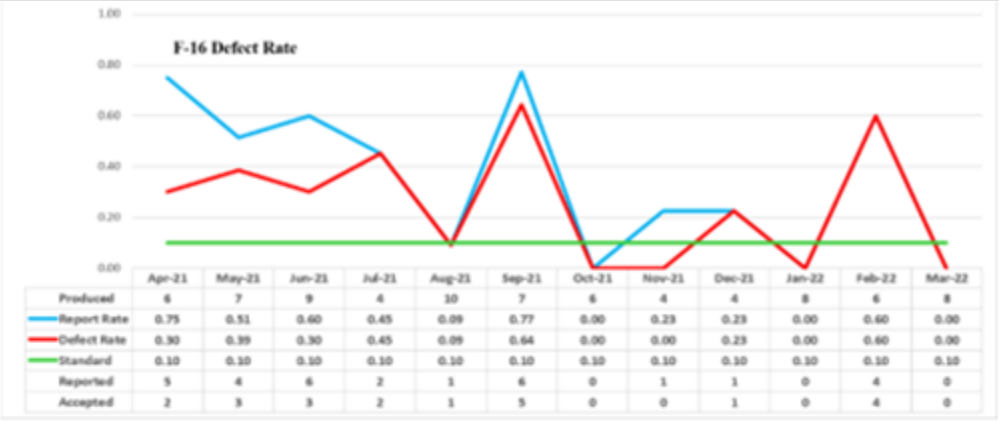
	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
A/C Produced	1	3	4	1	2	6	1	1	5	5	11	7
Defects Rptd	0	0	0	0	0	0	0	0	0	0	0	0
Defects Acptd	0	0	0	0	0	0	0	0	0	0	0	0
Reported Rate	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Accepted Rate	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AF Std Acptd	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10

12 Month Group (2) Acceptance Inspection Deficiency Reports (AIDR)

	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22
Produced	12	12	14	7	12	9	9	7	8	10	8	13
Report Rate	0.45	0.30	0.39	0.26	0.08	0.60	0.00	0.64	0.11	0.00	0.45	0.00
Defect Rate	0.23	0.23	0.19	0.26	0.08	0.50	0.00	0.26	0.11	0.00	0.45	0.00
Standard	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Reported	4	4	6	2	1	6	0	5	1	0	4	0
Accepted	3	3	3	2	1	5	0	2	1	0	4	0



	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22
Produced	6	5	4	2	2	2	3	3	2	2	2	5
Report Rate	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Defect Rate	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Standard	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Reported	1	0	0	0	0	0	0	0	0	0	0	0
Accepted	1	0	0	0	0	0	0	0	0	0	0	0



	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22
Produced	6	7	9	4	10	7	6	4	4	8	6	8
Report Rate	0.75	0.51	0.60	0.45	0.09	0.77	0.00	0.23	0.23	0.00	0.60	0.00
Defect Rate	0.30	0.39	0.30	0.45	0.09	0.64	0.00	0.00	0.23	0.00	0.60	0.00
Standard	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Reported	5	4	6	2	1	6	0	1	1	0	4	0
Accepted	2	3	3	2	1	5	0	0	1	0	4	0

Director, Quality Assurance Office

XX-ALC/QA