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AIRCRAFT AND EQUIPMENT MAINTENANCE MANAGEMENT

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This instruction implements AFPD 21-1, *Air and Space Maintenance* and supersedes AFI 21-101, (12 Apr 2010), AFI 21-107 (19 Jul 1994), and 21-112 (7 Sep 2001). It is the basic Air Force directive for aircraft and equipment maintenance management. It provides the minimum essential guidance and procedures for safely and effectively maintaining, servicing, and repairing aircraft and support equipment. It acknowledges the foundational contributions made to Agile Combat Support (ACS) capabilities of Generating the Mission, and Supporting and Sustaining the Mission, Forces, and Infrastructure. It applies to all major commands (MAJCOMs) and the Air National Guard (ANG), along with their subordinates. Lead Commands will supplement this document to identify any required deviations (applicability, variance, and/or differences in organizational placement of responsibilities/processes) for Non-Standard Organizations (NSO). Identify each deviation on the supplement with "(DEV)" directly preceding the paragraph number. These supplements must be submitted to AF/A4L for approval, however supplements not including deviations do not require AF/A4L approval. ***NOTE:*** for this purpose ALCs are

considered NSO's). Additionally, supplements must be made IAWAFI 33-360, *Publication Management Program*. Any maintenance units, Unmanned Aerial Vehicle (UAV) operations support units, or operational test units who perform maintenance on aircraft, aircraft support systems, or communication interfaces such as Remote Split Operations LRU's carrying aircraft control signals not maintained by base Communications Squadrons or DISA, must comply with the requirements identified within this instruction. Non-traditional aircraft maintenance Air Force Specialty Codes (AFSC) such as 3D1XX, Cyber Systems career field or equivalent contractors must comply with requirements identified within this instruction or meet its intent as part of the statement of work and system of oversight. In the event of a conflict with other guidance, this instruction will take precedence over all except Technical Orders (TO)s. Waiver authority for this instruction is HQ USAF/A4L. For questions on interpreting this instruction, first contact your Lead Command maintenance policy activity. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with AFMAN 33-363, *Management of Records* and disposed of IAW Air Force Records Disposition Schedule (RDS) located at **https://www.my.af.mil/gcss-af61a/afrims/afrims/rims.cfm**.

(CAF) AFI 21-101, 26 July 2010, Incorporating Change 1, 16 August 2011 is supplemented as follows. This supplement prescribes policies and procedures governing aerospace equipment maintenance management for Air Combat Command (ACC), Pacific Air Forces (PACAF) and United States Air Forces in Europe (USAFE). It applies to all ACC, USAFE (including Royal Air Force (RAF) Fairford and all Munitions Support Squadron (MUNSS) sites) and PACAF bases except Yokota, Hickam, Ramstein, RAF Mildenhall and Mobility Air Force (MAF) units at Kadena and Elmendorf who will follow the AMC Supplement. The maintenance backshop squadrons, MOS and MXG staff agencies at Kadena and Elmendorf will follow the ACC Supplement unless otherwise stated. It applies to these organizations and personnel that maintain aircraft, aircraft systems, equipment, support equipment, and components regardless of Air Force Specialty Code (AFSC). It provides a broad management framework for the Group Commanders to adjust procedures to compensate for mission, facility, and geographic differences of the units. This supplement does not apply to the Air National Guard (ANG) or Air Force Reserve Command (AFRC); however, ANG/AFRC personnel assigned to Classic Associate Units supporting CAF units will comply with the guidance provided within this supplement. The reporting requirements in this publication (unless otherwise specified) are exempt from licensing in accordance with (IAW) AFI 33-324, *The Information Collections and Reports Management Program; Controlling Internal, Public, and Interagency Air Force Information Collections.* Units will publish a single supplement to consolidate local policies mandated by the AFI and this supplement. Units may develop separate Operating Instructions as long as they are referenced in their 21-101 supplements. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with (IAW) Air Force Manual 33-363, *Management of Records*, and disposed of IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS) located at https://www.my.af.mil/afrims/afrims/afrims/rims/cfm. Contact supporting records managers as required. Send comments, questions, and suggested improvements to this publication on AF Form 847, Recommendation for Change of Publication, through channels to HQ ACC/A4QM, 130 Douglas Street, Suite 210, Langley AFB, VA 23665-2791. See Attachment 1 for a glossary of references and supporting information.

SUMMARY OF CHANGES

This document is substantially revised and must be completely reviewed. Major changes include: This supplement was drafted using Guidance Memorandum 2 (GM2) dated 4 Apr 2012. We assessed our publication for non-value added language, areas that previously limited the ability for maintenance leaders to make field level decisions, and for irrelevant and unrealistic expectations with limited resources. Many deletions stem from duplication between the parent AFI and other governing directives. These deletions may not have changed previous requirements but only removed the duplication between directives. All references to Air Force Global Strike Command aircraft and resources removed. Changed verbiage as required to clarify responsibilities and renumbered paragraphs to better flow with the parent publication. The supplement has significant changes from the previous version. Listed below are noteworthy changes for ease of reference.

Deleted Attachment 13, Maintenance Metrics.

Rationale: Metrics identified in ACCI 21-118 and T.O. 00-20-2.

Added augmentee duty tasking restrictions.

Rationale: Limited manning at TFI locations with Classic Associations.

Clarified MXG/CC responsibilities for GSUs.

Rationale: Assignment of responsibility at appropriate level.

MXG/CC may appoint Wing Avionics Manager (WAM)

Rationale: Outlines typical functions of WAM.

Deleted CDDAR capability for aircraft that frequently transit base.

Rationale: The requirement is for base/tenant assigned aircraft; “frequently” caused confusion.

Added Production Superintendent Course requirement.

Rationale: To include all production superintendents throughout the MXG.

Added MXG/CC may authorize team concept for AGE flight.

Rationale: Provides MXG/CC flexibility to best determine org structure with multiple MDSs.

Deleted Avionics flight organizational structure (paragraphs and figures).

Rationale: Local leadership decision can best determine IAW AFI 38-101.

Deleted Intel flight organizational structure (paragraphs and figures).

Rationale: Local leadership decision can best determine IAW AFI 38-101.

Added Low Observable Aircraft Structural Maintenance Support Section.

Rationale: Provides framework for key section.

Deleted requirement for posting propulsion metrics in prominent place.

Rationale: ACC/A4MP: MXG leadership can track, if desired; no MAJCOM requirement.

Deleted Engine Hangar Queen Program.

Rationale: No value added.

Deleted additonal requirements for engine pre-run worksheet.

Rationale: Redundant. AFI already provides guidance, local leaders may add items if required.

Removed Spangdahlem Noise Abatement Guidance

Rationale: Policy is specific to one location and should be in local supplement

Deleted requirement for MOC to verify engine run proficiency.

Rationale: AMU/Production leadership ensures individual qualifications.

Added requirement for a Flight Chief or higher to chair IMDS-CDB Users Group meeting.

Rationale: Clarifies level of responsibility for working group meeting.

Added requirement to conduct DIT meetings at a minimum quarterly.

Rationale: Clarified when to conduct DIT meetings.

Added requirement to meet at least 3 days per week to check JDD.

Rationale: Clarified DIT responsibilities.

Deleted graduate assessment program language.

Rationale: Procedures for graduate assessment outlined in AFI 36-2232.

Removed additional RIL requirements.

Rationale: Provides greater flexibility to adjust RIL items.

Added MXG/CC as the waiver authority for W&B training.

Rationale: Established W&B waiver authority at the appropriate level.

Added authorization to use TC-Max.

Rationale: Allows flexibility until tool control/accountability in ECSS is established.

Changed hangar queen reporting requirements.

Rationale: Changed reporting to appropriate senior leader level.

Removed non-contingency 2-month RWR/RTWS check requirement.

Rationale: Applicable MDS T.O. dictates requirements.

Deleted item 44, weapons supervisory post load as SCR requirement.

Rationale: Alleviated conflict with paragraph 12.1.30.

Supplemented IFF Mode IV section with Lead Command guidance.

Rationale: Clarified IFF Mode IV requirements.

Deleted Engine Hangar Queen Program.

Rationale: No value added.

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Chapter 1

MANAGEMENT PHILOSOPHY AND POLICY

1.1. Introduction. This instruction prescribes basic aircraft and equipment maintenance policy and procedures used throughout the USAF. Any deviations from this guidance are prohibited without Lead Command review and HQ USAF/A4L waiver/variance approval. For the purpose of this instruction and development of maintenance policy, Lead Commands are Air Combat Command, Air Mobility Command, Air Force Special Operations Command, Air Education and Training Command, Air National Guard, Air Force Reserve Command, Air Force Space Command, Air Force Global Strike Command and Air Force Materiel Command. As it pertains to weapon system specific issues or requirements, AFPD 10-9 takes precedence. For the purpose of this policy, the term AFMC Single Manager (SM) includes System Program Directors (SPD), Product Group Managers (PGM) and Supply Chain Managers (SCM),

1.2. Organization. AF wings will organize according to AFI 38-101, *AF Organization*, or as authorized by HQ USAF/A1M. Contractor and civil service maintenance functions are not required to organize in accordance with (IAW) AFI 38-101, but will implement the organization as outlined in their proposal as accepted by the government.

1.3. Aircraft and Equipment Readiness. Aircraft and equipment readiness is the maintenance mission. The maintenance function ensures assigned aircraft and equipment are safe, serviceable, and properly configured to meet mission needs. Maintenance actions include, but are not limited to, inspection, repair, overhaul, modification, preservation, refurbishment, troubleshooting, testing, and analyzing condition and performance. All levels of supervision must place emphasis on safety, quality, and timeliness in the performance of maintenance. The concept of quality maintenance must be fostered by each supervisor and technician to ensure the integrity and skill of each maintainer is not degraded. To the greatest extent possible, maintenance is accomplished on a preplanned scheduled basis. Planning provides the most effective and efficient use of people, facilities, and equipment, reduces unscheduled maintenance, and allows for progressive actions toward maintaining and returning aircraft and equipment to safe operating condition. Conducting a bench check of components and proper control of repair cycle assets throughout the maintenance cycle are also critical elements of the equipment maintenance program.

1.3.1. Preventive Maintenance. AF units must implement and manage the tasks specified in the scheduled program for their assigned aircraft and associated support equipment (SE). Preventive maintenance concepts are described in TO 00-20-1, *Aerospace Equipment Maintenance Inspection, Documentation, Policies, and Procedures*.

1.3.2. Mission Generation maintenance activities must have the capability to launch and recover aircraft and sustain the preventive maintenance program. Generally, this means most units must possess a complement of equipment and supplies to perform on-equipment and off-equipment maintenance.

1.3.2.1. Off-Equipment Maintenance—Maintenance tasks that cannot be effectively accomplished on or at the weapon system or end-item of equipment, but require the removal of the component to a shop or facility for repair.

1.3.2.2. On-Equipment Maintenance—Maintenance tasks that can be effectively performed on or at the weapon system or end-item of equipment.

1.4. Maintenance Concept. Maintenance is organized into two mutually supporting networks, Mission Generation Network (MGN) and Repair Network (RN), The MGN is optimized for mission generation at the wing level and contains the minimum capabilities required to launch, recover, configure, inspect and repair aircraft. The RN supports the MGN by providing serviceable components/equipment and conducting inspection, repair, and modification of aircraft and equipment.

1.4.1. Requests For Assistance (RFA). If a maintenance activity requires assistance for evaluation and/or repair beyond unit capability, the request must be made IAW AFI 21-103, *Equipment Inventory, Status And Utilization Reporting,* TO 00-25-107, *Maintenance Assistance,* and TO 00-20-14, *AF Metrology and Calibration Program,* or automated process as approved by the mission design series (MDS) specific system manager (e.g., C-130 AIRCATS, F-16 TAR). All requests for assistance must be coordinated through the Quality Assurance (QA) office and Maintenance Operations Squadron (MOS) Plans, Scheduling and Documentation (PS&D).

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

1.5.1. Compliance Terminology. For the purposes of this instruction, the following definitions apply:

1.5.1.1. **Shall, Must, Will** - Indicate mandatory requirements. (Will is also used to express a declaration of purpose for a future event.)

1.5.1.2. **Should** - Indicates a preferred method of accomplishment.

1.5.1.3. **May** - Indicates an acceptable or suggested means of accomplishment.

1.6. Use of Technical Orders (TO) and TO Supplements. Use of the prescribed technical data to maintain aircraft and equipment is mandatory.

1.6.1. Units/Supervisors will:

1.6.1.1. Strictly enforce adherence to and compliance with TOs and supplements.

1.6.1.2. Establish and manage TOs and supplements IAW TO 00-5-1, *AF Technical Order System*

1.6.1.3. Establish procedures for shipping TOs, E-Tools, and support equipment associated with E-Tools to support mobility requirements.

1.6.1.4. Ensure all authorized technical data variances are kept with aircraft/equipment historical records until no longer applicable.

1.6.2. All personnel will:

1.6.2.1. Recommend improvements or corrections for TO deficiencies IAW TO 00-5-1. The AFTO IMT 22 prescribed in TO 00-5-1 may be submitted as an attachment to an e-mail to report problems of a TO. Official TO updates are the only valid authority for correcting a technical deficiency and implementing change.

1.6.2.2. Continually assess the currency, adequacy, availability and condition of their TOs and supplements and be familiar with ETIMS, as they will use ETIMS to view eTOs in ETIMS eTO libraries.

1.6.2.3. Ensure waivers to, deviations from, or additional technical data procedures are issued using approved official communication methods (e.g., signed letter, organizational E-mail, AMHS message or authorized automated TO 00-25-107 technical assistance request system, or applicable guidance from ALC). Ensure all authorized technical data variances are kept with aircraft/equipment historical records until no longer applicable.

1.6.3. Lead Command will ensure any new or modified configurations or maintenance conditions are coordinated with, and approved by, the designated Weapons System Lead Command IAW AFPD 10-9 and the System Program Manager (SPM) responsible for the operational safety, suitability, and effectiveness (OSS&E) of the systems and end-items prior to implementation.

1.7. Publications. Lead Commands will supplement this AFI. Units must tailor procedures to the unique aspects of their own maintenance operation and publish directives (instructions, supplements, and, for functional areas, operating instructions IAW AFI 33-360), for areas where more detailed guidance or specific procedures will enhance operations. Units shall adhere to the following procedures:

1.7.1. Do not publish unit instructions or Operating Instructions (OI) to change or supplement TOs. Units must use procedures in TO 00-5-1 to update TOs.

1.7.2. Coordinate directives with all appropriate unit agencies.

1.7.3. Conflicts between administrative and technical publications will be resolved in favor of the technical publication.

1.7.4. Conflicts between procedural technical publications and weapon system specific technical publications will be resolved in favor of the weapon system specific technical publication.

1.7.5. Conflicts between Air National Guard/AF Reserve and AF publications are resolved IAW AFI 33-360.

1.7.6. Develop, control, and maintain technical data checklists IAW **Chapter 8** of this instruction, TO 00-5-1, and Lead Command instructions.

1.7.7. Develop, control, and maintain functional checklists. Functional Checklists are not formatted IAW TO 00-5-1 and **Chapter 8** of this instruction, but at a minimum are titled and dated. Functional checklists are required for use by functional area(s) during actions such as aircraft crash, mass loads, severe weather warning or evacuation, self-inspections, activity inspections, etc. **Functional checklists shall not be used in place of or to circumvent technical data** for operation, servicing, inspection or maintenance of aircraft, aircraft

systems and all other equipment supporting aircraft and munitions maintenance. QA will ensure functional checklists are reviewed every two years for currency and document this review.

1.8. Waiver Request. MAJCOMs are not permitted to deviate from this instruction without receiving written approval from HQ USAF/A4L. Units must submit waiver requests through the Lead Command. Waivers should only be submitted when urgent or immediate action is required. These circumstances are usually mission impacting and cannot be submitted as part of the normal AFI change process. See **Attachment 10** for template.

1.9. Field Supplements/Installation Publications. Official Air Force publications are the only approved vehicles for issuing official policy and/or guidance. The MXG QA will be the OPR for creating, IAW AFI 33-360, publications directed by this AFI. Units may create a Field Supplement in lieu of individual Installation Publications mandated in this AFI.

1.9.1. QA will review unit level publications every 2 years for accuracy, intent and necessity and document this review. (ALC the MXW Management Operations Office will perform this function)

1.9.2. The appropriate Safety activity will review unit level publications affecting munitions operations or safety; including all locally developed checklists, instructions, supplements, plans, or operating procedures relating to nuclear surety IAW AFI 91-101, *AF Nuclear Weapons Surety Program*.

1.10. Performance-Based Activities. This section identifies the basic responsibilities for managing performance-based activities (e.g., contract maintenance, Most Efficient Organization (MEO), or High Performance Organization (HPO) except DoD High Performing Organization Pilot program under section 337 of the NDAA 2004 (Public Law 108-136) which will follow DoDI 4100). Additional guidance may be found in AFI 63-124, *Performance-Based Services Acquisition (PBSA)* and AFI 38-203, *Commercial Activities Program.* ***NOTE:*** By definition, a contractor, MEO, or HPO will be referred to as a service provider.

1.10.1. Lead Command/MAJCOM Responsibilities:

1.10.1.1. Designate focal points for organizational, functional, and technical questions pertaining to each performance-based activity program.

1.10.1.2. Specify measurement areas and performance levels required for aircraft, systems, and equipment operated or maintained by performance-based activities.

1.10.1.3. Specify the forms, methods of documentation, and frequency of reporting used to assess performance-based activities and ensures these requirements are included in the Performance Management Assessment Program (PMAP).

1.10.1.4. Approve base-level requests that would permit a single Federal Aviation Administration (FAA) certified Airframe/Powerplant (A/P) contractor technician maintaining contracted logistics support (CLS) aircraft to repair and sign off their own Red X's when sent to recover aircraft off-station.

1.10.1.5. Identify the qualifications, training requirements, and responsibilities for QAE personnel assigned to surveil performance-based activities.

1.10.1.6. Ensure units with assigned QAE personnel meet requirements of AFI 63-124, *Performance-Based Services Acquisition,* along with other applicable guidance.

1.10.1.7. Ensure aircraft depot maintenance contracts, Statements of Work (SOW), and Performance Work Statement (PWS) are coordinated with the MAJCOM Munitions Functional to ensure munitions accountability and disposition requirements are adhered to.

1.10.2. Unit Responsibilities:

1.10.2.1. Designate a focal point for all functional, technical, and QAE matters pertaining to performance-based activities.

1.10.2.2. Designate a MXG focal point (e.g., Environmental Coordinator) for all Environmental, Safety, and Occupational Health requirements, compliance, and, as appropriate, worker protection issues affecting performance-based activities. The Environmental Coordinator will perform duties as outlined in AFPD 90-8, *Environment, Safety, and Occupational Health*/AFI 32-7080, *Pollution Prevention Program and* AFI 32-7086, *Hazardous Materials Management*.

1.10.2.3. In coordination with the contracting officer and the MXG/CC (or equivalent), provide specific guidance to the performance-based activity to ensure proper maintenance discipline and flight worthiness of aircraft and subsystems.

1.10.2.4. Develop and publish contingency procedures for support of continuing operations in the event of disruption, termination, or default of contract. This includes the provision of contingency procedures for the accomplishment of critical mission operations in the aftermath of natural or man-made events such as natural disasters, major accidents, and terrorist attacks involving chemical, biological, or radiological materials.

1.11. Modification Management. A modification proposal is a recommendation to change the operation, use, or appearance of AF equipment. Modifications (temporary, permanent, or safety) to AF aircraft or equipment are expressly prohibited without SPM approval. Refer to AFI 63-131, *Modification Program Management*, for modification management procedures.

1.11.1. **(DELETED)**

1.11.2. Modifications to Munitions. All proposed modifications to aircraft-carried munitions shall include SEEK EAGLE certification (per AFI 63-104, *The SEEK EAGLE Program*). All modifications to AF nuclear munitions or their associated support/training equipment shall be nuclear certified IAW AFI 91-103, *AF Nuclear Safety Design Certification Program*. All modifications to AF conventional munitions or their associated support/training equipment shall be certified IAW AFI 91-205, *Non-Nuclear Munitions Safety Board*.

1.12. Maintenance Information Systems (MIS). MIS refers to automated maintenance information systems that support and enable maintenance business processes. MIS will be used to document maintenance actions and determine fleet health. The information entered into the MIS will be accomplished IAW TO 00-20-2. MIS data entries do not have to be accomplished by the same individual who documented the aircraft forms, but employee number/man number/USERID of person accomplishing the actual work must be entered into the MIS. Red Ball maintenance will be documented IAW **Chapter 14** of this instruction.

1.12. (CAF) Maintenance Information Systems. (MIS). Integrated Maintenance Information System (IMIS) is the maintenance information system of input for F-22 aircraft; however, IMDS remains the MIS of record. IMIS users and managers will consider each MIS applicable when MIS is referenced throughout this AFI. IMDS and IMIS will accurately reflect all F-22 maintenance actions. All personnel documenting maintenance must have access to and be trained/qualified to use IMIS/IMDS. IMIS integrates AFTO Form 781-series form equivalents and will be used to document maintenance on aircraft as required.

1.12.1. Units must use approved MIS portfolio which may be viewed by accessing the Enterprise Information Technology Database Repository located on the AF Portal. If a unit desires to use a system other than the authorized standard MIS the unit must submit a request to their Lead Command 3-digit Maintenance Management Division (i.e., A4M or A4Q). Lead Command 3-digit functional managers shall coordinate on all requests and forward through the Lead Command A4 to HQ USAF/A4L for final consideration/approval. Upon receipt of A4L approval request for MIS systems procurement must be done through the AF/A4RB process.

1.13. Communications. Effective maintenance requires efficient communication. Radios must be available to expedite personnel, equipment, material, and maintenance data throughout the maintenance complex. Unit commanders shall develop communication plans according to mission requirements.

1.13.1. Lead Commands will develop guidance on the use and proper control of personal electronic and communication devices (i.e. cell phones, pagers, portable music/video players, electronic games) on the flightline, in munitions areas, hangars, and/or other industrial work areas.

1.13.1. **(CAF)** Personal electronic or communication devices (e.g., cell phones, portable music/video players, electronic games) are prohibited on the flightline, munitions areas, hangars, and/or other industrial work areas. This prohibition does not include common areas such as office areas, break or locker/ready rooms.

1.14. Duty Shifts and Rest Periods. During normal operations, maintenance personnel will be scheduled for duty based on a goal of a 40-hour work week. Maintenance personnel will have their duty hours aligned to provide optimal mission support.

1.14.1. Supervision at all levels will be equitably distributed to cover all duty periods.

1.14.2. The following guidance establishes maximum duty periods and minimum rest periods for all personnel assigned to a maintenance activity. MXG/CCs may waive the following provisions during emergencies and advanced readiness conditions. Duty periods for crew chiefs and maintenance technicians traveling in their units' aircraft are normally controlled by the aircraft commander.

1.14.3. Duty time begins when personnel report for duty (this includes aircraft showtime) and ends when their supervisor releases them. A rest period is a block of time that gives a person the opportunity for at least 8 hours of uninterrupted sleep in a 24-hour period. (***NOTE:*** This rest period may not be waived for exercises or inspections.)

1.14.4. Do not schedule personnel for more than 12 hours of continuous duty time. Provide a rest period after each shift. Time spent in exercise/contingency deployment processing lines and in-transit counts toward the total duty day, and may impact time available to perform maintenance at the destination.(This includes Flying Crew Chiefs (FCC), Mission Essential Personnel (MEP), Maintenance Recovery Teams (MRT), and normal deployment travel). MXG/CCs are final approval authority for exceeding 12-hour limit up to a maximum of 16 hours. AC/Detachment CC assumes this responsibility in deployed/travel status.

1.14.5. Personnel will not handle, load or perform maintenance on nuclear weapons, conventional munitions and/or egress explosives beyond a 12-hour continuous duty period. This requirement may not be waived for exercises or inspections; however, the 12-hour continuous duty period may be exceeded for shift turnover/administrative actions only and will be avoided to the maximum extent possible. The Group Commander or equivalent may waive this requirement during advance defense readiness conditions, actual emergencies as defined in DoD Directive 3150.2, DoD Nuclear Weapons System Safety Standards, or to resolve an unexpected event (e.g.; disabled vehicle, WS3 fault, hoist failure, etc…).

1.14.6. In alert force or standby duty situations where facilities are available for resting, established norms may be exceeded. Adjust rest periods to allow for at least 8 hours of sleep.

1.14.7. Ensure individuals are afforded adequate rest periods and breaks. Consider climatic conditions when determining work schedules. Stop anyone if fatigue may jeopardize safety. In all cases, aircraft commanders/supervisors ensure aircraft maintenance personnel are not required to perform duty when they have reached the point of physical or mental fatigue rendering them incapable of performing their assigned duties safely and reliably.

1.15. Maintenance Training. Maintenance training provides initial, recurring and advanced proficiency, qualification, or certification skills needed by a technician to perform duties in their primary AF Specialty Code (AFSC)/Civilian Job Series. Provide training in combat and sortie generation skills not normally integrated into peacetime operations (e.g., munitions and external fuel tank build-up, hot refueling). When balancing resources, (e.g., aircraft, support equipment, facilities, tools, funding, personnel), maintenance training carries an equal priority with the operational training mission. For maintenance training policy and guidance, refer to AFI 36-2232, *Maintenance Training* and Lead Command directives.

1.15.1. Cross-Utilization Training (CUT). CUT provides the unit internal flexibility by training individuals to perform tasks that are outside their primary AFSC. CUT is not a long-term fix or management solution for an AFSC shortfall. Ensure the training records of individuals receiving CUT are appropriately documented. Address questions regarding CUT to the applicable MAJCOM AFSC Functional Manager.

1.15.2. For emerging weapon systems, extensive CUT may be necessary until proper workforce AFSC balancing and assignment is achieved. MAJCOM Functional managers will closely monitor the effects of CUT for adverse trends. ***NOTE:*** Prohibitions in this guidance do not apply to UAS (Predator/Global Hawk) weapon systems or other weapon systems where the AF approved maintenance philosophy dictates the merger of AFSCs.

1.15.3. Weapons Load Training (WLT). Weapons standardization provides initial and recurring weapons load training and certification.

1.16. Maintenance Resource Management (MRM). MRM is a course designed to immerse all personnel into the culture and knowledge of human factors philosophy focusing on the importance, requirements, and implementation of MRM principles into daily maintenance activities. Error reduction efforts through human factors will be used to improve processes, reduce maintenance errors, decrease maintenance induced damage, and decrease on-the-job-injuries. This will be done by integrating the technical skills of maintenance personnel with interpersonal skills and basic human factors knowledge along with operational risk management in order to improve communication, effectiveness, and safety in maintenance operations.

1.16.1. To facilitate our common MRM culture, the Air Force's Core MRM course will consist of a one-time, 4-hour block of instruction taught by a certified MRM facilitator using the mandatory course material currently documented at the MRM CoP, **https://afkm.wpafb.af.mil/ASPs/CoP/EntryCoP.asp?Filter=OO-LG-AN-83**. To meet the needs of our total force, MAJCOMS have the option of supplementing the course, in both frequency and duration, to meet unique unit and mission requirements. MAJCOMs can further delegate individual MXG/CCs the authority to supplement their MRM courses to address local, base-level requirements.

1.16.2. MRM training is required at all stateside and overseas long-tour locations and will be taught to all military personnel serving in maintenance organizations. MAJCOMs will determine the applicability and requirement for MRM training for contractors, government civilians, and AF military personnel possessing a maintenance AFSC but performing duties in a non-maintenance role. Because of the challenges posed by wholesale manpower rotations, MRM training is not required at short-tour locations; however, these units will advocate MRM to the maximum extent possible in order to strengthen the cultural changes MRM requires to succeed.

1.16.2. **(CAF)** All military personnel with a maintenance/munitions AFSC (including 3D1XX working in an aircraft maintenance related field) assigned to a maintenance duty position are required to receive MRM training. Government civilians working in maintenance/munitions are required to have MRM training. Civilian contractors should be offered the opportunity to receive MRM training, but it is not mandatory.

1.16.3. The AF/A4L appointed OPR will:

1.16.3.1. Conduct annual course reviews to ensure currency of MRM course content.

1.16.3.2. Coordinate course updates with HQ AF Safety Center AFSC/SEFO and AFSC/SEH for subject matter expertise, to include those areas such as human factors, fatigue, etc, and for current safety statistics.

1.16.3.3. Ensure current course content is available on the MRM CoP.

1.16.4. MAJCOM A4s will:

1.16.4.1. Assign an MRM OPR and identify the OPR POC to AF/A4LM.

1.16.5. MXG/CC

1.16.5.1. Encourage training participation and attendance by other base agencies.

1.16.5.2. When practical, ensure classes are populated with a mixture of AFSs, skill levels and ranks from across the MXG to maximize benefits of course discussions.

1.16.5.3. Ensure course completion is tracked in the applicable MIS.

1.17. Maintenance Repair Priorities. Maintenance repair priorities are listed in **Table 1.1**. This does not prohibit the Production Superintendent, in coordination with the Maintenance Operations Center (MOC), from changing the maintenance repair priority when warranted. Raising or lowering maintenance repair priorities does not necessarily require a corresponding change in the Logistics Readiness Squadron (LRS) delivery priority. During Operational Plan (OPLAN) 8010 or operational exercise, the preplanned maintenance flow determines job sequence. The maintenance repair priority and LRS delivery priorities are normally identical. However, the Production Superintendent may authorize the use of a less responsive LRS delivery priority.

Table 1.1. Maintenance Repair Priority Designators.

PRIORITY	APPLICATION
1	Aircraft on alert status, war plan or national emergency missions, including related Aero space Ground Equipment (AGE), munitions and munitions support equipment (MSE).
2	Primary mission aircraft, related AGE, munitions, and munitions support equipment, for the first 8 work hours after landing or start of recovery or within 6 work hours of a sched uled launch, alert or test flight and during simulated generation/ORI. Air evacuation, rescue, weather mission aircraft, related AGE, munitions, and munitions support equipment. All transient support, and FAA aircraft. Flight or missile crew training simulator, other training equipment or related AGE required repair, which is impacting the mission by pre venting or delaying student training.
3	Primary mission aircraft, engines, air launched missiles and related AGE, munitions and munitions equipment, and equipment undergoing scheduled or unscheduled maintenance, if not performed or repaired will prevent or delay mission accomplishment. Transient air vehicles not otherwise listed. Administrative aircraft within 8 hours of scheduled flight or on alert status with standby crews. Time change requirements for nuclear weapons. Repair cycle assets to satisfy a Mission Capable (MICAP) condition. Spares not available in supply. Critical end items and spares not available in supply. Routine maintenance of aircrew or missile-training simulator, or other training devices or related AGE or sites and aircraft or equipment used for maintenance training. Avionics shop electronic AGE and automated test stations.

PRIORITY	APPLICATION
4	Routine or extensive repair of primary air mission and related AGE and repair cycle assets. Administrative aircraft undergoing scheduled or unscheduled maintenance. Routine maintenance of AGE, not otherwise listed above. WRM items due maintenance or inspection. Inspection, maintenance, and Time Compliance Technical Order (TCTO) compliance of mission support kit (MSK) or mobility readiness spares package (MRSP) materiel. Extensive repair of aircrew or missile training simulators, other training devices, or related AGE. Inspection, maintenance, and TCTO compliance of munitions and munitions equipment, excluding spares excess to base requirements not listed above. Scheduled calibration and unscheduled repairs on PME not listed above. Scheduled maintenance to include periodic inspections, routine TCTO, MCL, and Time Change Items (TCIs). Primary mission CEM systems or equipment including associated AGE undergoing extensive repair or modification.
5	Non-tactical or non-primary-mission aircraft undergoing extensive repair. Fabrication and repair of aeronautical items not carrying a higher priority. Bench stock requirements. Extensive repair of aircrew training devices. Time change requirements not listed above. Routine repair of AGE and repair cycle assets. Alternate and other CEM systems or equipment, including associated AGE undergoing extensive repair or modification. Clearing routine delayed discrepancies on training equipment or AGE, and routine maintenance which will not impair or affect mission accomplishment. Equipment requirements.
6	Fabrication and repair of non-aeronautical items. Repair cycle asset shortages required to fill a peacetime operating stock authorization
7	Spares/repair cycle assets excess to base requirements.

1.18. AF Munitions Policy. AF Munitions Policies are contained in AFI 21-200, *Munitions and Missile Maintenance Management,* AFI 21-201, *Conventional Munitions Maintenance Management* and AF Nuclear Munitions Policy is contained in AFI 21-204, *Nuclear Weapons Maintenance Procedures.* Lead Commands will develop and provide policy and guidance on managing and limiting munitions use as necessary . This will ensure munitions remain available and in reliable condition and at the same time provide a realistic training environment and support for exercise purposes.

1.18.1. Live and inert missiles (or electrical simulators) of the same type must not be loaded or flown together on an aircraft for any purpose. Live and inert (to include training or practice) bombs must not be loaded in/on the same dispenser/rack or flown on an aircraft load together. Any request to deviate from or waiver to this policy must be coordinated through the WWM, and must be submitted via official message to the MAJCOM Munitions Division, Weapons Safety, and Operations Weapons and Tactics/Training Divisions. The MAJCOM Munitions Division is the sole approval authority for these deviations/waivers.

Test organizations may load and fly live and inert munitions on the same aircraft for test missions only, as long as the flight profile is IAW an approved test directive that has been through a Safety Review Board process and flight clearance through the applicable System Program Office SPO/Seek Eagle office has been properly obtained.

1.18.2. Request for waiver of, or deviation to, this policy will include as a minimum: 1). Operational Risk Assessment report and proposed controls to mitigate or eliminate hazards to personnel, damage to aircraft and support equipment or inadvertent employment of live ordnance, and, 2). A signed copy of the Test Requirement Plan, Test Plan, or Concept Employment Plan. Approved requests will remain valid only for the event requested and will not exceed 60 days.

1.18.3. Captive Air Training Munitions (CATM): Safety pins/streamers for arming keys/safe-arm handles on CATMs may be removed for daily training/flying operations provided positive control and accountability is maintained for these items. (***NOTE:*** AIM-9M CATM arming handles will be permanently removed). These components are only removed for foreign or dropped object prevention. Any CATM missiles used for exercises, Load Crew Training and inspections will be configured to the maximum extent possible with all safety devices and components to mirror the parent tactical munitions.

1.19. Unit Committed Munitions List (UCML), Test/Training Munitions List (TTML). Operational units will use UCML's, Test/Training (AETC and AFMC only (includes ARC gained units in these commands)) will use TTML's unless they already require a UCML (i.e., NORAD Committed). The UCML/TTML is a list of primary munitions (PM), support munitions (SM), and limited-use munitions (LM) necessary to meet unit operational/test/training requirements and is published IAW this instruction. The list of PM cannot include more than 10 individual munitions or munitions family groups (MFG) combined per mission, design, and series (MDS) aircraft assigned. The UCML/TTML also specifies the minimum certified load crews required to meet unit requirements. MAJCOMS may supplement UCML/ TTML processing, coordination and appendix requirements.

1.19.1. As a minimum, UCML/TTML's will be updated annually to identify all munitions tasked and/ or required to support test/training or OPLANs and Designed Operational Capability (DOC) statements. Additional munitions may be included on the UCML/TTML as SM or LM munitions if required by the unit or designated by the MAJCOM (A4M performs this in the ANG) to support test, training, or deployment. The UCML/TTML is the base document for aircrew and load crew training munitions forecasts, authorizations and operations. Units will start their UCML/TTML validation in July, and have a coordinated input to the MAJCOM Munitions Division in August. MAJCOMs will supply approved UCML/TTML to the units in September. ***NOTE:*** Specified months not applicable to ANG process.

1.19.2. Unit changes to the UCML/TTML will be justified by Wing Weapons and Tactics, coordinated and processed through the WWM, Munitions Flight, MXG/CC and OG/CC before sending it to higher headquarters and MAJCOM.

1.19.3. Standard Conventional Load (SCL) lists are not part of the UCML/TTML. They are stand-alone documents.

1.19.4. The WWM determines the minimum number of certified load crews depicted on the UCML based on Unit Type Code (UTC) requirements identified in applicable DOC statements. The WWM determines the number of load crews depicted on the TTML as required to meet training unit syllabus and/or test unit mission requirements. (***NOTE:*** WWM specifies in writing the minimum number of load crews required in aggressor units when no UCML/TTML exists).

1.20. Associate Unit Program/Total Force Integration TFI. The USAF employs the Associate Unit/TFI program in some locations where active and ARC units are collocated and share aircraft, equipment, facilities, and other resources IAW AFPD 90-10, *Total Force Integration Policy*. Lead Command maintenance policy directives and enforcement as they pertain to aircraft, equipment, and facilities are as follows: ANG/AFRC owns the aircraft in an Active Association, ANG/AFRC maintenance policy will be followed by AD personnel, AFRC owns the aircraft in an ARC Association, AFRC maintenance policy will be followed by ANG personnel, AD owns the aircraft in an Classic Association, AD maintenance policy will be followed by ANG/AFRC personnel.

1.21. Civilian Visitors. Units will not permit civilian visitors to operate any AF equipment, specialized vehicles, and any other equipment that requires training to operate, unless they have been specifically trained in the operation of such equipment. (see AFI 24-301 for AF vehicle operation requirements.)

1.21.1. Civilian visitors include:

1.21.1.1. AF family members who are not employed by the AF or assigned to a military service.

1.21.1.2. All civilians who are visiting another unit/installation and are not performing their normally assigned duties.

1.21.1.3. Retired DoD employees.

1.21.2. Civilian employees, contractor employees, and other civilian personnel who must operate AF equipment as part of their assigned duties are not considered civilian visitors.

1.21.3. Civilian visitors may not be allowed in the flightline area if munitions are present IAW AFMAN 91-201, *Explosive Safety Standards* explosive citing criteria.

1.22. (Added-CAF) Structure for Deployed Aircraft Maintenance Forces. Structure the deployed combat support operation to accomplish mission requirements as follows:

1.22.1. **(Added-CAF)** Flightline and backshop maintenance may be separated to fulfill the mission at the discretion of the senior maintainer at the deployed location. Units deploying to locations with established infrastructures (i.e., U.S. installations or presence at OCONUS locations) shall, with host wing and lead wing coordination, organize into the CWO. Deployed maintenance personnel shall integrate into the existing MXG. All deployed maintenance organizations shall coordinate maintenance actions through the host wing as well as attend appropriate maintenance meetings scheduled by the host wing.

1.23. (Added-CAF) Mx metrics identified in ACCI 21-118 and T. O. 00-20-2.

Chapter 2

SAFETY

2.1. General Safety Guidance. Maintenance personnel are exposed to a large variety of hazardous situations, machinery, equipment, and chemicals. Most hazardous situations can be avoided by following procedures, asking for help when needed, and using personal protective equipment (PPE). Supervisors must be knowledgeable of and enforce AFOSHSTDs, TOs, and AFIs applicable to their operations and ensure personnel are educated on safety requirements applicable to the job.

2.2. Air Force Occupational and Health (AFOSH) Guidance. Use AF functional directives and technical data in conjunction with AFOSH STDs, see **Attachment 1** for AFOSHSTDs applicable to aircraft maintenance activities (this list is not all inclusive). If conflicting guidance exists, the weapon system specific technical data will take precedence.

2.3. Hazards. All managers and supervisors must incorporate Operational Risk Management (ORM) within the workplace. Identify, eliminate or control, and document hazards to minimize risk associated with uncertainty in the decision-making process. Additional guidance can be found in AFI 90-901, *Operational Risk Management*, and AFPAM 90-902, *Operational Risk Management Guidelines and Tools*. When written directives are not available for the task being performed, the supervisor, with safety staff help, completes a job safety analysis (JSA) to ensure worker, equipment, and work environment compatibility. Procedures for JSAs are contained in AFI 91-301, *Air Force Occupational and Environmental Safety, Fire Protection, and Health (AFOSH).*

2.4. Hazard Abatement Program. Implement and follow the AF Hazard Abatement Program in AFI 91-301. Document safety plans, actions, hazards, and personnel training with the appropriate AF forms listed below.

2.4.1. AF IMT 3, **Hazard Abatement Plan**; AFI 91-301.

2.4.2. AF IMT 55, **Employee Safety and Health Record**; AFI 91-301.

2.4.3. AF IMT 457, **USAF Hazard Report**; AFI 91-202, *The US Air Force Mishap Prevention Program*.

2.4.4. AF Form 1118, **Notice of Hazard**; AFI 91-301.

2.5. Safety Equipment. Ensure personnel are provided the appropriate PPE (when PPE is required) for the hazard and are trained in its use, inspection and care. Contact the installation ground safety or Bioenvironmental Engineering (BE) for assistance in the selection of PPE. Review AFOSH 91-501 for additional information on PPE.

2.6. AF Mishap Prevention Program. Implement and follow AFI 91-202 to protect AF resources. Ensure all personnel receive safety, fire protection, and health on-the job training upon initial assignment and whenever there is a change in equipment, procedures, processes or safety, fire protection, and health requirements. Supervisors must document safety-related training on AF IMT 55, **Employee Safety and Health Record**, equivalent form or electronic database.

2.7. Safety Inspections. Accomplish hazard assessment and identification through the application of occupational safety, fire prevention, and health inspections, evaluations, and surveys. Supervisors will perform self-inspections to assess the safety environment of the unit. Most AFOSHSTDs contain sample checklists for unit self-inspections. Also, use locally developed checklists tailored to specific unit requirements.

2.8. Flightline Safety. Adhere to aircraft flightline safety guidance in AFOSHSTD 91-100; *Aircraft Flightline-Ground Operations and Activities*, AFOSHSTD 48-20, *Occupational Noise and Hearing Conservation Program*, TO 00-25-172, *Ground Servicing of Aircraft and Static Grounding/Bonding*; and equipment TOs.

2.9. Flightline Driving. All operators of vehicles on the flightline must first obtain training and possess a valid flightline driving permit. Follow the general safety requirements for flightline vehicle operations found in AFOSHSTD 91-100 and AFJMAN 24-306, *Manual for the Wheeled Vehicle Driver*, AFI 13-213, *Airfield Management*, and local instructions. Supervisors will familiarize all personnel authorized to operate vehicles on the flightline with the aircraft marshaling signals found in AFI 11-218, *Aircraft Operation and Movement on the Ground*. ***NOTE:*** see AFI 24-301 for AF vehicle operation requirements.

2.9.1. Operators must receive flightline driver's training on driving conditions and hazards inherent to the flightline environment and obtain a flightline competency card prior to operating any vehicle or equipment operated like a vehicle (bomb lifts, club cars, gators, mules, golf carts, etc.) on the flightline, even though these equipment items do not require a driver's permit or license.

2.10. Work Center Safety Guidance. Use the general work center safety guidance in AFOSHSTD 91-66, *General Industrial Operations* and AFSOSHSTD 91-501, *AF Consolidated Occupational Safety Standard*, equipment TOs, and local instructions.

2.11. Confined Spaces. A confined space is any area that is large enough to bodily enter; and has limited/restricted means of entry or exit; and is not designed for continuous human occupancy. CCs, functional managers, and supervisors must ensure all confined spaces that fall under their purview are properly identified, and implement a confined spaces program as outlined in AFOSHSTD 91-25, *Confined Spaces*. Also see AFOSHSTD 48-137, *Respiratory Protection Program*, and TO 1-1-3, *Inspection and Repair of Aircraft Integral Tanks and Fuel Cells*, for specific requirements. Supervisors will ensure all personnel required to enter a confined space are properly trained, equipped, and qualified and the training is documented prior to entry. For assistance in establishing an effective confined space program contact the installation ground safety office.

2.12. Munitions Safety Guidance. Use munitions safety requirements found in AFMAN 91-201, *Explosive Safety Standards*; 11A-, 11P-, and 13A-series TOs (explosive and egress handling safety); **Chapter 16**; and specific equipment TOs. AFMAN 91-201 contains safety topics, such as, explosive safety program elements, explosive facility licenses, quantity distance criteria, handling of aircraft, remotely piloted vehicles and drones containing explosives, fire protection, storage and compatibility standards, transportation, etc. The 11, 11A-, 11K-, 11P-, 13A-, and 21M- series TOs deal with the specifics of handling and maintaining explosive items or components. **Chapter 16** of this instruction pertains to the handling of egress and escape systems and personnel training, certification, and decertification.

2.13. Lockout and Tagout Concept. Use procedures to isolate machinery or equipment (in off-equipment areas) from all hazardous energy. Instruct all personnel in the safety significance of lockout or tagout procedures. Find complete guidance for instituting an effective program in AFOSHSTD 91-501, *Air Force Consolidated Occupational Safety Standard.*

2.14. Warning Tags. See TO 00-20-1

2.15. Danger Tags. Will only be used when an immediate hazard exists and specific precautions are required to protect personnel or property or as required by TOs, instructions, or other directed requirements. Tags will be placed on damaged equipment and immediate arrangements made for the equipment to be taken out of service and sent to the repair shop. Do not use the AF Form 979, Danger Tag, for on-equipment aircraft maintenance.

2.16. Contracted Operations.

2.16.1. Refer to AFI 91-301, *AF Occupational and Environmental Safety, Fire Protection, and Health (AFOSH)* and AFOSH 91-100, *Air Force Occupational Safety and Health Standard*, for guidance on AFOSH applicability to contractors.

2.17. Safety "Knock It Off. " Due to the inherent danger to life, limb, and property associated with maintenance operations, personnel require a means to pause or terminate an operation or situation which they perceive is unsafe or too dangerous. When crew leaders become task-focused, junior personnel are often better able to assess the danger; however, deferring to the experience and judgment of the crew leader, they may choose to remain silent, missing an opportunity to break the mishap sequence chain. Operators have long used the call words "Knock it Off" in their profession; maintenance commanders and supervisors should foster the same culture in their units so that a simple, but recognizable "audible" from anyone can prevent a potential mishap.

2.18. Environmental, Safety and Occupational Health Management System (ESOHMS) or Environmental Management System (EMS).

2.18.1. All personnel shall complete Environmental Management System (EMS) awareness training. Commanders or EMS management personnel shall complete EMS Manager training (ref AFPD 90-8).

2.19. Environmental and Health Working Groups (E&HWG).

2.19.1. Installation weapon system squadrons/organizations will participate in the periodic Systems Group and Sustainment Group weapon system environmental and health working groups or their equivalent IAW AFPD 90-8, *Environmental Safety and Occupational Health*.

2.19.2. Nuclear Weapons Intrinsic Radiation Safety. Nuclear-capable units will establish an intrinsic radiation (INRAD) program to ensure that INRAD exposure for all personnel conducting maintenance, on-load and off-load, transport, or storage of nuclear weapons is "as low as reasonably achievable" (ALARA). Find complete guidance for instituting an effective INRAD program in AFI 91-108, *Air Force Nuclear Weapons Intrinsic Radiation Safety Program.*

Chapter 3

GENERAL RESPONSIBILITIES FOR COMMANDERS AND KEY LEADERS

3.1. General. This chapter outlines responsibilities for commanders and key leaders involved in maintenance activities. For the purpose of this instruction, in units where there is not a military CC responsible for maintenance, the applicable civilian Director of Maintenance (DOM) will ensure compliance with all responsibilities in this instruction. ***NOTE:*** For the purpose of this instruction, contractor equivalents are as follows: A1C – aircraft servicer or apprentice/journeyman; SrA (1 year time in grade)--aircraft worker or field maintenance worker or higher; SSgt--aircraft mechanic or field maintenance mechanic or higher; TSgt--senior mechanic or craftsman; MSgt – lead mechanic; SMSgt/CMSgt/ maintenance officer--foreman or branch chief or higher. Lead Commands will determine grade/skill level equivalents for Civilians.

3.2. Wing Commander (WG/CC) Responsibilities. The WG/CC allocates resources to meet all mission requirements. The WG/CC should ensure the maintenance organization is not overly tasked with augmentation duties outside maintenance functional areas. Commanders organize maintenance according to AFI 38-101. The WG/CC:

3.2. (CAF)Wing Commander (WG/CC) Responsibilities. Will not assign augmentee duties to MXG personnel at TFI locations with Classic Associations when manned below WMP-5 levels.

3.2.1. Conducts a daily "Wing Standup" meeting. The meeting will include, at a minimum, a review of the previous day, current day, and next day's activities, focused on identifying and resolving issues with executing the established flying and maintenance schedule.

3.2.2. Ensures a coordinated wing instruction is developed to control tools, equipment, and electronic devices from all wing agencies dispatching to aircraft parking/runway/taxi areas and aircraft maintenance areas IAW **Chapter 1**, **Chapter 10**, and **Chapter 14** of this instruction.

3.2.3. Participates in quarterly QA and monthly scheduling meetings to stay abreast of maintenance issues.

3.2.4. Ensures maintenance and operations develop a joint annual maintenance and flying program. Establishes a balance between the requirement for sorties and maintenance capability. Establishes a joint MXG and OG planning and scheduling cycle to ensure the best use of aircraft, equipment, and personnel to accomplish short term sortie production and long term fleet health.

3.2.5. Provide augmentees for the nestable fuel tank build up (NFTBU) team as required to support any wartime UTC tasking.

3.2.6. Establishes a Crash Damaged or Disabled Aircraft Recovery (CDDAR) capability. Publishes a wing OI containing specific responsibilities for all applicable base agencies.

3.2.7. Approve the weekly, monthly, quarterly, and annual flying/test schedules IAW **Chapter 7** of this instruction.

3.3. Wing Vice Commander (WG/CV) Responsibilities. The WG/CV, Center CV/CA, (or equivalent) will:

3.3.1. Manage the Foreign Object Damage (FOD) and Dropped Object Prevention (DOP) Programs. The WG/CV is the FOD/DOP Prevention Program Manager and appoints a qualified technical sergeant (or above), civilian equivalent, or contractor if designated by performance work statement, as the FOD/DOP Prevention Monitor(s) IAW **Chapter 14** of this instruction.

3.4. Maintenance Group Commander Responsibilities. In addition to the responsibilities listed below, the MXG/CC must also ensure additional maintenance requirements and programs in **Chapter 14** of this instruction are complied with.

3.4. (CAF)Maintenance Group Commander Responsibilities. MXG/CC responsibilities at units that do not have an MXG/CC will fall under the senior Group-level officer possessing overall responsibility for maintenance. (e.g. test units, GSUs, Recon Groups, etc.).

3.4.1. The MXG/CC (or equivalent) will:

3.4.1.1. Establish a radiation protection program IAW AFOSHSTD 48-9, *Radio Frequency, Radiation (RFR) Safety Program*, when applicable.

3.4.1.2. Ensure a focal point is identified as the MXG Environmental Coordinator for environmental, safety, and occupational health requirements, compliance, and worker protection issues. Refer to AFPD 90-8, AFI 32-7080, *Pollution Prevention Program*, and AFI 32-7086, *Hazardous Materials Management*, for additional guidance.

3.4.1.3. Ensures strict adherence to technical data and management procedures.

3.4.1.4. Ensure maintenance is only performed by personnel who are trained, qualified, and certified, unless under the direct supervision of a trainer or certifier.

3.4.1.5. Ensure standardization of maintenance discipline, procedures, organizational structures, compliance, and management philosophy.

3.4.1.6. Coordinate with the base fire department, safety, and airfield operations in developing adverse weather procedures for protecting aircraft and equipment IAW AFOSHSTD 91-100, AFI 10-229, *Responding to Severe Weather Events*, and MDS-specific technical data.

3.4.1.7. Ensure aircraft maintenance data is accurate by establishing and supporting a data integrity team (DIT). This team is not required in contract and civil service organizations unless specified in the statement of work (SOW), performance work statement (PWS) or performance requirements statement (PRS). Ensure members assigned to the DIT are qualified and provided sufficient time to accurately assess the data. Ensure each aircraft maintenance work center performs a review of all documentation entered into IMDS-CDB/G081 daily IAW TO 00-20-2, *Maintenance Data Documentation.*.

3.4.1.8. Ensure activity inspections (if established) are conducted IAW **Chapter 8** of this instruction and Lead Command guidance.

3.4.1.9. Approve and publish In Process Inspection (IPI) listings every two years.

3.4.1.10. Ensure the Maintenance Standardization and Evaluation Program (MSEP) requirements are implemented IAW **Chapter 8** of this instruction.

3.4.1.11. Ensure effective management of the MXG's total maintenance training program IAW AFI 36-2201, *Air Force Training Program*. Ensure maintenance training is accomplished according to the published (monthly) training plan. Ensure Aircraft/Munitions Maintenance Special Experience Identifier (SEI) management IAW AFI 36-2232. Provide aircraft, personnel, facilities and equipment to support the maintenance-training program.

3.4.1.12. Develop plans to rotate personnel to enhance the mission and develop individual experience and knowledge. (N/A to ARC)

3.4.1.13. Manages the maintenance/munitions-training program to include course development content, ancillary, qualification, and maintenance training activities. Publishes monthly training schedules outlining specific aircraft course and equipment requirements. The MXG/CC may authorize the Munitions Flight Commander/Chief to chair the munitions scheduling and training meetings and publish schedules.

3.4.1.14. Approve RFAs (IAW **Chapter 1**) after they are coordinated with PS&D, QA, and all applicable maintenance organizations.

3.4.1.15. Ensure TOs are managed IAW TO 00-5-1

3.4.1.16. Designate a focal point for all functional, technical, and QAE matters pertaining to performance-based activity. See **Chapter 1**.

3.4.1.17. Provide maintenance crosstell information IAW **Chapter 8** of this instruction.

3.4.1.18. Review the weekly, monthly, quarterly, and annual flying/test schedules IAW **Chapter 7** of this instruction.

3.4.1.19. Ensure munitions are accounted for IAW AFI 21-201, Conventional Munitions Maintenance Management.

3.4.1.20. Ensure all personnel assigned to maintenance are used to accomplish critical maintenance tasks before releasing them for non-maintenance duties.

3.4.1.21. Accomplish quarterly reviews of maintenance limiting factors (LIMFACs), shortfalls, and simulation requests.

3.4.1.22. Establish Minimum Equipment Levels (MELs) for essential maintenance assets to include aircraft, engines, pods, AGE, vehicles, etc.

3.4.1.22. **(CAF)** Also establish minimum essential levels for portable test equipment such as borescopes, boresighting equipment, etc., as applicable, and review serviceability and repair status on a monthly basis.

3.4.1.23. Function as the OPR for the Intermediate Repair Enhancement Program (IREP) IAW **Chapter 11** of this instruction and ensure a meeting is conducted at least quarterly.

3.4.1.24. Ensure an effective Flash Blindness Protective Device Maintenance Program is accomplished IAW **Chapter 14** of this instruction.

3.4.1.25. Implement an effective Corrosion Prevention and Control Program IAW TO 1-1-8, *Application and Removal of Organic Coatings, Aerospace and Non-Aerospace Equipment*; TO 35-1-3, *Corrosion Prevention and Control, Cleaning, Painting, and Marking of USAF Support Equipment*; Lead Command instructions; and MDS-specific TOs. Coordinate requests for naming aircraft through appropriate MAJCOM/CC, and forward to HQ USAF/A4LM for coordination and approval by AF/CV.

3.4.1.26. Ensure a compliance-structured self-inspection program is established IAW **Chapter 14** of this instruction and Lead Command directives.

3.4.1.27. Ensure a nuclear surety program is implemented (if applicable) IAW AFI 91-101, *Air Force Nuclear Weapons Surety Program*, and nuclear munitions are maintained, handled and accounted for IAW AFI 21-204, *Nuclear Weapons Maintenance Procedures* and AFI 21-203, *Nuclear Accountability Procedures.*

3.4.1.27.1. For units possessing NCE, ensure personnel are trained in the proper use of nuclear flagwords, mishap and deficiency reporting instructions IAW AFMAN 91-221, *Weapons Safety Investigations and Reports* and AFI 91-204.

3.4.1.28. Ensure effective management of the Engine Trending and Diagnostic (ET&D) program IAW 21-104.

3.4.1.29. Establish Crashed, Damaged, or Disabled Aircraft Recovery (CDDAR) capability IAW applicable MDS technical data and **Chapter 14** of this instruction. Ensure resources and trained personnel are available to perform responsibilities of the CDDAR program.

3.4.1.30. Develop a 10-year facility plan specifying maintenance, upgrade, and replacement projections for the group's facilities. Update and coordinate this plan with the base Civil Engineer annually. Coordinate and prioritize group maintenance facility work orders monthly (Quarterly for the ARC).

3.4.1.31. Ensure adequate communication devices are available and appoint an OPR for assigned land mobile radios (LMR) IAW **Chapter 14** of this instruction.

3.4.1.32. Ensure repair cost evaluations are performed and appropriate levels of review and repair authorization are established in squadrons, flights, and repair sections IAW TO 00-20-3, TO 00-25-240, *Uniformed Repair/Replacement Criteria for Selected USAF Support Equipment (SE)* and TO 35-1-25, *Economic Repair Criteria for Support Equipment (SE).*

3.4.1.33. Ensure effective use of the AF Engineering and Technical Services/Contracting Engineering Team Specialists (AFETS/CETS) and use appropriate engineering materials as prescribed in AFMCI 21-401, *Engineering Data Storage, Distribution, and Control*, and AFI 63-101, *Acquisition and Sustainment Life Cycle Management*.

3.4.1.34. Establish the group maintenance awards and recognition program to meet AF and MAJCOM requirements IAW AFI 36-2818, *USAF Maintenance Awards Program*.

3.4.1.35. Ensure MXG activities serviced by an off-base PMEL establish a TMDE collection point. The collection point coordinator is the single point-of-contact between the MXG work centers and the servicing PMEL and is trained by the servicing PMEL. Designate the collection point primary and alternate coordinator in writing. The TMDE

collection point shall perform the applicable responsibilities of this instruction, **paragraph 5.13.6**.

3.4.1.36. Ensure procedures are followed to properly turn in recoverable and consumable items IAW AFMAN 23-110.

3.4.1.37. Deploy MRTs and equipment to recover aircraft IAW **Chapter 14** of this instruction and applicable Lead Command guidance.

3.4.1.38. Monitor unusual materiel conditions for investigation, consideration of fleet-wide potential, and reporting IAW **paragraph 14.3** of this instruction.

3.4.1.39. Ensure the egress section "safes" all static display aircraft according to 00-80-series and weapon system TOs.

3.4.1.40. Approve MXG Key Task List (KTL) and Routine Inspection Lists (RIL).

3.4.1.41. Ensure an orientation program is developed and conducted for all personnel newly assigned to all unit maintenance/activities. As a minimum, topics must include unit mission, Air and Space Expeditionary Forces (AEF) vulnerability, tasking plans, supply procedures, FOD program, general flightline and work center safety rules, environmental issues, block training, and corrosion control IAW AFI 36-2232.

3.4.1.42. Ensure training requests identified on AF IMT 898, **Field Training Requirements Scheduling Document**, are coordinated and approved.

3.4.1.43. Establish MXG engine Lead the Fleet (Pacer) Program for engine type IAW the following documents: MOUs, MOAs, Propulsion Center of Excellence Best Practice 01-14, **http://propulsion-best-practices.wpafb.af.mil**, and AFI 21-104, *Selective Management of Selected Gas Turbine Engines*.

3.4.1.44. Establish MXG local manufacture procedures and controls.

3.4.1.45. Ensure the MXG oil analysis program (OAP) complies with AFI 21-124, *Oil Analysis Program* and Lead Command directives.

3.4.1.46. Chair the Product Improvement Program (PIP) R&M meeting IAW **Chapter 8** of this instruction.

3.4.1.47. Conduct meeting to establish priorities at the beginning of exercises and contingencies.

3.4.1.48. Appoint a Stock Record Account Number (SRAN) engine manager (if a host unit), or a unit engine manager (UEM) (if a tenant unit), to accomplish duties outlined in TO 00-20-254-series.

3.4.1.49. Appoint in writing a qualified 2A6X1, minimum7-skill level, (or civilian equivalent) technician to perform Engine Health Management Plus (EHM+) duties IAW AFI 21-104. (ANG may appoint in writing a qualified 2A6X1 or 2R1X1, minimum7-skill level).

3.4.1.50. Designate the Installation Maintenance Advisor when applicable, to the Aero Club according to AFI 34-217, *AF Aero Club Program.*

3.4.1.51. Appoint hot refueling/hot defueling OPRs for the WG, and designate an OPR for hot refuel training (if applicable) IAW **Chapter 14** of this instruction.

3.4.1.52. Ensure maintenance requirements (e.g., aircraft turnaround, alternate fuel cell, hot refueling, end-of-runway (EOR) check area, engine run spots, explosive load (cargo) areas) are included in the base parking plan.

3.4.1.53. Ensure WG Aircraft Structural Integrity Program (ASIP) is established IAW AFI 63-1001, *Aircraft Structural Integrity Program* and **Chapter 14** of this instruction.

3.4.1.54. Establish a dedicated crew chief (DCC) program as applicable IAW **Chapter 4** of this instruction.

3.4.1.55. Ensure aircraft shelters at bases with permanently assigned aircraft are maintained, unless otherwise stipulated in contracting arrangements, IAW **Chapter 14** of this instruction (If an aircraft shelter is used for other than its designed purpose, the using activity will maintain it).

3.4.1.56. Ensure effective management of weight and balance (W&B) program IAW **Chapter 8** of this instruction.

3.4.1.57. Coordinate with Operations and establish Functional Check Flight (FCF), Operational Check Flight (OCF), and High Speed Taxi Check programs.

3.4.1.58. Implement hangar queen program IAW **Chapter 14** in this instruction.

3.4.1.59. Develop a MXG impoundment program and ensure compliance with the procedures IAW **Chapter 9** of this instruction.

3.4.1.60. Ensure squadrons not possessing 2W1X1 personnel establish a chaff/flare training program. As a minimum, the program will include academic, explosive safety, and load/unload training. The program will be administered using the following guidance; as a minimum, the academic program will include:

3.4.1.60.1. Applicable TOs and publications.

3.4.1.60.2. Applicable safety discipline/practices.

3.4.1.60.3. Security requirements.

3.4.1.60.4. Aircraft familiarization.

3.4.1.60.5. Stray voltage checks (as required).

3.4.1.60.6. Munitions characteristics.

3.4.1.60.7. Local requirements.

3.4.1.61. Establish written MXG procedures to review and clear repeat, recurring, and cannot duplicate (CND) discrepancies.

3.4.1.62. Appoint a Radar Warning Receiver (RWR)/Radar Threat Warning (RTHW) manager IAW **Chapter 14** of this instruction.

3.4.1.63. Ensure compliance with Identification Friend or Foe (IFF) Mode-IV Program IAW **Chapter 14** of this instruction.

3.4.1.64. Ensure the Maintenance Operations Flight (MOF) develops procedures to update and ensure Geographical Location (GEOLOC) codes for on/off-station possessed aircraft are updated/ correct in IMDS location subsystem. (G081 units are exempt as long as a HHQ agency accomplishes this requirement.)

3.4.1.65. Develop procedures for Red Ball maintenance to include parts delivery, maintenance procedures, documentation methods, and follow-on actions IAW **Chapter 14** of this instruction.

3.4.1.66. Develop a wing instruction to control tools, equipment, and electronic devices from all wing agencies dispatching to aircraft parking/runway/taxi areas and aircraft maintenance areas IAW **Chapter 1**, **Chapter 10**, and **Chapter 14** of this instruction.

3.4.1.67. Establish written guidance on individual responsibilities and specific procedures for CANN actions (**Chapter 5**, **Chapter 11** & **Chapter 14** of this instruction). Ensure aircraft possessed by AFMC for depot maintenance are not cannibalized without approval from the applicable ALC Program Manager and coordinated with the MAJCOM functional manager.

3.4.1.68. Establish local procedures for management and maintenance of assigned ground instructional training aircraft (GITA) to ensure they remain useful and safe within guidelines stated in **Chapter 14** of this instruction, AFI 84-103, *U.S. Air Force Heritage Program* and AFMAN 23-110-series.

3.4.1.69. Is responsible for Transient Alert (TA) (if established) and will establish procedures and furnish necessary personnel and facilities for handling transient aerospace vehicles to ensure that servicing, inspection, and maintenance are consistent with the mission of each transient aerospace vehicle. Give special consideration to medical or air evacuation aerospace vehicle, emergency missions, and special missions.

3.4.1.70. Ensure the Maintenance Resource Management (MRM) program is managed effectively IAW **Chapter 1** of this AFI.

3.4.1.71. Ensure an effective AFREP program is established IAW AFI 21-123, *The Air Force Repair Enhancement Program*.

3.4.1.72. **(Added-CAF)** GP/CCs will jointly develop and publish parameters for use in day-to-day operations. Parameters will include the following as applicable: standard flying hour window, standard duty day, standard turn times, turn patterns, number of aircraft devoted to the flying schedule, average phase time remaining standard, and minimum equipment levels for essential maintenance assets.

3.4.1.73. **(Added-CAF)** Ensure emergency action (including severe weather) procedures are established and adhered to with regard to movement of aircraft, support equipment, and evacuation of flightline/in-shop personnel.

3.4.1.74. **(Added-CAF)** Conduct a daily "MXG Standup" meeting separate from the daily production/scheduling meeting. The meeting topics should include, as a minimum, aircraft status, impounded and hangar queen aircraft, flying and maintenance schedule shortfalls and deviations. Mandatory minimum attendees include AMU Supervision, Operations Officer/Maintenance Superintendent, MOC, PS&D, Analysis and QA.

3.4.1.75. **(Added-CAF)** Ensure maximum usage of Scanning Electron Microscope/Energy Dispersive X-Ray (SEM/EDX) at home station and deployed/TDY operating locations. The MXG/CC is the waiver authority for deploying SEM/EDX machines.

3.4.1.76. **(Added-CAF)** Establish procedures for external fuel tanks, conformal fuel tanks and weapons bay fuel tanks. Ensure procedures cover as a minimum: designated storage area, ownership and oversight responsibilities IAW AFI 21-103, *Equipment Inventory, Status, and Utilization Reporting,* transfer between AMUs, proper care and maintenance, and turn-in procedures to fuel systems section for repair/inspection.

3.4.1.77. **(Added-CAF)** Establish procedures to ensure back up power is available for Ground Crew Stations and Launch and Recovery Elements during commercial power outages.

3.4.1.78. **(Added-CAF)** May appoint Wing Avionics Manager (WAM). If appointed, MXG/Supt will determine workcenter location for this individual. The typical functions of a WAM are as follows:

3.4.1.78.1. **(Added-CAF)** Serves as the MXG Aircraft Structural Integrity Program (ASIP) Project Officer IAW chapter 14.6 of this publication.

3.4.1.78.2. **(Added-CAF)** Serves as the MXG Radar Warning Receiver (RWR)/Radar Threat Warning (RTHW) program manager IAW chapter 14.28 of this publication.

3.4.1.78.3. **(Added-CAF)** Serves as the MXG Identify Friend or Foe (IFF) Mode IV program manager IAW chapter 14.37 of this publication.

3.4.1.78.4. **(Added-CAF)** Serves as the MXG Electronic Warfare Integrated Reprogramming (EWIR) focal point. The WAM will work with the wing Electronic Combat Pilot (ECP) to ensure compliance with AFI 10-703.

3.4.1.78.5. **(Added-CAF)** Manages all wing assigned Two-Level Maintenance (2LM) Pods.

3.4.1.78.5.1. **(Added-CAF)** Coordinates all pod shipments as directed by MAJCOM to/from base or operating location.

3.4.1.78.5.2. **(Added-CAF)** Track all incoming and outgoing pod parts and SE until received or arrived at destination.

3.4.1.78.5.3. **(Added-CAF)** Ensure accurate and timely pod and SE status is updated or verified daily in RAMPOD IAW AFI 21-103 Chapter 10.

3.5. Deputy MXG/CC will:

3.5.1. Chairs the daily maintenance production/scheduling meeting. The purpose of this meeting is to verify aircraft and equipment utilization and scheduled maintenance requirements for the next day, establish work priorities, and coordinate schedule changes.

3.5.1.1. Meeting topics will include: aircraft status, MICAP and Repair Cycle Status, AF IMT 2407, **Weekly/Daily Flying Schedule Coordination**, actions, current day flying and maintenance schedule execution and remaining portion of the current day's schedule,

review previous day's flying and maintenance schedule deviations to the published schedule IAW MAJCOM guidance, supply MICAPs, prioritizing aircraft requiring/competing for shared resources, and review special inspections (SIs), TCIs, TCTOs, depot field team (DFT)/contract field team (CFT) schedules.

3.5.1.1.1. Each AMU will brief current aircraft status and repair plans emphasizing high visibility aircraft (impounded aircraft, hangar queens, etc.).

3.5.1.1.2. MXS will brief status and progress of inspections and any problems with projected flow/time line. Include status of back line aircraft and refurbishment aircraft when under MXS control. Discuss engine spare status and requirements.

3.5.1.2. Perform the following reviews weekly: review next week's flying and maintenance schedule to de-conflict and prioritize aircraft requiring/competing for shared resources weekly. Review any overdue special inspections and TCIs and planned corrective action. Review status of TCTOs that will ground within 30 days and completion plan. Review DFT/CFT schedule requirements. Review previous week's deviations to flying and maintenance schedules.

3.5.1.3. Designates mandatory meeting attendees.

3.5.1.4. Develop maintenance capability in conjunction with the production activities.

3.5.1.5. Ensure critical equipment, facilities, and materiel resources are allocated and establish overall priorities.

3.5.2. **(Added-CAF)** Acts as the lowest level approval authority for cannibalization of Hangar Queen Category 1 aircraft.

3.6. MXG Superintendent Responsibilities. In addition to the Group Superintendent responsibilities outlined in AFI 36-2618, The Enlisted Force Structure, the MXG Chief shall advise and assist the MXG/CC on their responsibilities as outlined in this chapter.

3.6.1. The MXG Chief shall advise on personnel, morale, and welfare issues and serve as the group's focal point for maintenance issues and enlisted manning.

3.6.2. MXG/CC will determine the scope and responsibilities for MXG Chief regarding meetings and activities.

3.6.3. **(Added-CAF)** Approves the selection of maintenance instructors.

3.7. Squadron Commander (SQ/CC) Responsibilities. The SQ/CC will:

3.7.1. Ensure manning is distributed between shifts to safely and efficiently accomplish the mission.

3.7.1.1. Ensure there are adequate levels of supervision on all shifts.

3.7.2. Ensure compliance with the Environment Safety and Occupational Health Management System (ESOHMS) programs as identified in AFPD 90-8, the AFI 90-8XX series of ESOH instructions, AFPD 91-3, *Occupational, Safety, and Health*, AFI 91-301, and the AFI 32-70XX series environmental instructions.

3.7.3. Implement group radiation protection program IAW AFOSHSTD 48-9, *Radio Frequency, Radiation (RFR) Safety Program*.

3.7.4. Comply with unit Environmental Protection Agency (EPA) program IAW AFI 32-7042, *Solid and Hazardous Waste Compliance.*

3.7.5. Designate an unit environmental coordinator (UEC).

3.7.6. Ensure strict adherence to technical data and all other written management procedures.

3.7.7. Enforce sound maintenance and supply discipline.

3.7.8. Review Status Of Training (SOT) programs monthly. Ensure upgrade training and maintenance qualification programs emphasize quality and are not primarily focused on meeting minimum upgrade time frames.

3.7.9. Monitor all personnel working outside of their primary AFSC to ensure that it does not hamper mission accomplishment.

3.7.10. Establish a squadron vehicle management program IAW AFI 23-302.

3.7.11. Administer the squadron safety program IAW AFI 91-202 and **Chapter 2** of this instruction.

3.7.12. Ensure personnel are trained and resources are available for CDDAR Program.

3.7.13. Manage unit flying crew chief (FCC) program IAW **Chapter 14** of this instruction.

3.7.14. Ensure facilities comply with AF industrial environmental standards IAW AFI 91-301.

3.7.15. Ensure intrusion detection systems (IDS) are installed in permanent facilities when required to store munitions IAW DoD 5100.76-M, *Physical Security of Sensitive Conventional Arms, Ammunition, and Explosives.* When IDS is not available, protect munitions as outlined in AFI 31-101, *The AF Physical Security Program.*

3.7.16. Appoint custodians to manage the Custodian Authorization and Custody Receipt Listing (CA/ CRL).

3.7.17. Support USAF awards program IAW AFI 36-2818 *USAF Logistics Awards Program.*

3.7.18. Recommend personnel for QA duty positions to MXG/CC.

3.7.19. Designate Flight Chiefs.

3.7.20. Ensure the UMD is consistent with the organizational structure in AFI 38-101.

3.8. Maintenance Operations Officer (MOO)/Maintenance Superintendent (MX SUPT) Responsibilities. The MOO/MX SUPT is also referred to as Maintenance Operations. As applicable, Maintenance Operations advises the SQ/CC on technical matters, leads a mission-focused maintenance effort, and manages resources necessary to accomplish the mission. They provide necessary administration to manage assigned responsibilities, control maintenance through Production Superintendents, flight chiefs, section, and shop chiefs. The MX SUPT is responsible to the MOO. Maintenance Operations will:

3.8.1. Ensure manning is distributed between shifts to safely and efficiently accomplish the mission.

3.8.1.1. Ensure there are adequate levels of supervision on all shifts.

3.8.2. Implement GP's radiation protection program IAW AFOSHSTD 48-9, *Radio Frequency, Radiation (RFR) Safety Program.*

3.8.3. Ensure compliance with AFPD 90-8, the AFI 90-8XX series and AF 32-70XX series environmental directives and applicable environmental protection/compliance guidance. Also reference related 48- and 91-series AFOSHSTD.

3.8.4. Enforces strict adherence to technical data and management procedures. Enforce maintenance and supply discipline.

3.8.5. Ensure maintenance is performed by personnel who are trained, qualified, and certified, unless under the direct supervision of a trainer or certifier.

3.8.6. Ensure compliance with AFI 91-series safety directives, appropriate AFOSHSTD, and applicable industrial safety publications.

3.8.7. Ensure MIS and aircraft forms are documented IAW **paragraph 1.12** of this instruction and TO 00-20-1.

3.8.8. Ensure timely and accurate engine data is provided to the EM element for all applicable engines.

3.8.9. Enforce procedures to prevent FOD and dropped objects IAW **Chapter 14** of this instruction.

3.8.10. Monitor and recommend updates to local IPI requirements; forward IPI recommendations to QA IAW **Chapter 8** of this instruction.

3.8.11. Ensure compliance with LMR Program IAW **Chapter 14** of this instruction.

3.8.12. Enforce Lead Command standards on location of G-files (hard copy or electronic TO-library carried on aircraft) as applicable.

3.8.12. **(CAF)** Units will establish local procedures to ensure accountability of all TOs assigned to aircraft libraries (G-Files).

3.8.13. Coordinate with other squadrons to develop and execute a rotation plan for all applicable AFSCs to balance grade, skill level and experience of personnel between AMU/MXS as required. The WWM will perform this function for AFSC 2W1X1 (N/A to ARC).

3.8.14. Manage the Special Certification Roster (SCR). (MXG/CC for the ARC) Ensure a sufficient number of personnel are qualified to perform mission critical tasks listed on the SCR Table in **Chapter 14** of this instruction. Reviews and approves individuals for addition to the SCR.

3.8.15. Ensure aircraft/SE is available to support unit training objectives.

3.8.16. Enforces procedures for identifying, recording, and clearing repeat, recurring, and CND discrepancies.

3.8.17. Establish a method to distribute maintenance cross-talk/crosstell messages, QA newsletters, policy announcements, technical notifications, and other important maintenance information for which no formal notification process exists.

3.8.18. Review and evaluate management and production effectiveness. Analyze personnel and equipment performance history using QA reports. Initiate management actions to meet new workloads or correct reported/perceived deficiencies.

3.8.19. Ensure an annual maintenance plan is developed and reconciled with the flying schedule and flying requirements to ensure maintenance can support the annual flying/test program. Participate in the maintenance planning cycle.

3.8.20. Attend the MXG daily maintenance production/scheduling meeting.

3.8.21. Ensure a squadron SERENE BYTE or PACER WARE response capability exists IAW AFI 10-703, *Electronic Warfare Integrated Reprogramming*.

3.8.22. Ensure a squadron Corrosion Control Program is implemented and managed IAW TO 1-1-8, TO 35-1-3, Lead Command instructions, and MDS-specific TOs.

3.8.23. Ensure a Refurbishment Program is implemented and managed (as applicable).

3.8.24. Ensure OAP is monitored and administered IAW AFI 21-124.

3.8.25. Ensure squadron CDDAR Program responsibilities are established.

3.8.26. Ensure squadron ASIP responsibilities are accomplished IAW the MXG ASIP OI.

3.8.27. Enforce CANN procedures.

3.8.28. Review and support the monthly (quarterly for ANG) Weapons Load Training (WLT) schedule.

3.8.29. Ensure all personnel performing duties associated with an applicable SEI are entered into the personnel data subsystem within 30 days of assignment; confirm SEI-qualified individuals are matched against proper SEI positions on the Unit Personnel Management Roster (UPMR). (Not applicable to the ARC).

3.8.29.1. Distribute projected gain/loss lists to all work centers and establishes suspense's for updates. Ensures approved personnel actions have been received for all updates then submits consolidated updates to programs.

3.8.30. Ensure deferred maintenance, Pilot Reported Discrepancy (PRD), and back-ordered parts are properly managed.

3.8.31. Review on-line supply products to monitor supply discipline.

3.8.32. Ensures Special Purpose Recoverables Authorized Maintenance (SPRAM) accounts are established IAW AFI 21-103, **Chapter 11** of this instruction, and AFMAN 23-110.

3.8.33. Ensure reporting of materiel deficiencies IAW TO 00-35D-54, *USAF Deficiency Reporting, Investigating, and Resolution.*

3.8.34. Monitor requirements for composite tool kits (CTK), special tools, and SE and take necessary action to ensure availability, as required IAW **Chapter 10** of this instruction.

3.8.35. Coordinates with WWM on all issues affecting AFSC 2W1X1 personnel to include: work center/organizational manpower authorization change requests (ACR), AFSC changes, re-training, special duty requests, special assignment actions (SWAP, Palace Chase, etc), overseas DEROS extensions/IPCOT requests and physical profile changes.

3.8.36. **(Added-CAF)** Review monthly maintenance plan inputs and forward to MOF PS&D for publication.

3.8.37. **(Added-CAF)** Review UMD manpower authorizations, changes to authorizations, functional activity codes (FAC) and workcenter alignment.

3.9. Flight Commander/Flight Chief or AMU Officer in Charge (OIC)/Superintendent: These positions are rated on IAW 36-2406 and will:

3.9.1. Manage shift manpower distribution and make necessary adjustments. Equitably distribute all levels of supervision based on manning and workload to supervise all duty periods. Identify imbalances between authorizations and the number of personnel assigned, or between authorized and assigned skill levels or grades to SQ/CC. Manage additional duties, leaves, ancillary training, and assign personnel to balance workload and minimize negative impacts on the work force.

3.9.2. Execute the squadron's Mishap Prevention Program for the Flight/work center IAW AFI 91-202 and **Chapter 2** of this instruction. Ensure all personnel obtain the required safety training, document on AF IMT 55 IAW AFI 91-301, and applicable AFOSHSTDs. Ensure safety information is available and personnel in hazardous areas are briefed about the dangers. Identify requirements to BE, ensuring facilities meet AF industrial environmental standards IAW AFI 91-202.

3.9.3. Monitor and ensure environmental health physicals and respirator training, initial and recurring requirements, are accomplished when required for assigned personnel IAW applicable 48-series AFOSHSTDs and TOs.

3.9.4. Enforce lock-out/tag-out procedures IAW **Chapter 2** of this instruction and AFOSHSTD 91-501.

3.9.5. Ensure organizational compliance IAW the installation ESOHMS/EMS program.

3.9.6. Enforce strict adherence to technical data and management procedures. Advocate use of the TO improvement program, and ensure work center TO files are maintained IAW TO 00-5-1.

3.9.7. Ensure requirements in TO 11A-1-60 are complied with when certifying items associated with explosives such as: MERS, TERS, pylons, launchers, rafts, bomb racks, ejection seats, fire suppression bottles, Aircrew Flight Equipment (AFE) and gun systems and components. Ensure they are explosive free prior to being turned-in to LRS or the Defense Reutilization Marketing Office (DRMO).

3.9.8. Ensure aircraft and equipment forms and MIS documentation are completed, accurate and accomplished for each shift. Ensure aircraft/equipment status is accurately reflected in both the maintenance forms and the MIS. Ensure MIS and aircraft forms are documented IAW **paragraph 1.12** of this instruction and TO 00-20-1.

3.9.9. Monitor cannibalization actions.

3.9.10. Review deferred maintenance weekly for accuracy and determine if appropriate and timely actions are being taken. Use MIS screens/Automated Records Check and coordinate with the Production Superintendent for accomplishment.

3.9.11. Review the aircraft automated records check after it has been validated by the section NCOIC IAW **Chapter 7** of this instruction.

3.9.12. Ensure operator inspections and user servicing requirements are accomplished on all assigned support equipment IAW TO 00-20-1.

3.9.13. Ensure sections (and elements) maintain records of inspection, lubrication, and maintenance of industrial equipment IAW TO 00-20-1 on AFTO IMT 244, Industrial/Support Equipment Record, or AF IMT 2411, Inspection Document.

3.9.14. Comply with TO 33K-1-100-2-CD-1, *TMDE Calibration Interval Technical Order and Work Unit Code Reference Guide*, applicable calibration measurement summaries (CMS), and TO 00-20-14, in the use, care, handling, transportation and calibration of TMDE owned by the flight.

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

3.9.16. Review/update flight IPI requirements listing every two years and route through MX MOO/ MX SUPT.

3.9.17. Ensure only designated personnel identified in the MIS verify MICAPs/Urgency of Need (UND) 1A and JA requirements.

3.9.18. Select personnel to perform Special Certification tasks IAW **Chapter 14**, **Table 14.1** of this instruction and forward names to MX Operations Officer/MX SUPT for approval.

3.9.19. Ensure training requirements are executed to support established training plan and individual AFSC Career Field Education and Training Plans (CFETP) IAW AFI 36-2232.

3.9.20. Ensure CUT requirements are identified as required by the unit mission IAW **Chapter 1** of this instruction and AFI 36-2232. Ensure CUT does not interfere with upgrade/qualification training.

3.9.21. Ensure procedures are followed to identify, record, and clear repeat, recurring, and CND discrepancies.

3.9.22. Review Maintenance Management Analysis (MMA), QA, and other management reports to determine appropriate management actions to meet new workloads, target deficiencies, and identify and correct root causes.

3.9.23. Review current and updated publications and inform personnel of any significant changes.

3.9.24. Provide inputs to maintenance and flying schedules, and execute scheduled maintenance plans.

3.9.25. Establish flight/AMU-specific emergency action procedures to respond to disaster control and severe weather and forward to MOC. Review unit responsibilities pertaining to aircraft/SE movement and personnel evacuation IAW AFI 10-2501, *AF Emergency Management (EM) Program Planning and Operations*; AFI 10-229, *Responding to Severe Weather Events*; and *Comprehensive Emergency Management Plan* 10-2.

3.9.26. Actively solicit inputs and promotes the Product Improvement Program IAW **Chapter 8** of this instruction.

3.9.27. Ensure the Corrosion Control Program is properly managed IAW TO 1-1-8, TO 35-1-3, Lead Command instructions, and MDS-specific TOs.

3.9.28. Ensure personnel are familiar with the unit CDDAR Program and understand local procedures designed to protect personnel and prevent further damage to aircraft, equipment, and other resources.

3.9.29. Manage the AMU/flight's participation in the FOD and DOP program IAW **Chapter 14** of this instruction.

3.9.30. Oversee the unit's FCC Program.

3.9.31. Establish and enforce a flight Precious Metals Recovery Program, as applicable, IAW AFMAN 23-110 and TO 00-25-113 *Conservation and Segregation of Critical Alloys and Precious Metal Bearing Parts and Scrap.*

3.9.32. Assign section supervisors.

3.9.33. Ensure proper asset management by reviewing MIS data records, the D23, and other pertinent products to minimize shortfalls. When applicable, ensure warranty items are loaded in MIS according to applicable directives. Ensure deficiency reports (DR) are accomplished IAW TO 00-35D-54.

3.9.34. Ensure repairable/non-repairable parts are promptly processed through repair channels within the required time frame IAW this publication, **paragraph 11.34.1.1.9**.

3.9.35. Approve requirements for bench stocks and provide guidance as to the type, location and use by one or more sections. Spot check bench stocks to evaluate adequacy, supply discipline, and housekeeping.

3.9.36. Consolidate Flight inputs for items received in supply requiring functional check, operational programming or calibration. Submit the listing to the LRS Materiel Management flight.

3.9.37. Coordinate all AGE requirements through the AGE Flight Chief to ensure support capability and eliminate unnecessary duplication of equipment.

3.9.38. Ensure tool/equipment and bench stock storage areas are managed IAW **Chapter 10** and **Chapter 11** of this instruction.

3.9.39. Review all AFTO Forms 22 for accuracy and applicability prior to submission to QA.

3.9.40. Identifies individuals to the MOO/Sq Supt for addition to the SCR IAW **Chapter 14**.

3.9.41. Ensure nuclear weapons-related materiel (NWRM) is controlled IAW AFI 20-110.

3.10. /Chief. The section NCOIC is responsible to the Flight/CC/Chief or AMU OIC/Chief for the leadership, supervision, and training of assigned personnel. The section NCOIC is a first-line manager and supervisor of maintenance production and is the technical authority and advisor in that area. When sections are subdivided, element leaders perform the appropriate functional responsibilities. The section NCOIC will:

3.10.1. Establish a work center safety program IAW AFOSHSTDs, AFI 91-202, and other applicable safety directives.

3.10.2. Monitor, track, and ensure occupational safety, fire prevention, occupational and environmental health requirements, are accomplished for assigned personnel. Ensure AF IMT 55 is documented IAW AFI 91-202.

3.10.3. Enforce strict adherence to technical data and management procedures. Advocate use of the TO improvement program, and ensure work center TO files are maintained according to TO 00-5-1.

3.10.4. Establishes procedures and ensures configuration control of all applicable software are both current (latest date) and correct for the application and use for which it is intended. Ensure technicians check Automated Computer Program Identification Number System (ACPINS) for software updates for assigned systems. A software sub-account will be established, allowing the shop/section access to the ACPINS. Software configuration control will be maintained IAW TO 00-5-16, Manual USAF Automated Computer Program Identification Number System (ACPINS) and TO 00-5-17, Users Manual USAF Computer Program Identification Numbering (CPINS) System. ***NOTE:*** AFSOC/AETC CV-22 units will use Authorized Software Configuration Matrix (ASCM) for configuration control instead of ACPINS for aircraft software configuration.

3.10.5. Ensure housekeeping, safety, security and environmental control standards are followed.

3.10.6. Perform production and supervisory inspections.

3.10.7. Ensure aircraft forms, equipment forms and MIS documentation are complete, accurate, and accomplished for each shift. Ensure aircraft/SE status is correctly reflected in both the maintenance forms and the MIS IAW **paragraph 1.12** of this instruction and TO 00-20-1.

3.10.8. Review and correct, as needed, the work center's events in the MIS on a daily basis to monitor scheduled and deferred events. Close, reschedule, or defer all events beyond their scheduled start date and time. (e.g., IMDS-CDB screen #100/380 and G081 screen #8069/9129A/67033)

3.10.9. Review transcribed AFTO 781-series IMTs/forms, work center MIS data entries for the previous day, and all preceding non-duty days, for job accuracy and completeness (IMDS-CDB Screen #100 and G081 Screen #67137).

3.10.10. Ensure all personnel assigned to nuclear-equipped units annotate the work center event (WCE) with the statement "Two-Person Concept Applies" IAW AFI 21-204 and applicable 91-series AFIs.

3.10.11. Validate aircraft automated records checks and submit to Flight CC/Chief or AMU OIC/Chief for review IAW **Chapter 7** of this instruction for records check procedures.

3.10.12. **(DELETED)**

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

3.10.14. Review and recommend changes for maintenance tasks requiring IPIs. Forward the IPI listing to Flight CC/Chief or AMU OIC/Chief.

3.10.15. Ensure TMDE maintenance and calibration requirements are accomplished.

3.10.16. Develop and manage workcenter training program. Evaluate personnel, track training requirements and ensure training documentation is accurate.

3.10.17. Develop CUT requirements as required by the unit mission IAW **Chapter 1** of this instruction and AFI 36-2232. Ensure CUT does not interfere with upgrade/qualification training.

3.10.18. Review, evaluate, and take corrective action based on QA and other inspection reports.

3.10.19. Ensure personnel follow procedures for identifying, recording and clearing repeat/recur and CND discrepancies.

3.10.20. Review current and updated publications and inform personnel of any significant changes. Ensures work center publications are current and required publications are available to meet work center needs.

3.10.21. Ensure section personnel coordinate all flightline maintenance with the flightline expediter.

3.10.22. Ensure personnel and equipment are identified and prepared to deploy for taskings IAW AFI 10-403, AFI 36-3802, and AFMAN 10-401.

3.10.23. Actively solicit inputs and promote the PIP IAW **Chapter 8** of this instruction.

3.10.24. Conduct and report self-inspections IAW **Chapter 14** of this instruction and local directives.

3.10.25. Manage CTK and Supply Programs (e.g., bench stocks, and operating stocks) IAW **Chapter 10** and **Chapter 11** of this instruction. Ensure the Bench Stock Review Listing (M04) is reviewed monthly and all recommendations are adjudicated to most efficiently meet mission needs.

3.10.26. Manage the section's Repair Cycle Program. Review the D23 weekly and other pertinent supply products to ensure proper supply discipline.

3.10.27. Establish procedures to control, store, and manage alternate mission equipment (AME); maintenance, safety, and protective equipment (MSPE); and Dash-21 equipment according to AFI 21-103.

3.10.28. Identify items requiring calibration or operational check before installation. Provide a list of these items to the Flight CC/Chief or AMU OIC/Chief.

3.10.29. Recommends individuals for addition to the SCR.

3.10.30. Participate in and enforce the Bad Actor Program IAW TO 00-35D-54.

3.10.31. Maintain HAZMAT and ESOH items IAW AFI 32-70XX-series instructions, and AFPD 90-8.

3.10.31.1. Ensure HAZMATs are MIL-Spec approved materials. Monitor the QP/Qualified Product Database (QPD) for changes.

3.10.31.1.1. The QPL/QPD identifies qualified products (i.e., cleaners, paints, etc.) within a particular Mil-Spec and are the only approved materials for use on AF aircraft, subsystems, and support equipment for that specification.

3.10.31.1.2. Products not listed on the QPL and or QPD are unauthorized and will not be used. Additional QPL or QPDs can be located at the Defense and Federal specifications and standards available in the official DoD repository web site: **http://assist.daps.dla.mil/online/start**.

3.10.31.1.2.1. If a QPL/QPD for the specification does not exist choice of product used will be determined locally.

3.10.31.1.3. For units with contracted operations, notify the Administrative Contracting Officer (ACO) of changes to the QPL/QPD. The ACO will notify contractors of changes to the QPL/QPD. QAEs will ensure only approved materials are used.

3.10.32. Units assigned Nuclear Certified Equipment (NCE) (applies to both nuclear and non-nuclear tasked units) develop a quick reference list of all assigned NCE. IAW AFI 63-125, Nuclear Certification Program, paragraph 2.6.11.3, survey and document legibility of identification information (i.e., data plate, information plate, appropriate markings, etc.) and that the information matches the Master Nuclear Certification List (MNCL) **https://wwwmil.nwc.kirtland.af.mil/mncl/index.cfm**.

3.10.33. Ensure Dull Sword reports are submitted for nuclear deficiencies IAW AFMAN 91-221, AFI 91-204 and local procedures.

3.10.34. Ensure Section is organized with tools, equipment and material as close to the Point of Maintenance (POMx) as possible, as approved by the Flight CC/Chief, without jeopardizing accountability and control procedures.

3.11. Production Superintendent (Pro Super). The production superintendent directs the overall maintenance effort of their unit. The pro super will be a SNCO or civilian equivalent. The pro super will:

3.11.1. Enforce strict adherence to technical data and management procedures IAW TO 00-5-1.

3.11.2. Ensure aircraft and equipment forms and MIS documentation are completed, accurate and accomplished. Ensure aircraft status is accurately reflected in both the maintenance forms and the MIS.

3.11.3. Sign ERs IAW TO 00-20-1 when authorized by the MXG/CC IAW **Chapter 14**, **Table 14.1** of this instruction.

3.11.4. Participate in developing and executing the monthly and weekly flying and maintenance schedules/plans.

3.11.5. Manage the maintenance production effort by assigning priorities to meet the flying and maintenance schedules.

3.11.6. Attend the MXG daily maintenance production/scheduling meeting.

3.11.7. Fully understand actions required by the squadron under OPLAN 8010 or contingency plans. Develop, ensure currency of, and direct the aircraft generation sequence.

3.11.8. Fully understand and be prepared to implement specific disaster control duties and squadron responsibilities pertaining to aircraft/SE movement and personnel evacuation IAW AFI 10-2501, AFMAN 32-4004, AFI 10-229, and unit directives. Maintain a current copy of the on-base disaster map with cordon overlay and appropriate functional checklists outlining duties during disaster exercises.

3.11.9. Determine/track/report aircraft status, including ETIC, IAW AFI 21-103 and Lead Command/local directives.

3.11.10. Authorize CANN actions when authorized by the MXG/CC.

3.11.11. Monitor unit CDDAR Program activities and local procedures designed to protect personnel and prevent further damage to aircraft, equipment, and other resources.

3.11.12. Inform MOC of the maintenance effort and coordinate with MOC, Flightline Expediter, and other squadrons for support. Provide aircraft status updates as required.

3.11.13. Verify MICAP conditions exist.

3.11.14. Ensure flightline munitions are handled, accounted for, and expended IAW AFI 21-201 and local instructions.

3.11.15. **(Added-CAF)** Coordinate with the Propulsion Flight Chief and SRAN Engine Manager before initiating scheduled or unscheduled engine changes.

3.11.16. **(Added-CAF)** Attend Production Superintendent course within 6 months of assignment.

Chapter 4

AIRCRAFT/HELICOPTER MAINTENANCE SQUADRON (AMXS/HMXS)

4.1. General. AMXS/HMXS services, inspects, maintains, launches, and recovers assigned/transient aircraft (if applicable). Organize IAW AFI 38-101.

4.2. MX Operations Officer (MOO)/Maintenance Superintendent (MX SUPT) Responsibilities . In addition to common responsibilities outlined in **Chapter 3** of this instruction, the MOO/MX SUPT:

4.2.1. Ensure standardized procedures and organizations among AMUs.

4.2.2. Manage the IFF Mode-IV and RWR program IAW **Chapter 14** of this instruction.

4.2.3. Ensures sufficient personnel, equipment, and facilities are assigned, maintained, and provided to properly perform EOR inspections IAW **Chapter 14** of this instruction.

4.2.4. Provide input for development of an annual maintenance plan to MX PS&D

4.2.5. Establish hot brake response procedures in coordination with base support agencies. (Fire dept, crash recovery).

4.2.6. Monitors the squadron DCC and FCC programs.

4.2.7. Ensure personnel use and understand the purpose of the AF IMT 2408, *Generation Maintenance Plan*, and the AF IMT 2409, *Generation Sequence Action Schedule.*

4.2.8. Ensure an explosive safety and chaff/flare academics and loading program for airlift, helicopter, and tanker units is established.

4.2.9. Publish procedures covering the storage, control, and handling of starter cartridges (if applicable).

4.2.10. Provide input to MMA for the monthly metrics report to Lead Command.

4.2.11. Oversee and coordinate daily hot pit operations.

4.2.12. **(DELETED)**

4.2.12.1. **(DELETED)**

4.2.13. **(Added-CAF)** Establish procedures for the accounting of maintenance owned PCMCIA cards.

4.3. AMU. May include the following sections: Aircraft, Specialist, Weapons, Debrief, Supply, and Support.

4.3. (CAF)AMU. If assigned, AMU may also include a Ground Communications section.

4.4. AMU OIC/SUPERINTENDENT Responsibilities. Allocates personnel and resources to the production effort. In addition to the common responsibilities in **Chapter 3** of this instruction, the AMU OIC/Chief will:

4.4.1. Review PRDs daily and ensure proper maintenance actions are taken.

4.4.2. Review all aborts and ensure proper maintenance actions are taken.

4.4.3. Monitor aircraft phase/isochronal/periodic/Home Station Check flow.

4.4.4. Ensure sufficient number of personnel are engine run qualified IAW **Chapter 14** of this instruction.

4.4.5. Chair a daily AMU maintenance production meeting.

4.5. Production Superintendent. In squadrons with eight or fewer assigned aircraft, production superintendent and flightline expediter duties may be combined. Duties are outlined in **Chapter 3** of this instruction.

4.5.1. The flightline Production Superintendent makes the final determination on aircraft status.

4.5.1. **(CAF)** Exceptional release authorities for F-22 aircraft will complete the exceptional release using the most current IMIS data. If required, validate using IMIS server, but aircraft status from an undocked Portable Maintenance Aid (PMA) may be used to determine status and airworthiness of the aircraft.

4.6. Flightline Expediter. The Flightline expediter ensures maintenance is accomplished, coordinates on all aircraft MX actions, and is assigned for each Aircraft Section. Flightline expediters work for the Pro Super and manage, control and direct resources to accomplish maintenance. Flightline expediters will:

4.6.1. Remain on the flightline, to the fullest extent possible, when maintenance personnel are performing flightline maintenance and launching/recovering aircraft. Flightline expediters do not normally perform production inspections (e.g., sign off "Red Xs" and perform IPIs).

4.6.2. Review aircraft forms and sign ERs IAW TO 00-20-1 when authorized by the MXG/CC IAW **Chapter 14**, **Table 14.1** of this instruction.

4.6.3. In conjunction with weapons expediter ensure requirements in AFI 21-201 and local instructions for flightline munitions accountability are strictly followed.

4.6.4. Enforce strict adherence to technical data and management procedures IAW TO-00-5-1.

4.6.5. Ensure aircraft/SE forms and MIS documentation is complete, accurate and accomplished. Ensure aircraft status is accurately reflected in both the maintenance forms and the MIS.

4.6.6. Notify MOC and Pro Super when aircraft are ready for flight (crew ready and crew show), engine start, taxi, block-in, and aircraft configuration (e.g., fuel, munitions, cargo). AETC T-designated aircraft units (e.g., T-38) will notify the MOC and production superintendent by exception (e.g., crew does not show, engine fails to start).

4.6.7. Implement disaster control duties and squadron responsibilities pertaining to aircraft/SE movement and personnel evacuation IAW AFI 10-2501, AFMAN 32-4004, AFI 10-229, and unit directives.

4.6.8. Maintain copies of the following in the expediter vehicle: Flying schedule, emergency action and functional checklists, base grid map with cordon overlay, IPI listings, Minimum Essential Subsystem List (MESL), Quick Reference List (QRL) (if developed), a Work Unit Code (WUC) manual, and tracking device for aircraft status.

4.6.8.1. Track the following aircraft status information: aircraft serial number, location, priority, status and estimated time in commission (ETIC), configuration, OAP condition codes, fuel load, munitions load, and remarks. Show all limitations against the full systems list (FSL) and basic system list (BSL) column as itemized on the MESL IAW Lead Command guidance. Ensure devices depicting aircraft status comply with program security requirements.

4.6.9. Follow established CANN procedures and update CANN-action status on assigned aircraft.

4.6.10. Ensure aircraft OAP sampling is completed IAW AFI 21-124.

4.6.10. **(CAF)** If assigned aircraft have an Oil Analysis Program, maintain an OAP status on each aircraft showing all lab recommendation codes next to the aircraft/engine serial numbers. Prior to commencing the flying day, verify status of aircraft or engines on special surveillance.

4.6.11. Augment the unit CDDAR Program activities and local procedures designed to protect personnel and prevent further damage to aircraft, equipment, and other resources as directed by the Pro Super.

4.6.12. Ensure parts are ordered with appropriate priorities. Relay document numbers to the Pro Super, MOC, and appropriate technicians.

4.6.13. Request support beyond AMU capability from the MOC.

4.6.14. Direct AGE drivers to position AGE as required and notify the AGE driver of AGE requiring maintenance.

4.6.15. Coordinate aircraft status (e.g., discrepancies, WUC/logistics control number (LCN), estimated time in commission (ETIC), job completion) and configuration status IAW AFI 21-103 with the MOC and the production superintendent.

4.6.16. Ensure completed aircraft forms are provided to the debrief function by the end of the flying day if debriefs have been suspended due to surges.

4.6.17. **(Added-CAF)** Attend local, MTF-instructed, Expediter Course within 6 months of assignment.

4.7. Aircrew and Maintenance Debrief Section. Debriefing is conducted at the termination of each sortie/mission or when a sortie/mission is aborted. Aircraft scheduled for turn-around sorties/missions need not be debriefed if returned in landing status Code 1 or 2. However, debriefing is required, regardless of landing status, after the last flight of the day for each aircrew. Lead Commands will develop debrief procedures for Remote Split Operations for both aircraft and ground control stations to adequately capture all maintenance discrepancies.

4.7.1. Use aircraft fault reporting manuals and include fault codes when documenting discrepancies in the aircraft forms. Use automated debrief tools such as the Computerized Fault Reporting System.

4.7.1. **(CAF)** Print a copy or disk back-up of the automated debriefing sortie recap for each sortie, including a separate printout for each leg of cross-country missions, and file in the aircraft record.

4.7.1.1. Develop aircrew debriefing guides. Debriefing guides are reviewed and approved by QA every two years.

4.7.2. Implement procedures for dropped object reporting, aborts or In-Flight Emergencies (IFE), flight control impoundment actions, and engine malfunctions.

4.7.2. **(CAF)** Document all aborts or In-flight Emergency (IFEs) in IMDS-CDB. If IMDS-CDB is down or unavailable, use CAF Form 122, *Abort/IFE Record*, for manual tracking and maintain until data is entered into IMDS-CDB.

4.7.3. Use operational utilization update screens in MIS to enter flying time information. Ensure flying times and installed engine event history recorder (EHR) readings, for both home station and deployed sorties/missions, are updated no later than the next duty day after occurrence.

4.7.4. Check AFTO FORM 781H for Airframe Time and Servicing Data.

4.7.4.1. **(Added-CAF)** Debriefing section is the collection point for servicing documents/receipts. Establish procedures for accumulating and routing servicing receipts to appropriate agencies. If deployed, all servicing documents/receipts will be collected during the off-station period and returned to home station debriefing section.

4.7.5. Input discrepancy and deviation information, utilization, and applicable flight data (to include landing status, system capability IAW AFI 21-103 and other applicable cause code) into the MIS. Unless using an automated 781 process do not send AFTO 781-Series IMTs/forms to Flying Operations before MIS updates. Use local backup procedures for recording data when the MIS becomes inoperable.

4.7.5. **(CAF)** Input the collected data into IMDS-CDB at the earliest opportunity.

4.7.5.1. **(Added-CAF)** To ensure discrepancies are recorded in maintenance forms using the proper symbols, units will develop a QA-approved "Red X" criteria checksheet and keep it in each debrief section. The checksheet identifies minimum discrepancies requiring mandatory entry as a "Red X" condition. Wings will have a standardized "Red X" criteria checksheet for each AMU with the same Mission Design Series (MDS).

4.7.6. Utilize MIS to identify and research discrepancies for Repeat/Recur trends, and document them accordingly in the AFTO Form/IMT 781A. Ensure previously documented discrepancies are reviewed and identified as repeat/recurs.

4.7.6.1. All repeat/recurs are identified on automated debriefing sortie recaps and in the AFTO Form/IMT 781A by automated method, stamp, pen, marker, etc.

4.7.6.2. **(Added-CAF)** A repeat discrepancy on an aircraft occurs on the next sortie or attempted sortie after corrective action has been taken and the system or subsystem is used. The discrepancy must indicate the same malfunction as the original: Ref ACCI 21-118.

4.7.6.3. **(Added-CAF)** A discrepancy requesting an in-flight operational check of a maintenance action will not be counted as a repeat or recur if a sortie was flown and the discrepancy operationally checked was not corrected by the maintenance action. Any subsequent sortie that the discrepancy returns on will follow repeat/recur guidelines regardless if a write-up for an in-flight operational check is requested.

4.7.7. Use the appropriate landing status code (**Table 4.1**) and the appropriate system capability code (**Table 4.2**) for the completion of a sortie/mission.

4.7.8. Provide the MOC with aircraft identification numbers and system WUCs for each aircraft debriefed with a landing status Code-3 using the MESL in the Lead Command Supp to AFI 21-103.

4.7.9. Enter one of the deviation cause codes (**Table 4.3**) into the MIS to indicate the reason for the deviation and the agency that caused a deviation (AFCSM 21-574, *Automated Debriefing*).

4.7.10. Capture ASIP information for the Aircraft Structural Integrity Management Information System (ASIMIS) IAW AFI 63-1001, *Aircraft Structural Integrity Program* as directed by the Program Manager

4.7.11. If MIS is not available, use blank printouts as manual documentation method. If deployed, send documents to home station for data transcribing by the most expeditious means available. Turn in, validate and reconcile all documents with the MIS when it becomes available

4.7.12. MQ-1 (Predator)/MQ-9 (Reaper) Remote Split Operations (RSO) Debrief

4.7.12.1. Responsibilities:

4.7.12.1.1. Launch and Recovery Element (LRE) debriefer - The LRE debriefer will use a standardized debrief checklist to debrief the LRE aircrew. The LRE debriefer will monitor the SIPRNET Skynet database maintenance log for aircraft debrief information. The LRE debriefer will also review the SIPRNET Skynet database maintenance log when notified by the Mission Control Element (MCE) debriefer and during the debrief after the final aircraft handback to the LRE. During SIPRNET communication outages, the CONUS and OCONUS debrief sections will use IMDS screen 837 Log Book to communicate aircraft discrepancies.

4.7.12.1.2. LRE Pilot In Command (PIC) - Review applicable aircraft and Launch/Recovery Ground Control Station (LRGCS) AFTO Form 781 series forms prior to launch and relay pertinent configuration data to the MCE PIC. The LRE PIC may request the LRE debriefer and a system specialist to enter the GCS for on-the-spot debriefing and fault isolation. Perform face-to-face debrief with LRE debriefer at the completion of every handover and landing.

4.7.12.1.3. MCE PIC - Review applicable aircraft AFTO Form 781As and Ground Control Station (GCS) AFTO Form 781 series forms prior to handover from LRE. MCE PIC may request the MCE debriefer and a system specialist to enter the GCS for on-the-spot debriefing and fault isolation. MCE PIC will annotate all aircraft discrepancies in Skynet database maintenance log in SIPRNET under the description block. Discrepancies will need to be as descriptive as possible and should be entered

at the time they occur. MCE PIC will hand-carry GCS AFTO Form 781 series forms binder to MCE debrief and perform face-to-face debrief with MCE debriefer immediately after aircrew changeover, Ku-to-Ku handover, or final aircraft handback to LRE. MCE PIC will document GCS discrepancies on GCS AFTO Form 781A. MCE PIC will be available during debrief to answer question(s) from the LRE debriefer or deployed technicians.

4.7.12.1.4. MCE debriefer - Print applicable aircraft AFTO Form 781A and 781K forms and place in front of AFTO Form 781F in GCS forms binder prior to MCE PIC receiving GCS AFTO Form 781 series forms. Review GCS AFTO Form 781 series after aircrew changeover, Ku-to-Ku handover, or final aircraft handback to LRE. Enter GCS discrepancies into IMDS and notify affected work center. MCE debriefer will not enter aircraft discrepancies in IMDS since this is an LRE debrief responsibility. Instead, the MCE debriefer will verify that aircraft discrepancies are accurately entered in the Skynet database maintenance log by reviewing maintenance log entries with the MCE PIC and/or sensor operator. MCE debrief will fill out a standardized debrief checklist for each in-flight discrepancy and forward checklists to the LRE debriefer. If additional maintenance log entries are required the MCE debriefer will make them at this time. The MCE debriefer will then notify the LRE debrief section via phone or e-mail to review Skynet database maintenance log and ensure checklists for each in-flight discrepancy were received. If no Skynet database maintenance log entries have been made by the aircrew during flight or at final debrief, the MCE debriefer will make a Skynet database maintenance log entry to include ZULU date/time, aircraft tail number, ID number of GCS used to control the aircraft and narrative stating "No defects Noted during flight segment." The MCE debriefer will then notify the LRE debrief section via phone to review Skynet database maintenance log. The MCE debriefer will keep a log of all contacts made with the LRE debrief section after every debrief. Log entries will include as a minimum ZULU date/time of phone call, rank/name of person contacted, and whether they acknowledged the aircraft discrepancy. If contact is made by e-mail, the e-mail address of the person contacted will be entered. During SIPRNET communication outage conditions, the CONUS and OCONUS debrief sections will use IMDS screen 837 Log Book to communicate aircraft discrepancies. As a minimum the following information will be included: ZULU debrief date/time, aircraft tail number, ID number of GCS used to control the aircraft, code of discrepancy, description of discrepancy, first name initial and last name of MCE debriefer, and first name initial and last name of MCE PIC or sensor operator who provided the aircraft debrief information. MCE debriefer will return GCS AFTO Form 781 series forms binder with aircraft AFTO Form 781A including newly debriefed aircraft discrepancies to the respective GCS after aircrew changeover or Ku-to-Ku handover debrief.

4.7.12.1.5. Multiple Aircraft Control **(**MAC) GCS Sensor Operator - Perform applicable aircraft and MAC GCS station face-to-face debrief with MCE debriefer after aircrew changeover, Ku-to-Ku handover, or final aircraft handback to LRE. This is necessary as MAC GCS PIC is normally in control of more than one aircraft and remains in MAC GCS until relieved.

4.7.12.1.6. Predator Operations Center Production Superintendent will review 20% of aircraft debriefs at least once daily to compare the debriefs with the discrepancy entered in IMDS and verify CONUS debrief information is being entered in OCONUS IMDS debriefs. Variations between OCONUS IMDS debrief entries and CONUS debrief information will be resolved by the respective Production Superintendents.

4.7.13. **(Added-CAF)** Global Hawk (GH) debrief procedures: GH Unmanned Aerial System (UAS) reporting will use standard Air Force landing status codes. Mission Crew Element (MCE) and Launch and Recovery Element (LRE) status will be reported separately from aircraft status (e.g. Aircraft Code 1, MCE Code 1, LRE Code 1). Aircraft, MCE and LRE will retain separate 781 forms binders. Mission capable status will also be tracked separately. Discrepancies will not be entered into 781 forms or IMDS for any asset directly involved with the mission while the aircraft is airborne. Units will develop a manual debrief data sheet which is maintained and controlled by the debrief section by mission number. This debrief data sheet will be used to annotate in-flight maintenance and pilot reported discrepancies. Continuation sheets will be annotated as #2, #3, etc of XX pages. Once the mission ends and the post-mission debrief is completed, the 781 forms, IMDS and mission capable status will be annotated.

4.7.13.1. **(Added-CAF)** GH UAS Ground Station In-flight Maintenance procedures. UAS Ground Station In-flight Maintenance is intended to provide repair of maintenance discrepancies while allowing the mission to continue. Discrepancies discovered during flight will not be documented into the AF Form 781As or entered into IMDS until after the mission is ended. Upon notification from the pilot, maintenance technicians will be dispatched to the MCE/LRE. Maintainers will respond with the debrief data sheet, provided by the debrief section. The pilot will document the discrepancy and provide written release for maintenance on the debrief data sheet. Maintenance will not be performed until the pilot releases the aircraft for maintenance. The pilot in control of the system during the mission will always be the final authority as to what, when and for how long maintenance actions will be performed during flight. The maintainer will return the debrief data sheet (with maintenance actions annotated) to the debrief section for inclusion into the final mission debrief. If additional maintenance actions are responded to during the same mission, the same debrief data sheet will be used. Use continuation sheets as required.

4.7.14. **(Added-CAF)** F-22 Procedures. After engine shutdown following an attempted sortie, actual sortie, or multiple sorties (in the case of hot pits/contingency operations), the aircraft data transfer cartridge (DTC) will be debriefed using the Integrated Maintenance Information System (IMIS) via the "Process Failure Data" function.

4.7.14.1. **(Added-CAF)** Notify production superintendent or crew chief after aircrew debrief is completed on the IMIS server so that a forms update of the PMA hard drive can be accomplished. Forms update is not required between flights if landing status is Code 1 or 2.

4.7.14.2. **(Added-CAF)** If IMIS is unable to read the DTC or the aircrew is unable to provide it (i.e. ground abort for cross-country), debrief personnel will coordinate with the production superintendent to ensure that data for the Crash Survivable Memory Unit

(CSMU) and the Comprehensive Engine Diagnostic Unit (CEDU) is downloaded manually using the Portable Maintenance Aid no later than the end of the flying period. The downloaded information will be utilized to create a JCN that is specific to the Fault Reporting Code via the IMIS function for "Process AT File."

4.7.14.3. **(Added-CAF)** If IMIS capability is not available to support a debrief (i.e. cross-country, demo, evacuation), the aircrew will determine if the aircraft is airworthy using procedures in AFI 11-2F-22AV3, F-22A--Operations Procedures.

4.7.14.4. **(Added-CAF)** Debrief personnel will review IMDS screen 174 after each debrief session and ensure that all debriefed flying hours and failures are accurately documented in IMDS.

4.7.15. **(Added-CAF)** Debrief is responsible for downloading aircraft fault recording codes on aircraft equipped with on-board recording and diagnostics systems (e.g. CITS, DTADS). At a minimum, aircraft data will be downloaded after the last sortie of the day. Refer to applicable T.O. guidance for identification of valid vs. non-valid recorded discrepancies. All valid recorded discrepancies will be entered in the MIS, AFTO Form 781-series, and debrief reports.

Table 4.1. Landing Status Codes.

CODE	STATUS
Code 0	Ground Abort
Code 1	Aircraft Mission capable with no additional discrepancies
Code 2	Aircraft or system has minor discrepancies but is capable of further mission assignment.
Code 3	Aircraft or system has major discrepancies in mission essential equipment that may require extensive repair or replacement prior to further mission assignment. The discrepancy may not affect safety-of-flight and the aircraft may be NMC flyable.
Code 4	stem has suspected or known radiological, chemical, or biological contamination.
Code 5	Aircraft or system has suspected or known battle damage.
Note: Debriefers enter code "8" in MIS for aircraft debriefed as code "4" or "5". MESL requirements determine if aircraft mission capability status is NMC or PMC.	

Table 4.2. System Capability Codes.

CODE	STATUS
Code 0	System flown with a known discrepancy, no additional discrepancies Noted. System can be used.
Code 1	System used and performed satisfactorily. No maintenance required.
Code 2	System used and performed satisfactorily. A minor malfunction exists, but system is capable of further mission assignment.
Code 3	System performance was unsatisfactory. This system did not cause an abort.
Code 4	System performance was unsatisfactory. This system caused or contributed to an abort.
Code 5	System out of commission prior to takeoff.
Code 6	System installed but not used.
Code 7	System not installed.
Code 8	Aircraft or system has suspected or known radiological/biological contamination

Table 4.3. Deviation Cause Codes.

CODE	DEVIATION REASON
ATx	Air Traffic
GAA	Ground Abort, before engine start, maintenance
GAB	Ground Abort, after engine start, before taxi, maintenance
GAC	Ground Abort, after taxi, maintenance
HQT	Higher Headquarters, Lead Command
HQN	Higher Headquarters, NAF
HQP	Higher Headquarters, other
MTx	Maintenance
OPx	Operations
SUx	Supply
SYx	Sympathy
WXx	Weather
OTx	Other
Xxx	Lead Command/Local Option
Note: Use x for any character for Lead Command/local use.	

4.8. Aircraft Section. This section is the primary work center responsible for maintaining assigned aircraft. This section performs tasks to include servicing, scheduled and unscheduled maintenance, pre-flights, thru-flights, basic post-flights, home station checks, special inspections, corrosion control, cleaning, ground handling, launch and recovery of aircraft, troubleshooting and adjustment, on-equipment repairs and component removal and replacement, documents maintenance actions, and manages aircraft forms. AMUs with 18 or more PAI aircraft may have two aircraft sections. The aircraft section consists of aircraft technicians, flying crew chiefs (FCCs), and if assigned, dedicated crew chiefs (DCCs).

4.8.1. Aircraft Technician Responsibilities. Aircraft technicians manage and maintain assigned aircraft. They are qualified according to the applicable MDS Job Qualification Standards (JQS). Aircraft technicians will:

4.8.1.1. Enforce strict adherence to and comply with technical data and management procedures. Advocates the importance of using current technical data IAW AFI 63-101, and use of the TO improvement program IAW TO 00-5-1.

4.8.1.2. Ensure aerospace equipment documentation and MIS documentation are completed, accurate and accomplished IAW 00-20 series TOs. Ensure aircraft status is accurately reflected in both the maintenance forms and the MIS.

4.8.1.3. Inform the section NCOIC and the flightline expediter of aircraft status.

4.8.1.4. Identify maintenance and support requirements to the expediter.

4.8.1.5. Perform helicopter vibration analysis in flight.

4.8.1.6. Coordinate with production superintendents, expediters, for downtime to accomplish scheduled and unscheduled maintenance.

4.8.1.7. Perform ground handling, servicing, basic post-flight, pre-flight, thru-flight, home station checks, phase and ISO inspections, acceptance and transfer inspections, special inspections, launch and recovery, quick turns, alert duties, maintenance ground test, corrosion control, wash, lubrication, and maintenance and modification preparations as applicable on their aircraft.

4.8.1.8. Perform engine operation when qualified and certified.

4.8.1.9. Ensure replacement parts are requisitioned and documentation is completed.

4.8.1.10. Attend pre- and post-dock meetings.

4.8.1.11. Monitor the maintenance performed on assigned aircraft. Ensure AFTO 781-Series IMTs/forms and applicable MIS are documented during scheduled inspections.

4.8.1.12. Perform scheduled document reviews/records checks using applicable MIS and automated aircraft forms IAW **Chapter 7** of this instruction.

4.8.1.13. Manage deferred discrepancies.

4.8.1.14. Inventory on-aircraft Dash-21 equipment when this responsibility is not assigned to another function.

4.8.1.15. Ensure Due-In from Maintenance (DIFM) assets within their control are turned into LRS.

4.8.1.16. Ensure aircraft TO G files kept on the aircraft are current and complete for use.

4.8.1.17. Conduct OJT training/certifying as required.

4.8.2. Flying Crew Chiefs (FCC). Refer to **Chapter 14** of this instruction for FCC responsibilities.

4.8.3. Dedicated Crew Chief (DCC) Program. The DCC program is a MXG/CC option. The objective of a DCC program is to directly assign a maintenance person to each aircraft to provide continuity/accuracy of aircraft forms, aircraft status, scheduled maintenance, and improve aircraft appearance. DCCs manage and supervise maintenance on their aircraft. DCCs are selected on the basis of initiative, management and leadership ability, and technical knowledge. When authorized, ensure the DCC's and ADCC's name and rank is stenciled or painted on their aircraft. Follow the established wing paint scheme, unit standards, MAJCOM directives, and marking procedures in TO 1-1-8, *Exterior Finishes, Insignia and Marking Applicable to USAF Aircraft*. In addition to aircraft technician responsibilities, DCCs will:

4.8.3.1. Accompany their aircraft through scheduled inspections and assist the inspection dock NCOIC as needed.

4.8.3.2. Assist the dock NCOIC with completing the required document review and validation at the end of the inspection.

4.9. Specialist Section. This section is responsible for aircraft systems troubleshooting, on-equipment repairs, component removal and replacement, aircraft avionics systems classified item management aircraft ground handling, servicing, and cleaning. The section may include avionics, propulsion, hydraulics, and electro/environmental technicians. When used, the specialist Section expediter coordinates maintenance priorities with the Production Superintendent and Flightline Expediters.

4.9.1. In addition to the common responsibilities in **Chapter 3** of this instruction, the Specialist Section NCOIC:

4.9.1.1. Promote cross-talk with applicable maintenance units to obtain information on system/component repeat, recur and CND trends.

4.9.1.2. Provide support for Phase/Isochronal/Periodic/Home Station Check Inspections

4.9.1.3. Attend Phase/Isochronal/Periodic/Home Station Check and Pre-Dock meetings if required to provide specialist support.

4.9.1.4. Ensure accurate and timely pod and SE status is updated or verified daily in RAMPOD IAW AFI 21-103 Chapter 10.

4.9.2. Avionics Specialists will:

4.9.2.1. Perform reprogramming of avionics systems IAW applicable mission directives, PACER WARE/SERENE BYTE messages, or TCTO requirements.

4.9.2.2. Maintain avionics systems including interphone cord repair.

4.9.2.3. Perform Mode-IV checks on 100 percent of IFF-equipped possessed aircraft every 2 months or IAW MDS -6 requirements. Document operational checks in the MIS.

4.9.2.4. Handle classified parts/material in accordance with AFMAN 23-110 and other applicable directives.

4.9.3. Electronic Warfare (EW) specialist functions may be combined with the avionics specialists. EW Specialists will:

4.9.3.1. Maintain inventory control of all installed Electronic Counter Measure (ECM) AME and ECM pods.

4.9.3.2. Perform reprogramming of avionics/electronic warfare systems (to include electronic attack pods) IAW applicable mission directives, PACER WARE/SERENE BYTE messages, or TCTO requirements.

4.9.3.3. Load contingency and training configuration settings in ECM pods, infrared countermeasures systems, and RWR/RTHW systems, unless the equipment is assigned to another section.

4.9.3.4. Transport and load ECM pods.

4.9.3.5. Verify operation of the installed RWR/RTHW systems.

4.9.3.6. Coordinate with wing Electronic Warfare Officer (EWO), AMU and MXS/EMS/CMS production superintendents for EW integrated reprogramming.

4.9.4. Perform the following B-52 EW System (EWS) maintenance responsibilities:

4.9.4.1. Emergency and routine reprogramming of the following: ALQ-155/Sensor Integration, ALQ-172, ALQ 153 and ALR-46 systems as directed by EWO.

4.9.4.2. Load/maintain chaff magazines.

4.9.4.3. Coordinate Line Replaceable Unit (LRU) cannibalization actions in support of annual USM-464 End-to-End testing with the B-52 EWS section in the Avionics Flight.

4.9.5. The B-52 Comm/Nav Mission Systems Specialists (CNMS) will:

4.9.5.1. Maintain Offensive Avionics System (OAS), AN/ASQ-176, Strategic Radar (SR), AN/ APQ-166. Inertial Navigation Set (INS), AN/ASQ-136. Electro-optical Viewing System (EVS), AN/ASQ-151. AVTR System.

4.9.5.2. Maintain communication and navigation systems including interphone cord repair.

4.9.6. Propulsion specialists will:

4.9.6.1. Troubleshoot, repair, and replace aircraft propulsion systems and components.

4.9.6.2. Perform aircraft engine downloads if required by TOs.

4.9.6.3. Perform flightline engine borescope inspections.

4.9.7. Electro/Environmental (E&E) specialists will:

4.9.7.1. Troubleshoot, repair and replace aircraft E&E system components.

4.9.7.2. Maintain aircraft environmental control, bleed air, vacuum, pneumatic, installed fire extinguishing and suppressant systems, liquid oxygen (LOX) and gaseous oxygen (GOX) systems, and on-board oxygen generating systems (OBOGS) and components.

4.9.7.3. Remove and install IFR carts and fire bottle squibs. Temporary storage of these components will be IAW local directives.

4.9.8. Hydraulics specialists will maintain on-equipment pneumatic and hydraulic systems and components.

4.10. Weapons Section (excluding systems listed in para 4 11.): This section normally consists of two elements: loading and maintenance. Personnel are trained and utilized in both functions as needed to maximize both mission capability and develop individual functional expertise. Weapons expediters are assigned to manage flightline operations. The maintenance section is not normally formed in squadrons supporting B-1, B-2, or B-52 aircraft. In squadron-sized fighter units, maintenance authorizations and responsibilities may be combined with those of the armament systems flight. MAJCOMs will determine applicable portions of the weapons responsibilities for contract and civil service organizations. ***NOTE:*** (ANG only) Weapons Element. This section normally consists of two sections: weapons loading and armament systems. Weapons expediters may be assigned to manage flightline operations. A weapons loading section NCOIC may be assigned to assist in managing flightline operations. Individual gun services and weapons release section NCOICs may be assigned to support management of armament systems sections. An armament systems section NCOIC may be assigned to assist in managing gun services, and weapons release sections. Weapons loading tasks must adhere to the

minimum requirements of the weapons certification and weapons task qualification programs. In addition to the common section NCOIC responsibilities in **Chapter 3** of this instruction, the weapons element supervisor will perform the responsibilities of the weapons section NCOIC

4.10.1. Weapons section NCOIC/Chief. In addition to the common section NCOIC responsibilities in **Chapter 3** of this instruction**,** the weapons section NCOIC/Chief will:

4.10.1.1. Assist the WWM in recommending distribution of wing 2W1X1 personnel to satisfy weapons loading and on-equipment armament system maintenance requirements.

4.10.1.2. Advise the MOO and notify the WWM regarding factors which affect training, weapons loading or maintenance capabilities, personnel actions affecting manning levels (crosstraining, special duty, reassignment, etc.), load crew or Personnel Reliability Program (PRP) status, equipment and tester shortfalls and other key weapons related issues.

4.10.1.3. In coordination with WS superintendent, identify and select the best qualified personnel to be loading standardization and lead crew members.

4.10.1.4. Ensure the minimum required load crews are trained and certified to perform the mission (within the ARC, UCML minimums are determined by the Lead Command). Maintain load crew integrity during training and evaluations to the maximum extent possible.

4.10.1.5. Maintain a visual aid or automated product depicting the current status of assigned load crews and members. Manually update printed products. Printed products are not required if computer systems are networked or modem-interfaced with the weapons standardization (WS) load crew management system for on-line updates.

4.10.1.6. In coordination with the WS Superintendent, ensure load training aircraft requirements and load crew proficiency evaluation schedules are developed and included in the weekly and monthly maintenance plans.

4.10.1.7. Ensure expediters complete initial and recurring qualification training by WS.

4.10.1.8. Ensure a checklist for each Primary Munition (PM) and Support Munition (SM) is on hand for each assigned load crew CTK (***EXCEPTIONS:*** Not applicable in units using electronic media devices (F-22 PMA, F-35, etc.); test units are authorized reduced quantities).

4.10.1.9. Review all AFTO IMT 22 or Technical Order Data Change Requests (TODCR) prior to submission. Route all weapons loading related requests (i.e.; -16, -33 TOs, and F-22A TOD) to WS for review/coordination.

4.10.1.10. Ensure Locally Manufactured Equipment (LME) and Munitions Materiel Handling Equipment (MMHE) meet requirements outlined in **Chapter 10** of this instruction.

4.10.1.11. Ensure coded dies and/or Tamper Detection Indicators for nuclear applications are controlled IAW AFI 91-104, *Nuclear Surety Tamper Control and Detection Programs*.

4.10.1.12. Ensure aircraft -6 armament system, AME, NIE inspections, TCTOs and aircraft functional checks (except phase/ Hourly Post-flight (HPO)) are accomplished as required to prevent overdues or over flight of equipment.

4.10.1.13. Track all assigned AME and NIE in the MIS. If installed track in MIS by aircraft tail number and position. Track uninstalled equipment in either the MIS or another means approved by the WWM.

4.10.1.14. Ensure positive control/accountability/serviceability for suspension equipment accessories (cables, fittings, adapters, etc.).

4.10.1.15. Track F-16 acceleration monitor assemblies by serial number, showing aircraft tail number and installed position.

4.10.1.16. Ensure load crew certification records and automated products are sent with load crews to TDY location if loading tasks are to be performed. Obtain a signed copy of the Weapons Load Crew Management Tool (WLCMT) or equivalent printout from WS.

4.10.1.17. Ensure personnel receive a documented supervisory review of and complete required prerequisite training before entering initial load crew training or performing flightline operations (e.g., cockpit familiarization, fire fighting, AGE.).

4.10.1.18. Ensure on-equipment serial number inventory, AFTO IMT 95 review are performed on all AME and NIE installed as a result of transfer or acceptance inspection. Also perform inventory of applicable -21 authorizations.

4.10.1.19. Inspect 25 percent of weapons section CTKs, armament test and support equipment for serviceability, at least quarterly, and initiates corrective action as required. Schedule and track inspections to ensure 100 percent of CTKs, test, and support equipment will be checked over a one-year timeframe. Document inspection results and uses for follow-up action and reference as necessary.

4.10.1.20. Ensure appropriate follow-up actions are accomplished for all armament system malfunctions. Monitor actions taken by supporting agencies on dispensers, suspension equipment, training munitions, etc., which were involved with specific system malfunctions. Update WWM by the first of each month for the previous month on weapons release reliability and gun fire-out rates along with corrective actions if required.

4.10.1.21. Monitor upgrade training, PRP status and qualifications of assigned work center personnel. Ensure MAJCOM Mandatory Course List (MMCL) requirements are met (if applicable).

4.10.1.22. Establish a SPRAM account to track F-15E encoder/decoders and power supplies and F-16 ruggedized nuclear remote interface units (as applicable, if not tracked by Armament Systems Flight).

4.10.1.23. Provide WWM monthly status on authorized/on-hand quantities and serviceability of AME/NIE/WRM, armament testers, support equipment, and personnel assigned (to include physical profiles/security status, and mal-assigned if applicable) by the first of each month.

4.10.1.24. Ensure at least two certified WS personnel are included on TDYs where live munitions will be expended and on deployments exceeding 30 days to provide MPRL and recertification capability. Exceptions must be approved by the WWM.

4.10.1.25. Ensure appropriate amount of Dash-21 armament equipment is on-hand and accounted for IAW AFI 21-103.

4.10.1.26. Ensure overall quantity of load crew CTKs are no less than the minimum number of required load crews, including lead crews, listed on the UCML. For bomber units and those that support only test, evaluation, or training operations coordinate with the WWM in determining the number of required load crew CTKs. The WWM will approve/sign a single MIL to be used as the standard for all Load Crew CTKs on like mission-design-series aircraft; a copy will be maintained in each support section.

4.10.1.27. Ensure requirements for submitting AFTO IMT 375 on all weapons support equipment identified in TO 35-1-24 are accomplished. This process provides vital information and source documentation for ALCs to adequately reflect equipment sustainment costs, attrition rates, and to enable timely forecasting for replacement funding.

4.10.1.28. Maintain current copy of task assignment listing (TAL) for assigned aircraft. Ensure individuals review TAL and applicable –16/-33 series TOs prior to reporting for initial and recurring weapons load training.

4.10.1.29. Retain copies of completed AF IMT 2430s Specialist Dispatch Control Log, (or equivalent) on file for six months and AF IMT 2434 (or equivalent) for one year.

4.10.2. Weapons Loading Element. Personnel assigned to loading will:

4.10.2.1. Load and unload munitions and weapons in support of daily flying training and contingency operations.

4.10.2.2. Install and remove armament related suspension equipment, launchers, adapters, etc., on assigned aircraft to support configuration requirements for daily and contingency operations.

4.10.2.3. Perform functional and stray voltage checks required for loading operations.

4.10.3. Load Crew Chief. The load crew chief is responsible to the weapons expediter for armament systems maintenance and loading of assigned aircraft. Load crew chiefs are normally NCOs; however, Senior airmen may perform load crew chief duties when unit-manning status dictates. Mal-aligned NCOs, those working in other-than weapons positions within a unit, will be kept to a minimum to ensure NCOs are available to perform in this capacity to the maximum extent possible. The weapons load crew chief will:

4.10.3.1. Control all actions concerning the aircraft during loading and unloading. The load crew chief may authorize other individuals to work on the aircraft provided they are briefed on emergency procedures, perform no maintenance or inspections which would jeopardize safety, hamper loading operations, or violate tech data. Access to the cockpit and/or applying power to the aircraft by other than the load crew during loading operations is prohibited unless coordinated through and approved by the weapon load crew chief. ***EXCEPTION:*** During simultaneous loading/unloading and refueling during

Concurrent Servicing Operations (CSOs), the Concurrent Servicing Supervisor (CSS) is in charge. (See **Chapter 14** of this instruction for CSO guidance).

4.10.3.2. Supervise the loading and unloading of only one aircraft at a time.

4.10.3.3. Control and ensure the number of personnel in the area during explosives handling operations are kept to a minimum.

4.10.3.4. Ensure compliance with AFI 91-101 when responding to unscheduled maintenance actions on nuclear loaded aircraft.

4.10.4. Weapons Maintenance Element. Personnel assigned to weapons maintenance (when this element is not formed, these tasks are performed by loading personnel) will:

4.10.4.1. Install and remove all armament AME and NIE to facilitate other maintenance (FOM) or for repair action, to include acceptance and transfer inspections.

4.10.4.2. Perform aircraft scheduled maintenance, troubleshooting and repair actions.

4.10.4.3. Perform aircraft armament systems functional checks and on-equipment Dash-6 inspection requirements on in-use AME and NIE.

4.10.4.4. Boresight aircraft guns.

4.10.4.5. Perform on-equipment TCTOs and weapons TCIs.

4.10.4.6. Maintain qualification on designated weapons related qualification tasks for the unit

4.10.4.7. Maintenance personnel may be certified as load crew members at the discretion of the weapons section NCOIC.

4.10.5. Weapons expediter (ARC: Since expediters are not mandatory, units designate individuals to perform expediter duties.). The weapons expediter reports to the weapons section NCOIC and is responsible for all armament systems maintenance and loading operations, and must be knowledgeable of the assigned MDS maintenance and loading tasks. The expediter coordinates maintenance priorities with the production superintendent. Expediters require initial and recurring (not to exceed 15 months interval) qualification training provided by the WS. The expediter (will):

4.10.5.1. Remain on the flightline, to the maximum extent possible, when maintenance and loading operations are being performed and during launch and recovery of aircraft. .

4.10.5.1.1. Supervises/actively monitors on-equipment armament systems maintenance and loading/unloading operations.

4.10.5.1.2. Monitors the safety of flightline weapons operations.

4.10.5.1.3. Supervises and provides technical guidance to individuals during weapons release system fault isolation and troubleshooting as needed

4.10.5.2. Tracks status and configuration of aircraft, suspension equipment, and weapons. Ensures 100 percent documented accountability of in-use AME/NIE, by location and status, whether installed or stored. (ARC expediters need not track accountability of stored AME if being tracked by the weapons section or armament flight chief.)

4.10.5.3. Informs the production superintendent of all start and stop times, status changes, delays and extensions.

4.10.5.4. Manage munitions assets/expenditures as follows:

4.10.5.4.1. Fill out an AF IMT 2434, Munitions Configuration and Expenditure Document, or locally produced form, on all aircraft configured with munitions (includes impulse cartridges and chaff/flare). Record by serial number and location or position all armament related AME, NIE, or support equipment from which munitions items are expended. ***NOTE:*** Record NIE serial numbers only when munitions are loaded directly on the NIE versus the AME.

4.10.5.4.2. Comply with flightline munitions accountability requirements outlined in Munitions Operating Procedures, AFI 21-201. Provide copies of final expenditure documents to PS&D, the munitions flight and, armament flight, as required, at the end of the flying day. The documentation action block is annotated when entries are made on item historical documents by the Armament Flight.

4.10.5.5. Coordinates with the MOC or munitions control for the delivery and pick-up of munitions items.

4.10.5.6. Coordinates accomplishment of all planned and unscheduled maintenance and inspections with the production superintendent.

4.10.5.7. Inspect at least 25 percent of conventional loaded aircraft to meet scheduled front-lines (and spares) to validate safety/security of aircraft prior to flight; document inspection on AF IMT 2430 (or equivalent) . If negative trends are apparent, inspect remaining flyers prior to flight.

4.10.5.8. Coordinates approval and initiates cannibalization action to remove/install AME/NIE from one aircraft to another. Ensure inspection requirements are carried forward/documented for all items that have specific periodic inspections (e.g., Electronic Control units, Gun System Control Panel). To prevent overfly, do not install the cannibalized item on an aircraft with more flight time than is remaining on the AME/NIE Dash-6 requirements (when possible). Inform PS&D when actions affect the aircraft inspection schedule.

4.10.5.9. Maintains a separate AF IMT 2430, or locally produced standardized form with WWM approval, for each shift. Ensures all required documentation is complete and accurate. As a minimum, the following fields of the AF IMT 2430 will be completed: “AS OF” (date), “JOB CONTROL” (filled out for maintenance actions that have JCNs; (e.g., 18-month inspections, PRDs), but not required for weapons loading tasks), “ACFT/ TRAINER” (MDS), “SERIAL” (tail number/serial number of component), “TIME” (“Required” = start time, “Dispatched” = time completed, “Completed” = status code, (e.g., C/W, C/F, CANX)), “SPECIALIST(S) DISPATCHED” (load/maintenance crew number/ name), “DISCREPANCY & REMARKS” (discrepancy/task performed). Transcribe any actions not complied with or cancelled to the next shift’s AF IMT 2430.

4.10.5.9.1. Units may maintain one single AF IMT 2430 (or equivalent) for weekly scheduled maintenance, in addition to the daily shift AF IMT 2430(or equivalent).

Transcribe any actions not complied with or cancelled to the next week's scheduled maintenance AF IMT 2430(or equivalent).

4.10.5.10. Ensure aircraft and equipment forms and MIS documentation is complete, accurate and accomplished. Ensure aircraft status is accurately reflected in both the maintenance forms and the MIS.

4.10.5.11. Fully understand and be prepared to implement specific disaster control duties and squadron responsibilities pertaining to aircraft/SE movement and personnel evacuation IAW AFI 10-2501, AFMAN 32-4004, AFI 10-229, and unit directives.

4.10.5.12. Maintain copies of the following in the expediter vehicle: flying schedule, emergency action checklists, base grid map with cordon overlay, IPI listings, Minimum Essential Subsystem List (MESL), quick reference list (QRL) (if developed) and/or Work Unit Code (WUC) manual.

4.10.5.13. Minimize use of 3-skill level personnel for CUT tasks unless assigned manning dictates, or if the individual has completed all mandatory CDCs, and core tasks and duty position tasks identified in their CFETP.

4.11. Weapons Section (Helicopter/CV-22/UAS Units). The Helicopter/CV-22/UAS weapons section is a composite of both the flightline weapons section and armament flight. The weapons section shall support and perform training for all Helicopter/CV-22/UAS armament systems and suspension equipment inspections and maintenance. Weapons section Chief's will comply with this chapter and the applicable requirements of the section Chief responsibilities of **Chapter 3** of this instruction. Personnel will be formed into maintenance/Load Crews and will be qualified to perform on/ off equipment maintenance. They will not load ammunition on the helicopter/CV-22; the flight engineer or aerial gunner performs this task. A separate armament flight will not be formed to support UAS operations.

4.11.1. Weapons Section Chief. In addition to the common section Chief responsibilities in **Chapter 3** of this instruction, the weapons section Chief:

4.11.1.1. Advises the MOO/MX SUPT and notifies the WWM (if one is assigned to the wing), regarding factors which affect training, armament systems, weapons loading or maintenance capabilities, manning (cross training, special duty, reassignment, etc), equipment and tester shortfalls and other key weapons related issues. Assists the WWM in recommending distribution of wing 2W1X1 personnel to satisfy weapons maintenance requirements (if applicable).

4.11.1.2. Ensure expediters complete initial and recurring qualification training by WS. Weapons expediters report to the Weapons Section Chief. (ARC: Since expediters are not mandatory, units designate individuals to perform these duties.)

4.11.1.3. Review all AFTO IMT 22 or Technical Order Data Change Requests (TODCR) prior to submission. Route all weapons loading related requests (i.e.; -16, -33 TOs, and F-22A TOD) to WS for review/coordination.

4.11.1.4. Ensures aircraft Dash-6 armament system, AME/NIE inspections, TCTOs and aircraft functional checks are accomplished as required to prevent overdue inspections or over-flight of equipment.

4.11.1.5. Track all assigned AME and NIE in the MIS. If installed track in MIS by aircraft tail number and position. Track uninstalled equipment in either the MIS or another means approved by the WWM. AME/NIE, with serial numbers not recognizable in the MIS (e.g., gun-mounts, ammunition canisters, chutes), will be tracked using automated products or an AF IMT 2434 (every effort must be made to load/manage these components in the MIS if possible).

4.11.1.6. Ensure LME/MMHE meets requirements outlined in **Chapter 10** of this instruction.

4.11.1.7. Ensures positive control/accountability/serviceability for suspension equipment accessories (cables, fittings, adapters, etc).

4.11.1.8. Ensures personnel receive a documented supervisory review and personnel complete required prerequisite training before entering initial qualification/certification training or performing flightline operations (e.g., cockpit familiarization, fire fighting, AGE, Explosive Safety, etc.).

4.11.1.9. Ensures on-equipment serial number inventory and AFTO IMT 95 reviews are performed on all AME and NIE installed as a result of transfer or acceptance inspection. Also perform inventory of applicable -21 authorizations.

4.11.1.10. Ensures appropriate follow-up actions are accomplished for all armament system malfunctions. Monitors actions taken by supporting agencies on dispensers, suspension equipment, training munitions, etc., which were involved with specific system malfunctions. Update WWM by the first of each month for the previous month on weapons release reliability and gun fire-out rates along with corrective actions if required.

4.11.1.11. Monitors upgrade training and qualifications of assigned work center personnel. Ensures MAJCOM Mandatory Course List (MMCL) requirements are met (if applicable).

4.11.1.11.1. Minimize use of 3-skill level personnel for CUT tasks unless assigned manning dictates, or if the individual has completed all mandatory CDCs, and core tasks and duty position tasks identified in their CFETP.

4.11.1.12. Ensures appropriate amount of Dash-21 armament equipment is on-hand and accounted for IAW AFI 21-103.

4.11.1.13. Ensures personnel maintain qualifications to install/remove aircraft guns and chaff/ flare in support of daily flying training and contingency operations.

4.11.1.14. With the exception of those personnel designated by the WWM, all 2W1 personnel will be qualified/certified to perform both loading and on and off armament equipment maintenance and inspection functions.

4.11.1.15. In coordination with WS superintendent, identify and select the best qualified personnel to be loading standardization and lead crew members.

4.11.1.16. Ensure load crew certification records and automated products are sent with load crews to TDY location if loading tasks are to be performed. Obtain a signed copy of the Weapons Load Crew Management Tool (WLCMT) or equivalent printout from WS.

4.11.1.17. Ensure the minimum required load crews are trained and certified to perform the mission (within the ARC, UCML minimums are determined by the Lead Command). Maintain load crew integrity during training and evaluations to the maximum extent possible.

4.11.1.18. Maintain a visual aid or automated product depicting the current status of assigned load crews and members. Manually update printed products. Printed products are not required if computer systems are networked or modem-interfaced with the weapons standardization (WS) load crew management system for on-line updates.

4.11.1.19. In coordination with the WS Superintendent, ensure load training aircraft requirements and load crew proficiency evaluation schedules are developed and included in the weekly and monthly maintenance plans.

4.11.1.20. Ensure overall quantity of load crew CTKs are no less than the minimum number of required load crews, including lead crews, listed on the UCML. For bomber units and those that support only test, evaluation, or training operations coordinate with the WWM in determining the number of required load crew CTKs. The WWM will approve/sign a single MIL to be used as the standard for all Load Crew CTKs on like mission-design-series aircraft; a copy will be maintained in each support section.

4.11.1.21. Ensure a checklist for each Primary Munition (PM) and Support Munition (SM) is on hand for each assigned load crew CTK.

4.11.1.22. Establishes and monitors gun room security and explosive licenses if required.

4.11.1.23. Ensures AME and SPRAM accountability and control requirements are met IAW AFI 21-103. List assets as SPRAM if required.

4.11.1.24. If applicable, supports WRM gun maintenance requirements IAW AFI 25-101, *War Reserve Materiel (WRM) Program Guidance and Procedures*. Ensures all WRM guns and systems are serviceable to meet unit taskings.

4.11.1.25. Ensures compliance with hazardous material and hazardous waste management and air emissions record keeping as required for environmental compliance IAW installation ESOHMS/ EMS policy/guidance and applicable environmental requirements and guidance.

4.11.1.26. Identifies to LRS all aircraft armament systems components by NSN that require acceptance inspections.

4.11.1.26.1. Acceptance inspection items that are returned to the LRS, requiring functional check or bench check prior to use, will be identified IAW TO 00-20-3, as requiring functional check or calibration every three years.

4.11.1.27. Ensures requirements for submitting AFTO IMT 375 on all weapons support equipment identified in TO 35-1-24 are accomplished. This process provides vital information and source documentation for ALCs to adequately reflect equipment sustainment costs, attrition rates, and to enable timely forecasting for replacement funding.

4.11.1.28. Ensures personnel are trained to perform required security of high risk weapons at home station and deployed locations.

4.11.1.28.1. Training will include armory, anti-robbery, theft/recovery and resource protection procedures outlined in applicable AFI, OI, and DoD instructions.

4.11.1.29. Ensures personnel perform rescue/guillotine hoist arm and dearm procedures.

4.11.1.30. Ensures safe and reliable maintenance procedures are used.

4.11.1.31. In coordination with the WS superintendent (if applicable), ensures training aircraft requirements and crew proficiency evaluation schedules are developed. Includes these schedules in the weekly and monthly maintenance plans. Ensures training aircraft are properly configured to support training requirements prior to scheduled training sessions.

4.11.1.32. Inspects 25 percent of weapons section CTKs, armament test and support equipment for serviceability, at least quarterly, and initiates corrective action as required. Schedules and tracks inspections to ensure 100 percent of CTKs, test, and support equipment will be checked over a one-year timeframe. Documents inspection results and uses for follow-up action and reference as necessary.

4.11.1.33. Retain copies of completed AF IMT 2430s (or equivalent) on file for six months and AF IMT 2434 (or equivalent) for one year.

4.11.1.34. Provides WWM (if assigned) monthly status on authorized/on-hand quantities and serviceability of AME/NIE/WRM, armament testers, support equipment, and personnel assigned (to include physical profiles/security status, and mal-assigned if applicable) by the first of each month. ***NOTE:*** If WWM is not assigned, the weapons section NCOIC is required to forward this to the applicable MAJCOM Functional Manager by the 5th of each month.

4.11.2. Load Crew Chief. The load crew chief is responsible to the weapons expediter for armament systems maintenance and loading of assigned aircraft. Load crew chiefs are normally NCOs; however, Senior airmen may perform load crew chief duties when unit-manning status dictates. Mal-aligned NCOs, those working in other-than weapons positions within a unit, will be kept to a minimum to ensure NCOs are available to perform in this capacity to the maximum extent possible. The weapons load crew chief will:

4.11.2.1. Control all actions concerning the aircraft during loading and unloading. The load crew chief may authorize other individuals to work on the aircraft provided they are briefed on emergency procedures, perform no maintenance or inspections which would jeopardize safety, hamper loading operations, or violate tech data. Access to the cockpit and/or applying power to the aircraft by other than the load crew during loading operations is prohibited unless coordinated through and approved by the weapon load crew chief. ***EXCEPTION:*** During simultaneous loading/unloading and refueling during Concurrent Servicing Operations (CSOs), the Concurrent Servicing Supervisor (CSS) is in charge. (See **Chapter 14** of this instruction for CSO guidance).

4.11.2.2. Supervise the loading and unloading of only one aircraft at a time.

4.11.2.3. Control and ensure the number of personnel in the area during explosives handling operations are kept to a minimum.

4.11.3. Weapons Expediter. The weapons expediter is responsible to the weapons section NCOIC for all armament systems maintenance and loading operations, and must be knowledgeable of the assigned MDS maintenance and loading tasks. The expediter coordinates maintenance priorities with the Production Superintendent. Expediters require initial and recurring (not to exceed 15 months interval) qualification training provided by the WS. The expediter (will):

4.11.3.1. Remain on the flightline, to the maximum extent possible, when on-equipment maintenance and loading operations are being performed and during launch and recovery of aircraft.

4.11.3.2. Supervises/actively monitors on- and off-equipment armament systems maintenance and loading/unloading operations.

4.11.3.3. Tracks configuration of aircraft, suspension equipment, and weapons. Ensures 100 percent documented accountability of in-use AME/NIE, by location and status, whether installed or stored.

4.11.3.4. Informs the Production Superintendent of all start and stop times, status changes, delays and extensions.

4.11.3.5. Tracks munitions expenditures as follows.

4.11.3.5.1. Fill out an AF IMT 2434, *Munitions Configuration and Expenditure Document*, or approved equivalent, on all aircraft configured and loaded to release or fire munitions. Record by weapons serial number/tail number and location or position all armament related AME, NIE, or support equipment from which munitions items are expended. Document chaff and flare dispenser loads using the local dispenser number. ***NOTE:*** Record NIE serial numbers only when munitions are loaded directly on the NIE versus the AME.

4.11.3.5.2. Comply with flightline munitions accountability requirements outlined in AFI 21-201. Provide copies of final expenditure documents to PS&D, the munitions flight and, armament flight, as required, at the end of the flying day. The documentation action block is annotated when entries are made on item historical documents by the Armament Flight.

4.11.3.6. Coordinates with the MOC or munitions control for the delivery and pick-up of munitions items.

4.11.3.7. Coordinates accomplishment of all planned and unscheduled maintenance and inspections with the Production Superintendent.

4.11.3.8. Ensures flightline weapons operations are conducted safely.

4.11.3.8.1. Supervises/actively monitors on-equipment armament systems maintenance and loading/unloading operations.

4.11.3.8.2. Monitors the safety of flightline weapons operations.

4.11.3.8.3. Supervises and provides technical guidance to individuals during weapons release system fault isolation and troubleshooting as needed.

4.11.3.9. Supervises and assists weapons maintenance personnel during weapons release system fault isolation and troubleshooting.

4.11.3.10. Inspects, and documents on AF IMT 2430, at least 25 percent of aircraft loaded to meet scheduled front-lines (and spares) to validate safety/security of aircraft prior to flight if negative trends are apparent, inspect remaining flyers prior to flight.

4.11.3.11. Initiates (with approval) cannibalization action to remove/install AME/NIE from one aircraft to another. Ensure inspection requirements are carried forward/documented for all items that have specific periodic inspections (e.g., Electronic Control Units, Gun System Control Panel, etc). To prevent overfly, do not install the cannibalized item on an aircraft with more flight time than is remaining on the AME/NIE Dash-6 requirements (when possible). Inform PS&D when actions affect the aircraft inspection schedule.

4.11.3.12. Maintains a separate AF IMT 2430, or locally produced standardized form with WWM approval (if assigned), for each shift. Ensures all required documentation is complete and accurate. As a minimum, the following fields of the AF IMT 2430 will be completed: “AS OF” (date), “JOB CONTROL” (filled out for maintenance actions that have JCNs; e.g., 18-month inspections, PRDs, but not required for weapons loading tasks), “ACFT/TRAINER” (MDS), “SERIAL” (tail number/serial number of component), “TIME” (“Required” = start time, “Dispatched” = time completed, “Completed” = status code, e.g., C/W, C/F, CANX), “SPECIALIST(S) DISPATCHED” (load/maintenance crew number/name), “DISCREPANCY & REMARKS” (discrepancy/task performed). Transcribe any actions not complied with or cancelled to the next shift’s AF IMT 2430.

4.11.3.12.1. Units may maintain one single AF IMT 2430 for weekly scheduled maintenance, in addition to the daily shift AF IMT 2430. Transcribe any actions not complied with or cancelled to the next week’s scheduled maintenance AF IMT 2430.

4.11.3.13. Ensure aircraft and equipment forms and MIS documentation is complete, accurate and accomplished. Ensure aircraft status is accurately reflected in both the maintenance forms and the MIS.

4.11.3.14. Fully understand and be prepared to implement specific disaster control duties and squadron responsibilities pertaining to aircraft/SE movement and personnel evacuation IAW AFI 10-2501, AFMAN 32-4004, AFI 10-229, and unit directives.

4.11.3.15. Maintain copies of the following in the expediter vehicle (if assigned): flying schedule, emergency action checklists, base grid map with cordon overlay, IPI listings, Minimum Essential Subsystem List (MESL), quick reference list (QRL) (if developed) and/or Work Unit Code (WUC) manual.

4.11.4. Weapons Element. Accomplishes other basic responsibilities of the CV-22, HH-60 and UAS as follows:

4.11.4.1. Installs and removes armament related equipment on assigned aircraft to support configuration requirements for daily and contingency operations.

4.11.4.2. Performs functional and stray voltage checks required for loading operations. Performs munition loading operations to meet mission requirements.

4.11.4.3. Installs and removes all armament AME and NIE to FOM or for repair action, to include acceptance and transfer inspections. Develops and implements a program for documenting issues and receipts of in-use AME.

4.11.4.4. Performs aircraft troubleshooting and repair actions.

4.11.4.5. Performs aircraft armament systems functional checks and Dash-6 inspection requirements on in-use AME and NIE. Performs armament systems pre-flight, through-flight and basic post-flight (BPO) inspections.

4.11.4.6. Boresights aircraft guns (if applicable).

4.11.4.7. Performs on-equipment TCTOs and weapons TCIs.

4.11.4.8. Maintains qualification on designated weapons related qualification tasks for the unit.

4.11.4.9. Maintains qualifications to install/remove chaff/flare.

4.11.4.10. Weapons sections do not repair, maintain, or issue aircrew/mobility small arms weapons (i.e., M9, M16, etc.).

4.11.4.10.1. Weapons sections will track and issue small arms for armory security, maintenance security and courier operations for assigned/qualified weapons personnel only when required.

4.11.4.11. Performs off-equipment maintenance for assigned aircraft armament systems, gun system components, etc. and on-equipment weapons periodic phase inspections.

4.11.4.12. In coordination with PS&D, schedules and performs all inspections, TCTOs, time changes, maintenance and repair actions for aircraft armament systems suspension and release components and AME. When possible, NIE calendar- inspections are scheduled concurrently with the aircraft's nearest hourly inspection within the calendar interval. However, do not allow NIE/ AME scheduled inspections to become overdue (IAW Dash-6 TO).

4.11.4.13. Performs the weapons system on- and off-equipment portion of major inspections that pertain to the armament system.

4.11.4.14. Maintains WRM assets (if applicable).

4.11.4.15. Maintains equipment historical records (AFTO IMT 95) for AME, aircraft guns and weapons system NIE, if decentralized. If a MIS is available, it will be used for equipment historical records. Backup files will be maintained for those portions of historical records that are automated.

4.11.4.16. Performs off-equipment acceptance and transfer inspections on aircraft, to include NIE and AME. Inspections include.

4.11.4.16.1. Parts integrity inspections

4.11.4.16.2. Complete electrical and mechanical checks to include associated cables.

4.11.4.16.3. Updating/initiating historical records for each item.

4.11.4.17. In coordination with PS&D (if applicable), requisitions parts to satisfy time change requirements for aircraft armament or gun system components not identified in aircraft Dash-6 TOs.

4.11.4.18. Maintains the MIS data base for installed guns, gun systems, and gun component TCIs or inspection data IAW Dash-6 TO round-count limits. Use rounds information from the AF IMT 2434 or locally developed form to update the MIS.

4.11.5. Unit WWM. ***NOTE:*** This paragraph will only be applicable when helicopter/CV-22 units are assigned to locations where no AFSC 2W100 WWM is assigned.

4.11.5.1. WWM. The weapons section NCOIC will perform the following duties of WWM.

4.11.5.1.1. Annually reviews DOC Statements, OPLANs, UCML/TTMLs, unit tasked UTCs (for equipment and personnel) and UMD to identify any disconnects or problems. Coordinates changes and appendices with the wing weapons and tactics function and the munitions flight. Reports any findings to Lead Command through MAJCOM.

4.11.5.1.2. Develops, in coordination with the explosive safety officer and airfield management, an Installation Publication or supplement to this AFI for parking, launch and recovery of explosive-loaded aircraft, end of runway procedures, and impoundment of aircraft with hung ordnance, delayed release or jammed gun systems. The publication or supplement must include requirements to:

4.11.5.1.2.1. Arm and de-arm munitions-loaded aircraft in approved areas. Obtain approval from MXG/CC, OG/CC, Wing Safety, Airfield Management to perform immediately-prior-to-launch and "safing" procedures in aircraft parking areas for contingencies, unit exercises, and daily training missions as quantity/distance clearance allows.

4.11.5.1.2.2. Establish procedures for inspecting and "safing" hung munitions or external stores before aircraft return to parking areas. Control access to aircraft until munitions are made safe and cause of hung stores is identified. As a rule, ensure aircraft guns and rockets are "safed" in the de-arm area before aircraft return to open ramp parking areas.

4.11.5.1.3. Provide monthly manning, equipment and tester status to Lead Command via e-mail or web site NLT the 5th of each month. Monitor the status of critical armament and weapons systems support equipment and testers for serviceability, accountability and status of TCTO modifications.

4.11.5.1.4. Inform the MAJCOM within 24 hours of any significant weapons or armament related issues such as dropped/hung munitions, equipment and aircraft release reliability or deficiency problems, and weapons safety or mishap issues.

4.11.5.1.5. The WWM will designate in writing weapons flight supervision and expediters to be certifiers at deployed locations (when utilized) for MPRL evaluations and load crew member recertification.

4.11.6. Unit Weapons Standardization. The weapons section NCOIC will perform the following duties of Weapons Standardization. ***NOTE:*** Applicable only when units are assigned to locations where no core Weapons Standardization is assigned.

4.11.6.1. Weapons Academics. See **Para 12.7**.

4.11.6.2. Practical Training. Practical training starts when academic training is complete. The weapons section administers practical training to weapons team members on required munitions and aircraft weapons systems. They ensure practical training duplicates operational conditions to the maximum extent possible. Team members will be trained on loading and unloading procedures prior to qualification on munitions.

4.11.6.2.1. If a specific type or model of munition has been requisitioned but not received or not available, any type or model of the basic item may be used for task qualification training until receipt of the munition. Academic or task qualification instructors will teach the major differences between training and WRM munitions

4.11.6.2.2. Team members must be familiar with munitions serviceability criteria and munitions tie-down procedures.

4.11.6.2.3. Team members will be familiar with the operation of AGE and SE which may be used during loading operations/maintenance, even if the items are not used on a routine basis. Training on this type of equipment is conducted by the base AGE Flight. ***NOTE:*** AGE training may be provided by WS trainers if necessary to facilitate weapons load training but does not replace AGE flight conducted training. Training on this type of equipment is conducted during initial training and qualification.

4.11.6.3. Documenting Academic and Qualification Training.

4.11.6.3.1. Academic and qualification training conducted by the weapon section is normally documented in MIS, however, the WLCMT or equivalent may be used for this purpose.

4.11.6.4. Weapons Task Qualification. A weapons task qualification is a munitions-related task that does not require certification. Personnel receive initial and annual recurring training for these tasks. Recurring qualification training should be conducted during normal flightline operations to the maximum extent. Training is provided, documented and tracked by the weapons section for the following items:

4.11.6.4.1. Checklist Qualification: indicates the person operating the checklist is trained, knowledgeable and in-charge of the overall operation or task.

4.11.6.4.2. Installation/removal of impulse cartridges/squibs.

4.11.6.4.3. Pyrotechnics: load/unload.

4.11.6.4.4. Install and remove chaff/flare magazines and other defensive countermeasures as required.

4.11.6.4.5. Perform portions of the conventional loading checklist which pertain to delayed-flight or alert, and IPL/safing procedures (***NOTE:*** Removal of dome cover(s) is not considered IPL).

4.11.6.4.6. Personnel are authorized to unload (only) ammunition in the GAU-2, GAU-18 or M240 caliber machine guns during Hot Gun emergency or gun jams that require safing prior to maintenance actions.

4.11.7. Supply/Support: Stores and maintains required tools and equipment and manages the supply and bench stock functions. ***NOTE:*** This step, and the remainder of **paragraph 4.11.6** only apply if a helicopter/CV-22 unit weapon section is geographically separated from the HMXS support section. The need for a separate weapons support section will be determined locally.

4.11.7.1. Manages the supply function IAW AFMAN 23-110.

4.11.7.2. Performs user calibration and maintenance on flight TMDE.

4.11.7.3. Coordinates with TMDE to ensure calibration requirements are met.

4.11.7.4. Maintains the R-14 master ID listing.

4.11.7.5. Maintains CTKs, tool storage area and test equipment IAW **Chapter 10** of this instruction.

4.11.7.6. Maintains the flight TO and publication files.

4.11.7.7. Maintains supply management reports and listings (i.e., D23, D04, D18, D19 and Q13).

4.11.7.8. Manages consumables.

4.11.7.9. Manages HAZMAT and ESOH items IAW ESOH guidance. Ensure HAZMATs are MIL-Spec approved materials. Monitor the QP/QPD for changes. QPLs/QPDs can be found at **http://assist.daps.dla.mil/online/start**.

4.12. Support Section. The section may include the following elements/functions to support AMU flightline maintenance activities; support (CTKs/special tools, E-Tools, test equipment, TOs, bench stock), Dash-21 equipment, AME, mobility equipment and dedicated supply support. Assign personnel for a minimum of 12 months. 2W1X1 personnel may be required to maintain task qualification/certification. Support sections must standardize procedures across the AMXS/HMXS for security, control, and accountability of equipment. Supply support procedures in this section do not apply to aircraft supported by Contractor Operated and Maintained Base Supply (COMBS). The Support section will:

4.12.1. Maintain TOs IAW TO 00-5-1.

4.12.2. Maintain bench and operating stocks. See **Chapter 11** of this instruction for detailed procedures.

4.12.3. Ensure maintenance, control and storage of assigned AME, Dash-21 equipment, and Maintenance, Safety, and Protective Equipment (MSPE) IAW AFI 21-103. Develop local procedures to control and store other equipment not identified as Dash-21 equipment (e.g., MAF-aircraft galley items, U-2 pods panels, aircraft pylon attachment cover panels, aircraft covers/plugs) using AFI 21-103 guidelines.

4.12.4. Control and maintain TMDE IAW TO 33-1-27, Maintenance Support of Precision Measurement Equipment.

4.12.4.1. Comply with TO 33K-1-100-2-CD-1, *TMDE Calibration Interval Technical Order and Work Unit Code Reference Guide*; TO 00-20-14, and other applicable technical directives concerning the use, care, handling, transportation, and calibration of TMDE owned by the section.

4.12.5. Maintain and manage squadron LMR IAW **Chapter 14** of this instruction (as applicable).

4.12.6. Provide monthly critical support equipment status update to Sq supervision. Information will be briefed Qtrly at IREP meeting per Chapt 11.

4.12.7. Maintain Tools/CTKs IAW **Chapter 10** of this instruction.

4.13. AMU Supply Support Element. In addition to the responsibilities in **Chapter 11** of this instruction for maintenance supply support procedures, supply support will:

4.13.1. Requisition parts and use supply management products. Initiate follow-up action when necessary.

4.13.2. Notify the Flightline expediter of all back-ordered parts.

4.13.3. Develop and maintain QRL as needed and provide it to technicians.

4.13.4. Track and process DIFM assets, to include warranty parts IAW AFMAN 64-110.

4.13.5. Manage reusable containers IAW AFI 24-203, *Preparation and Movement of Air Force Cargo*, and TO 00-20-3.

4.13.6. Control and manage aircraft tail number bin (TNB) if stored within the support section. When FOM assets are collocated with TNB, they must be similarly controlled and managed.

4.13.7. Coordinate with the Pro Super and Flightline expediter for "mark for" changes.

4.13.8. Monitor the squadron CANN program and associated documentation.

4.14. (Added-CAF) Ground Communications Section. This section is responsible for Ground Control Element and Network Management systems troubleshooting, on-equipment repairs, component removal and replacement, classified item management, servicing, and cleaning. The section may include Communications and Network Management technicians. When used, the communication specialist expediter coordinates maintenance priorities with the Production Superintendent and Flightline Expediters.

4.14.1. **(Added-CAF)** In addition to the common responsibilities in Chapter 3 of this instruction, the Communication Section NCOIC will:

4.14.1.1. **(Added-CAF)** Promote cross-talk with applicable maintenance units to obtain information on system/component repeat, recur and CND trends.

4.14.1.2. **(Added-CAF)** Perform Periodic Inspections.

Chapter 5

MAINTENANCE SQUADRON (MXS)

5.1. General. IAW AFI 38-101 the MXS may consist of personnel from various AFSCs organized into flights: propulsion, avionics, TMDE, accessories maintenance, AGE, fabrication, armament systems, maintenance, and munitions flights. The MXS maintains AGE, munitions, off-equipment aircraft and support equipment components; performs on-equipment maintenance of aircraft and fabrication of parts; and provides repair and calibration of TMDE. Refer to AFI 21-200 for guidance to determine if a Munitions Squadron is warranted. ***NOTE:*** For purpose of this instruction MXS represents MXS, EMS, and CMS squadrons)

5.2. MX Operations Officer(MOO)/MX SUPT Responsibilities. The MXS MOO/MX SUPT is responsible to the SQ/CC for maintenance production. The MOO/MX SUPT manages the resources to accomplish the workload. In addition to general responsibilities in **Chapter 3** of this instruction, the MOO/MX SUPT will:

5.2.1. Review and consolidate monthly maintenance plan inputs from flights/sections and forward to MX PS&D.

5.2.2. Participate in the review of base level repair capability IAW TO 00-20-3, AFI 21-123 and Lead Command supplements.

5.2.3. Ensure EOR procedures for transient aircraft are developed IAW TO 00-20-1 and Lead Command supplements.

5.2.4. Ensure procedures are developed by the MXS and WS for required weapons loading actions on transient aircraft, storage of transient aircraft impulse cartridges, and requisition and maintenance of weapons safing equipment for common transient types of aircraft.

5.2.5. Ensure local manufacture capability and fabrication process is controlled IAW **Chapter 10** of this instruction.

5.2.6. Ensure MXS personnel use the Engineering Data Service Center (EDSC) and Engineering Technical Service (ETS) personnel to obtain information and specifications when the information in TOs does not provide enough detail.

5.2.7. Appoint MXS production superintendents.

5.2.8. **(Added-CAF)** Ensure CND and "Bad Actor" Programs and procedures are established to communicate information to each AMU.

5.3. Production Superintendent. In addition to the general responsibilities in **Chapter 3** of this instruction, the MXS Pro Super will:

5.3.1. Monitor flightline operations and coordinate support and priority with other squadron production superintendents and MOC. Focus overall maintenance effort towards WG determined maintenance priorities.

5.3.2. Identify production requirements and shortfalls to the MOO/MX SUPT.

5.4. Specialist Support.

5.4.1. Upon dispatch, technicians are responsible to the MXS Production Superintendent. Technicians will:

5.4.1.1. Report in before beginning the job to the respective expediter or dock chief.

5.4.1.2. Review aircraft IMTs/forms to determine status prior to beginning any maintenance on an aircraft.

5.4.1.3. Verify the status of AGE and SE prior to beginning the job.

5.4.1.4. Report job completions, stop times, ETIC slippage and significant problems.

5.4.1.5. Provide all document numbers for back ordered parts.

5.5. Accessories Flight. Performs maintenance on Electrical and Environmental (E&E) systems, egress systems, fuel systems and hydraulic systems.

5.5.1. Flt CC/Chief Responsibilities. In addition to the common responsibilities in **Chapter 3** of this instruction, the Accessories Flt CC/Chief will:

5.5.1.1. Ensure an Egress training program is established IAW **Chapter 16** of this instruction.

5.5.1.2. Ensure E&E and hydraulic personnel rotation plans are developed to comply with core task upgrade requirements. Rotation plans are N/A to the ARC; however all core tasks must be complied with.

5.5.1.3. Ensure explosives are controlled and stored in approved storage areas/containers.

5.5.1.4. **(Added-CAF)** Establish procedures to inform appropriate emergency response agencies when open fuel tank repairs are in progress.

5.5.1.5. **(Added-CAF)** Monitor and report status of aircraft liquid and gaseous servicing carts in repair status to MOO/Mx Supt.

5.5.2. E&E Section:

5.5.2.1. Performs authorized local manufacture, repair, overhaul, testing, modification, and inspection of aircraft and SE electrical components, wiring harnesses, batteries, and charging units.

5.5.2.1.1. Ensures battery disposal procedures meet environmental standards and batteries are controlled for accountability purposes.

5.5.2.2. Performs on and off-equipment maintenance on aircraft electrical/environmental systems and components. Repairs LOX/GOX/Liquid Nitrogen (LN2) servicing units/carts. ***NOTE:*** Self-generating nitrogen servicing carts (SGNSC) and all other basic trailer/chassis maintenance is performed by AGE.

5.5.2.3. Performs off-equipment maintenance for aircraft and aircrew carbon dioxide (CO2) cylinders.

5.5.2.3.1. **(Added-CAF)** At locations where E&E backshop support is not available, CO2 cylinder system maintenance will be performed by AFE personnel.

5.5.2.4. Performs off-equipment maintenance on type MA-1 portable breathing oxygen cylinders (portable walk around bottles) and regulators, to include removing/replacing the regulator and purging the bottle. Ownership and storage of these cylinders will remain with the appropriate support section.

5.5.2.5. **(Added-CAF)** Maintain all AGE nickel cadmium batteries. AGE will maintain lead acid type batteries.

5.5.2.6. **(Added-CAF)** Maintain, repair, order parts, and keep historical records on the gaseous and cryogenic portion of aircraft oxygen/nitrogen gaseous and cryogenic servicing units. Maintain historical records IAW AFMAN 33-363, *Management of Record*.

5.5.3. Egress Section:

5.5.3.1. Maintains aircraft egress systems, components, and trainers (e.g., aircraft ejection seats, extraction and escape systems, egress components of jettisonable canopies, explosive components of escape hatches/doors). Provides storage for egress explosive items removed during maintenance. When delegated in writing by the PS&D section, egress personnel clear suspenses, and forward a snapshot of the completed job to PS&D. In addition to responsibilities outlined in **Chapters 3 and 16** of this instruction, the egress section NCOIC will:

5.5.3.1.1. Ensure aircraft (to include GITA) are "safed" IAW 00-80-series and MDS-specific TOs.

5.5.3.1.2. Ensure all permanently decommissioned static display aircraft explosive devices are removed and turned in to munitions inspections IAW AFI 21-201. The egress section will coordinate with the Wing historian to ensure the AF FORM 3580 "USAF MUSEUM AEROSPACE VEHICLE STATIC DISPLAY ACCEPTANCE CONDITION AND SAFETY CERTIFICATE" is appropriately documented.

5.5.3.1.3. Request assistance from the explosive ordnance disposal (EOD) unit when egress explosive devices are damaged or suspected to be unsafe.

5.5.3.1.4. Establish the egress training program to include a master training plan, explosive safety certification, and MIS time change documentation qualification and review this program semiannually. Ensure quality upgrade/qualification egress systems training is conducted IAW **Chapter 16**.

5.5.3.1.5. Ensure the egress TCI data in the MIS is accurate. Automated data products will be updated whenever an egress item is replaced to ensure the annual TCI forecast is correct. Do not maintain a separate data base to manage the egress TCI program.

5.5.3.1.6. Ensure component background information is provided to the appropriate PS&D section to include a list of all components having multiple part numbers with a different service life. At least annually, meet with PS&D to verify each aircraft's egress data. Document the annual verification on the AF IMT 2411 maintained in the aircraft jacket file.

5.5.3.1.7. Coordinate with MMA section to establish a monthly requirement for MIS products to help manage egress TCIs.

5.5.3.2. **(Added-CAF)** When requesting changes or updates to the need-date of any cartridge actuated device/propellant actuated device (CAD/PAD) item, coordinate with PS&D and MASO in sufficient time to preclude emergency issue requests. Refer to AFI 21-201, *Conventional Munitions Maintenance Management*, for emergency issue and contingency issue requests.

5.5.4. Fuel Systems Section:

5.5.4.1. Repairs, functionally checks, and inspects aircraft fuel systems, fuel tanks, hydrazine systems, in-flight refueling receptacle systems, and related components. In addition to the common responsibilities outlined in **Chapter 3** of this instruction, the fuel systems section NCOIC will:

5.5.4.1.1. Establish controls to prevent unauthorized entry into fuel cell and hydrazine repair areas.

5.5.4.1.2. Provide required qualification training (to include safety training) to all personnel who enter aircraft fuel tanks or open fuel tank areas to perform maintenance or provide assistance.

5.5.4.1.3. When required, ensure hydrazine response teams are formed with only team members/supervisors possessing AFSC 2A6X4. In the ARC, only the hydrazine response team supervisor must possess AFSC 2A6X4. Refer to TO 00-25-172, TO 42B1-1-18, *General Procedures for Handling of H-70*, MDS-specific TOs and Lead Command directives for additional information on hydrazine hazards and management.

5.5.4.1.3.1. Provide initial and refresher (annual) hydrazine safety training for all hydrazine response team members IAW TO 42B1-1-18, *General Procedures Handling of H-70 (Hydrazine – Water Fuel).*

5.5.4.1.3.2. Integrate hydrazine response team responsibilities into the CDDAR Program and local IFE functional checklists.

5.5.4.1.4. Perform safety inspections on facilities to ensure open tank repair areas, and equipment used for open fuel tank or hydrazine maintenance meet MDS-specific TOs and TO 42B1-1-18 requirements.

5.5.4.1.5. Manage and document non-grounding fuel leaks according to TO 1-1-3, and MDS-specific TOs. Coordinate with PS&D to schedule aircraft with non-grounding fuel leaks through the fuel systems repair facility to prevent further deterioration.

5.5.4.1.5.1. Meet monthly with PS&D to schedule external fuel tanks for inspection or TCTOs.

5.5.4.1.6. Establish notification procedures to inform the base fire department when open fuel tank maintenance is in progress and when maintenance is complete.

5.5.4.1.7. Establish a Confined Space Entry Program IAW TO 1-1-3 and AFOSHSTD 91-25.

5.5.4.1.8. Establish a respiratory protection program that covers use, training, storage, cleaning, and inspection of respirators, hoses, and associated support equipment IAW AFOSHSTD 48-137, *Respiratory Protection Program*. Document all respiratory training requirements on AF IMT 55 or equivalent.

5.5.4.2. Performs maintenance on AME external fuel tanks, CFT, and WBT. Provides temporary storage for CFTs/WBTs. After maintenance, the owning unit will reclaim external fuel tanks, CFTs and WBTs. The fuels section will:

5.5.4.2.1. Purge and preserve external tanks that require ground shipment.

5.5.4.3. Performs all maintenance and inspections on WRM fuel tanks. The appropriate system specialist maintains release systems components. After maintenance, notify LRS to pick up the tank.

5.5.4.3.1. Purges and preserves fuel tanks for storage and shipment. LRS is responsible for the storage, delivery, and shipment of fuel tanks. Meets quarterly with installation War Reserve Materiel Officer (WRMO)/WRM Non-Commissioned Officer (NCO) and LRS representatives to review inspection criteria for stored WRM tanks, schedule tank inspections and maintenance, and report discrepancies identified during WRM monthly walk-through inspections.

5.5.4.4. Nestable Fuel Tank Build Up (NFTBU) Team Members and Training. The fuel systems section NCOIC identifies 2A6X4 personnel as NFTBU cadre members and establishes a training program. The NFTBU team will be augmented by non-2A6X4 personnel in the wing during build up operations. NFTBU Cadre team members will:

5.5.4.4.1. Attend initial NFTBU training at an Air Education and Training Command (AETC) Training Detachment (TD).

5.5.4.4.2. Conduct annual refresher NFTBU training for all fuel systems section personnel tasked for any UTC and document completed training in the MIS and Training Business Area (TBA)/AF Form 623, *Individual Training Record Folder*.

5.5.4.4.3. Conduct "just in time" training for augmentees immediately prior to performing NFTBU operations (refer to **Chapter 14** of this instruction). (ARC units follow Lead Command directives).

5.5.4.4.4. Meet quarterly with the installation WRMO/WRM NCO and MTF to identify fuel systems personnel for WRM NFTBU teams. (Units are no longer required to maintain ready-trained augmentees. Commanders must provide NFTBU augmentees to fill UTC requirements at the time of tasking). Reviews UTC MISCAP statement as it applies to the unit's tasking and ensures availability of trained fuel systems personnel and serviceable equipment/tools to support requirements.

5.5.5. Hydraulics Section. This section maintains on- and off-equipment pneumatic, hydraulic systems and components (except environmental and egress systems) and provides maintenance support for SE and test equipment. Additionally, the section maintains hydraulic test stands, pumping units, and associated components. Hydraulic Section will:

5.5.5.1. Local manufacture and test hose assemblies and test rigid tube assemblies.

5.5.5.2. Performs maintenance on munitions loading and handling equipment with discrepancies that exceed the munitions flight repair capabilities.

5.5.5.3. Maintains and inspects refueling drogues, booms, and refueling receptacle systems for large aircraft.

5.5.5.4. Repairs, overhauls, and bench checks flight control, landing gear, and hydraulic power system components (e.g., brakes, struts, accumulators, reservoirs, actuators).

5.6. Aerospace Ground Equipment (AGE) Flight

5.6.1. Provides powered and non-powered AGE (NPA) as defined in TO 00-20-1 and aircraft allowance standards to support the wing mission. The flight will be organized as a consolidated maintenance unit (repair, inspection, and servicing sections) or, at MAJCOM discretion/option, may be broken into teams for concentrated support efforts. Sections will be organized with tools, equipment and material as close to the POMx as possible, as approved by the Flight CC/Chief, without jeopardizing accountability and control procedures.

5.6.1. **(CAF)** Team concept authorized when approved by MXG/CC.

5.6.1.1. Maintains AGE in direct support of sortie production and back shop maintenance activities.

5.6.1.2. Picks up, services, delivers, repairs, and performs approved modifications, TCTOs, inspects assigned AGE and performs corrosion control tasks as directed by local unit with the exception of the following. (At MXG/CC discretion/option, users can tow NPA)

5.6.1.2. **(CAF)** Using organizations are responsible for equipment not cited on authorized allowance standards. Users are also required to inspect/service oil and hydraulic servicing carts prior to use and monitor oxygen/nitrogen cart contents (quantity/pressure levels).

5.6.1.2.1. AGE does not maintain non-powered MMHE (with the exception of LHMA, MOLT, and ram assemblies), propulsion SE, vehicle SE, non-powered dock stands, and avionics SE.

5.6.1.2.2. AGE does not dispatch operator dispatched equipment (e.g., bomb lifts and powered munitions trailers).

5.6.1.2.3. **(DELETED)**

5.6.1.3. Utilizes AF IMT 864, *Daily Requirement and Dispatch Record*, or locally developed electronic product to record all equipment pickup and delivery. When a local product is used, it must include, as a minimum, the same information found on the AF IMT 864. (N/A to ARC)

5.6.1.4. Performs chassis, enclosure, and trailer maintenance on gaseous and cryogenic servicing units.

5.6.1.4.1. Performs entire inspection and maintenance on SGNSC.

5.6.1.5. Manages SE maintenance/inspection scheduling activities for AGE maintained by the flight. Ensures equipment maintained by the AGE flight is placed on the AGE Flight/work center equipment account.

5.6.2. Flt CC/Chief Responsibilities. In addition to the general responsibilities in **Chapter 3** of this instruction, the AGE Flt CC/Chief will:

5.6.2.1. Review and coordinate the AGE minimum equipment level (MEL) with applicable Mx MOO/MX SUPT annually to identify types and quantities of AGE. The MXG/CC will be the final approval authority for the MEL. Forward a copy of the approved MEL to the MOC

5.6.2.2. Ensure AGE status/scheduling is tracked daily using MIS. When not available, track AGE status using AF IMT 2431, *Aerospace Ground Equipment Status,* or locally developed electronic product. Status and ETIC will be provided to the MOC when it falls below MEL. ***NOTE:*** When a local product is used it must include, as a minimum, the same information found on the AF IMT 2431.

5.6.2.3. Establish and maintain a field numbering system IAW TO 35-1-3 on assigned AGE.

5.6.2.4. Ensure all newly assigned AGE (to include AGE received from depot maintenance) receives an acceptance inspection IAW TO 00-20-1.

5.6.2.5. Control fuel dispensed from issue tanks IAW AFMAN 23-110, AFI 23-204, *Organizational Fuel Tanks,* and Defense Energy Support Center Guidance.

5.6.2.6. Ensure the uniform repair and replacement criteria program is implemented IAW TO 00-25-240, TO 35-1-24, *General Instructions -- AF Economic Repair/Replace Criteria For Selected San Antonio ALC Managed Support Equipment (SE)*, TO 35-1-25, and TO 35-1-26, *General Instructions -- AF Economic Repair/Replace Criteria For Selected WR-ALC Managed Support Equipment (SE) FSG 6100*. The flight chief must ensure replacement assets are placed on order with the appropriate backorder priority.

5.6.2.7. Review all Dull Sword reports for AGE Flight-maintained MMHE at website: **https://afsas.kirtland.af.mil**.

5.6.2.8. Coordinate welding requirements with the fabrication flight chief. AGE and fabrication flight chiefs will determine the repair action for AGE welding requirements not covered by end item TOs. Safety determinations are made by the fabrication flight chief.

5.6.2.9. Monitor AGE CANN actions IAW **Chapter 11** and **Chapter 14** of this instruction. Establish procedures for AGE support section to initiate CANN work orders.

5.6.2.10. Establish and monitor the AGE operator training program and assist in the development of course control documents in conjunction with Maintenance Training Flight.

5.6.2.11. Ensure AGE corrosion control and prevention is accomplished IAW TO 35-1-3, TO 1-1-8, Lead Command instructions, and equipment specific TOs. Develop and implement a tracking system to prioritize complete repainting for AGE equipment based on a “worst is first” principle. Coordinate with Fabrication Flt Chief for work beyond the AGE work center capability.

5.6.2.12. Review the MAJCOM Corrosion Survey Final Reports semi-annually at the AFCPCO portal page. **https://www.my.af.mil/gcss-af/USAF/ep/globalTab.do?command=org&pageId=681742&channelPageId=-1986143**.

5.6.2.13. Ensure equipment is prepared for storage or shipment IAW TO 35-1-4, *Processing and Inspection of Support Equipment for Storage and Shipment,* and applicable end item TOs.

5.6.2.14. Ensure quarterly equipment inventory listings are submitted to the respective MAJCOM AGE functional manager by the 15th day following the closeout of each quarter (e.g. 15 Apr, 15 Jul). Listings must identify all AGE maintained by the flight and all supply requisition/due-out information. MAJCOMs will forward inventory listings to AF/A4LM by the 30th day following the closeout of each quarter.

5.6.2.15. Ensure annual transient aircraft landing data is submitted to the respective MAJCOM AGE functional manager by 1 February of each year. Data will reflect previous year's transient aircraft landings by aircraft MDS and is obtained from local Transient Alert managing office.

5.6.3. AGE Pro Super Responsibilities (if not assigned Flt CC/Chief will fulfill these responsibilities). Responsible to the AGE Flt CC/Chief for the maintenance production of all assigned sections or teams. The Pro Super will:

5.6.3.1. Enforce strict adherence to technical data and management procedures.

5.6.3.2. Monitor the production of each section/team; recommend equipment and personnel adjustments to the Flt CC/Chief.

5.6.3.3. Monitor section or team adherence to the flight's safety, training, and CTK programs.

5.6.3.4. Frequently spot check equipment for serviceability.

5.6.3.5. Approve AGE CANN actions when authorized by the MXG/CC. CANN approval will not be delegated.

5.6.3.6. Establish proper distribution and control of assigned vehicles.

5.6.4. Section NCOIC Responsibilities. In addition to the common section NCOIC responsibilities outlined in **Chapter 3** of this instruction, section NCOICs (or Team Leaders, depending on organization) will:

5.6.4.1. Inform the AGE Pro Super/Flt CC/Chief of MICAP conditions that may affect mission support.

5.6.4.2. Ensure shop equipment is inspected and annotated on the AF IMT 2411, AFTO IMT 244 or DD 15XX series tag as applicable.

5.6.4.3. Ensure initial radio operator familiarization training is given to vehicle drivers.

5.6.5. AGE Production Support Section. Provides administration and ancillary services for TO files maintenance, supply support, and fuels management. A full-time Materiel Management Journeyman/craftsman (AFSC 2S0X1) will be assigned to the support section when the workload warrants. In addition to the common responsibilities outlined in **Chapter 3**, the production support section NCOIC will:

5.6.5.1. Maintain the flight's TO files IAW TO 00-5-1. TO files may be decentralized and managed by respective work centers.

5.6.5.2. Manage the flight's tool storage and issue areas IAW **Chapter 10** of this instruction.

5.6.5.3. Manage the flight's TMDE program.

5.6.5.4. Manage the flight's supply function IAW **Chapter 11** of this instruction and AFMAN 23-110. Pre-assembled part kits for recurring scheduled inspections are authorized. Kits are pre-assembled from bench stock, in minimum quantities necessary to support workload requirements.

5.6.5.5. Coordinate the flight's scheduling function with PS&D.

5.6.5.5.1. Maintain AGE historical records

5.6.5.5.2. Prepare an AGE maintenance plan and maintain a current equipment scheduling report for all assigned equipment.

5.6.5.5.3. Ensures Phase I and Phase II inspections are scheduled to overlap at the 6 month point.

5.6.5.6. Manage the flight's fuels management program.

5.6.5.7. Manage the flight's HAZMAT/ESOH programs IAW ESOH guidance and HAZMAT directives.

5.6.6. AGE Sub-pools. A sub-pool is a site, other than the central AGE parking area, where AGE is positioned for dispatch. Sub-pools are set up based on mission needs, facilities, or base layout. AGE Flt CC/Chief will coordinate sub-pool locations with airfield management.

5.6.7. Tow Vehicles. AGE tow vehicles are radio equipped to expedite AGE deliveries. Radios will be permanently installed (IAW AFI 23-302) or hand held.

5.7. Armament Flight.

5.7.1. The armament flight normally performs off-equipment maintenance for assigned fighter aircraft armament systems, guns, pylons, racks, launchers and adapters. For B-52/AC-130 gunship units, the armament flight shall perform weapons system on-equipment periodic phase inspections. An AFSC 2S0X1 Materiel Management journeyman/craftsman may be assigned to the flight if mission dictates and respective 2S Functional Manager concurs. The flight normally consists of three sections: maintenance, AME, and support. The WWM, with MXG/CC concurrence, determines when armament systems personnel are required to perform load crew duties or related certifiable tasks. MAJCOM must determine applicable portions of the weapons and armament responsibilities for contract and civil service organizations. ANG: The above responsibilities are performed by the weapons section. ***NOTE:*** Armament flights are not normally formed in MQ-1 Predator units.

5.7.2. When more than one AMU is supported, combat armament support teams (CAST) may be formed. If the maintenance section is organized into CASTs, each will be aligned with a specific AMU. CASTs provide exclusive support (to the maximum extent possible) to the AMU with which they are aligned. If applicable, show CAST alignment on UMDs and establish separate MIS work centers for each. Divide tools and equipment proportionally and jointly use scarce or one-of-a-kind items; do not exceed Allowance Standards (AS) quantities. Equally divide maintenance responsibilities for joint-use equipment between CASTs. As a minimum, CAST chiefs will be 7-skill level NCOs and are responsible to the maintenance section NCOIC for all maintenance actions performed by their respective team (flight chief may waive CAST chief requirements). The CAST maintenance concept is not intended to prohibit a unified or consolidated armament flight effort to meet the overall production goals.

5.7.3. Flight Commander/Flight Chief Responsibilities. In addition to common flight chief responsibilities outlined in **Chapter 3** of this instruction, the armament flight chief will:

5.7.3.1. Assist the WWM in recommending distribution of wing 2W1X1 personnel to satisfy on-and off-equipment weapons release and gun system maintenance.

5.7.3.2. Advise the MOO and the WWM regarding factors which affect training, loading or maintenance capabilities, personnel actions affecting manning levels (crosstraining, special duty, reassignment, etc.), equipment shortfalls and other key weapons related issues.

5.7.3.3. Establish and monitor gun room security and explosive licenses if required.

5.7.3.4. Ensure AME and SPRAM accountability and control requirements are met IAW AFI 21-103.

5.7.3.5. If applicable, support WRM rack, adapter, pylon, launcher and gun maintenance requirements IAW AFI 25-101, *War Reserve Materiel (WRM) Program Guidance and Procedures*. Ensure all WRM racks, adapters, launchers, and guns are serviceable to meet unit taskings.

5.7.3.6. Provide the WWM monthly status on authorized/on-hand quantities and serviceability of AME/NIE/WRM, critical armament testers, and support equipment by the first of each month, for the previous month.

5.7.3.7. Establish a SPRAM account to track F-16 “Ruggedized” Nuclear Remote Interface Units (RNRIU) and a munitions custody account for dummy test rounds and LAU-131 launchers (if required).

5.7.3.8. Establish a SPRAM account to track F-15E encoder/decoders and power supplies (as applicable, if not tracked by weapons section).

5.7.3.9. Ensure compliance with hazardous material and hazardous waste management and air emissions record keeping as required for environmental compliance IAW installation ESOHMS/ EMS policy/guidance and applicable environmental requirements and guidance.

5.7.3.10. Identify to LRS, by NSN, all aircraft armament systems components that require acceptance inspections.

5.7.3.10.1. Acceptance inspection items that are returned to the LRS, requiring functional check or bench check prior to use, will be identified IAW TO 00-20-3, as requiring functional check or calibration every three years.

5.7.3.11. Ensure requirements for submitting AFTO IMT 375 on all weapons support equipment identified in TO 35-1-24 are accomplished. This process provides vital information and source documentation for ALCs to adequately reflect equipment sustainment costs, attrition rates, and to enable timely forecasting for replacement funding.

5.7.3.12. Monitor upgrade training, PRP status and qualifications of assigned work center personnel. Ensure MAJCOM Mandatory Course List (MMCL) requirements are met (if applicable).

5.7.3.13. Establish procedures to ensure items requiring explosive free certification IAW TO 11A-1-60 are properly inspected, marked and certified prior to shipment back to depot/contractors for repair or for turn-in to DRMO.

5.7.3.14. Inspect 25 percent of armament section CTK's, armament test and support equipment for serviceability, at least quarterly, and initiates corrective action as required. Schedule and track inspections to ensure 100 percent of CTK, test and support equipment will be checked over a one year timeframe. Document inspection results and use for follow-up action and references as necessary.

5.7.3.15. Ensure equipment is routed to Structural Maintenance for corrosion prevention and control as required IAW TO 1-1-8, TO 35-1-3, Lead Command instructions, and MDS-specific TOs.

5.7.4. Armament Maintenance Section. This section performs the maintenance on assigned aircraft armament systems, guns, pylons, racks, launchers, and adapters. In addition to the section NCOIC responsibilities outlined in **Chapter 3** of this instruction, the maintenance section will:

5.7.4.1. In coordination with PS&D, schedule and perform all inspections, TCTOs, time changes, maintenance and repair actions for aircraft armament systems suspension and release components and AME, including AME items preloaded with munitions for contingencies.

5.7.4.2. Perform the off-equipment portion of major inspections, and in bomber units, assist with the on-equipment portion of major aircraft inspections that pertain to the armament system.

5.7.4.3. Maintain WRM assets (if applicable).

5.7.4.4. Maintain equipment historical records (AFTO IMT 95) for AME, aircraft guns and weapons system NIE, if decentralized. If an automated maintenance management system is available, it will be used for equipment historical records. Backup files will be maintained for those portions of historical records that are automated.

5.7.4.5. Coordinate with PS&D for equipment requiring in-shop inspections. When possible, calendar NIE inspections are scheduled concurrent with nearest aircraft hourly inspection within the calendar interval. However, do not allow NIE/AME scheduled inspections to become overdue (Dash-6 TO). Include NIE/AME inspection schedules in both the monthly and weekly maintenance plan/flying schedule.

5.7.4.6. Ensure a serial number inventory, AFTO IMT 95 review are performed on all AME/ and NIE installed as a result of transfer or acceptance inspection. Also perform inventory of applicable -21 authorizations.

5.7.4.7. Perform required off-equipment maintenance on aircraft armament systems alternate mission equipment/normally installed equipment items.

5.7.4.8. Maintain and inspect ammunition loading assemblies and systems. The munitions flight maintains the chassis portion.

5.7.4.9. May be task qualified to support combat coded operations squadrons. Coordinate with AMU weapons section NCOICs and the WWM to establish standard minimum qualification requirements. During contingencies and exercises, if applicable, CASTs are responsible to the supported AMU weapons section NCOIC. In units without CAST formed, the WWM, weapons section NCOIC and armament system flight chief coordinate manning requirements to support exercise/contingency operations.

5.7.4.10. In coordination with PS&D, requisitions parts to satisfy time change requirements for aircraft armament or gun system components not identified in aircraft Dash-6 TOs.

5.7.4.11. Maintain the MIS data base for installed guns, gun systems, and gun component TCIs or inspection data, based on round count limits listed in the Dash-6 TO, including updating rounds from the AF IMT 2434 or locally developed form.

5.7.4.12. Advise the flight chief of any factors limiting the maintenance capability.

5.7.4.13. Perform the armament systems portion of aircraft inspections as applicable.

5.7.5. Alternate Mission Equipment (AME) section (If not formed, the following will be accomplished by the armament maintenance section). This section accounts for, stores and controls AME. Personnel assigned to the AME section may be assigned to CASTs if they are formed. In addition to the general responsibilities in **Chapter 3** of this instruction, the AME section NCOIC will:

5.7.5.1. Develop procedures, in coordination with the AMU weapons section NCOICs and WWM, on the governing accountability and control of AME.

5.7.5.2. Maintain all weapons assigned, non-load box/tester-configured (bomber aircraft), F-2 type trailers. Trailers placed in-use receive pre- and post-use serviceability inspections. Develop periodic inspection requirements (maximum interval of 18 months) for trailers in storage to include:

5.7.5.2.1. Corrosion prevention and control.

5.7.5.2.2. Tire inflation check.

5.7.5.2.3. Wheel bearing and chassis lubrication.

5.7.5.3. Unpack and pack assigned AME in storage and deliver it to the maintenance section for inspection.

5.7.5.4. Develop and implement a program for documenting issue and receipt of in-use AME.

5.7.5.5. List assets as SPRAM if required.

5.7.6. Armament Support Section. This section stores and maintains required tools and equipment and manages the supply and bench stock functions for the flight. In addition to the common section NCOIC responsibilities outlined in **Chapter 3** of this instruction, the support section will:

5.7.6.1. Manage the supply function for the flight IAW AFMAN 23-110.

5.7.6.2. Perform user calibration and maintenance on flight TMDE.

5.7.6.3. Coordinate with TMDE to ensure calibration requirements are met.

5.7.6.4. Maintain the R-14 master ID listing.

5.7.6.5. Maintain CTKs, tool storage area and test equipment IAW **Chapter 10** of this instruction.

5.7.6.6. Ensure Locally LME/MMHE meets requirements outlined in **Chapter 10** of this instruction.

5.7.6.7. Maintain the flight TO and publication files.

5.7.6.8. Maintains supply management reports and listings documents (i.e., D23, D04, D18, D19 and Q13).

5.7.6.9. Manage consumables.

5.7.6.10. Manage residual and bench stock.

5.7.6.11. Manage HAZMAT and ESOH items IAW ESOH guidance.

5.7.6.12. Refer to **Chapter 11** of this instruction for maintenance supply support.

5.8. Avionics Flight

5.8.1. Managers prioritize work to meet current and projected mission needs. MICAP parts receive priority repair (P1), Readiness Spares package (RSP) requirements are considered next and are prioritized by their demand rates and stock levels (P2). Peacetime operating stock restock items are normally worked as priority three (P3), prioritized by the demand rates and item stock levels. All other items will be considered priority four (P4).

5.8.2. Two-Level Maintenance (2LM). 2LM restricts the level of repair authorized for avionics line replaceable units (LRUs). The following guidelines apply to organizations operating under 2LM. Refer to AFI 21-129 for further guidance.

5.8.2.1. Avionics sections are authorized to perform the following maintenance actions if the required support equipment is authorized and on-hand. Repairs above and beyond those listed require approval from the appropriate approval authority (e.g., Lead Command, depot). 2LM flights will limit repairs to:

5.8.2.1.1. CND or bench check serviceable (BCS) screening.

5.8.2.1.2. TCTOs performed at wing level.

5.8.2.1.3. LRU operational flight program (OFP) loads.

5.8.2.1.4. Shop-replaceable units (SRU) cross-CANNs.

5.8.2.1.5. Replacement of minor bits and pieces.

5.8.2.1.6. High priority TCTOs or other circumstances may result in more workload than can be accommodated under 2LM. In the event the section cannot accomplish the special workload as well as normal CND/BCS screening, the following formula may be used to identify those 2LM LRUs that could be temporarily "direct Not Repairable This Station (NRTS)" without screening. The formula may also help determine LRU priorities in order to adjust workload to meet production. Index formula: Index Number = Percent of Base Repair (PBR) * EXCHG PRICE * Daily Demand Rate (DDR).

5.8.2.1.6.1. LRUs with higher index numbers have a higher priority for repair compared to those with lower numbers. In the example below, the PSP would have the highest priority, followed by DMT. DFLCC may be a candidate to temporarily "Direct NRTS" until workload permits CND/BCS screening.

Figure 5.1. Example Index Numbers.

NOUN	PBR*	EXCHG PRICE*	DDR	= INDEX
PSP	63	$33352.00	214412	450517348512
DMT	13	$16521.00	21451	4607095623
DFLCC	82	$6000.00	03148	1548816000

5.8.3. Historical Records. Section NCOICs maintain AFTO IMTs 95 on selected, significantly repairable, serialized components for which historical failure data would enhance repair. Historical records are mandatory for SPRAM LRUs, and items asterisked in weapons system Dash-6 manuals. Historical records will be maintained IAW TO 00-20-1.

5.8.3.1. The record remains with the component anytime it is undergoing maintenance.

5.8.3.2. Data is provided from these records, upon request, to the analysis function to aid in defining avionics maintenance problems and recommended solutions.

5.8.4. Avionics Flights supporting 2LM, multiple MDS, and those organized under the combat support team structure are authorized to form functional sections below flight level to achieve efficiency and maintain effective span of control. ***NOTE:*** Do not authorize additional manpower positions to form sections resulting from local management decisions.

5.8.5. Flt CC/Chief Responsibilities. In addition to the common responsibilities listed in **Chapter 3** of this instruction, the Avionics Flt CC/Chief will:

5.8.5.1. Coordinate with maintenance leaders to develop procedures for accomplishing EW systems programming.

5.8.5.2. Ensure control and storage of assigned AME IAW AFI 21-103. Develop local procedures for control and storage of items not specified in Dash-21 TOs.

5.8.5.3. Ensure personnel do not make unauthorized or false transmissions on international distress frequencies IAW TO 31R2-1-251, *General Instructions-Transmission of False Distress Signals on Emergency Frequencies*.

5.8.5.4. Ensure cryptography components are controlled and maintained IAW National Security Agency and HQ USAF/XOI directives.

5.8.5.5. When applicable, determine maintenance responsibility for aircraft adapter group equipment.

5.8.5.6. Ensure central integrated test systems (CITS) central ground processors (CGP) are maintained. (B-1 units only)

5.8.5.7. Ensure accurate and timely pod and support equipment status is updated or verified daily in RAMPOD IAW AFI 21-103 Chapter 10.

5.8.5.8. Review Percent of Base Repair (PBR), Exchange Price and Daily Demand Rate (DDR) quarterly to ensure the index reflects actual conditions.

5.8.5.9. Implement the "Bad Actor" program IAW TO 00-35D-54. A Bad Actor is a component or assembly repeatedly identified as the source of failures within a specific time frame.

5.8.6. Avionics Pro Super Responsibilities. If assigned, is responsible to the Flt CC/Chief for maintenance production (if not assigned Flt CC/Chief will fulfill these responsibilities). In addition to Pro Super responsibilities outlined in **Chapter 3**, the Avionics Pro Super will:

5.8.6.1. Prioritize workload using the index formula: Index Number = PBR * EXCHG PRICE * DDR) as a guideline. See AFI 21-129. Consider local conditions, such as MICAPS, when determining actual production priorities.

5.8.6.2. Direct and control repair efforts

5.8.6.3. Perform and document production and supervisory inspections.

5.8.6.4. Ensure all assigned equipment is inspected, calibrated, and repaired, as required.

5.8.7. Repair Monitor Responsibilities. Monitors the status of items processed into the section for repair. Each shift may have a repair monitor assigned. Maintain records used by the repair monitor according to AFMAN 33-363. Each Repair Monitor will:

5.8.7.1. Process items into and out of the section, ensuring all documentation is complete and correct.

5.8.7.2. Advise the section NCOICs and Pro Supers of item status.

5.8.7.3. Assist the section NCOICs in managing the DIFM program by complying with Lead Command instructions to ensure ordered and received parts are documented; and uses, maintains and files, management and computer records. Maintain and update a working copy of the D-23, *Repair Cycle Asset Management Listing*, sorted by location and detail number.

5.8.7.4. Maintain an AWP section, ensure accurate documentation, and submit supply assistance requests, as required.

5.8.7.5. Track and monitor MICAP status for all assigned DIFM and parts affecting section repair capabilities using the automated Integrated Logistics System -Supply (ILS-S) Reports.

5.8.7.6. Ensure the MIS is updated with current supply data, location changes and DIFM status changes.

5.8.8. Communication-Navigation Section.

5.8.8.1. Performs off-equipment maintenance and/or CND screening on communication and navigation components and systems, including assigned SE, designated "user responsibility" in TO 33K-1-100-2-CD-1. ***NOTE:*** When other test equipment, including contractor-maintained test equipment, requires calibration or repair, submit it to the TMDE function IAW TO 33K-1-100-2-CD-1.

5.8.8.2. Maintains radar altimeters, Mark XII systems (AIMS), IFF systems, direction finder equipment that is an integral part of airborne radios, secure voice systems, long range aids to navigation (LORAN), and global positioning systems.

5.8.8.3. Maintains typical COMM/NAV systems including high frequency (HF), ultra-high frequency (UHF), very high frequency (VHF), IFF, automatic direction finder (ADF), VOR/ILS, tactical air navigation (TACAN), AF satellite communication (AFSATCOM)/satellite communication (SATCOM), Cockpit Voice Recorder (CVR), Emergency Location Transmitter (ELT), secure voice, interphone, search/weather/doppler radars, radar/radio altimeters, global positioning satellite (GPS), Traffic Collision Avoidance System (TCAS), and associated data-bus management system components.

5.8.8.4. When authorized by Lead Command, this section may perform on-equipment maintenance.

5.8.9. Radio Frequency (RF) Multiplexing Section.

5.8.9.1. Performs off-equipment maintenance on E-4B, E-6B, and RC-135 communication systems. Responsibilities include intermediate maintenance of Peacekeeper Airborne Launch Control System, MILSTAR, ARC-171 UHF Receiver/Transmitters, Pacer Link Phase II UHF Systems, AN/ARC 96/616A, and AFSATCOM.

5.8.10. Guidance and Control Systems (GCS) Section.

5.8.10.1. Performs off-equipment maintenance on guidance and control systems, to include automatic flight control systems, all-weather landing systems, attitude heading reference systems (AHRS), instrument systems, attitude reference and bombing systems, flight director systems, auxiliary flight reference systems, pressure altimeters and encoders of the AIMS systems, engine test cell aircraft instrumentation, inertial navigation systems (INS), and navigation computers.

5.8.10.2. Maintains compass and stability augmentation systems (SAS), weapons release computer systems (WRCS), flight data recorders (FDR), maintains fuel savings advisory systems (FSAS), Malfunction, Detection, Analysis and Recording Subsystem (MADAR), Doppler systems, navigational computers, loads environment spectra survey (LESS) recorder systems, ground proximity warning systems (GPWS), and assigned SE not maintained by TMDE flight.

5.8.10.3. Maintains engine test cell aircraft instrumentation and test equipment designated "user responsibility" in TO 33K-1-100-2-CD-1. (When other test equipment, including contractor-maintained test equipment, requires calibration or repair, submit it to the TMDE Flight IAW TO 33K-1-100-2-CD-1.) Performs off-equipment maintenance and/or CND screening on guidance and control components and systems to include assigned SE not maintained by the TMDE function.

5.8.10.4. Maintains typical GCS including automatic flight control, compass, flight director, attitude heading reference, stability augmentation, air data, flight/engine instruments, fuel/liquid quantity instruments, flight recorders, inertial navigation, flight management, and associated data-bus management system components.

5.8.10.5. When authorized by Lead Command, this section may perform on-equipment maintenance.

5.8.11. Weapons Control System Section.

5.8.11.1. Maintains aircraft weapons control systems, lead computing optical sight systems and assigned SE not maintained by TMDE. This section also performs on-equipment calibration of weapons control systems.

5.8.12. Sensors Section.

5.8.12.1. Performs off-equipment maintenance of sensor systems and associated support equipment not maintained by the TMDE function.

5.8.12.2. Maintains pod histories, pod statistics in RAMPOD, and scheduling records, and AN/ AAS-35 Pave Penny Target Identification Set Laser (TISL) systems.

5.8.12.3. **(DELETED)**

5.8.13. Electronic Warfare System (EWS) Section.

5.8.13.1. Performs on- and off-equipment maintenance on aircraft EWS and components, including assigned SE when not maintained by the TMDE function.

5.8.13.2. Maintains EWS status, EWS histories on AFTO IMT 95 and scheduling records.

5.8.13.3. Reports Electronic Attack (EA) pod status in RAMPOD IAW 21-103 if maintaining EA pod equipment. Reports other EWS status IAW TO 00-20-1 and TO 00-20-2.

5.8.13.4. Stores and controls non-installed EA pods according to applicable directives. Other removed EWS components are controlled IAW TO 00-20-3.

5.8.13.5. Manages CANN actions to ensure pods are returned to service, at a minimum, every time the Preventive Maintenance Inspection (PMI) is due.

5.8.13.6. Maintains inventory control of EWS AME. Loads proper contingency and training configuration settings in ECM pods, infrared countermeasures systems and RWR unless equipment/ responsibility is assigned to another repair section.

5.8.13.7. Develops an EWS assessment program to verify system operation IAW applicable aircraft and system TOs.

5.8.13.8. Maintains aircraft adapter group equipment when directed.

5.8.13.9. Loads proper contingency and training software in reprogrammable EWS IAW applicable system TOs and AFI 10-703.

5.8.13.10. Performs avionics/electronic warfare systems (to include electronic attack pods) reprogramming as required by applicable mission directives, PACER WARE/SERENE BYTE messages, or TCTO requirements.

5.8.13.11. **(Added-CAF)** When assigned on-equipment maintenance responsibilities, the section develops a program to verify operation of installed Radar Warning Receiver (RWR) systems using the guidelines of Chapter 14.

5.8.14. B-52 Electronic Warfare System Section.

5.8.14.1. Maintains inventory control and storage of EWS AME.

5.8.14.2. Performs alignments and operational checks of ALT-28 Delta and India band transmitter AME.

5.8.14.3. Loads contingency and training configuration settings provided by Lead Command or wing EWO.

5.8.14.4. Performs emergency and routine reprogramming of ALQ-155/Sensor Integration, ALQ-172, ALR-46 systems. Performs ALQ-155 Control Indicator Programmer (CIP) alignment and checkout.

5.8.14.5. Maintains the ALQ-172 and ALQ-155/AME hot mockups and associated test equipment.

5.8.14.6. Performs EW LRUs CND screening.

5.8.14.7. Performs periodic ALQ-172, ALQ-155, ALQ-122 and ALR-46 EW systems USM-464 End-to-End testing IAW applicable TOs.

5.8.14.8. Maintains USM-464 Test Set and associated test equipment.

5.8.14.9. Performs electronic warfare portion of aircraft phase inspections, as required.

5.8.15. Avionics Intermediate Section.

5.8.15.1. Maintains, programs and performs TCTOs on avionics components specific to assigned test stations and support equipment.

5.8.15.2. Maintains, calibrates, certifies and performs TCTOs on assigned SE not maintained by the TMDE function.

5.8.16. Computer Section.

5.8.16.1. Performs on and off-equipment maintenance of the E-3 Mission Computer system.

5.8.16.2. Performs on-equipment maintenance of the E-3 Mission Simulators (MSIM) and the Facility for Interoperability Testing (FIT) to include the Joint Tactical Information Distribution System (JTIDS).

5.8.16.3. Maintains the Data Display Training Set (DDTS).

5.8.16.4. Accomplishes maintenance on assigned SE not maintained by the TMDE function.

5.8.17. Surveillance Radar Section.

5.8.17.1. Performs on and off-equipment maintenance of the E-3 Surveillance Radar and Mission IFF system.

5.8.17.2. Maintains related Special Test Equipment used by the AMU and other maintenance squadron sections.

5.8.17.3. Maintains Surveillance Radar Hot Mock-up.

5.8.18. Combat Systems Section.

5.8.18.1. Consists of Computer Maintenance and EWS.

5.8.18.2. Performs both on and off-equipment maintenance of the EC-130H PME and the mission support facility.

5.8.18.3. Performs off-equipment maintenance on the Compass Call Mission Simulator (CCMS) PME.

5.8.18.4. Receives service by the FX supply system and does not receive automated supply products for items processed by the FX system. Management programs requiring FX supply data are exempt from these requirements; however, the section complies with those portions of the programs where data may be locally derived.

5.8.19. Cryptographic Section.

5.8.19.1. Performs on and off-equipment maintenance on RC-135 and E-4B aircraft cryptographic systems and associated equipment.

5.8.19.2. Aircraft-installed Controlled Cryptographic Items (CCI) and keying materials shall be handled IAW AFI 21-109, *Communications Security COMSEC Equipment Maintenance and Maintenance Training*; AFI 33-211, *Communication Security (COMSEC) User Requirements*; AFI 33-212, *Reporting COMSEC Deviations*; and AFMAN 23-110. Document aircraft CCI removal and installation in AFTO Form/IMT 781B, *Communication Security Equipment Record*, IAW TO 00-20-1.

5.8.20. Offensive Avionics Section.

5.8.20.1. Maintains offensive avionics systems and associated support equipment.

5.8.20.2. Performs off equipment maintenance on limited AVTR system maintenance (e.g., cleaning and demagnetizing heads; aligning remote control units), AN/ASW-55 Data Link Pod.

5.8.20.3. Performs off equipment maintenance on LRU not coded for 2LM repair for AN/ ASQ-176 Offensive Avionics Systems (OAS), AN/APQ-166 Strategic Radar (SR), and AN/ ASQ-151 Electro-optical Viewing System (EVS).

5.8.20.4. Performs maintenance and calibrations for AN/APM-440 Radar Test Set (RTS), AN/ ASM-661 Transmitter/Modulator Assembly Test Set (TMATS), AN/ASM-470 STV camera and FLIR scanner test set, and AN/ASM-691A Data Link Pod test set.

5.8.20.5. Performs classified purge operations on circuit cards requiring declassification and performs Demagnetizer (P/N 3000-6) maintenance and calibration. (2d Bomb Wing only).

5.9. Fabrication Flight. Responsible for aircraft structural maintenance, low observable aircraft structural maintenance, metals technology, and non-destructive inspection (NDI).

5.9.1. Flt CC/Chief Responsibilities. In addition to the common responsibilities outlined in **Chapter 3** of this instruction, the Flt CC/Chief will:

5.9.1.1. Provide sufficient local manufacture capability to meet mission requirements and monitor all local manufacture work order requests.

5.9.1.2. Coordinate AGE welding requirements with the AGE Flight Chief. AGE and Fabrication Flight Chiefs will determine the repair action for AGE welding requirements not covered by end item TOs. Safety determinations are made by the Fabrication Flight Chief.

5.9.1.3. Ensure corrosion prevention and control requirements, to include wash rack procedures and established paint schemes, are accomplished IAW TO 1-1-8, TO 35-1-3, Lead Command instructions, and MDS-specific TOs.

5.9.1.4. Ensure personnel are rotated to maintain currency in all aspects of their career field (e.g., coating application and removal; Radar Absorbent Materiel (RAM) application and removal; insignia and markings; structural repair competency).

5.9.2. Aircraft Structural Maintenance (ASM) Section. Manages structural repair, corrosion control and composite repair,

5.9.2.1. Provides inspection, damage evaluation, repair, manufacture, and/or modification of metallic, composite, fiberglass, plastic components, and related hardware associated with aircraft and SE.

5.9.2.2. Designs and constructs special forming jigs and dies. Ensures special jigs, dies and forming tools are protected to prevent damage.

5.9.2.3. Stocks supplies and equipment to support aircraft and equipment washing, inspection, and treatment.

5.9.2.4. In addition to common section NCOIC responsibilities in **Chapter 3** of this instruction, the ASM section NCOIC will:

5.9.2.4.1. Ensure appropriate resources are available to all personnel to chemically or mechanically inspect, remove, and treat corrosion on aircraft, engines, AGE, and components.

5.9.2.4.2. Monitor the washing and corrosion inspection schedule in the weekly and monthly maintenance plans.

5.9.2.4.3. Provide training and assistance to sections managing their own corrosion programs to include cleaning operations, corrosion prevention, inspection, removal and treatment techniques.

5.9.2.4.4. Develop procedures to ensure assigned ASM personnel are trained and qualified on aircraft intake maintenance.

5.9.2.4.5. Review the QPL/QPD for changes concerning Mil-Spec approved cleaners for aircraft wash rack.

5.9.3. Metals Technology Section. Inspects, repairs, services, manufactures, fabricates, performs heat treating, cleans, welds, and tests aircraft and equipment, components, and tools. In addition to responsibilities outlined in **Chapter 3**, the metals technology section NCOIC will:

5.9.3.1. Ensure assigned welders are certified and maintain proficiency IAW TO 00-25-252, *Certification of USAF Aircraft and Missile Welders*, and Lead Command instructions.

5.9.3.2. Provide safety briefings stressing arc radiation hazards.

5.9.3.3. Routinely observe machine tool set-up procedures, machine cutting operations, operations performed by hand, and general machine section operations, such as bench assembly, fitting, and adjusting machine parts.

5.9.3.4. Ensure special tools, jigs, and fixtures are designed, fabricated, protected and properly stored.

5.9.4. NDI Section. Performs NDI of aircraft, engines, AGE, other equipment and manages the Oil Analysis Program (OAP). Inspection findings are limited to a description of the size, location, and type of any defect discovered. NDI personnel do not make serviceability determinations except for “inspect only” TCTOs and if NDI actions constitute a completed maintenance action.

5.9.4.1. Perform OAP requirements (if applicable to assigned MDS) IAW AFI 21-124 and Lead Command guidance.

5.9.4.1.1. If the NDI laboratory providing OAP support is not located on the same base as the supported unit, or the supported unit does not have NDI/OAP personnel assigned, assign the OAP responsibilities to the owning organization IAW TO 33-1-37-1, *Joint Oil Analysis Program Laboratory Manual, Volume I*, TO 33-1-37-2, and TO 33-1-37-3, *Joint Oil Analysis Program Laboratory Manual, Volume III* . The owning organization provides samples in an expeditious manner to the supporting OAP laboratory. The owning organization will:

5.9.4.1.2. Establish collection points and procedures to receive and forward OAP samples to the supporting laboratory, monitor sample collection, assign control numbers, and provide blocks of sample control numbers for use in other squadrons.

5.9.4.1.3. Advise MOO/MX SUPT, MOC and the owning work center of abnormal OAP trends.

5.9.4.2. In addition to the common section NCOIC responsibilities outlined in **Chapter 3** of this instruction, the NDI section NCOIC will:

5.9.4.2.1. Ensure capability exists to perform optical, dye-penetrant, magnetic particle, ultrasonic, eddy current, radiographic and special inspections as required.

5.9.4.2.2. Ensure process control procedures IAW TO 33B-1-2, *Nondestructive Inspection General Procedures and Process Controls*, and other directives are completed at the required or established frequency.

5.9.4.2.3. Establish technique files using AFTO IMTs 242, *Nondestructive Inspection Data*, and TO 33B-1-1, *Nondestructive Inspection Methods Basic Theory*. ***NOTE:*** Locally developed inspection techniques for use on aircraft and their components must be approved by the responsible ALC NDI manager prior to use. All other non-aircraft related AFTO IMTs 242 may be approved by the lab chief.

5.9.4.2.4. Maintain liaison with the base medical service who provides occupational physicals, emergency treatments, film badge services, and acts as radiographic advisors IAW AFMAN 48-125, *Personnel Ionizing Radiation Dosimetry*, and TO 33B-1-1.

5.9.4.2.5. Ensure a Radiation Safety Program is established IAW TO 33B-1-1.

5.9.4.2.6. Control and dispose of radiographic silver-bearing material IAW AFMAN 23-110. Coordinate with the base medical, photo facilities, and/or other base industrial radiography work centers to prevent duplication of disposal effort.

5.9.4.2.7. Ensure radiographic film files and computed radiography files contain, as a minimum:

5.9.4.2.7.1. The last complete set of radiographs taken by owning organization, for each assigned aircraft and engine by serial number or identification (ID) number. Annotate the name of the person who interpreted the film. ***NOTE:*** Film identification procedures will be followed IAW TO 33B-1-1. Ensure the person interpreting the film also initials the set of radiographs or a locally developed interpretation worksheet, as applicable.

5.9.4.2.7.2. All NDI radiographic film exposures, to include paper, will be filed and maintained for all OTI, TCTO, Dash-6, Dash-9, and Dash-36 TO inspection requirements. Disposition of radiographic film will be IAW *AF Records Disposition Schedule* located at **https://www.my.af.mil/gcss-af61a/afrims/afrims/rims.cfm**.

5.9.4.2.8. Ensure Civil Service (field, MEO, HPO, and depot) and contracted NDI technicians are qualified and certified IAW National Aerospace Standard (NAS) 410. Civil Service personnel must meet this requirement by 1 Jan 2012. Civil Servants who are employed as a Military Technician (dual status) as defined in U.S.C Title 10, Subtitle E, Part I, Chapter 1007, 10216, are exempt from this requirement.

5.9.5. Low Observable Aircraft Structural Maintenance Section: Manages structural repair, corrosion control, composite repair, low observable (LO) coatings. ***NOTE:*** The Fabrication Flight Chief will determine which tasks listed in **para 5.9.2** (ASM section) will be applicable to this section based on flight configuration.

5.9.5.1. Provides inspection, damage evaluation, repair, manufacture, and/or modification of LO components, and related hardware associated with aircraft.

5.9.5.2. Stocks supplies and equipment to support aircraft inspection, and treatment.

5.9.5.3. In addition to common section NCOIC responsibilities in **Chapter 3** of this instruction, the LO section NCOIC will:

5.9.5.3.1. Ensure appropriate resources are available to perform all LO related tasks.

5.9.5.3.2. Monitor the inspection schedule in the weekly and monthly maintenance plans.

5.9.5.3.3. Ensure protective/LO coatings are applied to aircraft, AGE, applicable munitions, and components IAW applicable TOs and local, state and federal environmental directives.

5.9.5.3.4. Provide training and assistance to sections managing their own LO programs.

5.9.5.3.5. Develop procedures to ensure assigned LO personnel are trained and qualified on aircraft intake maintenance.

5.9.6. **(Added-CAF)** Low Observable Aircraft Structural Maintenance Support Section. Stocks supplies, consumables, tools, and equipment to support Low Observable aircraft inspection, maintenance, and surface treatment. Process supply requests, maintains AF Form 2413, *Supply Control Log* (or operates remote devices), tracks MICAP due-outs, and operate tool storage areas. In addition to common responsibilities outlined in Chapter 3, the support section NCOIC will ensure a section due-out release point and holding bins are established.

5.9.6.1. **(Added-CAF)** Maintain/monitor bench and operating stocks. See Chapter 11.

5.9.6.2. **(Added-CAF)** Support CTK/Special tools, E-tools, test equipment.

5.9.6.3. **(Added-CAF)** Control and maintain TMDE IAW TO 33-1-27, *Maintenance Support of Precision Measurement Equipment*. Comply with T.O. 33K-1-100-2-CD-1, *TMDE Calibration Notes, Calibration Interval, Technical Order, and Work Unit Code Reference Guide*; T.O. 00-20-14, *Air Force Metrology and Calibration Program* and other applicable technical directives concerning the use, care, handling, transportation, and calibration of TMDE owned by the section.

5.9.6.4. **(Added-CAF)** Provide monthly critical support equipment status updates to Sq Supervision.

5.9.6.5. **(Added-CAF)** Maintain QRL as needed and provide it to technicians.

5.9.6.6. **(Added-CAF)** Track and process DIFM assets if needed.

5.9.6.7. **(Added-CAF)** Manage reusable containers IAW AFI 24-203, *Preparation and Movement of Air Force Cargo* and T.O. 00-20-3, *Maintenance Processing of Repairable Property and the Repair Cycle Asset Control System*.

5.9.6.8. **(Added-CAF)** Manage section hazardous material (HAZMAT) program.

5.9.6.9. **(Added-CAF)** Organize and coordinate effective shipping and staging operation.

5.9.6.10. **(Added-CAF)** Issue/turn in materials to/from workers using TAS.

5.9.6.11. **(Added-CAF)** Maintain records and documentation actions to ensure compliance with applicable directives.

5.10. Maintenance Flight. Normally consists of Repair and Reclamation (R&R), Wheel and Tire (W&T), Inspection, Refurbishment, and Transient Alert (TA) sections.

5.10.1. Flt CC/Chief Responsibilities. In addition to the common responsibilities outlined in **Chapter 3** of this instruction, the Maintenance Flt CC/Chief will:

5.10.1.1. Ensure compliance with CDDAR program responsibilities IAW **Chapter 14** of this instruction.

5.10.1.2. Monitor the refurbishment process flow plan.

5.10.2. R&R Section. Removes, replaces, and rigs flight control surfaces/systems on assigned aircraft. Troubleshoots, rigs, and replaces landing gears, actuated doors, canopies and associated equipment requiring component maintenance beyond the capability of other activities.

5.10.2.1. Removes, installs, and repairs towed-targets and airborne reel pods.

5.10.3. Wheel and Tire (W&T) Section. Manages build-up, repair, test, and storage of wheel and tire components.

5.10.3.1. Degreases and disassembles wheel components for NDI inspection IAW TO 4W-1-61, *Maintenance and Overhaul Instruction - All Types Aircraft Wheels*, prior to processing through corrosion and the NDI laboratory.

5.10.3.2. Cleans, inspects, and properly stores (do not co-mingle) wheel bearings.

5.10.4. Aircraft Inspection Section. Performs aircraft phase, periodic, isochronal or letter check inspections. Prepares aircraft for FCF, if required. ***NOTE:*** Section may be divided into separate elements for each type aircraft maintained. In addition to the general responsibilities in **Chapter 3** of this instruction, the inspection section NCOIC will:

5.10.4.1. Ensure assigned non-powered SE (e.g., dock stands) is maintained.

5.10.4.2. Review inspection schedules and ensure dock teams are available to meet inspection needs.

5.10.4.3. Coordinate with MOC and/or Pro Super when specialist support is required.

5.10.4.4. Develop standardized inspection flow plan to aid in managing the inspection progress and to control dock personnel and support specialists. Units may use an Automated Data System (ADS) instead of the inspection flow plan to request specialist support. Ensure flow plan data remains current with Dash-6 TO requirements.

5.10.4.4. **(CAF)** Units may use AF Form 4366, Aircraft Inspection Flow Chart. These documents will be treated the same as aerospace vehicle documents and filed with the inspection historical documents.

5.10.4.5. Utilize a status board or MIS display to track in-progress and scheduled inspections from the weekly flying and maintenance schedule. Ensure the status board/MIS displays the following information:

5.10.4.5.1. Aircraft type.

5.10.4.5.2. Aircraft serial number.

5.10.4.5.3. Inspection type and when due (sequence).

5.10.4.5.4. Scheduled in (date and time).

5.10.4.5.5. Actual start (date and time).

5.10.4.5.6. Scheduled out (date and time).

5.10.4.5.7. Aircraft crew chief and assistant crew chief names and duty phone.

5.10.4.5.8. Remarks (status of aircraft, delays, possible MICAP conditions, etc.).

5.10.4.5.9. Safety/danger considerations (power/hydraulic applications, stress panels removed, aircraft on jacks, W&B, etc.)

5.10.4.6. Inform the MOC and owning agency of all parts backordered MICAP.

5.10.4.7. Provide PS&D Sections with an inspection document record upon completion of the inspection.

5.10.4.8. Ensure components are tagged with an AFTO Form 350, *Reparable Item Processing Tag*, IAW TO 00-20-2.

5.10.4.8.1. Ensure serially controlled components are reinstalled on the same aircraft and position from which they were removed. ***EXCEPTION:*** If it is absolutely necessary to install serially controlled components in a different position, notify the PS&D Section to update the records.

5.10.4.9. **(Added-CAF)** Units may use AF Form 4367, Aircraft Discrepancy Gig Sheet. Documentation must be tracked to ensure all discrepancies have been cleared or transferred to AFTO Form 781A or 781K and MIS. These documents will be treated the same as aerospace vehicle documents and filed with the inspection historical documents.

5.10.5. Refurbishment Section. Performs interior and exterior refurbishment of aircraft. Wings have the option to align the refurbishment section under either the fabrication flight or the maintenance flight. In addition to the responsibilities outlined in **Chapter 3** of this instruction, the refurbishment section NCOIC will develop a flow plan to provide positive control of the refurbishment process inspection and fix phases.

5.10.6. Transient Aircraft Maintenance Section (N/A to the ARC). Recovers, services, inspects, maintains, and launches transient aircraft. Procedures in this section apply to military, contract, and civil service transient maintenance functions. Transient aircraft are those aircraft not assigned to a base that are en route from one location to another that may require routine servicing. Aircraft are not considered transient aircraft when deploying to or staging from a base for the purpose of flying sorties or conducting training with a squadron assigned to the base, with or without the necessary maintenance support from the home base. MOC coordinates specialist support for transient aircraft through appropriate squadrons. For off-station recovery procedures of AMC aerospace vehicles and aerospace vehicles on AMC missions, refer to AMCI 21-108, *Logistics Support Operations*, and command-to-command agreements.

5.10.6.1. Recover and deliver all deceleration chutes for assigned, transient, and tenant aircraft to the AFE.

5.10.6.2. Complete reimbursement documentation. AF IMT 726, *Transient Aircraft Service Record*, may be used for documenting maintenance servicing requirements and necessary billing information.

5.10.6.3. Record arrivals and departures of transient aircraft on AF IMT 861, Base/Transient Job Control Number Register or locally approved form if it captures all 861 fields.

5.10.6.3.1. Each aircraft may be assigned a single Event Identification Description (EID) for all support general work performed by TA.

5.10.6.3.2. As a minimum, enter "P" for park, "I" for inspect, "S" for service, "L" for launch, and "E" for EOR in the job description/remarks block.

5.10.6.3.3. Contract transient alert activities will forward completed AF IMTs 861 to the QAE monthly. QAEs will forward completed forms to the applicable contracting officer managing the TA contract for inclusion in the contract file.

5.10.6.3.4. Non-contract transient alert activities will route the AF IMT 861 to the Maintenance Flt CC/Chief for review.

5.10.6.3.4.1. After review, AF IMT 861 are returned to the TA section and filed for a minimum of 1 year. Dispose of AF IMT 861 IAW *AF Records Disposition Schedule* located at **https://www.my.af.mil/gcss-af61a/afrims/afrims/rims.cfm**. AF IMT 861 may be used to validate manpower and equipment requirements against current AF standards.

5.10.6.4. Close out support general EIDs daily.

5.10.6.4.1. Use the same last four digits on subsequent days for the same aircraft.

5.10.6.4.2. Use a separate EID for each discrepancy that is not support general.

5.10.6.5. When a FCF is required on transient aircraft, QA at the transient base serves as the focal point and ensures all FCF requirements are completed.

5.10.6.6. In addition to the responsibilities outlined in **Chapter 3** of this instruction, the TA section NCOIC will:

5.10.6.6.1. Supervise all maintenance performed by assigned personnel on transient aircraft.

5.10.6.6.2. Ensure TOs needed for the section are properly maintained. The scope and depth of the file are based on current mission requirements. As a minimum, maintain the appropriate TOs for aircraft that can be expected to transit the function on a regular basis.

5.10.6.7. Ensure personnel are trained and strictly adhere to oil sample requirements specified in the respective Dash-6 TO.

5.10.6.8. Ensure personnel authorized to run engines are qualified IAW **Chapter 14** of this instruction. Request the aircrew run engines if TA or maintenance personnel are not authorized. If qualified aircrew members are not available, contact MOC to request assistance from the home station.

5.10.6.9. Ensure transient aircraft status changes are reported to MOC. If support is required, the MOC notifies the home station for support.

5.10.6.10. Ensure EOR procedures for transient aircraft are developed IAW TO 00-20-1 and Lead Command directives.

5.10.6.11. Ensure procedures exist for required weapons loading actions on transient aircraft, transient aircraft impulse cartridge storage, and weapons safing equipment requisition and maintenance for frequently transiting aircraft.

5.10.6.11.1. Arming, de-arming and munitions unloading/loading operations on transient aircraft may be performed by any weapons load crew certified/qualified on the munitions and aircraft.

5.10.6.11.2. The MXG/CC may direct the load standardization crew (LSC) to arm, de-arm, and unload an aircraft on which they are not certified/qualified, if appropriate technical data and support equipment is available. In such cases, the aircrew should be available for consultation on aircraft peculiarities. If these criteria cannot be met, request assistance from higher headquarters.

5.10.6.11.3. Local procedures will be developed to control impulse cartridges removed from transient aircraft.

5.10.6.11.4. Ensure checklists exist to ask pilots about explosive egress systems pertaining to aircraft that do not normally transit their base. Aircrew members must remove and install flight status safety pins on aircraft when transient maintenance personnel are not qualified.

5.10.6.11.5. The host GP/CC or his authorized representative may delegate this responsibility to the aircraft commander (AIRCREW) or pilot if the aerospace vehicle is a new or experimental aerospace vehicle with which base maintenance personnel are not familiar, or when personnel qualified to provide the required services accompany the aerospace vehicle. In such cases, the host unit will provide assistance within their capability.

5.10.6.11.5.1. If TA cannot accomplish the required inspections, servicing, or repairs because of a lack of qualified personnel, facilities, or material (or there is no TA support available), and the AIRCREW does not wish to continue the flight without accomplishment of these items, the AIRCREW will contact the home station of the aerospace vehicle to request assistance.

5.11. Munitions Flight. Controls, accounts for, stores, ships/receives, inspects, maintains, assembles, and delivers conventional, precision guided and nuclear munitions. Manages and maintains all assigned tools, test and munitions handling equipment. Munitions flights are typically composed of three sections: production, materiel and systems. Refer to AFI 21-2XX series instructions for specific guidance. ***NOTE:*** Munitions may be part of the MXS or established in a munitions squadron IAW AFI 21-200.

5.12. Propulsion Flight. Maintains aircraft engine propulsion units, propulsion components, and propellers. Performs engine/module/accessory disassembly, inspection, assembly, test, and repair. Responsible for Jet Engine Intermediate Maintenance (JEIM); test cell and noise suppression systems (NSS); accessory and quick engine change (QEC) repair; small gas turbine; module/ accessory repair section; engine support equipment; and turbo-prop/turbo-shaft repair, engine isochronal/phase inspections, as required. Sections may be combined or grouped at the discretion of the MXS/CC. Programs such as engine regionalization and 2LM may affect the standard organizational structure and responsibilities. Flights repairing engines under 2LM will normally do "retained tasks" only. In addition, the flight will be the focal point for common propulsion support equipment i.e., flexible borescopes, engine download equipment.

5.12.1. Flt CC/Chief Responsibilities. In addition to common responsibilities in **Chapter 3** of this instruction, the Flt CC/Chief will:

5.12.1.1. Perform as the wing focal point for propulsion maintenance programs, focusing on continuity, compliance and standardization. Provide advice to wing leadership on propulsion issues and monitor all aspects of wing propulsion maintenance program.

5.12.1.2. Act as the wing 2A6X1 AFSC functional manager, providing technical guidance to maintain propulsion systems to support the wing mission.

5.12.1.3. Review production data to ensure propulsion units and components processed through the flight are repaired and functionally checked IAW TO 2-1-18, *ACFT ENG Operating Limits and Factors Operating Limits and Pipeline Times*, including QEC configuration when applicable.

5.12.1.4. Coordinate with the engine manager to ensure accurate engine and equipment status reporting.

5.12.1.5. Provide JEIM regional repair, engine regional repair center (ERRC), and/or Centralized Repair Facilities (CRF) support to other organizations.

5.12.1.6. Develop guidelines to comply with AF and wing OAP requirements IAW 33 series TOs and AFI 21-124.

5.12.1.7. Determine kit requirements (and procedures for maintaining kits if established) for recurring maintenance actions. Kits are pre-assembled from bench stock, in minimum quantities necessary to support workload requirements. Repair cycle assets are not included in kits.

5.12.1.8. Review/analyze all unscheduled engine or module removals and test cell rejects.

5.12.1.8.1. Review/analyze major component failure trends.

5.12.1.8.2. Provide input to the MXG/CC's ET&D program

5.12.1.9. Ensure CANN actions for in-shop, flightline and deployed locations are accomplished IAW local procedures, **Chapter 11** and **Chapter 14** of this instruction and TO 00-20-2. Ensure local procedures include coordination with the Engine Management (EM) section to ensure sufficient time remains on TCIs prior to CANN action approval.

5.12.1.10. Coordinate with the Engine Management Section and/or base civil engineering to provide maintenance on NSS and engine test cells. If the wing or squadron is a tenant, incorporate this maintenance requirement into the host-tenant support agreement.

5.12.1.11. Ensure an uninstalled engine run qualification/certification program is established IAW **Chapter 14** of this instruction.

5.12.1.12. Establish a forecast list of supplementary part requirements based on a review of repair documentation for the preceding 6 months and ensure adequate stock of the items are available as applicable to the MDS.

5.12.1.13. Ensure specialized and long life shipping devices and containers are accounted for and maintained in a serviceable condition IAW AFMAN 23-110 and TO 00-85-20, *Engine Shipping Instructions*.

5.12.1.14. Ensure engines and engine components removed from crash damaged aircraft are disposed of IAW AFMAN 23-110.

5.12.1.15. Determine if pre-maintenance test cell runs are required for all engines removed.

5.12.1.16. Designate qualified personnel as bearing inspectors, if applicable.

5.12.1.17. Ensure an engine flexible borescope certification and blade-blending certification program, for each Type, Model, Series and Modification (TMSM) possessed, is established IAW **Chapter 14** of this instruction.

5.12.1.18. Track the status of ready spare engines using a visual display or automated product showing: serial number, configuration (type and position, if applicable), time remaining until next scheduled engine removal, overhaul or reconditioning, preservation date, type accomplished, re-preservation due date, Oil Analysis Program (OAP) code (if applicable), and remarks.

5.12.1.19. Coordinate with EM section to program engine removals for the weekly and monthly maintenance plans. Scheduled and unscheduled engine removals are important considerations in balancing propulsion flight workload with production capability. The Flt CC/Chief and EM develop a 6-month plan to smooth surges in the engine maintenance workload.

5.12.1.19.1. Use automated methods to develop the 6-month plan and include scheduled engine removals for TCIs, Periodic (PE) Inspections and TCTOs. Include a factor for projected unscheduled removal.

5.12.1.20. Ensure Reliability Centered Maintenance (RCM) principles are followed.

5.12.1.21. Ensure Engine Automated Work Package (EAWP) user permissions mirror current training/certification authorizations.

5.12.2. OAP. Coordinate with the OAP laboratory to obtain maximum benefits from OAP data when abnormal wear-metal trends are indicated.

5.12.2.1. The Propulsion Flt CC/Chief will:

5.12.2.1.1. Ensure all OAP responsibilities are performed IAW AFI 21-124.

5.12.2.1.2. Establish procedures to monitor OAP trends and take required actions.

5.12.2.1.3. Ensure personnel are trained to identify and respond to wear metal limits for assigned and maintained engines and are trained to perform sampling procedures IAW TO 33-1-37-2, *Joint Oil Analysis Program Laboratory Manual, Volume II*

5.12.2.1.4. Ensure oil samples taken at the test cell are promptly delivered to the OAP laboratory.

5.12.2.1.5. Act as a central point-of-contact for all abnormal OAP laboratory results.

5.12.2.1.6. Forward information to the OAP laboratory concerning actions taken as a result of OAP recommendations.

5.12.2.1.7. Review OAP cycle times (from sampling to receipt at the laboratory and return to the unit) to ensure processing meets mission needs.

5.12.3. Support Section. Processes supply requests, maintains AF Form 2413, *Supply Control Log* (or operates remote devices), tracks MICAP due-outs, monitors bench stock, conducts bench stock and adjusted stock level reviews, manage flight's hazardous material (HAZMAT) program, and operates tool storage areas. In addition to common responsibilities outlined in **Chapter 3** of this instruction, the support section NCOIC will ensure a flight due-out release point and holding bins are established, and UND "A" and urgency justification code (UJC) BQ requirements are verified.

5.12.4. Jet, Turboprop, Turbo-shaft Engine Intermediate Maintenance (JEIM) Section. Stores, builds up, tears down, inspects, modifies, and repairs engines, QEC kits, and tests components. In addition to common responsibilities in **Chapter 3** of this instruction, the JEIM section NCOIC will:

5.12.4.1. Plan and monitor the progress of propulsion system maintenance, ensuring maintenance schedules are met by anticipating materials required and managing delays to prevent schedule disruptions.

5.12.4.2. Ensure personnel prepare propulsion units and components for shipment and properly identify units to be returned to depot.

5.12.4.2.1. Attach Comprehensive Engine Management System (CEMS) paper products to life-limited components IAW 00-20-series TOs if required by the source of repair.

5.12.4.2.2. Components rejected by Automated Ground Engine Test Set/Engine Test Trim Automated System (AGETS/ETTAS) are shipped with printouts and DRs, if applicable.

5.12.4.3. Ensure documentation of TCTO compliance IAW 00-20-series TOs.

5.12.4.4. Ensure CEMS products obtained from EM are used for all assigned engines. CEMS products will list all parts and serial numbers installed on the engine.

5.12.4.4. **(CAF)** Also includes use of IMDS-CDB products.

5.12.4.5. Establish procedures to ensure all parts and serial numbers are inventoried when an engine is received or released by the section. Notify EM when a different serial numbered part is installed or changed so the automated record is updated. (EAWP users EME will be the change correction authority on Part Number/Serial Number Record).

5.12.4.6. Perform production scheduling to include informing the Flt CC/Chief of significant problems and production delays and immediately inform EM of engine status changes IAW AFI 21-104, *Selective Management of Selected Gas Turbines*. Maintain and review production records to update flow times and identify problem areas.

5.12.4.7. Ensure an engine work folder is established for each engine during periodic inspection, reconditioning, or other maintenance. One work order is initiated in MIS for an entire job. Separate job control numbers (JCN)/WCE are initiated for discrepancies found during the look phase of an inspection, subsequent to repair or when maintenance is required beyond the scope of the JEIM induction JCN. Complete the MIS work orders during inspection, reconditioning or maintenance. All engine shops will establish engine work folders on all possessed engines and EM or JEIM will maintain the folders until the engine is transferred.

5.12.4.7. **(CAF)** Units with F119-PW-100 engines will use the Integrated Maintenance Information System (IMIS). Engine work folder information not contained in IMIS will be established IAW this instruction. When maintenance is required beyond the scope of the Jet Engine Intermediate Maintenance (JEIM) induction JCN and the associated technical data, a separate WCE will be created against the existing JCN for all discrepancies.

5.12.4.7.1. The engine work folder contains a list of all parts, TCTOs and TCI requirements for the engine. The work folder contains worksheets that document engine historical information, critical maintenance management stages, and employee numbers of technicians and supervisors completing maintenance and inspections. Supplement work folders and worksheets to fit unit needs. Flights may use computer-generated products, provided they include all required information. If TMS has an established EAWP it will be utilized. As a minimum, work folders will contain the following:

5.12.4.7.1.1. Engine/Module/Accessories Information Worksheet. This document is used to provide a quick synopsis of maintenance accomplished. Include: engine serial number, type, position (if applicable), engine operating time, date started work, date turned serviceable, job control number, maintenance required, reason for removal, list of time change and TCTO requirements. The supervisor reviews signature blocks (crew chief, support, EM), and section NCOIC verifies all repair requirements have been accomplished and documented in the work folder. Ensure a job control number created by the JEIM/Module/ Accessories or EM section and is used to process repair of the engine and modules. This procedure will ensure all maintenance data is documented against one JCN and engine failure information is connected to the in-shop action.

5.12.4.7.1.2. Receiving Inspection Worksheet. The worksheet is used for documenting items to be accomplished by JEIM prior to engine repair. Minimum requirements: FOD check of engine inlet and exhaust, inspection of engine for

general condition and fluid leakage, Event History Recorder (EHR)/Turbine Engine Monitoring System (TEMS) data (if applicable), ET&D (if applicable), borescope inspection (if applicable), a check with OAP lab for possible problems, and a list of unique or problem areas to be checked prior to engine disassembly or maintenance.

5.12.4.7.1.3. Serially Controlled/Time Tracked Item Replacement Record. This document shows a list of components replaced by nomenclature, old and new part number (if applicable), and serial number.

5.12.4.7.1.3. **(CAF)** Also, the total operating time of old and new components.

5.12.4.7.1.4. Daily Summary Record. This document provides a synopsis of maintenance performed during each shift. Each entry in the Daily Summary Record will include the Employee Number of the person who accomplished the maintenance action (For EAWP users this process may be automated). Include a sufficient reference in the summary block (e.g., work package, TO) used to perform the task or determine the work performed (subordinate work packages are not required to be listed if the work package for the primary task identifies all required work packages for the task). At the end of each shift, the crew chief who verified the entries listed in the Daily Summary Record will annotate their Shift, Rank, Last Name, and Employee Number. Units may use a general purpose or Lead Command/locally approved form.

5.12.4.7.1.5. IPI Worksheet. This form includes the WUC, nomenclature, specific step required for the IPI, and space for employee numbers and signatures of technicians and inspectors performing maintenance. ***NOTE:*** Organizations using digital systems may file a printed report in lieu of signatures. (e.g., Interactive Electronic Technical Manual (IETM))

5.12.4.7.1.5. **(CAF)** Units possessing the F119-PW-100 engine will use IMIS to document In-Process Inspections (IPIs).

5.12.4.7.1.6. Parts Requisition Record. Use this document to list all parts (including TCIs) on order. As a minimum, this document will include the following headings: Engine/Module/Accessory TMSM, Engine/Module/Accessory Serial Number, Nomenclature, Part Number, NSN, Requisition Number, Priority, Status, DIFM Clear with Yes and No sections.

5.12.4.7.1.7. JEIM Test Cell Preparation Worksheet. This worksheet contains a list of items/tasks to be accomplished by JEIM prior to sending an engine to the test cell. As a minimum, document the following: an inlet and exhaust FOD inspection; any pre-run servicing required (e.g., cap open lines, cannon plugs, engine intake and exhaust inspection). Also document a thorough tool inventory and an inspection for loose hardware. The section supervisor will document a review of the work folder to ensure maintenance performed or required actions are documented.

5.12.4.7.1.8. Test Cell Pre-run Worksheet. Test cell personnel will complete this document prior to an engine run. As a minimum, this document will include the following headings: Engine TMS; Engine Serial Number; EOT/Cycles; JCN;

Remarks; Pre-run Emergency Briefing Accomplished with run Supervisors Name, Signature and Date sections; and Inspection with Area, Employee Number and Date sections. ***NOTE:*** As a minimum, Area inspections will include: Inlet FOD/Foreign Object (FO); Exhaust FOD/FO; Engine Exterior and FO; General Engine Serviceability; Test Stand/Thrust Bed/Test Equipment for FO; CTK Inventory C/W; Engine Servicing Check; All preliminary engine installation and run requirements C/W; serviceable fire extinguisher on hand. Each area inspection will have the performing technician's employee number and date accomplished annotated.

5.12.4.7.1.9. Test Cell Post Run Worksheet. This document is used to document items/ tasks accomplished by test cell personnel after engine run. As a minimum, this document will include the following headings: Engine TMS; Engine Serial Number; EOT/Cycles; JCN; Maintenance Actions Performed; Test Cell Supervisors Post-run Review with Name, Signature and Date; and Area Inspections, Employee Number and Date. ***NOTE:*** As a minimum, Area inspection will include: Inlet FOD/FO; Exhaust FOD/ FO; CTK Inventory C/ W; Post-Run OAP Samples C/W (if applicable); AFTO Form 350 or AFTO Form 20, **Caution and Inspection Record**, Attached; Engine Preservation Type and Date; Throttle Secured to Off Position (if applicable) and Tagged; Cap Open Lines/ Cannon Plugs; Install Intake/Exhaust Covers; Servicing Amount; Engine Test Cell Discrepancies Cleared; 7-Level Inspection of Components Replaced or Disconnected; and Final Leak Check. ***NOTE:*** Test Cell personnel will leak-check items not accessible with the engine installed in or on the aircraft prior to leaving test cell. Each area inspection will have the performing technician's employee number and date accomplished annotated.

5.12.4.7.1.10. Final Inspection Worksheet. This document is used to document JEIM requirements after repair or testing has been completed. It includes, FOD inspection of intake, exhaust, and external engine; borescope engine (if applicable); ensuring throttle is secured and tagged to "off" position (if applicable); capping, plugging and covering fittings and lines; attaching AFTO Form 350 to lines, fittings or plugs that require "leak check" when installed in aircraft (items not accessible in aircraft must be leak checked on test cell); attaching AFTO Form 350 and/or serviceable tag to engine, ensure supply accounts and MIS entries have been cleared.

5.12.4.7.1.11. Borescope Worksheets. Ensure borescope inspection worksheets are used for engines requiring borescope documentation.

5.12.4.7.1.12. Uninstalled Engine/Module Blade Blending/FOD Damage Worksheet. Used to document blade blending/FOD damage for uninstalled engines/modules. As a minimum, this worksheet will have the following information: Engine/Module Serial Number, Date, Discrepancy, Stage, Corrective Action including number of blades blended, depth of damage before and after blend, area of damage and Employee Number.

5.12.4.7.1.13. RCM Worksheets. For JEIM engine builds, a copy of the "RCM Build Options" and "RCM Calculator Summary" worksheets are maintained in the engine work folder or EAWP for documenting life-limited component engine build recommendations. Utilize RCM calculator software (**https://gimms.tinker.af.mil**) in JEIM prior to engine build. The sheets are required only if life-limited components (excluding LRU) are removed and replaced during the JEIM engine build and the TMSM engine is available in the RCM. The calculator is not used for engines which do not have the calculator developed.

5.12.4.7.1.14. EAWP users will ensure all Noted maintenance discrepancies are documented in the system's appropriate discrepancy block

5.12.4.7.2. The work folder will transfer with the engine. A copy will be maintained by the losing organization until verification of receipt by gaining unit. Gaining units will maintain the work folders and ship the documents with the engine to depot when appropriate.

5.12.4.7.2.1. Gaining units will retrieve a copy of the previous EAWP from the Data Repository Center (DRC) upon receipt of the engine if applicable.

5.12.4.7.3. EAWP users are required to send completed EAWP files to the DRC within three duty days of EAWP close-out.

5.12.4.8. Process the MICAP start in ES-S; ensure all pertinent data is included.

5.12.4.9. Upgrade, downgrade and cancel MICAP requirements.

5.12.5. Test Cell and Noise Suppression System (NSS) Section. Tests engines to evaluate the quality of maintenance and engine performance, and accomplish engine preservation. In addition to the common section NCOIC responsibilities outlined in **Chapter 3** of this instruction, the NSS section NCOIC will:

5.12.5.1. Ensure NSS and test cell personnel accomplish minor maintenance, make adjustments to engines, and document engine condition. The test cell supervisor ensures test cell components are calibrated on site, if practical.

5.12.5.2. Brief maintenance personnel on NSS operating/emergency procedures.

5.12.5.3. Ensure the NSS is used to the fullest extent. Open tie-down pads are only used as a secondary system when the NSS is down or to help reduce backlogs.

5.12.5.4. Ensure personnel qualified to operate the NSS IAW **Chapter 14** are present whenever the NSS is in use. If required, provide NSS personnel to augment AMXS deployment requirements.

5.12.5.5. Ensure custodial responsibilities are accomplished on all assigned equipment.

5.12.5.6. Ensure qualified personnel from the aircraft's owning squadron position aircraft on the NSS, prepare aircraft for engine run and accomplish engine run, trim, and troubleshooting.

5.12.5.7. Report Halon 1301 releases in accordance with AFI 91-204, *Safety Investigations and Reports* and AFI 32-7086.

5.12.6. **Module/Accessory Repair Section.** Repairs, stores, and maintains fuel nozzles, fuel manifolds, oil pumps, accessory housings, afterburners, thrust reversers, augmentors, engine components, time change modules, and shop replaceable units. Operates and maintains the bearing room IAW TO 44B-1-15, General Instructions - Jet Engine Anti-friction Bearing Handling, Removal, Cleaning, Inspecting, and Installation at Jet Engine Base Maintenance Facilities.

5.12.7. **Small Gas Turbine Engine Section.** Repairs and maintains small gas turbines used in aircraft. In addition to common responsibilities outlined in **Chapter 3** of this instruction, the small gas turbine engine section NCOIC will ensure personnel are qualified to operate small gas turbine engines and test stands.

5.12.8. **Engine Equipment Maintenance Section**. Maintains, manages, and stores engine support and removal/installation/transportation equipment and trailers.

5.12.9. **Propeller Section**. Repairs, builds up, tears down, inspects, tests, and modifies propellers, valve housings, pump housings, and associated components.

5.12.10. QEC Kit Management. QEC kit removals and installations are coordinated with the SRAN EM and loaded in MIS as a part number-serial number item, reflecting where the kit is installed or spared.

5.12.10.1. In addition to repair cycle procedures outlined in **Chapter 11** in this instruction, the technician removing a QEC kit item from an engine completes an AFTO Form 350, enters the reason for removal in Block 14, and annotates the QEC kit inventory for each repairable item.

5.12.10.2. For components removed for heat treating, washing, or sand blasting, technicians will attach a numbered metal tag (if needed) to the item and enter the metal tag number on the AFTO Form 350, Block 15. The metal tag links the item to the AFTO Form 350. Section personnel enter "QEC" in large letters on the AFTO Form 350, Block 15, to identify the item as a QEC asset.

5.12.10.3. Complete the AF IMT 596, *Quick Engine Change Kit Inventory*, for on repair cycle items and QEC kit unique items when an engine enters the section for tear down. If TO requirements restrict reuse of items, the technician marks the AF IMT 596 with an asterisk to show a demand has been placed on supply.

5.12.11. **(Added-CAF)** Units Supported by a Centralized Repair Facility or Depot / equivalent.

5.12.11.1. **(Added-CAF)** Units without full intermediate level repair capability will perform the following retained tasks, as outlined in Table 5.1., if the required support equipment and expertise is authorized and on-hand. Repairs above and beyond those listed require approval from HQ ACC/A4MP. All other engines will be returned to their assigned Centralized Repair Facility or Depot / equivalent.

Table 5.1. (Added-CAF) Wing-Retained Tasks.

T56 Engine R&R and or Repair Turbine Modules R&R and or Repair Reduction Gearbox R&R Torquemeter R&R Accessory Drive Propeller Repair	F101 Engine R&R Accessory Gearbox R&R Augmentor Assembly R&R Compressor Blades R&R Exhaust Nozzle Assembly R&R Fan Blades R&R Fan Stator Assembly R&R LPT Blades (Stage 2 Only) R&R Turbine Frame Assembly R&R VSV Actuator R&R Front Frame

5.13. Test, Measurement, and Diagnostic Equipment (TMDE) Flight. (N/A to the ARC) Maintains, calibrates, and certifies TMDE, traceable through the AF Primary Standards Laboratory (AFPSL) to the National Institute of Standards and Technology (NIST), or other AF Metrology and Calibration (AFMETCAL)-approved source. Provides base-level support of aircraft, precision guided munitions, ground systems, and other equipment assigned to the base or geographically separated units. Consists of a Precision Measurement Equipment Laboratory (PMEL), production control section, a Quality Program (QP) section, and a Technical Order Distribution Office (TODO) or Technical Order Distribution Account (TODA). A Rapid Assistance Support for Calibration (RASCAL) may also be assigned.

5.13.1. PMEL performs in-laboratory and on-site calibration and repair using laboratory equipment and calibration standards, Transportable Field Calibration Unit (TFCU), Portable Automatic Test Equipment Calibrator (PATEC), Jet Engine Test Cell/Stand Calibrator (JETSC), or RASCAL.

5.13.2. PMEL calibrates, certifies, and maintains TMDE IAW TO 00-20-14, TO 33K-1-100-2-CD-1, and the supported CMS .

5.13.3. When a RASCAL mobile facility is assigned to the base, the TMDE flight uses base resources (e.g., civil engineering, AGE flight) to the maximum extent possible to maintain the facility, associated calibration standards, computers, environmental control units, power transformers, etc., for immediate peacetime or wartime deployment.

5.13.4. Flt Chief Responsibilities. In addition to common responsibilities in **Chapter 3** of this instruction, the Flt CC/Chief shall:

5.13.4.1. Maintain PMEL certification IAW this instruction, TO 00-20-14; TO 33K-1-100-2-CD-1; CMSs; AFI 21-113, *AF Metrology and Calibration (AFMETCAL) Program*; and AFMAN 32-1094, *Criteria for AF Precision Measurement Equipment Laboratory Design and Construction*.

5.13.4.2. Ensure calibration and repair support for host, tenant, and off-base supported TMDE that is designated as a PMEL responsibility in TO 33K-1-100-2-CD-1 or appropriate CMS.

5.13.4.3. Establish and maintain a priority maintenance support plan for mission essential support equipment. As a minimum, the plan must ensure qualified PMEL personnel are readily available to support mission essential maintenance requirements.

5.13.4.4. Establish a customer relations program to provide technical assistance, advice and to obtain customer feedback on TMDE matters. The program must include periodic visits, telecommunications contact or locally-developed customer survey letters sent to all on- and off-base owning work center (OWC) customers at least annually. Maintain records documenting these visits, contacts, and surveys.

5.13.4.5. Ensure the PMEL Automated Management System (PAMS) is administered, maintained, and operated IAW 33-series AF instructions and 5000-series AF System Security Instructions and Memorandums and AFCSM 21-303(V2), *PMEL Automated Management System (PAMS) - Software Users Manual*.

5.13.4.6. Ensure RASCAL, JETSC, PATEC, and TFCU are maintained as complete sets and available for immediate peacetime or wartime deployment.

5.13.4.7. Approve priority calibration or repair requests.

5.13.4.8. Ensure a system is established to periodically review all TMDE in deferred and in-maintenance status.

5.13.4.9. Establish security procedures to protect classified TMDE IAW AFI 31-401, *Information Security Program Management*.

5.13.4.10. Identify earned reimbursements to the local Defense Finance & Accounting Service (DFAS) accounting liaison (or alternate office) for billing and collection not later than (NLT) 30 days after the month in which the reimbursement was earned. Reimbursement documentation will include, as a minimum, receipts for materiel expenses (i.e., DD Form 1348-1, *DoD Single Line Item Release/Receipt Document*, or commercial supplier equivalent) and data for labor expenses (i.e., category of labor, total hours expended, civilian/military pay grade). TMDE flight will retain reimbursement source documents on file IAW *AF Records Disposition Schedule* located at **https://www.my.af.mil/gcss-af61a/afrims/afrims/rims.cfm**.

5.13.4.11. Ensure support agreements with off-base users and tenants organizations establish a TMDE Collection Point (preferably one per group or equivalent). This requirement also applies to all ANG activities.

5.13.5. PMEL Quality Assurance Section NCOIC. The Quality Program (QP) is established by the TMDE Flt Chief and the PMEL quality section NCOIC is responsible to the TMDE Flt Chief. The PMEL QP is outlined in TO 00-20-14 and this chapter. The PMEL QP and AFMETCAL program certification processes are used to validate the technical proficiency and capability of the PMEL. Personnel Evaluations (PE) and Quality Verification Inspections (QVI) will not be performed on calibration/certification tasks by MSEP or Logistics Compliance Assessment Team (LCAT) inspectors. However, PEs and QVIs can be performed on other logistics/maintenance actions within PMEL, including production control/scheduling and maintenance supply actions. Additionally, Evaluator Proficiency Evaluations can be performed on PMEL Quality Assurance personnel.

5.13.5.1. The TMDE Flt Chief shall:

5.13.5.1.1. Appoint qualified AFSC 2P071 TMDE personnel as PMEL Quality Assurance (PQA) section NCOIC and PQA evaluators, and may appoint PQA augmentees. The Flt CC/ Chief may appoint qualified 5-skill level personnel when necessary.

5.13.5.1.2. Publish a monthly QP summary and route it through MOO/MX SUPT to the SQ/CC (or organizational equivalent). The report format should comply with TO 00-20-14 and meet local requirements.

5.13.5.1.2. **(CAF)** Forward a copy of the monthly QP activity summary to Lead MAJCOM Precision Measurement Equipment Laboratory (PMEL) Functional. Electronic transmission preferred. The activity summary shall arrive to the Lead MAJCOM PMEL Functional not later than 10 days after the end of the month. The summary shall include as a minimum:

5.13.5.1.2.1. **(Added-CAF)** All requirements of T.O. 00-20-14, *AF Metrology and Calibration Program*, Para 9.7.

5.13.5.1.2.2. **(Added-CAF)** Average backlog for the month and the 6 month average.

5.13.5.1.2.3. **(Added-CAF)** Monthly average of percent of inventory overdue calibration.

5.13.5.1.2.4. **(Added-CAF)** Monthly average of percent of inventory awaiting parts.

5.13.5.1.2.5. **(Added-CAF)** Monthly average of percent of inventory on hold.

5.13.5.1.2.6. **(Added-CAF)** Environmental Control System (ECS) performance (temperature and relative humidity). ECS data shall include percent in tolerance for the last 12 months and percent in tolerance for the latest month.

5.13.5.2. PQA Section NCOIC and PQA evaluators shall:

5.13.5.2.1. Perform technical evaluations and review TMDE production processes, products, and services to assess equipment condition, process compliance, calibration traceability, personnel proficiency/competency, and quality of training. Inform the TMDE Flt CC/Chief of findings.

5.13.5.2.2. Evaluate nonconformity and problem areas to find the root cause IAW TO 00-20-14. Log nonconformities, root causes, and corrective actions in PAMS/MIS.

5.13.5.2.3. Establish a system to track the status of TO improvement reports and DRs for compliance IAW TO 00-5-1 and TO 00-35D-54. Download monthly TO Improvement Status (TOIS) Listing from the AFMETCAL METWEB homepage at **https://metweb.afmetcal.af.mil**.

5.13.5.2.4. Verify AFTO IMTs 45, *Request for Calibration Responsibility Determination*, and maintain a suspense file until changes are incorporated into WUC manuals. Download and review Calibration Determination Listing from the AFMETCAL METWEB homepage **https://metweb.afmetcal.af.mil**.

5.13.5.2.5. Manage items in the following PAMS status: items calibrated in/awaiting Quality Review (QR), DR exhibits and items in/waiting Process Review (PR) IAW TO 00-20-14.

5.13.5.2.6. Inspect completed PAMS job documentation in conjunction with QR for time accounting, accuracy, completeness, appropriate action taken, and condition received/returned code correlation. Report trends semi-annually to TMDE Flt CC/Chief.

5.13.5.2.7. **(Added-CAF)** Review and track technical order improvement reports and Deficiency Reports (DRs) for compliance (T.O.s 00-5-1 and 00-35D-54).

5.13.6. Production Control Section NCOIC. The section consists of customer service, production scheduling, traffic management, and maintenance supply liaison elements. Additionally, ensure a 2S0X1 Materiel Management individual is assigned on a full-time basis when workload warrants. Uses PAMS/MIS to maintain an accurate master identification listing, process equipment, and to provide current status of all TMDE.

5.13.6.1. Customer Service Function. Establishes procedures for turn-in and pick-up of TMDE. Emergency equipment is accepted at any time. In addition, Customer Service Function personnel shall:

5.13.6.1.1. Process incoming TMDE using PAMS/MIS equipment schedules, PAMS/MIS directives, and TOs. Inspect each incoming TMDE item to determine exterior condition IAW TO 33-1-27. For unscheduled TMDE malfunctions, determine AFTO Form 350 discrepancy documentation adequacy. Notify the OWC when documentation is inadequate, paperwork is incomplete, TMDE is missing item(s), or TMDE/paperwork is excessively dirty. The TMDE flight may return these items for correction prior to processing into PMEL.

5.13.6.1.2. Produce monthly TMDE schedules and quarterly master ID lists at least 5 work days prior to the first duty day of the month and distribute to OWCs for correction and verification. TMDE schedules and quarterly master ID lists may be distributed via e-mail and/or webpage. Schedules for OWCs are not required when there are no items in maintenance or overdue status. Establish a tracking and a suspense system for return of corrected listings.

5.13.6.1.3. Notify OWC monitors within 10 calendar days (20 calendar days for remote or off-base locations) of TMDE not delivered on or before the scheduled date due calibration. Maintain a log of all contacts concerning overdue TMDE. For remote and off-base locations, notification is not required if the PMEL has received an advance copy of shipping documentation. Overdue calibration notifications shall include a statement to remove TMDE from service IAW AF instructions unless a date due calibration extension has been requested and approved IAW TO 00-20-14. Notify the Commander (or equivalent) by letter when the OWC routinely fails to deliver or schedule delivery within a reasonable period following notification.

5.13.6.1.4. Train TMDE monitors and maintain a database or log of training (dates, names, organizations, etc.).

5.13.6.2. Production Scheduling Function personnel shall:

5.13.6.2.1. Accept TMDE from customers, but may reject TMDE until the OWC complies with their responsibilities IAW TO 00-20-14; TO 15X-1-102, *General Care and Cleaning of Oxygen Gauges and Oxygen Device Related Test Equipment*; TO 33-1-27, and TO 37C11-1-1, *Maintenance Instructions --Cleaning of Pressure Gauges Used on Liquid Oxygen Systems* (e.g., submit equipment with batteries, set torque wrenches at the lowest setting prior to delivery, deliver accessories with TMDE).

5.13.6.2.2. Establish a workload leveling program through daily coordination with customers to maintain a level incoming workload. Advise TMDE Flt Chief through the Production Control Section NCOIC of significant increases in workload or deviations from monthly schedule.

5.13.6.2.3. Establish a "Hold Area" for TMDE requiring technical data or accessories, awaiting instructions from item managers, etc. Notify OWCs of the change to a deferred status. Return items awaiting technical data or accessories if the OWC does not respond in a timely manner after being notified.

5.13.6.2.4. Establish an "awaiting shipment" area for TMDE shipped to another organization and maintain a database or file with associated documents.

5.13.6.2.5. Use PAMS/MIS to control TMDE processed for maintenance. Ensure the current status of all TMDE processed into the PMEL for repair and calibration is reflected in the PAMS/MIS database.

5.13.6.2.6. Correct the PAMS/MIS master ID database NLT 3 workdays after receipt of customer corrections.

5.13.6.2.7. Notify customers of completed TMDE. Take action to resolve problems with customers who fail to pick-up completed TMDE within a reasonable period.

5.13.6.2.8. Manage and schedule TMDE TCTOs IAW **Chapter 7** in this instruction.

5.13.6.2.9. To avoid abuse of the TMDE priority system, the TMDE Flt Chief will assist OWC personnel in locating TMDE to meet their mission requirements. The OWC should attempt to meet mission requirements prior to requesting emergency or mission essential support. Schedule TMDE using one of the following categories:

5.13.6.2.9.1. EMERGENCY Calibration or Repair: One-of-a-kind TMDE that is inoperable or due calibration and for which a critical job is at a work stoppage.

5.13.6.2.9.1.1. A letter of justification signed by the OWC MOO/MX SUPT must accompany the TMDE. The letter may be handwritten to prevent delay. Telephone verification between the OWC and PMEL is encouraged.

5.13.6.2.9.1.2. PMEL must accept emergency TMDE at any time. Immediate and continuous repair action is required until repair/calibration is completed or status of the item changes (e.g., AWP, deferred for lack of standards or technical data).

5.13.6.2.9.1.3. The TMDE Flt Chief or PMEL section NCOIC may require an OWC technician to accompany the TMDE. The technician will remain at the PMEL to provide technical assistance until the work is completed or placed in an interim-complete status.

5.13.6.2.9.1.4. The OWC or using organization must pick up the TMDE immediately upon notification of completion.

5.13.6.2.9.2. MISSION ESSENTIAL Calibration or Repair: One-of-a-kind or one-deep TMDE that is part of a unit's deployment package, is critical to daily peacetime operations, or TMDE assets falling below critical availability levels.

5.13.6.2.9.2.1. A letter of justification signed by the OWC Flt CC/Chief or equivalent will accompany the TMDE unless pre-identified by OWC Flt CC/Chief and approved by TMDE Flt Chief or delegated approval authority.

5.13.6.2.9.2.2. PMEL must accept mission essential TMDE any time during duty hours and schedule it with sufficient priority to ensure the calibration/repair is complete by the date and time specified by the customer.

5.13.6.2.9.2.3. The OWC or using organization must pick up the TMDE immediately upon notification of completion.

5.13.6.2.9.3. ROUTINE Calibration or Repair: TMDE not categorized as emergency or mission essential. PMEL must accept routine TMDE during normal turn-in and pick-up hours.

5.13.6.3. Shipment of TMDE. Processes TMDE items needing contract, warranty, depot or lateral calibration/repair and return through local Deployment and Distribution Flight, Traffic Management Element IAW this instruction and AFI 24-203, *Preparation and Movement of Air Force Cargo*. Shipping personnel shall:

5.13.6.3.1. Process TMDE shipped off base for calibration or repair and return, including warranty and contract items. TMDE is accountable property with an expiration date (date-due calibration) and must be shipped by traceable means. All installation TMDE items must be shipped through the TMF IAW TO 00-20-14 and other applicable publications.

5.13.6.3.2. Retain and file hard copy source documents for all inbound and outbound (contract, warranty, depot and lateral) shipments IAW *AF Records Disposition Schedule* located at **https://www.my.af.mil/gcss-af61a/afrims/afrims/rims.cfm**.

5.13.6.3.3. Use the PAMS shipping module to the fullest extent possible. If PAMS is not available, manual backup methods shall be employed.

5.13.6.3.4. Track TMDE in PAMS maintenance statuses "DEPOT" and "CONTR". Maintain file consisting of all supporting documentation for each type of shipment.

5.13.6.3.5. Establish and implement a reusable container program IAW AFI 24-203, *Preparation and Movement of Air Force Cargo*.

5.13.6.3.6. Outbound Shipments. Prepare DD Form 1149, *Requisition and Invoice/Shipping Document*, for each shipment. All copies of the DD Form 1149 are stamped "TMDE" in one-inch letters using red ink. The form must contain the words

"DO NOT POST/PROJECT CODE 571" in block 4, and "SUPPLY INSPECTION NOT REQUIRED-SHIP BY TRACEABLE MEANS ONLY"; and either "CONTAINS HAZARDOUS MATERIAL" or "CONTAINS NON-HAZARDOUS MATERIAL." in section B.

5.13.6.3.6.1. Use AF Form 537, **PME Shipping**, for all TMDE shipments delivered to the packing and crating activity. Include an AFTO Form 350 with each unserviceable TMDE item.

5.13.6.3.6.2. Retain two legible copies of the DD Form 1149 signed by packing and crating personnel. Ensure these copies contain sufficient information to identify the owner or user, part number, NSN, ID or serial number, nomenclature, and the Transportation Control Number (TCN) assigned by the transportation activity.

5.13.6.3.6.3. Retain one copy of the DD Form 1149 until the shipment is received at the destination point, then file the DD Form 1149 IAW *AF Records Disposition Schedule* located at **https://www.my.af.mil/gcss-af61a/afrims/afrims/rims.cfm**; mark the other copy as "Advance Copy" and mail/ electronically transmit it to the destination point. Initiate tracer action if shipping time exceeds standards in AFI 24-201 and follow-up with the destination point within 30 calendar days of the shipping date.

5.13.6.3.7. Inbound Shipments. Place the "Advance Copy" of the DD Form 1149 received from the shipping organization in a suspense file. Notify the TMF to initiate tracer action if shipping time exceeds standards in AFI 24-203.

5.13.6.3.7.1. Reconcile the inbound "Advance Copy" DD Form 1149 with the shipping DD Form 1149 document and clear the suspense. Sign the "Advance Copy" and mail/electronically transmit it to the originator.

5.13.6.3.7.2. Update the PAMS maintenance file ID listing and route the TMDE through designated official for incoming inspection. Report damage attributable to shipping through the TMF. Retain copies of the report of damage with the respective DD Form 1149.

5.13.7. Maintenance Supply Support Function. Manage the flight's maintenance-supply actions IAW **Chapter 11** of this instruction and AFMAN 23-110, and provide assistance to other flight personnel to resolve supply problems. The assigned supply journeyman/craftsman shall:

5.13.7.1. Establish an "AWP/Equipment Inoperative for Parts (EIP)" storage area. Maintain TMDE and expendable parts accountability and control. Track status of TMDE in PAMS using maintenance status "AWP/EIP" and "in-service AWP".

5.13.7.2. Maintain source document audit trail accountability for all demands on supply. Ensure validity and completeness of supply requisition forms. Verify and monitor UJCs and Standard Reporting Designator (SRD) codes.

5.13.7.3. Maintain bench, operating, and shop stocks. Dispose of property containing precious metals IAW AFMAN 23-110.

5.13.7.4. Maintain MICAP records and initiate follow-up actions on MICAP requisitions.

5.13.7.5. Monitor backordered requisition status and maintain liaison with LRS personnel. Initiate supply assistance requests for supply difficulties. Submit follow-up actions (document identifier code "AFC") to LRS for requisitions with unacceptable status or unacceptable estimated delivery dates.

5.13.7.5.1. Coordinate with customers to obtain mission impact statements to substantiate supply assistance requests. Establish a suspense system and follow-up to ensure correspondence is received and acted on.

5.13.7.5.2. Consider assigning NRTS codes to TMDE exceeding 60 days in "AWP/EIP" status. Coordinate with LRS personnel to initiate follow-up action with the item manager of the repair parts beginning at the 60th day in status. If parts delivery does not occur by the 90th day in status, coordinate with LRS personnel to contact the item manager of the end item for disposition instructions.

5.13.7.6. Maintain accountability for issues and turn-ins of DIFM repair cycle assets IAW AFMAN 23-110 and TO 00-20-3.

5.13.7.7. Establish TMDE Flight shelf life program IAW AFMAN 23-110.

5.13.7.8. Assist Government Purchase Card (GPC) holders in administering and coordinating purchases.

5.13.7.9. Requisition and control TCTO kits IAW **Chapter 7** of this instruction and TO 00-5-15, *AF Time Compliance Technical Order Process*.

5.13.7.10. **(Added-CAF)** Notify Owning Work Center of Test Measurement and Diagnostic Equipment (TMDE) status change to awaiting parts and backorder/delivery status of parts on order.

5.13.7.11. **(Added-CAF)** Monitor and control AWP TMDE using LRS-generated and/or internally generated reports. Store parts received for AWP items with the end item. Attach a copy of source document of outstanding requisitions with AWP TMDE.

5.13.8. PMEL Section NCOIC. The PMEL section NCOIC is responsible to the TMDE Flt Chief. In addition to the general section NCOIC responsibilities listed in **Chapter 3** of this instruction and in TO 00-20-14, the PMEL section NCOIC shall:

5.13.8.1. Ensure timely verification of new and updated calibration TOs is distributed to the PMEL for review, including beta tests of software IAW TO 00-5-3, *Technical Manual Acquisition Procedures*. Annotate comments (enhancements and discrepancies) on AFTO IMT 158, **Technical Order Review Comment Sheet**.

5.13.8.2. Ensure currency of software used in manual/automated calibration procedures and software used to pass/fail TMDE parameters. All such software must possess a valid Computer Program Identification Number (CPIN) or 33K10 designator, see TO 00-5-17.

5.13.8.3. Evaluate TMDE AWM, AWM from deferred (AFD), and in-work (INW) cycle time/turnaround time adequacy daily. Initiate corrective action necessary to balance workload and capacity (production).

5.13.8.4. Ensure work area supervisors perform and document weekly follow-ups on all TMDE in deferred (DEF) status.

5.13.8.5. Designate work area supervisors. Work area supervisors will:

5.13.8.5.1. Establish processes to ensure work area maintenance practices produce traceable, clean, safe to use TMDE with optimal physical condition and accurate documentation.

5.13.8.5.2. Ensure PAMS accurately reflects correct maintenance status for all TMDE applicable to the work area. Also, ensure accuracy and completeness of data entered in PAMS.

5.13.8.5.3. Perform production and supervisory inspections IAW **Chapter 14**, **Table 14.1** of this instruction, sign condition tags, validate/verify NRTS conditions, identify/clear repeat and CND discrepancies, etc.

5.13.8.5.4. Resolve production difficulties (e.g., manning, instrument limitation, outer agency support) when the in maintenance (AWM/INW/AFD) cycle time exceeds 7 calendar days.

5.13.8.5.5. Ensure work area team members formally report instances of substandard materiel or supplier performance. Prepare and submit AF IMT 1815, *Difficulty Report (DIREP) Worksheet*; AFTO IMTs 22; SF 368, *Product Quality Deficiency Report*; and all other supplier feedback documents pertinent to PMEL processes. Route all documents through the QP section for coordination and tracking.

5.13.9. TMDE Technical Order Distribution Office (TODO)/Technical Order Distribution Account (TODA). The TODO/TODA is responsible to the TMDE Flt CC/Chief and maintains TO, TCTO, CPIN and commercial data files IAW TO 00-5-1 and TO 00-5-17. The TODO/TODA shall:

5.13.9.1. Follow up weekly on TMDE in deferred maintenance status for lack of TOs or commercial data.

5.13.9.2. Maintain preliminary (draft) TO files and associated documentation from TO verification and post publication reviews.

5.13.9.3. **(DELETED)**

5.13.9.4. Retain and file TODO Account Reconciliation Report (ARR), and other related TO records IAW *AF Records Disposition Schedule* located at **https://www.my.af.mil/gcss-af61a/afrims/afrims/rims.cfm**.

5.13.10. TMDE Collection Point. Units serviced by a PMEL not located on the same base shall establish a TMDE collection point. The Collection Point Coordinator is the single point-of-contact between the OWC and the servicing TMDE Flight and is trained by the servicing PMEL. The TMDE collection point shall perform the applicable responsibilities of this instruction, **paragraph 5.13.6**, production control section.

Chapter 6

MAINTENANCE OPERATIONS SQUADRON

6.1. General. The MOS is directly responsible to the MXG/CC for the administration, analysis, training management, and programs and resources necessary to support the group production effort. The MOS is comprised of the following flights, Maintenance Operations, Maintenance Training, and Programs and Resources. The planning, controlling, scheduling, and executing responsibilities of the MXG/CC will be met through the actions of these functions.

6.2. Maintenance Operations Flight (MOF). The flight is comprised of the following sections: Maintenance Operations Center; Engine Management; Maintenance Data Systems Analysis; Plans, Scheduling and Documentation; and Maintenance Supply Liaison (assigned to LRS but may physically reside in Maintenance). This flight is the central agency for monitoring and developing long-range strategies to sustain the health of the fleet. Fleet management is defined as the effective utilization of available resources to accomplish the aircraft support cycle from planned maintenance events to flying schedule execution. It is a disciplined and prioritized scheduling effort that optimizes support to aircraft requirements such as flying events, ground training events, scheduled maintenance inspections, aircraft configuration control, aircraft modification schedules and aircraft recovery maintenance. Effective fleet management results in consistent availability of quality aircraft to meet operational requirements. The MOF superintendent position will be filled by senior NCO 2RXXX personnel, if available. (N/A to the ARC.)

6.2.1. MOF/CC/Chief (MOF/SUPT). In addition to general responsibilities in **Chapter 3** will:

6.2.1.1. Develop and publish the wing flying/maintenance schedule in coordination with other squadrons and submit to both the OG and MXG/CC for approval.

6.2.1.2. Determine long-range fleet health maintenance priorities.

6.2.1.3. Manage the data collection process, review data and verify analysis for maintenance data collection requirements.

6.2.1.4. Evaluate and provide trend analysis information to the MXG/CC and SQ/CCs.

6.2.1.5. Ensure aircraft status is properly reported and maintained IAW AFI 21-103 and Lead Command supplements. Ensure PS&D Aerospace Vehicle Distribution Officer (AVDO) accurately reports all assignment/possession changes through the Lead Command AVDO IAW AFI 21-103 and AFI 16-402.

6.2.1.6. Initiate, review, and validate special analysis studies. Determine planning factors for the next year's flying hour program.

6.2.1.7. Prioritize the use of shared maintenance resources/facilities (e.g., fuel cell hangar, engine run spots, compass rose, etc).

6.2.1.8. Develop procedures to update Geographical Location (GEOLOC) codes for all on and off-station possessed aircraft and ensure GEOLOC codes are updated/correct in the MIS "Location Subsystem" (G081 units are exempt as long as a HHQ agency accomplishes this requirement). Use code "SSSS" for classified locations. Ensure any

deploying unit loads all equipment into the IMDS-CDB AEF subsystem, G081 units are exempt.

6.2.1.9. Host DFTs/CFTs, provide in-briefs on unit-specific maintenance requirements, review plans and coordinate/monitor status of aircraft and progress of repair work.

6.2.1.10. Provide workspace for the MSL to operate, if applicable. Participate in the review of base level repair capability IAW TO 00-20-3, AFI 21-123 and Lead Command supplements.

6.2.1.11. Accomplish "First Look" IAW **Chapter 7** of this instruction.

6.2.2. Maintenance Operations Center (MOC). The MOC monitors and coordinates sortie production, maintenance production, and execution of the flying and maintenance schedules while maintaining visibility of fleet health indicators. Through coordination with maintenance units, the MOC communicates priorities for competing limited resources [e.g., fuel or calibration docks, wash racks, and dispatched specialists from the maintenance squadron(s) (e.g., egress)] based on daily flying schedule and maintenance priorities. The exchange of information between squadrons and the MOC must be in sufficient detail to allow the MOC to comply with reporting requirements and to identify potential problems. ***NOTE:*** Upon completion of worldwide fielding, the Enhanced Maintenance Operations Center (EMOC) system will be the program of record for the AF and its use mandated for all units using the Integrated Maintenance Data System Central Database (IMDS CDB) for aircraft maintenance data collection/documentation. An EMOC interface to the Core Automated Maintenance System for Mobility (CAMS-FM/G081) has not been completed to date. For those units using G081, the use of EMOC is optional. If EMOC is used, dual entry of maintenance data will be required until the EMOC/G081 interface is implemented.

6.2.2.1. Maintains visual aids (electronic or manual) to show the status, ETIC and location of each aircraft on station. Aircraft maintained or supported by the unit but not on station will also be tracked (aircraft cross country etc). Ensure status boards depicting aircraft status and location comply with program security guidelines.

6.2.2.2. Monitor the status and ETIC of MEL designated AGE if it falls below critical levels.

6.2.2.3. Monitors and reports the status of ECM and sensor pods IAW AFI 10-201. When MC pod availability falls below requirements per the DOC or OPLAN, track/monitor the following information: pod serial number, status (AWP/AWM), MICAP NSN, off-base requisition numbers, and ETIC. Classify information IAW AFI 31-401.

6.2.2.4. Publishes local radio call signs for maintenance LMR networks.

6.2.2.5. Ensures aircraft status and ETICs are properly reported by the Pro Super IAW AFI 21-103, AFCSM 21-564, and Lead Command supplements. The MOC verifies aircraft status and ETICS using the MIS before reporting it.

6.2.2.5. **(CAF)** Maintains overall management and control of the IMDS-CDB location subsystem and aircraft status reporting.

6.2.2.6. Monitors the progress of aircraft FCFs as established by QA and PS&D.

6.2.2.7. Informs affected activities of changes in priorities, plans, and schedules.

6.2.2.8. Coordinates on changes to the flying schedule with applicable agencies by use of AF IMT 2407.

6.2.2.9. Requests support services (e.g., standby fire fighting capability, aircraft water, snow removal, fueling and defueling service, civil engineer support, or control tower clearances for ground movement of aircraft and equipment).

6.2.2.9.1. Coordinates on all aircraft engine runs and all aircraft ground movements conducted by maintenance personnel prior to execution.

6.2.2.10. Develops, implements, and maintains functional checklists.

6.2.2.10.1. Functional checklists are required for use during actions such as nuclear mass loads, Broken Arrow, Dull Swords, Bent Spear, aircraft crash, flightline fire, severe weather warning or evacuation, runway closure, Quick Reaction Checklists (QRC), and any other unusual circumstances deemed necessary. For OPlan 8010 notification, use the plan implementation checklists. Use unit operational plans as a guide in developing these checklists. Checklists contain those actions required to be taken by functional area(s). The MOC maintains checklists IAW Lead Command/local guidance.

6.2.2.11. Coordinates munitions delivery priorities with flying units and munitions maintenance activities/control, when tasked.

6.2.2.11.1. Notifies the base fire department and all other required agencies of munitions-loaded or unloaded aircraft. Provides agencies with the aircraft type, tail number, location, type of explosives, and arming status. Wings will publish procedures of notification requirements.

6.2.2.12. Upon notification of deployments, load all deploying equipment into the IMDS-CDB AEF subsystem for the duration of the deployment.

6.2.2.13. Ensures all deviations to the daily flying schedule are reviewed and accurately reported IAW Lead Command directives. Forward a copy of each AF IMT 2407 and the daily flying schedule, with all annotated deviations, to Maintenance Analysis.

6.2.2.14. Monitors Hangar Queen aircraft IAW **Chapter 14** of this instruction and Lead Command directives.

6.2.2.14. **(CAF)** Ensures aircraft boards are conspicuously marked to show Hangar Queen status and include date of last flight, ETIC, and expected fly date.

6.2.2.15. Coordinates maintenance on the alert force, if applicable.

6.2.2.16. Ensures work centers are aware of the two-person concept prior to dispatch IAW Nuclear Surety Program.

6.2.2.17. Notifies flightline expediters of OAP code “C” and “E” conditions and ensure aircraft are not operated until results of OAP sample(s) are known.

6.2.2.18. Notifies appropriate agencies (e.g., Pro Super, flightline expediters, fuel cell maintenance, munitions control, hush house/test cell, etc.) of severe weather warnings.

6.2.2.19. Notifies the wing safety office, QA, and wing FOD monitor of mishaps involving aircraft FOD, aircraft damage, or injuries resulting from aircraft maintenance.

6.2.2.20. When tasked by the WG/CC, maintain central key control for hardened aircraft shelters and other facilities.

6.2.2.21. MOC Personnel. Must be experienced with the MIS and possess a "2A", "2R" or "2W" maintenance related AFSC. Personnel must be qualified on at least one of the assigned weapons systems, or have completed all local Qualification Training tasks for assigned AFSC. Waiver authority for this requirement rest with the MXG/CC.

6.2.2.21.1. The MOC senior coordinator or representative will attend the daily production/scheduling meeting.

6.2.2.21.2. The MOC senior coordinator will establish a proficiency training program for weapons system coordinators to familiarize personnel with every aspect of MOC operation.

6.2.2.21.3. Personnel assigned to the MOC will be capable of reporting aircraft status from the MESL and operating MIS remote devices before assuming unsupervised duties.

6.2.2.22. The facilities and visual aids must meet the following minimum standards:

6.2.2.22.1. A completely enclosed room with air conditioning and heating. An observation room is permitted. The doors to the MOC and the observation room will be either mechanically or electrically locked to control access.

6.2.2.22.2. Isolate MOC electrical power circuits. Provide a standby power source and emergency lighting. Establish procedures to operate standby power sources.

6.2.2.23. Use visual aids to provide ready access to critical data. Computer terminals may be used in place of visual aids. If this option is used, develop procedures to retrieve printed products on a regular basis in case of system failure. Visual aids will display the following:

6.2.2.23.1. Aircraft Status. Display aircraft status in the following columns: serial number, location, priority, status, DOC limitations/remarks, ETIC, configuration, OAP status codes, munitions load, and fuel load. Units having only one standard configuration or fuel load may omit these columns. Units using automated systems need to display the above information, but may use "remark" or "narrative" portions of the screen for items not listed by specific title. Show DOC limitations against FSL and the BSL as itemized on the MESL in the Lead Command supplement to AFI 21-103. Discrepancy narratives in the "DOC limitations/remarks" column should be clear, concise, accurate, and include all pertinent data (e.g., document numbers).

6.2.2.23.1. **(CAF)** Also include Work Unit Code (WUC) and landing status code in the discrepancy narrative.

6.2.2.23.2. Flying Schedule. Display the individual aircraft scheduled for flight each day with the following information columns, as a minimum: aircraft serial number, scheduled takeoff, actual takeoff, scheduled landing, actual landing, sortie configuration, call sign and remarks.

6.2.2.23.2. **(CAF)** Track Crew Ready, Crew Show, Engine Start and Taxi.

6.2.2.23.3. Aircraft Generation Status. Display aircraft status using AF IMT 2408/2409 or Lead Command approved automated equivalents to manage aircraft generation sequence actions for various taskings with the following information: maintenance actions required to generate aircraft in the time sequence to meet mission requirements. The display format should be compatible with operational plans and command post displays.

6.2.2.24. MOC Maintenance Communications. Reliable, redundant and effective communications systems are essential for efficient operation. Develop and exercise comm-out procedures, to include loss of radios, LAN and phone. Personnel shall receive initial radio operating training before assuming duties involving radio operation IAW AFI 33-106, *Managing High Frequency Radios, Land Mobile Radios, Cellular Telephones, and the Military Affiliate Radio System;* AFMAN 33-120, *Radio Frequency (RF) Spectrum Management*; AFI 33-118, *Radio Frequency Spectrum Management*; and AFI 33-202.

6.2.2.24.1. Process requests for specific radio equipment to support maintenance activities IAW AFMAN 23-110. Specific radio allowances are stated in AS 660.

6.2.2.24.2. A VHF/UHF/HF radio is authorized to provide communications between aircraft and maintenance.

6.2.2.24.3. Each MOC will have a hotline on the secondary crash phone net. When required, direct communications lines will be provided to QA, munitions control, EOD, airfield operations, base fire department, NDI, control tower and the central security control.

6.2.2.25. Specialist Use and Control. Coordinate with the MXS production superintendent to provide support to a squadron that does not possess the specialty/resources. After coordination with MXS production superintendent, MOC may communicate directly with the dispatching work center. If dispatched personnel are not immediately available, MOC will obtain and pass their expected show-time at the job site.

6.2.2.25.1. When a specialist is not available, the flightline expediter requests specialist support through the MOC.

6.2.2.25.2. When an unscheduled maintenance requirement exists in MXS, and the requirement cannot be satisfied within their resources, the MXS production superintendent requests support through the MOC. The supported work center supervisor releases the dispatched personnel when no longer needed and informs the MOC.

6.2.2.25.3. When specialists do not report to the requesting work center within 15 minutes of their expected start time, MOC is informed of the no-show and takes follow-up action.

6.2.2.26. Selected Generation Aircraft. In units where aircraft are required to meet OPLAN 8010 or contingency commitments, the squadrons select the tail numbers of aircraft needed to meet requirements. Maintain visual aids that show the order aircraft

should be generated. The MOC constantly monitors aircraft status and revises the pre-selected sequence as changed by the squadron. Strict security guidelines and secure voice will be maintained during these operations.

6.2.2.27. Transient Aircraft. Maintains the status and location of all transient aircraft. Post the priority of each transient aircraft on the status board, based on the maintenance priorities listed in **Table 1.1**. Coordinate with the appropriate agency for aircraft maintenance support.

6.2.2.27.1. Contact WS for arming or de-arming of transient aircraft IAW **Chapter 12** of this instruction.

6.2.3. **Engine Management (EM) Section**. EM will: Monitor engine removals and replacements, component tracking, engine TCTOs and TCIs, engine records in the MIS and CEMS and perform engine manager duties. Manage unit efforts to maintain adequate engine support for mission requirements. EM will: ***NOTE:*** Combine functions supporting EM within the wing and physically co-locate with the Propulsion Flight (N/A to the ARC). The SRAN engine manager works and is co-located with the EM section. EM section will be the wing focal point for both the ET&D and Engine Health Management (EHM) program when applicable. MXG/CC will appoint a qualified 2A6X1, minimum 7-skill level, (or civilian equivalent) technician to manage the EHM+ program IAW AFI 21-104. (ANG may appoint in writing a qualified 2A6X1 or 2R1X1, minimum7-skill level).

6.2.3.1. Manages the MIS and CEMS IAW AFI 21-104, AFI 10-201, AFI 23-101, *Centrally Managed Equipment*, TO 00-25-254-1, System Manual – Comprehensive Engine Management System (CEMS) (D042) Engine Status, Configuration, and TCTO Reporting Procedures, TO 00-25-254-2, System Manual – Comprehensive Engine Management System for DSD: D042, TO 00-20-5-1, Instructions for Jet Engine Parts Tracking and Fatigue Limit Control, AFCSM 21-558, Comprehensive Engine Management System, and applicable aircraft Dash-6 TOs.

6.2.3.2. Attends the daily production meeting and coordinates with PS&D and the Propulsion Flight on engine and component maintenance, TCIs, SIs, TCTOs and modifications. Manages engine SIs, TCTOs and TCIs IAW **Chapter 7** of this instruction.

6.2.3.3. Plans, schedules, and documents maintenance actions on assigned engines.

6.2.3.4. Provides TCI information (cycles remaining, engine operating time (EOT), etc.) on serially controlled items to the propulsion flight and AMU for engine and engine component CANN actions.

6.2.3.5. Ensures all engine SIs are loaded in MIS against the engine, not the aircraft.

6.2.3.6. Ensures all engine/module inspections/TCIs tracked by EOT, calculated cycles (CCY), total accumulated cycles (TAC), etc., are loaded/tracked in the MIS and CEMS databases. Ensure serial numbers erroneously input into CEMS are followed by a Possessor Change (6D) Transaction Condition Code (TCC). After the TCC has successfully processed, notify the CEMS PMO help desk stipulating the serial number was erroneously input and should be deleted from CEMS, **CEMS.PMO.HELPDESK@tinker.af.mil.** A matrix by engine type should be

developed to depict specific inspection and TCI quantities for each TMSM. Inspections tracked by flight hours must be loaded in IMDS-CDB, G081.

6.2.3.6. **(CAF)** Inspections tracked by flight hours must also be loaded in CEMS.

6.2.3.7. Manages TCTOs on all assigned engines and components both installed and removed, as well as managing TCTOs for support equipment to include engine trailers. Accomplishes quarterly TCTO status reviews and reconciliation's IAW TO 00-25-254-1. Complies with TCTO duties and responsibilities for engine items IAW **Chapter 7** of this instruction. Maintains records on TCTO kits and status for all engines installed on aircraft sent to depot. [ANNUAL TCTO RECONCILIATION] All units will reconcile rescinded TCTO using a REMIS Master TCTO report annually (NLT 30 Sep) and before deleting TCTO records from IMDS/G081. If REMIS access is not available, request a REMIS Master TCTO report from the POC identified in the subject TCTO. If TCTO status conflicts are identified, contact Production Management (schedulers/monitors) for status correction in REMIS. Once all status errors are corrected, field level organizations can delete the TCTO from IMDS/G081.

6.2.3.7. **(CAF)** Units utilizing the Standard Base Supply System (SBSS) module of IMDS-CDB will follow procedures in AFCSM 21-568, *Time Compliance Technical Order (TCTO), Software User Manual*, and AFCSM 21-579, *Maintenance-Supply Interface, Software User Manual*.

6.2.3.8. Manages time changes on all engines and components. Ensures forecast parts requests are submitted to LRS up to 60 days (but not less than 10 days) prior to the need date of the scheduled time change or JEIM/ERRC induction. See **Chapter 7** of this instruction for further guidance.

6.2.3.8.1. Reconciles all TCIs with Flight Service Center (FSC) monthly. Reconciliation will consist of 100 percent validation of existing due outs and a complete physical inventory of all issued TCIs. Inform FSC of any “Mark For” changes or items no longer required.

6.2.3.8.2. Participates in the monthly TCI meeting chaired by PS&D

6.2.3.9. Maintains and updates historical documents for all assigned engines, modules, and major assemblies using the MIS IAW TO 00-20-1.

6.2.3.10. Provides automated management products and assist with presentation of reports and briefings. Maintains flow charts and production visual aids depicting current end-item status (JEIM units only).

6.2.3.11. Checks life-limited components forecast for additional component changes, TCTOs and SIs on all removed engines.

6.2.3.12. In coordination with the propulsion Flt CC/Chief, develop a detailed 6-month engine and module TCI removal forecast to smooth peaks and valleys in the engine maintenance workload and publishes the forecast in the monthly flying and maintenance plan. This 6-month forecast must be accomplished monthly using CEMS product E373/MIS products and the projected unscheduled removals based on Unscheduled Removal Rate (total number of unscheduled removals divided by flying hours times/1000). Provides a copy of the forecast to maintenance leaders, PS&D, AMU and

the Lead Command engine manager. The forecast must be published in the monthly aircraft and maintenance utilization plan.

6.2.3.13. Publishes scheduled engine changes in the weekly and monthly maintenance plan.

6.2.3.14. Verifies engine total time versus aircraft total time, flying hours and manual cycles with PS&D during aircraft document reviews.

6.2.3.15. Maintains (load, delete, and change) the Job Standard Master Listing (JML) for engine inspections and time changes listed in the aircraft Dash-6 TO.

6.2.3.16. Establishes a CEMS and MIS contingency plan for when either or both systems are down for extended periods (more than 48 hours). The plan will include procedures for retaining data in date-time order for input when MIS/CEMS operation resumes and address home station and deployed procedures.

6.2.3.17. Develops local engine tracking procedures and documentation methods to be used at deployed locations. Procedures must include the method of communication (message, e-mail or FAX), documentation and shipping responsibilities with SRAN addresses, and reporting procedures for CANNs and engine removals. The procedures must ensure units take immediate action to correct all reporting errors between the base MIS and CEMS using the engine manager's data list.

6.2.3.18. Accomplishes unit engine manager duties IAW AFI 21-104, TOs 00-25-254-1/-2, and Lead Command instructions. Acts as liaison to the SRAN engine manager when part of a tenant unit supported by the host base engine manager function. Provides the primary SRAN engine manager all quarterly reporting information required for submission to higher headquarters.

6.2.3.19. The MXG/CC appoints a SRAN engine manager (if a host), or a unit engine manager (UEM), if a tenant, to accomplish the duties IAW TO 00-20-254-series, AFI 21-104 and this instruction. The SRAN engine manager is selected from AFSC 2R1X1 or 2A6X1, minimum 7-skill level (or civilian equivalent). The assistant will be a minimum 5-skill level from the same AFSCs or civilian equivalent. The SRAN engine manager and assistant are aligned under the EM section. The SRAN engine manager will:

6.2.3.19.1. Advise MXS/CC and MXG/CC on administration of the base EM Program, engine maintenance concepts, principles, policies, procedures and techniques. Act as the single point of contact between the unit and Lead Command for EM questions.

6.2.3.19.2. Establish written procedures to support EM responsibilities IAW AFI 21-104 and this instruction. Provide inputs for Lead Command supplements (if developed) to TOs 00-25-254-1 and 00-25-254-2. Unit procedures must:

6.2.3.19.2.1. Specify responsibilities of affected workcenters for accurate and timely MIS/ CEMS reporting of TCTO, SI, TCI, and other documentation requirements (e.g., borescope inspections, blade blending, CANN actions).

6.2.3.19.2.2. Ensure engine, module, and component data is reported to EM no later than close of business the first duty day after the event (e.g., part removal, installation, time update, TCTO status change).

6.2.3.19.2.3. Address tenant, transportation, maintenance, aircraft distribution, supply, and support personnel requirements.

6.2.3.19.2.4. Coordinate procedures with the Lead Command EM policy section prior to publication.

6.2.3.19.3. Request initialization decks (I-Deck) for engines and major modules (cores, HPT, LPT, fans, etc..), to include embedded parts, part number, serial number, EOT, inspections, active TCTOs and TCIs, from CEMS Central Data Base (CDB) and ensure data in the MIS mirrors the CDB.

6.2.3.19.4. Ensure deployed engine monitors are identified and trained to perform duties while deployed. Designated engine monitors will ensure all deployed spare engines have a copy (paper or electronic) of CEMS product E407, option 1 and 4, included in the deployment package.

6.2.3.19.5. Perform engine manager duties for shipment and receipt of all assigned engines.

6.2.3.19.6. Perform periodic quality audits to monitor accuracy and timeliness of reporting.

6.2.3.19.7. Engine Management Section Personnel who report engine status or are responsible for engine documentation and scheduling IAW AFCSM 21-558, Vol 2; TO 00-25-254-1/2 and TO 00-20-1. will have annual training.

6.2.3.19.8. Maintain a jacket file of engine shipping documents and receipts. Obtain Lead Command engine manager approval prior to returning engines to depot or 2LM.

6.2.3.19.9. Perform duties and requirements for engine shipments IAW AFPD 24-2, *Preparation and Movement of AF Materiel*, AFI 21-104, and TOs 00-85-20, 2J-1-18, *Preparation for Shipment and Storage of Gas Turbine Engines*, and 2-1-18, *Aircraft Engine Operating Limits and Factors*.

6.2.3.19.10. Ensure engines are prepared for shipment IAW TO 2J-1-18, and TO 00-85-20. Engines requiring off-base shipment must be delivered to transportation within 24 hours of notification/decision to ship the engine and/or the engine change is complete. Notify Lead Command engine manager and the owning SRAN engine manager if this time frame cannot be met.

6.2.3.19.11. The SRAN engine manager will report the following in CEMS:

6.2.3.19.11.1. Receipt transactions for engines as of the date and time engines are delivered from the transportation hold area and accepted at the JEIM facility.

6.2.3.19.11.2. Shipment transactions with the “as of” date and time the engine(s) physically leave the base.

6.2.3.19.11.3. All engine and tracked item removals, installations, and engine status changes.

6.2.3.19.11.4. All engine status transaction removals, installations, gains, engine-not-mission capable for supply (ENMCS), work completed, test cell rejects, work stopped, work started, change in level of maintenance, awaiting disposition, intra-

AF receipt and intra-AF shipments, transfer, and HOW MAL codes IAW AFI 21-104 and TO 00-25-254-series.

6.2.3.19.11.5. For engines removed status codes LF, LB or LG, determine whether to ship the engine to depot or induct in 2LM repair and process an "ML" transaction. Refer to TO 00-25-254-1 for CEMS codes guidance.

6.2.3.19.11.6. **(Added-CAF)** Engine Control Number Procedures. Prior to returning engines to depot the following procedures will be used to obtain control number approval from HQ ACC/A4MP. Unit will send an e-mail or fax to HQ ACC/A4MP engine management and functional manager. Request will include the following information: Unit, From (requester's name), Phone Number, Date, Engine Type, Engine Serial Number, Current Engine Operating Time, Time Remaining, Detailed Discrepancy (provide detailed description of the discrepancy that requires depot repair).

6.2.3.20. Verify all update transactions (e.g., times, TCTO, part removal and installations) are input before reporting an engine removal or installation.

6.2.4. Maintenance Supply Liaison (MSL) Section. The MSL is assigned to the LRS but supports the maintenance effort. It monitors the overall maintenance and supply interface, resolves supply support problems, and coordinates supply-related training needs. Where needed, the MXG/CC with the MSG/CC may decentralize the MSL capability to physically reside with MXG. The LRS/CC, through the MSL, is the liaison between maintenance units and AFGLSC. Refer to **AFMAN 23-110** for additional guidance.

6.2.5. Plans, Scheduling, and Documentation (PS&D) Section. PS&D is responsible for coordinating aircraft maintenance requirements and utilization scheduling between maintenance, operations, and external agencies. PS&D oversees the entire maintenance scheduling effort throughout the wing and notifies applicable senior managers of scheduling process discrepancies and recommended courses of action IAW Lead Command and local procedures. Specific PS&D responsibilities are detailed in **Chapter 7** of this instruction.

6.2.6. Maintenance Management Analysis (MMA) Section. Tracks, analyzes, and presents information to help senior leadership assess the health of the units' weapon systems and equipment. Act as the group POC for MIS issues and perform analyses to assess and improve unit performance (e.g., effectiveness, and efficiency of unit resources, and logistical support processes). The MIS provides the main source of information used by analysts to assess unit performance and capability. IMDS-CDB/G081 and REMIS are the prime sources of data.

6.2.6.1. Analysis personnel will establish working relationships with MXG and squadron leadership through frequent visits to work centers. Analysis must be customer oriented and provide assistance to all unit personnel in the area of the MIS, data extraction and interpretation.

6.2.6.2. Review data for anomalies and identifies areas requiring further study.

6.2.6.3. Provide presentations, reports, studies/analyses, and briefings as requested or deemed appropriate.

6.2.6.4. Provide information on analysis services and capabilities to unit supervision.

6.2.6.5. Assist unit leaders with the application and interpretation of maintenance data.

6.2.6.6. Coordinate with PS&D and production leaders to provide monthly airframe, facility and personnel capabilities (as required), attrition, and spare factors for use in planning the annual flying program. Compute attrition and spare factors IAW Lead Command instructions.

6.2.6.6. **(CAF)** QA is responsible for overall management and control of the DR subsystem

6.2.6.7. Provides MSL and decentralized supply support functions with data and information for supply related inputs into the IREP. ***NOTE:*** MMA should participate in the IREP to help identify and analyze problem areas.

6.2.6.7. **(CAF)** Lead Command instructions are noted in ACCI 21-165, *Aircraft Flying and Maintenance Scheduling Procedures.*

6.2.6.8. Analyze equipment performance trends to identify problems affecting the unit mission.

6.2.6.9. Verify accuracy of the job data documentation (JDD) subsystem of MIS. Validate data entered into MIS as part of daily analysis duties and informs affected agencies of discrepancies. MMA will identify erroneous or missing data to the responsible agency for correction or completion. MMA will not correct or enter data into the MIS. This is not considered part of the Data Integrity Team process.

6.2.6.10. Control the assignment of unit work center and mnemonic codes. Coordinate with the Programs and Resources Flight on the assignment of alpha numeric and work center codes. Publishes written guidance to control these codes. May use multiple mnemonic codes within a work center code to accommodate different AFSCs assigned; this enables the work center supervisor to tailor training requirements by AFSC. Coordinate new or revised mnemonic codes with affected activities for planning purposes. For G081 units, AMC will publish guidance on work center mnemonics

6.2.6.11. Responsible for system database management. Work centers throughout the organization manage those applications and functions applicable to their environment.

6.2.6.12. Assists MIS users in developing procedures for collecting information from deployments and exercises where MIS is not available.

6.2.6.13. Monitors and evaluates the Base Repair Program/IREP data. Compute repair rates IAWTO 00-20-3.

6.2.6.14. In addition to the general responsibilities outlined in **Chapter 3** of this instruction, the MMA Section NCOIC/Supervisor will:

6.2.6.14.1. Ensure each analyst assigned attends a local familiarization course for 2R0X1 personnel. As a minimum, the course will include weapon system/Communications Electronics (C-E) familiarization, flightline and shop operations, organizational structure and roles of each group, squadron, and flight. Analysts will attend the course within 3 months of assignment to the unit. For remote assignments, analysts will attend within 1 month of assignment. For ARC, Analysts will attend the course within 6 months of assignment to the unit.

6.2.6.15. At the discretion of the MMA section NCOIC, analysts can be located in the squadron to enable maximum responsiveness and effectiveness. When analysts are located in the squadron, they will still work directly for the MMA section NCOIC who will provide their training and monitor the quality/relevancy of their workload.

6.2.6.16. Maintenance Information Systems (MIS). For management of IMDS-CDB and REMIS, follow AFCSM 21-series, Lead Command and unit procedures, and REMIS user manuals. Personal computers and software used as "stand-alone" systems are not considered MIS.

6.2.6.16.1. Request to modify/create new functionality within IMDS-CDB IAW AFSCM 21-556 Vol 2

6.2.6.16.2. System problems (e.g., unusual errors) should be coordinated IAW local procedures (e.g., system administrators, database managers, Field Assistance Branch (FAB)/Help Desk) as these are not considered new or modified functionality. System response and/or connectivity issues should generally be worked first locally, and at a minimum, coordinated with the local administrator/point of contact (POC)/DBM and Communications Squadron, prior to calling the FAB/Help Desk.

6.2.6.16.3. Documentation Accuracy and Completeness. Data integrity is the responsibility of every member of the unit. All personnel are responsible for ensuring accuracy and completeness. Subsystem monitors are responsible for ensuring the accuracy of their subsystem.

6.2.6.16.4. Manages the IMDS-CDB Database at the local level. MMA provides management control of the IMDS-CDB database. The DBM will:

6.2.6.16.4.1. Ensure IMDS-CDB security is maintained IAW AFI 33-202 and AFI 33-115VI.

6.2.6.16.4.1.1. Additionally, analysis personnel must coordinate MIS access permission requirements to enable MDD on non-possessed aircraft.

6.2.6.16.4.2. Provide expertise on IMDS-CDB for resolution of problems beyond the work center's and sub-system monitors’ control.

6.2.6.16.4.3. Provide support to tenant users.

6.2.6.16.4.3.1. **(Added-CAF)** DBM support requirements will be identified in a MOA or the Host Tenant Support Agreement.

6.2.6.16.4.4. Coordinate with the Defense Enterprise Computing Center (DECC) or AF Network Control Center (AFNCC) on all matters concerning IMDS-CDB. The DBM has sole responsibility for coordinating with DECC. Deviations from this policy must be clearly stated in local directives and published by the host MXG/CC.

6.2.6.16.4.5. Ensure the DECC supports all requirements concerning the operation and maintenance of IMDS-CDB.

6.2.6.16.4.6. Publish scheduled IMDS-CDB downtime.

6.2.6.16.4.7. Ensure IMDS-CDB users are aware of problems relating to their subsystems through sub-system monitor notification, including all releases and System Advisory Notices (SANs). Maintain the SAN file.

6.2.6.16.4.8. Notify IMDS-CDB users and subsystem managers of unscheduled downtime status as soon as possible. When an extended computer outage occurs, DBMs notify sub-system managers of computer off-line time and determine if manual backup procedures are necessary to input data.

6.2.6.16.4.8.1. When IMDS-CDB is unavailable, the DBM, subsystem mangers, and squadron personnel will implement manual backup procedures for accumulating IMDS-CDB data. The data will be updated in IMDS-CDB when the system becomes available. Manual procedures include documentation on paper copies of IMDS-CDB screens, AFTO IMT 349, *Maintenance Data Collection Record*, and sortie maintenance debriefing documents.

6.2.6.16.4.8.2. Develop and publish a local OI detailing manual documentation and JCN assignment procedures in coordination with MX PS&D.

6.2.6.16.4.9. Control and distribute local unit IMDS-CDB products after processing is complete as required.

6.2.6.16.4.10. Notify Lead Command of extended unscheduled MIS downtime (over 24 hours), or when experiencing problems beyond the capabilities of the unit's DBM. Units experiencing problems beyond the capabilities of the host DBM will notify the platform manager or the alternate.

6.2.6.16.4.11. Control and monitor submissions of IMDS-CDB DIREP, and AF IMT 3215, *Information Technology/National Security Systems Requirements Document*, and suggestions for IMDS-CDB evaluations.

6.2.6.16.4.12. Coordinate on matters pertaining to the interface of other automated systems with IMDS-CDB.

6.2.6.16.4.13. Develop and follow a functional checklist in case of the loss of an aircraft. Regardless of the time or day of week, the DBM (or alternate) will be contacted to immediately put the IMDS-CDB in File Update Mode (FUD) until the functional checklist can be completed.

6.2.6.16.4.14. Refer to AFI 21-103 and AFI 21-116, *Maintenance Management of Communications-Electronics* for maintenance analysis and host DBM responsibilities in support of the C-E maintenance community.

6.2.6.16.4.15. Control access to specific IMDS-CDB programs and subsystems by utilizing transaction identification codes (TRICs) security profiles.

6.2.6.16.4.15. **(CAF)** Specific TRICs or options within TRICs will be restricted by the DBM on request from the subsystem manager or when the DBM deems it necessary.

6.2.6.16.4.16. Ensure IMDS-CDB subsystem managers are informed of the status of applicable TRICs prior to turning the TRIC on or off.

6.2.6.16.4.16. **(CAF)** In circumstances where a particular TRIC is turned off for extended periods of time, the DBM notifies their MAJCOM counterpart, providing rationale for leaving the TRIC in the off status.

6.2.6.16.4.17. **(Added-CAF)** Ensure MIS User Group meetings are held at least quarterly.

6.2.6.16.4.17.1. **(Added-CAF)** IMDS-CDB Users Group. Establish an IMDS-CDB Users Group to identify user problems, provide on the spot training to correct user documentation problems, and to discuss other issues relating to operation of the system. A Flight Chief or higher will chair the working group meeting. Meetings will be held at least quarterly and are also conducted prior to loading an IMDS-CDB release major program change to ensure all personnel are aware of the changes. An agenda will be published and sent to all work centers prior to all meetings. A representative from the communications squadron will be invited to attend the meeting to discuss issues related to the system operations. Meeting minutes will be published and sent to all work centers.

6.2.6.16.4.18. **(Added-CAF)** Rotate analysts and DBMs yearly to ensure all 2R0X1 personnel are fully trained and have experience in this vital area (N/A to ARC).

6.2.6.16.4.19. **(Added-CAF)** Maintenance Automated Products (Nonstandard MIS Products). The use of computerized products from the IMDS-CDB and REMIS systems are major sources of information for Maintenance Management Analysis. All MMA personnel will receive training to enable them to make maximum use of these systems. This training will be documented in the TBA. Training may be obtained through the local communications squadron, AETC specialized courses, MAJCOM specialized training, or contractor training.

6.2.6.16.4.19.1. **(Added-CAF)** Query Language Processor (QLP), Integrated Query Utility (IQU) and Structured Query Language (SQL) allow retrieval of information from IMDS-CDB database files. These utilities are available to provide nonstandard data and report formats for specific uses.

6.2.6.16.4.19.2. **(Added-CAF)** Global Combat Support System-Air Force Data System (GCSS-AFDS) is an additional data retrieval system available to analysts for data extraction using windows drag and drop methodology. GCSS-AFDS system uses maintenance, supply and engine data from various systems to consolidate information.

6.2.6.16.4.20. **(Added-CAF)** Have access to the tools required to manage the IMDS-CDB database in the host unit. DBMs must have access to a minimum of:

6.2.6.16.4.20.1. **(Added-CAF)** Data Base Look (DBL).

6.2.6.16.4.20.2. **(Added-CAF)** Console monitoring (CONS) with display option.

6.2.6.16.4.20.3. **(Added-CAF)** QLP report writer. Individual analysts not directly associated with database management are still required to receive training in QLP report writer, on-line inquiries, and conversational commands to obtain nonstandard data from the IMDS-CDB database to perform analysis duties. This training will be documented in TBA.

6.2.6.16.5. IMDS-CDB Subsystems Managers. Each IMDS-CDB subsystem is controlled by a specific subsystem manager who ensures using personnel are qualified to use the respective subsystem, serve as the first line of help for users with subsystem specific problems, and are knowledgeable of AFCSM 21-series manuals. If the subsystem manager cannot resolve a problem, elevate it to the DBM. Each subsystem manager reports hardware/software problems to the unit DBM, assists the MTF in developing and conducting familiarization courses for IMDS-CDB users, monitors access to their subsystem via TRIC security and approves/disapproves requests for TRIC access for users and forwards to DBM for processing. Section Chiefs of the appropriate functional will appoint subsystem managers and their alternates and notify the DBM of the appointment. The following list assigns functional responsibilities for the various IMDS-CDB subsystems:

6.2.6.16.5.1. MMA is responsible for the overall management of the JDD subsystem and provides overall management and control of the maintenance deferred code listing. Changes to the table will be coordinated with PS&D.

6.2.6.16.5.2. PS&D is responsible for overall management of aircraft operational event, special inspection, time change, TCTO, aircraft equipment transfer, GCSAS, and aircraft inventory subsystems. Coordinate with MMA on the AEF subsystem.

6.2.6.16.5.3. The EM section is responsible for CEMS.

6.2.6.16.5.4. MOC is responsible for overall management and control of the location subsystem and aircraft status reporting (IMDS-CDB/REMIS corrections).

6.2.6.16.5.5. Avionics section is responsible for overall management and control of the Automatic Test Reporting System (ATERS) (IMDS-CDB/REMIS corrections).

6.2.6.16.5.6. Egress section is responsible for overall management and control of the egress configuration management. (IMDS-CDB/REMIS corrections).

6.2.6.16.5.7. MTF is responsible for overall management and control of the training management subsystem.

6.2.6.16.5.8. **(DELETED)**

6.2.6.16.5.9. Debriefing section(s) is responsible for overall management and control of the automated debriefing subsystem. If more than one debriefing section exists, local wing procedures will assign the subsystem management to one debrief section.

6.2.6.16.5.10. **(Added-CAF)** Programs and Resources Flight (if applicable) is responsible for overall management and control of the personnel management subsystem.

6.2.6.16.5.11. **(Added-CAF)** MSL (if applicable) is the liaison between IMDS-CDB and supply. System problems concerning supply transactions reports (e.g., supply rejects) are brought to the attention of the MSL for correction of DIREP.

6.2.6.16.6. Data Integrity Teams (DIT). All units will establish a DIT. The purposes of the DIT include: (1) Ensuring the unit has complete and accurate data in the MIS and aircraft forms, (2) identifying and quantifying problems within the unit preventing complete and accurate documentation, and (3) identifying and correcting the root causes for poor data integrity. The DIT is established to evaluate/isolate/eliminate documentation problems in IMDS-CDB/G081. MMA is the OPR for the team, but is not responsible for correcting errors. The DIT will include, at a minimum, one representative from each squadron under the MXG. It will include participation from PS&D, MOC, MSL/LRS, EM, Debrief Section, and QA as determined by MMA. Lead Command will determine the frequency of DIT meetings. Representatives will be at least 5-levels and familiar with the unit's assigned weapon system(s). As a minimum, the following weekly functions will be performed by the DIT:

6.2.6.16.6. **(CAF)** Data Integrity Team meetings will be held, at a minimum, quarterly.

6.2.6.16.6.1. Ensure MIS accurately reflects AFTO Form/IMT 781 entries. A minimum of one aircraft per flying squadron, per week will be checked. Rotate selected tail numbers to ensure of all aircraft's forms are reviewed at least once each year. For the selected aircraft, 100% of the previous weeks IMT-AFTO form 781As will be reviewed against MIS. When the two differ, the responsible work center will be charged with an error and have it included in the error rate. Records checks do not cover this requirement.

6.2.6.16.6.2. Compare all NRTS actions and turnarounds in IMDS-CDB/G081 with those in the ILS-S to ensure they match. G081 users will request these reports from LRS. Work with supply to resolve conflicts.

6.2.6.16.6.3. Run maintenance action review background reports for all work accomplished by squadron and work center.

6.2.6.16.6.3.1. Audit the report by JCN/WCE to verify the corrective action narratives match the action taken codes used and the WUC utilized most accurately identifies the affected system.

6.2.6.16.6.3.2. Identify suspected errors on the report by circling or marking on the report and give report to appropriate squadron for corrections. Identify and count the documentation errors. Use of automated processes is authorized.

6.2.6.16.6.4. Develop a system to track the number of errors by work center and squadron.

6.2.6.16.6.5. Establish a 5 day suspense to correct errors and report back to the DIT.

6.2.6.16.6.6. Maintain cumulative uncorrected and corrected error rate databases. Analyze the error rate data and prepare reports of rates and identify where errors are occurring. Error rates and causes will be briefed to the MXG/CC monthly.

6.2.6.16.6.7. Do not limit the scope of DIT to JDD.

6.2.6.16.6.8. **(Added-CAF)** Meet at least three days per week checking the previous duty days JDD to ensure 100 percent check of IMDS-CDB data. Units are authorized to utilize automated/electronic processes to meet the intent of DIT.

6.2.6.17. Analysis Functions. Analysts will use the following processes when analyzing maintenance data:

6.2.6.17.1. Production analysis. The production analysis function calculates maintenance metrics and compares unit performance against published Lead Command standards. In addition, they provide monthly airframe, facility and personnel capabilities (as required), attrition, and spare factors for use in planning the annual flying program. Compute attrition and spare factors IAW Lead Command instructions.

6.2.6.17.1. **(CAF)** Lead Command instructions are noted in ACCI 21-165.

6.2.6.17.2. Deficiency Analysis: Lead Commands will determine requirements for deficiency analysis. Deficiency analysts serve a dual role; they provide analytical support to the squadrons and maintenance managers, and also provide technical expertise for the MMA section.

6.2.6.17.2.1. **(Added-CAF)** Deficiency analysts will be a 5- or 7- level and should have at least 6 months experience on the weapon system. At least one of the deficiency analysts assigned will be a SSgt with the following skills: aircraft maintenance, off-equipment avionics, flightline avionics, or engines. Other skills may be included to effectively analyze specific functions of an aircraft weapon system. Ensure candidates have sufficient writing and math skills to perform the job. Deficiency analysts will be rotated with a maintenance section or flightline within 24 months to maintain AFSC proficiency. They use analytical data and their technical knowledge to identify problems, work with the customer, and help find solutions. They should not limit themselves to pointing out general areas for investigation. They should identify deficiencies applicable to a work center, particular equipment end item, maintenance practice or management action. Deficiency analysts will:

6.2.6.17.2.1.1. **(Added-CAF)** Review QA summaries for positive and negative trends.

6.2.6.17.2.1.2. **(Added-CAF)** Review debriefing data and abort information daily to assist in the identification of problem aircraft or systems.

6.2.6.17.2.1.3. **(Added-CAF)** As a minimum, perform monthly reviews of:

6.2.6.17.2.1.3.1. **(Added-CAF)** DD lists for technical errors or negative trends.

6.2.6.17.2.1.3.2. **(Added-CAF)** Repeat/recur discrepancy lists for commonalities.

6.2.6.17.2.1.3.3. **(Added-CAF)** High CND rates and incidents for inadequate troubleshooting or technical data problems.

6.2.6.17.2.1.3.4. **(Added-CAF)** Aircraft scheduling deviations for negative maintenance practices and trends that impact work force and workload stability.

6.2.6.17.2.1.4. **(Added-CAF)** Monitor and evaluate the maintenance portions of the base repair program and IREP.

6.2.6.17.2.1.5. **(Added-CAF)** Analyze the performance of selected systems, subsystems, and components to help determine the source of problems affecting the mission of the unit.

6.2.6.17.2.1.6. **(Added-CAF)** Attend QA and Product Improvement Working Group (PIWG) meetings and provide trend data as needed.

6.2.6.17.2.1.7. **(Added-CAF)** Deficiency analysts will not be utilized as a full time DIT monitor.

6.2.6.17.3. **(Added-CAF)** Analytical Studies. MMA will provide results of investigations, analyses, or studies to work centers. Provide studies to the requester and retain a file copy for future reference. Disseminate the study by electronic means or include it in a monthly maintenance summary.

6.2.6.17.3.1. **(Added-CAF)** Studies will state assumptions up front, and will be summarized to state how the significance is measured.

6.2.6.17.3.2. **(Added-CAF)** Studies will begin with background information. The study should include the data, research, investigation, and statistical findings, along with their respective sources. Conclusions relevant to the study should be drawn from the data, research, investigation, and statistical findings. The study should include recommendations to address the conclusions relevant to the problem (other issues uncovered will be identified, but will be kept separate from the conclusion).

6.2.6.17.4. **(Added-CAF)** Dedicated AMU Analysis (where applicable). The AMU analysis function is intended to provide dedicated analytical support for the AMU. The MMA section NCOIC may dedicate an analyst to each AMU. Accomplishing AMU analysis tasks are the dedicated analyst's primary responsibility. The MMA section NCOIC is responsible for the overall effectiveness of the AMU analysis program. To improve overall effectiveness, analysts should be rotated approximately every 12 months. When the analyst is not located in the AMU, they will still spend time in the AMU daily. As a minimum, the AMU analyst will:

6.2.6.17.4.1. **(Added-CAF)** Review maintenance debriefing data to track in-flight discrepancies and deviations on each aircraft. Review aircraft status inputs from the MOC for WUC accuracy. Closely monitor fix time on Code 3 breaks and report results to AMU supervision daily. Brief problem aircraft and systems to AMU supervision daily.

6.2.6.17.4.2. **(Added-CAF)** Brief comparative AMU data weekly and monthly as required by the MXG/CC.

6.2.6.17.4.3. **(Added-CAF)** Provide analyses as requested by AMU supervision or when identified through review of AMU performance data.

6.2.6.17.4.4. **(Added-CAF)** Validate CANN documentation in IMDS-CDB at least weekly, with AMU supply and inform AMU supervision of its accuracy. If errors exist, a more frequent validation may be required. Advise AMU supervision of recurring problems.

6.2.6.17.4.5. **(Added-CAF)** Monitor the UTE rate for the AMU.

6.2.6.17.4.6. **(Added-CAF)** Analyze programmed and actual attrition factors.

6.2.6.17.4.7. **(Added-CAF)** Attend AMU scheduling/production meetings.

6.2.6.18. **(Added-CAF)** Maintenance Performance Studies. Compare maintenance performance with standards, goals, and maintenance plans. When the operational requirements are not achieved, MMA will perform an investigation to determine the cause.

6.2.6.18.1. **(Added-CAF)** Equipment/Mission Analysis. When adverse trends are identified investigate to gather facts. Consolidate the results in the form of briefings or interim reports, depending upon the seriousness of the trend.

6.2.6.18.2. **(Added-CAF)** Maintenance Analysis Referrals. MMA is the OPR and assigns a referral number and maintains a log of all referrals. The log will reflect the referral number, initiating agency, date, subject, and action taken. QA will work with unit managers and work center technicians to perform investigations and recommend corrective actions. Route through the affected agencies for comments, with the final addressee as the MMA section. Retain copies and indicate whether additional monitoring or follow-up action is necessary. Provide a completed study to each MXG QA.

6.2.7. **Responsibilities of Contingency/Expeditionary units (i. e. maintaining non-assigned aircraft).** ***NOTE:*** this does not include AMC established en-route stations.

6.2.7.1. Ensuring Fleet Health is largely the responsibility of units with assigned aircraft. Contingency units have fewer responsibilities as described below. Commanders of expeditionary units will ensure the intent of the guidance is met, when dynamic nature of a contingency/expeditionary organizations make adherence possible.

6.2.7.2. Implement all MOC programs and duties as described in **paragraph 6.2** and sub paragraphs.

6.2.7.3. Implement a PS&D program IAW **Chapter 7**.

6.2.7.4. Implement deficiency analysis program for deployed (gained/CHOPed) aircraft. Emphasis should be on ensuring accurate MIS documentation and analyzing maintenance metrics for trends (as opposed to meeting standards).

6.2.7.5. DBM and MIS management will be provided by reachback to homestation units.

6.2.7.6. Deployed analysts, where required, will coordinate access to the IMDS-CDB ELC with response to an access request memo generated from the requesting member/organization. Ensure that the requesting members have a current IMDS-CDB user-id loaded in the MIS. The access request memo must explicitly define an expiration date that is limited to the length of TDY/deployment or till access is no longer needed, whichever comes first.

6.2.7.7. IMDS-CDB ELC Host DBM, where applicable, will maintain a listing of outside ELC users; update, add, change or remove ELC guest users upon access expiration date, re-assignment, separation, or retirement.

6.2.8. **(Added-CAF)** Software Analysis Section (B-1 units). The software analysis section processes and analyzes CITS and CDDS data, as applicable, in order to provide timely and accurate information to aid the maintenance effort, identify software discrepancies to the appropriate OPRs, and identify trends to maintenance supervisors and assigned engineers. Maintain historical data for each assigned aircraft in accordance with the RDS. This section works hand-in-hand with maintenance analysis functions in order to identify trends in system performance.

6.3. Maintenance Training Flight (MTF). (N/A to ARC) MTF will: Provide initial, recurring and advanced proficiency, qualification, or certification training needed by a technician to perform duties in their primary AFSC. Serve as the single point of contact for all training matters affecting maintenance, including outside agencies such as emergency management, environmental flight and the Training Detachment (TD). The MTF consists of the Training management section and the development and instructor section. The MTF assists SQ/CCs by providing Unit Training Managers (UTM) to manage the enlisted specialty training program. The MTF Chief maintains administrative responsibility for UTMs whether UTMs are centralized or decentralized.

6.3.1. Organizations that do not have a MTF must complete skill training in the individual work centers.

6.3.2. Maintenance training is an essential element of improving and sustaining unit capability; it must receive priority treatment by SQ/CC and MOO/MX SUPT. When balancing resources (e.g., aircraft, support equipment, facilities, tools, funding, personnel), maintenance training carries an equal priority with the operational training mission. Accomplish maintenance training away from the production/test environment (whenever possible) to eliminate/minimize distractions.

6.3.3. Training requirements may be satisfied through AETC in-resident classes, TD, MTF, Mobile Training Team (MTT), AF Institute of Technology (AFIT), CDC, AFETS, civilian institutions, Computer Based Training (CBT), Video Tele-Training (VTT), Regional Training Centers (RTC), Maintenance Qualification Centers (MQC), Advanced Distributed Learning Service (ADLS), the Environmental, Safety, and Health Training Network (ESOHTN),or any combination thereof.

6.3.3.1. AETC TDs will be utilized as the primary maintenance training resource at all bases with an assigned TD. The TD will not be responsible to conduct ancillary training. The MTF will develop courses and supplement training when the training requirements

are beyond the capability and timely response of the TD. The MTF will not duplicate training provided by the TD.

6.3.4. For maintenance training policy and guidance, refer to AFI 36-2232 and Lead Command directives. Civil service and contract organizations shall perform training IAW their training plans as accepted by the government, their respective performance work statement (PWS) and Lead Command directives.

6.3.5. Upgrade training waivers will be completed IAW AFECD and AFI 36-2101.

6.3.5. **(CAF)** All AFSC and CDC waiver packages will be coordinated through the MTF for concurrence/recommendation before processing to Base Training Office for processing.

6.3.6. Coordinate training course control documents (CCD) for explosive safety training through the wing weapons safety office annually.

6.3.7. Ensure all maintenance personnel (AFSC 2A7X3/2A7X5 personnel are exempt) receive annual Corrosion Prevention and Control training. CBT training is available and is the preferred method. Additionally, annual training will include specific excerpts in regard to local/unique corrosion factors.

6.3. (CAF) Maintenance Training Flight (MTF). MTFs will appoint, in writing, a UTM to one or more units, as manning dictates, to manage unit commanders' training programs. To provide a standard yet mission-specific maintenance training program, Unit Training Manager (UTMs) will be physically located (work) in the units they support to ensure they understand that unit's training requirements. UTMs assigned to support an AMXS will be located in the squadron, instead of AMU to ensure consistency across all AMUs.

6.4. Programs and Resources Flight. Manages the manning, facilities, support agreements, and deployment functions for the MXG.

6.4.1. Develops, maintains, and coordinates all applicable AFI-directed programs and plans affecting maintenance.

6.4.2. Acts as the resource advisor to MXG/CC.

6.4.3. Conducts staff assistance visits (SAVs) within the MXG to assist each maintenance functional area.

6.4.3.1. Administratively evaluate a unit's ability to deploy IAW the DOC statement.

6.4.3.2. Conduct and document SAVs at least annually. Units will retain documentation until the next SAV unless repeat discrepancies are Noted. If discrepancies are repeated, SAV documentation will be retained until the discrepancies are closed.

6.4.4. Manages manpower authorizations for the MXG.

6.4.5. Serves as the focal point within the MXG for management of facilities.

6.4.6. Serves as the focal point for MXG deployment planning and execution actions. If designated as a UTC Pilot Unit:

6.4.6.1. Coordinates with other UTC tasked units on cargo and equipment authorizations/requirements to develop and maintain a standardized package to meet specific mission capability requirements.

6.4.6.2. Coordinates with the AS monitor on equipment changes and new equipment requirements driven by the UTC.

6.4.6.3. Assists with coordination of site surveys for deployment locations.

6.4.7. Oversee local, functional or host country unique support agreements applicable to the MXG IAW AFI 25-201, *Support Agreements Procedures*.

6.4.8. Develops and coordinates MXG commercial contracts unless the MXG/CC has determined another office of responsibility.

6.4.9. Manages SORTs reporting for the MXG.

6.4.10. Coordinates with LRS to obtain unit assistance in interpreting guidance for marking/packing/ marshaling of tasked equipment IAW AFMAN 24-204, *Preparing Hazardous Materials for Military Air Shipments*; AFMAN 10-401VI, and AFMAN 91-201.

Chapter 7

MAINTENANCE PLANS, SCHEDULING AND DOCUMENTATION (PS&D)

7.1. General. Maintenance documentation maintains historical documents and maintenance data essential for the development of wing plans and schedules and is an integral part of all PS&D functions. PS&D sections maintain historical maintenance data within the MIS. The accuracy of maintenance document entries is a basic responsibility of the initiator and supervisors. PS&D sections develop wing maintenance plans using MIS aircraft historical data input by all maintenance personnel. Maintenance schedulers are centralized (physically) in the MOF PS&D section. ***EXCEPTION:*** Engine Management, Nuclear Munitions, AFSOC units will be centrally managed with decentralized execution. Units publish written guidance in an OI/supplement to ensure standardized core scheduling practices across the wing to include:

7.1. (CAF)General. PS&D will provide functional guidance and SAV personnel executing scheduling duties in AGE/Armament/Munitions sections IAW 7.11.1 of this chapter. PS&D is responsible for notifying the MXG/CC of fleet health and management issues that may jeopardize mission success. Paper copies or electronic versions of technical orders 00-5-15, 00-20-1, 00-20-9, 00-25-4, 00-25-107, applicable -6, 11, 14 series will be available in PS&D. To obtain current 00-series Tech Orders utilize Enhanced Technical Information Management System (ETIMS) **https://www.my.af.mil/gcssaf61/ETIMS/ETIMS/menu/index.jsp** through your activity TO Distribution Office (TODO) and Global Ammunition Control Point (GACP) **https://www.my.af.mil/wm**/ for 11/14-series Tech Orders. If hard copies are printed, ensure they are marked "For Reference Only".

7.1.1. Automated and AFTO IMT 95 documentation requirements.

7.1.1. **(CAF)** Units will automate new AFTO Form 95s and maintain them in the MIS. This approach eliminates duplication and provides a single source repository. If current AFTO Form 95 documents are partially automated, then complete automation is highly encouraged. When the AFTO Forms are completely automated and reconciled for 100% accuracy, destroy the duplicate hard copies. Units that choose to maintain the original hard copies will annotate “History automated as of this date and maintained in the MIS”. Additionally, the first entry of the continuation/automated AFTO Form 95 will be “Previous history as of this date maintained in the aircraft jacket file or decentralized file”.

7.1.2. Standardized aircraft jacket files. Develop and maintain a standardized master aircraft jacket file for use throughout the wing. Wing assigned aircraft jacket files must mirror the standard in organization and appearance. Slight variations in composition are allowed between different MDSs.

7.1.3. Missing IMTs policy requirements and annual jacket file review checklists.

7.1.3. **(CAF)** Initiate new historical forms IAW T.O. 00-20-1 when a system or component is received.

7.1.4. Pre-dock and post-dock inspection meeting guidance to supplement this chapter and identify minimum required attendees. PS&D will attend meetings and notify the appropriate SQ/CC and flight supervisors of any recurring problems.

7.1.5. Inspection requirements for historical documents at all decentralized scheduling activities IAW this chapter and Lead Command guidance.

7.1.6. Management of the wing's SI, TCI, TCTO and Aircraft Configuration Management (ACM) programs IAW this chapter and Lead Command guidance. Assign specific responsibilities for each work center involved (e.g., egress, aircrew AFE, and PS&D) and establish procedures to ensure configuration data is maintained during routine maintenance actions. TCI and TCTO procedures must outline the requirements for ordering hazardous materials (e.g., batteries). Units using MIS will not delegate suspense validation processing for TCIs installed on aircraft to the performing work center unless the written procedures include: a list of work centers and specific technicians authorized to process suspenses, a list of the specific suspenses authorized to be cleared and the method for notifying PS&D of the work completed (an audit trail). EM will process all MIS suspense validations for engines and engine components.

7.1.6. **(CAF)** Units will use Maintenance Scheduling Application Tool (MSAT) to audit SI, TCI, and TCTO MIS data for correction weekly. Submit MSAT trouble tickets to correct program deficiencies on-line at **https://www.gunter.af.mil/do/dom/domh/helpdesk.aspx**, call Field Assistance Branch at DSN 596-5771 or email **team4@gunter.af.mil.**

7.1.7. Common formats for TCTO folders and monthly/weekly utilization and maintenance schedules across the wing. Folders and schedules will be standardized among the same MDS, but may vary slightly between MDSs.

7.1.8. Freezing and consolidating aircraft and equipment records in the event of an accident, mishap or impoundment.

7.1.9. Aircraft and equipment transfer inspections IAW this chapter.

7.1.10. Accomplishment of an Aircraft Documents Review (ADR) checklist for home station and deployed units. This checklist will identify who initiates the ADR, reviewing agencies (to include the OAP lab), AFTO Form/IMT 781 entry requirements, agency responsible for completing the AFTO Form/IMT 781/MIS entry, and outline any configuration verification requirements.

7.1.10.1. Maintenance personnel will correct all documentation discrepancies discovered during the ADR, prior to updating the ADR JCN.

7.1.11. Verifying configuration items during aircraft phases.

7.1.12. Procedures to update manual products in the event Maintenance Scheduling Application Tool (MSAT) and/or the MIS are not available for an extended period of time (more than 48 hours). Paper MIS products are not required when using MSAT (IMDS users only) or the most current AF standardized Aircraft Maintenance Scheduling Mission Support Application to facilitate the management of MIS data. The back-up plan will ensure access to the most current paper or electronic version of MIS products used in MSAT. The MSAT administrator will be assigned to PS&D.

7.1.12. **(CAF)** MOF PS&D and MMA will develop manual JCN block assignment and procedures IAW Para 6.2.6.16.4.8.2. IMDS-CDB uses year-event-identifiers instead of JCNs, and uses an automatic JCN assignment feature. The procedures need to be established only for manual input of JCNs during IMDS-CDB downtime and deployment processing.

7.2. Manage the following programs for assigned aircraft and equipment using the following guidelines:

7.2.1. Aircraft Document Reviews. ADRs validate and correct any errors on airframe and engine operating times and cycles, TCTO documentation, TCI component operating times, time remaining to the next inspection, backordered supply document numbers and open and deferred discrepancies. Aircraft AFTO Form/IMT 781-series for possessed aircraft, are reviewed by flightline maintenance functions (DCC or alternate), PS&D, EM and supply to ensure the accuracy and validity of entries.

7.2.1.1. The MIS background product "Automated Records Check (ARC)" or on-line MIS products may be used to perform the ADR, however, ensure use of MIS products is standardized for all assigned units. Units using MDS specific MIS systems (i.e. IMIS) must develop procedures to ensure implement the intent of Aircraft Document Review.

7.2.1.2. An ADR is accomplished at least every 60 days for units using fully automated AFTO 781-series (AFTO FORMs 781A, 781J, 781K, and 95 generated by the MIS will constitute fully automated series). Units without access to a MIS and authorized to use manual AFTO 781-series IMTs, must accomplish an ADR at least every 30 days. Also accomplish an ADR when an aircraft is transferred (including Queen Bee), deployed for more than 30 days, before and after scheduled inspections (PH or ISO), before and after storage and after fatigue tests. For CANN aircraft, conduct ADRs at least every 30 days.

7.2.1.3. ADR Procedures:

7.2.1.3.1. PS&D creates a JST for ADRs and ensures it is loaded against all assigned aircraft.

7.2.1.3.2. Schedule the ADR in maintenance plans. An ADR is a scheduled maintenance action and counts in MSE computations.

7.2.1.3.2. **(CAF)** The DCC or alternate will transcribe forms IAW TO 00-20-1 and print a new set of automated Aircraft AFTO Form 781-series forms prior to starting the ADR process. ADR procedures will assign responsibilities to ensure discrepancies with a scheduled start date and time greater than 5 days after the date of discovery are deferred, all TCTOs are entered on the AFTO Form 781K IAW T.O. 00-20-1, aircraft hours and engine times match data in IMDS-CDB, modular engine flying hours and manual cycles are verified with EM section, and entries on the front of the AFTO Form 781K are made IAW T.O. 00-20-1.

7.2.1.3.3. PS&D and EM validate applicable inspection, TCI, TCTO data for correct due dates or expiration dates, airframe and engine operating times (or flight times if applicable) and appropriate symbol entry IAW TO 00-20-1.

7.2.1.3.3. **(CAF)** PS&D will monitor the aircraft fleet's TCI/SI/TCTO programs weekly IAW Para 7.1.6. and MOC will reconcile uncompleted sorties daily. During the 30 day ADR process assistance will be provided to the DCC or Alternate if discrepancies are noted in which they cannot resolve. PS&D will continue to review automated 781-series forms during pre/post dock inspections, PDM input and prior to aircraft deployments.

7.2.1.3.4. AMU/AMXS supply runs a tail number inquiry to validate backorders and corrects any discrepancies discovered.

7.2.1.3.5. **(Added-CAF)** Aircraft Technicians, Section NCOIC and Flight Chiefs will reconcile the automated MIS products with Aircraft AFTO Form 781-series IAW Para 4.8.1.12, 3.10.11 and 3.9.11 of this instruction to ensure the forms and MIS match. Take the necessary actions to correct discrepancies, sign off the ADR JCN in the MIS and forward to the Flight Chief for filing. Replace the old ADR with the most current ADR.

7.2.2. Pre-Dock Meetings. PS&D will review planned aircraft inspection schedules and initiate an AF IMT 2410, *Inspection/TCTO Planning Checklist*, or locally developed product for each aircraft prior to the pre-inspection meeting. Lead Commands may determine if the pre-/post dock requirement for inspections with less than a 200 hourly or 200 calendar day cycle is required. If it is determined that a pre-/post dock meeting is not required, initiation of an AF IMT 2410 is not necessary. PS&D personnel will:

7.2.2. **(CAF)** MXG/CC is the waiver authority for pre- and post-dock meeting requirements for inspections with less than 200 hours/200 calendar day cycles. F-22 aircraft going into Programmed Maintenance Package (PMP) will require pre-/post dock meeting only when LO intrusive.

7.2.2.1. Prior to the pre-dock meeting

7.2.2.1.1. Review and list all known aircraft and equipment TCTO, TCI, SI and other major requirements to be accomplished during the inspection on the AF IMT 2410, or locally developed product

7.2.2.1.1. **(CAF)** Consolidate and complete as many known maintenance requirements into a single down period.

7.2.2.1.2. Identify requirements for kits or parts

7.2.2.1.3. List all DDs to be accomplished during the inspection on the AF IMT 2410 keeping the original JCNs.

7.2.2.1.4. Incorporate all requirements against the aircraft into a work package.

7.2.2.1.5. List the agencies required to attend the meeting and any discussion items to be presented in Block 14.

7.2.2.1.5. **(CAF)** As a minimum, attendees will include the inspection dock chief, Aircraft Technician (e.g. DCC), production superintendent, and PS&D. Armament and Egress will attend as required.

7.2.2.1.6. List specialist tasks required in addition to normal inspection needs in Block 15.

7.2.2.1.7. Develop a list of items identified as out-of-configuration for verification/correction during the inspection. PS&D will request IMDS DBM process screen 942, Actual Configuration Set-up, using the ID number of the aircraft. Once accomplished, PS&D must run an IMDS screen 990. For G081 users, view screen 8110. For non-configuration tracked aircraft, compile a list of missing serially controlled items and coordinate/forward them to dock chief for verification.

7.2.2.2. At the pre-dock meeting, inform representatives of the inspection schedule and scope, including TCTOs, TCIs, SIs, DDs and special requirements to be accomplished. Agency representatives inform PS&D of limiting factors that might affect the schedule. Discuss aircraft configuration during all aircraft pre-dock meetings. Provide a copy of the IMDS screen 990 or G081 screen 8110 to the Dock NCOIC in the pre-dock package for verification/correction. The responsible work center will correct verified erroneous data and out-of-configuration items in IMDS prior to the post-dock meeting. Use the AF IMT 2410, or locally developed AF IMT 2410 to record additional information discussed during the pre-dock meeting. Maintain the original AF IMT 2410, or locally developed AF IMT 2410 on file in the aircraft jacket file for use as a guide when conducting the post-dock meeting. Give a copy to the dock NCOIC or equivalent.

7.2.3. Post-Dock Meetings. PS&D will hold a post-dock for all inspections that required a pre-dock meeting. At the meeting, the Dock NCOIC, PS&D, Production Superintendent or designated representative, Aircraft Section representative and other attendees (DCC, ADCC, etc) discuss open discrepancies, review any significant inspection events and identify any problems that may adversely affect future scheduling. PS&D will request the DBM to process screen 942 or a new screen 990 for the same aircraft and bring that product to the post dock to review/verify corrections with annotated IMDS 990 given to the Dock NCOIC at the pre-dock (screen 8110 for G081 users). The Dock NCOIC gives the completed inspection work package to PS&D for filing until it is replaced by the next similar inspection work package. (For example, an HPO1 will be replaced by the next HPO1 and the HPO2 will be replaced with the next HPO2, etc…, and the completed/verified copies of the output product (screen 942 or 990) must be maintained in PS&D until the next scheduled PH/ISO inspection for that aircraft. PS&D files a computer-printed listing of completed on-line work orders in the aircraft jacket file.

7.2.3. **(CAF)** Unresolved Aircraft Configuration Management issues/Time Change items with established life limits/TCTO items with unresolved issues will be briefed to Sq Supt for immediate resolution.

7.2.4. Aircraft Configuration Management. ACM provides unit managers the capability to determine the actual versus approved configuration of an aircraft. The intent of configuration management is to ensure selected serially controlled and/or TCIs are properly loaded to the MIS database. Of major concern are accurate, approved part numbers, quantity per assembly (QPA) and next higher assembly (NHA) items by WUC/LCN. PS&D has overall responsibility for the ACM subsystem of the MIS and will provide assistance to maintenance personnel. The performing work center supervisor and PS&D must conduct supervisory reviews of configuration change, TCTO, SI and TCI events using MIS on-line capabilities. Individual work centers accomplishing TCIs are responsible for changing configuration information in MIS. Unless otherwise specified in local procedures, schedulers must process IMDS screen 128 for all removal, installation, TCI, SI and TCTO compliance updates for any items installed on the aircraft. EM must process IMDS screen 128 for engines and engine components

7.2.4. **(CAF)** MXG/CC is responsible for proper ACM and safety of flight. PS&D will notify the MXG/CC of ACM, TCI and safety of flight issues that require immediate resolution.

7.2.4.1. The configuration tables (F-15s, F-16s, F-22As, CV22B, B-1s and B-2s) are electronically pushed to each unit from REMIS as aircraft configuration changes occur. Items not accessed or visible during routine field-level maintenance should be identified to Lead Command and ALC managers for removal from the configuration management table.

7.2.4.2. Maintenance personnel discovering an item with a missing data plate, or one which does not have a serial number, will contact the Lead Command system functional manager and ALC item manager for disposition.

7.2.4.2. **(CAF)** Maintenance personnel will courtesy copy PS&D on all correspondence.

7.2.4.3. For those aircraft that do not currently have an established configuration table, use IMDS screen 810 to validate the installed items against the data in the MIS.

7.2.4.4. PS&D will coordinate the daily resolution of configuration management notices utilizing screen 690 or applicable MIS screen. Discrepancies must be briefed at the daily production/scheduling meeting and forwarded to the appropriate maintenance section for corrective action.

7.2.4.5. When out of configuration items or missing serially tracked items are discovered, establish a single DD for out-of-configuration condition. Add an IMDS WCE for each WUC/LCN and part/serial number item requiring verification to that single DD.

7.2.4.5. **(CAF)** Tracked items that have an established service life limit will be highlighted to the MXG/CD for action if the issue cannot be resolved immediately.

7.2.4.5.1. **(Added-CAF)** F-22 units create a JCN in IMIS for each missing item.

7.2.5. Major Maintenance Work Processing. PS&D will:

7.2.5.1. Coordinate on all TO 00-25-107 requests for AFI 21-103 reporting. The work center discovering the discrepancy is responsible for drafting the TO 00-25-107 request and forwarding the request to QA for coordination and release. PS&D is responsible for making the appropriate possession code changes in MIS when AFI 21-103 messages have been released. Depot level assistance provided by contractor support is accomplished IAW contract specifications.

7.2.5.1. **(CAF)** MIS possession purpose code changes are not authorized for technical data clarification via -107 requests.

7.2.5.2. In conjunction with QA, develop procedures for routing all major maintenance requests to ensure all affected parties are informed.

7.2.5.3. Upon arrival of the DFT, PS&D will conduct an initial meeting to validate maintenance support requirements are in place. Meetings will be documented on an AF IMT 2410, or locally developed product.

7.2.5.4. Once work is completed, PS&D will ensure appropriate possession codes are changed and a completed copy of the work package is placed in the aircraft historical file. Document significant historical data on the appropriate AFTO IMT 95 IAW 00-20 series TOs.

7.2.6. TCTO Management. PS&D administers and manages the overall wing TCTO program. TCTOs and AF, Lead Command or NAF-directed modifications and inspections provide units with instructions for doing a one-time change, modification, or inspection of equipment, (includes applicable FAA air worthiness directives, original equipment manufacturer service bulletins and service instructions, after concurrence by Lead Command). Use the MIS to process Lead Command and NAF OTIs or modifications in the same manner as TCTOs with compliance periods, remove from service dates and rescission dates IAW TO 00-5-15. Lead Command, NAF and local inspections are referred to as OTIs. TCTOs, with the exception of immediate and urgent action, are considered scheduled maintenance and integrated into maintenance planning cycles. Consider concurrent accomplishment of TCTO work with other scheduled or unscheduled maintenance (e.g., PH, ISO, HSC, HPO). Manage TCTOs using the MIS, TO 00-5-15 and specific Lead Command instructions.

7.2.6.1. General Management of TCTOs. PS&D manages aircraft, AGE and commodity TCTOs. Munitions scheduling manages munitions-related TCTOs, and EM manages engine-related TCTOs. Armament and PMEL TCTOs will be managed by the owning agency however; PS&D still has the overall responsibility to monitor the effective management of the entire wing TCTO program. The parent technical training center manages and schedules all TCTOs for training equipment assigned to a TD or MTT.

7.2.6.1. **(CAF)** Aircrew protection (*Life support*) items not managed as installed on-equipment will be managed by the wing life support function.

7.2.6.1.1. PS&D reviews MIS products weekly to ensure proper documentation and management by owning and managing TCTO agencies. When an error is detected, PS&D advises affected work centers and provides assistance when necessary to correct the discrepancy. IAW TO 00-20-2, annual TCTO status reviews will be accomplished. [ANNUAL TCTO RECONCILIATION] All units will reconcile rescinded TCTO using a REMIS Master TCTO report annually (NLT 30 Sep) and before deleting TCTO records from IMDS/G081. If REMIS access is not available, request a REMIS Master TCTO report from the POC identified in the subject TCTO.. If TCTO status conflicts are identified, contact Production Management (schedulers/monitors) for status correction in REMIS. Once all status errors are corrected, field level organizations can delete the TCTO from IMDS/G081.

7.2.6.1.2. Significant problems or potential delays in TCTO accomplishment will be brought to the immediate attention of the SQ/CC and MXG/CC. PS&D will brief the MXG/CC weekly on unaccomplished TCTOs that are within 60 days of grounding.

7.2.6.1.3. PS&D will chair a TCTO review meeting attended by all TCTO owning and managing agencies after the monthly supply TCTO reconciliation meeting. These meetings may be combined. PS&D will discuss the supply reconciliation, supply status, scheduling factors, current TCTO status and anticipated problems for all active TCTOs. PS&D will produce minutes from the meeting and distribute to all affected agencies.

7.2.6.1.4. Depot-level TCTOs, excluding commodities, are loaded and tracked in the MIS for auditing compliance and applicability. Depot-level engine TCTOs are loaded in CEMS only. Units shall ensure dual reporting of completed depot TCTOs is prevented. All field-level companion TCTOs for commodities must be loaded in the MIS.

7.2.6.1.5. The reprogramming of passive/active ECM equipment is administered as a commodity TCTO for configuration management purposes. PS&D will coordinate with the operations electronic combat pilot/EWO before implementing any CPIN changes.

7.2.6.1.6. When TCTOs are directed for items without serial numbers, assign permanent serial numbers IAW TO 00-20-2. If it is not feasible or impractical to assign a serial number (e.g., air chucks and pilot clipboards), use bulk quantity numbers. For example, if there are 50 air chucks, use serial numbers 1 through 50 in the MIS.

7.2.6.1.7. Control and Transfer of TCTO Kits. Transfer aircraft or equipment, with any TCTOs still pending completion, with their applicable TCTO kits. Retain engine TCTO kits for engines installed on aircraft at depot locations if the aircraft is returning to that unit for TCTO compliance. Transfer TCTO kits IAW AFMAN 23-110, TO 00-5-15 and TO 00-5-1.

7.2.6.2. Specific TCTO Responsibilities.

7.2.6.2.1. QA personnel will:

7.2.6.2.1.1. Perform an initial review of the TCTO and determine applicability. Determine if the TCTO impacts weight and balance.

7.2.6.2.1.2. Distribute copies of TCTOs to the managing agency, performing work centers, the Flight Service Center of the Materiel Management Flight and the LRS Chief Inspector. Provide a cover letter requesting the number of items in supply, including WRM, affected by the TCTO.

7.2.6.2.1.2. **(CAF)** QA will distribute TCTO copies within 2 duty days of QA date stamp.

7.2.6.2.1.3. Report all deficiencies in technical instructions and kit-proofing to the appropriate TCTO manager IAW TOs 00-5-1 and 00-5-15.

7.2.6.2.1.4. Attend TCTO planning meetings.

7.2.6.2.1.5. Provide technical support to performing work centers.

7.2.6.2.2. PS&D personnel will:

7.2.6.2.2.1. Determine the total number of end items applicable to the TCTO. Items that are assigned with the same Mission Design Series, WUC, Part Number, etc., but are not applicable to the TCTO will be loaded in "22" status. This will ensure accurate accountability that all equipment has been verified as being affected or not applicable to TCTO.

7.2.6.2.2.2. Chair a TCTO planning meeting with attendees from QA, owning and performing work centers and FSC/LRS (IAW AFMAN 23-110, Volume 2, Part 2, Chapter 21). Minutes of this meeting will be recorded on AF IMT 2410, or locally-developed product and provide an overall plan to implement the TCTO. Minutes will include TCTO applicability by ID number (or applicable part number or serial number for commodity TCTOs), purpose of the inspection or modification, performing work centers, training requirements, scheduling parameters, remove from service date, a review of the TCTO procedures, IMT entries and any supply requirements identified before the TCTO can be scheduled for accomplishment. All attendees sign the AF IMT 2410, or locally developed product at the conclusion of the planning meeting indicating agreement with the conditions.

7.2.6.2.2.3. Establish and maintain a TCTO folder for each active TCTO. The folder will include the basic TCTO and any supplements, completed AF IMT 2410, or locally developed product, AF IMT 2001**,** *Notification of TCTO Kit Requirements* (if required), messages and the supply cover memorandum from QA. Once the TCTO has reached its rescission date, print a MIS product showing the current status of equipment and place it in the TCTO folder. Move the folder to an inactive TCTO file. The TCTO managing agency will maintain the folder until the TCTO is rescinded in the applicable TO index, MIS TCTO records will be deleted at that time. TCTOs will not be deleted from the MIS *prior* to the rescission date.

7.2.6.2.2.3. **(CAF)** In addition to the annual TCTO review listed in 00-20-2, TCTO Monitors will coordinate with the applicable Equipment Specialist to ensure REMIS and MIS are reconciled prior to deleting the TCTO at the rescission date. Monitors will request a REMIS Master TCTO Record; if discrepancies are found notify the Specialist for correction.

7.2.6.2.2.4. If an initial TCTO load is not received from REMIS, notify the ALC to attempt a second REMIS push. If a second attempt is not successful, load the TCTO into the MIS. Lead Command will load TCTOs for G081 users.

7.2.6.2.2.4. **(CAF)** When TCTOs are manually loaded, a REMIS Master TCTO Record will be used to reconcile data elements and eliminate system interface errors.

7.2.6.2.2.5. Use the ILS-S to order required kits/parts/tools IAW MIS manuals. When ILS-S is not available, initiate three copies of the AF IMT 2001. Forward two copies of the IMT with a copy of the TCTO to the supply TCTO monitor. For locally obtained parts, prepare an AF IMT 2001 listing each item by NSN, noun and quantity required. Assign ID numbers to kits as they are received. Use Part II of the AF IMT 2001 to manage kit/part assignment and track individual end items, date issued, document numbers and the number of kits remaining. The supply TCTO monitor will ensure kits and/or parts are assembled prior to release. The performing work center will order/maintain all HAZMAT required to comply with TCTOs and provide document numbers to the TCTO managing agency and supply TCTO monitor.

7.2.6.2.2.5. **(CAF)** Refer to ACCI 23-251, *Combat Oriented Supply Organization Policy*, for specific procedures to order TCTO Kits.

7.2.6.2.2.6. Control and release TCTO kits from LRS.

7.2.6.2.2.7. Notify appropriate Lead Command and NAF functional managers, by message, when local managers anticipate a problem with TCTO compliance within prescribed time limits. The message should include the TCTO number and narrative, total units affected, total units complete, kits on hand, kits on order, estimated delivery date, requisition number and a narrative of the problem.

7.2.6.2.2.7. **(CAF)** Armament, AGE, Munitions and Engine Management (EM) TCTO monitors will keep MOF PS&D informed of problems. MOF PS&D will assist when necessary.

7.2.6.2.2.8. Report status of TCTOs that cannot be reported under "HOW MAL" codes 793, 797, 798, 801, 802, or 911 IAW the MIS, and 00-20 series TOs.

7.2.6.2.2.9. Report interim TCTO status on immediate, urgent or routine action safety TCTOs as directed by Lead Command.

7.2.6.2.2.10. Schedule, track and monitor TCTO accomplishment. Prepare a work order in the MIS for each affected end-item, including spares. Agencies owning installed on-equipment TCTOs will coordinate with PS&D prior to scheduling on-aircraft TCTOs.

7.2.6.2.2.11. Review suspense validation inputs prior to processing TCTO suspenses and updating the MIS.

7.2.6.2.2.12. Update equipment/aircraft TCTO status as changes occur.

7.2.6.2.2.13. Annotate back-up MIS products as changes occur..

7.2.6.2.2.14. Ensure TCTOs are scheduled for completion prior to expiration or grounding date whichever comes first.

7.2.6.2.2.15. Schedule all workable TCTOs for accomplishment prior to permanent equipment transfer or storage input.

7.2.6.2.2.16. **(Added-CAF)** Monitor completion of commodity TCTOs and coordinates with performing workcenters to ensure compliance within specified time limits. PS&D establishes schedules for completion of installed commodity TCTOs with companion aircraft TCTOs. PS&D schedules aircraft TCTOs. The EM section schedules non-installed engine-related TCTOs and coordinates with PS&D on installed engine related TCTOs. The munitions flight scheduling manages TCTOs for all air-launched surface attack guided missiles and associated support equipment, munitions, nuclear ordnance commodity management items, guidance kits, air intercept/aerial guided missiles and air intercept/aerial rockets awaiting validation.

7.2.6.2.3. The Performing Work Center personnel will:

7.2.6.2.3.1. Report all deficiencies in technical instructions and applicability to the TCTO managing agency and QA.

7.2.6.2.3.2. Attend TCTO planning meetings. Review the TCTO prior to the meeting and request clarification of any requirements from QA and the appropriate TCTO managing agency during the meeting.

7.2.6.2.3.3. Inventory TCTO kits for completeness prior to starting work. If a discrepancy exists, contact the TCTO managing agency to resolve shortages.

7.2.6.2.3.4. Perform the inspection or modification procedures outlined in the TCTO and document results or findings in the MIS.

7.2.6.2.3.5. If an inspection TCTO generates a requirement for parts, the performing work center creates a new JCN and enters the discrepancy in the AFTO Form/IMT 781A or applicable equipment record and orders the required parts. Inspection TCTOs are complete when the inspection is finished.

7.2.6.2.3.6. Order and maintain all HAZMAT required to comply with TCTOs and provide document numbers to the TCTO managing agency and supply TCTO monitor.

7.2.6.2.3.7. Validate technical instructions and data on AFTO IMT 82, *Certificate-Proofing TCTOs/Kits,* when performing TCTO kit proofing IAW TO 00-5-15.

7.2.7. TCIs. PS&D has over-arching responsibility for the wing TCI program. Schedulers identify, monitor, forecast and schedule only those selected items specifically identified in TO 00-20-9, *Forecasting Replacement Requirements for Selected Calendar and Hourly Time Change Items;* applicable commodity TOs; the aircraft Dash-6 TO, AFI 21-201 or identified as FSG 13 and Materiel Management Code AQ Items.

7.2.7.1. PS&D personnel will:

7.2.7.1.1. Establish a JST for both the DOM and DOI for Cartridge-Actuated Devices (CAD), Propellant Actuated Devices (PAD), life sustaining, and other TCI items listed in the aircraft Dash-6 TO and applicable commodity TOs.

7.2.7.1.2. Load only the DOI or DOM JST, that comes due first, in the MIS against a specific part or serial number. As a minimum, when the DOI and DOM frequencies are identical, maintain the JST for the DOM. (N/A for G081 units)

7.2.7.1.3. **(Added-CAF)** For Aircrew Life Support Equipment (ALSE) items, only items installed in the aircraft and listed in T.O. 00-20-9 (except for batteries) will be tracked/scheduled in MIS (i.e., parachute components and the survival kit cutter cord are loaded in MIS). If ALSE is installed on aircraft and is considered an end item (e.g. back style parachutes, survival kit, multi-place raft kits, quick don masks, life preservers, and anti-exposure suits), the item will be loaded against the aircraft in MIS. If the item is a component of a larger item, only the larger item is loaded in MIS, not the components (i.e. life rafts installed inside survival kits which are loaded, will not be loaded independently). Load the earliest due date of the larger item or installed sub-component, as the due date in MIS. Life support personnel will document the MIS IAW AFI 11-301V1, ACC Sup 1, *Aircrew Flight Equipment (AFE) Program.*

7.2.7.2. TCI Forecasting. Forecasting of CAD/PAD items for long-term CAD/PAD spare requirements will be accomplished by OO-ALC through use of the Requirements Determination Module (RDM) to extract installation and due dates from the REMIS aircraft maintenance data collection system. Items not visible in a maintenance data system will continue to be forecasted by the using organization IAW TO 00-20-9, Forecasting Replacement Requirements for Selected Calendar and Hourly TCIs.

7.2.7.2.1. When CAD/PAD items or forecast requirements are not visible within the maintenance data system (e.g., CLS managed components), units forecast for TCIs IAW TO 00-20-9 and AFI 21-201. In these cases, validate and consolidate TCI forecasts for items listed in TO 00-20-9, commodity TOs, and aircraft specific Dash-6 TOs. Submit consolidated forecasts to the appropriate Lead Command representative with an info copy to munitions operations. Forward any quarterly updated forecasts to munitions operations.

7.2.7.3. Initiate, validate, and submit TCI extension requests to the ALC item manager (IM) with info copy to munitions operations. Maintain and monitor a suspense copy of the extension request and follow up prior to the grounding date of the TCI. Refer to Technical Orders 00-20-1 and 00-20-9 for additional guidance on TCI extensions. Maintain a copy of the ALC/System Program Director (SPD) approved message until the item is replaced.

7.2.7.3.1. EM section will generate engine TCI extension requests and send requests directly to the ALC.

7.2.7.3.2. Monthly, perform aircraft resynchronization for each aircraft that had TCIs accomplished

7.2.7.4. The IM will either satisfy demand for parts by directing shipment (depot or inter-command RDO) of assets or approve TCI extensions as appropriate. IMs are authorized to direct inter-command redistribution of CAD/PAD parts as required.

7.2.7.5. Participate in a monthly reconciliation of all TCIs with FSC. The reconciliation will consist of 100 percent validation of existing due-outs and a complete physical inventory of all issued TCIs. Inform FSC of any "mark for" changes or items no longer required.

7.2.7.6. Monitor and requisition TCI requirements based on projected equipment utilization. Order parts using ILS-S, if available. Unless otherwise specified in Dash-11, Dash-14 and Dash-6 TOs. TCIs are considered due for replacement at the HPO, PH, PE, HSC or ISO inspection nearest to the replacement date.

7.2.7.6. **(CAF)** TCI replacement will not exceed authorized over-fly limits in applicable technical orders.

7.2.7.6.1. Notify the Munitions Flight of the need to order munitions items IAW TO 00-20-9 and AFI 21-201. CAD/PAD TCIs with 9 months or less service life remaining may be turned into munitions operations and must not be reissued. Maintenance plans must reflect replacement dates to coincide within the 9-month parameter.

7.2.7.6.1. **(CAF)** Detailed long range planning can identify the most efficient TCI grouping for replacement during down time while maximizing life usage of assets.

7.2.7.6.2. Order non-CAD/PAD or engine TCIs IAW AFMAN 23-110.

7.2.7.6.3. **(Added-CAF)** Refer to ACCI 23-251, *Combat Oriented Supply Organization Policy,* for specific procedures to order time change items.

7.2.7.7. Schedule the time change in the MIS and incorporate it in the monthly/weekly maintenance plan.

7.2.7.8. Review the data entered by the performing work center and update the suspense validation in the MIS when the time change is completed (N/A to units using G081).

7.2.7.8. **(CAF)** Validate all required data elements. For Calendar TCIs check the Date of Manufacture, Date of Installation (DOI), frequency and due dates for accuracy. For hourly, start, or cycle tracked TCIs, verify the DOI. In addition ensure the previous operating time/starts/ cycles plus current operating time/starts/cycles plus the frequency equals the due time.

7.2.7.9. Coordinate management of respective TCIs with egress, and AFE sections.

7.2.7.10. Schedule drogue chute TCIs, except chute harnesses, for replacement during the drogue chute repack before the expiration of the component service or shelf life. These components will not be over flown without an approved waiver from the appropriate item manager.

7.2.7.11. Prepare TCI forecasts IAW TO 00-20-9. Provide squadron MOO/SUPTs a forecast for non-munitions items for their supply section.

7.2.7.12. Validate TCI requirements 45-60 days prior to the next quarter with the MASO. Validate current requirements against the annual forecast and make corrections based on aircraft utilization.

7.2.7.12. **(CAF)** Dedicated AMU schedulers will submit an updated quarterly forecast when the need date for parts are outside of the calendar quarter which the parts were forecasted for on the annual forecast to the Time Change monitor in PS&D. PS&D then forwards it with the adjusted totals to munitions operations for requisitioning of the additional assets.

7.2.8. Aircraft Generation Planning. The AF IMT 2408, *Generation Maintenance Plan;* AF IMT 2409, *Generation Sequence Action Schedule,* (GSAS); or Lead Command approved automated equivalents will be used to manage aircraft generation sequence actions for various unit taskings. The AF IMT 2408 reflects the hour sequence of all actions necessary to launch aircraft and contains a locally established legend indicating the type aircraft and tasked mission. The AF IMT 2409 shows the actions necessary to generate a specific line number. Use locally established codes for maintenance shown in the action column blocks and to report maintenance actions during generation. The AF IMT 2408 and AF IMT 2409 are not required for AETC/AFMC units without a mobility tasking. PS&D personnel will:

7.2.8.1. Develop, coordinate and prepare all aircraft maintenance flow plans in conjunction with Maintenance Operations, WWM and MUNS personnel.

7.2.8.2. Prepare the GSAS in sufficient detail to satisfy all generation actions. A completed GSAS requires only the aircraft serial number assignment and the 24-hour clock time annotation. Each plan must not exceed unit resources (i.e., load crews, equipment, convoys per hour, supervision, etc.).

7.2.8.3. Forward the completed GSAS IMT to affected activities at the beginning of the generation sequence.

7.2.8.4. Compare GSAS plans semi-annually with the unit DOC statement to ensure compatibility with the mission.

7.2.8.5. Attend post exercise/contingency "hot wash" meetings to evaluate flow plans for changes or improvements.

7.2.8.6. Classification Guidance. If classified data is used to populate the 2408/2409s, classify the 2408/2409 IAW the guidance of the originating document (i.e. Warning Order, ATO, etc.). In general, using real world/exercise mission numbers, take-off times, and tail numbers may lead to conditions where the 2408/2409 contains classified information.

7.2.9. Transfer Inspections. Units perform gaining/losing transfer inspections IAW TO 00-20-1, Lead Command guidance and this instruction.

7.2.9.1. In conjunction with QA, develop a local JST/work package for both gaining and losing aircraft and equipment transfer inspection. This JST/work package must meet all 00-20-1, 2J-1-18, applicable aircraft Dash-6 and Dash-21 TOs, as well as AFI 21-103 and Lead Command specific transfer requirements. Include historical records (e.g., NDI records, Egress records, W&B records, OAP records, strut records) and other items.

7.2.9.2. Losing PS&D ensures all actions are completed in the MIS prior to permanently transferring an aircraft to another unit.

7.2.9.3. Losing PS&D conducts a transfer pre-dock meeting one duty day prior to start of the aircraft transfer inspection. All items to be accomplished during the transfer inspection will be documented on an AF IMT 2410, or locally developed product, and scheduled in the MIS.

7.2.9.4. Losing PS&D completes a total verification of all TCIs installed on the transferring aircraft. Verify the correct computation of all due dates/hour/cycles based on DOM, DOI, installed times, etc.

7.2.9.5. For IMDS units only:

7.2.9.5.1. Ensure the IMDS - REMIS synchronization programs are processed and errors are corrected prior to transfer.

7.2.9.5.1. **(CAF)** Special IMDS procedures are required to minimize loss of data associated with aircraft transfer/data migration. The TBE process is used for unit-to unit transfers, 3WO process is used for PDM-to-unit transfers and unique IMDS procedures are required when PDM visits result in a MDS/SRD change (e.g., A-10A to A-10C). Contact Gunter's Field Service Center (FSC) for current System Area Network (SAN) message/procedures.

7.2.9.5.2. Ensure an up-to-date Transfer of Equipment (TRE) report and an AFTO IMT 95 with current engine trend and performance data are placed in the aircraft jacket file. A backup copy will be maintained by the losing unit until receipt is verified by gaining unit.

7.2.9.6. Losing PS&D ensure an ADR is performed and conduct a transfer post dock meeting to ensure all required actions have been completed and all forms are current/accurate.

7.2.10. Acceptance Inspections. Units perform acceptance inspections IAW TO 00-20-1, Lead Command guidance and this instruction.

7.2.11. Aircraft Jacket Files.

7.2.11.1. Establish jacket files for aircraft and maintenance historical documents IAW AFMAN 33-363 and TO 00-20-1. Aircraft jacket files will be maintained in PS&D and standardized IAW the master aircraft historical file developed by PS&D NCOIC. Documents decentralized to sections maintaining installed-on equipment (e.g., fuel cell records at fuel systems section, landing gear strut records at hydraulics section) are filed by, and the responsibility of, the OWC. PS&D will list all historical records, including those decentralized in their file plan or office of record. The DD Form 2861, *Cross-Reference*, will be used to cross-reference documents decentralized from PS&D to other sections. PS&D personnel will:

7.2.11.1. **(CAF)** The DD Form 2861, *Cross-Reference*, will be filed to cross reference automated historical 95 records that are maintained in the MIS.

7.2.11.1.1. Ensure individual documents are kept for end items, subsystems and components IAW 00-20 series TOs, this instruction, AFMAN 33-363, AF Records Disposition Schedule located at **https://www.my.af.mil/gcss-af61a/afrims/afrims/rims.cfm** and applicable Dash-6 TOs. MIS automated history is used in place of AFTO IMT 95 to document significant historical events on aircraft, engines, AGE and armament equipment. A copy of a MIS automated history must be down loaded (on a CD) annually and be available at all times. Documents for non-powered AGE, training equipment and common equipment items requiring very little maintenance documentation may be grouped together in a single folder or area to eliminate keeping a record folder on each individual item. When this is done, documents for similar items should be grouped together and the recorded information should be identifiable to particular pieces of equipment.

7.2.11.1.1. **(CAF)** Automated history is the primary method for maintaining individual historical documents. Automated history will be saved to file/disk and placed into the jacket file for permanent equipment transfer or when requested (e.g. accident/safety investigation board). Ensure history files are not corrupt prior to placing them into the jacket file. Maintain a back-up file until the gaining unit confirms receipt. Print the MIS automated history (AFTO Form 95s) and ship with item for overhaul.

7.2.11.1.2. When aircraft are temporarily moved to operating locations away from the unit of assignment, send only those documents necessary to ensure safety of flight and current aircraft status. Units will develop written procedures for records taken to

deployed locations based on duration of TDY and peculiar operating requirements. When pertinent documents are not sent with the aircraft, accumulated airframe hours, TCTO status, TCI status data on installed engines and critical components are sent from the operating location to the parent unit as specified by Lead Command instructions.

7.2.11.1.3. Review aircraft jacket files and associated decentralized records annually using the PS&D-developed checklist. The last completed checklist must be kept on file in each aircraft jacket file.

7.2.11.1.3. **(CAF)** Automated AFTO Form 95 items will be reconciled to ensure all required items are tracked and loaded with a historical header using IMDS screen 390. QLP programs are recommended to identify missing 95 tracked items and/or missing AHE header record.

7.2.11.1.4. Maintain inactive (pulled) AFTO Form/IMT 781 series IAW AFMAN 33-363 and dispose of IAW the AF Records Disposition Schedule located at **https://www.my.af.mil/gcss-af61a/afrims/afrims/rims.cfm**. If forms are missing, send a missing form letter to the appropriate section NCOIC with a 5 duty-day suspense. If a response is not returned within 5 duty days, notify maintenance supervision. If the forms cannot be located, file the missing form letter, endorsed by the section NCOIC and maintenance supervision, in the aircraft jacket file in place of the missing forms. See TO 00-20-1 for missing form procedures. Units using fully automated forms will maintain the last 7 copies of the aircraft forms. When the 8th report is received, destroy the earliest record. Units not required to use MIS, will use aircraft forms maintaining the current and last 3 month's worth of closed aircraft forms .***NOTE:*** Units that are utilizing laptop forms only (i.e.. Integrated Maintenance Information System (IMIS), Autonomic Logistics Information System (ALIS)) do not need to maintain 7 sets of 781 forms.

7.2.11.1.5. Because PS&D is centralized in MOF, Debrief may maintain the last seven pulled sets of 781s from the aircraft forms binder in a consolidated file. The debrief records will be inspected quarterly by MOF PS&D to ensure effective control and organization. MOF PS&D will annotate in the aircraft jacket file the 781s are in a decentralized location and reference file plan location.

7.2.11.1.5. **(CAF)** Pulled 781-series forms will be maintained in Debrief or APG Flight Office. A pulled set of 781-series forms are defined as the forms that were closed out and removed from the binder. These inactive sets may or may not include an AFTO Form 781J/K and will not be filed separately.

7.3. Operations and Maintenance Planning Cycle. Lead Commands shall develop procedures to ensure the intent of the operational planning cycle is met. The objective of the operational planning cycle is to execute the wing flying hour program consistent with operational requirements and maintenance capabilities. The operational planning cycle begins with the annual allocation of flying hours and UTE rates. Maintenance and operations schedulers will propose an annual flying plan balancing both operational requirements and maintenance capabilities. The annual plan, detailed by month, will evaluate the capability of maintenance to support the annual flying hour program. The plan will be developed, coordinated and consolidated jointly by Operations Support Squadron (OSS) Current Operations Flight

Scheduling, and PS&D. The printed wing plan will include an assessment of the wing's ability to execute the flying hour program. The plan will be coordinated with the OG/CC and MXG CC before being approved by the WG/CC. Commit the fewest number of aircraft possible to meet programmed UTE rate standards and goals.

7.3. (CAF)Operations and Maintenance Planning Cycle. Refer to ACCI 21-165.

7.3.1. If applicable, Lead Commands shall develop scheduling procedures for units involved in Operational Test and Evaluation, Developmental Test and Evaluation, or Initial Operational Test and Evaluation to ensure the intent of the flying and maintenance planning cycle is met.

7.4. First Look Requirements. The First Look report is an internal wing document intended to highlight potential maintenance-capacity and operational-requirement disconnects in the upcoming year. Every year, on or about 15 March, PS&D will task MMA to provide PS&D with an airframe capabilities assessment. This assessment will take into account personnel, facilities, and airfield infrastructure for each aircraft maintenance organization NLT the last workday of March.

7.4. (CAF)First Look Requirements. Refer to ACCI 21-165 and AFI 11-101, ACC Sup 1, *Management Reports on the Flying Hour Program*.

7.4.1. PS&D will provide copies of the capability study to each OS scheduling section and maintenance supervision. PS&D will provide first look maintenance capability projections in a monthly format IAW Lead Command procedures. Projections include operational requirements, an assessment of maintenance's ability to support the monthly requirement and an overall assessment of the unit's maintenance capability to meet the annual flying hour program. (N/A for MAF units).

7.4.2. OS and maintenance responses are sent to PS&D and OSS Current Operations Flight Scheduling and are consolidated into a comprehensive package that includes a breakdown of the following items by OS:

7.4.2.1. Sortie UTE Rates (N/A to MAF units). Compute UTE rates by month for the entire fiscal year for contracted (required) sorties and scheduled sorties using the formula: (number of sorties per month) divided by (number of PAI aircraft).

7.4.2.2. Sorties contracted/scheduled per day (N/A to MAF units). Compute the number of sorties required per operations and maintenance (O&M) day to meet the operational requirement using the formula: (Number of sorties required) divided by (number of O&M days in a given month). Sorties per day will be computed by month for the entire fiscal year.

7.4.2.3. Monthly scheduled sorties (N/A to MAF units). Compute monthly scheduled sortie requirements using the formula: (Number of sorties or hours required) divided by (1 minus the attrition factor). ***EXAMPLE:*** (1,000 sorties or hours required) divided by (1 minus 0.15) equals 1,177 sorties or hours to schedule. Remember to round any part to the next whole sortie or hour.

7.4.2.4. Inspection dock capability. Compute the number of PH/ISO inspections to be accomplished for each maintenance unit, by month, for the entire fiscal year in order to meet operational requirements. Compute dock capability using the formula (number of

O&M days) divided by (number of PH/ISO days) times (inspection cycle). Inspection dock capability is provided at the wing level and provided by the squadron performing inspections.

7.4.3. Once compiled, packages shall be presented to the OG and MXG/CCs before being presented to the WG/CC.

7.5. Annual Maintenance Planning Cycle. Lead Commands shall develop procedures to ensure the objectives of the annual maintenance planning cycle are met. At a minimum, Lead Command procedures will produce an annual flying and maintenance plan that allocates sorties and hours into quarters, is approved by the wing commander, and published prior to the beginning of the fiscal year.

7.5. (CAF)Annual Maintenance Planning Cycle. Refer to ACCI 21-165.

7.5.1. Flying Hour Allocation. Using the Lead Command Baseline Allocation message, PS&D and OS/OSS scheduling provide affected work centers the following planning factors NLT 20 August each year, or within 10 working days after receipt of the flying hour allocations:

7.5.1.1. Updated capabilities computed by MMA, provided by PS&D.

7.5.1.2. Required flying hours and estimated sorties and missions, provided by OSS, in monthly increments.

7.5.1.3. Flying days in each month, provided by OSS.

7.5.1.4. Aircraft and aircrew alert requirements, provided by OSS.

7.5.1.5. Known and projected TDY and special mission requirements, provided by OSS.

7.5.1.6. PDM schedule, provided by PS&D.

7.5.1.7. Configuration and munitions requirements, provided by OSS.

7.5.2. NLT 1 September, or within 10 working days after receipt of the planning factors, maintenance supervision provides PS&D, SQ/CCs, and OSS operations scheduling the following planning factors:

7.5.2.1. Estimated number of aircraft available by month, taking into consideration aircraft required for training.

7.5.2.2. A projected airframe capability statement.

7.5.2.3. Forecasted personnel capability, taking into consideration required annual training for maintenance personnel. (Not applicable to contract maintenance organizations).

7.5.2.4. The number of supportable sorties for each month.

7.5.2.5. An estimated monthly attrition factor (N/A to MAF units) provided by MMA. This factor combines operations, weather and materiel (maintenance and supply) factors. Maintenance is responsible for adding the attrition factor to operational requirements.

7.5.2.6. A recommended block scheduling pattern.

7.5.2.7. A statement of limitations.

7.5.3. **(Added-CAF)** OSS Current Operations Flight presents the AMXS and OS coordinated annual plans to the OSS, MXS, MOS, MXG and OG CCs for coordination prior to final approval from the wing commander. Approved plans are forwarded to the MAJCOM and serve as the annual flying hour program contract.

7.6. Quarterly Maintenance and Operations Planning. Lead Commands will develop procedures to ensure the objectives of the Quarterly Planning cycle are met. Quarterly planning starts with the operational requirement for flying hours, UTE rate, airframe availability, alert and other related scheduling data. The OS operations officer provides these requirements to maintenance supervision and PS&D NLT 25 days before the beginning of the quarter. Maintenance supervision and the OS operations officer discuss these requirements at the scheduling meeting before the quarter being planned.

7.6. (CAF)Quarterly Maintenance and Operations Planning. Refer to ACCI 21-165.

7.6.1. Schedulers ensure quarterly plans are as detailed and accurate as possible. Include known special missions, PDM schedules, HHQ commitments and lateral command support requirements. All maintenance requirements will be consolidated into a single quarterly plan using AF IMT 2401, *Equipment Utilization and Maintenance Schedule*, or computer generated form. As a minimum, the quarterly plan shows the current month and the next 2 months planned sorties and known maintenance requirements. Known maintenance requirements include all maintenance events that impact aircraft availability and require management attention to ensure proper time distributed index (TDI) flow. Multiple maintenance events should be bundled for completion during a single aircraft downtime event to the greatest extent possible. The goal is to reduce the number of times per month an aircraft is removed from the schedule for scheduled maintenance, thus increasing aircraft availability. Requests to change the frequency of Dash-6 requirements to increase bundling opportunities will be submitted through the applicable Lead MAJCOM weapon system team for consideration and/or resolution. To prevent operational utilization for that day(s) flying schedule, the quarterly plans will include, at a minimum, calendar inspections, calendar TCIs, TCTOs in workable status, PDM schedules, training aircraft, cannibalization aircraft and aircraft ISO/PE/PH inspections. Specific locally developed codes will be used to identify each different SI, TCI and TCTO on the AF IMT 2401. Other maintenance requirements, such as engine changes, hourly requirements, acceptance/transfer inspections, training aircraft and cannibalization aircraft will be posted as they become known or planned. Add AME inspections to the quarterly plan if the aircraft is scheduled to stay in that configuration to ensure the inspections are included in the monthly and weekly schedules. Revise weekly and monthly schedules to meet the quarterly plan objectives while staying within the maintenance capability. Use the following priority to determine which objectives to support if a lack of resources prevents meeting requirements:

7.6.1.1. Alert commitments

7.6.1.2. HHQ directed missions.

7.6.1.3. Training.

7.6.2. The OG/CC and MXG/CC chair a quarterly meeting NLT 14 days before the next quarter. OSS Current Operations Flight scheduling compiles, coordinates and briefs the unit's quarterly plan and includes operational requirements, support capability and any

difficulties expected. Once an approved quarterly plan is established, OSS Current Operations Flight Scheduling will forward a copy to OS, AMXS, OG and MXG/CCs along with all scheduling agencies. The plan will be posted so it may be viewed by both maintenance and operations.

7.7. Monthly Maintenance and Operations Planning. Lead Commands will develop procedures to ensure the objectives of the monthly planning cycle is met. Forecast and monitor requirements for the current and next 2 months. Include predictable maintenance factors based on historical data along with other inputs, such as flow times for maintenance, turnaround times and parts replacement schedules. Include all known operational events (e.g., exercises, deployments, surges) to determine maintenance's capability to meet operational needs. The OS operations officers and maintenance supervision shall review their applicable portion of the monthly maintenance plan and weekly schedule prior to submission to PS&D. To optimize aircraft and munitions support, MXS, AMXS, and OS shall ensure the number of aircraft and/or munitions configurations are minimized and standardized. The monthly schedule refines the quarterly plan:

7.7.1. NLT the first weekly scheduling meeting of the month, the OS operations officer provides maintenance supervision and PS&D with the estimated operational needs for the following month in as much detail as possible. Include known takeoff times, landing times and flying hour windows. ***NOTE:*** Landing times are not required if the unit has an established and constant average sortie duration.

7.7.2. NLT the second weekly scheduling meeting of the month, maintenance supervision tells the OS operations officer whether requirements can be met or limitations exist. Make adjustments to the proposed schedule to satisfy maintenance and operational requirements.

7.7.3. NLT the third weekly scheduling meeting of the month, formalize next month's plan prior to presenting it to the WG/CC for approval. During the Wing/CC's monthly meeting, OS scheduling outlines past accomplishments, status of flying goals, problems encountered and detailed needs for the next month. PS&D outlines projected maintenance capability and aircraft/equipment availability. If conflicts arise between operational requirements and maintenance capability, present alternatives and limitations. MXG/CC, OG/CC and WG/CC decide what portion of the mission to support and to what degree.

7.7.4. When the WG/CC approves the proposed monthly flying plan, PS&D includes it as a portion of the monthly flying and maintenance plan. Monthly plans may be published electronically provided local security requirements are met.

7.7.5. The monthly flying and maintenance plan combines all aspects of aircraft utilization and includes:

7.7.5.1. A detailed monthly operations utilization calendar that specifies total aircraft flying hours, total sorties and missions, alert requirements, scheduled sortie or mission requirements and daily turn plans for each MDS by squadron, group or wing. Do not assign attrition sorties to a specific aircrew/mission for the monthly planning process.

7.7.5.2. Monthly maintenance requirements (as required)

7.7.5.3. Transient work schedule, if applicable.

7.7.5.4. Scheduled inspections, TCTOs, engine changes, time changes, DDs, contract or depot maintenance, washes, corrosion control, training aircraft and all other known maintenance requirements.

7.7.5.5. SE scheduled inspections, contract or depot maintenance, TCTOs, time changes, DDs, washes and corrosion control.

7.7.5.6. Avionics and other off-equipment maintenance scheduled inspections, TCTOs, assembly or repair operations.

7.7.5.7. Engine/module 6-month removal forecast and in-shop inspection requirements.

7.7.5.8. Munitions, photo, ECM and other mission loading or configuration requirements, including ammunition changes.

7.7.5.9. Total ordnance requirements for aircraft support.

7.7.5.10. Tanks, racks, adapters and pylons (TRAP) and WRM scheduled inspections, TCTOs, assembly or repair operations.

7.7.5.11. Special activities, such as CC calls, group TDY, physical training, and unit formations.

7.7.5.12. Monthly training schedules, if not published separately.

7.7.5.13. Detailed support requirements, as necessary:

7.7.5.13.1. Petroleum, oil and lubricants (POL) servicing.

7.7.5.13.2. Supply requirements.

7.7.5.13.3. Food service requirements.

7.7.5.13.4. Fire department requirements.

7.7.5.13.5. Security requirements.

7.7.5.13.6. Civil engineer requirements.

7.7.5.13.7. Airfield operations.

7.8. Weekly Scheduling. The weekly schedule is the final refinement to the monthly plan and results in the weekly flying and maintenance schedule. Lead Commands will develop procedures to ensure the objectives of the weekly scheduling process are met. The OS operations officer and maintenance supervision will review and coordinate on the proposed weekly flying and maintenance schedule with OS, AMXS and MXS prior to presenting it to OG and MXG CCs. The group-approved schedule will be submitted to PS&D for compilation and a complete copy provided to the WG/CC. At the weekly scheduling meeting, evaluate the past week's accomplishments (to include flying and MSE) and negotiate/approve refinements to the coming week's schedule. (The AF IMT 2402, *Weekly Equipment Utilization and Maintenance Schedule*, is used to summarize the upcoming week's schedule.) The AF IMT 2403, *Weekly Aircraft Utilization/Maintenance Schedule*; and AF IMT 2436, *Weekly/Daily Aircraft Utilization Schedule*; are more finite in the depiction of aircraft utilization and maintenance. The AF IMT 2403 and AF Form 2436 may be used together or individually. Electronic versions of the above IMTs/forms are authorized. Whatever IMTs/forms are used, all requirements will be entered. Weekly schedules may be published electronically provided local security requirements are met.

7.8. (CAF)Weekly Scheduling. Refer to ACCI 21-165.

7.8.1. NLT 2 workdays before the weekly scheduling meeting, the OS operations officer gives maintenance supervision the following information (as required):

7.8.1.1. Aircraft takeoff and landing times.

7.8.1.2. Configuration requirements.

7.8.1.3. Munitions requirements.

7.8.1.4. Fuel loads.

7.8.1.5. Special or peculiar mission support requirements.

7.8.1.6. Alert requirements.

7.8.1.7. Exercise vulnerability.

7.8.1.8. Deployments.

7.8.1.9. Off-base sorties.

7.8.1.10. On equipment training requirements.

7.8.1.11. Other special requirements.

7.8.2. Once the weekly schedule is reviewed and signed by the OG/CC, MXG/CC and WG/CC it becomes the final planning guide for both operations and maintenance and the basis for deviation reporting. The schedule will be followed as printed or as amended by coordinated changes. Coordinated changes do not negate reporting deviations IAW Lead Command guidance. PS&D distributes the schedule to each appropriate activity and work center NLT 1200 (1400 for AETC) Friday preceding the effective week. Weekly flying and maintenance schedules may be transmitted electronically provided local security requirements are met.

7.8.2.1. Tanker/Airlift Control Center (TACC) tasked units (MAF units) will use the daily flying schedule as the basis for deviation reporting.

7.8.3. Home and deployed units will publish a weekly schedule. Include the following in the weekly flying and maintenance schedule:

7.8.3. **(CAF)** Dedicated AMU Schedulers will deconflict the flying and maintenance pages with the AF Form 2402, *Weekly Equipment Utilization and Maintenance Schedule*/AF Form 2401, *Equipment Utilization and Maintenance Schedule*, for accuracy prior to submission to MOF PS&D. The published AF Form 2402/2401 will reflect the unit's planned action for each aircraft each day. Maintain AF Forms in accordance with the RDS.

7.8.3.1. Sortie sequence numbers, aircraft tail numbers (primary and spares), scheduled takeoff and landing times, aircraft or equipment scheduled use times, configurations and special equipment requirements. Units tasked by TACC need not include aircraft tail numbers. Units that fly a published and constant average sortie duration need not publish land times.

7.8.3.2. Spare aircraft requirements. Spare requirements are printed by day for each maintenance unit. Generate only the absolute minimum of spare aircraft.

7.8.3.3. Scheduled maintenance actions, by aircraft and equipment serial number, to include inspections, TCTOs, time changes, contract and depot inputs, engine changes, washes or corrosion control, document reviews and DDs.

7.8.3.4. Required pre-inspection and other maintenance/scheduling meetings to include minimum attendees.

7.8.3.5. Wash rack use.

7.8.3.6. On-equipment training requirements.

7.8.3.7. AGE inspections or maintenance schedule by type and ID number.

7.8.3.8. A list of new or revised publications, TO indexes, inspection work cards, checklists and Dash-6 TOs. Include the date of change. Automated systems will be used, if available.

7.8.3.9. Lead Commands will develop specific procedures to record and coordinate changes to the weekly schedule using an AF IMT 2407. Include minimum approval levels for approving changes to the weekly schedule.

7.8.3.9. **(CAF)** Refer to ACCI 21-165.

7.8.3.10. Any change to the printed schedule will require an AF IMT 2407 with the following exceptions: a change to the original printed takeoff or landing time of 15 minutes or less; a change of aircrew names, ranges, or airspace; or a change arising after the first crew ready time for the squadron's current day's scheduled flying window.

7.8.3.10.1. Changes made during the daily scheduling meeting also require an AF IMT 2407.

7.8.3.10.2. The agency requesting the change initiates the AF IMT 2407 and coordinates it through the affected Pro Super, Operations Officer/MX SUPT, and required group staff agencies (i.e., MOC, PS&D, etc.) IAW Lead Command procedures.

7.9. AMU/AMXS dedicated scheduler. AMU dedicated schedulers are assigned to the MOF PS&D section and provide dedicated support to the AMUs. AMU element schedulers will:

7.9.1. Attend and actively participate in daily, weekly, monthly, quarterly and yearly flying scheduling programs and meetings IAW this chapter and:

7.9.1.1. Inform AMU supervision of maintenance capabilities or limiting factors that could affect maintenance production.

7.9.1.2. Coordinate with AMU supervision and OS operations schedulers when scheduling AMU aircraft to meet flying requirements.

7.9.1.3. Coordinate the scheduled use of shared resources. Changes during the affected week will be documented on an AF IMT 2407.

7.9.1.4. Provide a listing of JCNs for next week's scheduled maintenance to the PS&D NCOIC by 1600 Friday if JCNs are not listed in the weekly flying and maintenance schedule. This list will be used to track MSE. AMU PS&D element will assist in determining causes of missed maintenance for reporting MSE.

7.9.2. Manage the following programs for aircraft assigned to their appointed AMU: TCTOs, TCIs and SIs (including installed engine inspections) IAW guidance in this chapter.

7.10. Wing Aerospace Vehicle Distribution Officer (AVDO). PS&D performs the AVDO function IAW AFI 21-103 and maintains the inventory portion of the MIS Inventory, Status and Utilization subsystem. AVDO will:

7.10.1. Generate AFTO IMT 103, *Aircraft/Missile Condition Data,* to record certified maintenance needs for aircraft PDM IAW TO 00-25-4, *Depot Maintenance of Aerospace Vehicles and Training Equipment,* coordinate it with AMXS supervision

7.10.2. Coordinate all assignment/possession changes through the Lead Command AVDO IAW AFI 21-103 and AFI 16-402.

7.10.3. Maintain a PDM schedule by tail/serial number for all aircraft and equipment in support of AFMC and Lead Command plans and requirements. This listing will contain all Lead Command directed modification and maintenance programs. Publish these schedules in monthly and quarterly maintenance plans.

7.10.3. **(CAF)** PS&D will coordinate with the Lead Command weapon system functional manager who develops the schedule with the depot facility.

7.10.4. Manage the aircraft transfer/depot program. Coordinate any changes to the transfer/depot/ DFT/CFT programs with AMU and all affected agencies.

7.10.4. **(CAF)** Forward copies of all schedules and changes to the MAJCOM-AVDO.

7.10.5. Coordinate with PS&D and QA on all AFTO IMT 103s and submit them IAW TO 00-25-4. Coordinate any resulting changes to the depot program with affected scheduling functions.

7.10.6. Comply with Dash-21 equipment accountability requirements in AFI 21-103 and Lead Command supplements.

7.10.7. Job Standard Master Listing (JML) Management. PS&D maintains (load, change, and delete) the JML for all inspections and time changes listed in the applicable aircraft Dash-6 and commodity TOs. The EM section maintains the portion of the JML for engine inspections and time changes. Maintain JMLs for off-equipment items in the OWC. Provide written guidance and training for JML management of off-equipment Job Standards (JSTs) when PS&D authorizes OWCs to maintain it. For units using G081, Lead Command weapon system managers must maintain master inspection and time change requirements. Once Master Job Standard Numbers (MJSNs) are fielded for a weapon system, local PS&D must review TO 00-20-2 for MJSN procedures. PS&D must load, change and delete JSTs in the MIS as soon as possible after receipt of any Dash-6, or other TO, TCI or inspection change and promptly notify all affected PS&D sections for action. PS&D shall:

7.10.7. **(CAF)** Schedulers will monitor Dash-6 and associated technical orders to ensure time change/inspection frequencies align and support the maintenance concept of the weapon system. Scheduled maintenance requirements that do not align with the established maintenance concept and affect aircraft availability will be identified and forwarded to the Product Improvement Working Group (PIWG) for consideration and/or resolution. Aligning maintenance requirements will eliminate additional downtime and increase aircraft availability.

7.10.7.1. Load JSTs for all aircraft Dash-6 special/scheduled inspections with frequencies greater than 30 days or 50 hours in the MIS. PE, PH, engine changes and other event type inspections as they occur (e.g., hard landing) are loaded as a JST in the MIS. Provide training for maintaining JSTs as necessary.

7.10.7.1. **(CAF)** Units have the option to load JSTs with frequencies less than 30 days/50 hours. It may be more efficient to track these repetitive tasks on the AFTO Form 781-series forms and allow the production superintendent to coordinate inspection compliance. Regardless of option, PS&D and production superintendent must agree on the most efficient method to track and complete these repetitive inspections and job data documentation (JDD) is paramount.

7.10.7.2. Perform a semi-annual review of the JML and all JSTs for accuracy and currency. Reconcile TCI and SI JSTs with the aircraft Dash-6 and applicable commodity TOs. Document the semi-annual review on AF IMT 2411. Units may create JSTs in the MIS to automate required documentation of repetitive complex tasks (e.g., engine change, phase inspection, flight control maintenance).

7.10.7.3. Develop a matrix/chart depicting the total number of SI and TCI requirements to be loaded in the MIS for each assigned aircraft and verify against the MIS totals weekly. Overdue and uncorrected discrepancies must be briefed weekly during a MXG/CD daily production/scheduling meeting.

7.10.7.3. **(CAF)** Maintain the TCI and SI matrix using MSAT.

7.10.7.4. Monitor the inspection and time change subsystems in the MIS. Perform a comprehensive quarterly review of all inspections, SIs and TCI JSTs for each assigned aircraft. Look for missing and/or excess inspections and TCIs loaded to the aircraft. Ensure the accuracy of all due dates/ times for TCIs and verify the date of manufacture (DOM) and date of installation (DOI). Document the review, establish a suspense date and follow-up to ensure corrections are received. Maintain the report on file with corrective actions until the next review. The use of automated verification tools is encouraged provided MIS data is the source for verification.

7.10.7.4. **(CAF)** Units will use MSAT during quarterly reviews and ensure accurate data in the MIS.

7.10.8. Maintenance Schedules. PS&D builds, coordinates, publishes and distributes an integrated aircraft schedule to support required maintenance and flying operations. Plans and schedules may be published via electronic means (e.g., web pages, CoP, or E-mail) provided operations security is not compromised. Normal daily operations and training schedules are FOUO and should not be restricted to classified systems. PS&D personnel will:

7.10.9. In conjunction with MMA, provide planning factors for aircraft availability and maintenance capability to operations and maintenance managers and inform them of deviations from maintenance schedules.

7.10.10. Coordinate development of the wing's annual flying and maintenance program.

7.10.11. Participate in the wing quarterly, monthly and weekly scheduling meetings.

7.10.12. Participate in the daily production/scheduling meeting. Representatives from PS&D and EM must attend the wing daily production/scheduling meeting.

7.10.13. Monitor aircraft utilization and maintenance resources to ensure wing programs and commitments are met and that shared resources and schedules are de-conflicted. Ensure aircraft and equipment are scheduled to meet all training needs. Review weekly and monthly training schedules prior to publication to minimize impact on production and facilities.

7.10.14. Compute MSE IAW Lead Command instructions and forward data to MMA.

7.10.14. **(CAF)** MSE will be removed from the next revision of ACCI 21-165.

7.11. The PS&D is the wing 2R1XX functional manager. In this role, the PS&D NCOIC will ensure the following duties are performed:

7.11.1. Visit sections every six months when schedulers are decentralized IAW **paragraph 7.1**. During the visit, ensure historical documents are properly maintained. Discuss 2R1X1 rotation plan with each section OIC/NCOIC, and provide formal written reports of deficiencies found during the visits to MOF/Supt, MOS/CC, and applicable section OIC/Chief. Deficiencies will not be closed until validated by the MOF/SUPT (N/A to ANG).

7.11.2. Establish and coordinate plans for rotating 2R1XX personnel through various duty positions within MOF to increase field knowledge and experience every 24 months, not to exceed 36 months. This rotation plan applies to TSgts and below as well as 3- or 5-skill level personnel of any rank. Rotating civil service and contractor maintenance personnel is a local/contract management decision (N/A to ARC).

7.11.3. Perform initial evaluations for all incoming 2R1XX personnel. Initial interviews will be documented on the ITP journal in TBA or on an AF IMT 623A, *On-the-Job Training Record Continuation Sheet*, and filed in the individual's training record IAW AFI 36-2201 and Lead Command supplements.

7.11.3. **(CAF)** Collect data quarterly for assigned, inbound and outbound personnel to ensure equitable distribution of personnel in each scheduling function. Attention must be paid to airframe knowledge when determining placement of inbound personnel.

7.11.3.1. Develop and periodically review training programs for all 2R1XX personnel. The training plan must include familiarization with assigned weapons systems, core task training/certification procedures and continued proficiency in scheduling and documentation techniques.

7.11.3.1. **(CAF)** Ensure personnel performing scheduling functions in sections where 2R1X1 personnel are not assigned either permanently or temporarily (e.g., armament, munitions, AGE) are trained in day-to-day scheduling tasks. Ensure a WJQS for each required area is developed, and ensure training is provided and documented. The unit 2R functional will establish training procedures and ensure coordination is accomplished with the maintenance complex. (ACC Only) Attends ACC Plans Scheduling and Documentation course within 18 months after technical school completion and as class availability allows.

7.11.3.1.1. Ensure personnel receive weapon system familiarization training, if not already familiar, through the MTF/TD within 3 months of assignment. If courses are not available, coordinate with the appropriate maintenance activity for familiarization training. Document familiarization training in the individual's training record. For ARC, PS&D will attend the course within 6 months of assignment to the unit.

7.11.3.1.1. **(CAF)** CAF units will develop PS&D familiarization (FAM) training that outlines the weapon system functionality and squadron and back shop responsibilities. Coordinate with MTF personnel to provide FAM training that achieves outlined objectives.

7.11.3.1.2. Civil service and contractor maintenance organizations must comply with training plans established in the PWS, PRS or SOW.

7.11.3.2. Provide functional expertise on all maintenance scheduling issues and equipment historical document (AFTO IMT 95) management to QA during inspection/evaluations.

7.12. Responsibilities of Contingency/Expeditionary (Cont/Exp) units (i. e. maintaining non-assigned aircraft). ***NOTE:*** this does not include AMC established en-route stations

7.12.1. Most planning and scheduling is the responsibility of units with assigned aircraft and is provided through reachback support to homestations. Contingency units have fewer responsibilities as described below. Commanders of expeditionary units will ensure the intent of the guidance is met, when dynamic nature of a contingency/expeditionary organizations make strict adherence possible.

7.12.2. Cont/Exp PS&Ds will conduct the following programs as modified below:

7.12.3. ADR, Pre- and Post-dock meetings, Acceptance inspections (from DFT/CFTs) and the Major Work Program. Cont/Exp PS&D will use the procedures developed by the aircraft owning organizations, they do not have to be standardized.

7.12.4. Ensure discrepancies Noted by the aircraft owning PS&D for the ACM, TCI and SI programs are corrected. Cont/Exp PS&D will not develop programs independent of the aircraft owning organization.

7.12.5. Develop local procedures for Aircraft Immediate and Urgent Action TCTOs. When notified by the aircraft owning organization of an I/UA TCTO, Cont/Exp PS&D will host a TCTO meeting.

7.12.5.1. Purpose of the meeting is to determine if the Cont/Exp unit has the maintenance capability to perform the TCTO. Invite AMU, QA and affected work centers. Notify the E-MXG/CC of the unit's capability to perform the TCTO. Develop and implement local tracking methodology to track TCTO completion. Update MIS when the aircraft owning PS&D loads the requisite JST/JCNS.

7.12.5.2. Cont/Exp PS&D will only maintain aircraft urgent/immediate action TCTO files while active. Once TCTOs are completed and loaded in MIS send records to homestation for filing. A TCTO meeting is not necessary for Routine Action aircraft TCTOs.

7.12.5.3. A full TCTO program IAW this chapter is required for AGE and other SE which is <u>assigned</u> to the contingency unit. This is intended to cover equipment that does not rotate with aviation packages.

7.12.5.4. Monthly and weekly maintenance planning. Cont/Exp PS&D will produce maintenance plans detailing all known maintenance requirements for the upcoming month/week.

7.12.5.4.1. This plan will detail by tail number, Due date, JST and a description of the scheduled maintenance required for the time period; use of the AF IMT 2401 is not required. The list will be published 2-days prior to the covered time period, coordinated through maintenance supervision, and approved by the MXG/CC.

7.12.5.4.2. The weekly list will additionally identify those actions which will be deferred. It will specifically identify if the action is deferred for mission requirements or due to lack of capability. Actions which are not identified as "pre-deferred" are expected to be accomplished during the upcoming week.

7.12.5.4.3. MSE will not be calculated for Cont/Exp units. It is anticipated that Cont/Exp unit require a great deal of flexibility to meet mission requirements.

7.12.6. Cont/Exp organizations will not be responsible for Aircraft Generation Planning, Transfer Inspections, Flying Maintenance Planning Cycle, First Look, Annual/quarterly Mx Planning, AVDO and 2R1 functional management responsibilities.

7.12.7. Contingency/expeditionary PS&D will develop procedures with homestation AVDOs to communicate and ensure AVDO responsibilities are performed.

Chapter 8

QUALITY ASSURANCE (QA)

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 wing/group's Maintenance Standardization Evaluation Program (MSEP). The MSEP provides an objective sampling of the quality of equipment, the proficiency of maintenance personnel, and the compliance of Lead Command and Unit MSEP focus areas, programs, and processes. QA personnel are not an extension of the work force and shall not be tasked to perform production inspections. QA serves as the primary technical advisory agency in the maintenance organization, assisting maintenance supervision at all levels to resolve quality problems. The evaluation and analysis of deficiencies and problem areas are key functions of QA that highlight and identify underlying causes of poor quality in the maintenance production effort. Aircraft and equipment condition and personnel proficiency are validated through the MSEP and shall be recorded using a Lead Command-approved QA database. Civil service and contracted organizations to include MEO/HPO shall follow the requirements established in their respective contract and accepted quality program.

Section 8A—All Units

8.2. Responsibilities. QA is responsible to the MXG/CC or MXW/CC to perform as the primary technical advisory agency for maintenance and assists work center supervisors in managing the maintenance effort. MXW/MXG QA inspectors will have authority to observe, correct and document maintenance activities. QA personnel will:

8.2. (CAF)Responsibilities. For munitions units not aligned under a maintenance group or geographically separated from parent group, the QA munitions inspectors may be directly responsible to the assigned squadron commander. This will be documented by a delegation letter from the group commander.

8.2.1. Implement and administer the MSEP and other programs to include:

8.2.1.1. Product Improvement Program (PIP)

8.2.1.1.1. Deficiency Reporting (DR).

8.2.1.1.2. Product Improvement Working Group (PIWG).

8.2.1.1.3. R&M Working Groups.

8.2.1.2. Aircraft and Equipment Impoundment Program IAW **Chapter 9** of this instruction.

8.2.1.3. Functional Check Flight (FCF) program IAW this chapter.

8.2.1.4. Weight and Balance (W&B) program IAW this chapter.

8.2.1.5. Hot Refuel/Defuel and Aircraft to Aircraft Refuel Program IAW **Chapter 14** of this instruction.

8.2.1.6. Unit Chafing Awareness Program IAW this chapter.

8.2.2. Review aircraft aborts, IFEs, and other incidents as required.

8.2.3. Assist PS&D and the Munitions Flight with the Configuration Management Program IAW **Chapter 7** of this instruction.

8.2.4. Assist PS&D with the TCTO program IAW **Chapter 7** of this instruction.

8.2.5. Manage OTIs.

8.2.6. Augment evaluations at the request of WS. Flightline weapons loading inspections/evaluations are the responsibility of WS evaluators.

8.2.7. Evaluate unit maintenance management procedures, including locally developed forms, publications, OIs, checklists etc., for accuracy, intent, and necessity IAW **Chapter 1**.

8.2.8. Review all new and revised technical data and TCTO's for completeness, accuracy and applicability. Inform applicable work centers of changes and up channel any problems discovered during this review.

8.2.9. Assist the MXG/CC when coordinating with HHQ, AFMC, Defense Contract Management Agency (DCMA), and other outside agencies.

8.3. Quality Assurance OIC/Superintendent (QA OIC/SUP) (MXG QA Chief in ALC) Responsibilities. Will:

8.3.1. Make recommendations to the MXG/CC or MXW/CC to enhance the quality of maintenance.

8.3.2. Develop and monitor the MSEP using a Lead Command-approved QA database and provide supervisors access to MSEP data.

8.3.3. Notify the appropriate agencies when deficiencies are found in (AF, Lead Command, WG, GP) instructions.

8.3.4. Review maintenance related local OIs, JSTs, and IMTs/forms every 2 years for accuracy and necessity (document these reviews)

8.3.4. **(CAF)** Publish a list of approved job standards managed by QA every two years.

8.3.5. Ensure local checklists are reviewed every 2 years for currency and document this review.

8.3.6. Ensure management and special inspections are performed

8.3.7. Ensure the GP portion of the FOD Prevention Program is conducted IAW **Chapter 14** of this instruction.

8.3.8. Oversee and implement the GP Impoundment Program IAW **Chapter 9** of this instruction.

8.3.9. Coordinate on all requests for locally manufactured, developed, and modified tools and equipment, and maintain records for approved requests. This includes pictures or drawings and a description of the use for each item. If a TO contains the option of these tools or equipment, QA does not need to coordinate or maintain the records on that tool as long as the tool remains approved by the TO. ***NOTE:*** Locally manufactured, developed or modified

equipment for weapons loading, maintenance and the armament systems flight must be coordinated through the WWM before routing to QA.

8.3.10. Verify and publish combined MXG IPI listing every 2 years.

8.3.11. Develop key task and routine inspection listings (KTL/RIL)in addition to Lead Command listings if required, in conjunction with the MOO/MX SUPT (or ALC equivalent), and provide copies of approved lists to all affected organizations.

8.3.12. Ensure Acceptable Quality Level (AQL) standards are developed for all tasks including key tasks and routine inspection lists not included on the Lead Command AQL.

8.3.13. Ensure agendas and presentations are compiled for the MSEP Summary.

8.3.14. Review wing depot-level assistance requests IAW **Chapter 1 and 7** of this instruction.

8.3.15. Designate a Chief Inspector. (ARC only: may elect to appoint a Chief Inspector or distribute these responsibilities to individual inspectors as appropriate)

8.3.16. Designate individuals to be the TODO and PIM.

8.3.17. Designate individuals to be the W&B and FCF program managers.

8.3.18. Evaluate maintenance TO files that are kept on the aircraft (G files).

8.3.19. Monitor the ASIP IAW **Chapter 14** of this instruction

8.3.20. Manage and oversee the DOP program (if DOP monitor is assigned to QA) and assist in investigating incidents IAW **Chapter 14** of this instruction.

8.3.21. Ensure hot refueling is accomplished IAW TO 00-25-172, **Chapter 14** of this instruction, applicable technical data, and Lead Command supplements.

8.4. Chief Inspector (First Level Supervisor QAS for ALC) Responsibilities. Is responsible to the QA OIC/SUPT (MXG QA Chief for ALC) for ensuring functions listed below are performed and is responsible for applicable section NCOIC duties in **Chapter 3** of this instruction and will:

8.4.1. Use assigned inspectors to provide on-the-spot assistance to correct problems.

8.4.2. Spot-check TOs, inspection work cards, checklists, job guides and WUC manuals during evaluations and inspections for currency and serviceability.

8.4.3. Assist MMA with investigations and studies.

8.4.4. Review QA database and MSEP inspection summary inputs for accuracy and content.

8.4.5. Initiate actions when additional attention is required to resolve adverse maintenance trends or training problems. Actions include preparing cross tell information bulletins and messages for GP/CC release to other similarly-equipped units and the Lead Command, as assigned in AFPD 10-9.

8.4.6. Review and compile inputs for updating the IPI listing. Maintain a copy of the MXG/CC approved IPI listing with the signature and date of review/certification. See **paragraph 14.20**.

8.4.7. Review Category II major discrepancies for trends quarterly. If frequency or severity of identified discrepancies warrant inclusion of that item into a specific TO governing an action or inspection, the QA Chief Inspector must submit an AFTO IMT 22 or develop a local work card, local page supplement or checklist IAW TO 00-5-1.

8.4.8. Establish procedures for inspectors to document completed inspections.

8.4.9. Perform inspections on GITA IAW **Chapter 14** of this instruction.

8.4.10. Construct and maintain a master standardized AFTO IMTs 781-series forms binder IAW TO 00-20-1.

8.4.11. Develop an aircrew briefing checklist specifically for high speed taxi checks.

8.4.12. Review MSEP data monthly to identify high-missed carded items from PEs and QVIs (ANG quarterly). A high-missed carded item is defined as any work card item missed at least three times during a one-month period. Coordinate with MMA to identify any relationships with repeat, recur and CND trends. Include this data in the monthly MSEP summary.

8.4.13. **(Added-CAF)** Review and approve Red X checksheets IAW Para 4.7.5.1 of this instruction.

8.5. Quality Assurance Inspector/Quality Assurance Specialists (QAS) Responsibilities. Will:

8.5.1. Evaluate flightline and back shop maintenance tasks and inspections to include items identified by the KTL/RIL.

8.5.2. Enter inspection and evaluation reports into the appropriate QA database.

8.5.3. Perform QA review of Dull Swords, Unsatisfactory Reports, TCTOs, OTIs, modification proposals, DRs and SR, AFTO IMTs 22 and local OIs.

8.5.4. Provide training/instruction as applicable to address deficiencies identified during the evaluation/inspection.

8.5.5. Evaluate forms documentation and MIS inputs.

8.6. Quality Assurance Training. Develop a local training plan to train all QA inspector personnel, to include augmentees.

8.6.1. Training must cover inspection and evaluation techniques, documenting inspection worksheets and actions to prevent personnel injury or equipment damage. Document QA Inspector training in individual training records or MIS.

8.6.2. A qualified inspector will conduct an Evaluator Proficiency Evaluation (EPE) on each inspector performing one PE and one technical inspection (QVI/SI). Each QA inspector, permanent or augmentee, must pass the EPEs prior to performing unsupervised evaluations and inspections.

8.6.2. **(CAF)** Chief Inspector conducts all QA evaluator proficiency evaluations.

8.6.2.1. QA augmentees require an annual EPE on either a PE or technical inspection.

8.6.2.2. All EPEs must be tracked in the MIS or Lead Command-approved QA database. Additional requirements for nuclear weapons certifying officials are located in AFI 21-204.

8.6.3. QA inspectors inspecting outside of their AFSC will be AFTO Form 797 qualified on the requirements of the KTL they evaluate. Chief Inspectors will identify other critical tasks requiring AFTO Form 797 qualification (QA WJQS within TBA) as required. For all other tasks, inspectors must be familiar with the requirements/procedures of tasks they evaluate. (CUT for QA inspectors is not allowed for 2W1 maintenance tasks. Only 2W1 personnel will perform these inspections (N/A to ARC)).

8.6.4. All inspectors will complete Egress certification IAW this publication before evaluating egress tasks.

8.6.5. QA may evaluate welding operations and processes but do not evaluate completed welds unless certified IAW TO 00-25-252.

8.6.6. QA personnel who conduct engine run evaluations are not required to maintain the engine run proficiency requirements outlined in **Chapter 14** of this instruction.

8.6.7. Minimum experience requirements for evaluating Low Observables (LO) maintenance include; completion of applicable LO TD courses and certified in core training tasks contained in Attachment 3 of the 2A7X5 CFETP (N/A to ARC).

8.6.8. QA inspectors must be trained on all associated safety requirements prior to performing inspections on fuel systems or fuel systems repair facilities IAW TO 1-1-3.

8.6.9. Inspectors evaluating NDI technicians during Personnel Evaluations must be trained and qualified 2A7X2 (or civilian equivalent) on the method being evaluated.

8.7. Quality Assurance Augmentation. If a functional area does not warrant a full-time position in QA, but specialized expertise is required, select qualified technicians that are recommended by their MOO/Mx Supt (or Branch Chief in ALC) to be augmentees. Each QA must maintain a listing of current augmentees. In coordination with the MOO/MX SUPT (SQ CC/Branch Chief in ALC), the QA Superintendent establishes augmentee duties.

8.8. Rotation of Quality Assurance Personnel. The MXG/CC is responsible for developing/executing a plan to rotate QA personnel. Personnel should be assigned to QA staff for a 24-36 month period. Personnel receiving specialized training (e.g., W&B) should be assigned for 36 months to ensure program continuity. QA personnel on short tours do not need to meet the time requirements. ARC, civil service, and contractor support employees are not required to rotate personnel.

8.9. Activity Inspection Program. Lead Commands may establish an activity inspection program. Activity inspections are management and compliance oriented. If established, the activity inspections program should:

8.9. (CAF)Activity Inspection Program. Activity Inspections are not required.

8.9.1. Identify discipline, housekeeping and technical discrepancies, and attempt to identify the underlying cause for the deficiencies.

8.9.2. Encompass all flights of the unit.

8.9.3. Produce objective reports and provide specific definitions of problem areas, appropriate directive references and recommended corrective action.

8.10. Maintenance Standardization and Evaluation Program (MSEP). The MSEP is the Maintenance component of the Logistics Compliance Assessment Program (LCAP) and is designed to provide unit maintenance managers with a method of evaluating compliance with AF, Lead Command and local maintenance directives and policies. The LCAP, AFI 20-111, *Logistics Compliance Assessment Program (LCAP)*, is the Air Force evaluation program that establishes the Logistics Compliance Assessment Program Team. Its purpose is to provide a HHQ validation of logistics organization's compliance with AF, Lead Command and unit directives.

8.10.1. Unit Responsibilities . Units are responsible for developing their MSEP and conducting local inspections to ensure their programs, processes, maintenance technician proficiency, equipment condition and other focus areas are in compliance with AF, Lead Command and local directives.

8.10.2. Types of MSEP Evaluations and Inspections. The following types of evaluations, inspections and observations support the MSEP: PEs, QVIs, SIs, MIs, DSVs, TDVs, UCRs (see para **8.10.13-17** for explanations of each) and when directed, other inspections. These inspection terms may differ based on Lead Command-approved QA databases.

8.10.3. Applicability to Contract Maintenance Activities. The unit level MSEP is not applicable to contract maintenance activities unless required by the SOW/PWS/PRS/contract.

8.10.4. Executing the Unit MSEP. The MSEP is executed by QA, which permits the MXG/CC to focus the unit program on problem areas where improvements are needed. Units may develop a local system to track inspection reports until closed.

8.10.5. Unit MSEP Evaluation Criteria. Units will use AF-Level Functional Checklists, Lead Command supplements and local supplements if applicable. For evaluations of technician proficiency and equipment condition, applicable technical data is the evaluation standard. Local directives will also be used.

8.10.6. Unit MSEP Grading. Units must grade their MSEP evaluations using objective ratings (Outstanding, Excellent, Satisfactory, Marginal, and Unsatisfactory). The unit MSEP shall publish a final report of findings, problem areas, and recommended improvements (as required), from the evaluation for distribution to MXG/CC and all inspected organizations monthly (quarterly for ANG).

8.10.6.1. Inspections and evaluations performed (e.g., PE, SI, QVI) will be rated "PASS/FAIL". ***EXCEPTION:*** See AFI 21-200 and AFI 21-204 for additional information on Nuclear Weapons PEs and certification program.

8.10.6.2. Units will use the following five tier rating system:

8.10.6.2.1. Outstanding 95-100%

8.10.6.2.2. Excellent 90-94.99%

8.10.6.2.3. Satisfactory 80-89.99%

8.10.6.2.4. Marginal 70-79.99%

8.10.6.2.5. Unsatisfactory 0-69.99%

8.10.6.3. Ratings are calculated by dividing the total number of inspections passed by total completed. For example, QA inspects 10 aircraft preflights with the following results: 9 "passes" and 1 "failure". Divide the total "passes" by the total inspections (9/10=0.90) 90 percent for an "Excellent" rating.

8.10.6.3.1. Deduct 0.5 percentage points from overall percentage grade for each TDV, DSV, and UCR. For example, a squadron earns an overall rating of 90 percent, "Excellent". However, QA observed 4 TDVs and 3 DSVs. Multiply the sum (7) by 0.5 and subtract the product (3.5) from the original 90 percent. The adjusted total is 86.5 percent; therefore, the squadron is rated "Satisfactory".

8.10.7. A cumulative Mx Group score will be determined by dividing the Group's total number of inspections and evaluations passed by the total inspections and evaluations completed. Deduct 0.5 percentage points for each TDV, DSV, and UCR from the overall percentage grade, using same formula in **paragraph 8.10.6.3.1**.

8.10.8. Unit MSEP Focus Areas. The purpose of the MSEP is to measure how well units meet or exceed standards. QA shall assess how well units are meeting compliance goals and look for areas of opportunity for improvement. The results of the evaluations and inspections are organized into a summary, in addition to the focus areas listed in AFI 20-111 the following areas must be addressed:

8.10.8.1. Compliance with and currency of TOs and directives. Personnel at all levels are responsible and accountable for enforcing this mandatory standard. Ensure all applicable TOs and directives are complete, current and used.

8.10.8.2. Aircraft and equipment forms documentation. Ensure forms used to document any maintenance related action for aircraft or equipment are documented according to 00-20 series TOs, specific equipment TO requirements and applicable command directives and supplements.

8.10.8.3. Aircraft and Equipment Inspections. Inspect aircraft and equipment (including munitions) IAW TOs and directives.

8.10.8.4. Compliance and Management of Safety, Environmental, Bioenvironmental, Housekeeping, and FOD Programs. Personnel at all levels are responsible for minimizing risk to equipment and personnel.

8.10.8.5. Training. Verify training is correctly documented and ensure individuals are qualified to perform evaluated tasks.

8.10.8.6. Unit Directed Programs. Verify units' programs are in compliance with local directives.

8.10.8.7. Key Task List (KTL). The KTL is an AF, Lead Command or Unit developed list of required inspections. The KTL must cover tasks that are complex and those affecting safety of flight. All maintenance actions/functions listed on the KTL require mandatory call-in to QA each time the maintenance action/function is accomplished. QA evaluators will respond and perform an evaluation, but on a limited basis may waive the inspection. QA must review and update the list at least every 2 years to ensure it

encompasses those maintenance actions/functions directly affecting quality of maintenance. Lead Commands may identify minimum KTLs for each MDS.

8.10.8.7. **(CAF)** Key Task List (KTL) inspections may only be waived with MXG/CC approval. Include, as a minimum, the following inspections on the unit KTL, if applicable:

8.10.8.7.1. **(Added-CAF)** Engine final (JEIM or propulsion shop).

8.10.8.7.2. **(Added-CAF)** Engine bay prior to engine installation. (Only applies to bay-type engine aircraft).

8.10.8.7.3. **(Added-CAF)** Engine, after installation.

8.10.8.7.4. **(Added-CAF)** Engine rigging at time of installation (when required). (Exception is reciprocating engines i.e. MQ-1).

8.10.8.7.5. **(Added-CAF)** Engine throttle at time of installation. (Exception is reciprocating engines i.e. MQ-1).

8.10.8.7.6. **(Added-CAF)** F110-100/129 engine variable stator vane maintenance (JEIM).

8.10.8.7.7. **(Added-CAF)** Final aircraft gun system installation prior to panel installation. (Does not apply to HH-60 guns).

8.10.8.7.8. **(Added-CAF)** Final gun system (in-shop). (Does not apply to HH-60 guns).

8.10.8.8. Routine Inspection List (RIL). The RIL is an AF, Lead Command or Unit developed list of routine inspections that must be performed. Frequency is determined by MXG/CC. QA shall consolidate Operations Officer/MX SUPT inputs/suggested changes and obtain MXG/CC approval. Additional requirements for nuclear capable units are located in AFI 21-200. Tasks shall not be removed from the RIL without issuing authorities' approval (e.g., AF, Lead Command, MXG/CC). The RIL must contain the following if applicable to the unit:

8.10.8.8. **(CAF)** Routine Inspection List (RIL) will be evaluated at least quarterly. QA must review and update the list at least annually. Refer to Lead Command RIL for additional focus items. **https://www.my.af.mil/afknprod/community/views/home.aspx?Filter=AC-LG-00-02**

8.10.8.8.1. Pre-flight

8.10.8.8.2. Thru-flight

8.10.8.8.3. Basic post-flight

8.10.8.8.4. HSC inspections.

8.10.8.8.5. Aircraft forms/MIS documentation.

8.10.8.8.6. Equipment forms/MIS documentation

8.10.8.8.7. Aircraft ground handling

8.10.8.8.8. Launch and recovery

8.10.8.8.9. Servicing tasks.

8.10.8.8.10. Technical data .

8.10.8.8.11. CTK Program.

8.10.8.8.12. TMDE calibrations when the performing work center is not a PMEL IAW TO 00-20-14.

8.10.8.8.13. AGE maintenance.

8.10.8.8.14. AGE flightline use.

8.10.8.8.15. Housekeeping.

8.10.8.8.16. Vehicles

8.10.8.8.17. Aircraft washes/Aircraft corrosion inspections.

8.10.8.8.18. Supply discipline (e.g., IREP, TNB, DIFM).

8.10.8.8.19. Equipment washes

8.10.8.8.20. Equipment corrosion inspections.

8.10.8.8.21. Environmental compliance

8.10.8.8.22. NWRM Accountability and forms documentation

8.10.8.9. QA must coordinate with Munitions Activity to ensure all required inspections are performed IAW AFI 21-200 series publications. Additionally, QA, in coordination with the Munitions Flt CC/Chief (or Operations Officer/ MX SUPT in a MUNS), must develop quarterly standards for the following areas:

8.10.8.9.1. Munitions accountability.

8.10.8.9.2. Munitions storage practices, security and safety.

8.10.8.9.3. Munitions inspections.

8.10.8.9.4. Munitions materiel handling and test equipment.

8.10.8.9.5. Munitions stockpile management.

8.10.8.9.6. Tactical missiles records system.

8.10.8.9.7. Munitions infrastructure (e.g., adequacy of lightning protection and grounding systems, bonding of facility doors, adequate power conversion equipment).

8.10.8.9.8. Munitions training programs.

8.10.9. Unit MSEP Evaluation and Inspection Plan. QA develops an evaluation and inspection plan showing areas, types and numbers of inspections and evaluations that must be conducted. The inspection plan will be coordinated through each squadron MOO/Supt. When developing the plan, QA OIC/SUPT (MXW QA Chief) will:

8.10.9.1. Address areas of concern identified by maintenance managers and the WWM.

8.10.9.2. Tailor the plan for each squadron, flight or section.

8.10.9.3. Review, formalize and distribute the inspection or evaluation plan.

8.10.9.4. **(Added-CAF)** Review and update at least quarterly. All updates/changes must be approved by the MXG/CC.

8.10.10. Discrepancy Categories. (ALC use different terms based on MIS)

8.10.10.1. Category I (CAT I). A required inspection/TO procedural item missed or improperly completed. This category is a specific work card item or TO step, Note, caution or warning for a specific condition or action. Use sub-classifications of major or minor to indicate the discrepancy's relative severity.

8.10.10.2. Category II (CAT II). An obvious defect, which could have been readily detected by a technician or supervisor, but is not a specific work card item or TO step, Note, caution or warning for that specific evaluated task. Use sub-classification of major or minor to indicate the discrepancy's relative severity.

8.10.10.2.1. **(Added-CAF)** Zonal observation items are CAT II.

8.10.10.2.2. **(Added-CAF)** QA reviews CAT II major discrepancies quarterly to determine if frequency of items identified warrants inclusion in technical orders. If so, QA submits an AFTO Form 22, *Technical Manual Change Recommendation and Reply*.

8.10.11. Definitions of major and minor.

8.10.11.1. A major finding is defined as a condition that would endanger personnel, jeopardize equipment or system reliability, impact safety of flight or warrant discontinuing the process or equipment operation. Any Major discrepancy will result in an automatic inspection failure. ***NOTE:*** The inspector can/should declare a major finding when one additional action "would" result in one of the following; endanger personnel, jeopardize equipment or system reliability, impact safety of flight or warrant discontinuing the process or equipment operation. To clarify the inspector should intercede to prevent one of the above occurrences from happening but may still write up a major finding even though the jeopardizing action was never taken due to their intercession.

8.10.11.2. A minor finding is defined as an unsatisfactory condition that requires repair or correction, but does not endanger personnel, impact safety of flight, jeopardize equipment reliability or warrant discontinuing a process or equipment operation. CAT II minors shall be documented for trends, but must not be counted against the AQL. ***NOTE:*** FO contained in tool kits or found in cargo areas of aircraft which pose no FOD threat are classified as a minor finding since it would require more than one additional action to meet the definition of a major finding.

8.10.12. Discrepancy Reporting. Report the discrepancy to the applicable work centers. QA must provide a reference for identified discrepancies using work cards, job guides, WUC manuals, checklists, AFOSHSTDs, TOs, and other directives.

8.10.13. Detected Safety Violations, Technical Data Violations, and Unsatisfactory Condition Reports (DSV, TDV and UCR). This category represents observed events or conditions with safety implications or technical violations not related to an inspection or evaluation and are considered unsafe, not IAW established procedures, or in the case of

equipment, unfit to operate. The Lead Command-approved QA database will be used to document any of the following conditions:

8.10.13.1. DSV. An unsafe act by an individual. The inspector must stop the unsafe act immediately. Do not document a separate DSV on an individual undergoing a personnel evaluation since the unsafe act automatically results in a "Fail" rating on the PE. Use the word "Safety" when a safety violation is committed during a PE.

8.10.13.2. TDV. An observation of any person performing maintenance without the proper technical data available, available but not in use or not following the correct sequence of steps (if directed). 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, since failure to use technical data automatically results in a "Fail" rating.

8.10.13.3. UCR. An unsafe or unsatisfactory condition, other than a DSV, chargeable to the work center supervisor. UCRs will be documented even when it is not possible to determine who created the condition.

8.10.14. Personnel Evaluations (PE). A PE is an over-the-shoulder (direct) evaluation of a maintenance action or inspection. Use PEs to evaluate job proficiency, degree of training and compliance with technical data. Individuals performing, supervising or evaluating maintenance tasks are subject to a PE. Rate PEs “Pass or Fail” based on established AQLs/standards. Document the PE in the Lead Command-approved database. Ensure a PE is accomplished on all technicians who perform maintenance. Lead Commands will determine the frequency of PEs. Personnel in any AFSC, certified to perform nuclear maintenance or logistics operations (e.g., limited general maintenance, transfer, transport, etc.), will also comply with applicable personnel evaluation requirements in AFI 21-200, Chapter 8.

8.10.14. **(CAF)** Ensure a Personnel Evaluation (PE) is accomplished on all technicians that perform maintenance to include MTF instructors who sign off tasks, not to exceed 12 months from the time the individual performed their last PE (Note: 12 months for full-time Guardsmen and 36 months for Drill Status Guardsmen). Do not reset date upon PCS. If a new individual arrives from a base that didn’t track PEs, accomplish PE within 6 months of arrival and every 12 months after that.

8.10.14.1. Performing a PE. When performing a PE, the QA inspector briefs the individual or team on the evaluation and how it will be rated. QA inspector will determine what task will be evaluated. A task will not be created for the sole purpose of accomplishing a PE. The PE will include an evaluation of: The individual’s training records, SCR (if task requires), tool box, TMDE, and TOs used to perform the task. The evaluation starts when the individual or team begins the task, or portion of the task to be evaluated, and is completed when the task or previously determined portion of the task is finished. Provide feedback to the individual or team and supervision upon completion. The types of PEs are:

8.10.14.1.1. Individual Evaluations. This is a QA over-the-shoulder (direct) evaluation of a technician or supervisor performing a job. PEs may be performed on individuals working alone or as part of a team.

8.10.14.1.2. Team Evaluations. This is a QA over-the-shoulder (direct) evaluation of technicians and supervisors performing a team task. A team task is one requiring more than one person to complete the task (e.g., refueling, ECM pod up/down loading, bomb build-up, towing, weapons maintenance, pylon installation). Evaluations must accurately assess the proficiency of each individual under evaluation. Refer to AFI 21-200 for nuclear weapons maintenance and handling evaluations.

8.10.14.1.2. **(CAF)** Errors committed by the team member(s) and not detected by the team chief will also be attributed to the team chief. Team evaluations are rated the same as PEs.

8.10.14.1.3. QA will conduct PE's on each NDI technician, for each NDI method annually (Reservisit will be every 2-years, 18 months for full-time Guardsmen and 36 months for Drill Status Guardsmen), to ensure effective trending on NDI methods.

8.10.14.2. Rating Personnel Evaluations. QA rates each evaluation based on AQLs/standards (see **paragraph 8.10.18** for AQL definitions/standards). The rating applies only to the specific task evaluated and not to other tasks that a technician or supervisor is qualified to perform. Upon completion of a failed evaluation, the evaluator must provide on-the-spot feedback. Determine ratings as follows:

8.10.14.2.1. Pass: Number of discrepancies does not exceed AQL/standards.

8.10.14.2.2. Fail: An evaluation that results in any of the following:

8.10.14.2.2.1. Number of discrepancies exceeds the established AQL/standards.

8.10.14.2.2.2. A technician fails to detect a major discrepancy while complying with an inspection or TO requirement.

8.10.14.2.2.3. A technician fails to comply with a technical data step that could affect the performance of the equipment involved or cause injury to personnel. Do not document a separate Technical Data Violation (TDV) on an individual undergoing a PE, since failure to use technical data automatically results in a "Fail" rating.

8.10.14.2.2.4. A technician demonstrates a lack of technical proficiency or system knowledge.

8.10.14.2.2.5. Training/certification not documented.

8.10.14.2.2.6. A technician commits a safety violation. Use the word "Safety" when a safety violation is committed during a PE. Do not document a separate Detected Safety Violation (DSV) on an individual undergoing a personnel evaluation since the unsafe act automatically results in a "Fail" rating on the PE. See definition of DSV in this chapter.

8.10.14.2.2.7. A technician fails to document maintenance actions in appropriate equipment records.

8.10.14.2.2.8. For nuclear weapons maintenance, an unsatisfactory rating must be given when any deficiencies or applicable unsatisfactory conditions exists IAW Chairman of The Joint Chiefs of Staff Instruction 3263.05, *Nuclear Weapons Technical Inspections*, or AFI 21-200.

8.10.15. Quality Verification Inspections (QVI). A QVI is an inspection of equipment condition, or a maintenance process, an assessment following a maintenance inspection, servicing or repair action, or verification that a technician or supervisor properly completed an inspection or repair action. QVIs shall not be conducted after equipment operation when such operation could invalidate indications of proper job accomplishment. Limit QVIs to the same inspection card deck or technical data required for the job. This inspection does not require disassembling parts, removing stress panels or like actions. A QVI for required Dash-6 TO inspections may be accomplished by checking a portion of the required card or area. The QVI report should reflect deficiencies by the individual who accomplished the task and identify specific discrepancies. Document discrepancies in active equipment records and forms (i.e., AFTO Form/IMT 781A, AFTO IMT 244 and AF IMT 2420, *Quality Assurance Inspection Summary for ALCs*, AFMC IMT 343, *Quality Assurance Assessment* or in the Quality Information Management Standard System (QIMSS)).

8.10.15.1. Rating QVIs. Rate QVIs "pass" or "fail" by comparing the number of discrepancies with the established AQLs/standards.

8.10.15.1.1. Pass: Number of discrepancies does not exceed established AQL/standard.

8.10.15.1.2. Fail: An inspection that results in any of the following:

8.10.15.1.2.1. A technician fails to detect a major discrepancy while complying with an inspection or TO requirement.

8.10.15.1.2.2. Number of CAT I minor discrepancies exceeds the established AQL/standard.

8.10.15.1.2.3. A technician is not signed off in training records as task qualified.

8.10.15.1.3. Document the QVI in the Lead Command-approved QA database. Each QVI is chargeable to the technician or supervisor who signed off/cleared the "corrected by" block or "inspected by" block of the applicable maintenance form or equipment record. When evaluating the technician who signed off the "inspected by" block, evaluate only the items normally verified by signing off the "Red-X". Only one evaluation shall be scored for each inspection.

8.10.16. Special Inspections (SI). SIs are inspections not covered by QVIs, PEs or MIs. SIs may include, but are not limited to, aircraft and equipment forms inspections, document file inspections, CTKs, TO files, vehicle inspections, housekeeping, safety practices, FOD Program, etc. SIs may be condition, procedural or compliance oriented. The Lead Command-approved QA database will be used to document special inspections. SIs can be non-rated. If rating a SI, rate as "Pass" or "Fail" based on established AQLs/standards.

8.10.17. Management Inspection (MI). Perform these inspections to follow-up on trends, conduct investigations or conduct research to get to the root cause of problems. GP/CC, SQ/CC or work center supervisors may request MIs. MIs may encompass PE/QVI trends and

other inspection data; NMC causes; aborts and trends; in-flight emergency trends; high component or system failure rates; suspected training deficiencies, and tasks outlined in aircraft Dash-6 TOs. Report MI results to the requester. MIs can be non-rated and may be counted in QA trends. The Lead Command-approved QA database will be used to document management inspections.

8.10.18. Acceptable Quality Levels (AQL). An AQL deNotes the maximum allowable number of minor findings that a process or product may be charged for the task to be rated "Pass." It must be strict enough that the task, process or product meets an acceptable level of quality, but isn't so strict that a "pass" rating is unattainable. The AQL is derived/revised from QA performance-based data.

8.10.18.1. Lead Commands may develop standardized AQLs by weapon system and establish procedures to review at least annually.

8.10.18.1. **(CAF)** Standardized AQLs are found at the ACC/A4QM web site and will not be adjusted without ACC/A4QM concurrence.

https://www.my.af.mil/afknprod/community/views/home.aspx?Filter=AC-LG-00-02

8.10.18.2. GP/CCs will establish AQLs for tasks/inspections not included on the Lead Command AQL.

8.10.18.3. AQLs/baselines for nuclear maintenance, cruise missile maintenance and nuclear weapons handling tasks are defined in AFI 21-200.

8.10.18.4. AQLs will be published in the unit's evaluation and inspection plan IAW **para 8.10.9**.

8.10.19. Monthly Summary (quarterly for the ARC). The MSEP summary advises the WG/CC and GP/ CCs of the quality of maintenance. The monthly summary shall be published and distributed to the WG/CC, GP/CC and appropriate activities in the maintenance complex. To ensure the greatest visibility possible for MSEP summaries, classified parts must be published separately from the main summary. Compile the summary from inspection data and load crew evaluation statistics (provided by WS). The MSEP summary will include visual information, graphs, narratives, quality trends identified through inspections and evaluations, discussion of common problem areas and descriptions of successful programs or initiatives. The following areas must be addressed in the summary:

8.10.19.1. Compliance with and currency of TOs and directives to include unit.

8.10.19.2. Aircraft and equipment forms documentation.

8.10.19.3. Compliance and Management of Safety, Environmental, Housekeeping, and FOD Programs.

8.10.19.4. Training Program.

8.10.19.5. Key Task List (KTL).

8.10.19.6. Routine Inspection List (RIL).

8.10.19.7. Munitions Program.

8.10.19.8. High-missed carded items.

8.10.19.8.1. A high-missed carded item is defined as any work card item missed at least three times during a one-month period. Units should use the high-missed carded items to enhance maintenance-training programs, detect trends and improve the quality of maintenance. MMA will review items to identify any relationships with repeat, recur and CND trends.

8.10.19.9. Narrative Report: The monthly narrative report must contain an analysis of the MSEP results, a summary of significant CAT I and II discrepancies, technical inspections and recommendations for improvement. Prior to preparing the narrative report, QA must conduct a study of trends.

8.10.19.10. Trend Analysis. Review previous reports to determine if inspected areas have improved or declined. Consistent high scores in any category may indicate the programs emphasis is not focused on the unit's actual problem areas. Low scoring areas may require a reassessment of the corrective actions taken by management. Continuous communication between MMA, unit leadership, maintenance supervision, and QA personnel is essential. Highlight trends and root causes in the summary.

8.10.20. MSEP Meetings. The GP/unit must conduct quarterly meetings to review MSEP data. The MXW/MXG/CC shall chair the meeting. Attendees must include, as a minimum, SQ/CCs, MOO/MX SUPTs, WWMs, Chief Inspector, and senior analysts.

8.11. Lead Command-approved QA database. Units will use their Lead Command approved data base to capture MSEP data. Lead Commands will ensure the data fields contained in the database include:

8.11. (CAF)Lead Command-approved QA database. Units may use any database that captures all mandatory requirements (e.g. QA2000, QATTA 98).

8.11.1. Work center: Input the shop code whose process was inspected.

8.11.2. Inspector: Enter the employee number of the inspector.

8.11.3. Employee: Enter the employee number or equivalent of the person inspected.

8.11.4. Date: Enter the date the inspection was completed.

8.11.5. Time: Enter the time of day when the inspection took place (24-hour clock).

8.11.6. Shift: Enter the shift during which the actual work was performed.

8.11.7. Type Inspection Performed: This code reflects the inspection performed. (e.g., PE, SI, QVI)

8.11.7. **(CAF)** The Assessment Sub-Category may be adjusted to each different airframe, but the main categories will remain the same throughout the command. Those categories are: A=Ground Handling, B=On-Aircraft Inspection, C=Off-Aircraft Inspection, D=On-Equipment Maintenance, E=Off-Equipment Maintenance, F=Support Equipment, G=Aerospace Ground Equipment, H=Munitions, I=Management Programs (such as Hangar Queen, Forms, etc.), J=Environmental Compliance, K=Training, L=Technical Order Distribution Account, M= Other Inspection/ Observation.

8.11.8. WUC/LCN or Type Event Code (TEC): This code reflects the event being evaluated. (e.g., CTK, phase)

8.11.9. AQL/standards: The number of discrepancies allowed for a particular item or process (task).

8.11.10. Inspection Rating: “Pass” or “Fail”.

8.11.11. Equipment: Enter the type of equipment assessed.

8.11.12. Equipment ID: Enter the equipment ID. Example of this field would be A/C serial number 91-0387, SG01, etc.

8.11.13. Discrepancy Category: Identify discrepancies as: Major, Minor (CAT I, CAT II).

8.11.13. **(CAF)** Correlates with the "Malfunction Codes" in the -06 manual, but is more general in nature since it is not used to report maintenance actions in IMDS-CDB. These categories are: 1=Safety, 2=Foreign Object, 3=Leak, 4=Loose or Missing Hardware, 5=Broken or Damaged, 6=Chafed or Worn, 7=Out of Tolerance, 8=Incorrect Servicing, 9=Incorrect Installation or Application, 10=Corroded, 11=Cut or Punctured, 12=Dirty or Contaminated, 13=Binding, Stuck or Jammed, 14=Overdue, 15=Documentation Error, 16=Failed to Operate, 17=Unsafe or Unfit to Operate, 18=No Defect, 19=Lack of Technical Proficiency/System Knowledge, 20=Failed to comply with T.O. steps/Instructions, 21=Failed to detect a Major Discrepancy.

8.11.14. Remarks: The narrative of inspector findings.

8.12. QA Product Improvement Programs (PIP). The MXG QA runs PIP for the maintenance complex (ALC MXW/CC will assign PIP management responsibilities). QA must establish/appoint the following:

8.12.1. Product Improvement Program (PIP). Combined with daily maintenance data reporting, the PIP provides an effective means to improve the R&M and support PIWG of aircraft and equipment. PIP includes the following programs:

8.12.1.1. Deficiency Reporting.

8.12.1.2. AFTO IMT 22.

8.12.1.3. Source, Maintenance, Recoverability (SMR) change code request.

8.12.1.4. R&M as applicable.

8.12.1.5. Configuration Management Program; AF IMT 1067 and TCTOs.

8.12.2. Product Improvement Manager (PIM). The MXW/MXG CC will assign Product Improvement Manager (PIM) duties within their organizations. The PIM promotes deficiency reporting and provides a sound PIP based on inputs from maintenance activities. The PIM emphasizes and promotes product improvement and ensures maintenance personnel are familiar with them by circulating flyers/newsletters, visiting commander’s calls, presenting the program at maintenance orientation briefings and making routine visits to maintenance areas.

8.12.2.1. Deficiency Reporting. DR is the process of reporting prescribed by TO 00-35D-54. ***NOTE:*** Warranty information is located in AFMAN 64-110. Units supporting reconnaissance aircraft, comply with warranty DR requirements IAW the applicable weapons system logistics support plan (LSP). The PIM’s DR responsibilities are:

8.12.2.1.1. Monitor the DR process to ensure items are properly loaded in the MIS database.

8.12.2.1.2. Ensure compliance with acceptance inspection reporting requirements on DRs for aircraft returning from depot or contractor maintenance.

8.12.2.1.3. DRs must be submitted using Joint Deficiency Reporting System (JDRS) at **https://jdrs.mil**.

8.12.2.1.4. Review the DR prior to releasing to the ALC or AFMC Maintenance Wings IAW TO 00-35D-54.

8.12.2.1.5. Verify each report against pertinent publications and assign the appropriate precedence and category.

8.12.2.1.6. Screen reported deficiencies for possible unit-unique contributing factors. Initiate management action on unsatisfactory conditions resulting from local procedures or a lack of technical capability.

8.12.2.1.7. Perform/coordinate a technical review of DRs returned to the unit without an adequate response. Determine whether to resubmit with additional information.

8.12.2.1.8. Perform exhibit-processing oversight by coordinating with the ALC and the LRS to ensure proper exhibit control and handling.

8.12.2.2. Technical Order Improvement Program (AFTO IMT 22). The PIM will:

8.12.2.2.1. Ensure proper evaluation is performed and forms are properly filled out and processed IAW TO 00-5-1. ***NOTE:*** WS reviews and approves all AFTO IMT 22 for weapons loading TOs. WS must fill in Block 9 and indicate "Approval"/"Disapproval" in Block 1.

8.12.2.2.2. Ensure control numbers are assigned and forward all AFTO IMT 22s via e-mail transmission or Joint Computer-Aided Acquisition Logistics Support (JCALS) to the appropriate action agency.

8.12.2.2.3. Maintain an AFTO IMT 22 suspense file. ***NOTE:*** An Approved AFTO Form 22 does not provide authority to deviate from current TO procedures. TO changes must be posted to implement approved AFTO IMT 22s.

8.12.2.2.4. Conduct a technical review of disapproved AFTO IMT 22 to determine whether to resubmit with additional information. Consider for submission to technical working groups (e.g., PIWG, MDS maintainer's conferences). Dispose of disapproved AFTO IMT 22 IAW the *AF Records Disposition Schedule* located at **https://www.my.af.mil/gcss-af61a/afrims/afrims/rims.cfm**.

8.12.2.3. Source, Maintenance, and Recoverability Code (SMR) change request. The AFTO 22 process must be used to submit an SMR change request. The PIM will:

8.12.2.3.1. Track the status of SMR change requests.

8.12.2.3.2. Conduct a technical review of SMR change requests returned from depots and item managers with an unsatisfactory answer to determine whether to resubmit with additional information. Consider for submission to technical working groups (e.g., PIWG, MDS maintainer's conferences).

8.12.2.3.3. Coordinate repair evaluation meetings when approved SMR change requests affect several agencies.

8.12.2.3.4. Serve as focal point for base level repair and manufacturing capability.

8.12.2.4. Reliability and Maintainability (R&M). At the core of R&M efforts are technical working groups (e.g., PIWG, MDS maintainers' conferences). Assessing unit R&M concerns involves several processes. The PIM will:

8.12.2.4.1. Forward inputs IAW AFI 21-118.

8.12.2.4.2. Review all reported R&M deficiencies and determine those caused by unit factors and local conditions versus those beyond the unit's control.

8.12.2.4.3. Review available maintenance and supply trends and high work hour consuming repairs. Analysis provides the majority of this information.

8.12.2.4.4. Consolidate R&M deficiency reports/functional area reports for each system (e.g., AGE, weapons, PMEL, avionics, engines, commodities and airframe) and prioritize proposed items for a particular system IAW weighted factors in AFI 21-118.

8.12.2.4.5. Conduct R&M working group meetings with supervisors and technicians when it is determined beneficial to ensure quality inputs to technical working groups. ***NOTE:*** Meeting will be chaired by the MXG/CC.

8.12.2.4.6. Distribute technical working group minutes and ALC corrective actions to appropriate base agencies.

8.12.2.4.7. Maintain a file for all R&M deficiencies (non-quality) but not meeting the criteria for submission to AFMC. If required, these deficiencies are tracked for future PIWG action on a product improvement worksheet IAW AFI 21-118.

8.12.2.4.8. **(Added-CAF)** Forward consolidated proposed PIWG/WSR items to the appropriate Lead Command system functional manager for approval.

8.12.2.5. **(Added-CAF)** The Air Force Innovation Development through Employee Awareness (IDEA) Program. The Product Improvement Manager (PIM) process and monitors maintenance related suggestions according to AFI 38-401, *The IDEA Program.*

8.13. Configuration Management (CM) and Modification Management. QA is responsible for CM and Modification management. This includes reviewing, submitting and tracking unit modification proposals being worked by Lead Commands and ensuring proper implementation of approved modification instructions or TCTOs. Follow procedures outlined in **Chapter 7** of this instruction for specific QA responsibilities in the TCTO process. Modifications will be managed/documented IAW AFI 63-131, TO 00-20-2 and TO 00-5-15. QA will establish a process for updating the Integrated Maintenance Information System (IMIS) for weapon systems (e.g. F-15E) that require manual updates for TCTO configuration. Due to the nature of the system, it is imperative that a focal point be established to ensure the IMIS system reflects current aircraft status and configuration.

8.14. Technical Order Distribution Office (TODO). The TODO ensures TOs are managed IAW AFPD 21-3, AFI 63-101 and TO 00-5-1. Establish the PMEL TODO under the control of the TMDE Flight. TO 00-5-1 provides criteria for establishing levels of TO distribution activities. Additionally, TODO offices shall control electronic technical data configuration IAW **Chapter 10** of this instruction. TODO will.

8.14. (CAF)Technical Order Distribution Office (TODO). MXG/CCs will determine which organization will manage the 11N-series technical data.

8.14.1. Coordinate with QA subject matter expert (SME) (or production planning team and QA representative for ALC) for each incoming TCTO to determine applicability. ***NOTE:*** All TCTOs received from outside agencies must be routed through QA for the review process.

8.14.1.1. Determine TCTO applicability by aircraft serial number for aircraft, engine serial number for engines, and by part number or other specific criteria for commodities.

8.14.1.2. Date stamp TCTOs to reflect the date the hard copy is received. Date stamping all TCTOs with the date received indicates QA has reviewed the TCTO and that it is applicable. Only date stamped TCTOs are authorized for use. ***NOTE:*** The compliance period start date for an inspection TCTO is upon receipt of the TCTO itself and it must be completed entirely within the stated time frame or the affected system/equipment must be removed from service.

8.14.1.3. Provide copies of the TCTO to the work centers doing the work. Mark these TCTOs as “working copy/destroy when complete”. Do not place these working copies in a formal TO file.

8.14.1.4. Provide a file copy of the TCTO to PS&D or weapon system support center for ALC.

8.14.1.5. Ensure personnel assigned as a TODO/Technical Order Distribution Account (TODA) managers meet requirements set forth in TO 00-5-1, AFI 63-101 and applicable directives.

8.14.2. Manage the QA Central TO File. As a minimum, the QA file must contain copies (paper copies for paper-only TOs or local access to digital TOs) of general and procedural TOs and copies of all TCTOs pertaining to the equipment owned, operated or maintained by the GP/CC. The file is kept to meet QA requirements, not to duplicate TOs held by maintenance work centers.

8.14.3. Manage TO accounts IAW TO 00-5-1. In addition to its designed purpose as established in TO 00-5-1, Enhanced Technical Information Management Systems (ETIMS) serves as a locator for maintenance TOs. Updates are based on information from squadron TODA requisitions.

8.14.4. TODOs must use ETIMS to establish and maintain records for all TO accounts IAW TO 00-5-1.

8.14.5. Local Work Cards, Job Guides, Page Supplements and Checklists. Limit use of local work cards (LWC), local job guides (LJG), local page supplements (LPS) or local checklists (LCL) to accomplish maintenance on AF equipment. Locally prepared technical instructions must not be used to circumvent AFMCs inherent responsibility for technical data (see TO 00-5-1). The TODO must review and manage all locally developed products IAW TO 00-5-1

and Lead Command supplements for safety and adequacy of procedures. Ensure LWCs, LJGs, LPSs and LCLs are reviewed for currency when source reference data changes. Develop OIs to comply with these policies.

8.14.6. TO Change Notification. The TODO must prepare a list of all changes and revisions to indexes, TOs, inspection work cards and checklists. This list must include TO number and date received. This list must be included in the wing's weekly maintenance plan and flying schedule or electronically linked. Supervisors must review the list of changes and ensure all personnel are aware a change or revision has been received. Additionally, "Immediate" action TCTOs must be dealt with upon receipt, and "Urgent Action" TCTOs, safety supplements and interim supplements must be brought to the attention of supervisors within 24 hours of receipt.

8.14.7. TO File Inspections. The Lead TODO shall inspect other maintenance TODOs/TODAs in the maintenance complex at least annually along with performing spot checks of TO files. As a minimum, the TODO will develop an inspection checklist or use the "TODO, TODA and Library Custodian Checklist" provided in TO 00-5-1. As part of this inspection, the TODO will confirm TODO/TODA personnel and Library Custodian have completed the mandatory minimum requirements of TO System training.

8.14.8. TODOs must effectively control the electronic data configuration on applicable E-Tools IAW **Chapter 10** of this instruction.

8.14.9. TODOs shall maintain records of Automated Computer Program Identification Number System (ACPINS) using TOs 00-5-1, 00-5-16, and 00-5-17. TODOs shall set up software sub-accounts with each appropriate shop/section and ensure each shop/section has the most current software on hand. Additionally, TODOs shall include ACPINs in the routine and annual checks required by TO 00-5-1. ***NOTE:*** TODO will have access to Authorized Software Configuration Matrix (ASCM) to ensure assigned CV-22 units have the most current software.

8.15. One-Time Inspections (OTI) program. The OTI program will be managed by the MXG IAW TO 00-20-1. OTIs are normally look-only actions to verify the existence of suspected equipment conditions or malfunctions.

8.16. Functional Check Flights (FCFs) to include Operational Check Flights (OCFs).

8.16.1. Check Flights 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 AFI 11-401, *Aviation Management*; AFI 11-202V3, *General Flight Rules*; AFI 13-201, *AF Airspace Management*; TO 1-1-300, *Acceptance/Functional Check Flight and Maintenance Operational Checks*; TO 00-20-1; and applicable Dash-6 and Dash-1 TOs. The OG/CC is responsible for appointing an FCF OIC.

8.16.1. **(CAF)** If certified aircrew is not available, a temporary written certification appointing the FCF crew must be obtained from the OG/CC.

8.16.1.1. OCFs must be kept to a minimum and are not used to replace Dash-6 FCF requirements. OCFs must be flown by experienced aircrews (not required to be an FCF

qualified aircrew), must be briefed by QA for aircraft condition, and accomplished following the same maintenance criteria as FCFs.

8.16.2. The FCF OIC and QA FCF manager will:

8.16.2.1. Establish local FCF procedures and checklists for any specific local aircraft requirements to include configuration, administration, control, and documentation of the FCF, program. Coordinate them with OG Standardization/Evaluation. Procedures will be published in the wing supplement/OI to this instruction.

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

8.16.2.3. Maintain an information file for briefing aircrews. As a minimum, this file must contain unit directives concerning FCF procedures and an FCF checklist for each MDS assigned.

8.16.2.4. An FCF checklist must be used for each FCF.

8.16.2.5. QA must debrief all FCFs with the appropriate debrief function. During debriefing, the FCF checklist and aircraft forms must be reviewed to determine if all requirements have been accomplished. After completing the review, the checklist must be sent to PS&D for inclusion in the aircraft jacket file.

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

8.16.3. The QA FCF manager will:

8.16.3.1. Ensure the FCF aircrew is briefed on the purpose and extent of the flight, previous maintenance problems and discrepancies recorded on the aircraft or engines related to the FCF.

8.16.3.2. Ensure aircraft W&B documents are reviewed.

8.16.3.3. Ensure AF IMT 2400 or an equivalent automated product is maintained to provide information for evaluation and analysis. Include the date and time of the FCF, aircraft serial number, reason for FCF, name of debriefer and name of aircraft commander. The FCF Log also indicates if the aircraft was released for flight, reasons for any non-release, action taken and date completed and the date maintenance documents were forwarded to PS&D or records section.

8.16.3.4. Ensure all maintenance actions are completed and all AFTO IMTs 781 are documented IAW Dash-6 and 00-series TOs.

8.16.3.5. All maintenance actions on transient aircraft requiring FCF must be reviewed by QA prior to FCF. If the aircraft MDS/type is not assigned at the transient base, then the owning unit must provide a qualified FCF pilot/crew and maintenance as required.

8.16.4. The AMU will configure the aircraft for FCF IAW technical data and local directives.

8.16.5. Flight Requirements. The mandatory requirements for FCF are outlined in TO 1-1-300 and the applicable Dash-6 TO. FCF profiles are determined by the maintenance requirement causing the FCF. The decision to fly a full profile FCF is the decision of the MXG/CC (AMXG/CC's (AMARG/CC's) and OG/CC's discretion for ALC). Tailor the FCF profile for the discrepancy causing the FCF applying the following guidance:

8.16.5.1. Require a clean configuration whenever FCFs are flown for flight controls, fuel controls or engine changes. Do not remove fixed wing pylons, fixed wing tip tanks and fixed external stores unless they interfere with fuel scheduling, aerodynamic reaction, air loading, signal propagation, etc.

8.16.5.1.1. Do not fly FCFs in conjunction with other missions or training requirements, unless authorized in TO 1-1-300.

8.16.6. FCF Release. An FCF release occurs upon the successful completion of all requirements as determined by the FCF aircrew. The final decision to release rests solely with the aircraft commander. An aircraft may be released for flight if a malfunction occurs during an FCF, which is not related to the condition generating the FCF and the original condition checks good.

8.16.6.1. An FCF conditional release may occur when the aircraft does not successfully complete FCF requirements due to a specific system malfunction. The FCF aircrew, in coordination with maintenance, determines a FCF conditional release if the malfunction may be corrected without generating another FCF. If on review of the corrective action the FCF aircrew accepts the maintenance action as a satisfactory repair of the malfunction, they may release the aircraft from FCF.

8.16.6.2. FCF Aborts. All ground aborts result in a non-release.

8.16.7. Units must refer to Lead Command instructions for FCF procedures away from home station.

8.16.7. **(CAF)** Coordinate required FCF through off-station transient alert and off-station QA sections. If none exist, owning MXG/CC and owning OG/CC will issue guidance directly to aircraft commander and off-station maintenance personnel.

8.17. Inflight Operational Checks. Inflight operational checks are accomplished at the request of maintenance to validate a maintenance action that cannot be fully verified on the ground.

8.17.1. Document inflight operational checks IAW TO 00-20-1.

8.18. High Speed Taxi Checks. High speed taxi checks may be utilized IAW TO 1-1-300 instead of FCFs with MXG/CC (AMXG/CC for ALC) and OG/CC authorization, high speed taxi checks may be utilized when a maintenance ground operational check requires aircraft movement at higher than normal taxi speeds (with qualified FCF aircrews) to operationally check completed maintenance. Process aircraft forms through QA using FCF procedures. QA will develop an aircrew briefing checklist specifically for high speed taxi checks, to include the required FCF briefing items and pertinent warnings, cautions, etc.

8.18.1. To minimize brake and tire wear, configure aircraft with the minimum Dash-1 operational fuel requirements. Ensure aircraft is prepared for flight and the Exceptional/Conditional release is signed off.

8.19. Weight and Balance (W&B) Program. Manage this program IAW TO 1-1B-50, *Basic Technical Order for USAF Aircraft Weight and Balance*.

8.19.1. The W&B program NCOIC/Manager Responsibilities. NCOIC/Manager will ensure:

8.19.1.1. Sufficient personnel are qualified on assigned aircraft IAW TO 1-1B-50. The weight and balance authority (as determined by the Lead Command) may waive the J3AZR2A000–000 Weight and Balance Practical Course for individuals trained by a current weight and balance qualified technician and certified by the weight and balance authority.

8.19.1.1. **(CAF)** The W&B authority is the W&B program NCOIC/Manager; however, MXG/CC is the approval authority to waive the J3AZR2AXXX 0W1A Weight and Balance Practical Course.

8.19.1.2. All assigned aircraft are weighed IAW applicable directives. Keep W&B documents required by TO 1-1B-50 for each assigned aircraft. Use the Automated Weight and Balance System (AWBS), and keep a back-up copy of all W&B documents.

8.19.1.3. Procedures are written for routing completed TCTO and modification information for W&B changes.

8.19.1.4. A QA W&B qualified technician inspects W&B documents before flight when locally accomplished modifications affect the basic aircraft weight and moment. Review computations for accuracy.

8.19.1.5. Essential W&B data and changes to the basic weight and moment are available for appropriate mission planning (e.g., Standard Configuration Loads, updates to supplemental handbook).

8.19.1.6. Periodic serviceability inspections are accomplished on unit-stored/maintained W&B equipment (as applicable).

8.19.1.7. Coordination with MOO/MX SUPT (Test Flight Supervisor for ALC) in developing a W&B Preparation Checklist if the aircraft Dash-5 TO is not comprehensive enough for the task.

8.19.1.8. W&B manuals are maintained for Class I and II aircraft in a central file. Maintain and store Class I and Class II aircraft W&B handbooks IAW TO 1-1B-50. The method of supplemental handbook storage and physical location must be standardized by the lead command for like MDS. (Manage commercial derivative aircraft IAW this instruction, FAA procedures, contract specifications and the manufacturer's maintenance manuals.) The contract logistics support (CLS) contractor is responsible for managing W&B programs on these aircraft.

8.19.1.9. The SCR (appointment letters for ALC) reflects W&B certification.

8.19.1.10. **(Added-CAF)** W&B qualified/certified technicians who perform actual aircraft weighs must perform a weigh annually to maintain proficiency. This must be tracked and documented by the W&B authority.

8.19.2. W&B Technicians Responsibilities. Will verify scale readings and accomplish/oversee the actual computations. Supervise the preparation, leveling and weighing of the aircraft IAW MDS specific –2 and –5 series TOs and TO 1-1B-50. Inspect W&B documents before flight when locally accomplished modifications affect the basic aircraft weight and moment. Review computations for accuracy.

8.20. Chafing Awareness Program. This program is mandatory for fighter aircraft units and other MDS IAW applicable MDS technical data. QA must monitor and track instances of wire, harness and metal line/tube chafing. A randomly selected 10 percent of assigned aircraft are inspected when notification is received of a potential chafing problem involving like model, lot number or block of aircraft.

8.20.1. The chief inspector shall recommend initiating an OTI if the sampled aircraft indicates a chafing problem or the detected chafing is an operational safety hazard.

8.20.2. QA must develop local chafing inspection work cards if there are no requirements in the Dash-6 TOs, for periodic, pre-flight, thru-flight and basic post-flight inspections. Ensure local work cards cover at least 50 percent of accessible areas, focusing on known chafing areas.

8.20.3. QA must utilize a database for the purpose of tracking wire and harness chafing problems identified through OTIs and maintenance cross-tell reports. Consult the database before expending man-hours performing inspections.

8.20.4. **(Added-CAF)** Chafing Awareness training will be conducted by the MTF during initial block training upon PCS to a new base.

8.21. Quality Assurance Evaluator (QAE)/ Quality Assurance Representative (QAR). If a CLS aircraft or CFT is assigned, a QAE/QAR must be appointed and trained IAW AFI 63-124.

Section 8B—ALC in addition to section 8A the following guidance applies:

8.22. QA Responsibilities. QA to include safety and environmental personnel will be centrally aligned under the MXW/CC. Responsible to the MXW/CC to perform as the primary technical advisory agency, assisting maintenance supervision at all levels to resolve quality problems, jointly develop corrective action strategies and enhance the overall quality of maintenance. Although centrally aligned at the wing level, a knowledgeable and well qualified QA work force will be dedicated to, and collocated within the production groups to ensure continuous, seamless and enduring customer support is provided as required.

8.22.1. MXW/CC/CL/CD must provide the required resources to ensure effective quality assessments of the products, services, programs and processes. The chain of accountability and responsibility for quality products, services, programs and processes is directly to/through the Commanders, Directors, Division Chiefs, Flight Chiefs, Production Superintendents, and maintenance employees and will not be levied on quality organizations. In order for the overall QA system to work effectively, all AFMC personnel must take responsible actions that will contribute to safety, quality, and productivity.

8.23. MXW Quality Assurance Chief Responsibilities. MXW QA Chief will:

8.23.1. Manage the Activity Inspection Program

8.23.1.1. Attend the initial briefing with inspected unit's leadership

8.23.1.2. Attend the out briefing with the inspected unit's leadership

8.23.2. Develop the MSEP and monitor the program using the QIMSS.

8.23.2.1. Wing OPR for LCAP Preparation and Responses.

8.23.3. Appoints a QIMSS focal point for the MXW

8.23.4. Act as wing focal point to ensure appropriate actions are taken to notify the MAJCOM when deficiencies are found in AF or MAJCOM instructions.

8.23.4.1. Provide policy and guidance for the Group QA Offices.

8.23.4.2. Consolidate quality data from the Groups, analyze data for trends, highlight underlying root cause or causal factors for poor quality, recommend courses of action and provide briefings to the Wing Commander at least quarterly. Briefing will be established as a stand-alone meeting dedicated to discuss quality issues and a forum to provide actionable feedback for unit leadership concerning the overall health of maintenance.

8.23.4.3. Work with HQ AFMC, Center, and other quality focal points, as necessary, on all applicable quality issues.

8.23.4.4. Develop the Maintenance Wing Quality Manual and serve as OPR. The Maintenance Wing Quality Manual will be supported by the Evaluation and Inspection Plans (QAP) and/or Quality Assurance Surveillance Plans (QASP). The QAP will be incorporated in the Maintenance Wing Quality Manual.

8.23.4.5. Annually review the Maintenance Wing Quality Manual to ensure currency to new or revised higher headquarter guidance.

8.23.4.6. Review group QAPs and QASPs to ensure they contain all requirements of the Maintenance Wing Quality Manual, annually or when major changes, updates, or revisions are made.

8.23.4.7. Maintains access to a copy of the Maintenance Wing Quality Manual that has been signed by the Wing Commander. A digital copy is acceptable. Post a copy of the Maintenance Wing Quality Manual on Wing MSEP CoP.

8.23.4.8. Serve as the Wing focal point for LCAP inspections. Maintain a list of unit OPRs for depot maintenance production LCAP and MAJCOM checklists and checklist unit applicability down to the section. Maintain current LCAP unit deliverables on AFMC LCAP CoP in applicable unit folders.

8.23.4.9. Consolidates, reviews, prepares, and reports QA metrics to Wing Commander and HQ AFMC/A4V as requested, to include data calls. Post data and QIMSS Raw Data spreadsheet on AFMC LCAP CoP in applicable unit folders monthly.

8.23.4.10. Plans and executes the Activity Inspection Program.

8.23.5. Review LCAP evaluation violations, NICAs, UCI and corrective actions.

8.23.6. Manage Self-Inspection Program for the MXW/CC/CL/CD.

8.23.7. Conduct management and special inspections when data indicates or as directed.

8.23.8. Manage the Wing FOD Program.

8.23.9. Manage internal and external Wing Quality Metrics.

8.23.10. Interpret QA policy for the Wing.

8.23.11. Perform as SME for QA Training Course material.

8.23.12. Host cross-feed meetings.

8.24. MXG QA Chief Responsibilities. MXG QA Chief shall:

8.24.1. Designate a First Level Supervisor Quality Assurance Specialist (QAS).

8.24.2. If applicable, evaluate and document contractor's performance IAW the PMAP and AFI 63-124.

8.24.3. Assists the MXW QA Chief with managing the Activity Inspection Program.

8.24.4. Perform QA review of local OIs

8.24.5. Develop an evaluation and inspection plan IAW **para 8.9** showing areas, types, and numbers of inspections and evaluations and process audits that must be conducted.

8.24.6. Responsible for drafting and maintaining group QAPs and QASPs. Group QAPs and QASPs will be jointly signed by the MXG CC and MXW QA.

8.25. Training Requirements.

8.25.1. All QASs, inspectors and evaluators (i.e., QA personnel) must be trained to the extent necessary to perform QA functions. Training requirements contained within AFMC's 1910, QA series Civilian Training Plan (CTP), will be used to identify and document QAS training.

8.25.2. A qualified QAS shall conduct an EPE on each inspector while they are performing one evaluation and one inspection. Each QAS shall be trained and must pass the EPE prior to performing unsupervised evaluations and inspections. All EPEs must be tracked in the Production Acceptance Certification Standard System (PACSS). Additional requirements for nuclear weapons certifying officials are located in AFI 21-200.

8.25.3. Specific Training requirements. All QA personnel must be trained or possess sufficient technical knowledge to effectively perform their duties. The Maintenance Wing Quality Manual or QAP will identify specific technical and weapons systems training requirements. QA personnel are required to meet minimum qualifications on PAC certified task being assessed, and must meet any qualification (mandatory formal training) requirements defined in AFMCI 21-108, *Maintenance-Training & Production Acceptance Certification (PAC) Program*.

8.25.3.1. Training Documentation. Employee training will be tracked in the Educational and Training Management System (ETMS) and/or in the Production Acceptance Certification Standard System (PACSS). Other HQ AFMC/A4 approved systems may be used to schedule and manage training requirements identified in these systems.

8.25.4. QA personnel who perform assessments will receive formal classroom training or equivalent training in the following areas:

8.25.4.1. Depot Maintenance Quality Assurance. Maintenance Standard course will be used. This course includes QA orientation, the depot maintenance program, quality planning, QA standards, QA human factors, quality auditing, quality data, quality statistics, QA conformance, non-conforming material, and internal compliance reviews/LCAT inspections.

8.25.4.2. Quality Information Management Standard System (QIMSS). All QA QIMSS users will complete "QIMSS Users Course." QIMSS systems administrators (including work center administrators) will complete "QIMSS Administrators Course." Users who have previously completed either of these courses do not need to retake the course simple because the course is/was revised.

Chapter 9

IMPOUNDMENT PROCEDURES

9.1. Aircraft and Equipment Impoundment. Aircraft or equipment is impounded when intensified management is warranted due to system or component malfunction or failure of a serious or chronic nature. Refer to AFI 91-204 for aircraft and equipment involved in accidents, mishaps or incidents.

9.2. Specific Guidance. QA is the OPR for the Impoundment Program and develops local checklists. Impounding aircraft and equipment enables investigative efforts to systematically proceed with minimal risk relative to intentional/unintentional actions and subsequent loss of evidence. MXG/CCs will develop and publish (if required) an impoundment program in a local supplement to this instruction and ensure compliance with the procedures in this chapter. ALC: MXW/CC will assign an OPR who manages the impoundment program, creates an impoundment checklist and ensures compliance with the procedures in this chapter.

9.2. (CAF)Specific Guidance. Units may use CAF Form 147, *QA Impoundment Record*.

9.3. Impoundment Terms:

9.3.1. Authorized Personnel. Individuals directly involved in the management, safing, troubleshooting, or repair of impounded aircraft or equipment.

9.3.2. Impoundment. Impoundment is the isolation or control of access to an aircraft or equipment item and applicable historical records so an intensified investigation can be completed.

9.3.3. Impoundment Authority. Individual authorized to impound aircraft or equipment. MXG/CCs (or equivalent) will designate Impoundment Authorities and they will be tracked on the SCR. The Impoundment Authority will select the Impoundment Official.

9.3.4. Impoundment Release Authority. Individuals authorized to release aircraft or equipment from impoundment. The MXG/CC and MXG/CD (or equivalents) have authority to release aircraft and equipment. In the event of a dual MXG/CC and CD absence, the MXG/CC or CD will appoint an individual in writing as the designated impoundment release authority for the period of the dual absence. This authority will not be delegated in ALC.

9.3.4.1. **(Added-CAF)** Geographically Separated Units constitute a dual absence; therefore, the parent MXG/CC may appoint by name and for a definite period an impound release official. The individual appointed as the impound release official cannot delegate this responsibility. The MXG/CC retains fleet health accountability.

9.3.5. Impoundment Official. The Impoundment Official will hold the minimum rank of MSgt (First line supervisor for ALC). Impoundment Officials are the single point of contact for the affected aircraft or equipment item and are responsible for controlling, monitoring, and investigating the impounded aircraft or equipment.

9.3.6. Isolation Area. An area designated by the Impoundment Authority to locate impounded aircraft or equipment. Aircraft may be isolated on the flightline or in hangars. The isolation area will be marked off using cones, ropes, or placards indicating the impoundment condition and isolation area.

9.4. Reasons for Impoundment of Aircraft or Equipment. Impound aircraft or equipment:

9.4.1. When the Impoundment Authority determines extraordinary measures are required to ensure the safe operating condition of a specific aircraft/equipment or to address any degradation of aircraft airworthiness or serious anomaly.

9.4.2. Following an aircraft ground or flight related mishap as defined in AFI 91-204 and AFMAN 91-223.

9.4.3. Following an uncommanded flight control movement. Special attention is required to completely diagnose and correct flight control malfunctions. Following impoundment for uncommanded flight control movement, the MXG/CC and OG/CC will coordinate and determine the need for an FCF/OCF)

9.4.4. When there is an inadvertent ordnance release or explosive mishap.

9.4.5. When authorized procedures are not adequate or the unit is unable to identify or repair loaded nuclear weapons system malfunctions within the criteria of AFI 91-107, *Design, Evaluation, Troubleshooting, and Maintenance Criteria for Nuclear Weapons Systems.*

9.4.6. For engine anomalies to include but not limited to:

9.4.6.1. Unselected propeller reversal.

9.4.6.2. Flameout/stagnation (for single engine aircraft).

9.4.6.3. Unselected power reversal.

9.4.6.4. Engine case penetration, rupture, or burn-through from an internal engine component.

9.4.6.5. When an aircraft experiences a loss of thrust sufficient to prevent maintaining level flight at a safe altitude. This includes all cases of multiple engine power loss or roll back.

9.4.6.6. Internal engine damage due to FO which can be isolated to the engine and requires removal for repair will result in the engine being impounded. Aircraft impoundment is not required.

9.4.6.7. Engine damaged while in transport.

9.4.7. When an in-flight fire occurs.

9.4.8. When an aircraft experiences an in-flight loss of all pitot-static system instruments or all gyro stabilized attitude or direction indicators.

9.4.9. When there is evidence of intentional damage, tampering, or sabotage.

9.4.10. When there are physiological incidents attributable to aircraft systems or cargo (crew members become ill during flight).

9.4.11. Impoundment Authorities will determine if impoundment is warranted when:

9.4.11.1. An aircraft landing gear fails to extend or retract.

9.4.11.2. When the aircraft has been confirmed as being contaminated with chemical, biological, or radiological materials in the aftermath of a terrorist incident and the residual hazard cannot be satisfactorily removed.

9.4.11.3. When an aircraft sustains FO damage from an unknown cause.

9.5. Impoundment Official Responsibilities.

9.5.1. The Impoundment Official is designated as the single POC for impounded aircraft or equipment. They are responsible for controlling and monitoring the investigation of impounded aircraft or equipment. The Impoundment Official ensures only authorized personnel have access to the impounded aircraft or equipment.

9.6. Impoundment Process and Procedures.

9.6.1. When the Impoundment Authority directs impoundment, a Red X symbol will be placed in the applicable AFTO Form/IMT 781A/electronic equivalent or AFTO IMT 244 with a statement indicating the reason for impoundment and the name of the assigned Impoundment Official.

9.6.2. The MOC/Maintenance Control Center will be notified when an impoundment decision has been made.

9.6.3. The Impoundment Official will use established checklists to guide the sequence of actions.

9.6.4. The Impoundment Official will control access to impounded aircraft or equipment. Establish an Entry Control Point (ECP) if required.

9.6.4.1. If an ECP is established, the Impoundment Official will ensure an access control log (manual or electronic) is maintained at the ECP of the impounded aircraft, equipment or storage facility to track personnel entering and leaving the area.

9.6.4.1.1. The log will contain the following information as a minimum: individual's name, rank, and employee number/stamp, date arrived/departed, and reason for entry.

9.6.4.1.2. The log will be maintained and reviewed on a daily basis until the Impoundment Release Authority releases the aircraft and will be disposed of only after the aircraft is successfully repaired.

9.6.5. Aircraft or equipment records will be controlled at the discretion of the Impoundment Official. When required, the Impoundment Official will:

9.6.5.1. Obtain and secure the current aircraft forms and the aircraft jacket file for aircraft or the AFTO IMT 244 for equipment.

9.6.5.2. Notify the MIS DBM (PDMSS, MAXIMO, etc) to isolate the aircraft or equipment serial number in order to prevent any changes and maintain the integrity of the historical data until the aircraft or equipment is released.

9.6.5.3. Request any personnel records required to complete the impoundment investigation. These records may include, but are not limited to, individual training records.

9.6.5.4. On aircraft impounded for potential safety related incidents, ensure the CVR/FDR circuit breakers are pulled immediately after engine shutdown or before applying external power to safeguard CVR/FDR data.

9.6.6. Maintenance will be limited on impounded aircraft or equipment until the cause is determined. The Impoundment Official will determine what maintenance can be performed in conjunction with the maintenance required to release the aircraft or equipment from impoundment. Limit maintenance actions to those required to make the aircraft safe.

9.6.6.1. Parts removed from impounded aircraft or equipment will be carefully controlled. This is to ensure that parts, once confirmed as the cause for impoundment, are available to be processed as DR exhibits.

9.6.7. The Impoundment Official selects a team of qualified technicians dedicated to determine the cause of the problem that led to the impoundment. Impoundment team members will be relieved of all other duties (not applicable to ARC) until released by the Impoundment Official.

9.6.8. The Impoundment Release Authority determines the need for a one-time flight and requests appropriate authorization IAW TO 00-20-1.

9.6.9. Once the cause of the malfunction or failure has been positively determined, the Impoundment Official briefs the Impoundment Release Authority on findings, corrective actions, and requests release of the aircraft or equipment from impoundment.

9.6.10. If the cause of the discrepancy could potentially affect other aircraft or equipment in the fleet, QA (MXG production for ALC) will provide cross-tell information for up-channeling to the MAJCOM weapon system functional manager, lead command and the designated Weapon System Lead Command IAW AFPD 10-9.

9.6.11. Clear impoundments from forms/MIS IAW TO 00-20-1.

9.6.12. If the cause of a reported malfunction cannot be determined or a positive corrective action cannot be confirmed, the Impoundment Release Authority will determine if further actions are required (e.g., requesting depot assistance, further troubleshooting, FCF/OCF).

9.6.13. When an aircraft is away from home station and encounters a problem warranting impoundment, the following procedures must be followed:

9.6.13.1. Established impoundment procedures must be followed. The MXG/CC or designated representative may temporarily delegate Impoundment and Release Authority to the deployed MOO/MX SUPT.

9.7. Rules of Impoundment Specifically for Explosive-Related Mishaps. When an inadvertent release or an explosive mishap is reported, the following procedures apply:

9.7.1. In-flight:

9.7.1.1. When the involved aircraft returns to the de-arm or parking area, the aircraft is impounded. Limit maintenance actions to those required to make the aircraft safe.

9.7.1.2. Inform the MXG/CC, MOC, Munitions Control, WWM, QA and the wing/base safety office of the impoundment action.

9.7.1.3. Park and isolate aircraft with unsafe munitions in an area approved by weapons safety and airfield management.

9.7.1.4. Investigate and report the incident IAW AFI 91-204.

9.7.2. Ground:

9.7.2.1. The senior ground crew member is in charge of the aircraft or equipment until relieved and ensures involved persons remain at the scene.

9.7.2.2. Protect other aircraft or equipment located near the incident if an explosive hazard exists.

9.7.2.3. Do not change the position of any switches except as needed for safety. Limit maintenance actions to those actions required to make the aircraft or equipment safe.

9.7.3. Preserve mishap evidence to the maximum extent possible. An example would be segregating an aircraft gun versus destroying it if it poses no immediate danger. This allows for evaluation of all the evidence and the ability to recreate the mishap conditions.

9.7.4. If a malfunctioning munitions item (live or inert) causes a mishap, also notify OO-ALC/WM's Munitions Rapid Response Team at DSN 777-4865/5155, 775-5507/3208 and 777-AMMO or 775-AMMO, or the Hill AFB Command Post at 777-3007. This team is comprised of experts (engineers, equipment specialists, program managers and safety personnel) from the conventional weapons and munitions programs and can respond within 24 to 48 hours to assist in determining the cause of a failure. Initial contact, as soon as practical, shall allow the team to make travel arrangements and aids response time. For units with 20 or 30MM gun systems use of the team is encouraged (not mandatory unless a safety issue exists) if the cause of a gun system jam cannot be easily determined or for recurring jams. Using the team provides highly valuable information regarding ammunition/gun system problems and allows ALC personnel to see issues first hand.

Chapter 10

TOOL AND EQUIPMENT MANAGEMENT

10.1. Tool and Equipment Management. The objectives of the tool and equipment management program are to prevent and eliminate FOD to aircraft, engines, missiles, training and support equipment, and to reduce costs through strict effective control and accountability of assets. To ensure standardization among maintenance units, commanders and key leaders are responsible for executing an effective tool program. Tool and equipment management applies to CWOs and ALCs. Depot teams/factory reps/CFTs/NSOs and small/unique units shall adhere to AF/Lead Command/Local guidance for tool control policies and procedures when working on aerospace equipment possessed by the unit. The tool management program outlined in this instruction represents AF minimum program requirements; Lead Commands may dictate additional requirements.

10.2. Guidelines for Program Management.

10.2.1. The MXG/CC (MXW/CC for ALC or equivalent functional authority for maintenance) is the OPR for the development of wing OIs for control and management of tools/equipment used on the flightline and aircraft/aerospace equipment maintenance industrial areas. As a minimum, guidance will address the following:

10.2.1.1. Standardized procedures for security, control, and accountability of tools and equipment to include weapons load crew crimpers, die, lead seals, and engine blade blending blue dye. Chits are not authorized.

10.2.1.2. Inventory requirements. As a minimum, conduct and document an annual inventory of all tools and equipment.

10.2.1.3. Procedures for warranted tool management.

10.2.1.4. Procedures for control and management of replacement, expendable and consumable hand tools, HAZMATs, and other items contained in CTKs/TKs.

10.2.1.4. **(CAF)** Expendable hand tools such as blades, apexes, files, and file cleaners consumed during use may be placed on bench stock; however, strict accountability and control procedures must be included in unit procedures.

10.2.1.4.1. **(Added-CAF)** A stock of spare tools is authorized. These tools are used to replace broken, worn, or missing tools to prevent unnecessary work delays. Spare and consumable tools are high pilferage items, and pose a significant potential for fraud, waste, and abuse. CTK custodians will authorize the tools and quantities to be maintained. Inventory replacement tool stocks quarterly. During the quarterly inventory, the CTK custodian will validate the quantity of tools/items within each bin. To aid in accountability, control, and inventory, each tool/item will be separated by use of individual bins or dividers, and sequentially numbered accordingly. Access to spare tools will be limited to the shift supervisor (or equivalent) and CTK custodian.

10.2.1.4.2. **(Added-CAF)** Do not issue replacement tools without a turn-in of the unserviceable tool or CAF Form 145, *Lost Tool/Object Report*, documentation indicating the tool is lost and reported accordingly through lost tool procedure.

10.2.1.5. Procedures for transfer of tools/CTKs/TKs at the job site (on-site transfers). CTKs/TKs are not normally passed from one individual to another at the job site; however, mission needs occasionally require this action to occur. Ensure tool accountability and control is maintained when transfer occurs between the individuals. As a minimum the individuals involved in the transfer will accomplish a joint inventory and document accordingly.

10.2.1.6. Procedures for lost or missing tools.

10.2.1.7. Assignment of equipment identification designators (EID) for CTKs/TKs, non-CA/CRL equipment, and assignment of CTK/TK numbers for tools.

10.2.1.8. Procedures for issue and control of PPE (e.g., ear protectors, reflective belts, headsets). Mark tools or equipment that a work center assigns/issues to individuals IAW Lead Command procedures.

10.2.1.9. Procedures to ensure positive control of rags.

10.2.1.9.1. A rag is defined as a remnant of cloth purchased in bulk or a standardized, commercial quality, vendor-supplied shop cloth used in general industrial, shop, and flightline operations. Cheesecloth is considered a rag, however, paper products/paper towels are not considered rags. Rags should be uniform in size and color.

10.2.1.9.2. Marking or identifying each shop rag with a CTK number is not necessary. Issue and receipt procedures will be established to ensure positive control and accountability of each rag that leaves a CTK area. Some recommended methods of shop rag control include:

10.2.1.9.2.1. Issuing rags on a one-for-one swap.

10.2.1.9.2.2. Issuing a predetermined number of rags with CTKs and include them on the CTK contents listing.

10.2.1.9.2.3. Issuing rags in pre-packaged containers with the number of rags marked on each container.

10.2.1.10. Procedures to limit numbers of personnel authorized to procure tools.

10.2.1.11. Procedures for control of locally manufactured or developed tools and equipment.

10.2.1.12. Procedures for depot teams, factory representatives, and CFTs when working on equipment within the unit.

10.2.1.13. Ensure standardized procedures and responsibilities are established when two or more AMUs/work centers operate out of the same tool room/support section, or when work centers elect to distribute CTKs/TKs or peculiar support/test equipment to decentralized locations.

10.2.1.14. Procedures for control of CDDAR and hydrazine response equipment permanently stored/located in trailers or vehicles.

10.2.1.15. Procedures for requiring a second party or on-duty supervisor inspection of CTKs/TKs when conditions warrant a single person shift. The same individual that signs out a CTK/TK cannot sign it back in.

10.2.1.16. Procedures for controlled access to tool rooms.

10.2.1.17. Procedures to control aircrew tools and AFE tool kits that are dispatchable to the flightline. Coordinate procedures through the Wing AFE Superintendent.

10.3. General Program Guidelines.

10.3.1. The FLT CC/Chief (First line supervisor for ALC) will designate CTK/TK custodians in writing. CTK/TK custodians are responsible for tool, HAZMAT, and consumable asset accountability and control (***EXCEPTION:*** a separate person may be designated as the HAZMAT monitor).

10.3.2. Flight chiefs/section NCOICs (or equivalents) determine the type, size, contents and number of CTKs required for their work centers, this responsibility lies with the WWM for load crew CTKs. The WWM will approve/sign a single MIL to be used as the standard for all Load Crew CTKs on like mission-design-series aircraft; a copy will be maintained in each support section.

10.3.3. Design CTK/TKs to provide a quick inventory and accountability of tools. Clearly mark all CTKs/TKs and tools with the EID (follow guidance below).

10.3.4. CTK/TK contents will be standardized to the maximum extent possible within functional elements of a squadron that have similar missions (e.g., aircraft flights/sections and CASTs).

10.3.5. Each tool, item of equipment, or consumable contained in a CTK/TK has an assigned location identified either by inlay cuts in the shape of the item, shadowed layout, label, or silhouette. No more than one item is stored in a cutout, shadow, or silhouette except for tools issued in sets such as drill bits, allen wrenches, apexes, or paired items (e.g., gloves, booties).

10.3.6. A Master Inventory List (MIL) Is required for each CTK or series of identical CTKs. ***NOTE:*** When Tool Accountability System (TAS) is used, the MIL resides in TAS, but a hard copy of the MIL must reside with each dispatchable CTK or series of identical kits. When items such as dispatchable support equipment or dispatchable special tools are issued separately and contain multiple parts, an inventory of the multiple items must be provided with the equipment or special tools. Units are required to electronically back up their respective database at least once a month. This backup must be kept separate from the computer that houses the tool control database.

10.3.6.1. For units not required to use TAS, contents are identified on the MIL by drawer/section indicating the number and type of each item in the CTK and total number of all items in each drawer/section.

10.3.6.2. If identification tags or dust caps are attached to tools/equipment, they will be secured in a manner that will preclude any possibility of FOD. Locks and tie down strap(s), if not permanently attached, will be marked/etched with the appropriate CTK number. All items are listed on the MIL.

10.3.6.3. Consumables may be placed in CTKs. If so, they are identified on the MIL as consumables. Examples of consumables include; safety wire, adhesive, wire bundle lacing, solder, etc. Do not include common hardware items such as bolts, nuts, and/or screws unless they are required as tools.

10.3.6.4. Tool sets are identified on the MIL by total number of items in the set (e.g., allen wrench set - 9 each allen wrenches + container for a total of 10).

10.3.6.5. Document missing, removed and/or broken tools/items in TAS if they cannot be replaced immediately. In addition, for dispatchable CTKs and dispatchable support equipment/dispatchable special tools containing multiple parts, document the missing, removed and/or broken tools/items on a MAJCOM/locally generated form, or on the hard copy MIL. Pencil/pen may be used for hard copy MIL documentation and erased when cleared. Remove the EID from any permanently removed tool/item. A permanently removed (without planned replacement) tool/item constitutes a change to the inventory and requires a new MIL.

10.3.6.5. **(CAF)** Units may use the CAF Form 140, *CTK Inventory and Control Log*, or a locally developed form. If a local form is used, it will be standardized within the MXG and used by all sections.

10.3.6.5.1. If a MAJCOM/locally generated form is used, the form will be kept with each dispatchable CTK/dispatchable support equipment/dispatchable special tools as identified in **para 10.3.6**.

10.3.6.6. The CTK/TK custodian has the authority to interchange "like" (form, fit, function)items.

10.3.7. Equipment and accessories that do not present a FOD potential and will not leave the work center, support section, or tool room, need not be included in a CTK/TK; however, this equipment must have designated storage locations established. Designated locations may be work areas or stations

10.3.7.1. Establish designated locations for test equipment and common accessories (e.g., waveguides, attenuators, fittings, cables, adapters) that are not part of a CTK/TK. As a minimum, designated locations will be labeled to identify the contents.

10.3.7.2. Industrial shop machinery accessories/attachments (e.g., blades, arbors, chucks, gears) need not be controlled as tools; however, these items will be maintained in designated storage locations for accountability. As a minimum, storage cabinets/drawers will be labeled to identify the contents.

10.3.8. Tools/expendable items used for titanium engine blade blending or oxygen system maintenance will be kept in special purpose kits separate from other tools. In addition to normal CTK/TK identification, these kits will be marked “For Titanium Engine Blade Blending Only”. For tools utilized in oxygen system maintenance, mark the kits with the following statement: “For Oxygen System Use Only”.

10.3.9. Discard removable (e.g., slide on) pocket clips from tools when possible (flashlights, continuity testers, small screwdrivers, etc.) prior to placement in tool kits. Do not disassemble/damage tools for sole purpose of removing clips (e.g.. tape measures), rubber switch guards, etc.

10.3.9. **(CAF)** Annotate removed items on MIL and in TAS.

10.3.10. Tools not controlled through CTK/TK procedures are NOT authorized on the flightline, or in any maintenance area (e.g., personal; mini-mag flashlights, leathermans, buck

knives, etc.). Lead Commands will develop procedures to mark and control equipment that a work center assigns/issues to an individual. Personally-purchased tools are not authorized.

10.3.10. **(CAF)** Mark all individually issued equipment with the owner's first initial, last name, and employee number (i.e. J. Doe, 1234). Units will develop local procedures for control of this equipment. Personally purchased protective equipment such as gloves and ear protection are not authorized on the flightline unless local procedures govern their use and control. If authorized they will be marked IAW these guidelines.

10.3.11. Flashlights, lanterns, portable lighting devices and light sources will conform to the requirements of TO 00-25-172 when used during servicing operations, TO 1-1-3 when used during fuel cell maintenance, and AFMAN 91-201 when used in explosive environments. ***NOTE:*** Aircraft and equipment TOs may dictate additional restrictions.

10.3.12. For deployment purposes, ensure equipment, tools, and HAZMAT items are properly identified, prepared, and documented IAW AFI 10-403.

10.3.13. **(Added-CAF)** Units may use Individual Issue Bins. These bins are used for tools and equipment that are available for individual sign-out but stored in the tool room. These storage bins may be cabinets, shelves, etc. Items in these bins will be identified by one of the following: inlays cut in the shape of the tool, shadowed layout, divided sections, or any combination. The contents of the compartment will be labeled. The tools or equipment items issued from these bins will have an Equipment Identification Designator (EID).

10.4. Tool Accountability. Flight commanders/chiefs and section NCOICs, (First level supervisors/section chiefs for ALC) through CTK/TK custodians, are responsible for tool and equipment accountability and control (knowing where tools are and who has responsibility for them.) When a person signs for a tool or piece of equipment, they are accountable for the item until it is returned to the tool room and accountability transfers back to the CTK/TK custodian (through a representative or tool room employee.)

10.4.1. All units must use TAS or Facility and Equipment Maintenance System (FEMS) for accountability and control of tools and equipment. Contractors and Civil Service Organizations/MEOs are not required to use TAS/FEMS. AFE Sections will follow guidance given in AFI 11-301, Volume 1.

10.4.1. **(CAF)** Units are authorized to use TC-Max until future tool control systems are developed and implemented. All provisions of subparagraphs to AFI 21-101 Para 10.4.1.1 must be met.

10.4.1.1. Units will use TAS to:

10.4.1.1.1. Track the issuance and receipt of all assigned tools, equipment, tool kits, HAZMAT items, TOs (does not apply to TOs, equipment and HAZMAT kept in a shop and not dispatched.)

10.4.1.1.1.1. Hazmat items issued for one time use (oil cans, hydraulic cans, mixing compounds) are supply items and do not have to be tracked in TAS. Hazmat and supply procedures must still be followed.

10.4.1.1.2. Track authorizations/restrictions for special tools/equipment (by individual)

10.4.1.1.3. Track CTK and Support Section inspections as a minimum

10.4.1.1.4. Track spare, lost, and damaged (removed) tools

10.4.1.1.5. Develop and manage tool/equipment inventories

10.4.1.1.6. Develop and manage deployment kits (import/export)

10.4.1.2. If TAS/FEMS is not available (such as at a deployed location), units may use the AF IMT 1297, a Lead Command, or locally approved form for accountability and control of CTKs/TKs, equipment, and tools.

10.4.1.2. **(CAF)** When TAS is not available or with MXG/CC approval during temporary conditions such as local generation exercises, units may use the CAF Form 140. The CAF Form 140 is maintained for each CTK and remains in the tool room support section or workcenter. The form is used to record CTK/tool transactions (check-in/check-out). Completion of each line of the CAF Form 140 denotes a complete inventory of contents. The "out time/signature" block is annotated by the person signing out/assuming responsibility for the CTK/equipment. The "in" block is annotated by the tool CTK custodian/alternates or designated representative when the CTK/equipment is returned by the user. The person annotating the "out" block is not the same person annotating the "in" block.

10.4.1.3. Units that experience problems with the system should contact the 754th ELSG/ILMM at DSN 596-5771/Comm 334-416-5771 for assistance. However the decision has been made at HQAF level to no longer fund upgrades and repairs to TAS in preparation of the implementation of the Expeditionary Combat Support System (ECSS) in FY12.

10.4.1.3.1. The Air Force acknowledges the sustainment office may not be able to rectify all problems with TAS due to this lack of funding. The AF/A4L authorizes units to identify and justify an alternate automated tool tracking system for the interim until ECSS is made available as long as the following requirements are met:

10.4.1.3.1.1. All provisions of subparagraphs to AFI 21-101 **para 10.4.1.1** are met.

10.4.1.3.1.2. The time frame required to acquire the alternate system is identified.

10.4.1.3.1.3. Acquisition and sustainment costs are identified.

10.4.1.3.1.4. System will be unit funded to include sustainment until ECSS implementation.

10.4.1.3.2. The request and justification for an interim alternate tracking system will be approved through the Lead Command Functional and ECSS champion and formally submitted through the ECSS A4RB process.

10.4.1.3.3. Upon ECSS implementation, all maintenance units will be required to use the ECSS tool control capability suite. This suite will replace TAS and any other remaining systems performing like functions. The system specifics have yet to be defined (embedded or bolt on to ECSS interface). If the transition from the locally chosen system (other than TAS) is not compatible with ECSS then the unit will be responsible for loading all required data into ECSS.

10.4.2. Account for all CTKs/TKs, tools, and dispatchable equipment at the beginning and end of each shift. Shift inventories must be documented by both outgoing and incoming personnel. CTKs/TKS present during tool room shift inventories do not need to be opened for inventory.

10.4.2.1. Perform a visual inventory of all CTKs/TKs when issued for use, at the completion of job or tasks, and when returned to the tool storage facility. Accomplish a CTK/TK inventory prior to operation of any aircraft or equipment when maintenance actions were performed (e.g., engine run, landing gear retraction, flight control operational checks.) ***NOTE:*** Upon returning to the work area after sheltering for real-world/exercise events an immediate and complete inventory of all CTKs/TKs will be conducted.

10.4.2.2. At least annually or when the CTK/TK custodian changes, conduct a comprehensive inventory of all tools, non-CA/CRL equipment, and CTKs/TKs. The purpose of this inventory is to perform an extensive inspection of all tools and non-CA/CRL equipment, to include condition, identification markings, and accuracy of the MIL/TK/CRL Supplemental Listing. Inspect all tools for serviceability IAW TO 32-1-101. CTK/TK custodians document these inventories and maintain the most current inventory documentation on file.

10.4.3. Electronic Tools (E-Tools). E-Tools (desktop and laptop computers, hand held devices, portable maintenance aids (PMA), etc.) are common infrastructure, allow access to logistics information systems, update TOs, provide automated change requests (similar to AFTO Form 22) and integrate with other Maintenance Information Systems (MIS). Workgroup managers shall monitor E-Tool configuration (operating system, virus checkers, etc.) IAW 33-series AFIs.

10.4.3.1. E-Tools purchased and used for the purpose of viewing digital technical data and/or for maintenance documentation must be accounted for as automated data processing equipment (ADPE) IAW 33-series AFI's and tracked in TAS. E-tools designed specifically for a weapon system (e.g., F-22 PMA) will be accounted for on an equipment account (CA/CRL) and tracked in TAS/FEMS.

10.4.3.2. Licenses, certification, maintenance and security of E-Tools (hardware and software) must also be IAW 33-series AFIs and AFI 21-116. Units must make maximum use of E-Tool warranties and ensure only serviceable E-Tools with charged batteries, up to date system software, and current technical data are available for checkout.

10.4.3.3. IAW 33-series AFIs, E-Tools are for official use and authorized purposes only. Their primary purpose is to view digitized tech data, but may be used for other official uses. Lead Commands will establish policy for use of E-Tools for purposes other than viewing digitized tech data and maintenance documentation. GP CCs will establish procedures to ensure sufficient E-Tool availability for technical order viewing.

10.4.3.4. TODO's may not have a traditional role in managing tech data when technical data management is accomplished by another agency (i.e., the manufacturer).

10.4.3.5. The Lead TODO(s) shall work with other TODOs and TODAs (and CSAs/FSAs if required) to ensure E-Tools are configured with current software to support TO and maintenance documentation.

10.5. Tool and Equipment Marking and Identification.

10.5.1. All units (ALCs see **Para 10.5.7**) must mark their tools and equipment with the standard EID and utilize the AF-approved TAS/FEMS (ANG, Contractors and Civil Service Organizations/MEOs are authorized to use a computerized system other than TAS/FEMS). Geographically separated units may use the parent wing EID. Replacement spare tools stored in the tool crib do not need to be etched until placement in a specific CTK.

10.5.1.1. The EID will consist of nine characters (numbers/letters) of which the first four characters will be a unique World Wide Identification (WWID) code. ***NOTE:*** The intent is for the four characters of the WWID to identify the base (first and second character), unit (third character), and shop (fourth character) in order to leave the remaining five characters available for tool/CTK equipment numbering.

10.5.1.1.1. The first two characters of the WWID in the EID are based on the wing's/unit's personnel assignment system (PAS) base code. Multiple wings (or equivalent) at the same base (i.e., ANG, AFRC, and active duty) must have different WWID codes. When needed, request additional "base" codes from HQ 754 ELSG/ILM, Gunter Annex, Maxwell AFB, AL.

10.5.1.1.2. The third and fourth characters designate the unit and shop by using unique/distinguishable characters. To ensure tool rooms have unique identifiers, wings (or equivalent) must ensure other units within the same wing or PAS code do not duplicate the first 4 characters of the EID.

10.5.1.2. The unit establishes the remaining five characters (any combination of numbers/letters) for CTKs, tools, and dispatchable equipment identification.

10.5.1.3. Units must place the 9-digit EID on all CTKs, tools not assigned to a box, and dispatch-able equipment that is of sufficient size. The 9-digit EID must be placed on the outside of dispatchable CTKs. Tools located inside the tool box may be marked with less than 9-digits but must contain the 4-digit WWID and identifying character(s) that ties the tool back to the CTK. For example, tools inside an assigned dispatchable CTK "U6JG00001" may be marked "U6JG1." Units may affix non-metallic bar code labels on tools to prevent re-etching as long as the use of the tool and its work environment does not normally result in excessive damage to the label making it unreadable. Tools will be marked with the most current EID. All previous CTK identifiers will either be removed or marked out (this does not include PMEL markings).

10.5.1.3.1. Small tools or items that cannot be marked as described above (such as drill bits, allen wrench sets, apexes, etc.) are to be maintained in a container marked with the WWID and an identifying character(s) that ties the tool back to the CTK along with the number of tools contained. The container is counted as one of the items.

10.5.1.4. MXG/CCs may require use of the EID and AFTO Form 65 (metallic)/AFTO Form 66 (non-metallic) for TMDE routinely (i.e., once per week) dispatched from a workcenter or use of the AFTO Form 65/66 alone. For items that physically or mechanically check tolerances that require calibration, do not etch, or stamp in any manner that will affect calibration or the ability to calibrate. If marking is in question, the owning workcenter shall consult PMEL.

10.5.2. Permanently mark (by etching or other means) grease guns, dispensing cans, spray bottles, pump oilers, and similar containers with the type of grease, fluid, or other liquids and military specification (MILSPEC) of the contents. If no MILSPEC exists, mark the item with the manufacturer's name, part number/NSN from the applicable MSDS. Keep hoses and fittings separate for each type of grease. ***NOTE:*** If containers are used to hold or apply substances classified as hazardous materials, ensure labeling requirements of AFI 90-821, 29 CFR 1910.1200(f), and local directives are accomplished.

10.5.3. Fiberglass handled hammers are etched IAW TO 32-1-101.

10.5.4. CTKs, tools, and dispatchable equipment that may possess a unique serial/tracking number must be marked with an EID number. If the item cannot be marked, etched, or stamped, annotate the additional designator on the CTK contents list. TMDE will be marked with an EID and/or AFTO Form 65/66 bar code number for tracking purposes in TAS.

10.5.5. Items that are assembled and are not intended to be disassembled during use, require only one mark/etch/stamp and one entry in the MIL (e.g., scribes, flashlights, grease guns, feeler gauges).

10.5.6. Remove the EID from unserviceable tools and tools removed from the CTK (with the exception of warranty tools where removal of EID would void the tool warranty) and update TAS and the MAJCOM/locally generated form or hard copy MIL accordingly. Procedures to tag/segregate unserviceable warranty tools will be addressed IAW **para 10.2.1.3**.

10.5.7. For ALC: Tools, common accessories, support equipment and CA/CRL equipment issued individually or part of a tool kit will be marked prior to issue with the center code (see **Table 10.1**) and a number identifying it to the proper tool issue center, Production Support Center (PSC) or back shop. Small tools or items that cannot be marked as described above (such as drill bits, allen wrench sets, apexes, etc.) are to be maintained in a container marked with the TK ID number and an identifying character(s) that ties the tool back to the TK along with the number of tools contained. The container is counted as one of the items.

Table 10.1. ALC/AMARG ID number marking Codes.

CODE	ALC
AM	AMARG
HL	OO-ALC, Hill AFB
OC	OC-ALC, Tinker AFB
WR	WR-ALC, Robins AFB

10.6. Locally Manufactured, Developed, or Modified Tools and Equipment. All locally manufactured, developed, or modified tools and equipment used on aerospace equipment must be approved by the MXG/CC (Planning and Engineering Office for ALC) or their designated representative. This procedure does not apply to local manufacture, modification or design of tools authorized in specific technical data. QA coordinates on all requests for approval and use of locally designed tools or equipment. Users will review items and requirements biennially (every two years) for applicability and current configuration. See **Chapter 8** of this instruction for additional guidance. ***NOTE:*** Weapons loading, maintenance and armament systems flight locally designed equipment must be coordinated through the WWM and meet the following requirements.

10.6.1. LME, if not included in tech data or listed on the MMHE Focal Point web site (**https://peonet.eglin.af.mil/mmhe/**) managed by the MMHE Focal Point, 615 Apalachicola Road, Suite 101, Eglin AFB, FL 32542-6845.

10.6.1.1. Munitions/armament LME is specialized equipment designed to interface with or support munitions or armament suspension equipment such as tools, handling dollies, storage racks, maintenance stands, transport adapters, etc. All munitions/armament LME contained on the MMHE Focal Point web site meets applicable AFOSH, explosive safety, and USAF standards, and is approved for local manufacture and use at unit level AF-wide. Drawing packages for these items are available to the unit via the MMHE Focal Point web site. Units must use MMHE Focal Point-designed munitions/armament LME for new procurements if a design exists and fills the requirement.

10.6.1.2. Munitions/armament LME, specifically designed to interface with or support munitions, which is not contained in technical data or on the MMHE Focal Point web site (i.e., hardened/protective aircraft shelter missile racks, Y-stands, munitions chocks, specialized tools, etc.) must be coordinated at unit level and forwarded to the MAJCOM Functional Manager for coordination/evaluation. If the MAJCOM Functional Manager determines the item has AF utility, the drawings shall be forwarded to the MMHE Focal Point for evaluation/ approval prior to formal development and placement onto the MMHE Focal Point web site. Munitions/armament LME, not designed to interface with or support munitions, which are not contained in technical data or on the MMHE Focal Point web site, must be approved at the unit level. Units are encouraged to forward any such approved LME for possible inclusion on MMHE Focal Point web site by sending an approved drawing package to the MAJCOM Functional Manager for coordination/evaluation. If the MAJCOM Functional Manager determines the item has additional AF utility, the drawing package shall be forwarded to the MMHE Focal Point for evaluation/approval prior to formal development and placement onto the MMHE Focal Point web site.

10.6.1.3. All LME must meet applicable AFOSH, explosive safety, and USAF standards. All equipment designated for use with nuclear weapons test and handling must meet requirements in AFI 91-103.

10.6.1.4. All LME must be maintained and inspected for serviceability on a regular basis IAW appropriate 00-20 series and 35D-1-2, *Miscellaneous Munitions Handling and Support*, technical data. AFTO IMT 244, or equivalent, must be maintained for all LME items (racks, stands, adapters, etc.). Equipment without technical data must, as a minimum, be inspected every 180 days for corrosion, physical defect, and lubrication as required.

10.7. Tool Room Operations and Security. Limit tool issue sections to no more than one per work center/AMU. Establish procedures to ensure custodial control. Set up tool rooms to ensure accountability. Process reports for tools that are lost, damaged, or destroyed, due to neglect IAW AFMAN 23-220, *Reports of Survey For Air Force Property*.

10.7.1. The tool room/tool issue center/PSC must be capable of being locked and afford protective measures such as monitoring, 24-hour coverage, or controlled key access. Tool issue center/PSC supervisor authorizes access to tool rooms for ALC only. When all CTKs/TKs are not capable of being secured in the tool room/tool issue center/PSC, the

section NCOIC/Tool issue center/PSC supervisor will design a process to prevent the unauthorized use or access to tools and equipment. Due to space and facility limitations, it may not be possible to store oversized tool kits in the tool room/tool issue center/PSC.

10.7.1.1. Tool kit locks will be used to provide a physical barrier to opening the container lid, drawer or door and prevent the unauthorized removal of tools. Locks are not required on tools and equipment that are stored within secured tool rooms or work centers.

10.7.1.2. Dispatchable tools, equipment, and CTKs/TKs are required to be locked and/or secured when left unattended. Tools and equipment are never secured to the exterior of an aircraft. Tool kits located within the controlled movement area are required to be locked when unattended and not in use, but do not need to be secured to another object.

10.7.1.2.1. Alert aircraft in protection level 1 or 2 areas and ASA aircraft in PL-3 areas: CTKs in these areas directly supporting alert aircraft do not have to be locked when unattended and not in use as long as they are inventoried at the beginning of each shift, after each maintenance task, and at the end of each shift.

10.7.1.3. Modifications to tool containers are authorized unless modification voids the manufacturer's warranty.

10.7.1.4. CTK/Tool issue centers/PSCs will not issue tools individually from dispatchable CTK/TKs. When a recurring need exists for common tools to be issued individually, e.g., hammers, screwdrivers, pliers, drills, wrenches to perform routine, housekeeping or facility tasks within the work center, add the tools to a CTK/TK.

10.8. Lost Item/Tool Procedures.

10.8.1. Supervisors ensure all assigned personnel are familiar with lost tool procedures. If an item/ tool or a portion of a broken tool is discovered missing, the following procedures apply:

10.8.1.1. The person identifying the missing item/tool will search the immediate work area for the item/tool. If not found, after completing an initial search the individual will notify the expediter/ production superintendent/(First line supervisor for ALC) or equivalent.

10.8.1.1. **(CAF)** When an item/tool is discovered missing after an aircraft has taxied maintenance will notify MOC and Ops who in turn notifies the pilot to recall the aircraft, if necessary.

10.8.1.2. Place a Red X in the aircraft or equipment forms of all affected aircraft or equipment with a description of the tool and a specific, last known, location of the tool.

10.8.1.2.1. Aircraft/Equipment thought to contain a lost tool/item during the program depot maintenance process will be documented by initiating a Work Control Document and transferred to the aircraft forms as a Red X discrepancy at the point when the AFTO Form/IMT 781 or equipment forms are re-initiated

10.8.1.3. Expediter/Production Superintendent/(First line supervisor for ALC) or equivalent will immediately notify the FLT CC/ Chief, support section, MOC, and QA. (Sq/CC and PSC Supervisor Center Tool Manager, Maintenance Control and QA for ALC).

10.8.1.4. Initiate a thorough search for the tool.

10.8.1.5. After a thorough search is completed and the tool is not found, the person issued the item/tool will initiate a lost tool report.

10.8.1.5. **(CAF)** Units will develop local procedures to ensure proper tracking, reporting and accountability for all CAF Form 145s. An CAF Form 145 will be initiated if the item is not found within 1 hour of initial notification. (NOTE: Once initiated, the CAF Form 145 must be completed even if the lost tool/item is found.) The completed original Lost Tool/Object Report must be submitted to QA within 5 duty days from date of initiation for filing. QA files/maintains the original report for one year. Additionally, a copy of the report may be filed/maintained by the Wing FOD Monitor if the Wing CV has assigned responsibility for tracking lost tools/items.

10.8.1.6. If at any time during the investigation the item/tool is found and retrieved, notify the FLT CC/Chief, support section, MOC, QA, expediter, Production Superintendent or equivalent, and the owning work center. (Maintenance SQ/CC and PSC Supervisor (if applicable) Center Tool Manager, Maintenance Control, QA, First Line Supervisor, or equivalent and the owning workcenter for ALC)

10.8.1.7. If not found, the MOC/Maintenance Control will notify the MXG/CC (MXW/CC for ALC) of the missing item/tool.

10.8.1.8. If the item is not located, MOO/MX SUPT (MX SQ/CC for ALC) shall determine when the search may be discontinued. Ensure documentation is accomplished IAW **paragraph 10.3.6.5** of this instruction.

10.8.1.8.1. Limit authorization to clear Red X's when a tool/item cannot be located to no lower than MOO/MX SUPT (MX SQ/CC or Deputy for ALC).

10.8.1.9. When it is suspected that the item/tool has fallen into an inaccessible or unobservable aircraft area, perform a NDI or use borescope equipment to locate the lost tool.

10.8.1.9.1. If the item/tool is in an inaccessible area that poses no FOD threat and the action is to leave the item/tool in place, the x-ray (or equivalent) with the identification of the exact tool location and copies of all information concerning the lost tool are maintained in the aircraft historical file until the item/tool is recovered.

10.8.1.10. If at any time during the investigation the item/tool is found, but is inaccessible, notify the FLT CC/Chief, support section, MOC, QA, expediter, Production Superintendent or equivalent, and the owning work center (Maintenance SQ/CC and Center Tool Manager, Maintenance Control, QA, First Line Supervisor, or equivalent and the owning workcenter for ALC).

10.8.1.10. **(CAF)** The QA chief inspector notifies Weapon System Team at Lead MAJCOM and applicable MAJCOM A4 staff, providing all pertinent information. The ACC functional manager confers with the responsible Air Logistics Center (ALC) on appropriate action and, in turn, notifies the unit on actions to take.

10.8.1.10.1. Operations Officer/MX SUPT may explore other possible actions to include having the unit or a DFT disassemble the aircraft to remove the item/tool.

10.8.1.10.2. If the aircraft MDS is one that has a PDM or is scheduled for depot modification, the lost item/tool and location is listed in the AFTO IMT 345, *Aerospace Vehicle Transfer Inspection Checklist and Certification*, for removal by the depot.

10.8.1.10.2. **(CAF)** Also ensure AFTO Form 103, Aircraft/Missile Condition Data, is annotated for depot to remove the item/tool.

10.8.1.11. **(Added-CAF)** CTK custodians will inform QA when lost tools are found after the CAF Form 145 has been closed out. QA will inform the Wing FOD manager when lost tools are found.

Chapter 11

MAINTENANCE SUPPLY SUPPORT

11.1. General. This chapter describes the general responsibilities and requirements of decentralized supply support personnel, Maintenance Supply Liaison (MSL), AMU maintenance Supply Support and work center supply management personnel. Lead Commands will identify specific responsibilities and outline unique decentralized supply support operations in Lead Command instructions when necessary. AF Program Action Directive (PAD) 08-01 makes the establishment of MSLs a Lead Command option. AFMAN 23-110, provides supply policy and procedures. Decentralized supply support personnel and MSL will follow the guidance outlined in AFMAN 23-110. ***NOTE:*** The AF has transitioned to a Global Logistics Support Center (GLSC) concept. The GLSC provides fleet wide supply support to all AF weapon systems and leverages consolidated repair facilities and ALC capability to optimize air frame availability.

11.2. Maintenance Supply Liaison (MSL) Section. The MSL monitors the overall maintenance and supply interface, resolves supply support problems, review reports and coordinates supply related training needs for decentralized supply support personnel. MSL personnel are authorized on the LRS UMD and report to the LRS/CC. MXG/CC with the MSG/CC may decentralize the MSL capability to physically reside with MXG. The LRS/CC through the MSL, is the liaison between maintenance units and the AFGLSC. If Lead Commands do not establish the MSL function, the LRS, Materiel Management Flight, Customer Support Section, will accomplish MSL duties. (See AFMAN 23-110 Vol 2 Chapter 2 for further instructions)

11.3. Decentralized supply support. The LRS/CC is responsible for providing supply support to maintenance activities and will decentralize supply personnel and parts to the maximum extent possible. Decentralized supply support personnel are authorized on the MXG UMD and report to maintenance activities. These personnel coordinate maintenance and supply actions, manage supply transactions for their assigned maintenance activity, monitor and track assets in the repair cycle, resolve supply support problems and report aircraft parts status to maintenance supervision. They assist maintenance in processing requisitions, researching sources of supply, completing DD Form 1348-6, *DoD Single Line Item Requisition System Document*, entering manual requisitions (part number only), updating exception code lists, and other peculiar maintenance supply problems.

11.3.1. Supply Discipline. Supply discipline is the responsibility of all military and civilian employees regardless of grade or position. Supervisors at all levels ensure the practice of good supply discipline. Train all maintenance personnel to perform supply duties related to their job to include AFI 23-111, *Management of Government Property in Possession of the Air Force*, guidance.

11.4. Ordering Parts. Order aircraft parts from supply through MIS/ILS-S interface. Monitor supply status on all backordered parts. To minimize records discrepancies, initiate orders/backorders for all parts through the appropriate MIS when an interface with Standard Base Supply System exists and all data elements are properly configured. Request supply assistance if status is unacceptable. Technicians ordering parts:

11.4.1. Provide required data to facilitate the issue request. See AFMAN 23-110.

11.4.2. Complete AF Form 2413 or AF IMT 2005, *Issue Turn-In Request* or locally developed electronic log, and include the supply document number and time ordered, or use printouts of requests made via the supply interface in lieu of AF Form 2413 or AF IMT 2005 or locally developed electronic log.

11.4.2. **(CAF)** Maintenance scheduling and supporting agencies will utilize the AF Form 2005, Issue/Turn-In Request, capability in MSAT.

11.4.3. Order parts for transient aircraft IAW AFMAN 23-110 and TO 00-20-1,. Use demand code "N" (non-recurring) for transient aircraft requests. Use demand code "R" (recurring) if the item is for a base assigned aircraft or for regularly scheduled transient flights.

11.4.3.1. Promptly process repairable items since the repairable item may be the only part available.

11.4.3.2. Assign a valid supply delivery priority to each demand IAW AFMAN 23-110 .

11.4.3.3. Cancel erroneous requests.

11.4.3.4. Use the force activity designators (FAD) code with the UND to set the requisition priority. When supporting a unit with a higher FAD, use the FAD of the supported unit.

11.4.3.5. Ensure proper use of UJCs.

11.4.3.6. Verify and monitor backordered requests to prevent unwarranted mission limiting conditions, CANNs, priority abuses and wasted money.

11.4.3.7. Recycle reusable containers and metals.

11.4.3.8. Turn in excess supply parts and materiel.

11.4.3.9. Process TRN to record usage of an item and ensure proper stockage.

11.4.3.10. Track DIFMs. DIFM inputs are critical to recording and getting credit for proper repair cycle times. DIFM status codes are currently broken down into three categories; delayed maintenance time, repair time, and AWP time. Repair time is the only time recorded and used to determine the number of assets LRS can stock. Not using the proper codes when they change, reduces the number of assets on base. DIFMs should be reduced to as near zero as possible since credit is not given for delayed maintenance or AWP time.

11.4.3.11. Ensure the SPD approves the local purchase of all aircraft parts. Purchase aircraft parts IAW AFI 64-117.

11.5. Processing. Process the MICAP start in Mission Capable Asset Sourcing System (Enterprise Solution-Supply (ES-S)) and coordinate with the MSL to upgrade, downgrade and cancel MICAP requirements.

11.6. Readiness Spares Package (RSP) Review. Maintainers have a critical role in the annual RSP review process. This role includes active maintenance participation in the base level validation process conducted by the LRS and their MAJCOM during the annual RSP pre-review process in preparation for the ALC/SPD final review. Close maintenance-supply collaboration is essential to ensure RSPs are properly sized to support contingency maintenance requirements.

11.7. Bench Stock. Work center supervisors determine the contents of their bench stock. Examples of bench stock items include: nuts, bolts, cotter keys, washers, resistors, capacitors, light bulbs, sealants and batteries. Bench stock levels are managed and based predominantly on consumption. See AFMAN 23-110, Vol 2, Part 2, Chapter 11 for specific requirements for managing bench stock levels.

11.7.1. Mark bins containing 50 percent or less of the authorized quantity to facilitate monthly inventories. Do not include items coded TCTO, unacceptable for AF use, critical, classified or sensitive in bench stocks. Refer to AFMAN 23-110 for exception data.

11.7.2. Maintain environmentally sensitive items in their original container. If removed from original container, place items in a sealed package and clearly mark them to prevent misidentification and misuse (e.g., seals, desiccant, filters, circuit cards, sealants).

11.7.3. Remove unidentifiable items, or items whose serviceability is unknown, from bench stock bins and process them as shop scrap through DRMO.

11.7.4. Control and secure any precious metals displayed. Dispose of property containing precious metals IAW AFMAN 23-110.

11.7.5. Set up fixed or mobile bench stocks to provide quick and easy access to bits and pieces needed to support maintenance efforts. Ensure mobile bench stocks do not present a FOD hazard.

11.7.6. Identify and control the issue and turn-in of hazardous materiel/items on bench stock listings.

11.8. Consumable Readiness Spares Package (CRSP). The CRSP concept allows MAJCOMs to use either Mobility Readiness Spares Package (MRSP) or In-place Readiness Spares Package (IRSP) details to manage consumable item support for contingency deployments. The CRSP process provides requirement and asset visibility, has automated transfer and deployment procedures, has the capability to provide the correct priority and project-coded replenishment requisitions, and eliminates redundant requirements. Refer to AFMAN 23-110, Vol 2, Part 2, Chapter 26 for detailed CRSP procedures and options. The CRSP procedures provide MAJCOMs with a standard process to support consumable item wartime requirements.

11.9. Shop Stock. Includes gas cylinders, random length bar stock, sheet metal, plastic, fabric, electrical wire, and similar items not normally included in bench stocks. Maintain shop stock for day-to-day operations. Monitor shop stock to prevent materials from becoming excessive or outdated. Shop stock should not normally exceed 90 days usage, or the unit of issue or unit pack, whichever is greater. Store shop stock near/adjacent to bench stock items, if practical, but do not mix them together. Clearly identify materials as “Shop Stock” and label them with noun, national stock number or part number, unit of issue, and shelf-life, if applicable.

11.9. (CAF) Shop Stock. Maintain a master inventory of items. Note: Assets cannot be commingled.

11.10. Operating Stock. Includes connector dust covers, hydraulic line caps/plugs, and similar items that are normally recovered after use and re-used. Store operating stock near/adjacent to bench stock items, if practical, but do not mix them together. Monitor operating stock to prevent it from becoming excessive or outdated. Retain partially used bench stock items in bench stock and not in operating stock. Identify, tag, and turn in items with no forecasted use IAW AFMAN

23-110. Clearly identify items as "Operating Stock" and label them with noun, national stock number or part number (if applicable), unit of issue, and shelf-life, if applicable.

11.10. (CAF) Operating Stock. Maintain a master inventory of items. Note: Assets cannot be commingled.

11.11. Work Order Residue. Includes expendable bit/piece items left over from maintenance work orders or bench stock deletions. Store work order residue near/adjacent to bench stock items, if practical, but do not mix them together. Ensure excesses are consolidated for turn-in to LRS at least annually. Clearly identify items as "Work Order Residue" and label them with noun, national stock number or part number, unit of issue, and shelf-life, if applicable. Control all work order residues used on or around aircraft, uninstalled engines, and AGE.

11.11. (CAF) Work Order Residue. Maintain a master inventory of items. Note: Assets cannot be commingled.

11.12. Adjusted Stock Levels. Adjusted levels are used when the demand level or consumption is inadequate to support the requirement. A single occurrence of a mission limiting status is not sufficient reason to establish an adjusted stock level. It may indicate a need to review demand data for accuracy. Use AF IMT 1996, *Adjusted Stock Level*, to request adjusted supply levels for support of special projects, special operating requirements, or if existing demand data is insufficient to support mission requirements. Work centers, with assistance from supply personnel, must prepare the AF IMT 1996 and route it through MOO/MX SUPT for review prior to sending to LRS Customer Service Section. See AFMAN 23-110 for criteria and procedures to submit these requests. Prior to submitting to LRS, ensure the AF IMT 1996 contains adequate justification and is approved by the MXG/CC. Examples of adequate justification include: seasonal materiel requirements, long lead-time items, unserviceable components forcing a "no fly" or NMC condition for extended periods of time and fleet-wide versus single aircraft impacts. Work centers must maintain a master file of adjusted stock levels and must follow-up on requests. Supply personnel and the appropriate work center must accomplish a validation of adjusted stock levels according to AFMAN 23-110.

11.13. Shelf life Items. Work centers control shelf life items in bench stock, operating/shop stock and work order residue IAW AFMAN 23-110. LRS identifies shelf life items by use of shelf life codes; units will identify shelf life in bench, shop, operating stocks and work order residue by using colored/highlighted bin labels. This label contains the item's shelf life code and source of the code. Contact the LRS supply inspector to determine if shelf life conflicts exist between the various sources. Check expiration dates on issued items and do not accept outdated items from supply. Do not open shelf life containers until needed and use the oldest items first. Shelf life materials stored in other than original containers must be marked with original shelf-life expiration codes. Recycle, reclaim, or turn-in for disposal, shelf life items which are loose in the bin and expiration dates cannot be determined IAW Type I shelf life criteria IAW AFMAN 23-110. Inspect Type II shelf life items IAW AFMAN 23-110.

11.14. Equipment Items. Continually review equipment items needed for mission accomplishment. LRS personnel assist equipment custodians in researching and preparing documents for gaining authorizations and ordering equipment items. Equipment custodians request equipment, tools and bench mock-ups, using AF IMT 601, *Equipment Action Request*, or AF IMT 2005. LRS provides equipment custodians a CA/CRL listing all authorized and in-use equipment for each account. Check the appropriate Allowance Standard for authorizations, and

verify that the correct SRDs are loaded. See AFMAN 23-110 for procedures on appointing equipment custodians, setting up the proper accounts, ordering, and maintaining equipment items. Organizational equipment custodians must work through LRS to obtain a loan agreement from the Command Equipment Management Office prior to loaning organizational equipment to another installation IAW AFMAN 23-110. Accountable equipment custodians must notify LRS Equipment Accountability Office of deploying or scheduled to deploy equipment IAW AFMAN 23-110. Ensure compliance with capitalized equipment procedures IAW AFMAN 23-110.

11.15. Special Purpose Recoverable Authorized Maintenance (SPRAM). SPRAM assets are fault isolation spares, shop standard spares, training spares, Dash-21 TO spares (AME), test station spares, and stand alone spares. These assets are Expendability, Recoverability, Repairability Code (ERRC) XD/XF items, which are controlled and managed as in-use supplies. Review all SPRAM authorizations annually and certify as valid. Annotate review on the R25 listing. A SPRAM monitor and custodian are appointed to manage these assets. The program was developed to provide AF maintenance leaders an automated system to maintain visibility and accountability for recoverable spares being used for other than their primary mission and that are not being reported through any other system. (Ref: AFMAN 23-110 and AFI 21-103).

11.16. Supply Assets Requiring Functional Check, Calibration, or Operational Flight Programming. Maintenance sections must identify items requiring functional checks, calibration, or operational flight programming prior to use by preparing a list of items, (including the repair section's organization and section code) and sending the list through the Flight/CC or flight/section NCOIC or AMU OIC/SUPT (if applicable) and MOO/MX SUPT to the LRS chief inspector. This list shall be updated/ validated IAW AFMAN 23-110. Supply issues the items using procedures in AFMAN 23-110 to repair sections when functional checks, calibration, or programming is due or when serviceability is doubtful. If a part issues requiring a functional check, ensure it is not restricted in the weapon system Dash-6 TO. Do not use an aircraft as a test bed for parts. Refer to TO 00-20-3 for functional check and frequency requirements.

11.17. Time Compliance Technical Order (TCTO) Kit Procedures. TCTO kit management is a joint maintenance and supply responsibility IAW TO 00-5-15 and AFMAN 23-110. TCTO managing agencies initiate requests for kits, parts and tool requirements (See **Chapter 7** of this instruction for additional information). Transfer TCTO kits with aircraft or equipment. Retain TCTO kits for aircraft returning to the unit for TCTO compliance. AFMAN 23-110, TO 00-5-15, and TO 00-5-1 contain detailed guidance for the transfer of TCTO kits.

11.17. (CAF) Time Compliance Technical Order (TCTO) Kit Procedures. Supply TCTO Kit Monitor will schedule and chair a monthly TCTO kit reconciliation meeting with wing TCTO monitors.

11.18. Supply Points. Establish supply points within individual work centers when time or resources required to move items dictate a need. Storage space for the supply points is provided by the supported work center. Determine management of the supply point by agreement between the group commanders. Supply points must be reconciled semi-annually by the work center supply point monitor and the results of the reconciliation are provided to the LRS Supply Point Manager. Supply points are inventoried annually IAW AFMAN 23-110. Establishment of an aircraft parts store and/or FSC within the maintenance complex reduces the dependence on supply points and or bench stocks. LRS maintains warehouses in both these facilities, stocking

assets closer to the point of use. Expenditure of funds and manpower may be reduced by use of these facilities.

11.19. Local Manufacture. Units publish directives outlining procedures covering the manufacture of items source coded local manufacture. Include procedures that prevent abuses, specify coordination requirements (e.g., QA) and approval authority. Local manufacturing is an essential part of unit maintenance support. The applicable end-item TO identifies items subject to local manufacture. Specific procedures are in AFMAN 23-110. When developing directives:

11.19.1. Identify the approval authority for local manufacture requests.

11.19.2. Requesters use an AF IMT 2005 for supply item local requests. Use an AF IMT 601 for equipment requests. Provide a drawing, sample, technical data and DD Form 1348-6, as required. Obtain drawings from the primary EDSC or Joint Engineering Data Management Information and Control System (JEDMICS) IAW AFI 63-101.

11.19.3. Requesters coordinate with the appropriate fabricating section to determine the bits and pieces required to manufacture the item. The supply local manufacturer manager assists in verifying parts availability.

11.19.4. Requesters identify all sections that have action on the AFTO Form 350 for items requiring multiple section processing.

11.20. Production Scheduling. The repair section NCOICs establish a production schedule based on priorities. LRS provides the repair cycle asset management listing (D23) to assist each repair section in this effort. The D23 is provided in both maintenance location and stock number sequence. Repair sections use the D23 to manage the flow of unserviceable DIFM assets in the repair cycle and to ensure the DIFM status and location is updated.

11.21. Control of AWP Assets and Cross-CANN. Closely control reparable assets in AWP status. Do not consolidate storage areas for AWM and AWP assets. Group commanders negotiate storage of out-sized units. Provide the supply AWP manager the DIFM document number of the AWP end item and the due-out document numbers of bits and pieces to adjust supply data base records for cross-CANN actions. Supply requisitions, and monitors the status of repair bits and pieces. Repair section asset managers identify unacceptable supply status impacts to the LRS AWP Monitor. Supply requests disposition for assets with unavailable repair parts. Only dispose of parts on receipt of disposition authority.

11.22. Repair Cycle Assets. Decentralized Supply Support (DSS) personnel will monitor the status of repair cycle assets. Process repair cycle assets and ensure appropriate DIFM Status codes are used IAW TO 00-20-3. Units establish local procedures for the control of repair cycle assets throughout the maintenance cycle. Include methods of accounting for all components and accessories, procedures for control of assets in AWP or AWM status, and procedures and responsibilities for cross CANN, removal of bits and pieces, and scheduling and control of repair cycle assets. Promptly process, repair, and return repairable components to the repair cycle support element within the required time frame IAW this publication, **paragraph 11.34.1.1.9**. Repair assets to the fullest extent authorized within unit capabilities.

11.23. DIFM. Repair sections use the D23 to manage the flow of unserviceable DIFM assets in the repair cycle and to update DIFM status and location of unserviceable assets. If a parts request is backordered and the unserviceable DIFM item does not limit or restrict the operational capability of the end item, remove it and send it to the applicable support section for either repair, NRTS approval, or condemnation with a subsequent turn-in to LRS (as a credit DIFM) IAW TO 00-20-3. The D23 will not be used to manage serviceable assets.

11.24. Tail Number Bins (TNB). Establishment and management of TNBs is a maintenance responsibility. TNBs are storage locations established and controlled to store issued parts awaiting installation and parts removed to FOM. TNBs are set up by tail number, serial number, or identification number. Once the part is issued, the aircraft parts store informs the MOC and Flightline expediter (for MICAPs) or the PS&D (for backordered items) that the part is in. Do not release parts from the TNB without proper documentation. Return items removed from the TNB that are not installed that duty day. Inform the Production Superintendent or Flightline expediter of TNB assets, which may prevent or satisfy a mission-limiting condition. TNB items used to satisfy MICAP conditions are not CANNs. Reorder these items and notify the expediter of the new document number. Update the aircraft forms and the MIS. If supply creates a due-out prior to transfer of these items, notify decentralized supply support to change the "mark-for" field on the due-out detail. Seal and store partially completed TCTO kits and parts in the TNB and mark the container or package with the tail number, serial number, or equipment identification number and TCTO number. Maintain security and control of TNB assets. Track property placed in the TNB by tail number, serial number, or equipment identification number. For each entry indicate:

11.24. (CAF) Tail Number Bins (TNB). The designation for AGE due-out release items is Hold Bin.

11.24.1. Date received

11.24.2. Noun

11.24.3. Document number

11.24.4. Status (FOM, issue/due-out release (ISU/DOR), TCTO, etc.)

11.24.5. Removal information (date, time, signature, and employee number of the person who picked up the property)

11.24.6. Remarks

11.25. CANN actions. See section 14.8 for CANN procedures and responsibilities.

11.26. Bench Check and Repair Policy. Maintenance sections bench check items as part of the on-equipment troubleshooting process. When workload requires, the section NCOIC determines the priority for bench check actions. Specific procedures for bench check and repair policy are provided in TO 00-20-3. The following general guidelines apply:

11.26.1. Order required parts “fill or kill.” If the part is not in stock and a MICAP condition exists, backorder the new request. Determine local repair capability before requisitioning off-base support or going lateral support.

11.26.2. Remove the suspected item, fill out the AFTO Form 350, and annotate it as repair and return. Attach AFTO Form 350 to the item; place the item in the repair cycle; and annotate the name of the repair section on the form.

11.26.3. Bench-check, repair, take NRTS action, or condemn the item. If the item is repaired or otherwise determined to be serviceable, the repair section informs the support section the item is available for pick-up so on-equipment maintenance action may resume. If the item cannot be repaired, the repair section informs the support section to initiate a backordered request and takes appropriate NRTS and condemnation action on the unserviceable asset.

11.27. Maintenance Turn-Around (TRN) Record Update Processing. Work centers processing TRNs will ensure the AFTO Form 350, Part II, is processed using the supply interface to the MIS. Verify each TRN with the D04. Use TRN procedures for all items repaired and replaced.

11.28. Maintenance Turn-In to Supply. Work centers must properly tag and secure repair cycle assets and place items in a leak–proof containment liner (no leaks/stains/tears/punctures), as required. To prevent spillage, any item containing any type of residual fluid, regardless of hazard classification, will be drained, purged, preserved, capped, plugged and placed in a leak-proof containment liner before placement into a serviceable reusable container for storage or shipment. The work center must comply with packaging, environmental control, purge and preservation requirements as specified in applicable TOs, AFI 24-203, AFMAN 24-204 and place the proper documentation with the container. Include AFTO Form 350, Parts I and II, and a condition tag or label with all items turned into supply. Enter the correct action taken code on AFTO Form 350, Part II. Accomplish proper reclamation and demilitarization actions on condemned repair cycle assets IAW AFMAN 23-110, Volume 6, Chapter 6 and 7.

11.29. Buildup Items. Maintain items requiring build-up prior to use (e.g., wheels and tires) in supply points in a built-up configuration. Send items to appropriate work centers for build-up and return them to the supply point for later issue. Use AF IMT 1297, **Temporary Issue Receipt**, or control log to control assets sent for build-up when the supply point is operated by supply. Validate AF IMTs 1297 daily if over 10 days old. Establish local procedures to control assets when maintenance operates the supply point and assets are sent to another organization for build-up.

11.30. Supply Reports and Listings. Use supply reports and listings to manage maintenance requirements. Most are provided automatically or generated after supply transactions. Request others when needed. **Attachment 2** of this instruction lists the most common/important reports and listings.

11.31. Deficiency Report (DR) Exhibits. DR exhibit procedures for issue, turn-in, and storage are contained in TO 00-35D-54 and AFMAN 23-110. They shall be input into the Joint Deficiency Reporting System (JDRS) at **https://jdrs.mil**.

11.32. Work Center Supply Management.

11.32.1. Maintain AF Form 2413 or AF IMT 2005, or a locally developed electronic log recording all parts ordered from LRS and verify status with the daily document register (D04), Priority Monitor, Report (D18) and the monthly due-out validation listing (M30) or use printouts of requests made via the supply interface in lieu of an electronic log, AF IMT 2005, or AF Form 2413.

11.32.2. Maintain source document audit trail accountability for all demands on supply. Ensure validity and completeness of supply requisition forms. Verify "UJC" and "SRD" codes.

11.32.3. Maintain MICAP records and initiate follow-up actions on MICAP requisitions.

11.32.4. Follow-up with supply personnel to resolve AWP problems.

11.32.5. Establish procedures for controlling cross-CANN of reparable assets to reduce AWP units.

11.32.6. Process supply items requiring a buildup before issue in a timely manner.

11.32.7. Compile a list of items requiring functional check or calibration prior to installation. Review and update the list IAW AFMAN 23-110.

11.32.8. Manage aircraft systems and equipment under 3LM. Compile a list of direct NRTS items in coordination with maintenance squadron back shops and AFREP representative and provide it to LRS for inclusion in the master direct NRTS listing. Review and update at least semiannually.

11.32.9. Establish a storage area for reusable containers. Consolidation with other work centers is authorized.

11.32.10. Schedule and control all repair cycle assets through the repair flights based on priority assigned.

11.32.11. Move repairable assets from work center to work center in an expedient manner. Ensure proper documentation, containers accompany and meet the required time frame IAW this publication, **paragraph 11.34.1.1.9**.

11.33. Maintenance Repair/Supply Delivery Priorities. Use the following to establish maintenance repair priorities. Raising or lowering priorities will not necessarily require a corresponding change in the supply delivery priority. The maintenance repair priority and the supply delivery priority are normally identical. Use a less responsive supply delivery priority when the need time or date for a part does not justify the delivery priority specified. Refer to AFI 24-301 chapter 7.

11.33.1. Priority 1. Use for primary mission aircraft within 12 hours of a scheduled launch on the following missions:

11.33.1.1. Presidential directed missions supporting US forces in combat and national emergency plans and special weapons movement missions.

11.33.1.2. Aircraft on alert status.

11.33.1.3. Related AGE, munitions, and munitions equipment assigned to these missions.

11.33.2. Priority 2. Use for:

11.33.2.1. Primary mission aircraft and related AGE, munitions, and munitions equipment for first 8 hours after landing or start of recovery or within 6 hours of a scheduled launch or alert.

11.33.2.2. Simulated generation during ORIs.

11.33.2.3. Primary special weapons movement mission aircraft 48 hours prior to a scheduled launch.

11.33.2.4. Aero-medical evacuation, rescue, and weather mission aircraft and related AGE, munitions and munitions equipment.

11.33.2.5. All transient FAA aircraft.

11.33.2.6. Aircraft and equipment or related AGE requiring repair which is preventing or delaying student or maintenance training.

11.33.3. Priority 3. Used for:

11.33.3.1. Primary mission air vehicles, engines and related AGE, munitions and munitions equipment, undergoing scheduled or unscheduled maintenance.

11.33.3.2. Transient air vehicles not otherwise listed.

11.33.3.3. Administrative aircraft within 8 hours of scheduled flight or on alert status with standby crews.

11.33.3.4. Time change requirements for special weapons.

11.33.3.5. Scheduled and unscheduled maintenance of munitions which if not performed will prevent or delay mission accomplishment.

11.33.3.6. TMDE requiring emergency repair or calibration, the lack of which will prevent or delay mission accomplishment.

11.33.3.7. Spares not available in LRS.

11.33.3.8. Critical end items and spares not available in LRS.

11.33.3.9. Routine maintenance of aircrew or missile training simulator, or other training devices or related AGE or sites and aircraft or equipment used for maintenance training.

11.33.3.10. Avionics shop electronic SE and automated test stations.

11.33.3.11. Repair cycle assets to satisfy a MICAP condition.

11.33.4. Priority 4. Used for:

11.33.4.1. Routine or extensive repair of primary mission air vehicles, related AGE, and repair cycle assets.

11.33.4.2. Administrative aircraft undergoing scheduled or unscheduled maintenance.

11.33.4.3. Routine maintenance of AGE not otherwise listed above.

11.33.4.4. WRM items due maintenance or inspection.

11.33.4.5. Inspection, maintenance, and TCTO compliance of RSP or MSKs.

11.33.4.6. Scheduled calibration and unscheduled repairs on TMDE not listed above.

11.33.4.7. Extensive repair of aircrew or missile training simulator, or other training devices or related AGE.

11.33.5. Priority 5. Used for:

11.33.5.1. Bench stock requirements.

11.33.5.2. Fabrication and repair of aeronautical items not carrying a higher priority.

11.33.5.3. Non-tactical or non-primary mission aircraft undergoing extensive repair.

11.33.5.4. Time change requirements on conventional items.

11.33.6. Priority 6. Used for fabrication and repair of non-aeronautical items, equipment, and other aeronautical requirements.

11.33.7. Priority 7. Used for spares excess to base requirements.

11.34. Intermediate Repair Enhancement Program (IREP). MXG/CC is the OPR for the IREP program. IREP provides wing senior leadership a forum to evaluate current aircraft weapons systems resource and support status, highlight specific problem areas, focus on local repair initiatives to include the AFREP processes, and discuss ways to improve the overall repair cycle process.

11.34.1. IREP Meeting. The meeting will be held at least quarterly; chaired by the WG/CV and attended by the MXG/CC and MSG/CC. Recommended participants include the following: LRS, FSC, representatives from maintenance units, O&M resource advisors, maintenance analysis, AFREP (if applicable), QA, and others as determined by the MXG/CC and MSG/CC. The responsible asset manager should be the focal point to lead the discussion of the key data about a specific part.

11.34.1.1. Subject Matter Review. One of the objectives of the IREP meeting is to increase overall base self-sufficiency for repair and reduce the overall cost of operations. Topics discussed vary based on local requirements, but should include key elements of asset management and costs associated with each of the maintenance stock fund divisions. The number of items reviewed in each topic is determined locally. Units determine the specific format and visual aids used for presentation of the following information:

11.34.1.1.1. Asset Profile/Top Projected MICAP Situations. An asset profile is an in-depth review of an asset identified as critical to mission accomplishment or that causes frequent MICAP situations. Data in an asset profile may include number authorized and on-hand, number repaired and not repaired, number of MICAPs, average repair cycle days, average AWP days, monthly demand, item cost, and financial value of assets in the repair cycle. The overall health of the assets should include reasons for MICAP situations and solutions to resolve them.

11.34.1.1.2. Test Station Equipment Profile. Test station in-commission time is critical to efficient repair cycle output. TMDE and other shop deficiencies may have a negative effect on the base repair cycle process. The wing should focus on actions which maximize test station capability.

11.34.1.1.3. Wing Self-Sufficiency Initiatives. Initiatives include discussion of new wing, group and squadron AFREP initiatives and other local self-sufficiency repairs. Discussions must include how initiative is crossfed to appropriate depot, Lead Command and all other like-MDS bases.

11.34.1.1.4. High Cost Maintenance. Unit funded TCTOs/modifications, high cost work centers, SPRAM back orders, financial value of parts in the repair cycle, etc.

11.34.1.1.5. Top CANN Items. Items with significant CANN histories. Review information which includes the number of times items were CANNed in the last 30 days, average CANN occurrences over the last 6 months, projected get well date, and the time required to CANN the item.

11.34.1.1.6. Unit Aircraft Engine Status Review. A status review summary should include number in work, projected production date, and supply drivers for work stoppage.

11.34.1.1.7. Repair Cycle Bottlenecks. Review any area, which impedes the repair cycle process such as frozen supply records, supply, rejects, test station backlogs, personnel deficiencies, manpower shortages etc.

11.34.1.1.7. **(CAF)** Review status of all issued Due-in From Maintenance (DIFM), including status codes over 60 days and not counted as issued DIFM days (e.g., CTR, PDM, TCG, TOC, etc).

11.34.1.1.8. AWP Summary. Analyze due-outs causes and back order priorities to determine if supply action is required to correct any deficiencies/problems.

11.34.1.1.9. Repair Cycle Throughput. Throughput is the average time it takes to move individual items through the repair cycle. Review/compare the 12-month average versus the current month repair cycle time (RCT) to determine if progress is being made. 2LM reparable items must be processed within one workday/24 hour as established in AFI 21-129. Non-2LM repairable items must be processed within 4 days for serviceable assets and 10 days for unserviceable assets.

11.34.1.1.10. Part Store Issue Effectiveness. Percentage of aircraft parts issued from the flightline part store vs. the main warehouse. Disregard this element when LRS does not segregate aircraft components into a separate warehouse.

11.34.1.1.11. Discuss product improvement initiatives and maintenance related to Innovation Development through Employee Awareness (IDEA) submissions, etc..

11.35. Destruction of TOP SECRET Material. Destruction of TOP SECRET material requires a receipt according to AFI 31-401. Include a copy of the destruction certificate with the turn-in documentation.

11.35.1. Provide sensitive instruments interior container protection.

11.35.2. Ensure a copy of the LRU/SRU historical record accompanies turn-in of all items.

11.36. Certifying Items Associated With Explosives: Ensure items such as Multiple Ejector Racks (MERS), Triple Ejector Racks (TERS), pylons, launchers, rafts, bomb racks, ejection seats, fire suppression bottles, AFE and gun systems and components are certified explosive free prior to turn in to LRS and/or DRMO. Refer to TO 11A-1-60, *General Instructions - Inspection of Reusable Munitions Containers and Scrap Material Generated from Items Exposed to or Containing XPL*, and AFI 21-201 for Material Potentially Presenting and Explosive Hazard (MPPEH) for specific certification requirements.

Chapter 12

WING WEAPONS MANAGER AND WEAPONS STANDARDIZATION

12.1. Wing Weapons Manager (WWM). The WWM will be a 2W100 CMSgt assigned directly to the MXG/CC. In units where 2W1 personnel are assigned but no 2W100 authorization exists, the MXG/CC will appoint the most qualified 2W1 to fulfill WWM responsibilities outlined in this chapter. (ARC: the Senior Weapons Loading Supervisor serves as the WWM and does not require assignment to the MXG/CC staff). The WWM is the wing's focal point for all weapons loading and armament systems related matters. The WWM's primary efforts focus on compliance, continuity, and standardization. Weapons activities required to support the generation of peacetime training sorties generally do not reinforce primary combat skills. Therefore, the WWM plays a key role in ensuring that the unit is able to produce combat loaded aircraft. The WWM is charged with providing technical and managerial advice to senior leaders in matters of weapons loading and armament systems. The WWM coordinates with the weapons sections, armament systems flight, wing weapons and tactics officer, the munitions squadron/flight, and other unit agencies on weapons related matters. The WWM has the authority to cross group and squadron functional lines. The WWM (will):

12.1.1. Is the functional manager for all 2W1X1 personnel. The WWM is the wing POC for all 2W1X1 manpower issues within the wing to include coordination on all manning, workcenter and organizational changes, AFSC changes, cross/retraining requests and waivers. The WWM informs the MAJCOM Armament functional manager of any proposed actions that may drive changes in unit manpower requirements (non applicable to ARC).

12.1.1.1. In Wings where the Armament Systems Flight is organizationally aligned under a Munitions Squadron (MUNS), the Armament Systems Flight will organize, operate and perform duties and responsibilities per **Chapter 5** of this instruction.

12.1.2. Assign and balance 2W1X1 grades, experience and skill-levels between all 2W1X1 work centers across the wing. Monitors PRP status of 2W1X1 personnel, if applicable. Rotate 2W1XX personnel between wing work centers (armament flight, weapons sections, WS, QA, etc.) as required to provide breadth of experience, promotion and job opportunities within the unit and 2W1 career field. Recommend all personnel be screened and considered for rotation at a maximum of every three years (non applicable to ARC). Ensure only individuals with the 2W1 AFSC (or equivalent contractor personnel) are certified/qualified to load/unload munitions items on aircraft (except for those qualification tasks specifically outlined in this AFI).

12.1.3. Designate the Loading Standardization Crew (LSC), academic instructor, and lead crews. LSC Team Chief will be a 2W171 with a minimum grade of TSgt. Lead Crew Chief will be 2W171, with a minimum grade of TSgt if unit manning/personnel experience permits. Provide load crew training and certification program guidance and monitor implementation.

12.1.4. Inform the MXG/CC and affected SQ/CC and/or Operations Officer of any issues or problems affecting load crew status, Dual Loading Operations (DLO), projected manning, equipment, and other items of concern.

12.1.5. Review the wing/squadron SORTs report prior to submission to the MAJCOM. Any equipment or load crew shortfalls which affect the wings C-rating in SORTS will be included and comments provided. Comments will provide reason, action taken and proposed get well dates for all 2W1 issues reported in SORTs. SORTS will be reported IAW AFI 10-201.

12.1.5.1. In units where the AEF Reporting Tool (ART) is used, the WWM will review the ART for correct UTC status reporting.

12.1.6. Monitor overall load crew status and advise the MXG/CC when the number of fully certified load crews falls below the UCML/TTML minimum. If this occurs and cannot be corrected within 30 days, the following information is sent by secure message, through the MXG/CC, to the appropriate MAJCOM 2W1XX functional manager. ***NOTE:*** All 2W1X1s working outside their respective workcenter or DAFSC will be qualified/certified if possible to fill load crew shortfalls before sending a message to the MAJCOM.

12.1.6.1. Number of 2W1X1 personnel authorized and assigned by work center, skill level (primary AFSC) and grade for the entire wing. Include all work centers to which 2W1X1 personnel are assigned.

12.1.6.2. Number of 2W1X1 personnel working outside the AFSC/workcenter.

12.1.6.3. Number of 2W1X1s not able to perform primary duties and the reason.

12.1.6.4. Number of fully certified crews. Include corrective action, get well date, and 30/60-day load crew status projection. If the standard cannot be reached in 60 days, provide the reason.

12.1.6.5. Number of load crews formed but not fully certified. List crews and specific items for which they are not certified and qualified.

12.1.6.6. Remarks: List limiting factors, equipment shortages, availability of training aircraft, etc.

12.1.7. Annually review DOC Statements, OPLANs, UCML/TTMLs, unit tasked UTCs (for equipment and personnel) and UMD to identify any disconnects or problems. Coordinate changes and appendices with the wing weapons and tactics function and the munitions flight. Report any findings to MAJCOM.

12.1.7.1. Quarterly validate and document wing 2W1XX UTC AEF taskings against existing/squadron DOCs. Specifically, WWM will ensure no shortfalls exist by aligning required skill level, grade, line remarks and CFETP qualifications against tasked UTCs to include AEF taskings for all assigned 2W1XX personnel. If a shortfall exists, WWM will immediately start an aggressive training program to eliminate shortfalls.

12.1.8. Resolve scheduling conflicts affecting weapons loading and DLO training programs.

12.1.9. Provide input during development of local exercises involving weapons loading/armament functions, and serve as an advisor/evaluator to the wing exercise evaluation team.

12.1.10. Ensure a recognition program for load crew and armament personnel is established.

12.1.10.1. **(Added-CAF)** Recurring quarterly/annual Armament Awards submission guidance is found on the AF Armament SharePoint Website." **https://cs.eis.af.mil/afmunitions/Armament/default.aspx**

12.1.11. Ensure standardization of load crew CTKs by aircraft MDS to the maximum extent possible to provide interoperability of load crews. CTKs should contain all tools to accommodate common loading and maintenance functions. Weapons load crew CTK contents will be approved by the WWM. In coordination with the weapons section NCOIC and WS superintendent, determine the number of loading tool kits required in bomber units, and those that support only test, evaluation or training missions.

12.1.12. Ensure sufficient quantities of serviceable load crew training munitions are available to support both load crew and DLO training programs. Review and validate all Munitions Forecasts submitted by WS and the Armament Flight prior to submission to MAJCOM.

12.1.12.1. Training munitions: Authorized quantities of training munitions are posted in the "Air Force Standard For Non-Expendable Air Munitions Training Authorizations" maintained on the AF Portal, AF/A4LW Knowledge Now CoP. The standards are located in the policy folder/AFI 21-201/attachment 1. These numbers reflect the maximum munitions required exclusively for weapons load crew certification and recurring training (WLT). These munitions are forecasted by and assigned to weapons load training (W1) accounts. Sortie generation and aircrew classroom training munitions must be forecasted for and maintained on separate supply accounts. Munitions required for DLO training must be forecasted on the unit sortie surge account.

12.1.12.2. Units may request additional quantities of munitions than specified on these tables but will not be allocated munitions unless sufficient quantities are available to do so. The UCML/ TTML will be the source document for WLT munitions requirements and authorizations.

12.1.12.3. Units with multiple MDS will only be authorized the minimum allocation/authorization of WLT munitions to facilitate load training on all MDS. ***EXAMPLE:*** If a base has both F-15E and F-16 aircraft assigned and both MDS are tasked on the UCML/TTML for GBU-12 then only two, not four, GBU-12's will be allocated to support both MDS. If a situation exists where the WLT facilities are physically separated and the WWM determines it negatively impacts load crew training to move munitions from one to the other, then each facility will be authorized the minimum number of tasked training munitions.

12.1.13. Ensure introductory training is provided to newly assigned personnel on aircraft familiarization, safe for maintenance, explosive safety, weapons release and gun systems maintenance prior to performing duties. Training, certification and qualification required to load munitions on aircraft are only provided by Weapons Standardization. All wing 2W1X1 personnel regardless of duty position will receive initial and recurring weapons academics.

12.1.14. Based on unit taskings, designate the number of load crews, other than the LSC and lead crews, to be certified on support or limited use munitions. In nuclear tasked units the WWM determines the number of load crews required to be certified on applicable nuclear weapons in support of Oplans, when the Oplans DOC does not dictate load crew requirements.

NOTE: (ARC) The WWM Coordinates with the MXG/CC in determining the number of load crews to be certified on support or limited use munitions.

12.1.15. Develop, in coordination with the explosive safety officer, airfield management, and Quality Assurance, an Installation Publication or supplement to this AFI for parking, launch and recovery of explosives-loaded aircraft, end of runway procedures, and to outline situations warranting impoundment of aircraft with hung ordnance, delayed release or jammed gun systems. The publication or supplement must include requirements to:

12.1.15.1. Arm and de-arm munitions-loaded aircraft in approved areas. Immediately-prior-to-launch and "safing" procedures may be performed in the aircraft parking area for contingencies, unit exercises, and daily training missions as quantity distance clearance allows with the approval of wing safety, airfield management and the MXG/CC.

12.1.15.2. Establish procedures for inspecting and "safing" hung munitions or external stores before aircraft return to parking areas. Control access to aircraft until munitions are made safe and cause of hung stores is identified. As a rule, ensure aircraft guns and rockets are "safed" in the de-arm area before aircraft return to open ramp parking areas.

12.1.16. Monitor weapons release/gun fire-out rates, malfunctions and corrective actions to assess weapons and armament systems reliability. Take appropriate action to resolve any problems and contact MAJCOM for assistance if required.

12.1.16.1. Weapons release reliability rates are calculated by dividing the number of successful releases by the number of attempts (Goal: 99%).

12.1.16.2. The gun fire-out rate is calculated by dividing the number of successful bursts by the number attempted (Goal: 98%). Once a malfunction occurs, any further attempts for the purpose of clearing the malfunction should not be counted as attempts.

12.1.17. Ensure compliance with local accountability procedures for AFI 36-2217 and AFI 21-201. In conjunction with the weapons sections and munitions flight, develop a standard local format for the AF IMT 2434. A computer generated product may be used if it contains all required information.

12.1.18. Coordinate with the MOO, munitions flight, weapons safety and operations plans in developing nuclear weapons operations procedures (e.g., convoy, custody transfer, no-lone-zone) if applicable.

12.1.19. Ensure LME and MMHE meet the requirements outlined in **Chapter 10** of this instruction.

12.1.20. Conduct a wing weapons meeting monthly (quarterly for ARC) with representatives from WS, wing safety, quality assurance, munitions flight, armament flight, and the weapons sections to discuss and resolve any wing weapons issues, concerns or problems. Weapons AFETS are encouraged to attend.

12.1.21. Short tour locations will ensure en route training requirements for inbound 2W1X1 personnel are identified and requested through the MAJCOM.

12.1.22. Monitor WRM Rack, Adapter, Pylons (RAP) and guns/components status to ensure required assets are available to support OPLAN tasking.

12.1.23. Provide monthly (quarterly for ANG) manning, weapons release and gun reliability rates, equipment, and tester status (9405 report) to Lead MAJCOM NLT the 5th of each month. Monitor the status of critical armament and weapons systems support equipment and testers for serviceability, accountability and status of TCTO modifications.

Figure 12.1. Weapons Expediter Training.

Basic Expediter Duties IAW AFI 21-101
AF Forms 2430 AND 2434 Documentation
Munitions Flightline Accountability
Emergency Procedures
NET Explosive Weight/Explosive Site Planning
Review and Monitor JST (screen 469, 100, and 122 as a minimum)
Aircraft MESLs (as applicable)
Maintenance on conventional and nuclear explosives loaded aircraft
MNCL items (as required) and Nuclear policies pertaining to flightline activity

12.1.23.1. Provide a valid document number and off-base requisition number for all items listed in AWP status in the remarks column of the report if the item is procured through USAF supply channels. If parts are obtained from commercial sources, and purchased using IMPAC card, provide source, date ordered, and status in the remarks column.

12.1.24. Utilize and involve assigned Weapons AFETS in wing aircraft weapons and armament related issues and meetings IAW AFI 21-110.

12.1.25. Inform the MAJCOM, within 24 hours, of any significant weapons or armament related issues such as dropped/hung munitions, equipment and aircraft release reliability or deficiency problems, and weapons safety or mishap issues.

12.1.25.1. If a unit has an incident, it is important to preserve the evidence to the maximum extent allowable by operational requirements and safety. An example would be segregating an aircraft gun versus destroying it if it poses no immediate danger. This allows for evaluation of all the evidence and the ability to recreate the mishap conditions.

12.1.25.2. If a malfunctioning munitions item (live or inert) causes a mishap refer to **para 9.7.4**.

12.1.26. See **Chapter 7** of this instruction for information on Aircraft Generation Planning.

12.1.27. Ensure at least two certified WS personnel are included on TDYs where live munitions will be expended and on deployments exceeding 30 days to provide MPRL and recertification capability. Exceptions must be approved by the WWM.

12.1.28. Perform annual assessment on WS, weapons sections, armament flights, and 2W1 personnel assigned to QA. Document findings and track corrective actions. Maintain copies of last two assessment results.

12.1.29. WWM, with concurrence of MXG/CC, determines when armament flight personnel are required to perform load crew duties or related certifiable tasks.

12.1.30. Determine need for a formal supervisory postload program (local option). If negative performance metrics, special missions, etc., warrant a supervisory postload program, WWM will establish procedures and a training program to ensure standardization between units. Supervisors (7-skill level minimum, expediters, shift supervisors, section NCOICs, etc.) performing such inspections require initial and recurring (not exceeding 15 months interval) qualification training by WS. Training will be documented in either the WLCMT (or equivalent) or MIS, not on SCR. Document supervisory postload on AF IMT 2430 (or equivalent).

12.1.31. Ensure requirements for submitting AFTO IMT 375 on all weapons support equipment identified in TO 35-1-24 are accomplished. This process provides vital information and source documentation for ALCs to adequately reflect equipment sustainment costs, attrition rates, and to enable timely forecasting for replacement funding.

12.2. Weapons Standardization. The Weapons Standardization Section plans and conducts both conventional and nuclear weapons load training to accomplish operational plans and objectives. Initial and recurring load training, is crucial in maintaining a competent and proficient certified nuclear and conventional force to meet both peacetime and wartime tasking. WS is organized under the WWM and is comprised of the superintendent, the LSC, and lead crews. An LSC may be formed for each MDS in multiple MDS units. One lead crew is normally formed for each AMU, but additional crews can be formed as needed. Lead crews return to an AMU for contingencies, deployments, generations and exercises. WS does not need to be formed in organizations that do not load munitions requiring certification providing the requirements of the weapons task qualification program are met, to include academic, practical, and recurring training. In organizations such as this, the weapons function will be responsible for applicable weapons manager responsibilities and the weapons task qualification program. In a wing, WS is administratively assigned to the MOS but works directly for the WWM (NA for ARC).

12.2.1. The key to successful combat/test/training operations is trained load crews proficient at generating aircraft configured to support combat and contingency plans. Units will maintain at least the minimum number of required certified load crews (as specified on the UCML/TTML). Achieving this standard may require units to certify/qualify weapons personnel who may be assigned duties outside the weapons sections. Although assigned to support sections, resource advisor duties, etc., 2W1X1 personnel remain accountable for their primary load crew duties, will be managed accordingly, and are counted in wing 2W1X1 manpower totals.

12.2.2. WS Superintendent Responsibilities. The superintendent is responsible to the WWM, and performs section NCOIC duties outlined in **Chapter 3** of this instruction. The superintendent develops and oversees the weapons standardization program, sets standards, develops local policies and procedures, and interprets all technical data and directives governing the weapons standardization program. The WS superintendent will: ***NOTE:*** (ARC & AFSOC) WS superintendent responsibilities may be performed by the LSC crew chief.

12.2.2.1. Coordinate with the weapons section NCOICs to schedule crews for initial training, certification, minimum proficiency requirement loading (MPRL), and semi-annual evaluations (SAE) training. The WS superintendent will document monthly scheduling effectiveness (quarterly for ARC) and submit a summary letter for inclusion in the MSEP, including as a minimum:

12.2.2.1.1. Load Crew Scheduling and Training Effectiveness (MPRL/SAE) (non applicable to ARC):

12.2.2.1.1.1. Crews scheduled versus completed training events (non applicable to ARC).

12.2.2.1.1.2. Passed versus failed evaluations.

12.2.2.1.1.3. Problems/trends which detracted from scheduling and training.

12.2.2.2. Coordinate with the PS&D to ensure availability of training aircraft.

12.2.2.3. Manage WLT training munitions, components, and accessories by establishing a supply point with munitions (Munitions Operations) for conventional training munitions. WS will establish an equipment account for nuclear training weapons and accessories, if required. Document and schedule discrepancies requiring repair on training munitions through munitions control.

12.2.2.4. Ensure load crew training munitions are maintained to the same standard as the parent munitions to the maximum extent possible. Training munitions must represent the parent munitions item in configuration, body color and mechanical function. Those having discrepancies, which affect safety, reliability, or detract from load crew training are not used.

12.2.2.4.1. Load crew training munitions and components are inspected on a 180-day interval by the WS or more frequently if mandated by commodity TOs. Develop a formal agreement with the munitions flight concerning periodic inspection, maintenance, and refurbishment and forms documentation. An AFTO IMT 244/Missile marriage record (or automated form) is maintained for each AUR training munition.

12.2.2.4.2. AFTO IMT 244/Missile marriage record (and/or automated forms for training munitions only) are maintained by the WS and accompany the munition item when turned in for repair or scheduled inspection.

12.2.2.4.3. An AFTO Form 350 accompanies munitions and munitions components when they are turned in to the munitions flight for repair.

12.2.2.5. Use the guidelines established in AFI 21-201 when submitting the annual forecast to the MAJCOM.

12.2.2.6. Order training munitions and munitions items to meet unit needs.

12.2.2.7. If sufficient training munitions are not available to support DLO training, coordinate use of assigned items from WS supply point for management flexibility.

12.2.2.8. Use the WLCMT, or equivalent program, to track load crew certification and qualification status. Unless computer systems are networked or modem-interfaced, printed products are produced and distributed at least twice each month to the weapons section NCOICs. Printed products are formatted so that manual updates can be made between issues. Monthly, generate a printed product, or electronic back-up copy, for WS records.

12.2.2.9. Upon notification of a deployment or an increased state of alert, takes appropriate action to certify load crews on support munitions if required.

12.2.2.10. Maintain a copy of all applicable AF loading TOs for assigned MDS aircraft. Training and test units need only maintain checklists for munitions to support weapons load crew training required to sustain daily flying operations and for munitions undergoing test and evaluation.

12.2.2.11. Coordinate with the AMU Production Super to ensure WLT aircraft are properly configured and safe for use.

12.2.2.12. Develop time standards for integrated loads.

12.2.2.13. Ensure all load crews are qualified to load and unload internal gun system ammunition (including partial loads, at WWM's discretion), and preloaded chaff/flare modules on assigned aircraft.

12.2.2.14. Ensure load crews demonstrate proficiency on all capable aircraft racks and stations prior to certification on that munition. For conventional munitions capable of multiple carriage, both aircraft parent station and multiple carriage loading are required. For nuclear weapons, only the aircraft stations that are maintained in nuclear certified status are loaded.

12.2.2.15. Inspect 25 percent of WS CTKs, armament test and support equipment for serviceability, at least quarterly, and initiates corrective action as required. Schedule and track inspections to ensure 100 percent of CTKs, test, and support equipment will be checked over a one-year time-frame. Document inspection results and use for follow-up action and reference as necessary.

12.2.2.16. See **Chapter 14** of this instruction regarding the SCR, End of Runway, self inspection program and Sortie Generation Operations guidance.

12.2.2.17. See **Chapter 10** of this instruction regarding lost tools.

12.2.2.18. Ensure MAJCOM Mandatory Course List (MMCL) requirements are met.

12.2.2.19. Ensure individual tool kits are set up for each lead crew assigned. These CTKs may be stored in WS or the respective squadron, but are required to be maintained by the Lead Crews. In coordination with the WWM and weapons section NCOICs, determine the number of loading tool kits required in bomber units, and those that support only test, evaluation or training missions.

12.2.2.20. Assist the WWM in managing load crew incentive program to recognize deserving load crews.

12.2.2.21. See **Chapter 1** of this instruction for duty shift, UCML, and command missile policy guidance.

12.2.2.22. See **Chapter 7** of this instruction for documenting maintenance.

12.2.2.23. See **Chapter 2** of this instruction for Safety.

12.2.2.24. See **Chapter 9** of this instruction for impound procedures.

12.2.2.25. Ensure load crews are familiar with fuze inspection, installation and wiring IAW MDS-33 series TO procedures or TO 11A-1-63 (bombers). Conduct this training during initial certification.

12.2.2.26. Ensure Evaluator Proficiency Evaluations (EPE) are performed on each LSC/Lead Crew member at least semi-annually to validate standardization of the weapons load training program. Document results on the AF Form 2419 and maintain within the WLCMT.

12.2.2.26.1. WWM and/or Weapons Standardization Superintendent perform EPEs on Loading Standardization Crew (LSC) members during load crew Semi-Annual Evaluations. (***EXCEPTION:*** 354 FW, EPEs will be accomplished during Weapons Task Qualification training.)

12.2.2.26.2. LSC members perform EPEs on Lead Crew members during load crew Minimum Proficiency Requirement Loading evaluations.

12.3. Loading Standardization Crew (LSC). The LSC works for the WS Superintendent and conducts the weapons standardization and evaluation program. The WWM and/or WS Superintendent evaluate and certify the LSC according to criteria in this section. The LSC team chief must be at least a TSgt 2W171. The LSC trains, evaluates, and certifies the lead crews and load crews in safe and reliable munitions loading procedures. ***NOTE:*** (ARC) If the LSC crew chief is performing WS superintendent duties then the WWM will evaluate and certify the LSC. The LSC will:

12.3.1. Conduct and monitor training to ensure personnel maintain a high degree of proficiency in loading unit-committed munitions.

12.3.2. Monitor certification and recurring training documents for accuracy and to ensure all load crew members complete required proficiency and academic training. The LSC takes decertification action if recurring requirements are not met.

12.3.3. Ensure all load crew training is documented.

12.3.4. Review and coordinate on all loading related AFTO IMT 22's and TODCR (F-22A) IAW TO 00-5-1.

12.3.5. Develop and coordinate weekly and monthly load training aircraft requirements with the PS&D. This paragraph does not apply when the unit is using a permanently assigned load crew trainer.

12.3.6. Monitor and evaluate lead crews in the performance of their duties.

12.3.7. Provide non-load crew personnel initial and recurring weapons task qualification training, including practical training on:

12.3.7.1. Weapons system safety devices to include proper use, identification, installation and removal.

12.3.7.2. Munitions item safety requirements.

12.3.7.3. Location of weapons system explosive items used to jettison and release external stores.

12.3.7.4. Stray voltage checks, as required.

12.3.7.5. Location and position of cockpit armament system switches.

12.3.8. Perform spot inspections and evaluate flightline munitions/explosive handling, loading and postloading operations, and provide MPRL/qualification credit to the maximum extent. Augment wing inspection/evaluation teams during local exercises to assess munitions loading capabilities and activities.

12.3.9. Perform semi-annual evaluations on all certified load crews. Lead crew members may assist; however, at least one member of the LSC must be present during all semi-annual evaluations.

12.4. Academic Instructor. An LSC member is designated to manage the weapons academic training program. Designated WS members (7-skill level), one primary and no more than two alternates, will conduct initial and recurring weapons academic training for all wing 2W1X1s (or equivalent contractor personnel). The instructors will be familiar with the assigned MDS weapons system and all UCML items. The weapons academics instructor is not considered a maintenance instructor.

12.5. Lead Crews. The lead crews are assigned to the WS and assist the LSC in training, evaluating and certifying unit load crews in safe and reliable munitions loading procedures. They document, initiate and maintain the database to reflect qualification, certification status and history of assigned load crew members. Ensure all load crew members complete required proficiency/academic training and take decertification action when recurring requirements are not met. Perform spot inspections and evaluations of flightline munitions/explosive handling and loading operations when not directly involved in WS training functions, and provide MPRL/qualification credit to the maximum extent. Perform flightline loading evaluations when deployed, as required, in addition to their normal load crew duties. These evaluations may be used to satisfy load crew MPRL requirements IAW this chapter.

12.5.1. Initiate and maintain AF IMT 2435, *Load Training and Certification Document***,** or locally devised form that covers everything on the AF IMT 2435, for certified crew members.

12.6. Training Facilities/Aircraft.

12.6.1. Practical training is conducted in a facility dedicated to load crew training. The facility is of sufficient size to accommodate required aircraft, training munitions and associated support equipment. It is recommended that bomber aircraft have dedicated load-training facilities, however, where not practical, inside facilities should be provided to the maximum extent possible during periods of extreme inclement weather. Adequate office space and classroom with appropriate heating and cooling are required in the academic and practical training area.

12.6.2. Aircraft will have a fully configured and operational (electrical and mechanical) weapons system for load training purposes. If a permanent load trainer (Armament Systems Trainer, Ground Instructional Training Aircraft) is assigned, it also will have a fully configured and operational weapons system. In addition, the WS will develop a schedule for periodic maintenance to weapons system components.

12.7. Academic Training. All 2W1X1s (and civilian equivalents performing in 2W1 capacity) assigned to a wing regardless of duty position, and non-2W1X1 personnel who maintain specific weapons task qualification, are required to complete initial and recurring (not exceeding a 15-month interval) academic training. 2W1X1 and non-2W1X1 QAEs assigned contract surveillance oversight duties of civilian contractors that perform MQ-1/MQ-9 munitions loading/unloading operations will complete MQ-1/MQ-9 specific weapons academic training. Complete initial academic training before the start of any practical training. Recurring academic training may also be part of training and recertification for failed loads. Initial and recurring course outlines may be combined. A minimum score of 80 percent is required to receive credit for academic testing. Coordinate training requirements and course control documents annually through the wing weapons safety office or the safety officer and the MTF. The weapons safety office approves all nuclear surety training lesson plans. The WWM is the final approval authority for course documents.

12.7. (CAF)Academic Training. Recurring academic training is a 12-month requirement in nuclear units.

12.7.1. Course control documents are tailored to unit and contingency needs and, as a minimum, cover the following items:

12.7.1.1. Publications, applicable weapons related local operating procedures or directives.

12.7.1.2. Safety (ground and explosive) and security.

12.7.1.3. Aircraft, munitions, AGE, SE, TMDE, and munitions trailer familiarization.

12.7.1.4. Testers, handling equipment and special tools.

12.7.1.5. Operations in revetments/protective aircraft shelters.

12.7.1.6. Weapons storage and security system vaults (tasked units).

12.7.1.7. Applicable command unique training requirements in 36-22XX supplements.

12.7.1.8. Hazards inherent during CSO.

12.7.1.9. Task Assignment List (TAL) and applicable –16/-33 TOs (initial academics / load crew personnel only).

12.7.1.10. Explain Master Nuclear Certification List, Dull Sword definition and reporting procedures IAW AFMAN 91-221 and other related directives. (Applies to all units with nuclear certified equipment regardless of mission)

12.7.1.11. Nuclear weapons systems fault isolation and troubleshooting procedures (if applicable)

12.7.1.11. **(CAF)** Nuclear weapons systems fault isolation and troubleshooting procedures covered in separate Nuclear Surety Training Course may be used to fulfill this requirement (if applicable).

12.7.1.12. Explain procedures for operations involving nuclear weapons, to include safety wiring and sealing, use of Tamper Detection Indicators (TDI), two-person concept, no-lone zone, personnel reliability program (PRP), and AF IMT 504 custody transfer procedures (if applicable).

12.7.1.13. Discuss accident, incident and deficiency reporting. Include in this training: DULL SWORD, AVOID AMBER, AVOID RED, BENT SPEAR, BROKEN ARROW, NUCFLASH, EMPTY QUIVER, Weapons Custody and Control Procedures and Command Disablement Systems (if applicable).

12.7.2. Load crew academic training may fulfill the requirements for explosive safety and nuclear surety training if requirements of AFI 91-101 and AFMAN 91-201 are met.

12.7.3. Weapons Expediter training - Weapons expediter training will be instructed by the Weapons Academic instructor. Initial training is required prior to assuming duties as a weapons expediter and refresher training is every 15 months. The following subjects will be addressed minimal per course: See **Figure 12.1**.

12.8. Practical Training. Practical training starts when academic training is complete. The LSC or lead crews administer practical training to each load crew member on required munitions and aircraft. They ensure practical training duplicates operational conditions to the maximum extent possible and stress requirements such as DLOs, two-person concept, safety wiring and sealing/roto sealing, controlled access and weapon custody receipt and transfer procedures, as required. Load crew members are trained on loading and unloading procedures prior to qualification or certification on munitions.

12.8.1. If a specific type or model of munition has been requisitioned but not received or not available, any type or model of the basic item may be used for load crew training until receipt of the munition. LSC/lead crew personnel will teach the major differences between training and WRM munitions.

12.8.2. Load crews must be familiar with munitions serviceability criteria and munitions tie-down procedures in TO 11-1-38, *Non-nuclear Munitions, Positioning and Tie-Down Procedures* and, as applicable, TO 11N-B1004-1, *Nuclear Weapons Tie-Down Procedures.* Blanket rejection of training munitions during load training is not authorized, and munitions may not be rejected solely because they are inert.

12.8.3. Initial support munitions (SM) / limited use munitions (LM) training may be accomplished concurrently with initial primary munitions (PM) training and certification, but will be accomplished within 30 days (90 days for ARC) of completion of initial training/certification. When a new PM, SM or LM is designated on the UCML/TTML, LSC and lead crews require certification within 30 days (90 days for ARC) after receipt of training items.

12.8.4. Load crew members will be familiar with the operation of AGE and SE which may be used during loading operations, even if the items are not used on a routine basis. Training on this type of equipment should be conducted by the base AGE Flight prior to initial training whenever possible; however, training may be provided by WS trainers if necessary to facilitate weapons load training.

12.8.5. Units with a nuclear tasking that operate from, or deploy to, locations equipped with weapons storage and security system (WS3) vaults in protective aircraft shelters, will train load crews to unload and load weapons from and into the vault. An approved locally manufactured stand may be used to simulate the storage vaults for load and unload training (drawings are available through the MMHE Focal Point).

12.8.6. All nuclear certified load crews at units with or without WS3 will be trained on trailer handling/tie-down procedures quarterly.

12.9. Load Crew Composition. Load crews consist of two, three or four persons within the 2W1 AFSC as follows (except for those qualification tasks specifically outlined in this AFI):

12.9.1. Two-member crews: CV-22, AC-130H, MC-130E/H/P, HH-60 and MQ-1.

12.9.2. Three-member crews: AC-130U, A/OA–10, F–15, F–16, F-22A and MQ-9.

12.9.3. Four member crews: B–1, B–2, and B–52.

12.10. Task Assignment List (TAL). A TAL is a functional grouping of procedural steps from applicable -16/-33 series TOs, by crew position, to be accomplished in sequence by each crew member during a loading operation. TALs are used during training for all loading operations except those for which job oriented procedures have been published (B-2 rotary launcher conventional munitions, and B-52H CALCM pylon and CSRL loading/unloading is accomplished procedurally parallel to the -16 procedures). TALs will include single, DLO and integrated munitions loading procedures (including gun and chaff/flare loading). Units may develop TALs for aircraft armament electrical functional checks (at unit's discretion). Their purpose is to standardize procedures and facilitate the training of unit load crews. TALs are not a replacement for TO procedures. Separate TALs will be developed for weapons qualification tasks performed by non-2W1X1 personnel. MPRLs and semi-annual evaluations are not considered training operations. The following guidelines establish minimum responsibilities of individual crew members:

12.10. (CAF)Task Assignment List (TAL). Standardized TALs will be approved by ACC/A4WA and reviewed annually. Units will ensure current copies of TALs are used.

12.10.1. Two member load crews:

12.10.1.1. Crew member number one is the load crew chief and is in charge of the loading operation, performs functional checks and attaches stores to the pylon/rack.

12.10.1.2. Crew member number two assists the number one person in performing the pylon/rack preparation and installation of stores to vehicle.

12.10.2. Three member load crews (slight variations (i.e.; power application, ops checks performance, etc.,) exist with newer MDS (F-22, UAS) and will be outlined in TALS; however, key duties of individual members remain the same):

12.10.2.1. Crew member number one is the load crew chief and is in charge of the loading operation, positions cockpit switches during functional checks and attaches stores to the pylon/rack.

12.10.2.2. Crew member number two performs the pylon/rack preparation and operates test equipment during functional checks.

12.10.2.3. Crew member number three performs munitions preparation and operates the bomblift truck during loading operations.

12.10.3. Four member load crews:

12.10.3.1. Crew member number one is the load crew chief and is in charge of the loading operation, positions the cockpit switches and attaches stores to the pylon/rack.

12.10.3.2. Crew member number two performs the pylon/rack preparation, operates test equipment during functional checks and assists in loading of stores.

12.10.3.3. Crew member number three performs munitions preparation.

12.10.3.4. Crew member number four performs rack/pylon preparation, operates test equipment during functional checks, and operates the bomb lift truck.

12.11. Weapons Load Training Basic Terms.

12.11.1. All-Up-Round (AUR). A munitions item which is shipped and stored in a complete, ready to use configuration. An AUR munition requires no pre-assembly.

12.11.2. All-Up-Round Container (AURC). A container used to ship, store, and handle AUR munitions. Some AURCs are designed to load munitions directly from them onto an aircraft.

12.11.3. Dual loading operations (DLO). A conventional munitions loading operation on bomber aircraft accomplished simultaneously by two load crews. (MAJCOM approval required for fighter aircraft).

12.11.4. Integrated Load. The loading of two or more different types of munitions in an authorized configuration during a single operation.

12.11.5. Limited Use Munition (LM). May include, but is not limited to, munitions used by a unit for firepower demonstrations, test, aircrew training or like operations. LMs may include munitions which may be used in a war or a contingency. LMs are designated on the UCML/TTML. WWM determines the number of crews to be certified.

12.11.6. Munitions Family Group (MFG). A designated grouping of munitions based on similarity of either physical characteristics or procedural commonality. Certification on a MFG is accomplished during initial training on each tasked munition within the MFG (subject to availability of training munitions) then maintained through the MPRL process.

12.11.7. Postload Checks. Power-on checks and/or tasks required by technical data prior to declaring munitions-loaded on aircraft mission ready.

12.11.8. Primary Munition (PM). Munitions which will be the primary weapons used by the unit to execute test/training or their DOC war plan and are designated on the UCML/TTML.

12.11.9. Standard Conventional Load (SCL). The designation, which includes the number, type and configuration of authorized munitions, required for a specific mission and aircraft load.

12.11.10. Support Munition (SM). A munition which may be used in support of contingency plans or directives and is designated on the UCML/TTML. WWM determines the number of crews (other than LSC/Lead Crew) to be certified.

12.11.11. Monthly, Bi-Monthly, Semiannual, or Annual Intervals. Requirements will be accomplished by the last day of the scheduled month.

12.12. Load Crew Certification/Decertification

12.12.1. Certification. These guidelines are used to establish the loading standardization and evaluation program. The LSC will establish and manage a program to train, certify and maintain proficiency for each crew on the munitions designated by the UCML/TTML or WWM for SMs/LMs. Certification and training requirements for load crews are based on the following:

12.12.1.1. Except the LSC and lead crews, load crew members are not certified on more than 10 MFGs. Dual position (LSC and Lead Crew) or dual MDS (LSC only) certification is authorized; however, personnel may not be certified on more than 10 MFGs (Exceptions; dual MDS certification is authorized for F-15 C/D/E Lead Crews. Certified LSCs and SLCs on F-15C/D/E may be certified on up to 12 MFGs based upon operational requirements). Proficiency requirements are accomplished on both aircraft IAW this chapter. Personnel who are dual position certified will ensure they comply with MPRL and SAE requirements in both positions for which they are certified; they will not alternate between the two. Test wing personnel may be certified on more than 10 MFGs and multiple MDS provided all other requirements for load certification, qualification and evaluations are complied with and authorized by the WWM. UAS (MQ-1/MQ-9) personnel are exempt from the dual MDS/position restrictions imposed by this paragraph; crews may be certified on both MDS', and #2 and #3 members may be certified in both positions, provided they fulfill all certification requirements directed in this instruction. ***NOTE:*** AFRC Dual position certification of full time (ARTs) or dual MDS (LSC only) certification of load crew members is authorized; however, they may not be certified on more than 10 MFGs. In the dual or secondary position, personnel will only load munitions for which they are certified, and will comply with requirements stated above. Dual certify only in the MFGs required to meet mission requirements.

12.12.1.2. LSC, lead crews, and load crews are certified on all PMs. The LSC and lead crews are certified on all SMs to provide the cadre for future certification of unit load crews. The LSC is certified (or qualified for items so identified by unit tasking) on unit LMs. The WWM determines the number of additional load crews trained and certified on support and limited use munitions.

12.12.1.3. A minimum of two certifying officials are required to evaluate three and four-member load crews. A minimum of one certifying official is required for two-person load crews.

12.12.1.4. Load crew member certification is valid worldwide with gaining WWMs concurrence. Reassignment does not necessarily require recertification by the gaining unit if the individual is certified on the same munitions, aircraft, and load crew position; and if MPRL or SAE requirements are current. Units develop procedures to ensure that WLCMT or equivalent data is provided to the individual prior to permanent change of station (PCS) departure. Losing units, therefore, provide gaining units with the AF IMT 2435 or equivalent.

12.12.1.5. Personnel must be certified before loading war reserve nuclear weapons. Certified load crews may be evaluated by using war reserve weapons if the weapons are scheduled for loading or movement.

12.12.1.6. Personnel must be certified before loading conventional munitions, unless loading under the direct supervision of a minimum of two certifying officials.

12.12.2. Document decertification and/or disqualification actions in the WLCMT (or equivalent). Decertify and disqualify individual load crew members if they:

12.12.2.1. Fail to complete a required evaluation (SAE, MPRL, Qualification). If a load crew member is on TDY, emergency leave, incapacitated, or involved in an unannounced local or higher headquarters exercise/contingency operation, do not decertify or disqualify the member providing the current SAE/MPRL/Qualification requirements (plus all past-due evaluations) are completed within 30 days of returning to duty (60 days for ARC). (***EXCEPTION:*** Member's who fail to complete a required evaluation on a certification item within a 180-day period due to medical reasons will be decertified on the particular item(s) and must reaccomplish practical training for recertification). ***NOTE:*** (ARC only) Provisions in this paragraph also apply when individuals are excused/rescheduled from a Unit Training Assembly (UTA) and when loading operations are cancelled due to inclement weather.

12.12.2.2. Fail to accomplish recurring academic training. Individuals are administratively decertified and disqualified on all UCML/TTML and qualification items until academic training is completed. Once accomplished, individuals may be administratively recertified and/or re-qualified. ***NOTE:*** Do not decertify/disqualify member's whose absence is due to leave or TDY. Member must receive academic training within 30 days (60 days for ARC) of returning to duty or the member will be decertified on all UCML/TTML and qualification items.

12.12.2.3. 2W1X1 and non-2W1X1 personnel performing as QAE Inspectors providing oversight of civilian contractor MQ-1/MQ-9 munitions loading/unloading operations are authorized to decertify contract munitions loading personnel if safety, reliability or lack of technical proficiency is demonstrated. The Lead Contractor Maintenance authority may also recommend decertification of MQ-1/MQ-9 munitions loading/unloading contract personnel to the on-sight QAE authority.

12.12.2.4. Fail an evaluation due to the following criteria (applies to initial certification, MPRLs and SAEs):

12.12.2.4.1. Exceeded time standard results in a failed rating for the load crew chief.

12.12.2.4.2. A safety or reliability error results in a failed rating for the individual. A failure in this category due to a single sub-task error need not result in complete retraining/recertification for the loading task. At the discretion of the evaluator, sub-task retraining or thorough critique may be used to satisfy retraining/recertification requirements.

12.12.2.4.2.1. Safety Error: A violation of safety publications, TO warnings, etc., or an unsafe act that could reasonably lead to personal injury or death.

12.12.2.4.2.2. Reliability Error: A violation of TO requirements that could reasonably lead to damage/premature failure of equipment or prevent safe reliable operation of a weapons system or release of a weapon.

12.12.2.4.3. A demonstrated lack of technical proficiency by an individual load crew member can result in a failed rating. If the time standard is exceeded for this reason, the load crew chief does not need to be decertified.

12.12.2.4.4. For integrated loads, the evaluator may elect decertification on any one or all munitions loaded. When the same rating is not applied to all munitions loaded during an integrated load, the load crew records will be annotated accordingly.

12.12.2.4.5. Intervention by an evaluator during loading to prevent injury to personnel or damage to equipment may result in a failed rating.

12.12.2.4.6. More than three errors per crew member results in a failed rating for the individual.

12.12.3. AGM-65 tasked units shall load train using both the LAU-88 (if applicable) and LAU-117 launchers. Alternate launcher use each time the weapon is loaded in proficiency training (i.e., for crews on 30-day MPRL schedule load the LAU-117 one quarter and the LAU-88 the next quarter). LAU-117 loading need only be accomplished using the pre-load method. LAU-88 loading is accomplished by the single load and pre-load methods during the same training period. Single AGM-65 loading on LAU-88 launchers is accomplished using both MJ-1 and MHU-83 bomb lift trucks on an alternating basis and consists of a minimum of two missiles (one shoulder and one bottom station). Preloaded LAU-88 launchers are in an unbalanced configuration (one loaded and one empty shoulder station).

12.12.3.1. In test wings, the WWM will determine in writing the necessity to alternate loading the AGM-65 between the LAU-117 and LAU-88 based on Test Directives and unit planning documents.

12.12.4. Units which have the AGM-88 as a PM/SM will demonstrate the ability to load the LAU-118 using both the single store and preload methods.

12.12.5. F-15 AIM-120 loading will be alternated between the LAU-128 and LAU-106 launcher.

12.12.6. Personnel certified to load nuclear weapons on aircraft, may perform weapons transfer and tie-down procedures to and from trailers, WS3 vaults, and support stands for which load standardization training has been established and conducted IAW this instruction. They will not require these actions as separate certification items.

12.12.7. Annually perform a SCL while wearing the ground crew chemical-defense ensemble using 33-1-2/33-2-1 procedures (if applicable). Credit may be given during exercises provided a full SCL is completely evaluated.

12.12.8. Internal and external conventional munitions loads on B-52 aircraft will be documented separately. For munitions loading on B-1 aircraft, loading the 28 carriage conventional bomb module (CBM) does not satisfy requirements for 10 carriage CBMs.

12.12.9. For contingency operations or deployed locations an Lead Crew should be, and is normally, deployed to perform WS functions. If a Lead Crew is not deployed, the senior 2W1X1 weapons loading person (with WWM coordination) on location will have WS authority. ***EXAMPLE:*** A new munition or load configuration is required to support operations and crews need to be trained on location (provided Seek Eagle approval has been granted and verified technical data/procedures are available).

12.13. Load Configurations. All munitions loads will be authorized load configurations IAW the applicable MDS flight manual or valid SEEK EAGLE flight clearance.

12.13.1. For initial training a full complement of munitions (if available) will be loaded a minimum of once on a rotary launcher, TER, BRA, CBM, etc. to provide the crew experience loading a full load.

12.13.2. Sufficient weapons will be loaded during each evaluation to ensure the load crew demonstrates proficiency on loading/unloading each tasked configuration (adjacent stations, upper/lower stations, shoulder/centerline stations, etc.).

12.14. Minimum Proficiency Requirement Loading. All certified load crews perform proficiency loads monitored by a lead crew or the LSC. The LSC monitors lead crew proficiency loads. The WWM or WS superintendent will monitor LSC proficiency loads. Post-load inspections do not meet these proficiency requirements. Each munition an individual is certified to load, regardless if it is a primary, support or limited use munition, will be loaded at least once within a 180 day period (90 day period for short tour locations). One third of the required munitions will be loaded bi-monthly (monthly for short tour locations) to demonstrate crew proficiency. For those munitions where no training assets exist (CBU-97, CBU-105, M129, etc.) difference training will be provided prior to initial certification and during recurring academics training. Load crews in air defense/air superiority units perform proficiency loads bi-monthly using all committed primary munitions. For B-52 units, alternate loads between internal and external stations to the maximum extent possible. ***NOTE:*** (ARC only) One-half of the MFGs for which an individual is certified must be loaded quarterly (100 percent semi-annually) to maintain certification and provide evaluation of load crew proficiency. Units will rotate munitions within a MFG for MPRLs, e.g., load MK82 Low Drag (LD) the first quarter, MK82 AIR / High Drag (HD) the second quarter, MK84 (LD) the third quarter and MK84 AIR / (HD) the fourth quarter. However, all UCML/TTML tasked munitions will be loaded/evaluated within a time-frame not to exceed 12 months. For those munitions where no training assets exist (CBU-97, CBU-105, M129, etc.) difference training will be provided prior to initial certification and during recurring academics training. Load crews in air defense/air superiority units perform proficiency loads quarterly using all committed munitions. For B-52 units, alternate loads between internal and external stations to the maximum extent possible.

12.14.1. Proficiency Review Period. Immediately following initial certification, crews will load one-third of all munitions monthly for a minimum of three months, after which Lead Crew (with LSC approval) may recommend placing them in the normal bi-monthly evaluation cycle (not applicable for short tour locations and ARC).

12.14.2. Load nuclear PMs monthly. Only one type of munition within a MFG requires loading each month. Nuclear SMs (certified crews), to include single missile, single bomb and, payload exchange (for bombers), are loaded/accomplished at least quarterly. For B-52 OPLAN 8010, internal, external, and integrated loads will be rotated monthly within each quarter. Launcher will include post-load checks (MIT/BIT). Single missile/bomb loading will include (SIT/BIT) annually.

12.14.2. **(CAF)** The WWM determines number of weapons load crews required to be certified on single missile loading/unloading of internal/external AGM 86/B.

12.14.3. MHU-196/204 mate/de-mate operations with live or inert munitions require initial certification and will be evaluated semi-annually.

12.14.4. Load crew integrity must be used to the maximum extent possible. In the event a crew member(s) is coded and unavailable to load, schedule the remaining crew member(s) with another crew as necessary to accomplish training.

12.14.4.1. **(ARC Only)** Certified Load Crew Chiefs may perform MPRLs in any position provided they load under the supervision of LSC/Lead Crew using inert training munitions only. This stipulation applies at home station only. No MPRL credit will be given to those individuals during evaluations unless loading in the position for which they are certified. This deviation from policy enables units the flexibility to evaluate remaining crew members when a member may not be available to form a full crew and will only be used as a necessary.

12.14.5. **(B-52)** Those crews certified for single missile loading/unloading will alternate between internal, external, AGM-129, and AGM-86B.

12.14.6. MPRL credit may be given to load crews or personnel performing DLOs or other loading operations on the flightline during exercises, extended deployments or daily operations provided complete loads that satisfy MPRL requirements are performed and evaluated from start to finish. The required number of evaluators, equipment and all other requirements must be met to receive credit for these type evaluations. MPRL credit during flightline evaluations is only authorized when loading lives, dummy air training missiles (DATM), or D-2 type inert munitions.

12.15. Load Crew Semi-Annual Evaluations. The LSC evaluates each load crew once semi-annually on at least one of the unit PMs (SM or LM if no PM listed); all unit PMs will be used on a rotating basis. Load crew integrity will be maintained to the maximum extent possible. Decertify load crews failing to accomplish semi-annual evaluations on all munitions unless exempted IAW provisions in this chapter. SAE's are not required for lead crews. If an integrated load is accomplished as the SAE (e.g., AIM-9, -120), document the SAE accordingly. There is no need to document both SAE and MPRL. ***NOTE:*** (ARC Only) CSO (A-10, F-15, F-16) and DLO (bombers only) procedures may be used to fulfill these requirements provided the entire load is evaluated. Certified Load Crew Chiefs may perform SAEs in any position provided they load under the supervision of LSC/Lead Crew using inert conventional training munitions only.

This stipulation applies at home station only. No SAE credit will be given to those individuals during evaluations unless loading in the position for which they are certified. This deviation from policy enables units the flexibility to evaluate remaining crew members when a member may not be available to form a full crew and will only be used as a necessary.

12.16. Documenting Load Crew Training. Manage load crew certifications, qualifications, SAEs and MPRLs by means of the WLCMT or equivalent. All decertification and subsequent recertification actions must be documented.

12.16.1. The LSC maintains load crew records in the WLCMT or equivalent system used. Include the following documents as a minimum: AF IMT 2435 (or equivalent) (front and back) for each crew member and AF IMT 2419 recording the most current semi-annual evaluation. AF IMT 2419's must be maintained for all loads. Maintain either electronic or paper copies of AF IMT 2419s for a minimum of 1 year.

12.16.2. If the UCML/TTML contains more than one item from MFG table, the MFG is entered. MFGs are listed as a single entry using the primary tasked item of the group in the title. For example, MK-82 MFG is entered when the MK-82 is the primary tasked item from its group. Separate entries are made for postload checks (if applicable). After initial training on applicable items within the MFG, treat the MFG as a single item and document certification using one line entry in block 7 of the AF IMT 2435 or locally devised form.

12.16.3. Dates are entered upon certification and DLO qualification. Entries in date and certification fields on AF IMT 2435, (or equivalent), are deleted for other qualification items.

12.16.4. Enter one of the following codes in the month column as applicable. If required loads are not completed and provisions of this chapter apply, use one of the following: temporary duty (TD), emergency leave (LV), incapacitated (ED), exercises/contingency (EX), or weather (WX). Code outs are not to be abused or used as a substitute for ineffective scheduling (WWM has final decision authority on coding disputes). The letter "E" is placed after the date for the semi-annual evaluation regardless of rating.

12.16.5. Route AF IMT 2419 after semi-annual evaluations to the weapons section NCOIC, MX SUPT/Operations Officer, WWM, and LSC.

12.16.6. Send printouts from the Load Crew Management database with the crew to TDY locations if loading tasks are to be performed. The following statement is added after the last entry on each product: "AF IMT 2435 reviewed; the member is certified/qualified on the items listed on this product." This statement is followed by the signature and date of a WS certifying official.

12.16.7. Academic and qualification training conducted by the WS is normally documented in a MIS, however the WLCMT (or equivalent) may be used for this purpose.

12.17. Transient Aircraft Responsibilities. Arming, de-arming, and munitions loading/unloading will only be accomplished on transient aircraft to facilitate required maintenance actions. In such cases, these operations on transient aircraft may be performed by any weapons load crew certified/qualified on the munition and aircraft. The MXG/CC may direct the LSC or a lead crew to arm, de-arm, and unload an aircraft on which they are not certified/qualified, if appropriate technical data and support equipment is available. In such cases, the aircrew will be available for consultations on aircraft to verify flight worthiness of load

configuration, and to perform cockpit portions of required functional/stray voltage checks. If these cannot be met, request help from owning unit(s)/higher headquarters. Local procedures must be developed to control impulse cartridges removed from transient aircraft.

12.18. Dual Loading Operations (DLO). DLO is only applicable to conventional munitions loading operations in bomber units (MAJCOM approval required for fighter units). DLOs are the primary method for rapid munitions loading/unloading on bomber aircraft and are authorized provided the following conditions are met:

12.18.1. Both internal and external (B-52) or dual bay (B-1, B-2) loading is required.

12.18.2. Load crew chiefs: Designate one crew chief to be in charge of the entire operation.

12.18.2.1. One will check the aircraft AFTO Form/IMT 781 and verify aircraft and armament system status prior to start of the load and brief status during the pre-task briefing.

12.18.2.2. Both are present during the pre-task briefing.

12.18.2.3. Verify all previously loaded munitions are in pre-maintenance status.

12.18.2.4. One will verify cockpit switches are properly positioned during aircraft preparation.

12.18.2.5. Both will check off each step as they are accomplished in their applicable loading checklist.

12.18.3. Load crews conduct independent loading operations from single or separate trailers. ***NOTE:*** Loading and fueling operations must not be performed simultaneously due to the hazard of the aircraft settling.

12.18.4. Post-load power-on checks are not accomplished until all munitions are loaded and bay connections accomplished.

12.18.5. Load crew chiefs ensure that the conventional system switches/controls are properly positioned and verify the conventional munitions status and inventory during post-loading inspection.

12.18.6. Initial DLO qualification consists of academic and practical training. Recurring training only consists of academic training.

12.19. Weapons Task Qualification. A weapons task qualification is a munitions related task that does not require certification. Individuals require both initial/recurring weapons academics and initial and annual practical qualification training for these tasks. Recurring practical training should be conducted during normal flightline operations to the maximum extent. Training is provided, documented and tracked by the WS.

12.19.1. Checklist Qualification: Indicates that the person with the checklist is trained, knowledgeable and in-charge of the overall operation or task. Member's must possess a 5-skill level minimum to be checklist qualified.

12.19.2. Full scale inert/training munitions (e.g., BDU-50/TGM-65/CATM-120). If load crew personnel are certified on a munition, they are considered qualified (by position certified, except #1 position) on its inert version. In the event the load crew member is not certified on an SM or LM, then load crew personnel require annual training on the

inert/training version and it will also be tracked as a qualification. If crew personnel are not certified on the live version and the inert/training munition is a standalone SM or LM, then load crew personnel require annual training on the inert/training version and it will also be tracked as a qualification.

12.19.3. Two or more qualified personnel in AFSC 2W1X1 (or civilian equivalent) may perform the following tasks:

12.19.3.1. Practice Bombs: load and unload BDU-33, BDU-48 and MK-106.

12.19.3.2. Load and unload ammunition in internal and external gun systems (the GAU-8 requires three people). **Exception**, personnel are authorized to unload (only) ammunition in the GAU-2, GAU-18 or M240 caliber machine guns during Hot Gun emergency or gun jams that require safing prior to maintenance actions.

12.19.3.3. Load and unload single 2.75 rockets.

12.19.3.4. Load and unload Miniature Air Launched Decoy (MALD) (three person minimum).

12.19.4. Two or more qualified personnel in any aircraft maintenance AFSC may perform the following tasks (members must be qualified in all aspects of task to be performed; i.e., aircraft prep, rack/launcher prep, munitions prep, etc.):

12.19.4.1. Install and remove impulse cartridges if the task is not accomplished as a part of a loading operation.

12.19.4.2. **(Bomber aircraft)** Install and remove practice bomb adapter rack and cluster rack adapters.

12.19.4.3. Load/unload pyrotechnics.

12.19.4.4. Install and remove chaff and flare magazines and other defensive countermeasures.

12.19.4.5. Perform portions of the conventional loading checklist pertaining to delayed-flight or alert, and IPL/safing procedures (***NOTE:*** Removal of dome cover(s) is not considered IPL and does not require initial/recurring academics).

12.19.4.6. Perform munitions/missile isolation procedures to facilitate other maintenance on conventional loaded aircraft only.

12.19.4.7. Install and remove captive AIM-9 missiles (must have one checklist qualified load crew member), Acceleration Monitor Assemblies (AMA) and Airborne Instrumentation System (AIS) pods. Academics is not required for AMA and AIS pods. (Minimum crew size per TO directives). AMA and AIS qualification training are a onetime trained item that will be entered on a AF IMT 797.

12.19.4.8. **(ANG alert facilities only)** Install and remove Argon (TMU-72 coolant tank) in AIM/ CATM-9.

12.19.5. A weapons load crew chief does not require qualification to perform tasks on which they are certified to load in respect to parent munitions (inert/training munitions only). Other load crew members must be qualified to perform any portion of these tasks for which they have not been certified. To clarify, the load crew chief may perform in any crew member

position when loading inert/training munitions if certified on the parent munition. The two and three members can only perform those positions for which they are certified or qualified in. (Use of #1 to load in the #2 or #3 position must be kept to a minimum.) Utilization of this practice will only be used when assigned manning dictates. Use of by position-qualified personnel will be the standard practice, until no other means are available within the unit.

12.20. Munitions Load Time Standards. All munitions listed in a single block comprise a MFG for the respective aircraft mission type. The load time standards apply to all operational users of the munitions or aircraft listed and are the minimum proficiency requirements for weapons load crews. Units may establish more restrictive standards for local use. Unless otherwise Noted in **Table 12.1** through **Table 12.3**, the WS Superintendent shall determine and set load time standards for qualification items, for integrated loads (including nuclear, if tasked), and for loads performed wearing CWDE. All items require certification in accordance with this chapter, except as Noted.

12.20.1. The standard load times, from the MFG **Table 12.1**-**Table 12.3**, are standard load times for initial and recurring "WLT" training and evaluations for the respective single store (including full munitions preparation) and installation of impulse cartridges, if required. Except for BRU-57, an additional 10 minutes is allowed for each added aircraft station check on fighter aircraft, if performed as part of an evaluated load. An additional 7 minutes is allowed for each like store added to fighter aircraft loads. Load times are additive when more than one type of munition is loaded on fighter aircraft. For example, if an F-16 is to be loaded with two AIM-9s and a MK-82, the load crew shall be allowed 20 minutes for the first AIM-9, 7 minutes for the second AIM-9, and 25 minutes for the MK-82, for a total of 52 minutes. Loads may be accomplished without full munitions preparations, however, more restrictive time standards must be developed. Units should develop optimum time standards for integrated loads (including nuclear, if tasked).

Table 12.1. Fighter Aircraft Munitions Family Group and Load Training Time Standards (in minutes).

FAMILY GROUP	A/OA-10	F-15	F-16	F-22A	REMARKS
AIM-9	20	20	20	30	NOTE 15
AIM-120		25	25	40	NOTE 15
AGM-65	25	25	25		NOTE 1,2,15
AGM-88			25		NOTE 15
AGM-130		35			NOTE 1,6,15
B-61		60	60		NOTE 3
CBU-87/89/97/ 103/104/105/107	25	25	25		NOTE 14,15
GBU-10/12	25	25	25		NOTE 1,15
GBU/EGBU-15		35			NOTE 1,6,15

FAMILY GROUP	A/OA-10	F-15	F-16	F-22A	REMARKS
GBU/EGBU-24/27		25	25		NOTE 1,15
GBU/EGBU-28		35			NOTE 1,15
MK-82/ MK-84/M129/ MK-82 AIR/ MK-84 AIR	25	25	25		NOTE 4,15
GBU-31/32/38/54		25	25	35	NOTE 15
GBU-39		25			NOTE 16
AGM-154/AGM-158		25	25		NOTE 1,14,15
QUALIFICATIONS	**A/OA-10**	**F-15**	**F-16**	**F-22A**	**REMARKS**
ALE-50			10		NOTE 5,15
SUU-25	30		20		NOTE 15
CHAFF/FLARES	20	10	10	15	NOTE 5
2.75” ROCKETS	35		25		NOTE 15
20MM/30MM	35	30	35	30	

Table 12.2. Bomber Aircraft Munitions Family Group and Load Training Time Standards (in minutes).

FAMILY GROUP	B-52 INT	B-52 EXT	B-1 INT	B-2 INT	REMARKS
AGM-86B / AGM-129	85	95			NOTE 7, 8, 11
AGM-86C/D	85	95			NOTE 7,8,11
B-61/B-83	85			45	NOTE 7, 8, 12
MK-82/M117/MK-62/ MK-63/M-129/GBU-38	25	40	40	40	NOTE 7,9, 10, 13
MK-84/BLU-109/ GBU-37/GBU-31/ AGM-154/AGM-158		40	40	40	NOTE 7,9, 10, 13
CBU-87/89/97/ 103/104/105/107	40	40	40	40	NOTE 7, 9, 10, 13
MK-56/MK -60/MK-65		40	40		NOTE 7, 9, 13
GBU/EGBU-10/12/28	35	40		50	NOTE 9, 13

Table 12.3. Unmanned Aerial Vehicle Munitions Family Group and Load Training Time Standards (in minutes).

FAMILY GROUP	MQ-1	MQ-9	REMARKS
AGM-114	20		
GBU-12		25	NOTE 1, 15
GBU-38		25	NOTE 1, 15

NOTES:

1. Add 15 minutes for each additional store or LAU-117.

2. Time is for one LAU-117. The time for loading one pre-loaded LAU-88 is 45 minutes; two LAU-88s, 60 minutes; single missile out of container, 35 minutes; for a single missile that must be transferred out of the container, 50 minutes; for three missiles out of the container, 60 minutes; for three missiles in their containers, 90 minutes.

3. Includes a short flight circuit test (FCT), such as F-16, 75060/W-11; or F-15E, A/E24T-199 check. When a long FCT is to be included in a loading operation, add the time standard listed in the applicable Dash-6 tech order to the time standard.

4. Add 5 minutes for each fuze extender used.

5. Time is for one module, magazine or ejector channel. Add 3 minutes per each additional module, magazine or ejector channel.

FAMILY GROUP	MQ-1	MQ-9	REMARKS
6. Add 15 minutes when accomplishing IR check. 7. Pre-load; time standard for preloaded B-1 CBM or CRL, and B-2 RLA is 45 minutes. Add 40 minutes for each additional preload CSRL or Pylon on the B-52. 8. (B-52 postload for one missile): Add 50 minutes for AGM-86B or AGM-129, 60 minutes for AGM-86D, and 70 minutes for AGM-86C. Add 5 minutes for each additional missile. (B-2 postload): Add 20 minutes if accomplished as part of the load. 9. Add 3 minutes for each Non MIL STD 1760 capable store. **Exception:** Add 10 minutes per store for GBU/EGBU 10/12/28. 10. MIL STD 1760; Add 5 minutes per store. **Exceptions:** (B-52) Add an additional 5 minutes per store if MIL STD 1760 cable installation is required. (B-1, B-2, B-52) For AGM-158, first store is 50 minutes; add 20 minutes for each additional weapon. (B-2) LSC will develop a local time standard for the 8th weapon which requires rack removal during aircraft preparation, and rack installation on the weapon prior to load. 11. Time for single missile loading 70 minutes. 12. Time for single bomb is 40 minutes plus 40 minutes (B-52) or 20 minutes (B-2) if post-load check is performed as part of the load. 13. Add 20 minutes (B-2) or 45 minutes (B-1) if post-load checks are performed as part of the load. 14. (F-16) Add 35 minutes if BRU-57 functional check is performed as part of the load. 15. Add 10 minutes if functional check is to be accomplished as part of the load evaluation. 16. (**Exception**) Time standard for a preloaded carriage system is 20 minutes.			

Chapter 13

MOBILITY AIRCRAFT DEFENSIVE SYSTEMS LOADING POLICY

13.1. Units required to install/remove chaff/flare on mobility aircraft. (i.e., C-5, C-17, C-130), will establish a program to train and qualify personnel to perform these tasks IAW procedures outlined in this chapter. Units will also work with the local explosives safety officer and airfield management to develop an OI for handling chaff/flare-loaded aircraft IAW AFMAN 91-201 and AFI 91-202. As a minimum, the OI will include procedures for launch/recovery/parking of chaff/flare-loaded aircraft; chaff/flare storage and transportation; and partially ejected flares. The MXG/CC will appoint a 7/9-level individual with maintenance AFSC as the Weapons Task Qualification Manager (WTQM). ***NOTE:*** Units with 2W1s assigned will comply with training/qualification requirements outlined in **Chapter 12**.

13.2. The WTQM and the Weapons Task Qualification. Crew (WTQC) ensure chaff/flare loading operations are conducted safely, provide initial and recurring load training, serve as the focal point for all chaff/flare loading issues, and observe load operations during training. The WTQM and WTQC will not participate in load operations during training.

13.2.1. Weapons Task Qualification Manager. The WTQM develops and oversees the chaff/flare loading standardization program, sets standards, and develops local policies and procedures. The WTQM is typically a 2A573C, however, other flightline 2AX7X personnel may perform this function. Individuals appointed as the WTQM will be tracked on the SCR. The WTQM will:

13.2.1.1. Receive initial and recurring load qualification training from a WTQC and maintain currency on chaff/flare loading tasks. Once trained, they will develop and administer the unit's chaff/ flare load training program. ***NOTE:*** In the event a unit is initially tasked and has no qualified instructors, it will be necessary for the WTQM to become certified at a unit with qualified trainers. Once the WTQM is trained and qualified, they can train and qualify home station WTQC personnel.

13.2.1.2. Select, train, evaluate, and qualify a minimum of two personnel as the WTQC on safe and reliable munitions loading procedures. Evaluate and re-certify WTQC members annually. WTQC members will be tracked on the SCR.

13.2.1.3. Ensure sufficient numbers of personnel are chaff/flare loading qualified to support the unit's mission. As a minimum, identify the number of qualified personnel, names and employee numbers, MDS qualification, Defensive Systems (DS) equipment type, qualification date, and date(s) recurring training is due.

13.2.1.3.1. Ensure a course code is loaded in the MIS to identify trained personnel and qualification status.

13.2.1.4. Establish time standards for initial and recurring loading tasks. The senior evaluator has the discretion to add to the time standard if inclement weather or equipment failure is the cause for exceeding the time standard. AMC lead wings will develop time standards for each MDS for qualification purposes.

13.2.1.5. Review and approve/disapprove AFTO IMTs 22 that pertain to chaff/flare loading technical data.

13.2.1.6. Utilizing AMC lead wing developed MDS specific Task Assignment Lists (TALs), develop a local TALs for use during training for all chaff/flare loading operations A TAL is derived from applicable MDS munitions load checklist (33-1-2 series TO) and identifies the load crewmember's responsibilities by step.

13.2.1.7. Ensure chaff/flare loading CTKs are standardized to the maximum extent possible. Chaff/flare loading CTKs must include all tools and equipment necessary to support applicable MDSs and AME configurations.

13.2.1.8. Coordinate the scheduling of personnel for chaff/flare load training. The WTQM may delegate this duty to the WTQC.

13.2.1.9. Coordinate with PS&D, or the RTC, if applicable, to obtain chaff/flare dispensing system-equipped aircraft for training purposes.

13.2.1.10. Ensure training magazines match the characteristics and "feel" of live magazines (e.g., weight, dimensions).

13.2.2. Weapons Task Qualification Crew. The WTQC assists the WTQM in managing the chaff/ flare loading standardization program. The WTQC's primary purpose is to train and qualify personnel to load chaff/flares, but may also perform chaff/flare load duties. The lead WTQC member is typically a 7-level 2A5X3C technician. Initial training will be conducted using inert munitions. The number of trained WTQC members should be based on current/anticipated workloads and their ability to maintain proficiency on all applicable MDSs. WTQC members are qualified by the WTQM. The WTQC members will:

13.2.2.1. Provide personnel with initial and recurring load qualification training. One WTQC member is required to conduct practical training.

13.2.2.2. Monitor personnel qualifications to ensure required academic and practical training is complete. Disqualify individuals if recurring requirements are not met.

13.2.2.3. Spot-check personnel to evaluate proficiency. Disqualify personnel who violate safety, technical data, and reliability procedures, or fail to demonstrate proficiency.

13.2.2.4. Develop/coordinate training schedules and provide to PS&D for inclusion in the appropriate schedule (e.g., monthly, weekly). ***NOTE:*** Enroute WTQMs forward training requirements to the unit training manager, who coordinates for ground training aircraft with the RTC.

13.3. Training Requirements. Personnel are considered qualified upon successful completion of training provided by a qualified WTQC. Document initial load qualification training in GO81 or equivalent system and the individual's CFETP. Document recurring load qualification training in the qualification status system (GO81). Initial qualification will be conducted using inert munitions. Live munitions may be used during annual qualification to maintain currency. Load qualification training consists of academic and practical training.

13.3.1. Academic and practical training must be provided during initial and recurring load qualification training.

13.3.1.1. Academic training is required before practical training is accomplished. Initial Practical training must be completed within 14 days of satisfactorily completing initial academic training.

13.3.1.2. Practical training should duplicate operational conditions as closely as possible.

13.3.1.2.1. Recurring practical task qualification is administered at least annually.

13.3.1.2.2. As a minimum, practical training will include chaff/flare module serviceability criteria, actual chaff/flare loading, and operation of support equipment/AGE used during loading operations. ***NOTE:*** Weapons task qualification academic training may fulfill the requirements for explosive safety training if the requirements of AFI 91-202 are included.

13.3.1.3. Academic training is administered every 12 months. As a minimum, academic training will include:

13.3.1.3.1. Familiarization with chaff/flare loading publications, including TO 11A-1-33, *Handling and Maintenance on Explosives Loaded Aircraft*, Lead Command and local procedures.

13.3.1.3.2. Aircraft and munitions familiarization.

13.3.1.3.3. Safety, security, and emergency procedures.

13.3.1.3.4. Support, test, handling equipment, and special tools familiarization.

13.3.1.3.5. TALs and aircraft specific 33-1-2 series TOs must be available at the load-training site. ***NOTE:*** Training course control documents will be coordinated annually through the wing weapons safety office and the MTF.

13.3.1.4. Personnel qualified on a specific task on a specific MDS are considered qualified to perform that task on all series of that MDS; however, the member must be familiar with differences within the MDS (e.g. cockpit switch locations). The WTQM or WTQC provide practical, on-aircraft training on these differences and document these qualifications for each dispensing system in the qualification status system.

13.4. Disqualifying Chaff/Flare Load Personnel. Document disqualification in the member's CFETP and the qualification status system.

13.4.1. Although not all-inclusive, the following criteria constitute grounds for disqualifying personnel from chaff/flare loading duties:

13.4.1.1. Failing to complete recurring training.

13.4.1.2. Committing a safety or reliability error.

13.4.1.3. Lack of proficiency.

13.5. Transient Aircraft.

13.5.1. Apply the following when working transient aircraft:

13.5.1.1. Under NO circumstances will personnel attempt chaff/flare load operations without technical data.

13.5.1.2. If technical data is available, then qualified personnel may perform chaff/flare load operations.

13.5.1.3. If technical data is available but no one is qualified on the transient aircraft type, then the MXG/CC (or AMS/CC at en route locations) may authorize the WTQC or WTQM to de-arm and/ or unload the aircraft. The WTQM will submit a written request to the MXG/CC (or AMS/CC at en route locations) identifying personnel selected to perform the task, aircraft type and (if applicable) number of aircraft to be dearmed and unloaded. Maintain approved requests for 90 days. ***NOTE:*** This is a temporary, one-time authorization to facilitate required maintenance when qualified personnel are not available.

13.6. Identification of Chaff/Flare-Loaded Aircraft. Verify chaff/flare load status of aircraft by checking AFTO IMTs 781A/C/H before performing any maintenance. Armament placards are not required on AMC aircraft. If an aircraft is loaded with chaff/flare, it will be safed IAW applicable technical data prior to performing any maintenance.

13.6.1. Before loading chaff/flares, review the AFTO Form/IMT 781C, *Avionics Configuration and Load Status Document*, for Defensive Systems (DS) inspection status. If chaff/flare is loaded on AMC aircraft, annotate G081 using program 9018. ***NOTE:*** Do not load chaff/flares if the aircraft is overdue a scheduled DS inspection.

13.7. AF IMT 2434 Requirements. Annotate the AF IMT 2434, on all aircraft configured and loaded to release or fire chaff/flares. Record the number and type of chaff/flares in the appropriate munitions column. A locally developed form may be used as long as it includes all AF IMT 2434 data elements.

13.7.1. The following procedures pertain to reconciliation of AF IMT 2434 (or equivalent) and reconciliation responsibilities:

13.7.1.1. Reconcile and verify expenditures during aircraft debrief. Maintenance and operations personnel shall develop procedures to capture expenditure data after each sortie where applicable.

13.7.1.2. Flightline expediter will ensure visual reconciliation is complete.

13.7.1.3. Homestation reconciliation data is provided to the unit MASO.

13.7.1.4. For en route aircraft loaded at homestation, forward the AF IMT 2434 (or equivalent) reconciliation data through the Air Mobility Operations Group (AMOG) munitions POC to the applicable homestation MASO.

13.7.1.5. For aircraft loaded at en route units, forward the AF IMT 2434 (or equivalent) reconciliation data through the AMOG munitions POC to the applicable host unit.

13.8. AMC requires: AMC requires documenting DS software version data and aircraft inspections (e.g., 90-, 120-, or 180-day checks) on AFTO Form/IMT 781C. For software version data, enter the following information in the ―Remarks‖ section for each reprogrammable system: type system; installed Operational Flight Program (OFP) version; and/or Mission Data File (MDF) version (e.g., ALE-47, OFP XXXX, MDF XXXX). If a system contains multiple OFPs, list all applicable versions (e.g., ALE-47, Programmer OFP XXXX, Sequencer OFP XXXX, MDF XXXX).

13.9. Chaff/Flare Build-up. Chaff/flare magazine build-up will only be accomplished by 2W0 personnel. ARC individuals may be task-qualified for chaff/flare build-up but must be supervised by a fully qualified 2W0. Units will only perform chaff/flare build-up in approved facilities/locations. Units must have an approved explosive site plan on file with the MAJCOM Weapons Safety prior to initiating chaff/ flare buildup or storage operations.

Chapter 14

ADDITIONAL MAINTENANCE REQUIREMENTS AND PROGRAMS

14.1. Aircraft Battle Damage Repair (ABDR). The ABDR program enhances the wartime repair capability of AMUs. ABDR is an effective force multiplier contributing to wartime sortie production by assessing and repairing damaged aircraft rapidly to support flying operations. ABDR repairs will be accomplished during contingency or wartime only. However, system program managers may approve ABDR repairs during peacetime on a case-by-case basis.

14.1.1. Responsibilities:

14.1.1.1. HQ USAF/A4L provides overall policy and guidance for the USAF ABDR program.

14.1.1.2. HQ AFMC/A4 shall:

14.1.1.2.1. Assume management responsibility for USAF ABDR Programs.

14.1.1.2.2. Publish an AFMC instruction to implement policy and guidance contained in this instruction.

14.1.1.2.3. Develop and manage ABDR policy for pre-positioning of tools, materiel kits and related SE.

14.1.1.2.4. Support development and publication of ABDR TOs for new weapon systems.

14.1.1.2.5. Maintain ABDR UTCs for AFMC organizations.

14.1.1.2.6. Plan for and develop capability to repair battle/crash damaged aircraft. Ensure plans include procedures to add additional repair capabilities into operating locations and provide aircraft evacuation alternatives.

14.1.1.2.7. Plan, program, and submit ABDR funding requests.

14.1.1.2.8. Establish an ABDR Technical Support Office to advocate and provide day-to-day management of tasks associated with development, implementation, maintenance, and support needed to enhance the USAF ABDR capability.

14.1.1.2.9. Support AFMC laboratories and SPO in determining technical requirements, repair techniques, repair materials, assessment aids and Research & Development (R&D) efforts.

14.1.1.2.10. Manage TO 1-1H-39, *Aircraft Battle Damage Repair General Technical Manual*, and the engineering handbook for ABDR engineers. Support initiatives to develop, publish, and maintain weapon system specific –39 TOs.

14.1.1.2.11. Manage ABDR training aircraft program. ABDR training aircraft are permanently grounded for use in ABDR training and normally carried in possession code "YZ". Users of these aircraft are not permitted to deviate from this instruction unless otherwise outlined in AFMCI 10-202. All waiver request will be submitted IAW **Chapter 1**.

14.1.1.3. AF Research Laboratory (AFRL) shall:

14.1.1.3.1. Assign an advanced technology development program manager to conduct ABDR R&D.

14.1.1.3.2. Support the ABDR program through R&D in new technology, repair techniques, and design guidance for new weapon systems.

14.1.1.3.3. Fund ABDR R&D efforts related to ABDR technology.

14.1.1.3.4. Provide technical support to AFMC/A4 and the ABDR Technical Support Office in the development and publication of ABDR TOs for new weapon systems.

14.1.1.3.5. Coordinate with other military services and allied countries on ABDR technology exchange programs.

14.1.1.4. Lead Command shall:

14.1.1.4.1. Establish a command focal point to work ABDR issues with AFMC.

14.1.1.4.2. In conjunction with AFMC, develop a command ABDR concept of operations (CONOPS) and ensure CONOPS covers unit plans for repair of battle/crash damaged aircraft during combat operations.

14.1.1.4.3. Address ABDR in mission need statements for new weapon systems that support or engage in combat operations.

14.1.1.4.4. Incorporate ABDR in command war planning documents.

14.1.1.4.5. Task AFMC ABDR UTCs to support OPLANs.

14.1.1.4.6. Develop plans for the reception and employment of AFMC ABDR teams at the onset of hostilities.

14.1.1.4.7. Formalize integration and beddown requirements in applicable base support plans (BSP).

14.1.1.4.8. USAFE and PACAF will store and maintain serviceability of AFMC owned and provided ABDR trailers located in WRM.

14.1.1.4.9. Provide field level weapon-system-specific tools (other than common hand tools) and equipment needed to repair battle-/crash damaged aircraft.

14.1.1.4.10. Provide technical support to the ABDR Technical Support Office when requested, for development and publication of ABDR TOs as well as for live fire or similar testing.

14.1.1.4.11. Ensure shelf life items listed in TO 1-1H-39 and weapon system specific –39 TOs are maintained at required levels to support ABDR requirements.

14.2. Aircraft and Equipment Decontamination.

14.2.1. Maintenance organizations must have the Ability To Survive and Operate (ATSO) in a Chemical, Biological, Radiological, Nuclear and high-yield Explosives (CBRNE) Environment and be capable of performing operational aircraft, vehicle, and SE decontamination. The following references in addition to MDS specific technical data should be utilized when developing unit decontamination programs: AFOSHSTD 91-100,

AFOSHSTD 91-501, TO 00-110A-1, *Guidelines for Identification and Handling of Aircraft and Material Contaminated with Radioactive Debris*; TO 00-20-1, TO 11C15-1-3, *Chemical Warfare Decontamination Detection and Disposal of Decontamination Agents*; TO 11D1-3-8-1, *Portable Power Driven Decontamination Apparatus*; AFMAN 32-4017, *Civil Engineer Readiness Technician's Manual for Nuclear, Biological, and Chemical Defense*; Air Force Handbook 32-4014, Vols. 1-4, *USAF Operations in a Chemical and Biological (CB) Warfare Environment, Planning and Analysis*, AFMAN 10-2602, *Nuclear, Biological, Chemical, and Conventional (NBCC) Defense Operations and Standards;* AFMAN 10-100, *Airman's Manual; and* AFI 10-2501, *Full Spectrum Threat Response.*

14.2.1.1. Tactics, Techniques, and Procedures (TTPs). TTPs provide maintenance activities flexible preparation and response options in a CBRNE environment. The intent is to employ AF and locally-developed TTPs to maximize combat sortie operations while operating in a CBRNE environment IAW AFMAN 10-2602. TTPs provide sortie generation activities with fundamental counter-chemical warfare (CCW) tools to survive and fight.

14.3. Aircraft Grounding.

14.3.1. Definition. On occasion, units may discover conditions in multiple aircraft, engines, missiles, munitions, or related installed flight equipment of sufficient risk to personal injury or equipment damage that warrant fleet grounding consideration from a higher echelon of command until the matter can be properly investigated and resolved. Grounding is an administrative action taken to prohibit aircraft from flying because of a specific condition related to the aircraft or based on requirements of a directive

14.3.1.1. This section does not apply to conditions which are clearly limited to the affected unit/base (e.g., lost tool, fluid contamination, aircraft/equipment damage of known origin, or other strictly local event). In these circumstances, the affected unit will follow Impoundment procedures specified in **Chapter 9**.

14.3.2. Initial Investigation. The owning MXG/CC or equivalent will direct QA to develop a local OTI IAW TO 00-20-1 of this instruction. The OTI will require a sampling of affected aircraft, engines, missiles, or munitions to quickly assess the extent of the discrepancy within the wing's assigned aircraft. If there is no repair or corrective action specified in technical data, QA will also submit a technical assistance request through the MAJCOM to the System Program Manager IAW TO 00-25-107. If initial sampling indicates the discrepancy is widespread and has the potential for personal injury and/or further equipment damage, the MXG/CC will discuss aircraft grounding with the WG/CC and forward a recommendation to the MAJCOM.

14.3.2.1. Documentation. Annotate Aerospace Equipment forms IAW TO 00-20-1.

14.3.3. Grounding Authority. MAJCOM Commanders may direct grounding of MDS-specific or all aircraft within their commands for maintenance reasons. When a MAJCOM has lead command aircraft responsibility, MAJCOM commanders may recommend grounding of all aircraft within an MDS-specific fleet. Notification will be provided IAW AFI 10-206, *Operational Reporting.* Return to normal operations will be initiated by the commander directing the original grounding. The authority for grounding may be delegated

by MAJCOMs in supplements to this and other governing AFIs, but not lower than MAJCOM/A4s. (ANG will follow grounding authority guidance outlined in AFI 11-401)

14.3.3.1. The MAJCOM/A4 will determine if the risk of injury and/or damage is significant enough to ground all like-MDS aircraft. The MAJCOM/A4 will coordinate with the MAJCOM/A3 and consult with the System Program Manager, as required, prior to recommending the MAJCOM/CC make the decision to ground. Grounding decisions will be communicated via the OPREP reporting system.

14.3.3.1.1. MAJCOMs will accomplish the following actions: determine the impact of fleet grounding on operational capability worldwide; ensure other operating commands are informed of the fleetwide potential of the grounding discrepancy; notify the AEF Center if grounding affects the capability to contribute to joint or contingency operations; coordinate with AFMC and other commands to provide/obtain advice and direction, as necessary; and coordinate final grounding disposition with affected MAJCOM and AEF Commanders.

14.3.3.2. In certain cases, the System Program Manager, versus an operational unit, will discover a materiel condition with fleetwide impact and will recommend the MAJCOM/CC ground the fleet, or, in some instances direct immediate grounding IAW authority granted to the System Program Manager in TO 00-5-15.

14.3.3.3. In the case of a deployed unit that is not assigned/attached to a MAJCOM the grounding decision will be made by the Joint/Combined Force Air Component Commander (JFACC/CFACC).

14.3.3.4. **(DELETED)**

14.3.3.5. Documentation. Annotate Aerospace Equipment forms IAW TO 00-20-1.

14.3.4. Release from Grounding.

14.3.4.1. When a grounding condition requires System Program Manager involvement, the System Program Manager engineering function will investigate and recommend a course of action to the submitting MAJCOM IAW TO 00-5-15. The MAJCOM/A4 will consult with the MAJCOM/CC to confirm conditions for the release from grounding via the following methods; for Unclassified Messages: Official NIPR E-mail; digitally signed and encrypted using the Common Access Card (CAC) Public Key Infrastructure (PKI) for Classified Messages: Official SIPR E-mail. If the corrective action is published as an immediate action TCTO or other certified repair data, individual aircraft compliance constitutes their return to service. If aircraft are grounded by a HAF authority then coordinate for release through AF/A4L coordination.

14.3.4.2. If the corrective action is issued as a routine TCTO or no corrective action is required for unaffected aircraft (i.e., after investigation, the situation does not pose imminent risk to the entire fleet), the affected MAJCOM/CC will issue a follow-on email as described in 14.3.4.1 to affected units/commands releasing the grounding order and specifying conditions for returning to flying operations.

14.3.4.3. Units will annotate release from grounding by clearing the discrepancy IAW System Program Manager provided TCTO/repair data and/or TO 00-20-1. If the corrective action is deferred to routine TCTO, next phase/isochronal, etc., clear the

discrepancy IAW MAJCOM/A4 direction and enter the appropriate data for the deferred job.

14.3.4.4. Final reporting for grounding and release status will be accomplished IAW AFI 10-206, *Operational Reporting.*

14.3.5. Stand-down for Operational Reasons. For these situations, refer to AFI 11-401, *Aviation Management*.

14.4. Aircraft Inlet/Intake/Exhaust Certification.

14.4.1. This program is applicable to installed engines on B-1, B-2, F-4, F-15, F-16, F-22, and F-35 aircraft. Lead Commands may direct this program to apply to other MDSs. Affected units will develop a comprehensive training program to ensure personnel are knowledgeable and proficient in the performance of intake/ inlet/exhaust inspections. The number of individuals authorized to perform engine intake/inlet/ exhaust inspections should be sufficient to meet mission requirements and production needs, and ensure competency through regular performance. Authorized AFSCs are specified in **Table 14.1**; however, based on manning considerations, the MXG/CC may approve personnel in other AFSCs to perform inlet/exhaust inspections. ***NOTE:*** Do not confuse this certification program with ground maintenance FO inspections.

14.4.1. **(CAF)** All units will have an installed and uninstalled aircraft/engine intake/inlet/exhaust training and certification program. This includes RPA and propeller-driven aircraft/helicopters. (Exception: O/R/T/WC-135 aircraft and reciprocating engines i.e. MQ-1)

14.4.2. Responsibilities and Management. The MTF/TD, in coordination with SMEs, will be responsible for development and management of the engine inlet/intake/exhaust inspection training program. Certifiers will be appointed by the MXG/CC and tracked on the SCR IAW **Table 14.1** of this instruction.

14.4.3. Formal Training. MTF/TD in coordination with the SME will develop and conduct training. As a minimum, courses will include dangers associated with the intake/inlet/exhaust, care and handling of equipment, applicable technical data, FOD prevention, inspection criteria, fault isolation/ damage assessment, techniques required to inspect engine intakes, inlets and exhausts and performance of an engine intake/inlet/exhaust inspection. Formal training and certification are mandatory prior to placement on the SCR.

14.4.3.1. Certified individuals who PCS to the same MDS and engine TMSM may by-pass a formal training course. These individuals must be re-certified prior to being added to the SCR. Carry over date of original class completion from previous documentation (certificate, training record, MIS printout).

14.4.3.2. **(Added-CAF)** MTF will track the following training and certifications:

14.4.3.2.1. **(Added-CAF)** Formal training, engine inlet/exhaust inspection course. (IMDS-CDB)

14.4.3.2.2. **(Added-CAF)** Initial engine inlet/exhaust inspection certification. (IMDS-CDB)

14.4.3.2.3. **(Added-CAF)** Aircraft Inlet/Intake/Exhaust certification (Annual). (SCR)

14.4.3.2.4. **(Added-CAF)** Aircraft Inlet/Intake/Exhaust certifier. (SCR)

14.4.4. Certification Criteria. Upon completion of formal training, individuals are task evaluated by a certifying official (an individual other than the instructor who administered the course), and placed on the SCR. Certifying officials will be appointed by the MXG/CC IAW **Table 14.1**. Units will limit the number of certifiers to a minimum to ensure standardized training and certification. Certifying officials will maintain proficiency in the same manner as other technicians; certifying officials will recertify each other.

14.4.4.1. Annual Recertification. Each certified technician is required to be recertified annually by a certifying official. Recertification is accomplished by having the technician demonstrate they can perform the task(s). A QA PE may be used to satisfy this requirement if the QA evaluator is a certifying official.

14.5. Aircraft Rapid/Hot Defueling.

14.5.1. Rapid/hot defueling is authorized for aircraft identified in TO 00-25-172. Rapid defueling reduces time and provides a means to rapidly off load fuel from aircraft at a higher flow rate than defueling systems and equipment are capable of providing. MXG/CC or equivalent designates a unit OPR for rapid/hot defueling training.

14.5.2. Rapid defueling operations are considered hot defueling operations whenever the provider/source aircraft has an engine running.

14.5.3. Rapid defueling presents hazards which are not normally encountered in normal defueling operations. Precautions and instructions contained in TO 00-25-172 and applicable aircraft TO's shall be followed when performing rapid/hot defuel operations.

14.5.3.1. All rapid defueling ground crew members will be qualified to perform rapid/hot defueling operations by a qualified trainer. Training will be documented in the individual training plan in the WJQS or JQS. These individuals also require annual refresher training. Recurring training will be tracked in the applicable MIS. The rapid/hot defuel supervisor will be certified annually and tracked on the SCR.

14.5.4. During aircraft to aircraft ground transfer operations, if the provider aircraft has at least one engine running, it is considered a hot/rapid defueling operation.

14.5.4.1. Aircraft to Aircraft refuel procedures will only be accomplished with prior Lead Command approval.

14.6. Aircraft Structural Integrity Program (ASIP).

14.6.1. The aircraft structural integrity and flight loads data recording/individual aircraft tracking programs are established by applicable MDS specific TOs, and AFI 63-1001 and require coordinated action by a number of base level maintenance activities. An effective structural data collection program is essential to establish, assess and support inspections, maintenance activities, repairs and required modification/replacement actions.

14.6.2. The MXG/CC or equivalent ensures an effective ASIP is established, appoints an officer or NCO as the unit ASIP project officer, and ensures effective measures are in place to capture ASIP data.

14.6.3. The MXG ASIP project officer will:

14.6.3.1. Act as POC for a local ASIP OI. As a minimum, the OI will address:

14.6.3.1.1. Identification of maintenance activities responsible for changing and submitting storage media.

14.6.3.1.2. Appointment of ASIP monitors.

14.6.3.1.3. Procedures to support ASIP at deployed locations.

14.6.3.1.4. ASIP training requirements, method of documentation, and responsibility for providing training to technicians responsible for maintaining ASIP systems (e.g. changing tapes, submitting ASIP data sheets and aircrew debriefing).

14.6.3.1.5. **(Added-CAF)** Download recorders prior to cannibalization action of recorder hardware or when aircraft are expected to be grounded for more than 30 days and submit data NLT end of the next duty day from download action.

14.6.3.1.6. **(Added-CAF)** Procedures to train ASIP monitor for homestation and off station deployments.

14.6.3.2. Review ASIP correspondence and ensure requests for action receives prompt attention.

14.6.3.2. **(CAF)** Provide data and comments on Individual Aircraft Tracking (IAT), required and submitted data rates, NLT the 5th duty day of the month following the quarter. Comments can include but are not limited to any hardware, software or collection issues. To send data/ comments or obtain data collection submission format e-mail **ACCA4VASIP@Langley.AF.MIL** <mailto:**ACCA4VASIP@Langley.AF.MIL**>.

14.6.4. Coordinate ASIP supply support.

14.6.5. Maintenance activities (ASIP Monitors) responsible for maintaining ASIP systems/changing tapes will:

14.6.5.1. Change and submit tapes and/or download and submit data as required by specific MDS.

14.6.5.2. Maintain records of tape changes and submissions by aircraft tail number showing the recorder serial number, tape installation date, tape removal date, and date the tape was shipped.

14.6.5.3. Coordinate with appropriate Pro Super to CANN ASIP related parts.

14.6.5.4. Inform the MXG ASIP project officer of backordered parts with unacceptable delivery dates, difficulties in acquiring tapes, etc.

14.6.5.5. PS&D section will ensure ASIP equipped aircraft are identified in weekly schedules (if required) and jacket files for these aircraft are clearly marked to show ASIP equipment is installed.

14.6.5.6. Debriefers will ensure appropriate ASIP documents are available at the debriefing location and ASIP data is gathered for each sortie flown by ASIP equipped aircraft.

14.6.6. Inspection Dock NCOIC Responsibilities (as applicable by MDS).

14.6.6.1. Establish JSTs with the required ASIP inspections. Ensure all ASIP inspections are complied with prior to closing out the inspection. ***NOTE:*** Classified ASIP will be managed with Lead Command-approved procedures to ensure safeguarding of classified information.

14.6.6.2. PS&D will ensure ASIP inspections are loaded in the MIS and scheduled. ***NOTE:*** Classified ASIP will be managed with Lead Command-approved procedures to ensure safeguarding of classified information. ***NOTE:*** When required by lead Command, units may be asked to establish POCs for other related programs or data collection efforts. Refer to AFI 63-1401, *Aircraft Information Program.*

14.7. Hydraulic Fluid Purification (HFP):

14.7.1. Lead Commands will make HFP equipment procurement/modification a priority. Immediately implement the following process upon receipt of required equipment.

14.7.2. All aircraft maintenance organizations shall perform hydraulic fluid purification IAW applicable aircraft guidelines.

14.7.2.1. AGE personnel will purify all aircraft use Hydraulic Test Stands (HTS) modified for purifier connection. Complete IAW prescribed technical procedures and purify for one hour after all HTS hydraulic system maintenance or when adding additional hydraulic fluid. Modified hydraulic servicing carts are subject to the same guidance but only require a 15 minute purification process.

14.7.2.2. Flightline users will perform any additional purification operations IAW prescribed aircraft technical procedures as needed. ***NOTE:*** HFP is not a reclamation process. It will remove particles, air and moisture but not contaminants such as chemicals and other petroleum products.

14.8. Cannibalization Program.

14.8.1. General: CANN actions may be necessary when a condition prevents the accomplishment of a mission and the required assets are not immediately available from supply. Prior to performing a CANN action, verify the required component cannot be sourced from LRS, TNB or back shop assets prior to impacting aircraft mission accomplishment. When authorizing a CANN, the expenditure of man-hours and potential damage to equipment must be weighed against the expected benefit. High risk CANNs should not be performed unless priority aircraft are involved or lack of ready equipment will impede mission accomplishment. See **Table 1.1** ***NOTE:*** Commanders should not necessarily view high CANN rates as a negative statistic that reflects poorly on the unit's capability or production effort. CANN rates accurately record the lack of asset availability to the field.

14.8.2. Definition: CANN is the authorized removal of a specific assembly, subassembly, or part from one weapon system, 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. Weapon systems, support systems, or equipment include: aircraft, missiles, drones, RPA, uninstalled engines,

uninstalled engine modules, aircrew and/or launch crew training devices, C-E equipment, AGE, TMDE, serviceable uninstalled ECM pods, and guns.

14.8.3. Authorization & Control: Commanders, managers, and supervisors will closely control CANN actions. Although immediate benefits can be realized, the process results in excess expenditures of maintenance resources and may degrade readiness by exposing serviceable equipment to extra handling, assembly, disassembly or removal and reinstallation, and follow-on operational checks.

14.8.4. CANN authorities (CA) will be approved by the MXG/CC or equivalent and tracked in the MIS. CA will be SNCOs and officers (or civilian equivalents). These personnel are normally Pro Supers. Personnel permitted to authorize CANN actions must be kept to a minimum. Those who are authorized to approve CANNs will not further delegate their responsibility.

14.8.5. Aircraft that have been cannibalized extensively may be identified as "CANN aircraft." Aircraft designated as CANN aircraft will have an assigned CANN manager. This manager will ensure daily documentation actions (forms/tags/MIS) remain accurate and complete.

14.8.6. If an assembly is cannibalized to satisfy a condition caused by lack of bits and pieces (e.g., washers, nuts, and bolts), the assembly is counted as a CANN and the bits and pieces are considered transfer actions. Bits and pieces removed from an end item (without removing the assembly) for installation on another end item are considered individual CANN actions. ***NOTE:*** An item will not be cannibalized solely to attain a MC rate or any other maintenance metric.

14.8.7. When a required part cannot be delivered and installed on time, the CA may approve the CANN of parts before the initiation of CANN documentation (e.g., Red Ball maintenance). The CA will give this approval only after confirming the part is not readily available in LRS,TNB, launch trucks, forward supply points, or back shops. The CA will notify the appropriate supply activity to change the "mark-for" components in the document number. The CA will also ensure complete documentation is accomplished for each CANN action.

14.8.8. When TCIs, serially controlled items, items affecting compliance of a TCTO, or other components with inspection requirements that align to specific hourly, calendar, or event limits are considered for CANN, the CA will coordinate with PS&D or EM to ensure adequate time remains on the item to justify the CANN and to ensure appropriate records are updated. If CANN occurs, the performing work center will update MIS and notify PS&D or EM.

14.8.9. Installed engines are not end items; engines are considered LRU just as a radar component, gun, seat, canopy, radio, multifunction display unit, etc. If a functional LRU is removed from one end item to put on another end item to fill a "hole" which was caused by a supply requisition, (the requisition could be against the LRU), then this will be considered a CANN.

14.8.10. Restrictions:

14.8.10.1. CANN actions involving parts from ABDR aircraft, AF Museum Aircraft, Maintenance Training Devices (MTDs), GITA (possession purpose code TX), or DRMO will not be accomplished without authorization from the SPO. If the part is approved for CANN, it must not be put into service until all necessary inspections (e.g., NDI, pressure checks, operational checks, TCTOs) have been accomplished using specific guidance from the IM to ensure proper serviceability. Parts shall not be removed from static display/AF Museum Aircraft except as authorized by AFI 84-103. Aircraft possessed by AFMC in depot maintenance will not be cannibalized without first obtaining approval from the applicable AFMC single manager.

14.8.10.2. An aircraft that has been extensively cannibalized will not be launched on an overseas or cross-country sortie/mission on the first flight following CANN status without owning MXG/CC approval.

14.8.11. Documentation and Reporting: Specific documentation procedures for CANNs are prescribed in 00-20 series TOs. All CANNs will be properly recorded in the MIS and AFTO series forms. Aircraft recovering from CANN status will be carefully screened and all maintenance documentation thoroughly reviewed before being scheduled for a sortie/mission. The review will ensure all operational checks have been completed and will determine if an OCF or FCF is required.

14.9. Combat Sortie Generation. Combat sortie generation is a process by which mission capable aircraft are generated in a minimum amount of time, during peacetime or wartime, through separate 2AXXX and 2WXXX tasks or by Concurrent Servicing Operations (CSO). Combat sortie generation may include fueling, munitions/ammunition loading/unloading, aircraft reconfiguration, Dash-6 TO inspections, and other servicing requirements, IAW applicable MDS TOs, Technical Order Data (TOD), IETM, TO 11A-1-33, TO 00-25-172 and other applicable directives. In conjunction with applicable TOs/TODs, units will use the procedures in this chapter to accomplish combat sortie generation. Procedures can be compressed through pre-positioning resources and concurrent performance of tasks. When authorized by Lead Command, abbreviated AFMC approved Dash-6 TO quick turn workcards may be used.

14.9. (CAF)Combat Sortie Generation. Units may use AFMC-approved quick turn workcards.

14.9.1. Generation procedures should be built around the operational environment, mission, and expected operations for which a unit is designated to deploy or support during contingencies or taskings. These procedures may be used during actual contingencies, scheduled exercises, and daily flying operations. Combat sortie generation includes the entire regeneration cycle for a mission capable aircraft to include any or all of the following: servicing, inspection, munitions/ammunition loading/ unloading, aircraft reconfiguration, and fueling. When authorized by Lead Command Munitions and Aircraft maintenance divisions, DLOs, described in **Chapter 12** of this instruction, may be used to regenerate aircraft.

14.9.2. Concurrent Servicing Operations (CSO): The simultaneous fueling, and munitions/ammunition loading/unloading, aircraft reconfiguration, aircraft Dash-6 TO inspections, and other aircraft servicing such as oil, nitrogen, and hydraulic fluid. Oxygen

servicing will not be accomplished during fuel servicing. CSOs provide units operational flexibility in managing resources and a rapid means of generating mission ready aircraft.

14.9.2.1. CSOs requiring a Concurrent Servicing Supervisor (CSS). The key function requiring the CSS is refueling/defueling and only applies to Fighter/Attack aircraft IAW TO 00-25-172 Chapter 6.

14.9.2.1.1. Simultaneous fuel servicing with aircraft -6 and -6WC inspections.

14.9.2.1.2. Simultaneous fuel servicing with munitions/ammunition loading/unloading.

14.9.2.1.3. Simultaneous fuel servicing with aircraft reconfiguration.

14.9.2.1.4. Simultaneous fuel servicing and other aircraft servicing such as oil, nitrogen, and hydraulic fluid.

14.9.2.1.5. Simultaneous fuel servicing with loading/unloading of munitions/ammunition, aircraft reconfiguration, aircraft Dash-6 TO inspections, and other aircraft servicing such as oil, nitrogen, and hydraulic fluid. ***NOTE:*** Electrical "power-on" portions of Dash-6 inspections are not authorized during concurrent munitions loading/unloading and fuel servicing operations. Power-on portions of Dash-6 inspections are accomplished prior to or upon completion of the concurrent munitions loading/unloading and fuel servicing operation.

14.9.2.2. CSOs NOT requiring a Concurrent Servicing Supervisor (CSS). When no refuel/defuel operations are taking place concurrent with any other maintenance/munitions tasks, a CSS is not required.

14.9.2.2.1. Any or all simultaneous munitions/ammunition loading/unloading with aircraft -6 and -6WC TO inspections, aircraft reconfiguration, and other aircraft servicing such as oil, nitrogen, and hydraulic fluid. ***NOTE:*** When a CSS is not required, the weapons load crew chief is responsible for and controls all actions concerning the aircraft during loading and unloading operations. See **Chapter 4** for detailed responsibilities.

14.9.3. Lead Commands will supplement this AFI with specific requirements for 2AXXX and 2WXXX training and qualification, and CSS training and certification.

14.9.3. **(CAF)** Personnel performing Concurrent Servicing Operations (CSOs) not requiring CSS (Para 14.9.2.2) do not require special training or tracking. Prior to accomplishing CSOs requiring CSS (Para 14.9.2.1) all 2AXXX and 2W1XX personnel directly involved in the operation must attend annual training (tracked in IMDS-CDB). 2AXXX personnel will receive their training in a locally developed MTF course. 2W1XX personnel will receive their training in initial/annual weapons academics training. Training requirements are:

14.9.3.1. **(Added-CAF)** Safety requirements contained in 00-25-172, 11A-1-33, MDS specific -2/-6 manuals, and 1X-XXX-33-1-2/33-2-1.

14.9.3.2. **(Added-CAF)** Concept and inherent risks associated with CSO operations utilizing CSS.

14.9.3.3. **(Added-CAF)** Emergency procedures. (e.g. fuel spill, hydrazine, personnel evacuation, etc).

14.9.3.4. **(Added-CAF)** MDS specific requirements.

14.9.3.5. **(Added-CAF)** Fire protection requirements.

14.9.3.6. **(Added-CAF)** Cockpit access.

14.9.3.7. **(Added-CAF)** Support equipment.

14.9.3.8. **(Added-CAF)** Unique local operating procedures.

14.9.4. Manpower. Commanders may train additional aircraft or munitions maintenance personnel to assist in direct sortie generation production activities.

14.9.4.1. Cross-utilization of skilled personnel may be employed to ensure maximum productivity.

14.9.5. Combat Sortie Generation Personnel and Responsibilities.

14.9.5.1. The MXG/CC:

14.9.5.1.1. Coordinates training for augmentees from base support agencies to support combat sortie generation.

14.9.5.1.2. Conducts combat sortie generation proficiency-training exercises at least semiannually. (WG/CCs in ARC and AETC shall determine frequency). Coordinates fueling and munitions requirements with the OG/CC prior to each scheduled combat sortie generation exercise.

14.9.5.1.3. May elect to arm/de-arm munitions at designated areas other than the quick check/ EOR area.

14.9.5.2. Concurrent Servicing Supervisor (CSS) (Only for Fighter/Attack aircraft IAW TO 00-25-172 Chapter 6):

14.9.5.2.1. The on-site supervisor responsible for all aspects of fuel servicing, munitions/ ammunition loading/unloading, aircraft reconfiguration, aircraft Dash-6 TO inspections, and other aircraft servicing being performed during CSOs. The key function requiring the CSS is refueling/defueling. When no refuel/defuel operations are taking place concurrent with any other maintenance/munitions tasks, a CSS is not required.

14.9.5.2.2. Must be at least a 7-skill level with a maintenance (2AXXX or 2WXXX) AFSC and at least 1 year of experience on the weapons system. The MXG/CC may waive the 1-year weapons system experience requirement at short-tour locations.

14.9.5.2.3. Is a safety supervisor who will supervise only one CSO at a time and will perform no other functions.

14.9.5.2.4. Will be designated on the SCR and shall receive training on safety requirements and potential hazards of CSOs. Will be certified as required by this instruction, Lead Command, and local maintenance/training directives. Reference TO 11A-1-33 procedures for handling and maintenance of explosives-loaded aircraft. Reference TO 00-25-172 for flightline servicing operations and applicable AFMAN and AFOSHSTDs.

14.9.5.3. **(Added-CAF)** Units will develop a local CSO checklist used by the CSS to brief CSO personnel prior to accomplishing concurrent servicing operations. The checklist will address as a minimum the following:

14.9.5.3.1. **(Added-CAF)** Overview of the CSO.

14.9.5.3.2. **(Added-CAF)** Safety requirements.

14.9.5.3.3. **(Added-CAF)** Emergency notification procedures/withdrawal distances (e.g. fuel spill, hydrazine, personnel evacuation, etc).

14.9.5.3.4. **(Added-CAF)** Fire protection requirements.

14.9.5.3.5. **(Added-CAF)** Cockpit access.

14.9.5.3.6. **(Added-CAF)** Support equipment.

14.9.5.3.7. **(Added-CAF)** Munitions specific requirements.

14.9.5.3.8. **(Added-CAF)** Unique local operating procedures.

14.9.6. Combat sortie generation will be conducted in approved explosives and fuels sited areas.

14.9.7. Combat Sortie Generation Proficiency-Training Exercises. These exercises are mandatory training events to demonstrate the unit's capability to generate a continuous sustained flow of combat sorties.

14.9.7.1. Exercises will be conducted semi-annually (WG/CCs or equivalent in ARC or AETC will determine frequency) to ensure unit personnel proficiency.

14.9.7.2. Duration will be at least 3 days (WG/CCs or equivalent in ARC or AETC will determine duration).

14.9.7.3. The MXG and OG commanders will determine the number of aircraft scheduled to optimize aircrew and sortie generation training. War Mobilization Plan (WMP) -5 rates (or higher) should be used for planning combat sortie generation/regeneration.

14.9.7.4. Perform after-fire inspections on all stations that fired IAW Dash-6 TO requirements. Tools, technical data and expendables will be available at each aircraft for all simulated firings. Applicable task times will be simulated (determined locally) by the BPO crew before moving to another aircraft or task. Half-up/half-down loading procedures will be performed to show recon-figuration of aircraft after actual and simulated inspections are complete. All inspections (actual or simulated) will be documented.

14.9.7.5. Units will upload and download external fuel tanks during each exercise.

14.9.7.6. Units will perform RWR and IFF Mode IV checks (as applicable).

14.9.7.7. During wing combat sortie generation exercises, aircraft turnaround time is crucial to meet sortie generation requirements. Units will develop expertise and demonstrate the capability to perform combat sortie generation. The following procedures will apply:

14.9.7.7.1. SCLs will be selected from known OPLAN requirements.

14.9.7.7.2. Personnel participating in local exercises should be rotated so all personnel are exposed to combat sortie generation in the training environment.

14.9.7.8. Conventional munitions operations will be exercised (e.g., breakout, buildup, delivery, loading, resupply).

14.9.7.8. **(CAF)** PACAF Only. Live munitions will be used to the maximum extent possible during all exercises.

14.9.7.9. Load a complete SCL (or half up/half down to simulate a full SCL) on each exercise aircraft generated/scheduled to fly a simulated combat sortie.

14.9.7.10. For each sortie flown, air-to-air missiles expended will be determined by shots taken, not to exceed the SCL configuration; all other external ordnance will be considered expended. Rockets will be expended at 50 percent. Ammunition in F-15 and F-16 aircraft will be loaded as required, 50 percent of all A-10 sorties will require reloading as a minimum (this may be simulated by hooking-up all required ammunition loading equipment and taking the standard time).

14.10. Crash Damaged or Disabled Aircraft Recovery (CDDAR) Program.

14.10.1. All host and tenant units with flying missions or active airfields/runways are required to maintain a CDDAR capability. The host unit is responsible for developing the CDDAR program, but execution of the program can be delegated to the tenant units as appropriate.

14.10.2. CDDAR responsibilities are assigned to unit Maintenance Flight workcenters (N/A for ARC) Unit CDDAR programs include all elements of emergency/mishap response. Response to in-flight emergencies (IFE) must also be considered in developing base/unit programs.

14.10.2.1. Minimum response to IFEs consists of assembling a tow team, pre-positioning it for immediate response, and it remaining in place until the IFE is terminated or until the aircraft is towed back to the parking apron if required. Depending on the nature of the emergency, other technicians may be required to stand-by to provide immediate response capability as the situation warrants.

14.10.3. Lead Commands may regionalize CDDAR capability where it makes sense to do so. If CDDAR is regionalized, Lead Commands must supplement this instruction providing guidance for program execution consistent with this instruction. Where this capability has been regionalized, specific contingency plans must be developed considering mission needs and the following:

14.10.3.1. Equipment availability

14.10.3.2. Time sensitivity for re-opening airfields/runways

14.10.3.3. Organizational capacity at the local level to provide limited removal capability

14.10.4. All CDDAR programs must be designed to provide response capability to and/or recovery capability of disabled or crashed aircraft in an expeditious manner consistent with the following consideration(s):

14.10.4.1. Requirement to open the runway for operational use.

14.10.4.2. Prevention of secondary damage to the aircraft.

14.10.4.3. Preservation of evidence for mishap or accident investigations IAW AFI 91-202 and AFI 91-204.

14.10.5. CDDAR Program Responsibilities.

14.10.5.1. HQ AETC/A3T will:

14.10.5.1.1. In coordination with ARC, develop, maintain, and administer training to remove/recover crash damaged or disabled aircraft in support of this program.

14.10.5.2. Lead Commands will:

14.10.5.2.1. Annually review and update required recovery equipment lists by MDS consistent with the provisions of this instruction.

14.10.5.2.2. Initiate allowance standard updates as crash recovery equipment requirements change.

14.10.5.3. MAJCOMS will:

14.10.5.3.1. Ensure unit compliance with all facets of the CDDAR program within their respective command

14.10.5.3.2. Aggressively work to resolve resource limitations within their command

14.10.5.3.3. Determine base level equipment inventories where more than one wing or MDS are permanently assigned to avoid duplication of resources.

14.10.5.3.4. Ensure units return excess equipment to the supply system for redistribution.

14.10.5.4. The host wing commander will implement policy, plans and agreements to ensure compliance with established recovery programs.

14.10.5.5. Host and tenant wing commanders shall collaborate and publish an Installation Publication or supplement to this AFI containing specific responsibilities and procedures for CDDAR. The following references, as a minimum, are used in developing the publication or supplement: *Comprehensive Emergency Management Plan* 10-2, AFI 10-2501, AFI 10-206, AFI 21-103, Lead Command supplement to AFI 21-101, applicable 48- and 91-Series AFOSHSTDs, aircraft specific Dash-2 and Dash-3 series TOs and TO 00-105E-9, *Aerospace Emergency Rescue and Mishap Response Information* **http://www.dodffcert.com/00-105E-9/index.cfm**. As a minimum, it must address the following:

14.10.5.5.1. Responsibilities of each base/tenant organization for CDDAR responses. Assignment of responsibilities for supporting transient aircraft.

14.10.5.5.2. Personnel required for CDDAR operations. Identify specific positions on the CDDAR team(s) consistent with this instruction (e.g., CDDAR team chief, special vehicle operator, team members).

14.10.5.5.3. Equipment, tools, vehicles and other supplies/consumables required for CDDAR operations.

14.10.5.5.4. PPE required to perform recovery of an aircraft containing composite/hazardous materials as established by technical data and Base Bio-Environmental Engineering (BEE) office.

14.10.5.5.5. CDDAR support for Geographically Separated Units (GSU) as required.

14.10.5.5.6. Support for CDDAR after normal duty hours. Immediate response by the CDDAR crew is required during normal operating periods or duty hours. Units must develop emergency recall or mobilization rosters to identify and notify required recovery team members outside of normal operating hours.

14.10.5.5.7. The MXG/CC will (host and tenant units):

14.10.5.5.7.1. Establish a CDDAR capability.

14.10.5.5.7.2. Ensure sufficient equipment is available to include mobility/deployed operations, as authorized in the applicable AS.

14.10.5.5.7.3. Approve selections for CDDAR team chief, rank waivers for team chiefs, and waivers for training.

14.10.5.6. Base host unit CDDAR Responsibilities.

14.10.5.6.1. Each base host unit has overall responsibility for recovery of host/tenant crashed /disabled aircraft**.** Base host units will:

14.10.5.6.1.1. Provide recovery support for all tenant units as established in Host/Tenant support agreements (HTSA).

14.10.5.6.1.2. Ensure CDDAR procedures are coordinated with the Fire Department, Safety, Civil Engineering (CE), Readiness, EOD, Security, Bioenvironmental Engineering Element (BEE), Airfield Manager, and other on-/off-base agencies as applicable.

14.10.5.6.1.3. Maintain capability to provide and support recovery operations for all base assigned aircraft, to include tenant aircraft.

14.10.5.6.1.4. Develop support agreements to document requirements.

14.10.5.6.1.5. Provide adequate weather proof storage for all recovery equipment.

14.10.5.7. Tenant unit responsibilities.

14.10.5.7.1. Tenant units are responsible for the condition/repair of their aircraft. With regard to the CDDAR program, tenant units must:

14.10.5.7.1.1. Coordinate with and participate in host CDDAR exercises, training and equipment inventories.

14.10.5.7.1.2. Be actively involved to assist host base recovery operations during real world responses. Tenant unit primary contributions are:

14.10.5.7.1.2.1. Technical expertise

14.10.5.7.1.2.2. Technical data

14.10.5.7.1.2.3. MDS-unique tools/special equipment

14.10.5.7.1.2.4. Airframe/system familiarization

14.10.5.7.1.2.5. Manpower/augmentation as needed

14.10.5.8. MXG CDDAR Team Chief and alternate will:

14.10.5.8.1. Be a SNCO or civilian equivalent (MXG/CC may waive grade requirement to TSgt or civilian equivalent), approved by the MXG/CC, and tracked on the SCR. MXS Maintenance Flight is typically the OPR for the unit CDDAR instruction. When developing the maintenance instruction, consider special tasks such as identifying and handling of classified equipment, AFE or egress systems specific tasks, etc.

14.10.5.8.2. Develop, in conjunction with the MTF, course control documents for CDDAR initial and annual training.

14.10.5.8.3. Review support agreements and base disaster response plans annually. Provide inputs for changes as required.

14.10.5.8.4. Inform the MXG/CC in writing of equipment shortages/serviceability that precludes effective CDDAR support.

14.10.5.8.5. Ensure sufficient personnel/teams are trained to support CDDAR operations. This includes:

14.10.5.8.5.1. Basic equipment operation.

14.10.5.8.5.2. Familiarization with/training on any unique characteristics, hazards, materials for assigned aircraft (e.g., F-16 and U-2 hydrazine systems, C-130 ballast depleted uranium, aircraft composite materials, etc.) and document training.

14.10.5.8.5.3. Availability and proper use of PPE as determined by technical data and the base BEE.

14.10.5.8.6. Ensure special qualifications for personnel are identified and documented. Identify individual team member qualifications for specific equipment operations (e.g., towing, jacking, support equipment, special purpose vehicle).

14.10.5.8.7. Maintain a list of all CDDAR tools and equipment.

14.10.5.8.8. Ensure tools and SE are adequate for recovery (i.e., bags, slings, manifolds, tow bars, dunnage/shoring, etc.) and are serviceable and available.

14.10.5.8.9. Conduct/participate in annual training exercises. Coordinate with the Emergency Management Office before exercises.

14.10.5.8.10. Coordinate with unit QA W&B manager when weight and center of gravity (CG) conditions are unknown.

14.10.6. Recovery Team Qualifications:

14.10.6.1. All team members must be qualified in basic CDDAR operations (except augmentees).

14.10.6.2. All qualifications are recorded in CFETP, AF IMT 797, or MIS as applicable.

14.10.7. Training Requirements:

14.10.7.1. All recovery team members must receive initial training comprised of both academic and hands-on training/exercises and will include actual lifting of an aircraft. Personnel used to augment real-world recoveries do not require CDDAR specific training. This training will be developed and provided through an AETC formal training course. The ANG training course is available for use by all AF personnel.

14.10.7.1.1. Personnel previously qualified and actively serving in a CDDAR capacity are exempt from attending the AETC CDDAR training course. Units are encouraged to schedule these personnel for this training as workload permits.

14.10.7.1.2. Personnel previously qualified as CDDAR team members who are being returned/reassigned to these responsibilities must complete unit academic and hands on training (does not include actual lift) within 6 months (12 months for ARC) of being assigned.

14.10.7.1.3. All newly assigned CDDAR team members must complete this requirement within 6 months (12 months for ARC) of being assigned CDDAR responsibilities.

14.10.7.1.4. MXG/CC may waive the training requirement in emergency situations. However, if training is available, units must make every effort to schedule personnel consistent with this requirement. Team Chief and alternate Team Chief initial training, to include actual lifting of an aircraft, cannot be waived.

14.10.7.2. All recovery team members must receive annual training comprised of both academic and hands-on training/exercises. Hands-on training includes aircraft lifting exercises using a unit owned aircraft or Ground Instructional Training Aircraft (GITA). Do not use operational aircraft for actual aircraft lifts in a training environment. If units have no available training assets, consider participating with other organizations possessing training assets. If no assets are available suitable for these exercises, units demonstrate capability by completing all steps but stopping short of actually lifting an operational aircraft. Ensure all training is documented.

14.10.7.3. CDDAR team chiefs must complete an actual aircraft lift every three years. This can be accomplished through real-world events, the AETC formal training course, ANG training course, or locally using a GITA .

14.10.7.4. MXG/CC may waive training requirements as circumstances dictate. Waivers must not be used in lieu of training if training is available. Units must make every effort to schedule personnel consistent with this requirement.

14.10.8. Vehicle/Equipment Requirements.

14.10.8.1. The MXG/CC determines unit vehicle/equipment requirements, within the limits provided by AS(s). Units must identify vehicles and recovery SE in a local directive to ensure 24-hour availability.

14.10.8.2. At a minimum, units possessing a full CDDAR capability must possess sufficient aircraft lifting equipment to accomplish a complete lift of the assigned MDS aircraft at that base. This can be achieved by any combination of lift bags, aircraft jacks,

or aircraft slings. It is not necessary to maintain sufficient lift bags to lift an entire aircraft using only lift bags unless otherwise directed by aircraft technical order.

14.10.8.3. Vehicle/SE requirements should include:

14.10.8.3.1. Radio-equipped general purpose truck.

14.10.8.3.2. Suitable trailer and tow vehicle (for storage and transportation of recovery equipment).

14.10.8.3.3. All Terrain Forklift.

14.10.8.3.4. Bulldozer.

14.10.8.3.5. Aircraft tow vehicle.

14.10.8.3.6. Crane (e.g., 20-ton, 50-ton, as applicable).

14.10.8.3.7. 40 ft. flatbed semi trailer and tractor.

14.10.8.3.8. Light carts.

14.10.8.3.9. Tow bars.

14.10.8.3.10. Air Bags.

14.10.8.3.11. Slings, belly bands, snatch cables, chains, etc.

14.10.8.3.12. Aircraft jacks.

14.10.8.3.13. Dunnage/shoring.

14.10.8.4. When base vehicle organizations are unable to support heavy equipment requirements, such as cranes and semi tractors and trailers, units will establish procedures to procure this support from local suppliers. Refer to AFI 24-301 and AFI 23-302 for lease procedures.

14.10.9. Inspect for serviceability and inventory all recovery equipment to include air bags, manifolds, jacks, slings, shoring, etc., before and after each exercise and use. Periodic equipment inspections must be accomplished IAW intervals established in TOs or annually, if no TO intervals have been identified. Perform operational checks IAW applicable directives during exercises and/or inventory reviews. Document inspections and maintenance in MIS, on AFTO IMTs 244 or on MAJCOM approved form.

14.10.10. Environmental, Safety, and Health Hazards. The key for developing a safe and effective CDDAR program is communication and coordination. The CDDAR OPR must ensure the BEE is consulted and directly involved in determining personnel health hazards, training required and appropriate levels of PPE.

14.10.10.1. There are two distinct phases of an aircraft mishap--initial response and recovery.

14.10.10.1.1. Initial response teams face the probability of an aircraft fire. As the composite material burns, gases, vapors and solid particles are released into the smoke plume.

14.10.10.1.2. Recovery team members may be exposed to fibers and respirable/inhalable dusts as aircraft parts are moved, modified by cutting, breaking, twisting, or hammering. Personnel tasked to participate in crash or post-crash response, recovery, maintenance, and/or clean up operations must be aware of/briefed on all possible health issues involved. Units must ensure local policies and procedures for handling crash damaged composites are addressed to include training and PPE.

14.11. Dropped Object Prevention (DOP) Program. A dropped object is any aircraft part, component, surface, or other item lost during aircrew operations (unless intentionally jettisoned) from engine start to engine shutdown. Inadvertently released munitions are not considered dropped objects and will be reported IAW AFI 91-204. (***NOTE:*** Missing Chaff/Flare end-caps are not reportable dropped objects).

14.11.1. Responsibilities. All units, which fly, service, or maintain aircraft develop a DOP program with the following provisions:

14.11.1.1. Lead Command DOP monitors or aircraft functional managers will act as OPR for all dropped object field inquiries IAW Lead Command established standards. The WG/CV serves as the DOP program manager. The WG/CV will appoint the wing DOP monitor. The wing DOP monitor may be assigned under QA.

14.11.1.2. Training. The wing DOP monitor will identify and develop training standards. Commanders will ensure all maintenance personnel involved in on-equipment maintenance receive adequate DOP training.

14.11.1.3. Prevention. Effective prevention of dropped objects starts when an aircraft door, panel, or cowling is opened for maintenance and during munitions build-up, loading, and arming. Maintenance personnel will ensure the serviceability of fasteners and the proper fit of doors, panels, connectors, etc. Place special attention on the correct length of fasteners and condition of nut plates and other securing devices. Supervisors place special emphasis on these areas during the inspection of completed maintenance actions.

14.11.1.4. Investigation. The DOP monitor will investigate each dropped object incident. Every effort will be made to determine the precise cause to ensure positive corrective action is accomplished. Anytime a materiel or design deficiency is the cause, or suspected cause, a DR will be submitted IAW TO 00-35D-54, even when an exhibit is not available. Investigation results will be distributed to each appropriate work center for inclusion in personnel training and education programs.

14.11.1.4. **(CAF)** Dropped object incidents will be immediately brought to the attention of the wing DOP monitor and QA. Quality Assurance and/or the Wing DOP monitor will investigate each dropped object incident.

14.11.1.5. Reporting. Units will follow DOP program reporting procedures below:

14.11.1.5.1. Initial dropped object report will be made to the Lead Command via telephone, e-mail, or message within 24 hours of occurrence. If it involves casualties, property damage, or if adverse publicity is likely, report IAW AFMAN 10-206. The wing DOP monitor notifies the base/wing safety office of all dropped objects. Units will maintain reports for a minimum of 24 months (may be electronic).

14.11.1.5.2. Follow-up final report will be made to the Lead Command within 3 duty days after the occurrence. The final format will be used as listed in **attach 11**.

14.11.1.5.3. Transient Aircraft. The local wing/center DOP monitor will be responsible to investigate dropped objects from a transient aircraft. The wing/center DOP monitor will provide the home station DOP monitor with sufficient data to generate a report for trending and tracking purposes.

14.11.1.5.4. **(Added-CAF)** The Wing DOP monitor will submit quarterly reports to Lead MAJCOM NLT than the 15th of the following month (i.e. Oct, Nov and Dec data will be reported in Jan). These reports will contain the following data: Number of incidents, number preventable/non-preventable, nomenclature and status of any DRs submitted during that quarter. Units will follow the same reporting procedures as home station while deployed or TDY. If the Wing DOP monitor does not deploy with the unit, a deployed DOP monitor will be appointed. The home station DOP monitor will ensure appointed personnel are trained to perform the duties as deployed DOP monitor and that a Deployed DOP monitor continuity book is available for deploying personnel.

14.11.1.5.5. **(Added-CAF)** DOP program report number (unit, year, and month, followed by sequence number -- example, 301FW-060501).

14.11.1.5.6. **(Added-CAF)** Wing rates are computed monthly. Each wing DOP manager will submit monthly reports to MAJCOM using the FOD-DOP WORKBOOK by email or upload to DOP CoP (**https://afkm.wpafb.af.mil/community/views/home.aspx?Filter=AC-OT-01-34**). The report will include monthly cumulative DOP data. A fiscal year roll up is provided to Lead MAJCOM NLT 15 October.

14.11.1.5.7. **(Added-CAF)** The CAF DOP standard is 2.0. Wing DOP rates are computed by MDS as follows: Total number of preventable incidents ÷ total number of sorties, X 1,000 = DOP rate. [Example: 17 Incidents ÷ 11684.0 sorties = 0.00145498 X 1000 (sortie rate) = 1.45498 or 1.5.]

14.11.1.5.8. **(Added-CAF)** C-130 and C-135 aircraft units will use the following to report dropped objects to HQ AMC. The purpose is to consolidate fleet wide data for identification of problems and crossfeed information for all users.

14.11.1.5.8.1. **(Added-CAF)** Home Station. The MXG/CC will report all dropped objects for C-130 and C-135 aircraft through the wing DOP monitor to HQ AMC/A4M within 72 hours, regardless if the loss is reportable. Send info copies to appropriate ACC Weapon System Team and NAF logistics.

14.11.1.5.8.2. **(Added-CAF)** Quarterly DOP Summary for C-130 and C-135 Aircraft Units. The home-station wing DOP monitor submits a quarterly summary listing each dropped object and sequence number to HQ AMC/A4M by the 5th duty day of each quarter. Negative reports are required. Provide HQ ACC/A4CA-130 and A4CA-135 a copy of DOP summary IAW above guidelines.

14.11.1.6. **(Added-CAF)** A summary of DOP incidents will be briefed in conjunction with the quarterly FOD meeting.

14.11.1.7. **(Added-CAF)** DOP Incidents are classified as preventable and non-preventable, both are reportable. All preventable incidents will be chargeable. DOPs are considered preventable except those listed below:

14.11.1.7.1. **(Added-CAF)** Caused by natural environmental factors or wildlife. This includes hail, ice, animals, insects, sand, and birds. Report this type of damage IAW AFI 91-204, *Safety Investigations and Reports*. Do not include these in the DOP rates.

14.11.1.7.2. **(Added-CAF)** Caused by materiel failure of an aircraft component if the component failure is reported as a DR using the combined mishap DR reporting procedures of AFI 91-204 and TO 00-35D-54.

14.11.1.7.3. **(Added-CAF)** Airframe damage caused by gunnery or rocket mission ricochets is considered non-preventable provided mission parameters were not exceeded and range cleaning was sufficient.

14.11.1.7.4. **(Added-CAF)** Helicopter/CV-22/HC/EC-130 damage caused by rocks, stones, wood, or other objects during low hover operations or unimproved runway operations are considered non-preventable, provided mission parameters were not exceeded.

14.12. F100-PW-100/220/220E Eddy Current Inspection. This section applies to F100-PW-100/220/220E, F-15/F-16 Aircraft, 4K Fan Drive Turbine (FDT) Module Part Number 4084923 and 4085023 (all dash numbers) (4th Stage Turbine Blade - reliability enhanced program), Eddy Current Inspection Certification and Proficiency policy.

14.12.1. General: This program is applicable to all units who perform 4th stage turbine blade eddy current inspection on F100-PW-100/220/220E FDT module part numbers 4084923 and 4085023 (all dash numbers).

14.12.2. Target population and certification requirements: Only certified 2A7X2, 5-level and above, or civilian equivalent personnel may perform this inspection. Certification must be tracked on the SCR. They must have successfully completed the probability of detection (POD) test with 90 percent POD and 95 percent confidence level of 0.020 inch deep by 0.60 inch long crack. Inspector's POD shall not exceed this crack size. Maximum of two false calls is permitted during POD test. False positive of three to five calls is permitted, but requires remediation. False positive in excess of five will result in failure.

14.12.3. Formal training: Personnel must attend the 4th stage turbine blade eddy current training course to be certified.

14.12.4. The first five FDT modules inspected upon completion of training and POD testing shall be done under the supervision and guidance of a qualified inspector. Annotate accomplishment in individual training records.

14.12.5. The first three reportable and/or rejectable blade indications identified by each inspector shall be submitted to OC-ALC (Fax: DSN 336-3992) and Pratt & Whitney materials laboratory (Fax: Commercial 1-860-755-4287) for review to confirm measurement and interpretation of the signals is correct. Confirmation by OC-ALC or the Pratt & Whitney materials laboratory is acceptable. Annotate accomplishment in individual training records.

14.12.6. Proficiency: Once an inspector successfully completes the POD test, the inspector shall inspect a minimum of three FDTs every 45 calendar days to maintain certification and proficiency.

14.12.6.1. Inspectors who have not inspected a minimum of three FDTs in the last 45-day period will be considered “overdue inspectors” and shall not be permitted to inspect additional FDTs until successfully accomplishing the field test. The field test shall be administered as follows:

14.12.6.1.1. The overdue inspector will perform the eddy current procedure on a FDT in the presence of a currently qualified inspector.

14.12.6.1.2. The overdue inspector shall not have any false positives and shall not miss any discontinuities detected by the qualified inspector.

14.12.6.1.3. The field-test may not be repeated.

14.12.6.1.4. The field-test does not count toward the three engine per period inspection requirement for the overdue inspector.

14.12.6.2. Inspectors shall be decertified and will require re-accomplishment of the POD test to become recertified under any of the following conditions:

14.12.6.2.1. The field-test is not successfully completed within 15 days after the 45 day period ends.

14.12.6.2.2. The inspector fails the field-test.

14.12.6.2.3. The inspector fails to inspect a minimum of three FDTs during each of the last two 45-day periods. ***EXAMPLE:*** individual fails to maintain proficiency in first 45-day period and successfully passes the field test. In the second consecutive 45-day period, the individual does not maintain proficiency requirements. Individual will not be allowed to take a second field test and will be decertified.

14.12.7. Documentation: Upon successful completion of training and certification the NDI section NCOIC will annotate the individual's ITP in TBA. Units will track proficiency requirements in the MIS. The NDI section NCOIC will maintain copies of inspection data sheets and field test results for one year.

14.13. End-of-Runway (EOR) Inspection.

14.13.1. The EOR inspection is a final visual and/or operational check of designated aircraft systems and components. It applies to aircraft designated in joint agreement between the Lead Commands and appropriate Program Manager. The Program Manager will list minimum inspection requirements in the applicable Dash-6 and publish requirements in Dash-6 work cards.

14.13.2. This inspection is performed immediately prior to take-off at a designated location usually near the end of the runway.

14.13.2. **(CAF)** The area will be marked by appropriate taxiway markings for marshalling and parking for MDS-assigned fighter aircraft.

14.13.3. The purpose of the inspection is to detect critical defects that may have developed or have become apparent during ground operation of the aircraft after departing the aircraft parking spot.

14.13.4. Perform this inspection when any applicable aircraft is launched from either home station or a transient USAF base.

14.13.4.1. Alert aircraft launched from alert status for actual Alert, Alert Force Evaluations, or from sector directed scrambles do not require an EOR inspection. Alert aircraft that launch for training or scheduled missions from alert status require an EOR inspection.

14.13.5. Safing, arming, and de-arming of live munitions will be accomplished by personnel qualified IAW **Chapter 12** of this instruction.

14.13.6. The team chief (identified by a reflective vest) carries an EOR checklist and ensures each item is inspected as required. On aircraft with a ground intercom system, units are only required to establish verbal communications with the pilot when communication beyond the standard EOR marshalling hand signals is required unless otherwise directed by MDS specific technical data. If the aircraft is not equipped with a ground intercom system, ground control talker cards will be used when communication with the aircrew becomes necessary.

14.13.7. Marshaling signals will be IAW AFI 11-218.

14.13.8. Units will develop procedures to ensure discrepancies discovered during EOR are entered in the AFTO IMTs 781A (or electronic equivalent) and MIS.

14.13.9. Units will develop procedures to ensure Red X discrepancies discovered during time-sensitive (Red Ball) maintenance are accomplished and cleared from the forms prior to flight. Every effort will be made to input and clear the discrepancy in the MIS prior to flight.

14.14. Engine Blade Blending Training and Certification Program.

14.14.1. General. All units will have a comprehensive training program to ensure technical standards are met, and proficiency is maintained. The number of individuals authorized to inspect and repair blades must be sufficient to meet mission requirements and production needs. Additionally, this program will ensure competency through regular performance.

14.14.2. Target Population. Only certified 2A3X3, 2A5X1/2, and 2A6X1, minimum 5-level or civilian equivalent may perform blade blend inspections and repairs.

14.14.3. Responsibilities and Management. The MTF or TD will be responsible for management and development of the blade blending training program. As a minimum, the course will include care and handling of equipment, applicable technical data, fault isolation/damage assessment/defect size determination, techniques required to correctly inspect and repair blades and performance of an engine blade blend. Prior to placement on the SCR, the formal blade blending training (MTF or TD course) and initial engine blade blending certification are mandatory.

14.14.4. MXG/CCs will appoint maintenance, TD, or AFETS/CETS personnel as instructors.. Gunter, 754 ELSG (IMDS) and AMC/A4MMT (G081) will ensure course codes are developed in the MIS to track the following:

14.14.4.1. Formal training, engine blade blending course.

14.14.4.2. Annual engine blade blending recertification.

14.14.4.3. 180-day engine blade blending proficiency.

14.14.4.4. **(Added-CAF)** Initial engine blade blending certification.

14.14.5. Certification Criteria. Certifying officials will be selected IAW criteria established in **Table 14.1** of this instruction. Units will limit the number of certifiers to a minimum to ensure standardized training and certification. Certifying officials will maintain proficiency in the same manner as other technicians; certifying officials will recertify each other. ***NOTE:*** If applicable, assigned AFETS/CETS should be used to certify other certifying officials.

14.14.5.1. Certified individuals who PCS to the same MDS and engine TMSM may by-pass formal training course. These individuals will be re-certified by a certifier prior to being added to the SCR. Carry over date of original class completion from previous documentation (certificate, training record, MIS printout).

14.14.5.2. Upon completion of the formal training, individuals are task evaluated by the certifying official (an individual other than the instructor who administered the course), and placed on the SCR.

14.14.6. Proficiency Requirements. As a minimum, B-1, B-2, F-15, F-16, F-22,, F-35 and U-2 personnel must perform one blend repair every 180 days to maintain proficiency. Work center supervisors ensure personnel who do not meet this requirement are decertified.

14.14.7. Annual Recertification. Recertification is accomplished by having the technician demonstrate they can perform the task(s). A QA PE may be used to satisfy this requirement if the QA evaluator is a certifying official.

14.14.7.1. F-15, F-16, and F-22 engine blade blending technicians and certifiers will attend the blade blending inspection course, and be re-certified by a certifying official.

14.14.8. Blade blending procedures for installed/uninstalled engines/modules:

14.14.8.1. Notify the Wing/Center FOD Monitor prior to blade blending anytime FOD is identified, other than for minor sand nicks or scratches (i.e..blending with emery cloth).

14.14.8.2. Fill out Blade Blending/FOD Damage worksheet or applicable form with the following information; engine serial number, stage number, number of blades blended, depth of damage before and after blend, area of damage and employee number/stamp number of maintenance personnel.

14.14.8.3. Notify EM section and forward Blade Blending/FOD Damage worksheet or applicable form to EM section for filing. The EM section will transcribe information provided in the Blade Blending/FOD Damage worksheet into the applicable engine/module records (i.e., AFTO IMT 95; if applicable) and CEMS, IAW TO 00-20-1.

14.15. Engine Run Training and Certification Program.

14.15.1. A comprehensive engine run certification program will be developed and strictly enforced to prevent safety mishaps and potential loss of life. All maintenance personnel authorized to start and operate aircraft engines, APUs, and uninstalled engines will be trained and certified to operate engines at TO determined power settings. Aircraft engine motoring will only be performed by qualified engine run personnel. ***EXCEPTION:*** Rotary wing

maintenance personnel qualified through OJT may motor engines as long as the rotor brake will prevent the rotors from turning. The MXG/CC is responsible for ensuring the MTF develops and manages an effective engine run certification program. The following minimum requirements will be used to certify engine run personnel:

14.15.1.1. The MTF will serve as the OPR and focal point for the management and development of the engine run certification program, engine run certification test question bank, and written tests for their respective weapon system.

14.15.1.2. Pre-run training is designed to prepare the trainee for successful completion of initial engine-run training. It will be conducted in the trainee's work center through OJT. As a minimum, pre-run training will include:

14.15.1.2.1. An evaluation by immediate supervisor or Production Superintendent to determine the individual's level of maturity and experience prior to being selected for engine-run training.

14.15.1.2.2. The trainee will review and become familiar with engine-run operations to include emergency procedures IAW the applicable aircraft Dash-1 and engine run checklist. MTFs may develop a handout to facilitate learning engine-run procedures, engine limitations, and emergency procedures.

14.15.2. Installed Engine Run Personnel. Prior to entering engine run training, ensure personnel meet the following requirements:

14.15.2.1. Personnel will be selected IAW criteria established in **Table 14.1** of this instruction. Be a minimum of SrA and have a minimum five-skill level. MXG/CCs may waive qualified five-skill level A1C for critical manpower shortages. MXG/CCs may designate contractors in writing to run aircraft engines.

14.15.2.2. Acquired at least 6 consecutive months experience on MDS for which engine run training is required. (Experience must have occurred immediately prior to course enrollment). The MXG/CC may waive the weapons system experience.

14.15.2.3. Qualified to operate aircraft APU, Gas Turbine Compressor (GTC)/Air Turbine Motor (ATM), or Auxiliary Power Plant (APP).

14.15.2.4. Familiar with aircraft marshalling signals.

14.15.2.5. Qualified as a brake operator.

14.15.2.6. Qualified in basic radio and interphone systems operation.

14.15.2.7. Complete applicable training courses.

14.15.2.8. Inlet/Exhaust certified IAW **para 14.4** of this instruction.

14.15.3. Certifiers. Aircraft engine-run certifying officials will hold the rank of MSgt or above and possess one of the following AFSCs: 2A671A/B, 2A571/2, 2A373X (or civilian equivalent), or be a fully qualified/certified contractor or AFETS/CETS representative. Certifiers will be approved by the MXG/CC and tracked on the SCR. The MXG/CC may waive qualified TSgts. All certifiers must have a minimum of 1 year engine-run experience on the applicable MDS and engine TMSM (not applicable at short tour locations). Instructor pilots (IP) can also be used as certifiers during the practical engine-run demonstration.

Certifying officials must maintain proficiency in the same manner as other technicians; certifying officials must re-certify each other.

14.15.3. **(CAF)** Additionally, AFSC 2A375 may be engine run certifiers.

14.15.4. Instructors. Individuals selected as instructors will hold the rank of SSgt or above and possess a 7-skill level in one of the following AFSCs 2A6X1, 2A5X1/2, or 2A3X3X (or civilian equivalent), a qualified contractor, or be a AFETS/CETS representative. ***NOTE:*** Use AFI 11-218, aircraft and engine TOs, commercial aircraft/engine operating procedures, and special test project engineering procedures to develop engine run certification training programs.

14.15.4. **(CAF)** Additionally, AFSC 2A375 may be engine run instructors.

14.15.5. The initial engine run certification program will consist of three phases (each phase will be successfully completed before progressing to the next phase):

14.15.5.1. Phase 1 is formal classroom training. Classroom instruction will include:

14.15.5.1.1. General aircraft familiarization to include, as a minimum, basic MDS airframe characteristics, aircraft safe-for-maintenance procedures, cockpit configuration and systems, throttles and aircraft controls, egress, normal and emergency braking systems, and aircraft system/subsystems related to safe engine operation.

14.15.5.1.1. **(CAF)** Installation and removal of aircraft restraining devices (if applicable).

14.15.5.1.2. A thorough review of TO procedures with emphasis on Notes, cautions, and warnings.

14.15.5.1.3. Engine/APU operation, to include normal operational parameters and limitations.

14.15.5.1.4. Ensuring aircraft, engine, and APU emergency procedures are memorized.

14.15.5.1.5. UHF/ VHF radio operation, air traffic control (ATC) tower procedures, and emergency radio transmissions.

14.15.5.1.6. A two-part closed book examination (students will successfully complete part I before taking part II) consisting of the following:

14.15.5.1.6. **(CAF)** A minimum of 25 questions between the two parts (emergency and normal procedures), covering all subject areas.

14.15.5.1.6.1. Part I - Students will be given a written/computer based examination on all bold face emergency procedures or all emergency procedures identified in applicable tech data requiring a passing score of 100 percent.

14.15.5.1.6.2. Part II - Students will be given a written examination covering normal engine run procedures and limitations requiring a minimum passing score of 90 percent, corrected to 100 percent.

14.15.5.1.7. Personnel failing the written examination will receive additional instruction before being re-tested.

14.15.5.1.8. Students will not be given the same Part II test during re-testing efforts.

14.15.5.1.9. After a second failure of either test, the SQ/CC (or equivalent) must authorize personnel to retest and continue in the program.

14.15.5.2. Phase 2 is simulator training. All maintenance personnel requiring engine run certification will receive simulator training on each specific aircraft MDS and APU. Training will be accomplished in an aircrew training device (ATD), cockpit trainer (CPT), simulator, or approved TD trainer. If any of the above are not available, a similar MD simulator may be used if the procedures are the same or ”dry run” procedures will be accomplished in an aircraft, to ensure procedural knowledge.

14.15.5.2.1. As a minimum, students will demonstrate knowledge and proficiency in the following areas:

14.15.5.2.1.1. Proper run clearance procedures.

14.15.5.2.1.2. UHF/VHF radio operation, ATC tower procedures, and emergency radio transmissions.

14.15.5.2.1.3. Normal APU/engine start, run, and shutdown procedures.

14.15.5.2.1.4. Augmentor or thrust reverser operation (as applicable).

14.15.5.2.1.5. Applicable aircraft systems/subsystems normal operating parameters.

14.15.5.2.1.6. Ensure TO emergency bold face items are memorized. Instructors will evaluate the student on response time and ability to handle emergency situations to include egress procedures.

14.15.5.3. Phase 3 is practical demonstration. Each individual will receive a practical engine run evaluation after successful completion of Phase 1 and Phase 2 training. For fighter type aircraft, it is preferable to conduct the evaluation in a hush house, sound suppressor, or on a trim pad. As a minimum, the student will demonstrate successful completion of the following areas without any discrepancies based on a go/no-go standard:

14.15.5.3. **(CAF)** Phase 3 Practical Demonstration will be evaluated by a certifying official who did not teach Phase 1 or Phase 2 to the trainee.

14.15.5.3.1. Run clearance procedures.

14.15.5.3.2. UHF/VHF radio operation, ATC tower procedures, and emergency radio transmissions.

14.15.5.3.3. Normal APU/engine start, run, and shutdown procedures, including Notes, cautions, and warnings.

14.15.5.3.4. Augmentor or thrust reverser operation as applicable, including Notes, cautions, and warnings.

14.15.5.3.5. Applicable aircraft systems/subsystems normal operating parameters, including Notes, cautions, and warnings.

14.15.5.3.6. Ensure TO emergency bold face items are memorized. Instructors will evaluate the student on response time and ability to handle emergency situations.

14.15.5.3.7. Egress procedures. ***NOTE:*** For vertical lift aircraft, maintenance personnel are not authorized to operate installed engines above ground idle and are not permitted to start and run-up vertical lift aircraft that will not operate without rotor or CV-22 prop-rotor rotation. On rotary wing aircraft, Phase 2 will be accomplished using a "dry run".

14.15.6. Annual recertification for certifiers and engine run qualified personnel will be accomplished by successfully completing the written test (Part I and Part II) administered by the MTF and demonstrating knowledge of normal and emergency procedures to a certifying official by operating one of the following: ATD, CPT, authorized TD trainer (if assigned or available), or aircraft as appropriate.

14.15.6.1. Personnel failing the written examination will receive additional instruction before being re-tested.

14.15.6.2. Students will not be given the same Part II test during re-testing efforts.

14.15.6.3. After a second failure of either test, the individual will be decertified. The SQ/CC (or equivalent) must authorize personnel to re-enter the program. Individuals must attend all three phases of initial training prior to being recertified.

14.15.6.4. Certified individuals who PCS to the same MDS, and engine TMSM, must be approved by the SQ/CC (or equivalent) and complete an initial evaluation by a certifying official prior to becoming run qualified at the gaining base. Carry over date of original class completion from previous documentation (certificate, training record, MIS printout).

14.15.6.4. **(CAF)** Initial Evaluation is comprised of a Phase 3 Practical Demonstration evaluated by a Certifying Official as long as individual still meets 90 day proficiency requirements.

14.15.6.4.1. The evaluation will include, as a minimum, familiarization of local procedures and requirements.

14.15.7. Documentation. Qualifications of installed engine run certifiers and engine run certified personnel, will be documented in the MIS and entered on the SCR.

14.15.8. Proficiency. Lead Commands will determine proficiency requirements for maintenance personnel authorized to operate installed engines.

14.15.8. **(CAF)** To maintain proficiency, personnel qualified to run installed engines will perform at least one engine run every 90 days. Certifying officials must also meet the 90-day proficiency requirements.

14.15.8.1. Units will track run proficiency requirements in the MIS.

14.15.8.2. Supervisors will ensure individuals who fail to maintain proficiency are decertified.

14.15.8.2.1. Decertified individuals will recertify IAW **para. 14.15.6** of this instruction.

14.15.9. Lead Commands will determine if maintenance personnel are authorized to taxi aircraft and will develop detailed written guidance.

14.15.9. **(CAF)** Maintenance personnel are not authorized to taxi aircraft.

14.15.10. Engine run certification tests are controlled items and will be handled IAW AFI 36-2605 and administered only by MTF personnel.

14.15.11. Aircraft APU, GTC, or APP Installed Operation Training. The following requirements and standards apply to qualifying maintenance personnel on operating the aircraft APU, GTC, and APP:

14.15.11.1. When conducting initial operator qualification training for APU, GTC, or APP, use the applicable video or other training program.

14.15.11.2. A two-part closed book examination consisting of the following: ***NOTE:*** Part I and Part II testing does not apply to F-22 APU operators using only the PMA from the ground.

14.15.11.2.1. Part I - Students will be given a written/computer based examination on all bold face emergency procedures or all emergency procedures identified in applicable tech data requiring a passing score of 100 percent.

14.15.11.2.2. Students will successfully complete part I before taking part II.

14.15.11.2.3. Part II - Students will be given a written/computer based examination covering normal APU, GTC, APP run procedures and limitations requiring a minimum passing score of 90 percent, corrected to 100 percent.

14.15.11.3. Personnel failing the examination will receive additional instruction before being re-tested.

14.15.11.4. Students will not be given the same Part II test during re-testing efforts.

14.15.11.5. After a second failure of either test, the SQ/CC (or equivalent) must authorize personnel to retest and continue in the program.

14.15.11.6. Personnel must then accomplish an on-equipment practical evaluation for certification completion.

14.15.11.7. Personnel will be recertified annually using the initial certification procedures. Recertification is not required if the individual is engine run certified and has maintained annual engine-run certification requirements.

14.15.12. Documentation. Qualifications of APU/GTC/APP run certifiers and APU/GTC/APP run certified personnel, will be documented in the MIS and entered on the SCR.

14.15.12.1. F-22A APU operators using only the PMA from the ground need not be tracked on the SCR. ***EXCEPTION:*** If the APU is operated from the ground using a PMA and any personnel are present in the cockpit, the APU operator will be listed and certified on the SCR.

14.15.12.1.1. Any personnel performing APU operation from the cockpit will be engine run qualified and listed on the SCR.

14.15.13. Proficiency. Lead Commands will determine proficiency requirements for maintenance personnel authorized to operate APUs.

14.15.13. **(CAF)** Personnel qualified to run aircraft APU, GTC, or APP will perform at least one APU, GTC, or APP run every 180 days. Certifying officials must also meet the 180-day proficiency requirement. Exception: F-22 APU operators using only the PMA from the ground are not required to meet the 180-day proficiency requirement.

14.15.13.1. Units will track run proficiency requirements in the MIS.

14.15.13.2. Supervisors will ensure individuals who fail to maintain proficiency are decertified.

14.15.14. Certification tests are controlled items and will be handled IAW AFI 36-2605 and administered only by MTF personnel.

14.15.15. Uninstalled Engine Operation on Test Stands and Cells (includes JFS/APU/GTC uninstalled operations). All personnel identified for uninstalled engine run qualification will complete an uninstalled engine run training program prior to certification. The following minimum requirements apply:

14.15.15.1. Certification Requirements. Individuals will be certified for each specific engine TMSM authorized to run.

14.15.15.1.1. Personnel will be at least a staff sergeant and possess a 2A671 AFSC (or civilian equivalent). The MXG/CC may waive qualified SrA possessing a 5-skill level and a minimum of 6 months' experience on the applicable TMSM. If previously qualified on a different TMSM, the 6-month experience requirement may also be waived.

14.15.15.1.2. Have a minimum of 6 months current experience on each applicable TMSM, unless previously qualified. Not applicable to short tour assignments.

14.15.15.1.3. Inlet/Exhaust certified IAW **paragraph 14.4**.

14.15.15.2. Certifiers. The MXG/CC designates selected qualified TSgts or higher 2A671 AFSC (or civilian equivalent) or fully qualified/certified contractors or AFETS/CETS representatives, to serve as certifiers. The MXG/CC may waive qualified SSgts. All certifiers will have a minimum of one year engine run experience on the applicable TMSM. (Not applicable to short tour assignments). The MXG/CC may authorize MTF uninstalled engine run instructors as certifying officials.

14.15.15.3. Instructors. Individuals selected as instructors will be 7-level SSgts or above with a 2A6X1 AFSC (or civilian equivalent), a qualified contractor, or an AFETS/CETS representative, and be run certified on each TMSM (if they are to be certifying officials).

14.15.15.4. Training. Uninstalled engine run training shall consist of three phases performed sequentially, meeting the objectives of all three, without exception, to the fully qualified level as follows: procedural instruction, control cab (engine not operating) training, and demonstration of engine run proficiency.

14.15.15.4. **(CAF)** Engine run proficiency will include engine trim (if applicable), troubleshooting, leak checks, operational checks, emergency procedures, fire control panel operations, test stand/engine preparation (including proper restraint).

14.15.15.4.1. Phase 1 is formal training. Instruction will include, as a minimum, the following areas:

14.15.15.4.1.1. General engine familiarization to include, as a minimum, basic engine description, component location, and functions.

14.15.15.4.1.2. Thorough familiarization of control cabs, test stands, hush houses, and T-9 fire suppression control panels (if applicable).

14.15.15.4.1.3. Thorough review of TO procedures with emphasis on Notes, cautions, and warnings.

14.15.15.4.1.4. Uninstalled engine operation to include normal operating parameters and limitations.

14.15.15.4.1.5. Ensuring uninstalled engine emergency procedures are memorized.

14.15.15.4.1.6. Local communication procedures.

14.15.15.4.1.7. A two-part closed book examination (students will successfully complete part I before taking part II) consisting of the following:

14.15.15.4.1.7. **(CAF)** Tests are developed by the test cell/small gas section chief or AFETS/CETS. The tests are controlled by the MTF. A minimum of 25 questions between the two parts (emergency and normal procedures), covering all subject areas. This test will be developed and controlled using the same criteria as other test developed for use by the MTF.

14.15.15.4.1.7.1. Part I - Students will be given a written/computer based examination on all bold face emergency procedures or all emergency procedures identified in applicable tech data requiring a passing score of 100 percent.

14.15.15.4.1.7.2. Part II - Students will be given a written/computer based examination covering normal engine run procedures and limitations requiring a minimum passing score of 90 percent, corrected to 100 percent.

14.15.15.4.1.8. Personnel failing the examination will receive additional instruction before being re-tested.

14.15.15.4.1.9. Students will not be given the same Part II test during re-testing efforts.

14.15.15.4.1.10. After a second failure of either test, the SQ/CC (or equivalent) must authorize personnel to retest and continue in the program.

14.15.15.4.2. Phase 2 is control cab evaluation. After successful completion of formal training, students will properly demonstrate the following minimum requirements to a certifying official without discrepancies using the go/no-go standard:

14.15.15.4.2.1. Proper uninstalled engine start, run, and shutdown procedures, including Notes, cautions, and warnings (engine not operating).

14.15.15.4.2.2. Proper uninstalled engine bold face emergency procedures, including Notes, cautions, and warnings (engine not operating).

14.15.15.4.2.3. Knowledge of normal uninstalled engine operating limits, including Notes, cautions, and warnings.

14.15.15.4.2.4. Augmentor or thrust reverser operation (as applicable), including Notes, cautions, warnings and emergency procedures.

14.15.15.4.3. Phase 3 is practical evaluation. Each individual will receive a practical uninstalled engine run evaluation after successful completion of classroom training and control cab evaluation from a certifier. As a minimum, the student will demonstrate successful completion of the following areas without discrepancies based on a go/no-go standard:

14.15.15.4.3. **(CAF)** Phase 3 Practical Demonstration will be evaluated by a certifying official who did not teach Phase 1 or Phase 2 to the trainee.

14.15.15.4.3.1. Run clearance procedures.

14.15.15.4.3.2. Emergency communication procedures.

14.15.15.4.3.3. Normal uninstalled engine start, run, and shutdown procedures, including Notes, cautions, and warnings.

14.15.15.4.3.4. Augmentor or thrust reverser operation (as applicable), including Notes, cautions, and warnings.

14.15.15.4.3.5. Proper emergency procedure corrective actions during all bold face uninstalled engine emergency conditions.

14.15.15.4.3.6. **(Added-CAF)** Engine trim, troubleshooting, and leak check procedures.

14.15.15.4.3.7. **(Added-CAF)** Fire control panel operations IAW Para 14.15.16. of this instruction.

14.15.15.4.3.8. **(Added-CAF)** Test stand/engine preparation (including proper restraint.

14.15.15.5. Recertification. Annual recertification for certifiers and uninstalled engine run qualified personnel will be accomplished by: Successfully completing the written test (Part I and Part II) administered by the MTF; control cab evaluation demonstrating knowledge of normal and emergency procedures to a certifying official; and practical engine run demonstration.

14.15.15.5.1. Personnel failing the written examination will receive additional instruction before being re-tested.

14.15.15.5.2. Students will not be given the same Part II test during re-testing efforts.

14.15.15.5.3. After a second failure of either test, the individual will be decertified. The SQ/ CC (or equivalent) must authorize personnel to re-enter the program. Individuals must attend all three phases of initial training prior to being recertified.

14.15.15.6. Proficiency. Lead Commands will determine proficiency requirements.

14.15.15.6. **(CAF)** To maintain proficiency, personnel qualified to run uninstalled engines on test stands and test cells (includes JFS/APU/GTC uninstalled operations) will perform at least one uninstalled engine run on a test stand or test cell (includes JFS/APU/GTC uninstalled operations) every 90 days. Certifying officials must also meet the 90-day proficiency requirements. Track proficiency requirements in the MIS.

14.15.15.6.1. Decertify individuals who fail to maintain proficiency.

14.15.15.6.1.1. Decertified individuals will recertify IAW **para. 14.15.15.5**.

14.15.15.7. **(Added-CAF)** Documentation. Qualifications of uninstalled engine run certifiers and uninstalled engine run certified personnel will be documented in the MIS and entered on the SCR.

14.15.15.8. **(Added-CAF)** Crew Size. The minimum requirements for uninstalled engine run crew are:

14.15.15.8.1. **(Added-CAF)** Minimum crew size is three personnel, except for small gas test stand that requires a minimum of two personnel.

14.15.15.8.1.1. **(Added-CAF)** One crew member must be engine run certified and will be responsible for engine operation/trim.

14.15.15.8.1.2. **(Added-CAF)** One individual, other than the engine run certified person, is test stand operator qualified and fire control panel trained.

14.15.15.8.1.3. **(Added-CAF)** Others, if not test stand/small gas test stand qualified, are briefed by the engine run certified person. As a minimum, the briefing includes emergency procedures and hazardous areas such as intake, exhaust, turbine/starter plane of rotation, high voltages, etc.

14.15.16. Fire Control Panel Operation in Hush Houses/Noise Suppressors. This section applies to all Hush Houses/Noise Suppressors designed for enclosed aircraft and uninstalled engine operation (e.g., T-9, T-10, T-11, T-12, T-20) with fire suppression systems control panels. Ensure only qualified personnel are certified to use the hush house/noise suppressor fire control panel. The following certification requirements apply:

14.15.16.1. Be at least a SrA with AFSC 2A6X1 or civilian equivalent. Have a minimum of 6 months hush house/noise suppressor experience and tracked on the SCR.

14.15.16.2. Training will consist of formal training using TOs and hands on familiarization and will include the following minimum requirements:

14.15.16.2.1. Hush house/noise suppressor fire control panel familiarization and operation.

14.15.16.2.2. Emergency procedures, including local notification procedures.

14.15.16.3. Hush house/noise suppressor supervisor, contractor, AFETS/CETS personnel (or individual designated by the hush house/noise suppressor supervisor) will serve as the certifying official.

14.15.16.4. Hush house/noise suppressor fire control panel certified personnel require annual recertification utilizing the same criteria as initial certification.

14.15.17. Trim Box Requirements. For units possessing F-15 or F-16 aircraft equipped with F100-PW-100 or -200 engines, engine trim box operators for engine trim operation must be certified to perform trim operations. MAJCOMs possessing F-15/F-16 aircraft equipped with F100-PW-100 or -200 engines must establish engine trim box operator training and initial certification and annual recertification programs.

14.15.17.1. A minimum of two engine trim evaluations by a certifier will constitute certification. Certifiers will evaluate and re-certify personnel annually. Prior to engine start, the aircraft operator and trim crew review all emergency procedures and critical engine limits.

14.15.17.2. Formal Training. MTF/TD will develop and manage training. As a minimum, the course will include engine systems, engine parameters, engine trim parameters, emergency procedures, all applicable technical data to include trim box operation, calibration, pre- and post-trim procedures, and any local procedures/instructions.

14.15.17.3. Be a minimum of SrA, 2A651 (or civilian equivalent) and tracked on the SCR. MXG/CC may waive qualified 5-skill level A1Cs for critical manpower shortages.

14.15.17.4. Certifiers. The MXG/CC designates selected qualified 2A671 or above technicians (or civilian equivalent) and/or fully qualified AFETS/CETS personnel to perform as certifying officials. Certifying officials will be tracked on the SCR.

14.15.17.5. The aircraft operator has primary responsibility for the overall safety of the trim operation because he/she is the only member of the trim team that has complete visibility of all aircraft systems.

14.15.17.6. The trim box operator is responsible for the trim procedure. They ensure the engine is trimmed to the correct parameters and verifies the trim targets with the aircraft operator during the trim operation.

14.15.17.7. Documentation. Qualifications of trim-box operators will be documented in the MIS and entered on the SCR.

14.15.17.8. Proficiency. Lead Commands will determine proficiency requirements.

14.16. Flash Blindness Protective Device.

14.16.1. Flash Blindness Protective Device Maintenance Program. This program standardizes procedures for cleaning, repairing, installing, inspecting, storing, packaging, and sealing of flash blindness protective devices (e.g., shields, thermal curtains and thermal radiation barriers), on applicable aircraft. The MXG/CC is responsible for ensuring effective aircraft thermal protective device maintenance is accomplished IAW applicable aircraft TOs, and this instruction. Aircraft flash blindness protective devices/shields are maintained

serviceable to provide optimum nuclear thermal/radiation protection to the aircrew during Emergency War Order (EWO)/OPLAN 8010 conditions.

14.16.2. Aircraft Maintenance Squadron Responsibilities.

14.16.2.1. Ensures aircraft thermal protective devices, shields, and associated hardware is maintained IAW aircraft TOs, AFI 11-301 Vol 1 and this instruction.

14.16.2.2. Establishes an adequate and effective training program to train and qualify individuals to install, inspect, and when required, seal aircraft thermal protective devices and shields. ***NOTE:*** Units are authorized and encouraged to maintain sufficient condemned thermal curtains to allow maintenance and crew personnel installation practice without using serviceable curtains. Thermal curtains designated for training are plainly labeled ”FOR TRAINING ONLY” to preclude inadvertent use for Alert or OPLAN 8010/Theater Nuclear Option (TNO)/EWO purposes. Thermal curtains designated for training use are controlled by the flight/section NCOIC; however, curtains may be furnished to, and retained by, squadrons for classroom purposes.

14.16.3. Do not store training curtains on-board aircraft. Use of training thermal curtains is encouraged during Numbered Air Force (NAF) and local generations.

14.16.4. Do not seal thermal-protective devices and shields on a routine basis unless dictated by specific aircraft technical data. However, when operational requirements dictate, qualified maintenance technicians may perform this task using the lead-seal-crimping tool. Ensure lead-seal crimping tools reflect the unit numerical code (e.g., Minot-5, Mildenhall-100, Kadena-18) which is reflected on the lead seal after crimping. Control and account for lead-seal crimping tools IAW CTK/TK procedures (**Chapter 10** of this instruction).

14.16.5. AFE Flight/Section Responsibilities

14.16.5.1. Train and task qualify AFE technicians to inspect and repair thermal protective devices and shields.

14.16.5.2. Ensures aircraft thermal-protective devices and shields are repaired IAW appropriate aircraft TOs and AFI 11-301 Vol 1.

14.16.6. Additional Maintenance Requirements. In addition to the inspection requirements contained in aircraft TOs, perform the following inspection, certification, and sealing procedures:

14.16.6.1. Conduct a pre-alert inspection of all aircraft thermal-protective devices, shields, and associated hardware IAW technical data. Document the pre-alert inspection on a red dash in the AFTO Form/IMT 781A, with the following statement: "Thermal Protective Devices/Shields Inspection Required". During the aircraft pre-alert inspection, a qualified maintenance technician assists the aircrew in accomplishing this inspection. The aircraft commander certifies the aircraft thermal protective devices and shields for alert. Upon certification acceptance, the maintenance technician signs the "Corrected By’ block of the AFTO Form/IMT 781A entry, and the aircraft commander signs the "Inspected By" block.

14.16.6.2. Prior to deployment verify seals are intact. If seals are broken, re-inspect the thermal-protective device and shield and reseal.

14.16.6.3. Perform the following sealing procedures on alert aircraft:

14.16.6.3.1. All aircraft thermal-protective devices and shields are sealed either in the opened or closed position or in the storage container, as appropriate, upon certification by the aircraft commander. Appropriate aircraft flight manuals specify thermal protective devices and shields that are sealed in the opened or closed position or storage container.

14.16.6.3.2. Upon aircraft alert termination, a qualified maintenance technician removes thermal protective devices inspects and reseals devices that are serviceable. Transport unserviceable devices to the AFE section for inspection and repair. Devices and shields remaining sealed are not re-inspected. Remove and seal all devices and shields in appropriate storage container, if required.

14.17. Engine Flexible Borescope Inspection Training and Certification Program.

14.17.1. General. All units maintaining engines using flexible borescopes will have a comprehensive training program established. The purpose of the program is to ensure: Individual knowledge and proficiency levels, proper care and use of equipment, and standardization of program requirements. Certification procedures described here are only for engine borescope certification. Personnel using borescopes for non-engine type inspections (behind ejection seats, wing boxes, etc.) are not required to follow below procedures but must be trained on proper use and care of borescopes. Training must be annotated in training records.

14.17.2. Target Population. Only certified 2A3X3, 2A5X1/2, and 2A6X1, 5-, 7-, and 9-levels or civilian equivalent may perform flexible borescope inspections on engines.

14.17.3. Formal Training. MTF/TD will develop and manage training. MXG/CC will select maintenance instructors or TD instructors to provide training, (AFETS/CETS may be used as alternate instructors). As a minimum, courses will include care and handling of the equipment, all borescope/ port locations to include all inspection requirements and procedures, all applicable technical data, fault isolation/damage assessment/defect size determination, and performance of an actual engine borescope.

14.17.4. Certification Criteria. Certifying officials will be the most qualified 7- or 9-level 2A6X1, 2A3X3, 2A5X1X, 2A5X2, or AFETS/CETS. Certifying officials will be approved by the MXG/CC and tracked on the SCR. The number of certifying officials will be limited to the amount needed to meet certification requirements and mission demands. Certifying officials will maintain proficiency in the same manner as other technicians; certifying officials will recertify each other. Upon completion of formal training, individuals are task evaluated by the certifying official (an individual other than the instructor who administered the course), and placed on the SCR.

14.17.4.1. Certified individuals who PCS to the same MDS and engine TMSM may by-pass the formal training course. These individuals must be re-certified by a certifier prior to being added to the SCR. Carry over the date of original class completion from previous documentation (certificate, training record, MIS printout). ***NOTE:*** If applicable, assigned AFETS/CETS should be used to certify other certifying officials.

14.17.5. Documentation. After completing formal training, the instructor signs off the individual's ITP within TBA. Upon certification, personnel are placed and tracked on the SCR. Ensure that all borescope inspections are loaded against the engine and not the aircraft.

14.17.6. MTF will ensure the following course codes are tracked in the MIS:

14.17.6.1. Formal training borescope course.

14.17.6.2. Proficiency requirement.

14.17.6.3. Annual recertification.

14.17.7. Proficiency Requirements. As a minimum, fighter aircraft personnel bound by TO requirements for flexible borescope inspections must perform one flexible borescope inspection every 120 days to maintain proficiency. Work center supervisors ensure personnel who do not meet minimum requirements are decertified and must be recertified by completing annual recertification requirements.

14.17.7.1. Lead Commands will determine proficiency requirements for non TO (i.e.. event driven) inspections.

14.17.7.1. **(CAF)** Borescope proficiency for personnel maintaining aircraft with event-driven inspections only is 180 days.

14.17.8. Annual Recertification. Each borescope-qualified technician is required to be recertified by a certifying official. This is accomplished by having technicians demonstrate proper inspection requirements, as well as, use and care of equipment.

14.18. Flying Crew Chiefs (FCC). The objective of the FCC program is to enhance mission effectiveness by providing qualified maintenance support for aircraft at locations other than home station. FCCs are qualified in their duty AFSC and are required to obtain, maintain, and apply basic knowledge in several other aircraft maintenance AFSCs. They are responsible for launch, recovery, inspection, servicing, generation, and maintenance of aircraft in austere locations and locations where specific MDS maintenance capability may not be available.

14.18.1. MAJCOMs may authorize/develop a FCC program under the direction of HQ USAF/A4LF for maintainers who are required to regularly fly and maintain aircraft. FCCs are selected per mission requirements as directed by MAJCOMs and qualify for Special Duty Assignment Pay (SDAP) IAW AFI 36-3017, *Special Duty Assignment Pay Program*.

14.18.2. The FCC program only applies to personnel assigned to positions on the Unit Manning Document with a “C” prefix for the DAFSC.

14.18.3. The following situations would not qualify the FCC for SDAP.

14.18.3.1. Occasional flights where the aircraft is used as transportation in lieu of commercial air.

14.18.3.2. Incentive or indoctrination flights.

14.18.3.3. Deployments where additional maintenance personnel are required at the designated location to supplement assigned maintainers.

14.18.4. Qualifying missions. A mission consists of one or more sorties with a mission number as entered on the AFTO Form 781A, Aircrew/Mission Flight Data Document. For a mission to meet the intent of this program, the mission must meet the criteria in the paragraphs below:

14.18.4.1. The FCC is required to accomplish maintenance at locations other than home station to prepare the aircraft for its next departure.

14.18.4.2. The mission must be one where FCCs are required to fly by higher authority written policies (e.g., special airlift missions, alert missions, special operations) or by TO to perform in-flight maintenance (e.g., helicopter).

14.18.5. FCC program responsibilities.

14.18.5.1. HQ USAF/DPLF oversees the overall SDAP Program and provides program guidance in AFI 36-3017.

14.18.5.2. HQ USAF/A4LF is the SDAP functional manager for FCCs. HQ USAF/A4LF sets criteria for FCCs, validates MAJCOM FCC reports, and forecasts FCC SDAP budget needs. HQ USAF/A4LF approves/disapproves FCC position increases/decreases in coordination with HQ USAF/DPLFA.

14.18.5.3. MAJCOMs implement the FCC program: They appoint a program manager to enforce standards and prepare the annual report.

14.18.5.4. MAJCOM program managers determine which squadrons will participate in the FCC program and will:

14.18.5.4.1. Validate and forward squadron FCC SDAP requests (**Attachment 6**) to HQ USAF/A4LF and HQ USAF/DPLFA.

14.18.5.4.2. Annually validate SDAP positions.

14.18.5.4.3. Assign FCC SDAP positions with an AFSC prefix of "C" and an appropriate SEI on command manpower documents.

14.18.5.4.4. Establish command unique training requirements and set additional qualification standards for their FCCs as needed.

14.18.5.4.5. Maintain quarterly and annual FCC reports (**Attachment 4** and **Attachment 5**).

14.18.5.4.6. Prepare and submit the command annual FCC report to HQ USAF/A4LF and HQ USAF/DPLFA by 15 August each year. Submit the biennial FCC report to HQ USAF/ DPLFA upon request.

14.18.5.4.7. Review and approve/disapprove ACR for changes of the “C” prefix to an AFSC on the UMD.

14.18.5.4.8. Review and recommend approval/disapproval of ACRs for additions, deletions of the “C” prefix to an AFSC on the UMD.

14.18.5.5. MAJCOM XPM (A5M) Command Manpower and Organization Responsibilities: XPM will:

14.18.5.5.1. Coordinate and obtain approval/disapproval from MAJCOM for Installation Manpower and Quality Office ACRs pertaining to validation of "C" prefix to AFSCs on the UMD.

14.18.5.5.2. Assign the "C" prefix to AFSCs upon approval from MAJCOM FCC Program Manager. This provides MAJCOM functional manager and unit senior maintenance manager's visibility of squadron FCC SDAP positions. ***NOTE:*** FCC SDAP positions do not effect a unit's manpower authorizations.

14.18.5.6. Squadron commanders:

14.18.5.6.1. Control their squadron FCC program IAW AFI 36-3017, AFMAN 36-2108 and this instruction.

14.18.5.6.2. Ensure FCCs fly only when needed for the mission.

14.18.5.6.3. Appoint and remove FCCs IAW AFMAN 36-2101. Assign FCCs for a minimum of one year, unless removed for cause. If removed, they may not be reassigned for a period of one year.

14.18.5.6.4. Ensure only qualified FCCs and assistant FCCs who meet minimum requirements in AFI 36-3017 receive SDAP. In addition, FCCs must fly a minimum of three qualifying missions per quarter. An indicator of having too many FCCs may be reflected in a unit whose FCCs routinely do not meet minimum quarterly requirements.

14.18.5.6.5. Normally, assign no more than two FCCs per aircraft (an FCC and assistant FCC) to each qualifying mission unless approved by MAJCOM. ***EXCEPTION:*** SQ/CC may assign the minimum number of additional FCCs when required to maintain proper work-rest cycles or meet TO requirements.

14.18.5.6.6. Appoint a unit program manager.

14.18.5.7. Unit program managers:

14.18.5.7.1. Track status and prepare unit report.

14.18.5.7.2. Ensure personnel possess the appropriate SEI for their MDS aircraft.

14.18.5.7.3. Provide a letter to their Installation Manpower and Quality Office and an information copy to MAJCOM Program Manager to change, add, or delete a "C" prefix to the AFSC on the UMD.

14.18.5.7.3.1. The letter will contain the unit designation, function account code, AFSC, position number, and a POC.

14.18.5.7.4. Ensure FCCs and assistant FCCs are aligned in a duty position with a "C" prefix by initiating an AF IMT 2096, Classification/On-the-Job Training Action, or special order.

14.18.5.7.5. Counsel FCCs and assistant FCCs on SDAP termination. (AFI 36-3017, Table 3 lists reasons for termination.) SDAP stops on the dates listed in this table. As long as a "C" prefix is attached to an AFSC the member shall receive SDAP.

14.18.5.7.6. Review, update, and authenticate the monthly SDAP roster. ***NOTE:*** If changes are made on the monthly SDAP roster, an AF IMT 2096 or special order must be submitted to the MPF.

14.18.5.7.6.1. Authentication of the monthly SDAP roster validates that each FCC is meeting the full intent of the program. The SDAP roster is the only administrative tool used to continue or stop the FCC pay entitlement. ***NOTE:*** AFI 36-3017 provides commanders conditions concerning pay entitlements.

14.18.5.7.7. Submit SDAP position increase/decrease requests to MAJCOM OPR by message, e-mail, or letter stating the number of positions to be increased/decreased with a brief justification. MAJCOMs will forward requests to HQ USAF/A4LF for final approval.

14.18.5.7.8. Provide information for processing DD Form 1610, *Request and Authorization for TDY Travel of DoD Personnel*, for FCCs.

14.18.5.7.9. Ensure TDY orders authorize FCC to travel in mission essential personnel (MEP) status. ***NOTE:*** Aeronautical orders do not apply to this program, as FCCs are not aircrew members.

14.18.5.7.10. Monitor training qualifications and currency to ensure only qualified FCCs are scheduled for missions.

14.18.5.7.10.1. As a minimum, maintain a folder for each FCC containing training qualifications and annual indoctrination course currency, immunizations, military passport information, appointment letters, and FCC Mission Reports. If the unit mobility section already maintains these source documents, either electronic or paper copies may be maintained.

14.18.5.7.11. Coordinate scheduling of FCCs through flight chiefs and Operations scheduler.

14.18.5.7.12. Maintain a Unit FCC Program Manager's Continuity Book which will include as a minimum:

14.18.5.7.12.1. Lists of required instructions with web addresses (including AFI 36-3017, AFMAN 36-2108 and this instruction);

14.18.5.7.12.2. FCC program manager appointment letter, AF IMT 2096 or special orders;

14.18.5.7.12.3. Manpower correspondence assigning "C" prefix AFSC;

14.18.5.7.12.4. Quarterly and annual FCC status reports, SDAP position requests and miscellaneous FCC and SDAP correspondence.

14.18.5.7.13. Report program status by fiscal year (FY) quarters to MAJCOM Program Manager NLT the 15th day of the month following each FY quarter and report FY annual program status to the MAJCOM NLT 15 July each year. Annual

report will consist of the previous FY 4th quarter and current FY 1st, 2nd, and 3rd quarters (1 Jul - 30 Jun).

14.18.5.7.14. Submit funding requests for flight clothing, per diem, and other related expenses for the annual budget. (For safety during flight, flight clothing is mandatory for FCCs and Assistant FCCs).

14.18.5.8. Installation Manpower and Quality Office will:

14.18.5.8.1. Forward ACN to MAJCOM to add, delete, or change "C" prefixes on AFSCs existing on the UMD.

14.18.5.9. MPF will:

14.18.5.9.1. Update SDAP program actions in the Personnel Data System as prescribed in AFI 36-3017 and AFMAN 36-2108.

14.18.5.9.2. Produce a monthly SDAP roster for SQ/CC certification.

14.18.5.9.3. Resolve differences between base, HAF, and Joint Uniform Military Pay System (JUMPS) data files.

14.18.5.9.4. Notify unit 90 days in advance when SDAP decreases or terminates.

14.18.5.10. En route supervisors:

14.18.5.10.1. Will not assign FCCs to work other en route aircraft. However, FCCs left at an enroute location and awaiting transportation may be assigned to work other en route aircraft (N/A to ANG).

14.18.5.10.2. Will brief FCCs on local safety precautions, maintenance practices, and limitations.

14.18.5.10.3. Coordinate with the FCC and aircraft commander on a work/rest plan and transportation to quarters.

14.18.5.11. Aircraft commanders (ACs) will:

14.18.5.11.1. Establish with the FCC and en route/transient supervisor a work/rest plan based on maintenance and mission requirements. The AC will be the primary decision authority to determine when the FCC begins a rest cycle for the next mission.

14.18.5.11.2. Upon arrival at en route/transient locations, determine the FCC's ability to safely and effectively perform his/her duties. In making this determination, consider the duration of the flight, the ability of the FCC's to rest during the flight, and the quality of the rest the FCC's experienced during the flight. The FCC's primary job is preparing the aircraft (e.g., inspect, service, aircraft forms maintenance) for the next mission. FCCs do not automatically enter crew rest with the aircrew upon arrival at an en route/transient location unless the duty day was exceeded.

14.18.5.11.3. If the FCC's safety is jeopardized by fatigue, the FCC's duty day must end.

14.18.5.11.4. Ensure crew integrity for quarters is maintained and inform the FCC of billeting location. Any official business required by the FCC interrupts the FCCs rest period. This includes official business conducted on the telephone. Any Interruptions must be made only under the most exceptional circumstances.

14.18.5.11.5. Provide feedback on the FCC using AFI 21-101 **Attachment 3** and return it to the squadron FCC Program Manager upon return to home station.

14.18.6. FCC qualifications and responsibilities.

14.18.6.1. Primary FCC:

14.18.6.1.1. A SSgt or TSgt 5- or 7- skill-level. Qualified technicians of higher rank are eligible. The MXG/CC may waive SrA technicians in exceptional cases.

14.18.6.1.2. As a minimum, the primary FCC must be qualified and certified on the following MDS applicable items:

14.18.6.1.2.1. Possess a SEI of the aircraft assigned to the FCC.

14.18.6.1.2.2. Refuel/defuel member and supervisor; concurrent servicing supervisor (as applicable).

14.18.6.1.2.3. Tow member, tow supervisor, and tow brake operator.

14.18.6.1.2.4. LOX/GOX servicing, nitrogen and tire servicing.

14.18.6.1.2.5. Tire and brake change; launch; recovery; marshalling; pre-flight, thru-flight and post-flight inspection.

14.18.6.1.2.6. APU/GTC/ATM operation/quick air start system.

14.18.6.1.2.7. Engine run.

14.18.6.1.2.8. Kneeling operation and cargo door/ramp/visor operation on applicable MDS.

14.18.6.1.2.9. All applicable powered/non-powered AGE.

14.18.6.1.2.10. Qualified to operate, troubleshoot, service, and perform maintenance on their aircraft's critical systems as required by the MAJCOM.

14.18.6.2. Assistant FCC qualifications and responsibilities.

14.18.6.2.1. Must be a 5-level A1C or above with at least a SEI on their assigned aircraft, and must accompany a fully qualified FCC.

14.18.6.2.2. As a minimum, the assistant FCC will be qualified and certified on the following MDS applicable items:

14.18.6.2.2.1. Refuel/defuel member.

14.18.6.2.2.2. Tow member and tow brake operator.

14.18.6.2.2.3. LOX/GOX servicing, nitrogen and tire servicing.

14.18.6.2.2.4. Tire and brake change; launch; recovery; marshalling; pre-flight, thru-flight and post-flight inspection.

14.18.6.2.2.5. APU/GTC/ATM operation/quick air start system.

14.18.6.2.2.6. Cargo door/ramp/visor operation on applicable MDS.

14.18.6.2.2.7. All applicable powered/non-powered AGE.

14.18.7. Work/rest plan (also see **Chapter 1** of this instruction):

14.18.7.1. The FCC flies in MEP status. FCC's typically fly with the aircraft for the purpose of accomplishing ground maintenance at the TDY location. His/her duty period typically starts when the FCC shows at the aircraft prior to departure . The Aircraft commander makes the final determination of the FCC's duty day based on criteria established in **paragraph 14.18.5.11.2** of this instruction.

14.18.7.2. FCC's must be afforded adequate rest during each 24 hour period. Rest is defined as the condition, which allows an individual the opportunity for a minimum of 8 hours of uninterrupted sleep in every 24 hours. Any interruption must be made under the most exceptional circumstances.

14.18.7.3. Maximum shifts under normal conditions are 12 hours, but may be extended for mission requirements. The AC is the decision authority for extended shifts. Extensions should only be approved during or for exceptional situations or circumstances. FCC's will not be required to work longer than 16 hours in any 24 hour period and must be given 8 hours of uninterrupted rest following extended work shifts.

14.18.8. MAJCOM Program reporting.

14.18.8.1. MAJCOMs will forward a yearly report to HQ USAF/A4LF by 15 August. Use previous FY 4th quarter; and current FY 1st, 2nd, and 3rd quarters. Late reports may postpone FCC waiver requests. Refer to **Attachment 4** and **Attachment 5** for reporting criteria.

14.18.9. Waivers.

14.18.9.1. Forward unit waiver requests to the MAJCOM FCC program manager, who will either disapprove/return to unit, or recommend approval/forward to HQ USAF/A4LF for final approval.

14.18.9.1.1. All approved waivers are reviewed annually as part of the annual report unless otherwise stipulated by the approval authority.

14.18.9.1.2. Waiver renewals: submit a brief justification for waivers requiring renewal.

14.19. Foreign Object Damage (FOD) Prevention Program. The WG/CV or Center CV/CA is responsible for ensuring an effective FOD prevention program is established. All personnel (military, civilian, and contractors) working in, on, around, or traveling through areas near aircraft, munitions, AGE, engines, or components thereof will comply with FOD prevention. This section establishes minimum requirements for a FOD prevention program.

14.19. (CAF)Foreign Object Damage (FOD) Prevention Program. USAFE Munitions Support Squadrons and Geographical Separated Units will comply with Host Installation FOD Policy.

14.19.1. Definition. FOD: Any damage to an aircraft, engine, aircraft system, component, tire, munitions, or SE caused by a foreign object(s) (FO) which may or may not degrade the required safety and/ or operational characteristics of the aforementioned items.

14.19.1.1. **(Added-CAF)** Domestic Object Damage: Any damage to an aircraft engine, aircraft system or equipment caused by internal failure of a component.

14.19.2. FOD Prevention.

14.19.2.1. On aircraft, uninstalled engines, LRUs and AGE: Openings, ports, lines, hoses, electrical connections, and ducts will be properly plugged or capped to prevent FO from entering the systems. Items that are actively being disconnected, installed, and/or removed will be capped IAW Tech Data or at completion of the task. At no time will items, (e.g., aircraft forms binders, VTR tapes, checklists, tools.), be placed in or on engine intakes. ***NOTE:*** Does not apply to technicians performing inlet maintenance, inspections and blade blending requiring lights, files, or other tools inside aircraft inlets. Inventory all items IAW **paragraph 10.4.2.1** of this instruction.

14.19.2.2. Install intake plugs, or tape and barrier paper (as required by technical data) prior to performing maintenance in or around engine intakes. Ensure engine inlet run-up screens and anti-personnel guards are used IAW applicable weapon system TOs.

14.19.2.3. Covers (e.g., engine, pitot tube(s) to include ejection seat) will remain installed on aircraft as close to crew show as possible to prevent FOD, based on MDS and local MXG/CC guidance.

14.19.2.3. **(CAF)** Affix red "REMOVE BEFORE FLIGHT" streamers to covers and safety pins.

14.19.2.4. Use a light source of sufficient illumination to inspect the aircraft intakes and exhaust for FO/FOD. A pocketless, zipperless, buttonless bunny-suit, cloth over-boots or stocking feet, boots removed, for intakes only, will be worn whenever physical entry into an aircraft intake or exhaust is required. Suits are not required to be worn if personnel do not physically enter these areas. (A rubber mat may be used instead of cloth over-booties, or boots removed if MDS tech data directs.) When performing intake inspections while wearing a chemical ensemble (CWE), ensure all pockets are emptied and accessories removed. CWE will be worn during “real world” situations only to minimize the potential for FOD and intake damage. During Operational Readiness Inspections (ORIs) or Operational Readiness Exercises, the CWE will be removed and the bunny-suit will be utilized. ***NOTE:*** If CWE metal zippers are exposed, cover them with any type of tape and account for the tape upon completion of the inspection.

14.19.2.5. Restricted area badges will be removed when performing intake/inlet/exhaust inspections if personnel physically enter these areas. Restricted area badges will be secured with a subdued nylon/cotton cord or plastic armband.

14.19.2.6. Each base will develop a local flightline clothing policy aimed at FOD prevention. Specific attention will be given to the wearing of hats on the flightline and the wearing of badges and passes. Climate and safety will be considered.

14.19.2.6.1. Metal insignias/badges will not be worn on the flightline.

14.19.2.6.2. Wigs, hairpieces, metal hair fasteners, earrings, or any other jewelry that may fall off without notice, are not authorized on the flightline.

14.19.2.6.3. Escorts of visiting personnel will ensure FOD prevention measures are taken.

14.19.2.6.4. **(Added-CAF)** Remove restricted area badge within 25 feet of operating engine(s). Ensure line badge clips are secured to prevent loss. For those individuals using the cord/rope for security, pass the cord/rope through the clip eyelet. EXCEPTION: Line badges completely secured inside of an armband pouch do not need to be removed.

14.19.2.7. Discard readily removable (slide or pressure fit) pocket clips from tools (e.g., flashlights, continuity testers, small screwdrivers) prior to placement in tool kits. Do not disassemble/ damage tools for sole purpose of removing clips, rubber switch guards, etc.

14.19.2.8. All maintenance production areas must have FO containers readily accessible to workers. All vehicles normally driven on the flightline must be equipped with secured and lidded FO containers.

14.19.2.9. Control all work order residue used on or around aircraft, uninstalled engines, and AGE.

14.19.2.9. **(CAF)** Establish and tailor rivet replacement procedures for local operation of assigned weapons systems. Include them as part of the FOD orientation/familiarization for personnel working in these areas. Include workorder residue control procedures for all maintenance performed in and around intake areas.

14.19.2.9.1. **(Added-CAF)** Structural maintenance shops will develop a local sheet metal instruction checklist for repair or replacement of rivets in aircraft intakes. All parts and pieces installed and removed from the aircraft will be documented and verified by a 7-level. The checklist will be completed on the job site and turned into QA within 24 hours of repair completion. Structural maintenance technicians are not required to meet the training requirements of Para 14.4.

14.19.2.10. Rags will be controlled and accounted for IAW **Chapter 10** of this instruction. Rag control applies to all organizations and personnel performing aircraft, missile, munitions, and equipment maintenance.

14.19.2.11. FOD walks are mandatory to remove FO from ramps, runways, maintenance areas and access roads; in addition vacuum/magnetic sweepers or sweeping by hand are highly encouraged to supplement FOD walks.

14.19.2.11. **(CAF)** Units will develop local guidance for FOD walks, to include applicable areas and when the FOD walks are required. As a minimum, FOD walks will be performed prior to the first sortie of each day.

14.19.2.12. When FOD is discovered on a transient aircraft, depot input/output, ERRC, or CRF engine, the host FOD monitor or aircrew must notify the owning organization within 24 hours. An informational copy of the FOD report must be provided to the owning organization's safety office/FOD monitor to ensure compliance with AFI 91-204. Aircrews must ensure proper documentation in the AFTO Form/IMT 781A or electronic equivalent, has been completed.

14.19.2.12.1. For depot input/output, ERRC, or CRF engine: If the FOD is found during the receiving inspection at one of the aforementioned locations, it will be tracked/charged (if necessary) to the owning MAJCOM unit. If discovered any other time at one of the aforementioned locations, it will be tracked/charged to the ALC, ERRC or CRF.

14.19.2.13. Pilots and aircrew members must account for all equipment and personal items after each flight and ensure any items that become lost during flight are documented in the aircraft AFTO Form/IMT 781A. When an item is lost on or in the vicinity of aircraft or equipment, lost item/tool procedures in **Chapter 10** of this instruction will be followed.

14.19.2.14. Ensure local FOD prevention programs address the elimination of FOs in aircraft cockpits and flight decks prior to flight.

14.19.2.15. Use extreme care during engine ground runs. Jet blast and helicopter hover power check areas must be free of debris that could cause FOD.

14.19.2.16. Special emphasis is required for items such as: remove before flight streamer attachment, safing pin condition, hinge pin security, dust and FO prevention cover condition/security, and aircraft forms binder condition. Periodically check these types of items for FO prevention compliance. Units will account for Dash-21 equipment and covers IAW AFI 21-103. Weapons expediters must ensure all mission specific safing gear is controlled and accounted for to preclude loss and potential FOD.

14.19.2.17. Vehicle operators will stop and perform a visual FOD inspection on all equipment and tires prior to entering the flightline areas. Wing CVs are the waiver authority for this requirement.

14.19.2.17. **(CAF)** If FOD check points are not illuminated during periods of darkness, vehicle operators will use a flashlight during vehicle FOD inspection.

14.19.2.18. Grounding wires/points:

14.19.2.18.1. Two allen head screws, or equivalent, will be utilized to secure cable to grounding clip. Coat screws heads with sealant or stake the screws in order to prevent them screws from backing out. Unused screws will be removed.

14.19.2.18.2. All grounding points will be kept clean of debris at all times and should be a high interest item for FOD walks.

14.19.2.19. Use of magnetic bars on the flightline is optional. If used, the magnetic bars will be towed by, or attached to vehicles primarily used on the flightline. Magnetic bars will be inspected and made FOD free prior to the beginning of each shift. Ensure magnetic bar installations are approved IAW AFI 23-302.

14.19.2.19. **(CAF)** Use of magnetic bars on the flightline is mandatory. At the discretion of the wing CV, each AMU will assign designated vehicles to be equipped with magnetic bars. During inclement weather, these bars may be removed if considered a hazard.

14.19.2.20. A locally manufactured tool for removing debris from tire treads is authorized for use and will be identified to the vehicle by using the vehicle ID number.

14.19.2.21. Remove metal identification bands from all tubing, (except aircraft installed egress system components) and cables on the aircraft. Additionally remove metal identification bands from cargo tie-down chains/devices prior to use around aircraft. However, factory installed ID tags attached to cargo chains/devices will remain on the chain/device to identify the type being used. Do not remove manufacturer installed metal identification bands from hydraulic hoses. Hydraulic lines will be marked IAW TO 42E1-1-1, *Aerospace Hose Assembly.*

14.19.2.22. Use X-ray, borescope, and other equipment to locate FO in inaccessible areas.

14.19.2.22. **(CAF)** When any FO is suspected to be in an inaccessible area follow procedures for inaccessible item/tool in Chapter 10.

14.19.2.23. **(Added-CAF)** Prior to engine start and after engine shutdown on maintenance and test cell runs, and after any engine intake maintenance, each affected engine intake and exhaust will receive a FOD (intake/inlet/exhaust) inspection. The FOD inspection will be documented with a Red X symbol in the applicable form (AFTO Form 781A and the MIS). FOD inspections performed on uninstalled test cell engines will be documented on the test cell worksheet. This is not required on engines shut down for "red ball" maintenance.

14.19.2.24. **(Added-CAF)** Aircraft Engine Run Hush House/Trim Pad Pre-Run Worksheet. NOTE: For installed engine runs on the trim pad include only applicable items. Prior to engine start in the hush house, the aircraft run supervisor will ensure the pretest procedures listed in applicable hush house (T-10/11) T.O. (e.g. T.O. 33D4-6-645-1, *Enclosed Noise Suppressor System, Aircraft/Engine (Hush House))* are complied with. Engine run personnel will complete the following document and the engine run supervisor will ensure all worksheet items are complied with and documented prior to engine start. For hush house runs this document will be developed and maintained by the Propulsion Flight Test Cell Section Chief. AMUs will develop and maintain this document for runs not performed in the hush house. Contact supporting records manager as required for records maintenance. Completed forms will be retained in accordance with the RDS. At a minimum, the document will include the following headings:

14.19.2.24.1. **(Added-CAF)** Aircraft TMS.

14.19.2.24.2. **(Added-CAF)** Engine(s) Serial Number.

14.19.2.24.3. **(Added-CAF)** JCN.

14.19.2.24.4. **(Added-CAF)** Remarks.

14.19.2.24.5. **(Added-CAF)** Pre-run Emergency Briefing Accomplished with run supervisors name, employee number, signature, and date accomplished sections.

14.19.2.24.6. **(Added-CAF)** Area Inspection with technician's name, employee number, signature, and date accomplished sections. NOTE: At a minimum, Area Section Inspections will include: Inlet FOD/FO inspection; Exhaust FOD/FO inspection; Aircraft Exterior for FO; General Engine Serviceability; Test Stand/Thrust Bed/Test Equipment for FO; CTK Inventory C/W (ensure all CTK and test equipment is accounted for and is in its proper storage space after every

maintenance action and before each engine start); Engine Servicing Check; all preliminary aircraft engine run requirements C/W; serviceable fire extinguisher on hand. Units may add additional inspection areas/steps as appropriate.

14.19.3. FOD Prevention Responsibilities.

14.19.3.1. The WG/CV or Center CV will be assigned as the FOD Prevention Program Manager and appoint a qualified TSgt (or above), or civilian equivalent, or contractor if designated by PWS, with at least 8 years (1 year for ALC) experience in the maintenance field to the position of FOD monitor and their name will be posted in a prominent place within the unit on a locally developed visual aid.

14.19.3.2. The WG/CV or Center CV will:

14.19.3.2.1. Ensure all personnel actively support the FOD Prevention Program.

14.19.3.2.2. Provide local guidance to ensure each FOD mishap is investigated and action taken to solve any underlying problems.

14.19.3.2.3. Review all unit FOD mishap reports and analyze the reports and other data for trends identifying areas requiring management action.

14.19.3.2.4. Coordinate FOD prevention needs with the airfield manager and other agencies when construction is in progress on or near the flightline, or other areas where FOD incidents could occur.

14.19.3.2.5. Ensure FOD prevention is part of QA inspections.

14.19.3.2.6. Coordinate with airfield manager to identify and properly mark FOD check points IAW Lead Command standards.

14.19.3.2.7. **(Added-CAF)** Budget for and allocate funds to support the wing's program.

14.19.3.2.8. **(Added-CAF)** Ensure a FOD monitor is appointed and FOD prevention programs are enforced during deployed operation.

14.19.4. FOD Monitor: The location of the FOD Monitor will be within QA at the discretion of the WG/Center CVs. The minimum responsibilities of the wing FOD monitor are:

14.19.4. **(CAF)** The Wing CV is the approving authority for FOD monitor additional duties.

14.19.4.1. Inform all wing/center agencies of FOD hazards.

14.19.4.2. Develop wing/center procedures to document and perform spot checks of selected areas weekly.

14.19.4.3. Be involved in each FOD investigation and help ensure corrective actions are sound.

14.19.4.4. Monitor and recommend changes to FOD prevention training. Those units having several types of aircraft assigned will have their FOD prevention training incorporated into one wing/center training program. Additionally, ensure an initial FOD awareness and responsibilities briefing is given to all newly assigned personnel.

14.19.4.5. Periodically inspect and report damaged pavement, flightline construction, or other hazards in or near aircraft parking ramps or taxiways to the airfield manager and monitor status to ensure timely repairs.

14.19.4.6. **(Added-CAF)** Ensure evaluated or repaired FOD is documented in CEMS automated history (E407) or AFTO FORM 95, IAW T.O. 00-20-1.

14.19.4.7. **(Added-CAF)** Will develop a deployable FOD program and train selected deployable FOD Monitors.

14.19.5. FOD Investigation and Reporting.

14.19.5.1. When suspected or confirmed FOD is discovered, the MOC/Maintenance Control Function will be immediately notified. The MOC/Maintenance Control Function will notify QA/Center FOD/DOP Monitor. All aircraft sustaining FOD damage from an unknown cause will be considered for impoundment. If internal engine FOD is confirmed, the engine will be impounded IAW **Chapter 9** of this instruction.

14.19.5.1.1. Units must make every attempt to determine root cause of FOD related mishaps before returning engines and modules to the depot for investigation. If engines/modules are returned to the depot, an information DR will be completed and forwarded. All FOD mishap engines and modules returned to depot must be properly marked on the outside of the packaging as a FOD mishap asset. Mark container or package in RED with the following statement, “FOD Mishap investigation required”.

14.19.5.2. FOD incidents are classified as preventable and non-preventable. Only preventable FOD over $50K (parts and labor) will be chargeable to the FOD rate. FODs are considered preventable except those listed below:

14.19.5.2.1. Caused by natural environment or wildlife. This includes hail, ice, animals, insects, sand, and birds. Report this type of damage IAW AFI 91-204. Do not include these in the FOD rates.

14.19.5.2.2. From internal engine materiel failure, as long as damage is confined to the engine.

14.19.5.2.2. **(CAF)** When no associated upstream damage is found following FOD identification, submit DR/mishap report(s) IAW AFI 91-204 and T.O. 00-35D-54.

14.19.5.2.3. Caused by materiel failure of an aircraft component if the component failure is reported as a DR using the combined mishap DR reporting procedures of AFI 91-204 and TO 00-35D-54.

14.19.5.2.4. Found during depot overhaul for maximum operating time.

14.19.5.2.4. **(CAF)** To include JEIM maintenance for maximum operating time.

14.19.5.3. Additionally, the following apply:

14.19.5.3.1. Engine damage caused by improper anti-ice/de-ice procedures by either flight or ground crews are considered preventable.

14.19.5.3.2. Engine or airframe damage caused by gunnery or rocket mission ricochets is considered non-preventable provided mission parameters were not exceeded and range cleaning was sufficient.

14.19.5.3.3. Helicopter/CV-22 engine damage caused by rocks, stones, wood, or other objects ingested during low hover operations are considered non-preventable, provided mission parameters were not exceeded.

14.19.5.3.4. FOD incidences leading to blade blending are reported IAW the blade blending section in this chapter.

14.19.5.4. Preventable FOD over $50K incurred at test cell or on trim pad will be chargeable.

14.19.5.4. **(CAF)** Preventable FOD incurred at test cell will be chargeable towards rate regardless of cost.

14.19.5.5. Appropriate Lead Command offices will assist in resolving any questionable FOD issues, (i.e., preventable or non-preventable.)

14.19.5.5. **(CAF)** Respective MAJCOM will assign accountability in those instances where conflicting/peculiar circumstances occur.

14.19.5.6. Wing/Center FOD monitor will provide an initial report of all FOD incidents to Lead Command FOD monitor by telephone, fax or e-mail as soon as the damage is known, but NLT 24 hours after occurrence. A follow up report will be required every 45 days until closeout. Use the FOD report format as listed in **Attachment 12**.

14.19.5.6. **(CAF)** All FOD incidents exceeding $50K will be reported. FOD incidents under $50K will be tracked locally and reviewed by the wing CV and FOD manager every 6 months for trends, these incidents only require phone, fax or e-mail notification to HQ ACC/A4MP.

14.19.5.6.1. Lead Command will determine command-reporting procedures.

14.19.5.6.1. **(CAF)** Wing FOD/DOP managers will submit CAF FOD/DOP Incident Worksheet within 72 hours of any FOD/DOP incident. Additionally, all incidents must be annotated within the ACC Unit FOD Report Excel spreadsheet. The monthly report must be completed in its entirety and submitted via email to the ACC/A4MP FOD inbox (**ACC.FOD@LANGLEY.AF.MIL**) on a monthly basis no later than the 10th calendar day of each month.

14.19.5.7. FOD rates are computed by MDS as follows: Number of Preventable FODs (damage exceeding $50K) ÷ Aircraft flying hours X 10,000 = FOD rate. (ALCs will compute FOD rates by (damage exceeding $50K)÷aircraft flying hours X 1,000 = FOD rate. ALCs will compute aircraft flying hours using acceptance flights, functional check flights, ground runs, and the number of un-installed engine test cell starts.)

14.19.5.7.1. **(Added-CAF)** Wing rates are computed monthly. Each wing FOD manager will submit by the 10th of each month FOD-DOP WORKBOOK updates by email to ACC/A4MP FOD inbox (**ACC.FOD@LANGLEY.AF.MIL**). Reports will be uploaded to the CAF FOD/DOP CoP, (**https://afkm.wpafb.af.mil/community/views/home.aspx?Filter=AC-OT-01-34**). The report will include monthly cumulative data. A fiscal year roll-up will be provided NLT 15 October.

14.19.5.8. **(Added-CAF)** FOD accountability will be in accordance with the following guidance:

14.19.5.8.1. **(Added-CAF)** When transient/deployed aircraft incur FOD, the host unit will conduct the investigation and notify the owning organization within 72 hours. If the owning organization's maintainers are deployed with the aircraft and the FOD appears to be a direct result of transient/deployed unit negligence, the owning organization will conduct the investigation. MAJCOM will assign accountability in those instances where conflicting/peculiar circumstances occur. During deployed operations where mixed unit crews are flying or maintaining aircraft, FOD incidents will be charged to unit receiving flying hour credit.

14.19.5.8.2. **(Added-CAF)** The owning organization is responsible for FOD incidents on transient aircraft/engines when one of the following conditions applies:

14.19.5.8.2.1. **(Added-CAF)** FOD discovered upon arrival at a transient base with no intermediate stops or prior to any engine run.

14.19.5.8.2.2. **(Added-CAF)** FOD found during initial tear down on "CRF/ERRC" engines.

14.19.5.8.2.3. **(Added-CAF)** Aircraft is maintained on transient/TDY base by owning organization maintenance personnel.

14.19.5.9. **(Added-CAF)** Parent wings are ultimately responsible for the FOD prevention program of detachments. Parent wings will collectively report FOD rates.

14.19.5.10. **(Added-CAF)** The preventable FOD standard is 1.0. NOTE: Tenant units will use their parent unit FOD standard.

14.19.5.11. **(Added-CAF)** The wing safety office in coordination with the wing FOD manager will submit mishap reports IAW AFI 91-204.

14.19.5.12. **(Added-CAF)** Each unit will establish their own FOD control number(s) as follows: wing designator, fiscal year, and a three-digit number; for example, 33FW07001.

14.19.5.13. **(Added-CAF)** FOD discovered by transient alert facilities or by depot and contractor facilities during acceptance inspections will be charged to the base from which the aircraft last departed if a FOD inspection was not accomplished/documented. The owning organization will be charged if there were no intermediate stops. FOD incidents caused by transit bases, depot or contractors, will be referred to the responsible command for determination of accountability.

14.19.5.14. **(Added-CAF)** The following actions will be performed on F-15 aircraft sustaining engine FOD caused by an unknown source: Extend the vari-ramps, thoroughly inspect all accessible components and areas within the vari-ramp cavity, close the vari-ramps, X-ray the vari-ramps and lower louver areas IAW applicable T.O., compare these X-rays with previous X-rays of the aircraft to determine movement or missing items.

14.19.5.15. **(Added-CAF)** Perform a borescope when any of the following occur:

14.19.5.15.1. **(Added-CAF)** Engine is determined to have FOD damage that requires blending by applicable technical data.

14.19.5.15.2. **(Added-CAF)** Hardware/material forward of engine inlet is found missing and any damage to the first or second stage.

14.19.5.15.3. **(Added-CAF)** A birdstrike has occurred forward of and near the aircraft engine intake unless specific tech data addresses birdstrike borescope requirements.

14.19.5.16. **(Added-CAF)** For Class A/B/C/D and other mishaps, investigation personnel must coordinate with the wing or base safety office to ensure the requirements of AFI 91-204 are met.

14.19.5.17. **(Added-CAF)** Wings will submit maintenance cross-tell reports by message to HQ ACC/A4MP and to all units with like MDSs for those incidents that have FOD potential for the fleet.

14.19.6. FOD Prevention Committee Meeting. The WG/Center CV is the committee chairperson. The MXG/MXW CC will chair the meeting in the absence of the WG/Center CV. Minimum attendee representation is all group commanders, director(s), commanders of units with maintenance personnel, safety (Center and Base), CE, Airfield Manager, and security forces. The chairperson designates additional attendees (e.g., agencies, detachments) as required. The host base FOD prevention committee chairperson will incorporate tenant units in the host unit program. Tenant units should establish their own unit FOD committee, but will still participate in the host program and comply with host program requirements. Meetings will be conducted monthly when the unit exceeds the Lead Command-established standard, and quarterly if the unit FOD rate is less than the established standard. The meeting will identify negative trends and develop action plans to resolve them. The meeting should also be used to recognize personnel making significant contributions to FOD prevention (e.g. golden bolt program, FOD poster contests, or other FOD recognition programs locally developed at each unit).

14.19.6.1. Suggested agenda items include:

14.19.6.1.1. Total number of airframe, engine, and tire FOD incidents during the reporting period. Indicate quantity and cause. Current status of all other pending incidents will be discussed.

14.19.6.1.2. Mechanical/vacuum sweeper status.

14.19.6.1.3. Review and refinement of the existing FOD prevention program.

14.19.6.1.4. New directives/actions established to minimize FOD.

14.19.6.1.5. Status and condition of engine run-up screens as applicable.

14.19.6.1.6. Results of X-rays for FOs during engine bay inspections, acceptance inspections, and phase inspections. Maintenance trends should be discussed when an increase in FO is discovered during these X-rays.

14.19.6.1.7. Identification of potential FOD sources.

14.19.6.1.8. Lost tools/items.

14.19.6.1.9. Increased potential for FOD within the next 30-60 days.

14.19.6.1.10. Dropped objects. Pay particular attention to those that result in downstream FOD.

14.19.6.1.11. Breakdown of FOD inspections/assessments.

14.19.6.1.12. Cockpit FO incidents.

14.19.6.1.13. Commanders comments.

14.19.7. Bird Strikes. Consult Technical Order 1-1-691 *Cleaning And Corrosion Prevention And Control, Aerospace And Non-Aerospace Equipment* for bird strike clean up procedures and AFMAN 91-223 *Avian Safety Investigations And Reports* for bird strike reporting procedures.

14.20. Forms Documentation.

14.20.1. Document Repeat/Recur and CND discrepancies IAW TO 00-20-1.

14.20.2. Document IPIs IAW TO 00-20-1.

14.20.2.1. An IPI is an additional inspection or verification step at a critical point in the installation, assembly, or reassembly of a system, subsystem or component. These inspections are either TO, MAJCOM, or locally directed and are accomplished by qualified personnel as identified on the SCR. The weapon system lead command as defined in AFPD 10-9 will determine minimum IPI requirements and incorporate these requirements into applicable TOs."

14.20.2.2. Operations Officer/MX SUPT compiles a list of squadron tasks requiring IPIs. The list must include WUC, task title/description, specific TO, paragraph, and step number within the TO task where the IPI will be called for. ***NOTE:*** Some digital TOs do not list paragraph and step numbers. In this case, list the description of the step just prior to and after the IPI. When developing the IPI list, consult with QA on trends or problem areas that continually warrant extra supervisory attention. Squadrons submit their on- and off-equipment lists to QA for consolidation, MXG/CC approval, and publication as the group IPI listing. IPIs must be reviewed every 2 years for applicability. There is no requirement to include TO-directed IPI tasks in the local listing."

14.20.2.3. The IPI list for weapon systems using digital TOs where the paragraph and/or step number are not displayed will include a locally assigned IPI number for AFTO Form 781A referencing, WUC, nomenclature, specific TO, paragraph number (if displayed), step number (if displayed), IPI task description, and description of the step just prior to and after the IPI. If the TO system has a digitally displayed IPI feature the IPI will be displayed when the IPI is required and will include the locally assigned IPI number and a description of the IPI task.

14.21. Ground Instructional Trainer Aircraft (GITA).

14.21.1. Permanently assigned GITA aircraft are those aircraft that are not maintained in airworthy condition. Active GITA are maintained in system/subsystem operational condition for purposes of maintenance training and normally carried in possession codes as outlined in AFI 21-103 or AFI 16-402. Inactive GITA are aircraft permanently grounded for use in personnel training. This section does not apply to ABDR training aircraft. ABDR training

aircraft are managed by HQ AFMC/A4RE-PO. This chapter does not apply to training equipment maintained by CLS contracts administered by commands other than AETC.

14.21.1.1. Temporarily Grounded (active). Temporarily grounded aircraft are subject to recall to the active fleet.

14.21.1.1.1. Only those items requested by the ALC Program Manager will be considered for removal. If the item does not affect training and if approved by MXG/CC, the part will be removed and turned in as per ALC Program Manager instructions.

14.21.1.1.2. Units are responsible for storing uninstalled or removed equipment that is not required for training.

14.21.1.2. Permanently Grounded GITAs (inactive). Permanently grounded aircraft are those declared excess to future operations or flying requirements by HQ USAF. Aircraft in this category will be re-designated by the addition of the prefix “G” to the basic MDS. Training Aid Aircraft (TAA) are also Permanently Grounded (inactive). Aircraft in this category, at a minimum, require an aircraft fuselage that was previously in the AF inventory as an aircraft. TAAs will be re-designated by the addition of the prefix “T” to the basic. Assigned aircraft are not maintained in airworthy condition, and only the system/subsystem required for the specific training requirements will be maintained in operational condition for purposes of required maintenance training. Permanently grounded missiles retain their original MDS without a prefix. ***NOTE:*** In accordance with AFI 16-402, aircraft used for training are not terminated from the AF inventory. Any questions about the designation of an aircraft used for training should be directed to the Lead Command AVDO.

14.21.1.2.1. Upon assignment of a permanently grounded GITA/TAA, the Program Manager will initiate a preliminary "save list," identifying items to be removed and turned in to LRS.

14.21.1.2.2. If an item on the save list is not removed, annotate the reason for not removing it and coordinate with the applicable Program Manager and group commander. If items on the save list are required for training and an unserviceable item will suffice, units should inform the Program Manager. Identify all unserviceable components furnished by ALC in a conspicuous manner (Red X or Red dot system).

14.21.2. MXG/CC Responsibilities:

14.21.2.1. Develop an Installation Publication or supplement to define the scope of training functions for GITA/TAA use; functional responsibility for funding, operations, maintenance, and records management.

14.21.2.2. Maintenance of GITA/TAA used in support of training. Units that do not have organic maintenance capability will establish a Support Agreement (SA) or MOA assigning maintenance responsibility. GITA maintenance includes on- and off-equipment maintenance of active systems and subsystems and necessary actions to maintain the aircraft in a safe and presentable condition. TAA require minimal maintenance on

systems/subsystems used for training requirements and necessary actions to maintain the aircraft in a safe and presentable condition.

14.21.2.2.1. Determine which system and subsystem are required to support the training. Consider present, future, and cross-utilization of systems when making determinations. These systems will be maintained in the same configuration as operational equipment.

14.21.2.2.2. Ensure explosive components are removed that are not required to support training requirements.

14.21.2.2.3. Place retained systems and subsystems not currently being used for training into extended storage IAW technical data.

14.21.2.2.4. Ensure standard maintenance practices regarding inspection appearance; cleanliness, ground safety, and prevention of corrosion are met. Corrosion control procedures are outlined in TO 1-1-691, *Aircraft Weapons System-Cleaning and Corrosion Control*.

14.21.2.2.5. Develop and prepare inspection technical data check lists for use in inspecting the condition and safety of equipment before use and ensure inspections are performed. Prior-to-use inspections are conducted by the using organization employing a tailored weapon system pre-/post-dock checklist. Conduct periodic maintenance inspections using a tailored work deck.

14.21.2.2.6. Prepare a separate memorandum for each GITA/TAA, addressed to the appropriate ALC Program Manager for the aircraft and inform them of the systems and subsystems that will be maintained in operational configuration. When changes in requirements occur, initiate a new memorandum. Provide copies of all GITA/TAA memorandums to the Lead Command AVDO.

14.21.2.2.7. Ensure air and space vehicle inventory reporting IAW AFI 21-103 as required for ground trainers. Aircraft used for ground trainers are exempt from status and utilization reporting.

14.21.2.2.8. Ensure maintenance actions are documented IAW 00-20 series TOs. Lead Commands determine use of MIS for permanently grounded GITA records management. Owning units not having maintenance capability will establish SAs or MOAs.

14.21.2.2.9. Ensure timely completion of TCTOs on systems designated for configuration management and proper configuration status accounting is maintained. Accomplish TCTOs on systems not designated for configuration management as required to ensure safety of operation or as directed by Program Manager. TCTOs will not be maintained on TAA.

14.21.2.2.10. Ensure proper coordination and documentation of parts removed from training aircraft are accomplished as follows:

14.21.2.2.10.1. When an item is removed or replaced, supervisors ensure this action is documented in the aircraft forms. Include the authority for removal (e.g., message number, telecon, letters, and dates) and condition of installed/replacement items.

14.21.2.2.10.2. When the limited save list actions have been done, forward a copy of the completed list to the documentation function. This copy becomes part of the historical records. Also forward a second copy to the appropriate ALC Program Manager.

14.21.2.2.10.3. Ensure W&B handbook requirements are complied with IAW TO 1-1B-50 and applicable -5 series TOs.

14.21.2.2.10.4. Ensure operating and maintenance technical data are readily accessible whenever the GITA/TAA is in use or undergoing inspection.

14.21.2.2.10.5. Identify an individual to oversee GITA/TAA as an additional duty. Individual must possess the technical expertise, management skills, and leadership ability to assure quality maintenance standards of equipment condition, reliability, and safety are attained. Individual is responsible to accomplish and/or coordinate maintenance actions for the GITA/TAA, ensure GITA/TAA documentation is accurate and complete, and must be qualified to operate GITA/TAA systems and appropriate support equipment to conduct GITA/TAA maintenance.

14.21.2.2.10.5. **(CAF)** The designated individual will:

14.21.2.2.10.5.1. **(Added-CAF)** Ensure the aircraft has a current set of AFTO Form 781-series forms maintained IAW T.O. 00-20-1.

14.21.2.2.10.5.2. **(Added-CAF)** Document a thorough forms review a minimum of every 30 days.

14.21.2.2.10.5.3. **(Added-CAF)** Ensure aircraft is scheduled for and undergoes preventive maintenance requirements established by the MXG/CC.

14.21.2.2.10.5.4. **(Added-CAF)** Monitor the status of removed parts and parts on order.

14.21.2.2.10.5.5. **(Added-CAF)** Maintain required -21 equipment.

14.21.2.3. For equipment designated as trainers, only the systems required for technical training (or those required to ensure safety or system integrity) need to be maintained. (This does not apply to "temporarily" grounded aircraft or operational equipment or systems on loan from Lead Commands or ALCs.)

14.21.2.4. **(Added-CAF)** Ensure QA performs a non-rated management inspection on ground trainers semi-annually. Inspection will include, as a minimum, AFTO Form 781-series forms review, a walk-around and thru-flight inspection. Submit report to the MXG/CC.

14.21.2.5. **(Added-CAF)** Establish written minimum operational systems guidelines and general maintenance requirements (wash interval, paint interval, etc.) for group training aircraft.

14.21.3. Technical Data Applicability:

14.21.3.1. Operational systems on GITA/TAA will be maintained IAW applicable technical data. The specific policy governing the use and modification of technical data is contained in TO 00-5-1. Some systems may be operated and maintained with original contractor data because formal technical data was never developed and/or the contractor data was never assigned a TO number.

14.21.3.2. Inspection and lubrication requirements may be adjusted to correspond with training requirements and equipment usage and to prevent over or under inspection. Additionally, where significant savings may be achieved, the commander or contract project manager (in coordination with the functional commander or director) may authorize deviations or changes to technical data requirements, including substitution of materials. In all cases, safety or design function must not be compromised. Maintain documentation authorizing deviations.

14.21.3.3. TCTOs. The QA function or other designated agency is responsible for determining applicability of TCTOs for GITAs. TCTO upgrades are not required on TAA.

14.22. Hangar Queen Aircraft.

14.22.1. General. The objective of this program is to ensure the entire fleet remains healthy and all possible management actions are carried out to ensure aircraft do not remain inoperative for extended periods. Lead Commands will establish a Hangar Queen program.

14.22.1. **(CAF)** For the purpose of reporting; when referenced to Lead Command in this section, units will send reports to Lead MAJCOM Weapons System Team (WST), and will ensure that respective C-MAJCOM staff is included. Units will develop procedures to this section in order to cover specific local unit responsibilities.

14.22.2. Definitions:

14.22.2.1. A Hangar Queen is a unit-possessed aircraft that has not flown for at least 30 calendar days. Aircraft are exempt from accruing Hangar Queen time for up to ten days immediately following DFT/CFT repair or maintenance; however, if an aircraft is not flown after the tenth day, the ten days are included in the total number of days since last fly date to determine the Hangar Queen category computation. All aircraft placed on higher HQ alert status are exempt from Hangar Queen management and reporting. Additionally, aircraft with low observable (LO) technology (e.g., B-2, F-22) placed on or postured for higher HQ/local alert status taskings are exempt from Hangar Queen reporting throughout the duration of alert status/posturing. An aircraft is released from Hangar Queen status after the first flight. A few examples are provided to clarify when an aircraft becomes a Hangar Queen.

14.22.2.1.1. A unit-possessed aircraft has not flown for 20 calendar days, enters depot status for 5 more calendar days, and then returns to unit possession on the 26th non-fly day; the unit has up to 10 calendar days to fly the aircraft to avoid Hangar Queen status. If this aircraft does not fly on the 10th calendar day (35th non-fly day), the aircraft would become 36-day Category 1 Hangar Queen on the next day.

14.22.2.1.2. A unit-possessed aircraft has not flown for 2 calendar days, then enters depot status for 1 calendar day and is returned to unit possession, the unit must fly the aircraft in the next 27 calendar days to avoid becoming Category 1.

14.22.2.2. Hangar Queen aircraft are further defined by three categories:

14.22.2.2.1. Category 1 -- Aircraft that have not flown for 30 to 59 calendar days.

14.22.2.2.2. Category 2 -- Aircraft that have not flown for 60 to 89 calendar days.

14.22.2.2.3. Category 3 -- Aircraft that have not flown for 90 or more calendar days.

14.22.3. When an aircraft becomes identified as a Hangar Queen, management must intensify their efforts to alleviate the condition as soon as possible (e.g., mission impact letters, Lead Command and item manager assistance). Aircraft last fly day shall be accessible through the AF Portal Fleet Asset Status Gadget.

14.22.3.1. When an aircraft becomes a Category 1 Hangar Queen, establish a maintenance recovery plan that minimizes the time needed to get the aircraft airborne. Assign a Hangar Queen manager to implement the plan. Forming a temporary dedicated recovery team is also an option. Ensure strict management, control, and documentation of all CANNs, transfer, and diversion actions from the Hangar Queen aircraft. Brief aircraft maintenance and supply status to the SQ/CC daily and weekly to the MXG/CC and WG/CC. Category 1 aircraft are managed locally.

14.22.3.1. **(CAF)** The MXG/CD (or higher) is the approval authority for cannibalization of Hangar Queen Category 1 aircraft. Report the aircraft as a hangar queen in the applicable MAJCOM metric-reporting program (i.e. 9302, 7211).

14.22.3.2. When an aircraft becomes a Category 2 Hangar Queen, assign a SNCO or officer (or civilian equivalent) to manage the Hangar Queen. The MXG/CC or designated representative must approve any further CANNs, transfer, and diversion actions from the Hangar Queen aircraft. Brief aircraft maintenance and supply status at the daily wing standup meeting. Units will report aircraft tail number(s) monthly to the Lead Command with the estimated delivery dates for top down-time driver (AWP) parts.

14.22.3.2. **(CAF)** Comply with all Category 1 requirements; however, cease all cannibalizations and make the Hangar Queen aircraft a priority to rebuild.

14.22.3.3. When an aircraft becomes a Category 3 Hangar Queen, aircraft maintenance and supply status will be briefed at the daily wing standup meeting. Units will report aircraft tail number(s) monthly to the Lead Command with the estimated delivery dates for top down-time driver (AWP) parts.

14.22.3.3. **(CAF)** Comply with all Category 1 and 2 requirements. Determine the feasibility of cannibalizing parts to return the aircraft to flying status. If all required parts are feasible cannibalizations, then cannibalize all parts needed to return the aircraft to airworthy status. If a required part is an unfeasible cannibalization, then the MXG/CC will determine if other required parts should be cannibalized. An Operational Check Flight is mandatory for Category 3 hangar queen aircraft prior to release from hangar queen status.

14.22.4. Ensure applicable Dash-6 and 00-20 series TO requirements and TCTOs are accomplished.

14.22.5. Inform the MOC of any change in aircraft status.

14.22.6. MXG/CC will determine the need for an FCF/OCF (if not otherwise required by the aircraft specific TO).

14.22.7. QA will perform a final review of all aircraft forms initiated since the last flight prior to the first flight.

14.22.8. **(Added-CAF)** Exceptions.

14.22.8.1. **(Added-CAF)** Aircraft in “PJ”, "PR" or “TJ” possession identifier code are exempt from hangar queen reporting. Aircraft regained from possession code PJ, PR or TJ and aircraft being removed from alert or immediate response are authorized a 10 calendar day grace period for hangar queen reporting similar to Para 14.22.2.1. Note: MAJCOM AVDO is the approval authority for use of the “TJ” status code. “TJ” status may only be assigned to the first aircraft that arrives on location during initial beddown of a new MDS. The aircraft will not remain in “TJ” status for more than 90 days.

14.22.8.2. **(Added-CAF)** Aircraft permanently assigned and possessed in TX code or with a “G” prefix are exempt from hangar queen reporting.

14.22.8.3. **(Added-CAF)** Aircraft in non unit possession codes are excluded from hangar queen reporting but are not excluded from local hangar queen management procedures.

14.22.8.4. **(Added-CAF)** Aircraft regained from depot possession which have not flown for 30 consecutive days and fall within the 10 day grace period are still locally managed as hangar queens.

14.22.9. **(Added-CAF)** Reporting.

14.22.9.1. **(Added-CAF)** MXG/CC will report all Hangar Queen aircraft 7 calendar days prior to the projected date of entering hangar queen CAT 2 and 3 status via message/coordinated email to the Director of Logistics, ACC/A4 (**ACCA4.Workflow@langley.af.mil**) and the respective WST Division (e.g. ACC/A4V, ACC/A4C). Provide updates whenever maintenance/parts status or projections change until aircraft is released from hangar queen status.

14.22.9.1.1. **(Added-CAF)** Subject of the message/coordinated email, with appropriate aircraft tail number information, will be: HANGAR QUEEN STATUS AIRCRAFT XX-XXXX.

14.22.9.1.1.1. **(Added-CAF)** Include the following information in the message:

14.22.9.1.1.1.1. **(Added-CAF)** Aircraft MDS.

14.22.9.1.1.1.2. **(Added-CAF)** Aircraft tail number.

14.22.9.1.1.1.3. **(Added-CAF)** Owning unit.

14.22.9.1.1.1.4. **(Added-CAF)** Date last flown.

14.22.9.1.1.1.5. **(Added-CAF)** Reason for potential hangar queen.

14.22.9.1.1.1.6. **(Added-CAF)** Status.

14.22.9.1.1.1.7. **(Added-CAF)** Pacing action.

14.22.9.1.1.1.8. **(Added-CAF)** Parts required.

14.22.9.1.1.1.9. **(Added-CAF)** Estimated fly date.

14.22.9.1.1.1.10. **(Added-CAF)** Include the following Total Not Mission Capable Supply (TNMCS) information:

14.22.9.1.1.1.10.1. **(Added-CAF)** EDD(s).

14.22.9.1.1.1.10.2. **(Added-CAF)** WUC(s).

14.22.9.1.1.1.10.3. **(Added-CAF)** NSN(s).

14.22.9.1.1.1.10.4. **(Added-CAF)** Document Number.

14.22.9.1.1.1.10.5. **(Added-CAF)** Requisition Number.

14.22.9.1.1.1.10.6. **(Added-CAF)** Off-base requisition(s).

14.22.9.1.1.1.11. **(Added-CAF)** Identify any assistance required from MAJCOM A4.

14.22.9.1.1.1.12. **(Added-CAF)** Point of contact with telephone number.

14.22.9.1.1.1.13. **(Added-CAF)** Plan for recovery.

14.23. Hot Refueling Procedures.

14.23.1. Hot refueling is the transfer of fuel into an aircraft having one or more engines running. The purpose of hot refueling is to reduce aircraft ground time, personnel and equipment support requirements and increase system reliability by eliminating system shut down and subsequent restart. Refer to the following sources for additional guidance: TO 00-25-172, TO 00-25-172CL-4, *Checklist, Aircraft Servicing with USAF R-5, R-9, and R-11 Fuel Servicing Vehicles*, TO 37A9-3-11-lCL-l, *Checklist, Operational and Organizational Maintenance Hot Refueling and Hot Integrated Combat Turn-Around Procedures, Aircraft Fuel Servicing Unit Type GRU 17/E Pantograph PACAF Type IV Hydrant Servicing*, and AFOSHSTD 91-100. Units possessing A/OA-10, F-15, F-16, and F-22A combat coded "CC" or E-4B combat support coded "CA" aircraft certified for hot refueling develop and maintain the capability to quickly and safely hot refuel those assigned aircraft (applicable to ANG if tasked). This requirement also applies to training funded "TF" units having specific contingency taskings. This section does not apply to concurrent servicing operations used on large-frame aircraft.

14.23.2. PACAF/USAFE ONLY: Main operating bases (MOBs), if OPLAN-tasked sortie rates require, must keep sites certified for hot-pit refueling even if they do not have an active program. Supported Commands must be consulted for exceptions to this direction.

14.23.3. Hot refueling is not accomplished until the location, equipment requirements, and personnel qualifications are certified IAW this instruction and TO 00-25-172.

14.23.3.1. Each base fuels management flight will maintain sufficient hot refueling certified fuels specialists for each squadron authorized to conduct hot refueling.

14.23.3.2. Site Certification. Hot pit refueling sites must be certified IAW TO 00-25-172 and this instruction. The mission support group commander (MSG/CC) will appoint a base site certification team consisting of the following:

14.23.3.2.1. Field grade maintenance officer as the site certifying official.

14.23.3.2.2. Representative from OSS Airfield Management Office, knowledgeable of aircraft taxiways, parking ramp, and hot refuel safe distance requirements.

14.23.3.2.3. Maintenance member with 2AXXX AFSC from MXG QA office, knowledgeable of hot refueling procedures.

14.23.3.2.4. Wing Ground Safety member, minimum SSgt 1S071 or civilian equivalent, task qualified in site certification and knowledgeable of hot refueling operations.

14.23.3.2.5. Fuels management flight member, AFSC 2F0X1.

14.23.3.2.6. Civil engineering member, AFSC 3E271 or civilian equivalent, familiar with aircraft ramp requirements for hot refueling.

14.23.3.2.7. Fire protection member, minimum AFSC 3E771 or civilian equivalent, familiar with fire protection standby requirements in TO 00-25-172 for hot refueling.

14.23.4. The following listing provides questions that must be addressed as part of the site certification. This listing provides pertinent questions for the site, but is not provided as a substitute for TO 00-25-172:

14.23.4.1. Has the aircraft been approved by System Safety Engineering Analysis (SSEA) for hot pit refueling?

14.23.4.2. Is adequate area provided to position the aircraft safely (evaluate ability to reposition due to wind direction)?

14.23.4.2. **(CAF)** Position aircraft so that existing winds will blow potential fuel vapor or spray away from the intake of an operating engine.

14.23.4.3. Is the ramp level to prevent drainage that could cause environmental impact? Request the fire department dump water to verify flow, if questionable.

14.23.4.4. Is the location adequate for the number of aircraft to be serviced?

14.23.4.5. Has a hot brake holding area been established?

14.23.4.6. Is there proper clearance between the hot pit area and hot brake holding area to prevent conflict?

14.23.4.7. Is there proper clearance between the hot pit and Explosive Clear Zone/Hot Cargo Pad/ Airfield Clearance Zones to prevent violations of any area/zone?

14.23.4.8. Is the hot pit adequately clear of the aircraft/vehicle traffic area?

14.23.4.9. Is the hot pit and cursory check area of the ramp clear of FOD potential?

14.23.4.10. Does the location provide for rapid access of emergency equipment and egress of aircraft/equipment?

14.23.4.11. Are adequate grounding points available?

14.23.5. QA is responsible for maintaining site certification documentation and a master listing of all hot pit sites. QA will forward a new consolidated hot pit site certification listing to respective MAJCOMs anytime sites are added, changed, or deleted. Each unit hot refueling site will be certified by a unit certification team, and approved by MAJCOM, when one of the following occurs:

14.23.5.1. Construction of new hot refueling sites.

14.23.5.2. Change in the unit MDS, or when an additional MDS is acquired.

14.23.5.3. Change in refueling equipment.

14.23.5.4. Changes in the certified site areas which affect/change the previous certification.

14.23.5.5. **(Added-CAF)** Forward the following items to Lead MAJCOM Maintenance Policy Branch (HQ ACC/A4QM):

14.23.5.5.1. **(Added-CAF)** Official Certification Approval Request memo from MXG/CC to HQ ACC/A4QM with the following attachments:

14.23.5.5.1.1. **(Added-CAF)** Appointment letter signed by MSG/CC identifying the base site certification team members IAW 14.23.3.2.

14.23.5.5.1.2. **(Added-CAF)** Hot refueling checklists for each respective MDS.

14.23.5.5.1.3. **(Added-CAF)** Unit published procedures for hot refueling, if any, IAW Para 14.23.8.

14.23.5.5.1.4. **(Added-CAF)** Site certification document(s) addressing all questions in Para 14.23.4 and requirements in T.O. 00-25-172.

14.23.5.5.1.5. **(Added-CAF)** Hot pit site master listing addressing each item detailed in Para 14.23.6.

14.23.6. Hot pit site master listing. This listing must contain the following information for all hot pit sites on the installation:

14.23.6.1. All sites must be identified by coordinates on a map. Each facility within the distance identified in TO 00-25-172, must be identified as to its use/contents and its distance in feet from the refueling site/operation. Other refueling sites, aircraft parking areas, etc., also need to be identified. All distances must be shown even if a violation exists. If there are no violations, state so on the request cover letter. Procedures such as aircraft taxi routes should also be shown. Use arrows or dotted lines to show taxi directions, both entry and exit. Address any restrictions to normal operations and actions required IAW TO 00-25-172.

14.23.6.2. State the type of equipment used for hot refueling at each site, (e.g., hose carts, truck). Show the location of any fixed fuel pits and usual location of cart or truck if used. Identify unit-approved sites on the aircraft parking plan. CE, QA, and Airfield Operations maintain copies of hot refueling sites on file.

14.23.6.3. State whether or not all hot refueling areas comply with the quantity-distance separation requirements of AFMAN 91-201 in relation to surrounding exposed sites/potential explosion sites.

14.23.7. Hot refueling requires detailed procedures published in appropriate TOs and unit developed technical data checklists. Unit developed technical data checklists include detailed procedures, normal and emergency, to meet requirements of the local environment.

14.23.7. **(CAF)** Checklist must contain maps of Hot Pit sites, with details for pit set-up. This will mirror map in hot pit site master listing.

14.23.7.1. Units forward locally developed technical data checklists to Lead Commands for approval.

14.23.7.1. **(CAF)** Forward checklist to HQ ACC/A4QM.

14.23.8. Units publish procedures to supplement this section and outline local requirements and additional precautions as necessary for hot refueling, including hot refueling with ordnance, when authorized, IAW TO 00-25-172.

14.23.9. AMXS will ensure hot refueling crews are available to meet mission requirements. MXS maintenance personnel may be used.

14.23.10. HotRefueling Team Members and Duties.

14.23.10.1. Pad supervisor: Responsible for overall supervision of hot refueling operations when two or more aircraft are simultaneously hot refueled on the same pad (multiple hot refueling). Individual will possess a 5-level or higher qualification in an aircraft maintenance AFSC and be hot refueling supervisor "A" member qualified. Supervisors must have full view and control of multiple hot refueling operations.

14.23.10.2. Refuel supervisor "A" member. Individual will be refuel task qualified, capable of supervising hot refuel crew, possess an aircraft maintenance AFSC 5-level qualification and 1 year of flightline aircraft maintenance experience.

14.23.10.3. Refuel crew "B" member. Individual will be task qualified, possess a flightline maintenance AFSC, and 1 year of flightline maintenance experience.

14.23.10.4. Fuels specialist 2F0X1, "C" member. Individual will be refuel task qualified.

14.23.10.5. Additional refuel crew “D” member. Individual will be task qualified, possess a flightline maintenance AFSC, and have 1 year of flightline maintenance experience. Use “D” members as required by applicable aircraft technical data.

14.23.11. Hot refueling team members and QA certifiers/evaluators may be multi-MDS qualified when more than one weapons system is permanently assigned to a squadron. After initial certification on each MDS, personnel must update their hot refueling currency by performing hot refueling on any weapon system. Section NCOICs ensure personnel maintain proficiency on each assigned MDS.

14.23.12. Conducting Hot Refueling Training, Certification and Documentation. [For additional information, refer to AFI 11-235, *Forward Area Refueling Point (FARP) Operations*]. The following apply: ACC will determine Hot Refueling procedures for E-4 aircraft.

14.23.12.1. Conduct qualification training of hot refueling personnel in three distinct phases. Stress safety requirements, emergency procedures and equipment inspection in all three phases of training. Procedures in TO 37A9-3-11-1CL-1, TO 00-25-172, and TO 00-

25-172CL-4 are taught to all team supervisors and members. Conduct phase 2 and 3 utilizing joint sessions including 2F0X1 personnel and all maintenance AFSCs. Teach training utilizing joint sessions, using both fuels (2F0X1) and maintenance AFSC instructors. MTF or QA may act as the training OPR for the program.

14.23.12.2. Phase 1: ”Familiarization” phase. Designated instructors familiarize trainees with applicable technical data, procedures and guidance for hot refueling. Place special emphasis on procedures for hot refueling with ordnance loaded, when authorized.

14.23.12.2.1. Phase 2: ”Hands-on” phase. Apply information learned in Phase 1 to develop in-depth knowledge and proficiency in all facets of hot refueling. Include proper operation, preventive maintenance, use of hand signals and emergency procedures. Simulate hot refueling by performing all hot refueling tasks without aircraft engines running (cold pit). Designated instructors demonstrate tasks, require trainees to perform tasks, practice emergency procedures, critique performance and provide additional training as required.

14.23.12.2.2. Phase 3: ”Demonstration/Certification” phase. Actual demonstration of hot refueling under the supervision of designated certifiers with aircraft engine(s) running. Squadron Certifier, certifies individuals upon successful demonstration of hot refueling. If Phase 3 training has not been completed within 30 days (not applicable to ANG) of Phase 2 training, Phase 2 training must be repeated.

14.23.12.3. QA hot pit certifiers and QA hot pit certifier augmentees (squadron certifiers) will train, evaluate, and certify unit personnel. QA certifiers ensure augmentees conduct evaluations using procedures outlined in this publication, applicable aircraft TOs and local procedures. Hot pit certifying officials will be approved by the MXG/CC and tracked on the SCR..

14.23.13. Document training for personnel performing, evaluating, supervising or instructing hot refuel operations as follows:

14.23.13.1. Document all aircraft maintenance and 2F0X1 personnel Phases 1, 2, and 3 initial training in the CFETP. For AFSCs where “refuel aircraft with engines operating” is not contained in the CFETP, use AF IMT 797/MIS to document initial hot refuel training. Track recurring hot refueling certification in the MIS.

14.23.13.2. AFSC 2F0X1 personnel use TBA/AF IMT 1098, *Special Tasks Certification and Recurring Training*, to document Phases 1, 2, and 3 initial and recurring hot refuel training. Indicate multiple practical performances by placing a number before the letter in column F. If used, file AF IMT 1098 in individual’s AF Form 623.

14.23.14. Track hot refueling members, by position, on the SCR.

14.23.15. Proficiency, Certifying, and Decertifying Team Members. Unique requirements for hot refuel team members are outlined in Lead Command supplements.

14.23.15. **(CAF)** Training and certification requirements for hot refuel team members are outlined in Table 14.2.

14.23.15.1. **(Added-CAF)** Personnel are decertified if they fail to meet any proficiency requirements or special requirements IAW Table 14.2. Refueling supervisor or squadron/immediate supervisor may decertify personnel, at their discretion.

Table 14.2. (Added-CAF) Hot/Aircraft-to-Aircraft Refueling Training/Certification Reqts.

Position	Required Training	Proficiency Requirements	Special Requirements
Squadron Certifier	I, II, III	1 Hot Refuel Semi-Annually	Annual Evaluation and one time PE by-QA Chief Inspector
Pad Supervisor	I, II, III	1 Multiple Hot Refuel Semi-Annually	Annual Evaluation by QA or Squadron Certifier
Refuel A,B,C,D Member	I, II, III	1 Hot Refuel Semi-Annually, "C" Annually	Annual Evaluation by QA or Squadron Certifier
Decertified Squadron Certifier or Pad Supervisor	Repeat II, III		Recertification must be started within 90 days or Phase I will also be completed PE by QA Chief Inspector
Decertified A,B,C,D	Repeat II, III		Recertification must be started within 90 days or Phase I will also be completed

14.24. Land Mobile Radio (LMR) Management.

14.24.1. Maintenance Communications. Reliable, redundant, and effective communications systems are essential for efficient maintenance operations. These systems should provide accurate, timely, secure, programmable frequency and jam resistant communications needed to accomplish the maintenance mission in a fully deployed isolated mode. The MXG/MXW CC designated OPR has the overall responsibility to ensure adequate communications are available and manage the non-tactical radio program. Personnel will receive initial radio operating training before assuming duties involving radio operation AFI 33-106, AFMAN 33-120, AFI 33-118, and AFI 33-202V1. For effective flightline operation, more non-tactical radio nets are authorized when large numbers or different types of weapon systems are assigned or when SAs so specify. The following general guidelines apply:

14.24.2. Allowance for specific radios are shown in AS 660, *Equipment Allowances for Non-Weapon Systems Communications Requirements, Repair Cycle Data Listing*. Process requests for specific radio equipment to support maintenance activities IAW AFMAN 23-110, and AFI 33-106, AFMAN 33-120, AFI 33-118, and AFI 33-202. The Air Force Equipment Management System (AFEMS) web site is located at: **https://www.afems.wpafb.af.mil/afems40/splash.html**.

14.24.3. A VHF/UHF radio is authorized to provide communications between aircraft and maintenance. Aircrews may relay advance status information. Coordinate procedures for use of these radio communications with operations.

14.25. Lead Technician.

14.25.1. Lead Technician (Lead Tech) Responsibilities. Units may choose to identify Lead Techs. A Lead Tech is the flight AFSC SME and represents all personnel in that AFSC. Their use is especially important where multiple AFSCs are integrated into sections. Units

supporting different aircraft types may find it beneficial to identify Lead Techs for each MDS. Serving as a Lead Tech is considered an additional duty, not a duty title or full-time job. Lead Techs will:

14.25.1.1. Work with the flight chief/section NCOICs to ensure personnel in the Lead Tech's AFSC receive proficiency training.

14.25.1.2. Serve as the flight chief's technical advisor for matters relating to their AFSC.

14.25.1.3. Work with the flight chief/section NCOIC to ensure special tools and equipment utilized by personnel in their AFSC are serviceable and meet mission requirements.

14.25.1.4. Monitor repair processes to ensure safe, effective repair of unit assets.

14.25.1.5. Evaluate trends and indicators of troubleshooting effectiveness and 2LM efficiency. Unit "Re-test OK" components (RTOK) are costly and often indicate opportunities to improve troubleshooting or repair processes. If available, RTOK data will be reviewed monthly for trends. Simple process improvements may result from emphasis on RTOK costs, more in-depth troubleshooting, or (circumstances permitting) reinstalling original LRUs when replacement LRUs drawn from supply do not fix the problem

14.26. MRT Procedures.

14.26.1. The MXG/CC is responsible for deploying MRTs and equipment to recover aircraft at remote locations, as directed by this instruction and applicable Lead Command procedures (see **Attachment 7** - **Attachment 9** for MRT chief checksheet). Unit resources, including personnel, supplies, and equipment, will be made available to support en route aircraft recoveries. The MXG/CC will:

14.26.1.1. Ensure adequate equipment resources, as authorized by applicable AS, are available to perform remote aircraft recoveries.

14.26.1.2. Ensure enough individuals are qualified to perform and complete all anticipated tasks, including IPI and Red X sign-offs. Consider the experience level of the individuals you select when the need is identified to troubleshoot repeat/recurring discrepancies, especially those that caused in-flight emergencies or involve safety of flight. The MXG/CC has the authority to grant approval for a single person to sign off their own work when only one individual deploys on an MRT IAW TO 00-20-1.

14.26.1.3. Ensure sufficient numbers of personnel, across all maintenance AFSCs, have official government passports, as applicable, to reduce deployment limitations and ensure adequate support of MRT taskings.

14.26.1.4. Ensure the MOC is informed of personnel and equipment deployed in MRTs and status of the recovery.

14.27. Protective Aircraft Shelter (PAS) Environment. This section outlines general policies and procedures prescribed by the SSEA for peacetime operations, and expanded aircraft servicing, maintenance, and weapons loading in PAS. Guidance is provided for nose-in, nose out, and "double-stuff" using various aircraft operations and servicing.

14.27.1. Procedures and Responsibilities. Use the information in this section, Lead Command instructions, AFOSHSTD 91-100, approved technical data, TO 00-25-172, specific TOs for aircraft servicing, equipment, and supply storage.

14.27.1.1. The MXG/CC is responsible for PAS management at bases with permanently assigned aircraft, unless otherwise stipulated in contracting arrangements. If a PAS is used for other than its designed purpose, the using activity will return each PAS to its required readiness condition prior to receiving aircraft. Electrical equipment used for quality of life purposes must be designed for Class I Division 2 requirements as specified by the National Electrical Code. Equipment not meeting these requirements may be used only if they are powered by a dedicated circuit that can be de-energized during aircraft refueling by a single Class I Division 2 switch.

14.27.2. PAS Marking. Develop permanent floor plans to reflect positions for fuel truck, aircraft, chocks, equipment, personnel cubicle, dispersed weapons, etc., for each style of PAS used. When double-stuffing aircraft, use a MXG/CC-approved option for aircraft positioning.

14.27.2.1. Develop floor plans for augmentation forces and include in the units procedures supplementing this instruction.

14.27.2.2. Paint aircraft taxi lines on the shelter access pad and continue into the PAS. Paint a yellow or red safety guideline for positioning fuel vehicles, beginning 10 feet from the shelter (outside) and extending into the shelter approximately 10 feet for refueling vehicles. Paint the safety guideline to align with the driver's side of the vehicle, considering that the refuel vehicle will always be backed into the PAS.

14.27.3. Electrical Requirements. Refer to TO 00-25-172, for second-and third-generation PAS. For first- and modified first-generation PAS, with aircraft placed on centerline in either nose-in or -out configuration, leave electrical power and wall lights on. Do not change switch position until refueling is completed. Leave wall lights and under wing lights on if these lights are explosive-proof and the PAS is equipped with an operating ventilator.

14.27.4. Refueling/Defueling Operations. Complete refuel/defuel servicing IAW technical data and criteria established in TO 00-25-172. During F-15 operations, the fuel truck may be positioned into the shelter during ammunition loading with the aircraft's left engine running (nose-out configuration only), as long as no part of the fuel truck is directly in front of the F-15 gun firing line. Do not connect the fuel hose to the aircraft until the engine is shut down and the fuel truck is properly grounded.

14.27.5. Shelter Doors. Aircraft are sheltered at the end of the duty day unless otherwise directed by local policies. Do not open PAS aircraft doors until ice, snow or debris is removed from the roller guide track and door roller path. Opening PAS aircraft doors with clogged door roller guides can cause severe damage to the door and door drive system. Ensure personnel have shelter door operating training before authorizing to operate.

14.27.5.1. Fully open all PAS and exhaust/blast doors when aircraft engines are operated in the PAS. Recommend painting marks on the shelter walls/floors to indicate when at the fully open position.

14.27.5.2. During real world situations when force protection measures are increased, or as directed by commanders, keep all PAS and exhaust/blast doors closed and secured to the greatest extent possible to protect critical assets.

14.27.5.3. During strike-mission weapons loading operations for local exercises and higher HQ inspections, open PAS doors to the 10 foot mark, if applicable (depending on the style of door) and open one of the exhaust/blast doors while powered AGE or bomb lift vehicles are operating. If a PAS protecting critical assets is equipped with ventilation fans, BE will evaluate the local exhaust ventilation systems for predetermined operations inside a PAS with the doors closed to ensure no health hazard to personnel exists, then the PAS and exhaust/blast doors may be closed while powered AGE or bomb lift vehicles are operating.

14.27.5.4. During normal operations, open PAS doors as specified in wing procedures, to facilitate safety, refueling, and ventilating hazardous exhaust vapors and fumes. Additionally, open PAS and exhaust/blast doors at least 50 percent when powered AGE is operated inside. With the approval of Wing Safety, PAS and exhaust/blast doors may remain closed during periods of inclement weather provided there is no safety risk, no refueling operation, no powered AGE operation, and no hazardous vapors/fumes risk within the PAS.

14.27.6. Aircraft Engine Operation. Perform single-engine maintenance operations IAW MDS-specific guidance not to exceed 85 percent in the PAS. When performing engine ground operations on the apron outside the shelter, do not direct engine exhaust into the shelter.

14.27.7. Aircraft Positioning inside the PAS. When positioning aircraft in a PAS for engine operations ensure aircraft is correctly positioned to accommodate safe operations and optimum engine performance.

14.27.8. Aircraft Winching (Hot/Cold). Cold winch (aircraft engines not running) aircraft into the shelter using the appropriate aircraft technical data. If aircraft specific TOs do not exist, units will forward proposed cold-winching checklists to the Supported Command for approval prior to implementing. Hot-winching (aircraft engines are operating) is authorized provided an SSEA has been accomplished IAW AFOSHSTD 91-100.

14.27.8.1. Base CE will set the winch configuration for the shelter based upon the primary assigned aircraft. Host units will develop a PAS facility maintenance program to ensure safe and efficient operations.

14.27.8.2. Ensure personnel are not permitted aft of the aircraft main landing gear. This is considered a danger zone due to the possibility of winch cable breakage.

14.27.9. Placement and Storage of Munitions in the PAS. Permit the placement or storage of munitions in a PAS only after carefully determining operational advantages to mission accomplishment. Site the PAS for explosives IAW AFMAN 91-201, and DoD 6055.9-STD, *DoD Ammunition and Explosive Safety Standards*. Determine the amount of munitions placed in a PAS based upon expected peacetime, exercise, and wartime taskings. In no case will the sited net explosive weight (NEW) limits be exceeded. Additional guidance on explosive compatibility, angled storage of munitions, and missile separation distances is in AFMAN 91-201, DoD 6055.9-STD, and AFI 91-112, *Safety Rules for US Strike Aircraft*.

14.27.9.1. In the United Kingdom, each PAS must be licensed by the Royal Air Force in addition to complying with the requirements of AFMAN 91-201, and DOD 6055.9-STD. Elsewhere, obtain host-government concurrence, if necessary, before implementation.

14.27.9.1.1. Before placing munitions inside a PAS, develop wing procedures to govern storage and movement operations. Group commanders jointly coordinate on wing procedures. The security police, CE, munitions flight, and weapons and explosives safety officers will assist in preparation of the wing guidance. The WG/CC and host nation commander, where applicable, will approve the procedures. Units will forward a courtesy copy of the procedures to applicable MAJCOM. Munitions will not be positioned inside a PAS until wing procedures have been approved.

14.27.9.2. Conventional Munitions in the PAS. In addition to the requirements in AFMAN 91-201 and DoD 6055.9-STD, the following conditions also apply:

14.27.9.2.1. General purpose bombs and cluster bomb units may be stored in a PAS. Fuze limited quantities (sufficient to meet minimum wartime taskings) provided they are periodically verified as ”safe” by qualified munitions personnel (2W0XX or 2W1XX). Verify the safety of fused munitions as follows:

14.27.9.2.1.1. Upon initial delivery and positioning of munitions in PAS.

14.27.9.2.1.2. After every download from an aircraft.

14.27.9.2.1.3. When refueling with munitions positioned in PAS, provide fire protection IAW TO 00-25-172.

14.27.9.3. Maintenance Actions for Emitting Electromagnetic Radiation (EMR).

14.27.9.3.1. Do not conduct aircraft maintenance requiring antenna radiation while AGM-88 missiles are located inside the PAS or located inside another PAS that is in line with the aircraft transmitting antenna.

14.27.9.3.2. Comply with the safety requirements of technical data for electro-explosive devices, cluster bomb units, guided bombs, electronic fuses, missiles, etc., to prevent detonation from EMR.

14.27.9.4. Secure low-risk and medium-risk munitions stored in PAS IAW AFI 31-101, *The Air Force Installation Security Program* and AFI 31-201, *Security Police Standards and Procedures*.

14.27.9.4.1. Do not place missiles or munitions inside the PAS in direct line of the aircraft exhaust or within 5 feet of the PAS exhaust port opening. Place missiles in PAS on MMHE-approved missile stands (limit quantities to meet minimum wartime taskings), all up-round containers, or on munitions trailers. Establish procedures for detecting tampering with missiles positioned in a PAS. The maximum inspection interval is 7 days.

14.27.9.4.2. Munitions pre-positioning for one SCL of air-to-ground or air-to-air munitions can be accommodated by available floor space within every PAS. Place munitions on Y-stands, wooden dunnage, or specially designed racks. Maximum total munitions to be pre-positioned within any PAS is dependent upon the NEW

restriction for that PAS. The unit's SCL governs the types of munitions pre-positioned in shelters.

14.27.9.4.2. **(CAF)** If pre-positioned in approved shelters, chaff or flare mods and impulse carts will be placed on a non-conductive material (e.g. rubber mats, wood, etc.).

14.27.9.4.3. Quantities of air-to-air and air-to-ground missile racks vary, depending on the type of PAS. Generally, four missile racks (eight missiles) will fit into a first generation shelter. Eight missile racks will fit into a modified first-, second-, or third-generation shelter (total 16 missiles per shelter). ***NOTE:*** Missile racks must possess loading adapter straps providing durable, adjustable, positive locking for holding all types of missiles. Mount these racks to a single surface (PAS wall or PAS floor; not both) within the shelter. Secure missiles with straps at all times.

14.27.9.4.4. Place missiles on MMHE-approved missile racks with the nose pointing toward the rear of the shelter. Maintain missile warhead separations IAW AFMAN 91-201 and DoD 6055.9-STD. If missile warhead separation cannot be maintained, alternate missile positions; that is, nose-to-rear, nose-to-front. This should provide proper warhead alignment IAW AFMAN 91-201 and DoD 6055.9-STD and preclude any violations to sited NEW. ***NOTE:*** Descriptions identifying differences between PAS generations are in TO 00-25-172. Position missile racks as follows:

14.27.9.4.4.1. In first generation shelters, position AIM-9 racks near the aircraft wings and forward of AIM-9 Launchers. This will enable the bomb lift truck to maneuver between the racks and the aircraft.

14.27.9.4.4.2. In modified first generation shelters, position AIM-9 missile racks closest to the aircraft wings. The AIM-7/AIM-120 racks are positioned forward of the AIM-9 racks.

14.27.9.4.4.3. In second and third generation shelters, position five to seven missile racks along the right wall and one missile rack along the left wall. Locate AIM-9 missile racks closest to the aircraft.

14.27.10. Collocating Nuclear and Conventional Munitions (AF Munitions). Peacetime collocation of conventional munitions and nuclear weapons is not permitted. This does not include aircraft configured in an authorized strike configuration for a nuclear generation or alert operation. Refer to AFI 91-101 and applicable AFI 91-series for Weapons System Safety rules.

14.27.11. External Fuel Tank Storage. Operational, empty aircraft fuel tanks may be stored within the shelters on fuel tank racks. Ground the fuel tanks IAW aircraft TOs and TO 00-25-172. Cover fuel standpipes and strap down the tanks. The quantity of fuel tanks to be stored inside of a shelter depends upon the assigned MDS and the type of shelter that the aircraft is operating from. Typically, the number of tanks and tank locations will follow below guidance but units may develop alternate procedures when approved by Wing Safety and Wing Civil Engineering. Ensure procedures are incorporated into supplements/OIs to this AFI.

14.27.11.1. In first-generation shelters housing F-16 aircraft, two tanks are stored inside each shelter. Store the tanks one above the other in the rear of the shelter above the aircraft winch. Variations to this configuration may be required due to individual shelter layout.

14.27.11.2. In modified first-generation shelters housing F-15 aircraft, and second and third-generation shelters housing F-15/F-16 aircraft, four external fuel tanks are stored inside each shelter. Position two tanks, one on top of the other, on sides of the shelter within the rear 25 feet of the shelter.

14.28. Radar Warning Receiver (RWR)/Radar Threat Warning (RTHW) Testing.

14.28.1. Testing and Reporting. The MXG/CC will appoint a RWR/RTHW manager. The RWR/ RTHW manager will coordinate test procedures with the wing electronic warfare officer (EWO) and the MXS, if applicable. The RWR/RTHW manager will ensure each AMU accomplishes the required minimum number of checks as defined below. ***NOTE:*** Aircraft with enhanced on-board diagnostics and internal testing capabilities do not require external testing during contingency and non-contingency operations.

14.28.1. **(CAF)** Note: External testing and appointment of RWR/RTHW manager is not required for the following aircraft: B-1, F-22, F-35, U-2, -130, -135; and AFADS (Thunderbirds).

14.28.1.1. Every test will include a check of one signal per band and continuous wave (CW) if equipped.

14.28.1.2. For contingency missions, check the RWR/RTHW on all applicable aircraft prior to first sortie of the day (or prior to placing on alert status). When an aircraft is found to have a malfunctioning RWR/RTHW system, the AC determines the course of action based on operational needs and requirements.

14.28.1.3. For non-contingency missions, follow technical data or Lead Command guidance to determine the frequency and requirements. Where conflicts exist, adhere to most stringent guidance.

14.29. Ramp Inspection Program.

14.29.1. Public Law 99-661 requires a pre-flight safety inspection of all internationally scheduled charter missions for the transportation of members of the Armed Forces departing the United States. Air Mobility Command (AMC) is lead for the DoD in the management and administration of the Ramp Inspection Program. The Ramp Inspection Program ensures all internationally chartered missions receive a pre-flight safety inspection IAW AMC Supplement 1 to AFI 21-101. AMC/A4M will coordinate with other MAJCOMs as required to accomplish ramp inspections to ensure the maximum efficiency and utilization of resources. When requested by AMC, MAJCOMs will provide support to reduce the TDY and manpower impact associated with the execution of this program.

14.30. Red Ball Maintenance.

14.30.1. The term “Red Ball” is a traditional descriptor, recognized throughout aircraft maintenance, and defines a situation requiring a sense of urgency and priority actions. “Red Ball” maintenance normally occurs two hours prior to launch and until aircrew have released the aircraft back to maintenance. The Red Ball maintenance concept is intended to prevent

late takeoffs and aborts by having qualified maintenance personnel available (e.g., in a truck or standby in the shop) during launch and recovery operations to troubleshoot, isolate, and repair system malfunctions. Red Ball maintenance in no way authorizes technicians to take shortcuts or deviate from TOs, personnel safety requirements or fail to properly document the aircraft forms and the MIS for all completed repair actions. Units will ensure all maintenance repair actions (does not apply to incorrect switch settings due to operator error) are documented in the aircraft forms and MIS during Red Ball, launch, or EOR operations and cleared from the aircraft forms prior to flight. Maintenance repair actions must be cleared in the MIS as soon as possible. It is imperative that maintenance documentation is performed regardless of the timing of the action in the generation and launching of the aircraft are input and cleared from the forms prior to flight. If aircraft status changes, an ER must be re-accomplished by a certified individual upon completion of maintenance and before the aircraft is released for flight IAW TO 00-20-1. ***NOTE:*** When the MIS is down, develop procedures to ensure the appropriate documentation is completed as soon as the system is operational.

14.30.2. Red Ball Maintenance Procedures.

14.30.2.1. TOs, tools, rags, parts, unused supplies and checklists will be accounted for before the aircraft is allowed to taxi/takeoff.

14.30.2.2. Emphasis will be placed on FOD awareness/prevention during this critical maintenance operation.

14.30.3. If aircraft engines are operating, a safety observer (maintenance or aircrew member) will maintain interphone communications or remain in full view of the flight crew and be positioned to maintain overall surveillance of the aircraft and personnel performing maintenance.

14.30.4. Weapons loaded aircraft will be safed IAW applicable MDS and/or weapons specific technical data.

14.31. Scanning Electron Microscope/Energy Dispersive X-Ray (SEM/EDX) Master Chip Detector Analysis Program (MCDP).

14.31.1. General. This section establishes procedures for management of the Aircraft Engine Magnetic Chip Detector Debris Program for units with SEM/EDX machines, for all assigned F110-GE-100/-129 and F118-101 engines.

14.31.2. The NDI section NCOIC will be the POC for SEM/EDX related matters (ANG will be propulsion section NCOIC).

14.31.3. All organizations requiring recurring chip detector analysis service shall identify by letter a primary and alternate MCDP monitor for their unit. Letters will include the phone numbers of both the primary and alternate monitors. The letter will be updated annually or when personnel or phone numbers change.

14.31.3.1. All newly assigned MCDP monitors will attend a briefing by NDI lab. This briefing will cover the duties and responsibilities of all MCDP monitors.

14.31.4. All MCDP Monitors or their representatives will ensure the following:

14.31.4.1. Magnetic Chip Detectors (MCD) are submitted for debris analysis for their aircraft and assigned engines IAW TOs.

14.31.4.2. Ensure MCD debris analysis is forwarded with the following information: AMU, rank/ name, aircraft serial number, engine serial number, total engine hours, date/time, visual chips, reason for analysis request and sortie number. This information will be annotated on Lead Command or locally developed form.

14.31.4.2. **(CAF)** Use CAF Form 22, *SEM/EDX Debris Analysis Form*.

14.31.4.3. Ensure all MCD debris analysis documentation errors are corrected as soon as possible when notified of the error by the NDI lab.

14.31.5. Timely MCD analysis is critical to weapon system integrity and operational safety. Effective risk mitigation requires meticulous attention to ensure analysis is performed at prescribed technical data intervals. These intervals will not be exceeded.

14.31.5.1. The NDI lab will:

14.31.5.1.1. Complete analysis and notify MOC of results in sufficient time to meet TO directed notification intervals.

14.31.5.1.2. MCD analysis indicating significant levels of M50 or other critical materials will be immediately reported to the MOC. MOC will in-turn contact the owning AMU to coordinate immediate return of affected aircraft to home station.

14.31.5.1.3. Immediately notify test cell personnel of analysis results for engines in the test cell.

14.31.5.1.4. Provide AMUs with one clean MCD for each detector submitted for analysis.

14.31.5.1.5. Notify the MOC, Maintenance Supervision, Propulsion Flight, and owning Lead Command NDI and Propulsion Functional Managers when a SEM/EDX unit becomes inoperable.

14.31.5.1.6. Immediately notify the AF Oil Analysis Program Office (639 ACSG/EN) to initiate repair action as soon as a SEM/EDX unit becomes inoperable.

14.31.5.1.7. Notify the AF OAP Office, MOC, Maintenance Supervision, Propulsion Flight, Lead Command Propulsion and NDI functional managers when the SEM/EDX unit has been repaired and is operational.

14.31.6. MOO/MX SUPT will:

14.31.6.1. Be responsible for monitoring the MCDP on the flightline.

14.31.6.2. Ensure visual inspection of the MCD is performed IAW applicable TOs.

14.31.6.2.1. Ensure a Red dash entry is made in the aircraft forms when a visual MCD inspection is due.

14.31.6.3. Ensure MCDs are submitted for analysis within 75 minutes after engine shutdown.

14.31.6.4. Ensure current SEM/EDX levels are maintained for each aircraft serial number to indicate aircraft status relative to MCD analysis results.

14.31.6.5. Coordinate with MOC to recall aircraft determined to be flying with unacceptable levels of debris.

14.31.7. The MOC will:

14.31.7.1. Serve as primary communication link for transfer of SEM/EDX information between the NDI lab and affected activities.

14.31.7.2. Ensure current SEM/EDX levels are maintained for each aircraft serial number to indicate aircraft status relative to MCD analysis results, IAW system technical data.

14.31.7.3. Immediately notify the owning AMU when MCD analysis indicates unacceptable levels of debris so they can coordinate recall of affected aircraft.

14.31.8. Cross Country/Deployed MCDP Analysis Requirements.

14.31.8.1. NDI will be notified prior to deployment to determine if MCDP support is available at the deployed location.

14.31.8.2. If it is determined that MCDP is not available, visual MCD inspections will be performed IAW applicable engine directives.

14.31.9. SEM/EDX Interactive Multimedia Instruction (IMI) Training Requirements. This training is required in addition to qualification training (CFETP). The CAF/MCL is located on HQ ACC/A4Q web site **https://afkm.wpafb.af.mil/ASPs/docman/DOCMain.asp?Tab=0&FolderID=OO-TE-AC-42-2&Filter=OO-TE-AC-42**.

14.31.9.1. F110 Engine Oil System Awareness Training (OSAT) (Course C6ADU00TIV0110) is required for all 2A3X3, 2A6X1, and 2A7X2 personnel performing maintenance on F110 engines -- flightline, phase and backshop. Course is Interactive Multimedia Instruction through local Maintenance Training Section and must be completed within 90 days of assignment and annually.

14.31.9.2. F118 Engine Oil System Awareness Training (OSAT) (Course C2ADU20TCB0335) is required for all 2A3X3, 2A6X1, and 2A7X2 personnel performing maintenance on F118 engines -- flightline, phase and backshop. Course is Interactive Multimedia Instruction through local Maintenance Training Section and must be completed within 90 days of assignment and annually.

14.32. Self-Inspection Program.

14.32.1. The purpose of the unit self-inspection program is to provide commanders and supervisors a management tool to assess unit compliance with existing directives. The self-inspection program is intended to be an on-going process implemented at all organizational levels. Lead Commands will establish standardized program guidelines IAW 90-201 and develop checklists that incorporate applicable HAF/Lead Command checklists and checklist items from local instructions. The self-inspection program not only enables units to gauge compliance with directives, but also provides a method to assess established processes, identify deficiencies, and implement corrective measures. Continuously assessing,

measuring, and improving processes serves to improve mission effectiveness and efficiency and favorably postures units for higher HQ inspections.

14.32.1.1. MXG/CC and SQ/CCs will conduct a unit self-inspection within 45 days (ARC MXG/ CC will determine requirement) of assuming command.

14.32.2. Program Guidelines: The unit self-inspection program must be tailored to the organization's structure and mission. It should provide adequate coverage of the mission, resources, training, and people programs. Items not in compliance will be categorized as "Critical" or "Non-critical." Problems identified should be categorized by mission impact and compliance with policies and efforts needed to fix problems. A feedback mechanism and reporting process will be established to ensure non-compliance items are tracked until resolved, waivered, or LIMFACs are reported formally. Maintain a formal copy of approval for waivered items. Open "Critical" items will be reported to the MXG/CC, tracked, and status updated quarterly until resolved. Open "Non-critical" items will be reported to the SQ/CC, tracked, and updated quarterly until resolved.

14.32.2.1. Definition of Critical: Items identified as key result areas for successful mission accomplishment including, but not limited to, items where non-compliance would affect system reliability or result in serious injury, loss of life, excessive cost, or litigation.

14.32.2.2. Definition of Non-critical: Areas that require special vigilance and are important to the overall performance of the unit, but are not deemed "Critical." Non-compliance could result in some negative impact on mission performance or could result in injury, unnecessary cost, or possible litigation.

14.32.2.3. In addition to Lead Command checklists, use locally developed checklists tailored to specific unit requirements. AFOSHSTDs contain sample checklists for unit self-inspections. Use OSHA inspections for workplaces with civilian personnel. See AFI 91-301.

14.32.3. OSHA inspections of AF contractor operations within the 50 states and US territories are authorized. These operations are subject to the enforcement authority of federal and state safety and health officials. See AFI 91-301.

14.33. Senior Leaders' Maintenance Course (SLMC).

14.33.1. General. The AF Senior Leaders' Maintenance Course (SLMC) is a Chief of Staff initiative developed to educate wing leadership on aircraft maintenance, operations, and flightline support in both expeditionary and home station environments. Its objectives include: strengthen the relationship and teamwork between operations, maintenance, and support; deepen insight into unit operations, maintenance, and support activities; and focus attention on policy, procedures, training, discipline, and enforcement.

14.33.2. SLMC implementation instructions are as follows:

14.33.2.1. Course is mandatory for Wing CC/CV, OG/CC/CD, MXG/CC/CD, and MSG/CC/CD (and all ALC equivalents) and must be completed within 6 months of assignment.

14.33.2.2. MAJCOM/CV must approve attendance waivers for any of the following issues:

14.33.2.2.1. For those who have already attended SLMC in a different MAJCOM.

14.33.2.2.2. For cancellations once an officer has received a course date.

14.33.2.2.3. For officers unable to attend training within 6 months of assignment.

14.33.3. Attendance and Scheduling: The Lead Command OPR will identify and schedule wing leaders and will work with the Lead Command/DPO to track attendance. The annual frequency of the course will be determined by Lead Commands based on the population of senior leaders. Personnel from ARC units can attend another Lead Command's course.

14.33.4. Lead Command/CC (or CV in absence) sponsors and is expected to open the course.

14.33.5. Lead Command/A4 (or equivalent) will normally plan and host the course, attend throughout, and present key briefings.

14.33.6. Other briefings may be conducted by a SME. The briefer should be at least a colonel or civilian equivalent. A lower-ranking SME may brief by exception.

14.33.7. The following topics are mandatory and must be presented (but may be adapted to each Lead Command's mission): SORTS and ART (If Command applicable), WG/CC standup, using analysis functions, QA, flying hour program, planning and scheduling, nuclear issues (for units tasked with a nuclear mission), munitions operations, force sustainment/reachback (if applicable), maintenance discipline (technical data usage and tool control), aircraft status reporting, flying goals/standards/productivity/metrics, fleet health and aircraft availability, scheduled maintenance inspections, FOD/DOP, CANN and Hangar Queen management, maintenance training, safety/MRM, base repair capability, AFREP, IREP, supply issues (RSP, MICAP, and DIFM), LCAP/MSEP, and financial management/budget.

14.33.8. The following are recommended topics that may be presented at the Lead Commands' discretion and tailored to their specific mission, but not an all inclusive list of available topics: Deployment and AEF support issues, Base X case study, aircraft appearance, "Red Ball" maintenance, aircraft generation planning (dispersal and split operations), maintenance manning and retention, workforce management, asset tracking (ITV), mobility, logistics C2, net centric operations issues, CRFs, weapons system teams and roadmap, munitions provisioning process (requirements, distribution, and resupply), DCC program, RNI and AFSO21. In addition to maintenance specific topics, Lead Commands are encouraged to include other relevant mission support and operations topics that increase mission understanding and knowledge for the wing leadership team.

14.34. Special Certification Roster (SCR). The SCR is a management tool providing supervisors a clear and concise listing of personnel who have been appointed to perform, evaluate, and/or inspect work of a critical nature. Normally, only maintenance requirements that have a definite potential for personnel injury or damage to equipment shall be included in the SCR. Other tasks requiring special training or qualifications may be managed on the SCR. The SCR is used to build personnel rosters for deployments, shift schedules, and assess workforce capability. MXG CC and CD are not required to be on the SCR by virtue of their position as the SCR approval authority.

14.34.1. MXG/CC approves specific items identified in **Table 14.1** Note 1.

14.34.1.1. The MOO/MX SUPT (MXG/CC for ANG) approves individuals in their primary AFSC based on their experience and technical expertise regardless of their assigned skill position. Seven-skill level personnel may be certified outside their primary AFSC only when specific CUT task qualification is documented in their training records. ***EXCEPTION:*** WWM will approve WS SCRs. MXG/CEM approves SCR actions for those individuals administratively assigned to MOS (QA, AFREP, etc.) and FTD personnel (N/A to the ARC).

14.34.1.2. The AFE Superintendent approves 1P0X1, AFE personnel in their primary AFSC based on their experience and technical expertise regardless of their assigned skill position. AFE personnel certified to clear "Red-X" discrepancies will be annotated on the SCR, or as determined by applicable Lead Commands. AFE sections will also follow AFI 11-301V1, Aircrew Flight Equipment (AFE) Program and Lead Command directives. See **Table 14.1** for SCR requirements.

14.34.1.3. The SCR must be reviewed and signed semi-annually by the MOO/MX SUPT/AFE SUPT (MXG/CC for ARC) to verify all entries are current and accurate and to ensure task certifications have been completed. ***EXCEPTION:*** WWM will review and sign WS SCRs. MXG/CEM will review and sign SCR actions for those individuals administratively assigned to MOS (QA, AFREP, etc.) and FTD personnel.

14.34.2. The MXG/CC can authorize selected 5-skill level personnel, in the rank of SrA or higher, for tasks normally requiring a 7-skill level requirement to facilitate the production effort. Waived 5-skill level personnel should be closely monitored and kept to the minimum required to accomplish the maintenance mission. MOO/MX SUPT or equivalent must maintain file copies of approved waivers. Approved waiver file copies may be discarded if SCR specifically identifies task as waived in the MIS. (ARC: must be maintained by MX supervision or equivalent until the SCR is updated and signed by the MXG/CC). Certified weapons load crew chiefs (load crew member position number 1) by virtue of their task certification and position serve as inspectors for weapons loading tasks only and do not require waiver. (2W0XX Certified Munitions Inspectors are exempt from these requirements.) Inspectors are CFETP qualified and appointed by the munitions flight chief or commander IAW AFI 21-201 and TO 11A-1-10, *Air Force Munitions Surveillance Program and Serviceability Procedures*. ***NOTE:*** The OG/CC approves AFE personnel skill level waivers upon recommendation of the AFE Superintendent and MXG coordination.

14.34.2.1. Lead Command Waiver Policy. If local conditions require assignment of other than mandatory SCR grade (to include civilian equivalents) and skill level prerequisite requirements, and cannot be fulfilled using the MXG/CC authority stated in **14.34.2** then the MXG/CC (or equivalent) must request a waiver from the Lead Command.

14.34.3. Lead Commands add other mandatory critical tasks or inspections they deem necessary. Identify each task on the SCR by a specific course code.

14.34.4. SCR Documentation. Flight and section NCOICs will review each individual's qualifications prior to recommending approval to perform SCR tasks to the appropriate approval level. The AF IMT 2426, **Training Request and Completion Notification** or Lead Command-approved (ANG locally approved) form is used by the work center supervisor to add or remove an individual to the SCR. Additionally, removal from the SCR may be accomplished by lining through the task on the SCR and notifying training section to update the MIS. The appropriate level approves the individual for addition to the SCR. On approval, the training management function loads the approved name into the MIS. Flight and section NCOICs retain their copy of AF IMT 2426 or Lead Command approved form until they verify proper loading. Appointment letters are not required if loaded in MIS.

14.34.4. **(CAF)** Use CAF Form 64, *Request for Special Certification*, to add personnel to the SCR.

14.34.4.1. Work center supervisor, AMU/flight supervision, MOO/MX SUPT, SQ/ CC, or MXG/CC may decertify individuals at any time and remove them from the SCR.

14.34.5. Ensure a current copy of the SCR is taken on all deployments.

14.34.6. **(Added-CAF)** For civilian equivalents addressed in Table 14.1 refer to Para 3.1 of this instruction.

Table 14.1. Mandatory Special Certification Roster (SCR) and Prerequisites.

	A	B
ITEM	**Mandatory SCR Item Titles**	**Prerequisites**
1	All Systems "Red-X" (no egress, welding, munitions, fuel cell (in-tank work))	MSgt or higher (or civilian equivalent) (Note 1)
2	Exceptional Release (ER)	
3	"Red-X" Down Grade	
4	All Systems IPI (no egress, welding, munitions, fuel cell (in-tank work)	
5	Installed Engine Run Certifier (refer to **Chapter 14**)	MSgt or higher (or civilian equivalent), or a fully qualified/certified contractor or AFETS/CETS representative and possess one of the following AFSCs: 2A671, 2A571/2, 2A373X. One year minimum engine-run experience on applicable MDS (not applicable at short tour locations). (Note

		1) MXG/CC may waive qualified TSgts.
6	Aircraft Inlet/Intake/Exhaust Certifier (refer to **Chapter 14**)	Most qualified 7- or 9-skill level 2A6X1, 2A3X3, or 2A5X1, 2A5X2 (or civilian equivalent) or engine AFETS/CETS, if applicable. (Note 1)
7	Flexible Borescope Certifier (refer to **Chapter 14**)	
8	Engine Blade Blending Certifier (refer to **Chapter 14**)	
9	"Red-X" by Primary AFSC (PAFSC) and MDS (For multiple MDSs, list separately)	SSgt or higher (includes MXG/CC-appointed exceptional SrA per paragraph 14.34.2), minimum 7-skill level (or civilian equivalent); For "Red-X" and IPI egress only, additional requirements contained in chapter 16 must also be satisfied prior to certification. (Note 2)
10	IPI by PAFSC and MDS (For multiple MDSs, list separately) (refer to **Chapter 14**)	
11	"Red-X" and/or IPI - Limited	5-level personnel certified on limited tasks as determined by the unit (Note 1, Note 2 for 5-level Certified Weapons Load Crew Chiefs on loading tasks only).
12	"Red-X" and/or IPI - CUT (For multiple MDSs, list separately), for tasks outside PAFSC	SSgt or higher, minimum 7-level (or civilian equivalent), Use for personnel certified on tasks in other AFSCs through CUT training (Note 2).
13	NWRM packaging	Minimum 7-level (or civilian equivalent) (Notes 2, 3, 4 and 5). Must have sufficient subject matter expertise of packaged item to identify asset, must be tasked qualified on accompanying documentation and must have appropriate security clearance and background investigation for asset.
14	Installed Engine Run by MDS (refer to **Chapter 14**)	SrA or higher, minimum 5-skill level (or civilian equivalent), with a minimum of 6 months time on weapon system. (Note 2) MXG/CCs may waive qualified 5-skill level A1C for critical manpower shortages. The time on weapon system may be waived by MXG/CC.

15	Engine Blade Blending (refer to **Chapter 14**)	Minimum 5-level 2A3X3, 2A5X1/2, and 2A6X1 or civilian equivalent. (Note 2)
16	Hot Refueling PAD Supervisor/"A" Member (refer to **Chapter 14**)	Minimum 5-skill level, 2AX5X (or civilian equivalent), with a minimum of 1 year flightline maintenance experience. (Note 2)
17	Hot Refueling Team Member (“B” or “D” member) (refer to **Chapter 14**)	Flightline maintenance AFSC, with a minimum of 1 year flightline maintenance experience. (Note 2)
18	Aircraft to Aircraft Refueling Supervisor	Minimum 5-skill level with a minimum of 1 year weapon system experience. (Note 2)
19	Uninstalled Engine Operations (Test Stand and Test Cell) Run by TMSM (refer to **Chapter 14**)	SSgt or higher 7-skill level 2A6X1 (or civilian equivalent). MXG/CC may waive 5-skill level SrA with minimum of 6 months time on weapon system. (Note 2)
20	Uninstalled Engine Run Certifier by TMSM (refer to **Chapter 14**)	TSgt or higher 2A671 AFSC (or civilian equivalent) or fully qualified/certified contractors or AFETS/CETS representatives. (Note 1)
21	Aircraft Inlet/Intake/Exhaust Certifications (refer to **Chapter 14**)	Minimum 5-skill level 2A3X3, 2A5X1/2, and 2A6X1 (or civilian equivalent). (Note 2)
22	Engine Flexible Borescope Inspections (refer to **Chapter 14**)	Minimum 5-skill level 2A3X3, 2A5X1/2, and 2A6X1 (or civilian equivalent). (Note 2)
23	Chief Servicing Supervisor (Heavy Aircraft/Commercial Derivative Aircraft)	Minimum 5-skill level with 1 year weapons system experience. (Note 2) Time requirement may be waived by MXG/CC in short tour/enroute locations.
24	Concurrent Servicing Supervisor (Fighter Aircraft) (refer to **Chapter 14**)	For A-10, F-15, F-16, F-22A aircraft, minimum 7-skill level with a minimum of 1 year weapons system experience. (Note 2) Time requirement may be waived by MXG/CC in short tour locations.
25	W&B Certified/Clear Red X (refer to TO 1–1B-50)	7-skill level (or civilian equivalent), with a minimum of 1 year time on weapon system (Note 2). Time requirement may be waived by MXG/CC.
26	Impoundment Authority (refer to **Chapter 9**)	(Note 1)
27	CANN Authority (refer to **Chapter 14**)	
28	APU/GTC/APP Operation (refer to **Chapter 14**)	3-skill level or higher maintenance AFSC. (Note 2)

29	Engine Trim Certifier (refer to **Chapter 14**)	2A671 or above technicians (or civilian equivalent) and/or fully qualified AFETS/CETS. (Note 1)
30	Engine Trim Box Operator (refer to **Chapter 14**)	SrA, 2A651 (or civilian equivalent) (Note 2) MXG/CC may waive qualified 5-skill level A1Cs for critical manpower shortages.
31	Calibration Limitation Approval (refer to TO 00-20-14)	SSgt or higher, minimum 7-skill level (or civilian equivalent). (Notes 2 and 3)
32	CDDAR Team Chief (refer to **Chapter 14**)	MSgt or higher or civilian equivalent. (Note 1) MXG/CC may waive grade requirement.
33	Weapons Task Qualification Manager (WTQM)	TSgt or higher, minimum 7-skill level AFSC 2A573C or 2AX7X (or civilian equivalent). (Note 1)
34	Weapons Task Qualification Crew (WTQC)	Lead will be SSgt or higher, minimum 7-skill level 2AX7X (or civilian equivalent); other crew member minimum 5-skill level 2AX5X (or civilian equivalent). (Note 2)
35	Hush house and T-9/T-10/T-11 sound suppressor Fire Control Panel (refer to **Chapter 14**)	SrA or higher, (or civilian equivalent) with AFSC 2A6X1 must have a minimum 6 months experience. (Note 2)
36	F100-PW-100/220 4th blade FDT eddy current inspection	2A7X2 5-level or higher, (or civilian equivalent). (Note 2)
37	Aircraft Rapid/Hot Defueling Supervisor (Tanker Aircraft) (refer to **Chapter 14**)	Minimum 5-skill level, 1 year of flightline experience, with 6 months weapon system experience. (Note 2)
38	Clear Red-X when a lost tool/item cannot be located (refer to **Chapter 10**)	MOO/MX Supt or above. (Note 1)
39	Aircraft APU/GTC/APP Run Certifier	7-skill level (or civilian equivalent), or a fully qualified/certified contractor or AFETS/CETS representative. (Note 2) MXG/CCs may waive qualified 5 level SSgts.

NOTES:
1----Approved by MXG/CC
2----Approved by MOO/MX SUPT
3----MOO/MX SUPT may delegate approval authority to the AMU OIC/ Superintendent or Flight Commander/Chief.
4----Munitions inspectors who are trained and certified may annotate serviceability tags for munitions items (TO 11A-1-10).
5---Appointed by the Unit Commander (or equivalent) of Units Possessing NWRM

Table 14.1. (CAF) Mandatory Special Certification Roster (SCR) and Prerequisites.

	A	B
ITEM	**Mandatory SCR Item Titles**	**Prerequisites**
5	Installed Engine Run Certifier	Includes AFSC 2A375
6	Aircraft Inlet/Intake/Exhaust Certifier	Includes AFSC 2A375
21	Aircraft Inlet/Intake/Exhaust Certifications	Includes AFSC 2A375
	A	**B**
ITEM	**Mandatory SCR Item Titles**	**Prerequisites**
40	Tow Team Supervisor	SSgt or higher, minimum 7-level, AFSC 2AXXX with minimum 6 months weapons systems experience (Note 2)
41	MICAP Approval	MSgt or higher, minimum 7-level (or civilian equivalent) (Note 2)
42	CANN Authority	MSgt or higher, minimum 7-level (or civilian equivalent) (Note 1)
43	NRTS and Serviceability Tag	SSgt or higher, minimum 7-level (or civilian equivalent) (Notes 2 and 3)
44	Gear Retraction supervisor on bombers, E-3, E-4, -135 variants, -130 variants (This is the only person that can authorize gear handle movement)	SSgt of higher, minimum 5-skill level (or civilian equivalent), and 1 year flightline experience. (Note 2)
45	Jacking supervisor on bombers, E-3, E-4, -135 variants, -130 variants.	SSgt or higher, minimum 5-skill level (or civilian equivalent), and 1 year flightline experience. (Note 2)
NOTES: 1----Approved by MXG/CC 2----Approved by MOO/MX SUPT 3----MOO/MX SUPT may delegate approval authority to the AMU OIC/NCOIC or Flight commander/chief.		

14.35. WRM External Nestable Fuel Tank Build-Up (NFTBU).

14.35.1. External NFTBU is a wartime capability through a UTC to provide a critical wartime skill that compensates for the expenditure of aircraft fuel tanks (refer to **Chapter 5** of this instruction). With exception of the core 2A6X4 personnel, augmentees may come from any Group or Squadron within the Wing. Units must adhere to the direction outlined in their particular MISCAP statement and DOC statement governing the quantity, size, and composition of fuel tank build-up teams. Refer to AFI 90-201 for additional

evaluation/inspection guidance. (PACAF Only: Korean Peninsula bases are not required to maintain standing tank buildup teams with augmentees and are relieved of the requirement to demonstrate fuel tank build-up. These bases are still responsible for maintaining the equipment/tools required to perform tank build-up, developing a plan/capability to form/train tank build-up teams, and maintain built-up/nested WRM tanks).

14.35.2. All UDM must ensure personnel tasked/selected for WRM NFTBU team augmentees are not tasked for other wartime UTCs. The UDM responsible for deploying 2A6X4 personnel is the focal point for team assembly and must maintain a written plan. The plan must be kept current, reviewed annually and must contain the following:

14.35.2.1. Specific manning positions across the wing to be tasked as NFTBU team augmentees. (The applicable independent NFTBU UTC MANFOR shall be used as a guide to construct the teams)

14.35.2.2. Guidelines for activation of the tank build-up teams.

14.36. 406 MHz Emergency Locator Transmitter (ELT) Systems.

14.36.1. Aircraft maintenance functions must register and track status of fixed-mounted aircraft 406 MHz Emergency Locator Transmitter (ELT) systems.

14.36.1.1. Ensure all 406 MHz ELT systems in service are registered in the NOAA registration database readily accessible to Rescue authorities worldwide at **https://beaconregistration.noaa.gov/rgdb**.

14.36.1.1.1. In accordance with DoD policy, USAF 406 MHz ELT systems will also be registered in the DoD JSETS database. The POC for JSETS registration is the Personnel Recovery Mission Software (PRMS) Help Desk (**jodt305c@jricp.osis.gov**). Use of an alternate registration database should be approved by the governing agency in charge of the JSETS database. The governing agencies are the Joint Personnel Recovery Agency (JPRA) and the Electronic Services Command at Hanscom AFB, MA.

14.36.1.1.2. Registration information must include, as a minimum, accurate point of contact information for the appropriate command post/command and control (C2) functions responsible for response to beacon alert messages. Refer to AFI 10-207, *Command Posts* for Command Post or C2 function responsibilities regarding 406 MHz ELT and Personal Locator Beacon (PLB) systems.

14.36.1.1.3. Notification must be given to the National Oceanic and Atmospheric Administration (NOAA) SARSAT program Office's National Beacon Registration Database (RGDB) that a beacon, or block of beacons, is registered with JSETS. This notification is made through the following website: (**https://beaconregistration.noaa.gov/rgdb**).

14.36.1.2. Ensure procedures are established to update the ELT registration database whenever 406 MHz ELT–equipped aircraft are transferred to other commands/wings, ELTs that are taken out of service, removed for maintenance or destroyed.

14.36.1.3. Ensure 406 MHz ELT system tracking procedures are established to provide readily accessible, accurate ELT status (including aircraft assignment and, when able, location) to the responsible command post/C2 functions.

14.37. Lead Commands will establish an IFF Mode IV Program.

14.37.1. The MXG/CC will appoint an IFF Mode IV program manager.

14.37.1.1. 100 percent of IFF-equipped possessed aircraft will be checked every 2 months or as determined by aircraft specific technical data.

14.37.1.1. **(CAF)** Enter all checks in IMDS-CDB. AFADS (Thunderbirds) and Aggressor squadron aircraft are not considered IFF-equipped; therefore, are exempt from IFF Mode IV requirements.

14.37.1.2. Invalid Mode IV replies will not cause a CONUS training sortie to be aborted; however, a work order will be generated for maintenance after flight.

14.37.1.3. Do not launch or enter aircraft into a contingency zone with a known inoperative Mode IV system, unless the contingency Area of Responsibility (AOR) has established procedures governing inoperative/degraded Mode IV capabilities.

14.37.1.3. **(CAF)** For contingency missions, at a minimum check IFF/Mode IV on all applicable aircraft prior to first sortie of the day (or prior to placing on alert status).

14.37.1.4. Lead Commands will determine additional requirements, as necessary, to ensure status of IFF Mode IV meets mission requirements.

14.37.1.4.1. **(Added-CAF)** Additionally, units will ensure fully operational IFF Mode IV systems by performing checks on all aircraft:

14.37.1.4.1.1. **(Added-CAF)** Departing the Continental United States (CONUS) to overseas locations.

14.37.1.4.1.2. **(Added-CAF)** Flying overseas theater to theater missions (does not include intra-theater flying by overseas based aircraft).

14.37.1.4.1.3. **(Added-CAF)** Flying outside US airspace and returning to CONUS. (Missions that originate in Alaska, Hawaii, or U.S. Territories and do not depart U.S. controlled airspace are viewed as if they are missions remaining in CONUS).

14.37.1.4.1.4. **(Added-CAF)** Assuming alert status. Note: This satisfies preflight program requirements and eliminates unnecessary delay of aircraft launch.

14.37.1.4.2. **(Added-CAF)** E-3 aircraft front to back Mode IV testing is adequate for preflight when the back end crew is present. Local flights performed without back end crew must perform external preflight Mode IV tests prior to sortie.

14.37.1.4.3. **(Added-CAF)** OC-135 "OPEN SKIES" aircraft are exempt from the IFF Mode IV program.

14.38. (Added-CAF) Oil Analysis Program Responsibilities and Requirements (OAP).

14.38.1. **(Added-CAF)** MAJCOM A4M Responsibilities.

14.38.1.1. **(Added-CAF)** Appoints a qualified senior NCO to manage Command OAP and serve as a point of contact for OAP activities.

14.38.2. **(Added-CAF)** MXG/CC Responsibilities.

14.38.2.1. **(Added-CAF)** Appoints a Wing OAP Manager and alternate.

14.38.2.2. **(Added-CAF)** Ensures the NDI/OAP facility is on a priority repair list with base Civil Engineer.

14.38.2.3. **(Added-CAF)** Ensures base Civil Engineer maintains an alternate power source of sufficient voltage capacity at the OAP Lab to be used in times of power outage. This will allow the OAP process to continue without delay.

14.38.2.4. **(Added-CAF)** Ensures the NDI/OAP facility has a Class A telephone and a direct line to MOC to expedite the reporting of abnormal wear-metal trends.

14.38.3. **(Added-CAF)** Wing OAP Manager Responsibilities.

14.38.3.1. **(Added-CAF)** Manages the OAP IAW T.O. 33-1-37-1/2/3, *Joint Oil Analysis Program Manual*, AFI 21-124, *Oil Analysis Program*, and other applicable directives.

14.38.3.2. **(Added-CAF)** Develops procedures to establish policy and requirements for the wing OAP. Include a standardized method to ensure the total oil serviced since last OAP sample can be tracked and accurately entered on the DD Form 2026, *Oil Analysis Request*.

14.38.3.3. **(Added-CAF)** Ensures all organizations requiring OAP support appoint an OAP Manager and alternate using an appointment letter.

14.38.3.4. **(Added-CAF)** Conducts quarterly OAP meetings with the MXG/CC, the squadron operations officer/maintenance superintendent , Propulsion Flight Chief, all organizational OAP Managers, and the NDI Section chief. As a minimum, the following information will be topic for discussion during the quarterly meeting:

14.38.3.4.1. **(Added-CAF)** Number of OAP samples processed.

14.38.3.4.2. **(Added-CAF)** Number and percentage of DD Form 2026 errors. NOTE: Count each DD Form 2026 that has any errors as one error, then divide the number of discrepant DD Form 2026s by the total number of OAP samples processed for the error percentage.

14.38.3.4.3. **(Added-CAF)** Number of OAP laboratory maintenance recommendations.

14.38.3.4.4. **(Added-CAF)** Average OAP sample response time (SRT). NOTE: Enter SRT to the nearest tenth of an hour and do not include the time when the OAP lab is not manned.

14.38.3.4.5. **(Added-CAF)** Number and percentage of OAP samples that exceeded required sample response times. Obtain the percentage by dividing the number of OAP samples exceeding required sample response time by the total OAP samples processed.

14.38.3.4.6. **(Added-CAF)** Number and percentage of aircraft engines not sampled as required by applicable technical order. Accomplish this by dividing the number of aircraft engines not sample as required by the total OAP samples processed.

14.38.3.4.7. **(Added-CAF)** Number of OAP lab maintenance recommendations confirmed by physical finding of abnormal wear or potential for catastrophic failure "hits".

14.38.3.4.8. **(Added-CAF)** For SEM/EDX equipped bases: Number of Magnetic Chip Detector (MCD) analyzed.

14.38.3.4.9. **(Added-CAF)** For SEM/EDX equipped bases: Number and percentage of Level 1, 2, and 3 warnings by material type.

14.38.3.4.10. **(Added-CAF)** For SEM/EDX equipped bases: Number of unserviceable MCDs found.

14.38.3.4.11. **(Added-CAF)** For SEM/EDX equipped bases: Number and percentage of CAF Form 22 errors. NOTE: Count each CAF Form 22 that has any errors as one error, and then divide the number of discrepant CAF Form 22s by the total number of MCDs analyzed for the error percentage.

14.38.3.4.12. **(Added-CAF)** For SEM/EDX equipped bases: Average SEM/EDX analysis response time. NOTE: This is the time from when the MCD is pulled to the time results are reported to the MOC. Enter the response time to the nearest tenth of an hour and do not include the time when the OAP lab is not manned.

14.38.3.4.13. **(Added-CAF)** For SEM/EDX equipped bases: Number and percentage of MCDs that exceeded required delivery time. Obtain the percentage by dividing the number of MCDs exceeding required delivery time by the total number of MCDs processed.

14.38.4. **(Added-CAF)** Operations Officer/Maintenance Superintendent Responsibilities.

14.38.4.1. **(Added-CAF)** Ensures all assigned aircraft are sampled IAW the applicable aircraft T.O.

14.38.4.2. **(Added-CAF)** Ensures OAP samples are delivered to the OAP lab with a DD Form 2026 filled out IAW T.O. 33-1-37-1.

14.38.4.2.1. **(Added-CAF)** In the DD Form 2026 "hours/miles since overhaul" block, for engines with engine monitoring systems (EMS) use engine operating time unless the specific technical order directs otherwise (e.g. F110 engine use EMS in-flight time). Reconcile NDI/OAP lab and aircraft records using downloaded EMS data accordingly. For engines without EMS, use engine flying hours.

14.38.4.3. **(Added-CAF)** Ensures flightline personnel verify with the OAP lab that the information entered in the Oil Analysis Record matches during scheduled aircraft records checks. Verify, as a minimum, engine operating hours, time since oil change, oil serviced since last records check/OAP sample, engine serial number(s) and aircraft serial number. NOTE: MXG/CC or equivalent may waive verification of OAP records against aircraft records when aircraft are deployed and the scheduled aircraft records check is due.

14.38.4.4. **(Added-CAF)** Identifies AMU OAP Managers and alternates by appointment letter. Forward a copy to the Wing OAP Manager and the OAP laboratory. The appointment letter will include grade, name, duty phone, AFSC, organization and office

symbol. OAP manager will be a NCO and will serve as the primary liaison between their AMU and the OAP lab for all OAP issues. Ensures assigned OAP Managers or alternates attend all OAP meetings involving their AMU.

14.38.4.5. **(Added-CAF)** Ensures all aircraft engines under special OAP codes IAW T.O. 33-1-37 are not flown until results of the OAP sample(s) are known. Ensure no aircraft engines are operated until the following DD Form 2026 discrepancies are corrected and verified with the OAP lab: equipment and/or end item serial number error, hours (EOT or EFH) since overhaul error, oil change error, and oil added since last sample error. These items are essential to oil analysis trending and require removal of that engine from service until the discrepancy is corrected.

14.38.4.6. **(Added-CAF)** Ensures DD Form 2026 with equipment and/or end item serial number error, hours since overhaul error and oil added since last sample error are corrected immediately.

14.38.4.7. **(Added-CAF)** Ensures all maintenance actions affecting oil-wetted engine components are provided to the OAP lab using the remarks section of the DD Form 2026 or a suitable local form.

14.38.5. **(Added-CAF)** Propulsion Flight Chief Responsibilities. NOTE: When no Propulsion Flight exists or the propulsion flight performs no maintenance on the affected oil-wetted system, the MXG/CC or designated representative or equivalent assumes these responsibilities.

14.38.5.1. **(Added-CAF)** Ensures accurate and timely deficiency reports are submitted through the unit PIM to the applicable ALC engine program offices on all engines requiring tear down or overhaul due to an OAP laboratory maintenance recommendation and on all oil-wetted component failures.

14.38.5.2. **(Added-CAF)** Ensures a copy of the Oil Analysis Record is provided to the applicable repair facility for each engine undergoing scheduled maintenance or overhaul.

14.38.5.3. **(Added-CAF)** Makes the final decision regarding all OAP engine maintenance action recommendations.

14.38.5.4. **(Added-CAF)** Ensures all Propulsion Flight maintenance actions which affect oil-wetted engine components are provided to the OAP lab. This will be done by using the remarks section of the DD Form 2026 submitted with the OAP sample.

14.38.5.5. **(Added-CAF)** Appoints OAP Managers and provides the names by appointment letter to the Wing OAP Manager and the OAP lab. Include grade, name, duty phone, organization, AFSC and office symbol.

14.38.5.6. **(Added-CAF)** Ensures assigned OAP Managers or alternates attend all OAP meetings.

14.38.6. **(Added-CAF)** MOC Responsibilities.

14.38.6.1. **(Added-CAF)** Maintains an OAP status on each assigned aircraft showing all lab recommendation codes next to the aircraft serial number. Prior to commencing the flying day, verify status of aircraft or engines on special surveillance.

14.38.6.2. **(Added-CAF)** Relays to the OAP lab information regarding engine changes on- and off-station as they occur but no later than 0800 the next duty day.

14.38.6.3. **(Added-CAF)** Notifies the OAP lab when the cross country/deployed aircraft return.

14.38.6.4. **(Added-CAF)** Initiates follow-up action when the oil analysis record from cross country/deployed aircraft is not returned to the OAP lab.

14.38.7. **(Added-CAF)** NDI/OAP lab NCOIC Responsibilities.

14.38.7.1. **(Added-CAF)** Ensures the scheduled aircraft records check is documented on the affected engine's Oil Analysis Record with the date the check was accomplished and OAP lab person's initials.

14.38.7.2. **(Added-CAF)** Ensures a copy of the Oil Analysis Record or a suitable automated form is provided to the propulsion flight for each engine undergoing scheduled maintenance or overhaul at depot, JEIM or CRF.

14.38.7.3. **(Added-CAF)** Immediately notifies MOC and the propulsion flight chief when an installed engine is restricted from operation or is placed on special sampling.

14.38.7.4. **(Added-CAF)** Ensures analysis results on all installed engines are provided to MOC after analysis of the OAP sample is complete.

14.38.7.5. **(Added-CAF)** Immediately notifies test cell and the propulsion flight chief when abnormal OAP results are discovered on test cell engines.

14.38.7.6. **(Added-CAF)** Ensures DD Form 2026s with equipment and/or end item serial number error, hours since overhaul error and oil added since last sample error are corrected immediately.

14.38.7.7. **(Added-CAF)** Tracks aircraft OAP sample response times for all assigned aircraft to ensure response time compliance.

14.38.7.8. **(Added-CAF)** Maintains a current appointment letter of all customer OAP managers.

14.38.8. **(Added-CAF)** OAP Sample Response Time Requirements for Routine OAP Samples. NOTE: The OAP sample response time begins at the time the OAP sample is taken and ends at the time the oil analysis results are reported to the MOC.

14.38.8.1. **(Added-CAF)** Two and one half-hours for one and two engine aircraft. Deliver the sample to the OAP lab within 75 minutes of engine shutdown. MXG/CC may adjust the 2 1/2 hour rule as needed to accommodate flying windows. When the OAP lab is not manned, they shall provide results to the MOC NLT 2 hours after the beginning of the next shift. NOTE: OAP response time does not apply to aircraft that are geographically separated from the supporting OAP lab; however, aircraft WILL NOT fly beyond the applicable -6 T.O. sampling interval.

14.38.8.2. **(Added-CAF)** Five hours for all other aircraft. When the OAP Lab is not manned, they shall provide results to the MOC NLT 2 hours after the beginning of the next shift. NOTE: OAP response time does not apply to aircraft that are geographically separated from the supporting OAP lab; however, aircraft WILL NOT fly beyond the applicable -6 T.O. sampling interval.

14.38.8.3. **(Added-CAF)** Four hours for engine ground/trim and test cell runs.

14.38.8.4. **(Added-CAF)** Immediately processes/analyzes special "Red Cap" samples after drawing the sample. The OAP lab will assign priority to "Red Caps" over routine samples and expedite results to MOC.

14.38.9. **(Added-CAF)** OAP Requirements For Cross-Country Flights/Deployments.

14.38.9.1. **(Added-CAF)** Flightline personnel place an Oil Analysis Record in the aircraft AFTO Form 781-series forms jacket prior to departure.

14.38.9.2. **(Added-CAF)** The OAP lab personnel ensure the Oil Analysis Record contains at least the last 10 analyses. The flightline expediter or pro super notifies the OAP lab in advance for cross-country documents.

14.38.9.3. **(Added-CAF)** Flightline personnel sign for the Oil Analysis Record at the OAP lab and return it to the lab the day the aircraft returns to home station.

14.38.9.4. **(Added-CAF)** The OAP lab notifies MOC if the Oil Analysis Record is not returned.

14.38.9.5. **(Added-CAF)** The OAP lab reviews the returned Oil Analysis Record for adverse trends and takes necessary action.

14.38.9.6. **(Added-CAF)** AMUs will follow the maintenance procedures in this supplement at the deployment sites.

14.38.9.7. **(Added-CAF)** Deployed OAP personnel shall have telephone or radio communication with MOC and the AMU to expedite reporting of abnormal OAP trends.

14.38.10. **(Added-CAF)** OAP Requirements for Transient Aircraft.

14.38.10.1. **(Added-CAF)** Transient maintenance personnel sample aircraft as required by this section and applicable -6 technical order.

14.38.10.2. **(Added-CAF)** Transient maintenance personnel draw the OAP sample and make a Red Dash entry on the AFTO Form 781A indicating, "Engine oil analysis results due".

14.38.10.3. **(Added-CAF)** When OAP capability exists at a transient location and an OAP sample is required, the OAP sample results will be known prior to aircraft departure.

14.38.10.4. **(Added-CAF)** Transient bases without OAP capability shall take required OAP samples and ensure samples are given to aircrew for processing at next base.

14.38.10.5. **(Added-CAF)** If OAP sample results are not provided before aircraft departure, the results shall be forwarded via FAX, e-mail or most expeditious manner by

the local MOC or transient maintenance to the aircraft's next destination (either MOC, TA, or base operations).

14.39. (Added-CAF) Hangar Door Program.

14.39.1. **(Added-CAF)** General. Except for the training and documentation requirements for manual doors in Para 14.39.4.1.1 and 14.39.4.3, this section establishes procedures for management of powered hangar doors. Powered Hangar Doors as it applies to this program are any powered hangar/shelter/hush-house/nose-dock type doors used for aircraft, engine or vehicle entry/exit.

14.39.2. **(Added-CAF)** The MXG/CC is responsible for the Hangar Door Program and must ensure that an assessment of all hangar doors is accomplished annually.

14.39.2.1. **(Added-CAF)** Assessment of hangar doors will be completed using operational risk management tools and will, at a minimum, address hazards outlined in AFOSH STD 91-100 *Aircraft Flightline-Ground Operations and Activities* or current standard covering Aircraft Flightline-Ground Operations and Activities.

14.39.2.2. **(Added-CAF)** Develop a detailed hangar door operating checklist and post the checklist at each hangar door control panel. Checklist shall include step-by-step operating procedures and list the names of the building custodians. EXCEPTION: Do not post checklist on Hush House doors; instead, post a sign at each door control panel stating: “Operate doors IAW T.O. 33D4-6-645-1.”

14.39.3. **(Added-CAF)** Marking.

14.39.3.1. **(Added-CAF)** Control Panel Marking. Ensure directional arrows as required IAW AFOSH STD 91-100 are present and understandable. Luminescent or reflective directional arrows will be placed adjacent to each switch and on horizontal sliding doors to indicate the direction of travel for each corresponding switch. In addition, center door switches must be located at least 4 feet from the door edge. Hinged cover will be installed over the close switch to prevent inadvertent activation. A danger sign must be mounted next to all hangar door controls. All sign dimensions and lettering must be IAW AFOSH STD 91-501, *Air Force Consolidated Occupational Safety Standard.* Sign dimension is 7 in. X 10 in. "Danger" must be printed on top in 1-7/16" white font. Message below "Danger" must contain the following statement using black font, "Only qualified personnel authorized by their squadron commander may operate hangar doors." The bottom of sign must have reference to AFOSH STD 91-100.

14.39.3.2. **(Added-CAF)** Pinch Point, Crush Area and Powered Door Movement Area Marking. All areas that pose a potential pinch point or crush area must be marked to ensure no one enters the area during door operation. Identify these pinch point, crush areas and powered door movement areas with a 5 foot clear zone outlined on the floor with a 3 inch alternating yellow and black striped line. The area inside the clear zone must have identical diagonal lines IAW AFOSH STD 91-501. Additionally, the floor clear zone area must have a 14-in. X 20-in. "Danger" sign painted on the floor just outside of the lined area IAW AFOSH STD 91-501. The sign must be placed so that it can be read when approaching the hazard area. "Danger" must be printed on top with 2-7/8" white font. The message below "Danger" must contain the following statement, "Hazardous area - stand clear during door operations.

14.39.4. **(Added-CAF)** Training and Documentation Requirements.

14.39.4.1. **(Added-CAF)** Operator Training. All personnel that operate hangar doors (not personnel doors) in the performance of routine duties (maintenance, supply, equipment deliveries, etc.) must be trained on operating instructions and precautions necessary for safe operation. The MXG/CC will ensure that a hands-on OJT program is developed for all personnel who operate electric and manual hangar doors. As a minimum, training will include door operations, hazard awareness/abatement, and emergency procedures.

14.39.4.1.1. **(Added-CAF)** Documentation. Sq CC or delegated representative (no lower than the MOO/MX SUPT) will approve personnel using IMDS-CDB course code or Memorandum.

14.39.4.2. **(Added-CAF)** Awareness Training. All personnel who are not approved to operate hangar doors but routinely work in hangar facilities must receive awareness training. As a minimum, training will include hazards and emergency procedures.

14.39.4.2.1. **(Added-CAF)** Documentation. All hangar door awareness training will be documented on AF Form 55, *Employee Safety and Health Record*, or equivalent product (e.g. IMDS-CDB).

14.40. (Added-CAF) Cold Weather Hangar Door Policy.

14.40.1. **(Added-CAF)** Aqueous film forming foam (AFFF) pipes and deluge valves can freeze if hangar doors are left open for a prolonged period. The freezing and thawing action of water in the system can spontaneously trigger the AFFF system which may result in damage to an aircraft. This situation can be avoided if hangar doors are closed whenever possible during periods of extremely cold weather.

14.40.2. **(Added-CAF)** MXG responsibilities:

14.40.2.1. **(Added-CAF)** Each maintenance group shall write a cold weather hangar/PAS door closure procedure that prevents the fire suppression system from freezing. This procedure shall include triggers for execution and be approved by the local civil engineer squadron CC and ground safety.

14.41. (Added-CAF) Deicing/Anti-icing Training. Units that perform deicing/anti-icing operations will track personnel qualified by MDS. Personnel qualified can be from any maintenance related career field. In addition to MDS specific technical data, personnel will refer to T.O. 42C-1-2, *Anti-icing Deicing and Defrosting of Parked Aircraft*, for general procedures, fluid types, and mix ratio.

14.42. (Added-CAF) F100-PW-229 Eddy Current Inspection Certification and Proficiency Policy. This section applies to F100-PW-229, F-15/F-16 aircraft, 4k blade fan drive turbine (FDT) module part numbers 4082504 and 4081904 (all dash numbers) (4th stage turbine blade).

14.42.1. **(Added-CAF)** Target population and certification requirements: Only certified 2A7X2, 5-level and above or civilian equivalent personnel may perform this inspection. They must have successfully completed the probability of detection (POD) test.

14.42.2. **(Added-CAF)** Training and initial certification: POD blade sets will be maintained at Mountain Home AFB (DSN 728-6794) for CONUS requirements and RAF Lakenheath (DSN 314-226-2210) for Non-CONUS requirements. The base requiring training will arrange for shipment of the POD specimen to include payment for shipment unless otherwise negotiated with the home stations. Individual units have the option to obtain the POD specimen and conduct training at home station or they may send their technician to Mountain Home AFB for training. This must be coordinated and agreed upon by the affected units.

14.42.2.1. **(Added-CAF)** For initial tests, the order of the blades will be in numerical sequence.

14.42.2.2. **(Added-CAF)** For retests, the order of the blades will be determined by the organization conducting the training, but will not be in numerical sequence as in the initial test. The same order shall not be used for consecutive training/certification sessions. Upon completion of the test, the test administrator shall annotate the blade number at each fixture position on the data sheet.

14.42.2.3. **(Added-CAF)** The test shall be witnessed by QA and no assistance from the trainer may be provided once the test has begun. QA shall retain the test data sheet and copies will not be made or maintained in the NDI laboratory.

14.42.2.4. **(Added-CAF)** Data sheet shall be sent to OC-ALC/ENSP (DSN 336-5008) via email or fax, DSN 336-3992, by QA as soon as possible, but no later than 3 duty days after training has been completed. Training/POD test shall be reaccomplished if the data sheet is not sent on time.

14.42.2.5. **(Added-CAF)** OC-ALC/ENSP will review the data sheet and report the results back to the submitting base's NDI laboratory and QA.

14.42.2.6. **(Added-CAF)** Individuals who do not pass the POD test must wait at least 15 calendar days prior to retesting.

14.42.2.7. **(Added-CAF)** Annotate in the individual's training records that he/she has completed training and the POD test results have been submitted.

14.42.3. **(Added-CAF)** Proficiency: Once an inspector is notified of successfully completing the POD test, the first three actual inspections shall be under the supervision of a certified inspector.

14.42.4. **(Added-CAF)** There is no recurring requirement to inspect any number of LPT modules in a fixed amount of time beyond what is required in Para 5 to maintain certification and proficiency.

14.42.5. **(Added-CAF)** Documentation: Upon notification of a successful POD test result, the NDI section chief will annotate the individual's training records/journal entry in TBA.

Chapter 15

MAINTAINING COMMERCIAL DERIVATIVE AIRCRAFT

15.1. Background Information and Objective. The AF procures commercial derivative aircraft for various missions. These aircraft conform to Federal Aviation Administration (FAA) standards and designs. The Air Force maintains these aircraft according to civil airworthiness standards using AF maintenance systems and procedures. It must meet FAA requirements when modifying these aircraft to maintain configuration control and ensure flight safety.

15.2. AF/A4L Responsibilities:

15.2.1. Coordinates relevant policies and procedures with the SAF/AQ and the FAA.

15.3. HQ Air Force Materiel Command (HQ AFMC/EN)Responsibilities:

15.3.1. Revises the Dash-6 inspection requirement manuals according to paragraphs 4.

15.3.2. Issues time compliance technical orders (TCTO).

15.3.3. Ensures that only FAA-certified repair stations or the original manufacturer perform contractual depot maintenance.

15.3.4. Obtains a completed FAA Form 337, *Major Repair and Alteration Form*, or a "maintenance release" from maintenance contractors for work performed on type-certificated aircraft and components.

15.3.5. Coordinates with the FAA for approval of modifications that affect commercial derivative aircraft configuration.

15.3.6. Reviews evaluations from the Lead commands concerning airworthiness directives (AD), service bulletins (SB), customer bulletins (CB), all operator letters (AOL), and aircraft service changes (ASC). Determines extensions for each as required.

15.4. Lead Command Responsibilities:

15.4.1. Helps the supporting ALC determine inspection and component time-change requirements and intervals.

15.4.2. Reviews evaluations from their field units on ADs, SBs, CBs, AOLs, or ASCs and makes recommendations to the aircraft's system program director (SPD).

15.5. Field Units Responsibilities:

15.5.1. Evaluate ADs, SBs, CBs, AOLs, or ASCs and make recommendations to their Lead Command.

15.5.2. Assist Lead Commands and the SPD to determine inspection intervals and requirements.

15.5.3. Send requests for an extension of the manufacturer's recommended overhaul interval, if warranted, to the SPD through Lead Command for evaluation.

15.6. Certification Requirements. The supporting SPD will maintain FAA certificate specifications for commercial derivative aircraft acquired for Air Force use according to AFPD 62-4. Use only FAA-certified commercial contractors for contract maintenance of commercial derivative aircraft. Air Force maintenance technicians and activities do not require FAA certification.

15.7. Inspection Requirements. The Air Force and aircraft manufacturer must jointly develop inspection requirements for commercial derivative aircraft. These inspection requirements:

15.7.1. Must not be less strict than FAA requirements.

15.7.2. Must not allow inspection intervals longer than FAA intervals.

15.8. Deviations From Inspection Requirements. When deviation from these requirements or intervals is justified, field units send proposed changes to the SPD through MAJCOM and Lead Command for evaluation.

15.9. Component Overhaul and Time Change Intervals. Use the manufacturer's component overhaul and time-change intervals for commercial derivative aircraft and its installed equipment. Do not exceed the FAA approved intervals.

15.10. Airframe Overhaul. Overhaul commercial derivative aircraft according to FAA requirements during PDM. The SPD determines PDM cycle intervals and related work requirements according to Technical Order 00-25-4 and the aircraft Dash-6 inspection manual. General requirements and related time intervals include all major elements of the aircraft.

15.11. Aircraft and Component Modifications. The FAA issues a supplemental type certificate (STC) for a change to a type design. For Air Force-designed modifications to commercial derivative aircraft and components, obtain Air Force approval according to DoD Instruction 5000.2, Defense Acquisition Management Policies and Procedures, and Air Force Supplement 1, Acquisition Management Policies and Procedures,. Obtain FAA certification by sending FAA Form 8110-12, Application for Type Certificate, with engineering data attached, to the FAA regional office. After approving the engineering prototype installation (and flight test, if required) the FAA issues the certification or STC. The SPD receives the FAA certification, or STC, for an Air Force-designed modification. Have contractors obtain the FAA certification or STC for a contractor-designed modification.

15.12. Time Compliance Technical Orders. The SPD issues TCTOs to implement ADs and SBs. Reference in each TCTO:

15.12.1. The airworthiness directive and service bulletin involved.

15.12.2. The STC number.

15.12.3. Other FAA approval.

Chapter 16

AIRCREW EGRESS SYSTEMS MAINTENANCE

16.1. Egress Maintenance:

16.1.1. Egress personnel are responsible for all egress systems maintenance and must be trained and certified before being authorized to maintain or inspect aircraft egress systems. Non-egress personnel are also responsible for egress maintenance as outlined in this instruction.

16.1.2. Egress personnel are responsible for egress systems canopy maintenance on the F-16, F-22A, and T-6 aircraft.

16.1.3. All personnel will use the Demand Response Team when directed by technical orders, during any task requiring the removal/installation of explosive components, and during egress final inspections. Compose teams of individuals who are certified to perform egress maintenance. At least one team member must be a certified egress journeyman.

16.1.4. Aircrew Flight Equipment (AFE) personnel (AFSC 1P0X1, including civilian equivalents) will remove/install parachutes/survival kits from all non-ejection seat equipped aircraft. Egress personnel will perform these tasks on ACES II and Martin Baker (MK-16 series) equipped aircraft. All personnel will complete appropriate training, certification, and familiarization requirements (**paragraphs 16.6.**, **16.7.**, and **16.9**).

16.1.5. AFE personnel will retain all administrative control over ACES II survival kits and personnel parachutes (e.g. documentation of all time changes in IMDS) and tracking of serially controlled items stored within survival kits and serially controlled items on the personnel parachute assembly.

16.1.6. AFE personnel will maintain control over spare survival kits and personnel parachutes within their facility. One set of serviceable spares will be ready for each assigned airframe to support any "Red Ball" maintenance that may occur. ***NOTE:*** Spares ready for "Red Ball" Maintenance may be stored at the Egress Section if the AFE Section is not manned 24/7.

16.1.7. Both AFE and Egress Sections will coordinate with Plans Scheduling and Documentation personnel as well as monitor the weekly maintenance schedule to identify survival kits and personnel parachutes requiring removal for scheduled time changes/maintenance.

16.1.8. Egress personnel will locate inadvertent beacon activation on the flightline. AFE personnel will locate inadvertent beacon activations within their shops/vehicles.

16.1.9. During contingency operations, egress personnel are responsible to configure survival kit personnel locator beacons (on-aircraft) and aircrew flight equipment (in-shop) in the correct mission configuration and theater requirements or as directed by battle staff/ Special Instructions (SPINS).

16.1.10. The AFE Superintendant Air Force Specialty Code (AFSC 1P0X1) is the focal point concerning parachute/survival kit system technical issues.

16.1.11. Removal and installation of emergency oxygen cylinders, lines, and quick disconnects attached to ejection seats will be accomplished by egress personnel (AFSC 2A6X3). Oxygen regulators and associated equipment (OBOGS, OGADS, and MSOGS) attached to the ejection seats (B-1, B-2, and B-52 aircraft) will be removed/installed by electro-environmental (AFSC 2A6X6) or (F-22A) aircraft will be removed/installed by flightline avionics (AFSC 2A3X1) personnel.

16.2. Facilities:

16.2.1. The installation commander will provide an enclosed shop facility, separated from other inhabited buildings or areas whenever possible, for off-equipment egress maintenance.

16.2.2. Egress facilities will have limited access to ensure system integrity and will also be properly licensed for explosive component storage. Explosives are listed on an AF IMT 2047, Explosive Facility License and maintained within the Egress Section.

16.2.3. Facility must be large enough to accommodate the average number of egress components requiring maintenance and storage at any one time.(See AFH 32-1084.)

16.2.4. The egress section's licensed explosive facility will not exceed the licensed Net Explosive Weight (NEW) capacity for each Hazard Class Division (HC/D) without approval from the Wing Weapons Safety Office. See AFMAN 91-201 for additional retrictions.

16.2.5. Only egress section personnel will be authorized unescorted entrance to the egress licensed explosive location.

16.2.6. All off equipment ejection seat maintenance will be accomplished in the Egress Section maintenance facility.

16.3. Safety Requirements.

16.3.1. Personnel will strictly adhere to all safety requirements outlined in AFMAN 91-201, AFIs 91-202 and 11-209, and all 11A-, 11P-, 13A-series, and aircraft-specific technical orders.

16.3.2. Operators of an explosive laden vehicle must have completed and be current on Egress Explosive Safety Training and qualified on the particular type of vehicle being driven IAW AFI 24-301.

16.3.3. The use of safety pins without an appropriate streamer properly attached is strictly forbidden. Only authorized flight safety pins will be installed on aircraft egress systems. Substitute safety devices are strictly prohibited.

16.4. Classification Training:

16.4.1. Egress personnel will meet mandatory training requirements contained in AFI 36-2201 (or intra-service equivalent), AFI 91-202, this AFI, and the CFETP.

16.4.2. Civil service and contractor egress maintenance personnel who possess, as a minimum, one year of experience within the last three years performing egress intermediate- and organizational-level maintenance, repair, inspections, etc., may be considered for a waiver of classification training requirements. Waiver requests will be submitted to the applicable 2A6X3 MAJCOM functional manager for review then forwarded to the 2A6X3

Career Field Manager for final approval/disapproval. If waiver is disapproved, individuals must complete classification training.

16.5. Initial Certification of Egress Personnel:

16.5.1. Once classification training is complete, egress personnel must successfully complete an AETC egress technician course for the specific aircraft to be maintained. ***EXCEPTION:*** ACES II-trained and certified egress SSgt 5-levels and above being reassigned to another base or unit maintaining ACES II-equipped aircraft are not required to complete the organizational maintenance (O/M; on-equipment) egress technician course. Whether or not these individuals attend the O/M course is the decision of the the Egress workcenter supervisor.

16.5.2. Personnel are certified to perform egress systems maintenance by demonstrating adequate proficiency to a designated certifying official in the egress systems workcenter. Certification pass/fail criteria will be established by the egress workcenter supervisor. Document certification in accordance with AFI 36-2201. Retrain any individual who fails the practical evaluation until the individual demonstrates adequate proficiency or withdraw the individual from training. If egress personnel are withdrawn from training, retrain in accordance with AFI 36-2201.

16.6. Initial Certification of Non-Egress Personnel:

16.6.1. Non-egress personnel must successfully complete an AETC egress technician course for the specific aircraft to be maintained. ***EXCEPTION:*** AFE personnel do not have to complete the technician course unless they are to be employed as egress augmentees.

16.6.2. After completing the AETC technician course, non-egress personnel will be initially certified in accordance with **paragraph 5.2**. Non-egress personnel will also be recertified in accordance with **paragraph 16.5.2**.

16.6.3. QAE exclusively performing contract surveillance do not have to be certified. If these personnel are performing egress maintenance, they must be certified.

16.6.4. All egress augmentees will complete Egress Explosive Safety training.

16.7. Decertification:

16.7.1. Decertify any individual who fails to demonstrate adequate proficiency or who has a documented administrative action that could adversely affect job performance.

16.7.2. Decertify non-egress personnel who have not been recertified in the past 180 days. Decertify egress personnel after not having performed egress maintenance for more than 18 months. Instructing and inspecting egress maintenance is not considered performing maintenance.

16.7.3. Document decertification in accordance with AFI 36-2201.

16.8. Recertification:

16.8.1. The purpose of recertification is to ensure personnel still maintain the required knowledge and skills to safely maintain and/or inspect egress systems.

16.8.2. Recertify non-egress personnel at least every 180 days.

16.8.3. Recertify egress personnel after not having performed egress maintenance for at least 18 months.

16.8.4. QAE personnel exclusively performing contract surveillance do not have to be recertified. If these personnel are performing egress maintenance, they must be recertified.

16.8.5. Recertification procedures are identical to initial certification procedures and will be accomplished in accordance with **paragraph 5.2**. Document recertification in accordance with AFI 36-2201.

16.9. Using Newly Assigned Uncertified Egress Personnel:

16.9.1. Newly assigned uncertified egress personnel may assist in performing egress systems maintenance. These personnel will never clear (sign off) AFTO Form 781-series entries MIS or condition tags.

16.10. Egress/Cockpit Familiarization Training:

16.10.1. The intent of egress familiarization training is to ensure non-egress personnel are aware of the hazards associated with an egress system and what to do if a hazard exists. As a minimum, initial and refresher (24-month) egress/cockpit familiarization training will include location and installation procedures of egress system safety devices, cockpit entry/exit procedures, procedures for determining whether or not an egress component is expended, emergency procedures associated with an expended egress component, and local maintenance concerns identified by the egress workcenter supervisor.

16.10.2. Only egress personnel, certified on assigned egress system(s), will conduct egress familiarization training. ***EXCEPTION:*** MTF personnel may conduct this training provided they have met requirements contained in **paragraphs 16.6** and **16.7**. Non-egress personnel may administer training media (slide show/video) during refresher familiarization training. Direct all students to the egress section for any questions concerning course subject matter or technical assistance.

16.10.3. Training media must meet approval of the 2A6X3 MFM or current media produced by the 367 TRSS listed on the Defense Imagery at **http://www.defenseimagery.mil**.

16.10.4. All non-egress personnel who access aircraft cockpits with egress systems must complete initial and refresher familiarization training.

16.10.5. The egress workcenter supervisor reviews and validates all egress familiarization training documents at least every 24-months.

16.10.6. Initial egress familiarization training will be hands-on using an aircraft. Units desiring to use an aircraft maintenance trainer instead of an aircraft must submit a request through their group commander to the Lead Command Director/Chief of Maintenance (A4M or equivalent) for approval/disapproval.

16.10.7. Refresher familiarization training may be conducted using an aircraft, maintenance trainer, and/or any media desired by the egress workcenter supervisor.

16.10.8. New personnel to the unit must receive initial familiarization training prior to accessing cockpits unless last duty position involved same mission design aircraft as current duty position. Personnel not requiring initial training will attend refresher training when they

become due. Individuals overdue for annual egress familiarization training will not access aircraft cockpits until they complete familiarization training.

16.11. Units with Unique, Experimental, or Test Aircraft. If training courses are not available through AETC, units must use interagency training before considering nongovernment training sources. If courses in both of these sources are not available, units must establish a documented training program that meets the intent of this AFI. The program must provide for training by the most qualified personnel and must be approved by the MFM prior to implementation.

16.12. Egress Systems Inspections and Documentation:

16.12.1. A certified egress production inspector will inspect any disturbed integral part of the egress system. The inspection must be an egress final inspection unless another inspection is prescribed by technical data.

16.12.2. If an insufficient number of egress production inspectors are assigned, the group commander may grant waivers to highly qualified five-level egress journeymen, in the rank of SrA or higher, to perform as egress production inspectors. Waived journeymen will be closely monitored and kept to the minimum required to accomplish the maintenance mission.

16.12.3. All systems Red X provisions. Only egress personnel will clear (sign off) egress system discrepancies.

16.12.4. Egress personnel will conduct an egress final every 30 days on ejection seats whose personnel/recovery parachutes and/or survival kits are integral parts of the seat. Egress personnel will also conduct an egress final when any maintenance other than a visual inspection is performed on an integral part of an ejection seat.

16.12.5. Cannibalization actions

16.12.5.1. Egress system component CAD/PAD cannibalization actions are considered "High-Risk" and should not be performed unless priority aircraft are involved (i.e. higher headquarters/alert status), or lack of ready equipment will impede mission accomplishment.

16.12.5.2. To ensure system integrity and validation of the explosive CAD/PAD listing, cannibalization of egress explosive components and/or seats will not be accomplished without the approval of the Maintenance Group or Deputy Group Commander.

16.12.5.3. After cannibalization actions, Red X discrepancies in the aircraft AFTO IMT 781A will not be cleared until the MIS 257 & 701 screens are verified. (2A6X3) Egress personnel will accomplish this action.

16.13. Aircraft Static Display. Aircraft placed on static display must be rendered safe in accordance with 00-80G-series technical orders and AFMAN 91-201.

16.14. Technical Assistance. When escape system damage/repairs exceed technical order limits request maintenance assistance IAW TO 00-25-107 through the appropriate Lead Command weapon system manager (with an informational copy to the Lead Command egress system manager) to 77 AESG, Brooks City Base TX at the following web site; **https://wwwd.my.af.mil/afknprod/ASPs/CoP/ClosedCoP.asp?Filter=OO-EN-MC-44** (**Exception** F-22A, T-6, and U-2).

16.15. Training Aircraft. Safe aircraft utilized for local maintenance training, fire department training, and aircrew extraction training in accordance with aircraft-specific technical orders. If technical order procedures do not exist, contact the Lead Command for guidance.

16.16. Conferences:

16.16.1. The 2A6X3 Air Force career field manager, 2A6X3 MFMs, and the egress systems program manager will attend the Aircrew Performance Working Group.

16.16.2. The 311 HSW Egress System Program Manager will establish a charter and conduct the Aircrew Egress Systems Executive Working Group (AESEWG) at least annually. The intent of this working group is to foster a spirit of cooperation, keep lines of communication open, and resolve Aircrew Protection issues that are cross functional in nature and forward appropriate issues to Air Staff. The program manager will also conduct a Worldwide Aircrew Egress Systems Workshop at least biennially.

Chapter 17

CENTRALIZED REPAIR FACILITIES (CRFS)

17.1. Introduction. CRFs, previously also called centralized intermediate repair facilities (CIRFs), queen bees, etc, consolidate non-mission generation workloads for commodities such as aircraft engines, electronic warfare pods, avionics line replaceable units, wheel and tire assemblies, and other aircraft components. Management and control procedures will vary depending on the specific logistical characteristics of the asset/commodity being repaired as well as the type of aircraft and geographic region supported.

17.2. Organization. CRFs are normally established within existing maintenance organizations (EMS, CMS, MXS), minimizing requirements for overhead and support.

17.3. Command Authority. CRF production oversight and monitoring is provided by a CRF Command and Control (C2) Cell within the AFGLSC/Supporting Command Supply Chain Management Group (SCMG). This cell will:

17.3.1. Develop CRF policy in conjunction with Air Staff and MAJCOM staff agencies.

17.3.2. Monitor CRF production.

17.3.3. Prioritize and direct CRF commodity distribution within the enterprise IAW AF guidance.

17.3.4. Coordinate and track retrograde and sustainment assets between supported units and the CRF.

17.3.5. Utilize IT systems in conjunction with Supply Chain Weapon System Teams to determine enterprise health of all CRF commodities. Alert lead command of negative trends.

17.3.6. Monitor transportation and repair pipeline velocity and intervene as needed.

17.3.7. Identify and upchannel systemic policy driven transportation and supply difficulties to appropriate higher headquarters for resolution.

17.3.8. Provide accurate and timely commodity appropriate status reports and metrics.

17.4. CRF Common Operating Picture (COP). Logistics and maintenance managers need accurate and timely information to make command and control decisions over CRF activities. To provide this information, a CRF COP has been established on the AF Portal to integrate numerous legacy data systems with CRF decision support tools. Machine-to-machine interface should be maximized to reduce duplicate manual data entry and the opportunity for induced errors. The AF Portal, rather than direct office-to-office e-mail will be used to communicate COP information to all CRF stakeholders.

17.5. Rotable Pools. Customer wait time (CWT) and transportation constraints may drive the establishment of a centralized rotable pool (CRP) for Class VII end items such as engines and pods to meet established weapons system availability goals. Use of a CRP reduces CWT by maximizing timely placement of serviceable assets where they are needed most, in lieu of waiting for the same item to be received, repaired, and shipped back to the originating supported unit. Rotable pool size, compared to support unit spare levels, will be determined during deliberate planning between appropriate SCMG CRF C2 and Lead Commands.

17.6. Wing-Retained Tasks. Units supported by CRFs may retain a limited capability to perform specific ILM necessary for mission generation. These wing-retained tasks and the resources required to perform them (personnel, equipment, etc.) will be approved by Lead Command and coordinated with the AFGLSC (every effort will be made to minimize and standardize wing-retained tasks where possible). For constrained assets, wing-retained tasks may include those performed within the expected turnaround time of the CRF pipeline and repair times. Wing-retained task resources also provide capability for cannot-duplicate screening and provide a local means to handle immediate or urgent-action TCTOs which would otherwise require the dispatch of a CRF team or the return of all affected assets to the CRF.

17.6.1. Cannibalization at supported units. When commodity LRU local retail stocks fall below mission requirements, retention of CRF-repaired end-items as "CANN assets" may be necessary. However, this should be the exception, and must be approved by the appropriate SCMG CRF C2 in coordination with the supported command Functional Manager. CRF C2 will notify supporting unit of retained CANN asset.

17.7. Documentation. The CRF and supported units will maintain all required status, inventory, and historical record documentation on CRF-repaired assets, including manual methods, IMDS-CDB, G081, CEMS, RAMPOD, etc.

17.7.1. Pod asset inventory, status and reporting requirements. CRFs and supported units will update RAMPOD daily in accordance with AFI 21-103 Chapter 10 AVIONICS POD SYSTEM INVENTORY, STATUS AND UTILIZATION REPORTING to include Tracking Control Numbers (TCN) and/or commercial carrier name if applicable as well as shipment date of transitory assets. Shipping container status and locations are maintained in RAMPOD and must be kept current by users.

17.8. Metrics. CRFs will report performance against various customer and production metrics approved by Lead Command and coordinated with the AFGLSC. These may include customer wait time; spares status; MICAP incidents/hours; average time on wing; production versus requirement throughput; supply status; flow time; test station/test cell status; pipeline segment times; and others as required. This data will be provided daily to CRF C2 as outlined in **para. 16.8.1**.

17.9. Liaison with Logistics Readiness Squadron (LRS). CRF operations rely on a robust relationship between maintenance, materiel management, and transportation. CRF pipeline velocity must be sustained at a level supporting unit requirements. The host LRS with support from the maintenance organization (EMS, CMS, MXS) will jointly establish written procedures to ensure the rapid movement of retrograde and sustainment assets between the CRF and supported units. CRF C2 Cell will maintain maintenance, transportation, and supply functional experts to assist CRFs and supported units to resolve any maintenance, supply, and transportation limitations.

17.10. Agile Combat Support (ACS) Planning. Deployed CRFs are highly scenario-dependent. Considerations include: allocated deployment airlift; number of aircraft deploying; number of forward operating locations (FOL); available CRF throughput and surge capacity; spares levels; transportation modes and nodes; and force protection and other FOL factors. The availability of intra- and inter-theater transportation will play a major role in determining the feasibility of arranging CRF support.

17.10.1. CRFs do not replace deployable intermediate-level maintenance, but work in concert with it. Depending on the scenario, a unit may be tasked to deploy all, some, or none of its ILM capability to the FOL or to the CRF at a forward support location (FSL) or CONUS support location (CSL).

17.10.2. CRFs may be established to repair virtually any commodity and may include minor or major maintenance. Definitions of CRF support and retained tasks may vary from CONUS arrangements. All options should be considered to arrive at the best support concept for the supported commander.

17.10.3. Modular, Scalable Organization. Lead commands will establish modular, scalable UTCs for CRF commodities to provide a tailored response for various deployment trigger points. UTC capabilities will range from CRF augmentation to establishing a new CRF at bare base locations. When CRFs are established by consolidating intermediate-level maintenance from several supported units, those units' UTC requirements will transfer (devolve) to the CRF maintenance organization (EMS, CMS, MXS). Supported unit (flying unit) DOC statements and UTC MISCAP statements may need to be revised to accurately reflect mobility-tasked direct support units and their capabilities.

17.10.4. AEF Planning and Execution. The lead wing MXG/CC will determine maintenance ACS requirements, to include CRFs. Except for extenuating circumstances, CRFs should be utilized to the maximum practical extent. Deploying ILM to the FOL should be avoided when possible. To minimize airlift requirements, the lead wing MXG/CC should ensure deploying units tailor their UTCs with respect to supporting CRF capabilities and prepositioned assets.

17.10.4.1. CRF support requirements identified prior to unit deployment should be forwarded to the MAJCOM and CRF-supporting command and the AFGLSC (SCMG CRF C2). CRF support should also be an item of discussion at the AEF Planning Conference. Requirements identified after unit deployment should be forwarded through the Commander Air Force Forces (COMAFFOR)/A4 staff to the supporting command and the AFGLSC (SCMG CRF C2).

17.10.4.2. The CRF supporting command will determine the best location for the CRF, appropriate spare levels, equipment, personnel, and CONOPS for each type of asset. These requirements and CONOPS should be reviewed and coordinated with supported commands every AEF cycle or as requirements dictate to ensure the best utilization of AF/DoD resources.

17.10.4.3. The supporting SCMG will establish a CRF C2 Cell consisting of maintenance, transportation, and materiel management functional experts to perform C2 functions in a supported/supporting relationship over applicable CRFs. The AF Portal should be used to report, track, monitor, and measure CRF commodities and operations.

17.10.4.4. The supported COMAFFOR/A4 staff may designate a liaison element to coordinate with the CRF supporting command and applicable SCMG to determine the most expedient means to satisfy supported unit requirements. The supported COMAFFOR/A4 has final authority on asset distribution to units under its OPCON. Where two or more COMAFFORs compete for CRF-repaired assets, the A4 staffs,

supporting command, and applicable SCMG CRF C2 will reach agreement on distribution of serviceable assets to balance competing operational requirements.

17.10.4.5. Gaining CRF Requirements. Gaining CRFs will analyze their maintenance capability against supported unit expected sortie and utilization rates to determine maximum surge production capability, with and without augmentation. Augmentation requirements for various trigger points (e.g., PAA deployed), along with any projected personnel and equipment shortfalls or LIMFACs (limiting factors) should be reported to the supported (owning) MAJCOM FAM. The Functional Area Manage (FAM) will review and forward requirements to the lead wing and AEF Center for tasking/resolution at the Planning Conference. If during execution, CRF performance or other factors (e.g., lack of sufficient timely intra- or inter-theater airlift) prevent fulfillment of combatant command support requirements, the supported command, supporting command, and applicable SCMG CRF C2 will explore other options to support the FOL.

17.10.4.5.1. Gaining CRFs will review their CHPMSK levels to determine if they are adequate to support deploying units and will request appropriate adjustments, as necessary. The supporting command LSC will assist with kit management and replenishment.

17.10.4.5.2. Gaining CRFs and the CRF C2 cell will closely monitor distribution of serviceable assets among CRPs.

17.10.4.6. Deploying Unit Requirements.

17.10.4.6.1. Deploying units will segregate Readiness Spares Package (RSP) items supporting a “remove, repair, and replace” capability and will deploy with the RSP according to the applicable UTC package. Depending on the supporting CRF manning and equipment posture, personnel and equipment may need to be deployed to the CRF.

17.10.4.6.2. Deploying units operating with CRF-repaired pods will tailor spare asset packages to match the expected CRF level of support.

17.10.4.6.3. Except for approved retained tasks, deploying units will operate under the CRF concept, maximizing use of the RSP and CRF support. For CRF operations to be successful and meet deployed unit expected customer wait times, units must prepare unserviceable assets for shipment as soon as repair at the CRF is deemed warranted. Retention of “CANN assets” at supported units must be approved by the appropriate SCMG CRF C2 in coordination with the supported command Functional Manager.

17.10.4.6.4. Shipping Containers. CRF support relationships require assets to be shipped between deployed locations and the CRF. Deploying units will deploy with sufficient reusable containers to transport assets to and from the CRF.

17.10.4.6.5. Redeploying supported units will coordinate closely with the applicable SCMG CRF C2 and supported MAJCOM staff to ensure unserviceable CRF supported commodities/assets are not left at the FOL. As a supported unit nears the end of its deployment, resupply times should be considered prior to shipping serviceable/unserviceable assets. If the supported unit cannot be resupplied before redeployment, they will redeploy with the unserviceable asset.

17.10.5. **CRF EXPRESS Tool.** CRF EXPRESS automatically drives induction of NSN listed assets through Enterprise Solution-Supply (ES-S) daily across the enterprise.

17.10.5.1. The applicable CRF C2 cell will monitor EXPRESS, ES-S and all applicable applications daily; they will also recommend manual inductions of LRUs to fulfill shortfalls in the pipeline across the enterprise.

17.10.5.2. Based on mission needs, manual intervention of EXPRESS managed commodities will be directed by the applicable SCMG CRF C2 Cell as required using locally developed procedures in-line with current IT capability.

Chapter 18

CONTRACT SURVEILLANCE

18.1. Government Contract Quality Assurance. See Federal Acquisition Regulation (FAR) Part 46. Successful contract performance is dependent upon positive open communication between the Procuring Contracting Officer / Administrative Contracting Officer (PCO/ACO), Quality Assurance Evaluator (QAE), and the performance-based activity. It is imperative that all parties strive to achieve and maintain an atmosphere of mutual understanding and cooperation. Successful strategies may include regularly scheduled meetings between the government program management office personnel and the performance-based activity to discuss inspection results, trends, and other items of mutual interest. The QAE and performance-based activity are not adversaries; they are partners who share the same goal - successful mission accomplishment. ***NOTE:*** for the purposes of this instruction QAE is synonymous with quality assurance representative (QAR), contracting officers technical representative (COTR), and contracting officers representative (COR).

18.1.1. MAJCOMs shall designate a program management function, i.e., government program management office, to oversee and manage the requirements for each contract management plan. For the purposes of this instruction the Continuing Government Organization (CGO) required In Accordance With (IAW) Office of Management and Budget (OMB) Circular A-76 is synonymous with government program management office. The government program office is the single focal point for the performance-based activity to communicate performance results, identify issues beyond their control, and solicit guidance and interpretations.

18.1.1.1. **(Added-CAF)** Government Program Office. The government program office (which may include the government QAE function) is an inherently governmental activity. The responsibility of this office is to ensure the performance-based activity, MEO's and HPO's performance satisfactorily meets the performance standards documented in the management plan.

18.2. Management of Government Property. See FAR Part 45. Air Force Equipment Management System (AFEMS) and Information Processing Management System (IPMS) shall be used to manage government property possessed by performance-based activities to the maximum extent possible. AFEMS shall be used to manage Equipment Authorized Inventory Data (EAID) accountable property only. Manage non-EAID accountable property IAW procedures in the Performance Management Assessment Plan (PMAP). For the purposes of this document, PMAP is referred to as Performance Plan (PP) to avoid confusion with Procurement Management Assessment Program. Property management is a joint responsibility of the performance-based activity, PCO/ACO, and government program management office.

18.3. Contract Administration. See FAR Part 42. The contracting officer, PCO or ACO is the OPR for contract administration. The program management office is the Office of Collateral Responsibility (OCR) for executing the contract administration tasks as determined by the PCO/ACO.

18.3.1. The PCO/ACO is the OPR for issuing contract modifications; making changes, correcting errors, executing options, adding new requirements, etc. The program management office is the OCR for issuing and identifying the need for contract modifications. The Functional Commander / Functional Director (FC/FD) and the quality assurance personnel are the best sources for inputs on the need for making changes, correcting errors, executing options, adding new requirements, etc.

18.3.2. **(Added-CAF)** Contract/ MEO/HPO Documentation.

18.3.2.1. **(Added-CAF)** Contract Format. The Uniform Contract format has 13 sections, alphabetized from A to M. The maintainer's primary concern will be with Section C, *Description/Specification/Statement of Work*, because this section details the service (outputs) the offeror is required to perform and the go/no-go checklist (services summary (SS)) for accepting the service (outputs). The FC/FD is the OPR for Section C and the SS.

18.3.3. **(Added-CAF)** The AFI and T.O. requirements cited in Section C, coupled with the requirements in the services summary become the source information for the Performance Plan (PP), QAE surveillance, and headquarters inspections such as LCAP and IG inspections.

18.4. Contracting Officer. The PCO/ACO is responsible for overseeing the administration of a contract and is the only individual with the legal authority to act as an agent between the government and the contractor. This legal authority, provided under federal law, gives a PCO/ACO the power to enter into, modify, interpret, and terminate a contract on behalf of the government. The greatest responsibility of the PCO/ACO is to ensure the contractor's performance satisfactorily meets contractually agreed upon standards as stated in the contract Section C requirements document.

18.4. (CAF)Contracting Officer issues Corrective Action Requests (CAR) when appropriate, to the contractor. The CO shall forward the CAR within 5 days of receipt from Chief QAE and Program Manager coordination, if applicable. Upon receipt of the contractor's response, the CO, in consultation with the Chief QAE, and if applicable, the Program Manager/Functional Area Manager must evaluate the contractor's response and take appropriate action.

18.5. FC/FD Role. The FC/FD is the government's functional authority for the contracted function. The FC/FD retains all responsibility for the success or failure of the contracted function, the same as if the contracted function was an organic activity. The functional area includes all maintenance activities as defined in the contract Section C requirements document. In addition to the duties and responsibilities outlined in AFI 63-124, the FC/FD shall:

18.5.1. Keep up-to-date on mission changes that could affect creation of a contract modification.

18.5.2. Ensure the development of a PP that effectively measures and evaluates contractor performance throughout the life of the contract or management plan.

18.5.3. Review problem areas and when applicable coordinate with the PCO/ACO to resolve the problems. If the problem cannot be resolved, request assistance through command channels.

18.5.4. Review documents related to default/recompete prior to scheduled recompetition; contract Section C requirements document or scope of work modifications; changes to award fee plan (if applicable) to new or revised DoD, AF, MAJCOM, and local directives.

18.5.5. Coordinate waiver requests with the MAJCOM/A4 staff when initiated by the contractor.

18.5.6. Ensure the use of performance-based contract assessment tools (e.g. process and systems audits, compliance checklists, random sampling or other frequency-based inspection methods, etc.) to monitor contractor submission of required reports according to the contract Section C requirements document, management plan.

18.5.7. Ensure that the government program office uses surveillance methods to monitor contractor performance IAW federal, state, and local environmental laws and AF directives.

18.5.8. Ensure development of a contingency plan/strike plan for tasks identified as essential IAW DoDI 3020.37, *Continuation of Essential DoD Contractor Services During Crisis*, and annually coordinate with PCO/ACO to revise, update, or change it.

18.5.9. Establish procedures for technical evaluation of contractor-submitted engineering change proposals.

18.5.10. Participate as a voting member of the award fee/term review board, as applicable.

18.5.11. Designate QAEs for Combat Logistics Support / Contract Field Team (CLS / CFT) contracts using lead MAJCOM procedures, consult applicable lead MAJCOM/A4M for further guidance. When government quality assurance for CLS/CFT contracts is delegated to the unit, ensure the acquisition activity responsible for the contract provides a written memorandum of agreement with the cognizant ACO or provides a quality assurance letter of instruction (QALI) to the ACO, as required, to identify specific and/or unusual quality requirements per AFI 63-501.

18.5.11.1. **(Added-CAF)** Potential QAEs are selected based on experience in the career field, weapon system experience, and quality force issues. Authorizations will be, as a minimum, 7-level, or civilian equivalent. Potential QAEs are nominated through local organization policies such as the FD or the quality assurance function, if applicable, and attend Phase I training conducted by a Quality Assurance Program Coordinator (QAPC). The candidates then attend Phase II training conducted by the Procuring Contracting Officer (PCO)/Administrative Contracting Officer (ACO) and after successful completion, are appointed by the CO as QAEs.

18.5.12. Review and approve monthly surveillance schedules.

18.5.13. Ensure QAEs are not assigned additional duties that interfere with their ability to fully meet requirements of contract surveillance and other QAE duties. QAE's are not exempt from additional duties, the intent is that additional duties do not interfere with the primary role of contract surveillance and other QAE duties.

18.5.14. Review contractor developed publications for acceptance prior to final signature and implementation.

18.5.15. Ensure that any traditional responsibilities (i.e. Propulsion Flight Chief acting as the wing 2A6X1 AFSC functional manager, providing technical guidance to maintain propulsion systems to support the wing mission) normally performed by military personnel are identified. If those duties are required and are not appropriate for the contractor to accomplish, identify those requirements to the responsible Commander for appointment of the most qualified personnel.

18.5.16. **(Added-CAF)** Support Agreement Management. See AFI 25-201, *Support Agreements Procedures*. Performance-based activities (contractor, MEO, and HPO) cannot negotiate and sign support agreements. The government program management office shall negotiate, coordinate and control support agreements for supported workloads. MEOs and HPOs are authorized to negotiate, coordinate, and control support agreements pertinent to their functional area, but shall not without written approval of the government program management office.

18.5.17. **(Added-CAF)** Select and appoint a Chief QAE (where appropriate).

18.5.18. **(Added-CAF)** Appoint QAEs in writing after successful completion of QAE Phase II training.

18.6. Chief QAE. The chief QAE ensures contractor performance is surveilled IAW criteria outlined in the PWS and performance plan. They are also responsible for reporting all performance assessment results through the FC/ FD to the PCO/ACO for disposition. The chief QAE fulfills these responsibilities by overseeing the QAEs that have been delegated inspection and acceptance authority by the PCO/ACO. QAEs may also serve as Government Flight Representatives as outlined in AFI 10-220.

18.6.1. Responsibilities. Organizations with a single QAE position shall utilize this individual as both the Chief QAE and QAE. Initial certification and annual evaluations shall be accomplished by the FC/FD. Chief QAEs shall perform the following:

18.6.1.1. Review the contractor inspection system, quality program or other means used for control quality and comply with contract Section C requirements. Submit comments through FC/FD to PCO/ACO for disposition.

18.6.1.2. Annually review and revise checklists, performance requirements document, evaluation guides, etc. for currency and completeness.

18.6.1.3. Ensure that each area surveilled has a primary and alternate QAE assigned to ensure contract surveillance is accomplished. ***NOTE:*** Alternate QAEs must possess a maintenance-related AFSC, or applicable civilian series, if they are responsible for surveilling aircraft or aircraft trainer maintenance functions or tasks. ***NOTE:*** If an organization has only one QAE position, than an alternate is not required

18.6.1.4. Ensure QAE positions are filled via applicable MAJCOM procedures when they become vacant.

18.6.1.5. Perform an initial evaluation on each QAE to determine past qualifications, experience, and ability to accomplish technical inspections and contract surveillance functions. Each evaluator must be qualified in the appropriate area before performing evaluations, inspections, or surveillance duties unsupervised. Document initial evaluations for all QAEs (primary and alternates) in the individuals training records or MIS.

18.6.1.6. Perform annual over-the-shoulder (OTS) evaluations of each primary and alternate QAE in the performance of surveillance activities. The purpose of this evaluation is to ensure proficiency in surveillance techniques. Document the results of the evaluation in the QAE's training records. In large units, this responsibility may be delegated to the QAE superintendent, or equivalent.

18.6.1.7. Develop and publish a monthly schedule of QAE surveillance activities (label as FOUO). Distribute the schedule to the FC/FD and contracting officer for approval no later than the 5 duty days before the beginning of the period it covers or as required by MAJCOM or unit level procedures. Maintain copies of all schedules on file for the life of the contract.

18.6.1.8. Collect, analyze and report award fee data at the end of each award fee period using applicable award fee evaluation plan.

18.6.1.9. Supplement and perform surveillance activities as required.

18.6.1.10. Develop and maintain the PP and associated contract performance assessment documentation IAW ACO/PCO guidelines.

18.6.1.11. Provide assistance to the wing safety office, or equivalent, in mishap and incident reporting if required.

18.6.1.12. Review contractor developed publications (wing/group instructions) prior to acceptance and publication to ensure they meet all contractual requirements and do not conflict with local, MAJCOM, or AF instructions.

18.6.1.13. Ensure that discrepancies discovered by QAEs are documented in the appropriate aircraft or equipment forms, and in MIS. QAEs will follow-up to ensure the contractor takes corrective actions and preventive actions.

18.6.1.14. Evaluate contractor proposals and provide comments and recommendations to the FC/FD and ACO/PCO.

18.6.1.15. Develop a QAE training program.

18.6.1.16. Verify and validate contractor submitted performance indicators.

18.6.1.17. Assist the ACO/PCO in managing Government Furnished Equipment (GFE).

18.6.1.18. **(Added-CAF)** Ensure award fee validation and reporting is completed as described by the contract requirements.

18.6.1.19. **(Added-CAF)** Ensure past performance is completed as described by the CO and program manager.

18.7. QAE. The QAE role is to observe, then document the overall performance of the contractor without duplicating or augmenting the contractors Quality Control (QC) function. The QAE is not part of the contractors Quality Control function. Additionally, QAEs protect the government's interest by being the eyes and ears of the FC/FD and PCO/ACO concerning contractor performance. QAEs also provide technical support to the FC/FD and PCO/ACO.

18.7.1. Responsibilities. The QAE is responsible for a wide range of surveillance requirements related to the surveillance of maintenance contracts. Specifically, the QAE will:

18.7.1.1. Know and understand the specifications and requirements of the contract.

18.7.1.2. Know and maintain proficiency in performance based contract assessment methods.

18.7.1.3. Know and apply the procedures for documenting surveillance.

18.7.1.4. Perform surveillance according to the PP.

18.7.1.5. Attain qualification in the appropriate areas before performing evaluations, inspections, or surveillance duties unsupervised.

18.7.1.6. Maintain technical competency in their assigned surveillance area.

18.7.1.7. Review incoming and outgoing official government and contractor correspondence, as applicable to what the QAE has to surveille.

18.7.1.8. Review deficiencies, TCTO, and mishap contractor reports for accuracy, adverse trends, and mission accomplishment. Additionally, review contractor logistics reports and forward to the MAJCOM through the FC/FD for possible indicators of performance trends.

18.7.1.9. Evaluate the effectiveness of the contractor's involvement in mishap investigations IAW AFI 91-204.

18.7.1.10. Serve as a member of the source selection team when required.

18.7.1.11. Develop monthly surveillance schedules.

18.7.1.12. Perform Munitions Accountable Systems Officer (MASO) duties, if required.

18.7.1.13. Maintain proficiency in the MIS used during surveillance activities.

18.8. QAE/FC/FD training requirements. The FC/FD and chief QAE are responsible for ensuring QAEs receive required training. The following training requirements apply to all QAEs:

18.8.1. Initial contract surveillance related training. Initial QAE contract surveillance related training consists of formal training conducted in two phases. QAEs will complete this training prior to performing surveillance duties.

18.8.1.1. Phase I, General QAE Orientation Training. The Quality Assurance Program Coordinator (QAPC) shall provide the training IAW AFFARS Mandatory Procedure 5346.103. **http://farsite.hill.af.mil/reghtml/regs/far2afmcfars/af_afmc/affars/MP5346.103.htm#TopOfPage**.

18.8.1.2. Phase II, Contract Specific Training. Training must be completed for each contract to which the FC/FD and QAE is assigned. The FC/FD ensures the PCO/ACO provides this training as required by AFFARS Mandatory Procedure 5346.103, The Quality Assurance Program, paragraph 2.b.(2). **http://farsite.hill.af.mil/reghtml/regs/far2afmcfars/af_afmc/affars/MP5346.103.htm#TopOfPage**.

18.8.1.3. Refresher Training. Refresher training must be completed at least annually for the purpose of staying current on all contract and performance management assessment plan changes.

18.8.1.3.1. **(Added-CAF)** Refresher training for full-time QAEs will take place immediately upon any changes/modifications to the contract, PWS, PP, or technical risk. This training will be provided by the FC/FD, Quality Assurance Manager (QAM), QAPC or CO as appropriate. Alternate QAE refresher training will be conducted by the Chief QAE and/or the CO. It will consist of, as a minimum, any changes to the contract or PP, policy and procedure changes, identification of high technical risk areas, and discussion of potential problem trends, as well as QAE surveillance and documentation requirements.

18.8.2. MAJCOM Training. MAJCOMs will determine recurring QAE training requirements as needed to ensure QAEs remain current on new or changed contract surveillance concepts.

18.8.3. QAE Qualification Training. The Chief of QAE must use a mixture of Cross Utilization Training (CUT) and On the Job Training (OJT) to ensure all contract Section C requirements are comprehensively and competently surveilled without interruption due to lack of QAE qualification.

18.8.3.1. CUT training. The FC/FD and/or chief QAE and alternate QAEs will use CUT training to the extent necessary to ensure all contract requirements are surveilled by qualified QAEs.

18.8.3.2. OJT training. The FC/FD and/or chief QAE ensures that QAEs are familiar with surveillance and documentation methods/procedures, development of surveillance schedules, and familiarization with emergency procedures if contractor performance is interrupted by default or strike.

18.8.4. QAE training certification. QAEs will be knowledgeable of the tasks they surveil. QAEs are not required to be certified on specific tasks; rather, they are duty-position qualified to inspect, surveil, and observe according to the requirements in this instruction and other applicable directives. (***NOTE:*** Special emphasis will be placed on knowledge and surveillance requirements for tasks requiring special certification.)

18.8.4.1. QAEs requiring special certification authority (Red X, IPI, etc.) shall comply with the requirements in **Chapter 14**.

18.8.5. QAEs performing surveillance on fuel systems or fuel maintenance facilities must be familiar with all associated safety requirements prior to performing the surveillance (see TO 1-1-3).

18.8.6. QAEs performing surveillance of munitions activities must be familiar with the requirements of AFI 21-201 prior to performing munitions activity surveillance. QAEs performing surveillance activities of civilian contractors performing MQ-1/MQ-9 munitions loading or unloading operations will comply with weapons academic training per **Chapter 12** of this AFI.

18.8.7. QAEs responsible for surveilling egress operations at contract organizations will receive familiarization training per **Chapter 16** of this instruction.

18.8.8. QAE training records. Training records documenting QAE training shall be maintained IAW AFI 36-2201 and the CFETP (or civilian equivalent system) prior to performing the surveillance. As a minimum, all QAEs (regardless of grade or skill level) must maintain an ITP in TBA (or civilian equivalent training records/system) that identifies specific responsibilities required by this instruction or other applicable directives.

18.8.9. FC/FD contract surveillance related training. All FC/FD must successfully complete training within 30 days of assignment.

18.9. PP. The purpose of a PP is to provide a planned process for surveilling the contractor's actual performance, and comparing that performance against the contractual requirements to determine conformity with the technical requirements of the contract. The PP shall identify and describe the roles and responsibilities for implementing and maintaining the following key elements of managing and executing a contract performance management assessment program: See **Figure 18.1**.

Figure 18.1. Key Elements.

i. Performance Assessment Planning & Preparation
ii. Performance Assessment
iii. Performance Assessment Results Analysis
iv. Performance Assessment Reporting
v. Performance Assessment Follow-up
vi. Performance Assessment Report Closure

18.9.1. PP development. PP development is mandatory for all AF units that fall under the purview of this instruction. It is the responsibility of the FC/FD and Chief QAE to ensure that a PP effectively measures and evaluates a contractor. When properly developed the PP provides QAEs with information to identify acceptable performance and potential reasons for any nonconforming performance.

18.9.2. PP inspection elements. Items included in the applicable contract Section C requirements document are required PP inspection elements.

18.9.2.1. Identify additional contract surveillance requirements in the PP. PP surveillance will be based on the minimum surveillance necessary to assess effective and efficient contractor compliance to performance work statement requirements. Surveillance methods shall be based on performance-based contract assessment methods and techniques. The PP shall avoid using traditional legacy system methods such as stove-pipe checklists and constant inspection.

18.9.2.2. Identify and describe performance-based contract assessment techniques and their application. The PP shall also describe how to document and report exceptional and unacceptable performance.

18.9.2.3. Establish and assign responsibilities in the PP for verifying costs of reimbursable items, to include items purchased through the micro-purchase program, when applicable.

18.9.2.4. Establish procedures to review, evaluate, and provide comments and recommendations to contractor proposals. These proposals are for contract modifications not for new contracts.

18.9.2.5. Include procedures for development, and coordination of monthly surveillance schedules.

18.9.2.6. Ensure contractor hours of operation are surveilled on a random basis to include all shifts, weekends, and holidays the contractor works.

18.9.2.7. The scope of contract performance assessment or inspection shall be based on past performance, mandatory, statutory, and regulatory requirements. Performance assessment planning shall consider operational risk, service complexity, and criticality as factors in deciding the performance assessment plan from month to month.

18.9.3. PP format. The PP is developed IAW requirements of AFI 63-124, this instruction, and applicable MAJCOM guidance.

18.9.3.1. **(Added-CAF)** Sample Performance Plan available on ACC Quality Assurance CoP:

https://www.my.af.mil/afknprod/community/views/home.aspx?Filter=AC-LG-00-02

18.10. Surveillance Scheduling. The QAE will develop a monthly schedule of surveillance activities based on PP requirements. The schedule must be completed no later than five duty days prior to the beginning of the period it covers. The FC/FD must review and return the schedule to the QAE no later than the last day of the month preceding the scheduled month. The chief QAE must provide a copy of the schedule to the PCO/ACO before the start of the surveillance period. Post changes to scheduled observations as they occur and send copies to the PCO/ACO and FC/FD as requested.

18.10.1. If minimum monthly surveillance requirements cannot be met due to equipment nonavailability or special circumstances, an explanation on the summary for each missed area and/or inspection category is required. In such cases an approval statement from the FC/FD and PCO/ACO for the variance is required.

18.10.2. The chief QAE shall adjust surveillance activities commensurate with contractor's performance and level of risk to the government should the contractor not perform in an acceptable manner. If a particular function of the contractor's performance has a continuing record of acceptable performance and unacceptable performance would not likely result in loss of life to AF personnel or damage to government property, surveillance of that function should be reduced. If contractor performance of a function is less than satisfactory, surveillance of that function should be increased. When this is determined to be appropriate, the chief QAE, with FC/FD and PCO/ACO approval, will adjust the surveillance schedule.

18.11. Inspections.

18.11.1. Technical inspections. Technical requirements of a contract are surveilled by performing technical inspections. Any maintenance task accomplished in accordance with technical guidance, (TO, work-card, etc.) qualifies for QAE surveillance under the technical inspection concept. Inspections may be performed while maintenance is being performed (concurrently) or after the fact. QAEs surveilling contracts that do not have technical inspections specifically addressed in this instruction will use the procedures in this paragraph to perform technical inspections included in the PP. QAE accomplish technical inspections by evaluating the following:

18.11.1.1. Checking a minimum of 50 percent of the required inspection items. Normally, disassemblies of a part, removal of a stress panel, or similar actions are not necessary to accomplish a technical inspection.

18.11.1.2. Review of the aircraft or equipment forms and the MIS for proper documentation (applicable to the job being surveilled); checking for proper and current technical data usage; proper tool usage; and after maintenance Foreign Object (FO) checks of the area in which the task was performed.

18.11.1.3. Minimum technical inspection surveillance requirements/frequencies for applicable aircraft and trainer transient aircraft will be determined by each Lead MAJCOM. The FC/FD, PCO/ACO and chief QAE, using MAJCOM guidance will jointly determine any additional surveillance requirements associated with maintenance contracts.

18.11.1.3.1. **(Added-CAF)** Minimum technical inspections shall be determined by review of the requirements identified in the Service Summary and risk associated with non-performance of elements of the PWS.

18.11.1.4. QAE activities surveilling AF maintenance contracts not specifically addressed in this chapter will use the contract Section C requirements document to determine technical area surveillance requirements. As a minimum, include a percentage of each technical inspection in the contractor's Quality Check (QC) program requirements outlined in the contract Section C requirements document.

18.11.1.5. Technical Inspection ratings. Technical inspections will be rated as either conforms or non-conforms. Assign non-conforms ratings when one of the following conditions occurs:

18.11.1.5.1. A step serious enough to adversely affect the performance of the equipment involved is omitted or improperly completed.

18.11.1.5.2. A major or Red X discrepancy is detected.

18.11.1.5.3. The performance threshold, if established, is not met.

18.11.1.5.4. Assign a technical rating inspection as acceptable when the total number of minor discrepancies does not exceed the applicable baseline or AQL contained in the quality control/assurance requirements of the contract.

18.11.1.5.5. QAEs at units operating from a contract Section C requirements document with a Service Delivery Summary (SDS) will ensure that applicable standards identified in the SDS are considered during the development of technical inspection requirements.

18.11.2. Follow-up technical inspections. Follow-up technical inspections are inspections accomplished that follow behind the contractor's QC for the purpose of verifying the contractor's quality program. All units, to include CLS contracts, will identify select technical inspections contained in their PP. The chief QAE schedules a sufficient percentage of technical inspections as follow-up technical inspections. These inspections may be performed in conjunction with other inspection requirements. If this option is used, document each inspection separately.

18.11.2.1. As with technical inspections, follow-up technical inspections may also be performed concurrently or after contractor QC inspections. Include these requirements in the PP and the monthly surveillance schedule. ***NOTE:*** The chief QAE may elect to do QC follow-up inspection on observation work areas as well.

18.11.2.2. Follow-up technical inspection ratings. Follow-up technical inspections will be rated the same as technical inspections.

18.11.3. Observation area inspections. Observation area inspections are similar to IG inspections, where QAEs assess work center's/areas ability to manage program areas they are contractually responsible for. Minimum observation work area surveillance requirements will be determined by each MAJCOM.

18.11.3.1. **(Added-CAF)** Minimum observation areas will be determined by review of the Services Summary of the PWS and could include Technical Orders, Consolidated Tool Kits, Locally Manufactured and/or Spare Tools, Hazardous Materials Management, Aircraft and Equipment Forms, Test, Measurement, and Diagnostic Equipment, Bench Stock, and CAMS inspections.

18.11.4. Safety. Document violations of Occupational Safety and Health Administration (OSHA) or Air Force Occupational Safety and Health Standards (AFOSHSTDs) that clearly present a potential to damage or injure government resources as part of the inspection being performed or, if appropriate, "as observed." The documentation should clearly indicate the potential to damage or injure government resources. QAEs do not document violations of OSHA or AFOSHSTDs that do not present the potential to damage or injure government resources; rather they will informally notify the site supervisor and PCO/ACO.

18.11.4.1. **(Added-CAF)** Discrepancy Categories. To ensure consistency when determining severity of discrepancies, the following definitions and criteria apply to technical and observation area inspections.

18.11.4.1.1. **(Added-CAF)** Major Discrepancy. A discrepancy that judgment and experience indicate is likely to result in a hazardous or unsafe condition or is likely to result in failure or reduce materially the usability of aircraft or equipment to include any major part thereof. Discovery of any of the following conditions will be categorized as a major discrepancy.

18.11.4.1.1.1. **(Added-CAF)** Improper or untimely documentation of Red X discrepancies on aircraft, trainer, or equipment AFTO FORMs (to include automated system entries).

18.11.4.1.1.2. **(Added-CAF)** Foreign object within 50 feet of an aircraft flightline parking or engine operating area, or within 10 feet of an aircraft or engine in a maintenance area (e.g. hangars, phase docks, wash rack, etc).

18.11.4.1.1.3. **(Added-CAF)** TMDE overdue calibration or when calibration status cannot be verified.

18.11.4.1.1.4. **(Added-CAF)** Performance of maintenance without training or qualification on the task.

18.11.4.1.1.5. **(Added-CAF)** Violation of environmental protection federal, state, or local laws and/or Department of Defense or Air Force policies and directives.

18.11.4.1.1.6. **(Added-CAF)** Overdue time change and inspection items (-6 T.O. asterisk items) and unauthorized engine over-flies.

18.11.4.1.1.7. **(Added-CAF)** Any errors in CAD/PAD verification documents or data errors in the MIS that could affect the airworthiness or safety of flight.

18.11.4.1.1.8. **(Added-CAF)** Any inspections not loaded (except those specifically exempted by Air Force technical data) and improperly loaded aircraft, and low cycle fatigue cycle items.

18.11.4.1.1.9. **(Added-CAF)** T.O. violations, not using required T.O.s to perform tasks, or violations of mandatory directives and supplements, *when such may cause damage to government property or injury to government personnel*.

18.11.4.1.1.10. **(Added-CAF)** Use of out-of-date technical data or improper use of tools, *which may cause damage to government property or injury to government personnel.*

18.11.4.2. **(Added-CAF)** Minor Discrepancy. 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. NOTE: If the QAE determines it is appropriate, minor discrepancies that consist of a grouping of like deficiencies; for example, a bench stock with 6 co-mingled bins, 10 bins not flagged, and 4 bins with torn labels may be documented as one discrepancy against the observation guide.

18.11.5. Documentation File Inspections. Rate documentation file inspections for aircraft, support equipment, and engines. The inspections include review of the status and historical documents (include documents in the MIS). Send discrepancies found in the historical documents file to the contractor for corrective action. Actual discrepancies are not corrected except for items of a historical nature, including automated documents that can be verified from other sources. Specifically:

18.11.5.1. Each incorrect clearing of a Red X symbol, erasures of symbols, overdue Time Change Items (TCIs), and overdue inspections caused by improper documentation

are considered major discrepancies. The correct use and clearance of Red X symbols are items of special attention during documentation file inspections. QAEs must ensure unsafe or unfit for operation conditions are represented by Red X entries and these entries are properly cleared.

18.12. Functional Check Flight (FCF) Pilot Responsibilities. FCF pilots assigned to the QAE activity may assist the FC/FD and chief QAE as necessary. Additionally, FCF pilots after completing QAE training requirements may perform no-notice installed engine operation inspections and training IAW AFI 21-101. FCF pilots will inform the chief QAE of problems or adverse trends in contractor performance Noted when performing FCFs.

18.13. Documenting/correcting contractor performance. QAE technical, observation area, or as observed inspections will be documented using applicable AF IMTs/forms or electronic equivalent. Document any discrepancies as soon as they are discovered, and notify the contractor as soon as the surveillance is completed. After the surveillance form is completed, QAEs must also request a contractor representative to initial the document on which the inspection is recorded to acknowledge receipt of performance assessment results and not necessarily concurrence with the findings. If the contractor representative refuses to initial, it is so Noted by the QAE. A date and time the discrepancy is discovered is also annotated, and the contract representative is asked to correct the problem. Document and bring to the attention of the contractor errors found in services not scheduled for observation, but do not use unscheduled or as observed inspections to determine performance acceptability for the contractors monthly rating.

18.14. End of month surveillance summary. At the end of each month the chief QAE compiles a monthly summary of all QAE surveillance activities for the month. The content, format and routing of the end of month surveillance summary will be determined by each MAJCOM.

18.14.1. **(Added-CAF)** Chief QAE will complete a Monthly Activity Report (MAR) that will include inspections/evaluations/audits results for that month, with a summary of deficiencies noted and any trends identified. It is also recommended to include any CAR updates, a summary of the business relationship with the contractor, and Chief QAE comments. See Attachment 13 for suggested content and format.

18.15. Contractor non-conformance. If at any time during the surveillance rating period (typically monthly or quarterly as specified by the contract Section C requirements document), the results of surveillance required by the PP show that the number of unacceptable observations do not meet contract standards or performance requirements, and the chief QAE determines it is not government caused, the QAE organization initiates a corrective action request specified by the applicable contract or a form specified by the MAJCOM.

18.15.1. Forward the completed report to the PCO/ACO for evaluation. If the PCO/ACO determines it is appropriate, send the report to the contractor, with return receipt requested. The contractor normally has 15 calendar days from date of receipt to return the report to the PCO/ACO with a response as to cause, corrective action, and actions taken to prevent recurrence. The PCO/ACO, in consultation with the QAE, evaluates the contractor's response and takes appropriate action.

18.15.2. If the contractor's actions cited by the contractor in their response to the report fail to correct the area of non-conformance, the chief QAE ensures another corrective action request is initiated for any subsequent surveillance rating periods in the same non-conforming area.

18.15.3. If any areas of non-conformance are not corrected using previous guidance, it is the responsibility of the FC/FD to contact the PCO/ACO or government program office to initiate discussion with corporate headquarters or issue a cure notice. In extreme circumstances a show cause notice or a contract termination notice may be required as determined by the FC/FD and PCO.

18.15.4. **(Added-CAF)** Corrective Action Requests will be initiated by QAEs when appropriate. CARs are issued when the contractor fails to meet a Service Summary requirement, for major nonconformance, or when the contractor fails to correct minor nonconformance discrepancies in a timely manner. As a minimum this could have an effect on the contractors past performance and could result in money being withheld from the contractor for failure to perform. When a QAE has initiated a CAR, immediately forward a copy of this report to the Chief QAE. The Chief QAE and QAE may compute a proposed payment deduction based on the performance period in which the performance occurred. Following Chief QAE, FAM, and PM review, the CAR will be routed NLT 3 duty days to the CO. The CO will evaluate the CAR and, if appropriate, sign and send to the contractor (return receipt requested), and assign a suspense for corrective/preventive actions. The CO shall forward the CAR within 5 days of receipt from Chief QAE/PM coordination. Upon receipt of the contractor's response, the CO, in consultation with the Chief QAE, and if applicable, the FAM must evaluate the contractor's response and take the appropriate action. See Attachment 14 for suggested content and format.

18.16. Past Performance Reporting. QAE organizations in coordination with the FC/FD and PCO/ACO will accomplish annual contractor performance reporting using the Contractor Performance Assessment Reporting System (CPARS) as identified in the June 2007 AF CPARS guide. For more information: **http://www.cpars.csd.disa.mil/cparsfiles/cpars/refmatl.htm**.

18.17. Acceptance of services will be accomplished utilizing DD Form 250 or the Wide Area Work Flow system (WAWF). It is the chief QAE's responsibility to validate the accuracy of financial figures submitted by the contractor prior to the government paying for services.

18.18. Award fee administration. Award fee management procedures will be determined by the applicable contract award fee evaluation plan or MAJCOM determined procedures.

18.19. Transition administration (FAR Part 49). During the transition period of a contract, the QAE organization is responsible to ensure the contractor meets all criteria outlined in the contractor proposed transition plan.

18.20. Prescribed Forms. AF IMT 596, *Quick Engine Change Kit Inventory*

AF IMT 726, *Transient Aircraft Service Record*

AF IMT 861, *Base/Transient Job Control Number Register*

AF IMT 2400, *Functional Check Flight Log*

AF Form 2401, *Equipment Utilization/Maintenance Schedule*

AF IMT 2406, *Maintenance Preplan*

AF IMT 2407, *Weekly/Daily Flying Schedule Coordination*

AF IMT 2408, *Generation Maintenance Plan*

AF IMT 2409, *Generation Sequence Action Schedule*

AF IMT 2410, *Inspection/TCTO Planning Checklist*

AF IMT 2419, *Routing and Review of Quality Control Reports*

AF IMT 2420, *Quality Assurance Inspection Summary*

AF IMT 2426, *Training Request and Completion Notification*

AF IMT 2434, *Munitions Configuration and Expenditure Document*

AF IMT 2521, *Turn-Around Transaction Log*

AF IMT 4366, *Aircraft Inspection Flow Chart*

AF IMT 4367, *Aircraft Discrepancy Gig Sheet*

CAF Form 22, *SEM/EDX Debris Analysis Form*
CAF Form 64, *Request for Special Certification*
CAF Form 122, *Abort/IFE Record*
CAF Form 140, *CTK Inventory and Control Log*
CAF Form 145, *Lost Tool/Object Report*
CAF Form 147, *QA Impoundment Record*

18.21. Adopted Forms. AF IMT 3, *Hazard Abatement Plan*

AF IMT 55, *Employee Safety and Health Record*

AF IMT 457, *USAF Hazard Report*

AF IMT 601, *Equipment Action Request*

AF Form 623, *Individual Training Record*

AF IMT 623A, *On-the-Job Training Record Continuation Sheet*

AF IMT 797, *Job Qualification Standard Continuation*

AF IMT 898, *Field Training Requirements Scheduling Document*

AF Form 979, *Danger Tag*

AF Form 1032, *WRM Spare List*

AF IMT 1067, *Modification Proposal*

AF IMT 1098, *Special Tasks Certification and Recurring Training*

AF Form 1118, *Notice of Hazard*

AF Form 1199, *USAF Restricted Area Badge*

AF IMT 1297, *Temporary Issue Receipt*

AF Form 1492, *Warning Tag*

AF IMT 1800, *Operators Inspection Guide and Trouble Report (General Purpose Vehicles)*

AF IMT 1815, *Difficulty Report Worksheet*

AF IMT 1996, *Adjusted Stock Level*

AF IMT 2001, *Notification of TCTO Kit Requirements*

AF IMT 2005, *Issue/Turn-In Request*

AF IMT 2096, *Classification/ On The Job Training Action*

AF IMT 2402, *Weekly Equipment Utilization and Maintenance Scheduler*

AF IMT 2403, *Weekly Aircraft Utilization/Maintenance Schedule*

AF IMT 2411, *Inspection Document*

AF Form 2413, *Supply Control Log*

AF IMT 3215, *Communications-Computer Systems Requirements Document*

AFTO IMT 20, *Repair Cost and Reparable Value Statement*

AFTO IMT 22, *Technical Manual (TM) Change Recommendation and Reply*

AFTO IMT 45, *Request for Calibration Responsibility Determination*

AFTO IMT 82, *Certificate-Proofing TCTOs/Kits*

AFTO IMT 95, *Significant Historical Data*

AFTO IMT 103, *Aircraft/ Missile Condition Data*

AFTO IMT 158, *TO Review Comment Sheet*

AFTO IMT 244, *Industrial/Support Equipment Record*

AFTO IMT 349, *Maintenance Data Collection Record*

AFTO Form 350, *Reparable Item Processing Tag*

AFTO Form 391, *Parachute Log*

AFTO Form 392, *Parachute Repack, Inspection and Component Record*

AFTO Form/IMT 781, *AFORMS Aircrew/Mission Flight Data Document*

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

AFTO Form/IMT 781C, *Avionics, Configuration and Load Status Document*

AFTO Form/IMT 781D, *Calendar and Hourly Item Inspection Document*

AFTO Form/IMT 781F, *Aerospace Vehicle Flight Report and Maintenance Document*

AFTO Form/IMT 781H, *Aerospace Vehicle Flight Status and Maintenance Document*

AFTO Form/IMT 781J, *Aerospace Vehicle - Engine Flight Document*

AFTO Form/IMT 781K, *Aerospace Vehicle Inspection, Engine Data, Calendar Inspection and Delayed Discrepancy Document*

DD Form 1149, *Requisition and Invoice or Shipping Document*

DD Form 1348-1A, *DoD Single Line Item Release/ Receipt Document*

DD Form 1348-6, *DoD Single Line Item Requisition System Document*

DD Form 1610, *Request and Authorization for TDY Travel of DoD Personnel*

DD Form 2026, *Oil Analysis Request*
DD Form 2861, *Cross-Reference*

FAA Form 8110-12, *Application for Type Certificate*

SF 364, *Report of Discrepancy*

SF 368, Product Quality Deficiency Report

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Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

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Abbreviations and Acronyms

ABDR—Aircraft Battle Damage Repair

AC—Aircraft Commander

ACC—Air Combat Command

ACN—Authorization Change Notice

ACM—Aircraft Configuration Management

ACPINS—Automated Computer Program Identification Number System

ACR—Authorization Change Requests

ACS—Agile Combat Support

ADCC—Assistant Dedicated Crew Chief

ADF—Automatic Direction Finder

ADPE—Automated Data Processing Equipment

ADR—Aircraft Document Review / Ammunition Disposition Report

ADS—Automated Data System

AEF—Aerospace Expeditionary Force

AETC—Air Education and Training Command

AFCSM—Air Force Computer Security Manual

AFE—Aircrew Flight Equipment

AFEMS—Air Force Equipment Management System

AFETS—Air Force Engineering and Technical Service

AFI—Air Force Instruction

AFJMAN—Air Force Joint Manual

AFMAN—Air Force Manual

AFMC—Air Force Materiel Command

AFMETCAL—Air Force Metrology and Calibration Program

AFNCC—Air Force Network Control Center

AFORMS—Automated Forms

AFOSH—Air Force Occupational Safety and Health

AFOSHSTD—Air Force Occupational Safety and Health Standards

AFPAM—Air Force Pamphlet

AFPD—Air Force Policy Directive

AFRC—Air Force Reserve Command

AFREP—Air Force Repair and Enhancement Program

AFSATCOM—Air Force Satellite Communications

AFSC—Air Force Specialty Code

AFSOC—Air Force Special Operations Command

AFIT—Air Force Institute of Technology

AFRL—Air Force Research Laboratory

AFTO—Air Force Technical Order

AGE—Aerospace Ground Equipment

AGETS—Automated Ground Engine Test Set

AGM—Air Surface Attack Guided Missile

AHRS—Attitude Heading Reference System

AIMS—Air Intercept Missile System

AIS—Aircraft Instrumentation System

ALC—Air Logistics Center

AMA—Acceleration Monitor Assemblies

AMC—Air Mobility Command

AME—Alternate Mission Equipment

AMU—Aircraft Maintenance Unit

AMOG—Air Mobility Operations Group

AMQP—Aircraft Maintenance Qualification Program

AMS—Air Mobility Squadron

AMXS—Aircraft Maintenance Squadron

ANG—Air National Guard

AOR—Area of Responsibility

A/P—Airframe/Powerplant

APP—Auxiliary Power Plant

APU—Auxiliary Power Unit

AQL—Acceptable Quality Level

ARC—Air Reserve Component/Automated Records Check

ART—AEF Reporting Tool

AS—Allowance Standard

ASC—-Aeronautical Systems Center

ASIP—Aircraft Structural Integrity Program

ASIMIS—Aircraft Structural Integrity Management Information System

ASM—Aircraft Structural Maintenance

ATC—Air Traffic Control

ATD—Aircrew Training Devices

ATERS—Automatic Test Reporting System

ATM—Air Turbine Motor

ATO—Air Tasking Order

ATSO—Ability To Survive and Operate

AUR—Accomplishment Utilization Report / All-Up-Round

AURC—All-Up-Round Container

AVDO—Aerospace Vehicle Distribution Office

AVTR—Airborne Videotape Recorder

AWBS—Automated Weight and Balance System

AWM—Awaiting Maintenance

AWP—Awaiting Parts

BCS—Bench Check Serviceable

BE—Bioenvironmental Engineering

BPO—Basic Post-flight

BRA—Bomb Rack Assembly

BRU—Bomb Rack Unit

BSL—Basic Systems Listing

CA—Cannibalization Authority / Combat Support Coded

CA/CRL—Custodian Authorization/Custody Receipt Listing

CAD—Computer Aided Design

CAD/PAD—Cartridge/Propellant Activated Device

CAF—Combat Air Forces

CALCM—Conventional Air Launched Cruise Missile

CANN—Cannibalization

CAS—Combat Ammunition System

CASS—Centralized Aircraft Support System

CAST—Combat Armament Support Team / Command Aircraft Systems Training

CATM—Captive Air Training Munition

CBM—Carriage Conventional Bomb Module

CBM+—Condition-Based Maintenance Plus

CBRNE—Chemical, Biological, Radiological, Nuclear and high-yield Explosive

CBT—Computer-Based Training

CBU—Cluster Bomb Unit

CC—Commander

CCD—Course Control Document

CCI—Controlled Cryptographic Item

CCMS—Compass Call Mission Simulator

CCY—Calculated Cycles

CD—Command Disable / Deputy Commander (e.g., MXG/CD)

CDB—Central Database

CDC—Career Development Course

CDDAR—Crashed, Damaged, or Disabled Aircraft Recovery

CE—Civil Engineer / Communications Electronics

CEMS—Comprehensive Engine Management System

CETS—Contractor Engineering and Technical Services

CFETP—Career Field Education and Training Plan

CFT—Conformal Fuel Tank / Contract Field Team

CGO—Continuing Government Organization

CGP—Central Ground Processors

CHPMSK—Centralized High Priority Mission Support Kit

CIP—Control Indicator Programmer

CIRF—Centralized Intermediate Repair Facility

CITS—Central Integrated Test System

CL—Checklist

CLS—Contract Logistics Support

CM—Configuration Management

CMS—Component Maintenance Squadron

CND—Can Not Duplicate

COMAFFOR—Commander, Air Force Forces

COMBS—Contractor Operated and Maintained Base Supply

COMSEC—Communications Security

CONUS—Continental United States

CONOPS—Concept of Operations

COR—Contracting Officers Representative

COTR—Contracting Officer Technical Representative

CPIN—Computer Program Identification Numbering

CPT—Cockpit Trainer

CRP—Centralized Rotable Pool

CSO—Concurrent Servicing Operation

CSRL—Conventional Stores Rotary Launcher

CSS—Concurrent Servicing Supervisor / Chief Servicing Supervisor

CTK—Composite Tool Kit

CTVS—Cockpit Television Sensor

CUT—Cross Utilization Training

CV—Vice Commander

CVR—Cockpit Voice Recorder

CW—Chemical Warfare / Continuous Wave

CWO—Combat Wing Organization

DAFSC—Duty Air Force Specialty Code

DBM—Database Manager

DCC—Dedicated Crew Chief

DCMA—Defense Contract Management Agency

DD—Delayed Discrepancy

DDR—Daily Demand Rate

DDTS—Data Display Training Set

DECC—Defense Enterprise Computer Center

DFAS—Defense Finance & Accounting Service

DFT—Depot Field Team

DIFM—Due-in From Maintenance

DIREP—Difficulty Report

DIT—Data Integrity Team

DLIR—Downward-Looking Infrared Radar

DLO—Dual Loading Operation

DOC—Designed Operational Capability

DoD—Department of Defense

DOI—Date of Installation

DOM—Date of Manufacture / Director of Maintenance

DOP—Dropped Object Prevention

DOR—Due-Out Release

DR—Deficiency Report

DRMO—Defense Reutilization and Marketing Office

DS—Defensive Systems

DSN—Defense Switching Network

DSS—Decentralized Supply Support

DSV—Detected Safety Violations

DVR—Document Validation Report

E-Tools—Electronic Tools

E&E—Electro-Environmental

E&HWG—Environmental and Health Working Group

EA—Electronic Attack

EAID—Equipment Authorization Inventory Data

EAWP—Engine Automated Work Package,

ECM—Electronic Countermeasures

ECP—Entry Control Point

ECSS—Expeditionary Combat Support System

EDSC—Engineering Data Service Center

EHM—Engine Health Management

EHR—Event History Recorder

EID—Event Identification Description / Equipment Identification Designator

EIP—Equipment Inoperative for Parts

ELT—Emergency Locator Transmitter

EM—Engine Management Section

EMOC—Enhanced Maintenance Operations Center

EMR—Electromagnetic Radiation

EMS—Equipment Maintenance Squadron/ Environmental Management System

ENMCS—Engine Not Mission Capable-Supply

ES—S—Enterprise Solution-Supply

EOD—Explosive Ordnance Disposal

EOQ—Economic Order Quantity

EOR—End of Runway

EOT—Engine Operating Time

EPA—Environmental Protection Agency

EPE—Evaluator Proficiency Evaluation

ER—Exceptional Release

ERRC—Expendability, Recoverability, Reparability Code

ESOH—Environment Safety and Occupational Health

ESOHMS—Environment, Safety, and Occupational Health Management System

ETTAS—Engine Test Trim Automated System

ETIC—Expected Time in Commission

ET&D—Engine Trending and Diagnostics

EVS—Electro-optical Viewing System

EW—Electronic Warfare

EWO—Emergency War Order/Electronic Warfare Officer

EWS—Electronic Warfare System

EX—Exercises/Contingencies

EXPRESS—Execution and Prioritization of Repair Support System

FAA—Federal Aviation Administration

FAD—Force Activity Designator

FAM—Functional Area Manager

FAR—Federal Acquisition Regulation

FC/FD—Functional Commander/Functional Director

FCC—Flying Crew Chief

FCF—Functional Check Flight

FCT—Flight Circuit Test

FDR—Flight Data Recorder

FEMS—Facility and Equipment Management System

FIT—Facility for Interoperability Testing

FK—Air Force Stock Record Account Number Prefix (munitions)

FLIR—Forward-Looking Infrared Radar

FO—Foreign Object

FOD—Foreign Object Damage

FOL—Forward Operating Location

FOM—Facilitate Other Maintenance

FOUO—For Official Use Only

FSAS—Fuel Savings Advisory System

FSC—Flight Service Center

FSL—Full Systems Listing / Forward Support Location

FTD—Field Training Detachment

FUD—File Update Mode

FV—Air Force Stock Record Account Number Prefix (munitions)

FY—Fiscal Year

G081—IMDS for Mobility

GBL—Government Bill of Lading

GBU—Guided Bomb Unit

GCSAS—Generic Configuration Status Accounting Subsystem

GEOLOC—Geographical Location

GITA—Ground Instructional Trainer Aircraft

GLSC—Global Logistics Support Center

GOX—Gaseous Oxygen

GP—Group

GP/CC—Group Commander

GPC—Government Purchase Card

GPS—Global Positioning System

GPWS—Ground Proximity Warning System

GSAS—Generation Sequence Action Schedule

GTC—Gas Turbine Compressor

GSU—Geographically Separated Units

HAF—Headquarters, US Air Force

HAZMAT—Hazardous Material

HF—High Frequency

HHQ—Higher Headquarters

HMXS—Helicopter Maintenance Squadron

HPO—Hourly Post-flight/ High Performance Organization

HQ—Headquarters

HSC—Home Station Check

IAW—In Accordance With

ID—Identification

IDEA—Innovation Development through Employee Awareness

I-Deck—Initialization Deck

IETM—Interactive Electronic Technical Manuals

IFE—In-Flight Emergency

IFF—Identification Friend or Foe

IFR—In Flight Refueling

IG—Inspector General

ILM—Intermediate Level Maintenance

ILS—S—Integrated Logistics Systems-Supply

IM—Item Manager

IMDS—Integrated Maintenance Data System

IMDS—CDB—Integrated Maintenance Data System-Central Data Base

IMIS—Integrated Maintenance Information System

INS—Inertial Navigation System

INW—In Work

IP—Instructor Pilot

IPI—In-Process Inspection

IPL—Immediately Prior to Launch

IPMS—Information Processing Management System

IRADS—Infrared Acquisitions/Designation System

IREP—Intermediate Repair Enhancement Program

IRSP—In-place Readiness Spares Packages

ISO—Isochronal Inspection

JCALS—Joint Computer-Aided Acquisition and Logistics Support

JCN—Job Control Number

JDD—Job Data Documentation

JDRS—Joint Deficiency Reporting System

JEIM—Jet Engine Intermediate Maintenance

JETSC—Jet Engine Test Cell/Stand Calibrator

JFACC—Joint Forces Air Component Commander

JML—Job Standard Master Listing

JQS—Job Qualification Standard

JST—Job Standard

JTIDS—Joint Tactical Information Distribution System

JUMPS—Joint Uniform Military Pay System

KTL—Key Task List

LAN—Local Area Network

LANTIRN—Low Altitude Navigation and Targeting Infrared for Night

LCAT—Logistics Compliance Assessment Team

LCAP—Logistics Standardization and Evaluation Program

LCAP—Logistics Compliance Assessment Program

LCL—Local Checklist

LCN—Logistics Control Number

LESS—Loads Environment Spectra Survey

LIMFAC—Limiting Factor

LJG—Local Job Guides

LM—Limited-use Munition

LM—Two Level Maintenance

LM—Three Level Maintenance

LME—Locally Manufactured Equipment

LMR—Land Mobile Radio

LMSS—LANTIRN Mobility Shelter Set

LN2—Liquid Nitrogen

LO—Low Observable

LORAN—Long Range Aid to Navigation

LOX—Liquid Oxygen

LPS—Local Page Supplement

LPT—Loaded Pylon Test

LRE—-Launch Recovery Element

LRS—Logistics Readiness Squadron

LRU—Line Replaceable Unit

LSC—Load Standardization Crew

LSP—Logistics Support Plan

LV—Leave

LWC—Local Work cards

MADAR—Malfunction Detection, Analysis, and Recording System

MAF—Mobility Air Forces

MAJCOM—Major Command

MASO—Munitions Accountable System Officer

MC—Mission Capable

MCD—Magnetic Chip Detectors

MCE—Mission Control Element

MDF—Mission Data File

MDS—Mission Design Series

MEL—Minimum Equipment Level

MMA—Maintenance Management Analysis

MEP—Mission Essential Personnel

MEL—Minimum Essential Level

MEO—Most Efficient Organization

MER—Multiple Ejection Rack

MESL—Minimum Essential Subsystems List

MFG—Munitions Family Group

MI—Management Inspection

MICAP—Mission Capable

MISCAP—Mission Capability

MIL—Master Inventory List

MILSPEC—Military Specification

MIS—Maintenance Information Systems

MMCL—MAJCOM Mandatory Course List

MMHE—Munitions Materiel Handling Equipment

MOA—Memorandum of Agreement

MOC—Maintenance Operations Center

MOF—Maintenance Operations Flight

MOS—Maintenance Operations Squadron

MPF—Military Personnel Flight

MPRL—Minimum Proficiency Requirement Loading

MPWG—Maintenance Planning Working Group

MQC—Maintenance Qualification Centers

MRS—Mission Route Support

MRT—Maintenance Recovery Team

MSAT—Maintenance Scheduling Application Tool

MSD—Material Support Division

MSE—Munition Support Equipment

MSEP—Maintenance Standardization & Evaluation Program

MSET—Maintenance Standardization & Evaluation Team

MSG—Mission Support Group

MSIM—Mission Simulator

MSK—Mission Support Kit

MSL—Maintenance Supply Liaison

MSPE—Maintenance Safety and Protection Equipment

MTD—Maintenance Training Device

MTF—Maintenance Training Flight

MTR—Military Travel Request

MTT—Mobile Training Team

MUNS—Munitions Squadron

MX—Maintenance

MXG—Maintenance Group

MXS—Maintenance Squadron

NAF—Numbered Air Force

NAS—National Aerospace Standard

NATO—North Atlantic Treaty Organization

NBCC—Nuclear, Biological, Chemical and Conventional

NDI—Non-Destructive Inspection

NEW—Net Explosive Weight

NHA—Next Higher Assembly

NIE—Normally Installed Equipment

NLT—Not Later Than

NMC—Not Mission Capable

NMCS—Not Mission Capable - Supply

NPA—Non-Powered AGE

NRTS—Not Repairable This Station

NSN—National Stock Number

NSS—Noise Suppression System

NWRM—Nuclear Weapons Related Material

O&M—Operations and Maintenance

OAP—Oil Analysis Program

OAS—Offensive Avionics System

OBOGS—On-Board Oxygen Generating Systems

OCF—Operational Check Flight

OCONUS—Outside Continental U.S.

OCR—Office of Collateral Responsibility

OFP—Operations Flight Program

OG—Operations Group

OI—Operating Instruction

OIC—Officer in Charge

OJT—On-the-Job Training

OPLAN—Operational Plan

OPR—Office of Primary Responsibility

ORI—Operational Readiness Inspection

ORM—Operational Risk Management

OSAT—Oil System Awareness Training

OSHA—Occupational Safety and Health Administration

OS—Operational Squadron

OSS—Operations Support Squadron

OSS&E—Operational Safety Suitability and Effectiveness

OTI—One Time Inspection

OTS—Over-The-Shoulder

OWC—Owning Work Center

PAA—Primary Aerospace Vehicle (Aircraft) Authorized

PACAF—Pacific Air Forces

PAI—Primary Aerospace Vehicle (Aircraft) Inventory

PAMS—PMEL Automated Management System

PAS—Protective Aircraft Shelter / Personnel Assignment (Code)

PATEC—Portable Automatic Test Equipment Calibrator

PBR—Percent of Base Repair

PCS—Permanent Change of Station

PDM—Programmed Depot Maintenance

PE—Personnel Evaluation

PE/PI—Personnel Evaluation / Periodic Inspection

PIM—Product Improvement Manager

PIP—Product Improvement Program

PIWG—Product Improvement Working Group

PGM—Product Group Managers

PM—Primary Munition

PMA—Portable Maintenance Aids

PMAP—Performance Management Assessment Program

PMC—Partially Mission Capable

PMCB—Partially Mission Capable - Both (maintenance & supply)

PMCM—Partially Mission Capable - Maintenance

PMCS—Partially Mission Capable - Supply

PMEL—Precision Measurement Equipment Laboratory

PMI—Preventive Maintenance Inspection

PMP—Program maintenance Package

PO—Program Office

POC—Point of Contact

POL—Petroleum, Oil, and Lubricants

POMX—Point Of Maintenance

PPC—Possession Purpose Code

PPE—Personal Protective Equipment

PSC—Production Support Center

PRD—Pilot Reported Discrepancy

PRP—Personnel Reliability Program

PRS—Performance Requirements Statement

PS&D—Plans, Scheduling, and Documentation

PWS—Performance Work Statement

QA—Quality Assurance

QAE—Quality Assurance Evaluator

QAR—Quality Assurance Representative

QC—Quality Control /Quality Check

QE—Quarterly Evaluation

QEC—Quick Engine Change

QP—Quality Program

QPA—Quantity Per Assembly

QPD—Qualified Product Database

QRC—Quick Reaction Checklists

QRL—Quick Reference List

QIMSS—Quality Information Management Standard System

QVI—Quality Verification Inspections

RAM—Radar Absorbent Material

RAMPOD—Reliability, Availability, Maintainability for Pods

RASCAL—Rapid Assistance Support for Calibrations

RCM—Reliability Centered Maintenance

RCT—Repair Cycle Time

REMIS—Reliability and Maintainability Information System

RIL—Routine Inspection List

RPA—Remotely Piloted Aircraft

RSP—Readiness Spares Package

RTC—Regional Training Center

RTHW—Radar Threat Warning

RTS—Radar Test Set

RTOK—Re-Test O.K.

RWR—Radar Warning Receiver

R&M—Reliability and Maintainability

R&R—Repair and Reclamation

SA—Support Agreement

SARSAT—Search and Rescue Satellite Aided Tracking

SAS—Stability Augmentation Systems

SATCOM—Satellite Communication

SAV—Staff Assistance Visit

SCL—Standard Conventional Load

SCR—Special Certification Roster

SDAP—Special Duty Assignment Pay

SE—Support Equipment

SEI—Special Experience Identifier

SF—Standard Form

SGNSC—Self Generating Nitrogen Servicing Cart

SI—Special Inspection

SIPRNET—Secret Internet Protocol Router Network

SIT—System Interface Test

SM—Single Manager / Support Munitions

SME—Subject Matter Expert

SMR—Source of Maintenance and Recoverability

SNCO—Senior Non-Commissioned Officer

SORTS—Status Of Resources and Training System

SOT—Status Of Training

SOW—Statement Of Work

SPD—System Program Director

SPM—System Program Manager

SPO—System Program Office

SPRAM—Special Purpose Recoverables Authorized Maintenance

SQ—Squadron

SQ/CC—Squadron Commander

SR—Service Report / Strategic Radar

SRAN—Stock Record Account Number

SRD—Standard Reporting Designator

SRU—Shop Replaceable Unit

SSEA—System Safety Engineering Analysis

SUPT—Superintendent (Enlisted Duties)

SY—Sympathy

TAC—Total Accumulated Cycles

TACAN—Tactical Air Navigation

TACC—Tanker/Airlift Control Center

TAL—Task Assignment List

TAS—Tool Accountability System

TBA—Training Business Area

NFTBU—Tank Build-Up

TCAS—Traffic Collision Avoidance System

TCI—Time Change Item

TCN—Transportation Control Number

TCS—TCTO Status Report

TCTO—Time Compliance Technical Order

TD—Training Detachment / Temporary Duty

TDI—Tamper Detection Indicators

TDV—Technical Data Violation

TDY—Temporary Duty

TEC—Type Event Code

TEMS—Turbine Engine Monitoring System

TER—Triple Ejection Rack

TF—Training Funded

TFCU—Transportable Field Calibration Unit

TIN—Turn In

TISL—Target Identification Set Laser

TK—Tool Kit

TMATS—Transmitter/Modulator Assembly Test Set

TMDE—Test Measurement and Diagnostic Equipment

TMF—Traffic Management Flight

TMSM—Type Make Series Modification

TNB—Tail Number Bin

TNO—Theater Nuclear Option

TO—Technical Order

TODA—Technical Order Distribution Account

TODO—Technical Order Distribution Office

TRAP—Tanks, Racks, Adapters, and Pylons

TRE—Transfer of Equipment

TRIC—Transaction Identification Code

TRN—Turnaround Transaction

TRSS—Training Support Squadron

TSC—Technical Support Center

TTML—Test/Training Munitions List

TTP—Tactics, Techniques & Procedures

UAV—Unmanned Aerial Vehicle

UCAV—Unmanned Combat Aerial Vehicle

UCI—Unit Compliance Inspection

UCML—Unit Committed Munitions List

UCR—Unsatisfactory Condition Report

UDM—Unit Deployment Manager

UEC—Unit Environmental Coordinator

UEM—Unit Engine Manager

UHF—Ultra High Frequency

UJC—Urgency Justification Code

UMD—Unit Manning Document

UND—Urgency of Need Designator

UPMR—Unit Personnel Management Roster

USAF—United States Air Force

USAFE—United States Air Forces in Europe

UTA—Unit Training Assembly

UTC—Unit Type Code

UTE—Utilization (rate)

UTM—Unit Training Manager

VHF—Very High Frequency

VTT—Video Tele-Training

W&B—Weight and Balance

W&T—Wheel and Tire

WCE—Work Center Event

WG—Wing / Wage Grade

WG/CC—Wing Commander

WG/CV—Vice Wing Commander

WLCMT—Weapons Load Crew Management Tool

WLT—Weapons Load Training

WMP—War Mobilization Plan

WRCS—Weapons Release Computer System

WRM—War Reserve Materiel

WRMO—War Reserve Materiel Officer

WS—Weapons Standardization

WS3—Weapons Storage and Security System

WTQC—Weapons Task Qualification Crew

WTQM—Weapons Task Qualification Training Manager

WWID—Worldwide Identification (code for TAS)

WWM—Wing Weapons Manager

WX—Weather

WUC—Work Unit Code

Terms

Aircraft Impoundment—Isolation of an aircraft due to an unknown malfunction or condition making it unsafe for flight.

Aircraft Maintenance Qualification Program (AMQP)—Conducts training in an environment that is not in competition with sortie production. Ensures personnel arrive at their work center with the necessary skills to be immediately productive.

Aircrew Training Device (ATD)—Weapons systems simulator or designated training aircraft.

AF Portal Gadgets—Computer displays that provide the functional capability to track and update asset status.

Aircraft B—Status Possession Codes—Sample B-status codes (specified in AFI 21-103): BJ=crash/battle damage awaiting AFMC assist/decision; BK=command programmed maintenance; BL=extended transit maintenance; BN=crash damaged (unit repairable); BO=battle damage; BQ=major maintenance awaiting AFMC decision/action; BR= major maintenance awaiting parts; BT=aerospace vehicle transfer; BU=depot level maintenance; BW=weather/bird strike damage awaiting AFMC assist/decision; BX=weather/bird strike damage repairable by unit.

Aircraft D—Status Possession Codes—Sample D-status codes (specified in AFI 21-103): DJ=awaiting depot level maintenance work; DK=contract work; DL=depot delivery flight; DM=undergoing depot level maintenance; DO=programmed depot maintenance; DR=post depot/contractor maintenance.

Allowance Standard (AS)—Authorized document that identifies the amount and type of equipment for an organization.

Alternate Mission Equipment (AME)—Equipment identified to a higher end-item, not listed in the table of allowance. Normally, Dash-21 equipment.

Awaiting Maintenance (AWM)—Designation for a deferred discrepancy on an aircraft awaiting maintenance.

Awaiting Parts (AWP)—Designation for a deferred discrepancy on an aircraft awaiting parts.

Bench Stocks—Stores of expendability, recoverability, reparability coded (ERRC) XB3 items kept on-hand in a work center to enhance maintenance productivity.

Cannibalization—Authorized removals of a specific assembly, subassembly, or part from one weapons system, system, support system, or equipment end-item for installation on another end-item to meet priority mission requirements with an obligation to replace the removed item.

Certified Load Crew Member—A load crew member trained and certified by position according to **Chapter 12**.

Class I and Class II Aircraft—Classification categories used when calculating aircraft's weight and balance.

Code 1, Code 2, Code 3, Code 4, Code 5—Landing status codes used by aircrew to inform maintenance of their inbound aircraft's condition. A Code 1 aircraft has no additional discrepancies other than those it had when it last departed; a code 2 aircraft has minor discrepancies, but is capable of further mission assignments; a code 3 aircraft has major discrepancies in mission-essential equipment that may require repair or replacement prior to further mission tasking; a code 4 indicates suspected or known nuclear, biological, or chemical contamination; and a code 5 indicates battle damage. Codes 4 and 5 are entered into the MIS as code 8.

Combat Air Forces (CAF)—Term to collectively describe all ACC, AFRC, ANG, PACAF, and USAFE fighter/bomber units.

Commercial Derivative Aircraft—Any fixed or rotary-wing aircraft procured as a commercial Type Certified off-the-shelf aircraft, and whose serial number is listed on an FAA-approved Type Certified Data Sheet.

Commodity Time Compliance Technical Order—TCTO concerning a designated item, subsystem, or system that is not identified as a weapon or military system.

Composite Tool Kit (CTK)—A controlled area or container used to store tools or equipment and maintain order, positive control, and ease of inventory. CTKs are assembled as a kit and designed to provide quick, easy visual inventory and accountability of all tools and equipment. CTKs may be in the form of a toolbox, a shadow board, shelves, system of drawers (Stanley Vidmar, Lista, etc.), cabinets, or other similar areas or containers. The CTK contains tools and equipment necessary to accomplish maintenance tasks, troubleshooting, and repair.

Condition—Based Maintenance Plus—A set of maintenance processes and capabilities derived from real-time assessment of weapon system condition obtained from embedded sensors and/or external tests and measurements using portable equipment. The goal of CBM+ is to perform maintenance only when internal/external sensors indicate the need instead of performing maintenance on a periodic basis.

Course Control Documents (CCD)—Set of documents that dictate how a course is taught. These documents include a course training standard, course chart, and a plan of instruction.

Crash Damaged or Disable Aircraft Recovery (CDDAR)—The ability to move damaged or disabled aircraft using specialized equipment

Crosstells—Cross-tells are used to highlight trends, benchmarks or safety conditions relating to maintenance equipment, personnel, training or processes. A crosstell is initiated to assist other maintenance or logistics personnel with similar equipment to do their jobs more safely and/or efficiently. Typically a crosstell will be initiated when a condition or trend is discovered regarding (but not limited to) a weapon system or common components that should be shared with other users or potential users. This information should be transmitted using signed and encrypted email to ensure widest dissemination and ensure it is brought to the attention of unit commanders in order to prevent or mitigate mishaps, injury or damage to AF personnel,

equipment or property. Typically crosstells will provide relevant background information and history and can include such information as NSNs, part numbers, specific location of problem areas, etc.

Customer Wait Time (CWT)—CWT for LRUs is the total elapsed time between the issuance of a customer order and satisfaction of that order, regardless of source (immediate issues or backorders), and can include issues from wholesale and/or retail stocks as well as various other arrangements. CWT for end items (engines and pods) includes time for the retrograde and serviceable transportation legs.

Debriefing—Program designed to ensure malfunctions identified by aircrews are properly reported and documented.

Decertification—The removal of certification status from a person for a specific task

Dedicated Crew Chief—DCCs are first-level supervisors in the flightline management structure who manage and supervise all maintenance on their aircraft, and are selected on the basis of initiative, management and leadership ability, and technical knowledge.

Delayed or Deferred Discrepancies—Malfunctions or discrepancies not creating NMC or PMC status that are not immediately corrected.

Delayed Release—Munition or store that fails to eject from an aircraft upon firing of impulse cartridge, but releases sometime afterwards. (Release times qualifying "delayed" bombs are outlined in MDS-specific technical orders.)

Depot Level Maintenance—Maintenance consisting of those on- and off-equipment tasks performed using the highly specialized skills, sophisticated shop equipment, or special facilities of a supporting command; commercial activity; or inter service agency at a technology repair center, centralized repair facility, or, in some cases, at an operating location. Maintenance performed at a depot may also include organizational or intermediate level maintenance as negotiated between operating and supporting commands.

Dispatchable CTK—CTK issued out and is designed to be used outside the work center.

Equipment Custodian—Individual responsible for all in-use equipment at the organizational level whose duties include requisitioning, receiving, and controlling of all equipment assets.

Equipment Identification Designator (EID)—A number assigned to a piece of shop equipment, used to track status and accountability.

Equipment Items—Item authorized in the allowance standard within an organization.

Evaluated Load—A loading task that is assessed according to **Chapter 12**.

Flight Chief—NCO responsible to the maintenance officer or superintendent for management, supervision, and training of assigned personnel.

FK or FV—Prefix used to identify the munitions supply account. FV deNotes units utilizing the Combat Ammunition System (CAS) system and FK deNotes units utilizing ILS-S or manual records supply point within a munitions'' operations unit for conventional munitions.

Hung Ordnance—Any item attached to the aircraft for the purpose of dropping or firing which has malfunctioned or failed to release. In addition, hung ordnance includes the following items: (1) External fuel tanks after unsuccessful jettison attempt; (2) Remaining ordnance after an inadvertent release; (3) 20/30 mm ammunition after a gun malfunction (no fire, unplanned cease fire, runaway gun, or gun unsafe indication); (4) Any stores determined to be in an unsafe condition

Immediately Prior to Launch (IPL)—Specific tasks accomplished immediately prior to launching an aircraft.

In—Process Inspection (IPI)—Inspection performed during the assembly or reassembly of systems, subsystems, or components with applicable technical orders.

Inadvertent Release—Uncommanded launch or release of a store or ordnance, or launch/release of a store/ordnance other than those selected when a launch/release command was generated (i.e.; system malfunction); does not include an unintentional release. If commanding a single release, do not consider a double bomb release as an inadvertent release if the releases occur from a practice bomb dispenser.

Individual Tools and Equipment—Tools and equipment that are available for individual sign-out but stored in the tool room in storage bins, cabinets, shelves, etc., with every item having an assigned location (e.g., flashlights, ladders).

Intermediate—Level Maintenance—Maintenance consisting of those off-equipment tasks normally performed using the resources of the operating command at an operating location or at a centralized intermediate repair facility.

Lead Command—Lead Commands (IAW PAD 07-13) provide policy development and enforcement; studies and analysis; force development; and training management for assigned units (e.g., wings) and for those they provide reachback support to in component commands .

Lead Crews—A load crew certified by the load standardization crew (LSC), which is assigned to WS to assist in conducting the weapons standardization program.

Levels—Computed and authorized requirements for a quantity of assets.

Loading Standardization Crew (LSC)—A load crew designated by the WWM and the WS superintendent to administer the weapons standardization program. LSC members have certification and decertification authority

Loading Task—The actions required by one crew member, in a designated position, to accomplish a munitions load

Local Commander—The group commander with responsibility for maintenance (as applicable to loading technical data).

Locked Out or Tag Out—Energy isolating device is capable of being locked out if it has a hasp or other means of attachment to which or through which a lock can be affixed. Tag out devices, shall be substantial enough to prevent inadvertent or accidental removal.

Maintenance capability—Unit's ability to generate and sustain weapon systems to support the mission. It is composed of personnel, capacity (facilities, support equipment, and parts), and weapons systems and is affected by policies and business practices.

Maintenance Planning Working Group (MPWG)—The MPWG is a team consisting of the engine managers from each using MAJCOM, representatives from the using community, government development and depot teams, and the engine manufacturer. The purpose of the MPWG is to review and direct the life management and maintenance plans for the engine. The MPWG determines the objectives and content of their maintenance program. MPWG plans are updated based on field and depot experience.

Maintenance Training—Any proficiency, qualification, or certification tasking required by a technician to perform duties in their primary AFSC.

Master Inventory List (MIL)—Primary source document for inventory of CTKs. The MIL indicates the total number of items in each drawer or section of the tool kit. MIL may be automated.

Mission Design Series (MDS)—Alpha and numeric characters denoting primary mission and model of a military weapons system.

Mission Generation—Mission generation is the cumulative effort required to launch and recover sorties. It includes activities that generate sorties and train personnel to generate sorties, and is predominantly accomplished in an on-equipment environment.

Minimum Proficiency Requirement Loading (MPRL)—Recurring loading of munitions for which a person is certified.

Mobility Air Forces (MAF)—Term to collectively describe all AFRC, ANG, AMC, PACAF, and USAFE airlift/tanker units.

Munitions Decertification—Removal of the certification status of a person that precludes them from loading a specific type munitions or MFG.

Normally Installed Equipment (NIE)—Bomb racks, launchers, and pylons normally installed on an aircraft.

No—Lone Zone—Area where the two-person concept must be enforced because it contains nuclear weapons, nuclear weapons systems, or certified critical components.

Non—Release—System malfunction in which a weapon does not release from the delivery system.

Off—Equipment Maintenance—Maintenance tasks that are not or cannot be effectively accomplished on or at the weapon system or end-item of equipment, but require the removal of the component to a shop or facility for repair.

On—Equipment Maintenance—Maintenance tasks that are or can be effectively performed on or at the weapon system or end-item of equipment.

Operating Stock—The bits and pieces needed to support a maintenance work center that does not meet the criteria of bench stock. It includes reusable items such as dust covers, hydraulic line covers, caps, items leftover from work orders, TCTOs, and items deleted from bench stock.

Operational Readiness Inspection (ORI)—Inspection that measures a unit's war fighting readiness.

Organizational Level Maintenance—Maintenance consisting of those on-equipment tasks normally performed using the resources of an operating command at an operating location.

Personnel Protective Equipment (PPE)—Equipment required to do a job or task in a safe manner.

Preload—A complete munition and suspension equipment package ready for loading

Possession Purpose Code (PPC)—Also known as Purpose Identifier Code, it is a two-letter code that indicates ownership (possession) of the asset. For example, "BQ" = major maintenance awaiting AFMC decision/action; "CC" = combat; "DO" = depot level maintenance possession for depot work; etc.

Primary Aerospace Vehicle Authorized (PAA)—Aircraft authorized for performing a unit's mission (e.g., combat, combat support, training, test & evaluation). The PAA forms the basis for allocating operating resources to include manpower, support equipment, and flying hour funds. The operating command determines the PAA required to meet their assigned missions. "Authorized" refers to the number and type of aircraft an organization is programmed to possess.

Primary Aerospace Vehicle Inventory (PAI)—Aircraft assigned to meet the PAA. "Inventory" refers to the number of aircraft actually assigned to a unit and identified against a corresponding authorization.

Production Superintendent—Senior NCO responsible for squadron maintenance production. Directs the maintenance repair effort.

Programmed Depot Maintenance (PDM)—Inspection requiring skills, equipment, or facilities not normally possessed by operating locations.

Quality Assurance (QA)—Individual who monitors a contractor on a daily basis and who is involved in every aspect of a contract to ensure the contractor is in compliance with that contract.

Quarterly Evaluation (QE)—Recurring calendar task evaluations required by munitions and weapons personnel.

Queen Bee—A facility that performs engine repair for a specified region.

Quick Reference List (QRL)—Listing of fast moving, high use items required for primary mission aircraft. The basic purpose of the QRL is to provide maintenance personnel with a speedy way to place a demand on the supply system.

Rag—A remnant of cloth purchased in bulk or a standardized, commercial quality, vendor-supplied shop cloth (uniform size and color) or similar material used in general industrial, shop, and flightline operations.

Reclama—A request to a duly constituted authority to re-consider its decision or its proposed action (see JP 1-02).

Recurring Discrepancy—A recurring discrepancy is one that occurs on the second through fourth sortie or attempted sortie after corrective action has been taken and the system or sub-system indicates the same malfunction when operated.

Reliability-Centered Maintenance—A logical discipline for developing a scheduled-maintenance program that will realize the inherent reliability levels of complex equipment at minimum cost.

Remote Split Operations—Occurs when the ground control stations, the Unmanned Aerial Vehicle (UAV) launch and recovery functions, and the satellite uplink are geographically separated.

Repair Cycle Asset—Any recoverable item with an expendability, recoverability, reparability code (ERRC) category of XD or XF.

Repeat Discrepancy—One repeat discrepancy occurs on the next sortie or attempted sortie after corrective action has been taken and the system or sub-system indicates the same malfunction when operated.

Retrograde—Returning assets (particularly reparable assets) from the field to their source of repair.

Shop CTK—Tool kits (not dispatched) used by work center personnel during a shift, provided a single person is responsible for the tool kit.

Shop Stock—Includes items such as sheet metal, electrical wire, fabric, and metal stock, used and stored within a maintenance work center to facilitate maintenance.

Spares—Serviceable assets that are available for future use, and in the logistics pipeline. The term spare carries the assumption that there are already enough assets in the AF inventory to satisfy end item or quantity per aircraft requirements.

Special Certification Roster (SCR)—Management tool that provides supervisors a listing of personnel authorized to perform, evaluate, and inspect critical work.

Special Purpose CTK—Small individually issued tool kits that because of the nature of contents or type of container could preclude shadowing or silhouetting (e.g., launch kits, recovery kits, cartridge cleaning kits, oxygen servicing kits, etc).

Subcrew—Two or more certified and/or qualified personnel who may perform specific tasks

Supply Point—Forward warehouse located within or near the maintenance work center.

Tail Number Bins (TNB)—Locations established and controlled to store issued parts awaiting installation and parts removed to FOM. Holding bins are set up by tail number, serial number, or identification number.

Task Assignment List (TAL)—Functional grouping of procedural steps from applicable -33 series TOs, by crew position, to be accomplished in sequence by each crew member during an operation.

Technical Administrative Function—Function responsible for ordering and posting instructions, processing all orders, enlisted performance ratings, and general administrative tasks for the section.

Technical Order Distribution Office (TODO)—Function required to maintain records on TOs received and distributed.

Time Compliance Technical Order (TCTO)—Authorized method of directing and providing instructions for modifying equipment, and performing or initially establishing one-time inspections.

Tool Storage Facility/Tool Room—A controlled area within a work center designated for storage and issue of tools and equipment.

Total Asset Visibility—The capability to provide users with timely and accurate information on the location, movement, status, and identity of units, personnel, equipment, materiel, and supplies. It also includes the capability to act upon that information to improve overall performance of the Department of Defense's logistic practices.

Unintentional Release—Store or ordnance launched or released through pilot error.

Unit Committed Munitions List (UCML)—List of primary, support, and limited-use munitions necessary to meet unit operational/training requirements.

Unmanned Aerial Vehicle (UAV)—An unmanned aircraft that is either remotely piloted (e.g., Predator) or programmed (e.g., Global Hawk).

Urgency Justification Code (UJC)—Two-digit code used to reflect the impact and type of need. The urgency of need designator (UND) fills the first position of the UJC. Use of UND 1, A and J is restricted and is verified by designated personnel.

Utilization Rate (UTE Rate)—Average number of sorties or hours flown per primary assigned aircraft per period. Usually time period is based on a monthly rate.

Weapons Certification—The act of verifying and documenting a person's ability to load a particular type of aircraft, and munition or MFG within established standards

Weapons Locally—Manufactured Equipment (LME)—All equipment that measures, tests, or verifies system, subsystem, component, or item integrity. It also includes equipment such as handling dollies, storage racks (except storage shelves), maintenance stands, or transport adapters. It does not include simple adapter cables and plugs constructed as troubleshooting aids to replace pin-to-pin jumper wires specified in TOs.

Weapons Standardization (WS)—Organization comprised of the WWM, a Superintendent, the Load Standardization Crew, an academic instructor, and lead crews.

Weapons Task Qualification—A munitions related task not requiring certification

Weight and Balance (W&B) Program—Program used in calculating, verifying, updating, and computing weight and balance on a weapon system.

Attachment 2

SUPPLY REPORTS AND LISTINGS

Figure A2.1. Supply Reports and Listings.

Repair Cycle Asset Management Listing (D23). This listing is used to monitor repair cycle assets and as a management product to monitor the stock position and repair cycle status of repairable (DIFM) assets. It may be produced in several sequences and is provided to the customer daily. Refer to AFMAN 23-110, *USAF Supply Manual*.

Material Support Division (MSD) Due In From Maintenance (DIFM) Report (NGV994). Provides senior managers, flight OIC, and flight chiefs information on assets remaining in the repair cycle over a user defined number of days (e.g., 10 days) which are tying up large amounts of Cost per Flying Hour funds (e.g., over $10,000). This listing allows management to spot check the health of the repair cycle under the MSD concept and is available on request. Use this list to avoid penalty charges for DIFM items in the repair cycle greater than 60 days. **AWP Validation Listing (D19).** Provides AWP due-outs and corresponding due-in and status details. This information helps determine the status of AWP end items and their corresponding bits and pieces and identifies cross-cannibalization candidates. It is a daily listing and is provided to all work centers involved with AWP management.

Bench Stock Review Listing (M04). Listing of recommended additions, changes, and deletions to organizational bench stocks based on consumption patterns. Do not automatically make additions/deletions based on this listing but rather on expected future demands. The M04 is provided monthly.

Daily Document Register (D04). The D04 is used to monitor and validate supply transactions, which have occurred against a unit's supply account. Review daily for all charges, credits, and other transactions (ISUs, TINs, DORs, etc.) affecting your account.

Delinquent Document Listing (R59). This report contains delinquent and pre-delinquent document control records and all delinquent source document records.

Document Validation Report (DVR). Used to validate parts request records by end item serial number (e.g., when performing 14 day records checks).

Due-out Validation Listing (M30). Provide the user a list of all outstanding due-outs for their organization as reflected in the supply system. Ensure all due-outs are valid and still required. If changes are required, annotate the listing and return a copy to LRS. The listing is provided monthly.

Event List (EVL). This is an on-line IMDS unique inquiry that provides supply document numbers, aircraft discrepancies and equipment ID by event ID.

MICAP (NMCS/PMCS) Supply Data Inquiry (NSD). An on-line IMDS inquiry that lists MICAP information by equipment ID.

MICAP Record Retrieval/Update (1MM). An on-line ILS-S inquiry that lists information on current MICAP conditions by equipment ID.

MICAP Status Report (R49). This report provides the current status of all active MICAP requirements and provides the data in clear text. Use this product to validate serial numbers of parts required for MICAP end items. In units supported by a LRS using the MICAP Asset Sourcing System (MASS), the E-40 may be used in lieu of the R49.

Monthly TCTO Reconciliation Listing. This listing provides TCTO kit status and is used to identify or reconcile differences between supply computer records and maintenance TCTO documents. Refer to AFMAN 23-110, *USAF Supply Manual*. Use monthly to perform this reconciliation.

Organization Effectiveness Report (M24). The M24 reflects the level of supply effectiveness in meeting unit requirements. Percentages of effectiveness in issue/support and bench stock support for the past month are provided. Potential support problems may be indicated by the percentage of support provided in each area. This is a monthly product.

Organizational Bench Stock Listing (S04). This is a listing of all items and quantities authorized on the work center bench stock. The listing is provided semiannually or as requested.

Priority Monitor Report (D18). Use this report to monitor due-outs and their corresponding status. It is provided to organizations having due-outs at a locally determined frequency (i.e., daily for UND A, weekly for UND B).

Repair Cycle Data List (Q04). Provides data applicable to each repair cycle item. Data provided includes history of past repair, NRTS, condemn actions, percent of base repair and repair activity. The listing is provided quarterly.

Serial Number Record Inquiry. This on-line ILS-S inquiry provides all due-out requirements (MICAPs, deferred discrepancies, etc.) for an equipment ID.

Special Level Review Listing (R35). Provides information on all items with adjusted stock levels.

Supply Point Listing (Q13). This listing provides all supply point details, with the quantity authorized, on-hand, and due-out for each detail. It also identifies shortages, excesses and shelf-life items. Q13 is provided quarterly or as requested.

TCTO Status Report (TCS). The TCS is an IMDS background product that identifies serial numbers, TCTO status codes, and kit, part, and tool requirements for equipment requiring modification, as well as a summary of affected equipment by TCTO status codes.

Attachment 3

AIRCRAFT COMMANDER FEEDBACK ON FCC

Figure A3.1. Aircraft Commander Feedback on FCC.

MEMORANDUM FOR <Unit Designation/Office Symbol> *Date*
<Street>
<Base, State, and Zip Code>
FROM: <Aircraft Commander>
<Street>
<Base, State, and Zip Code>
SUBJECT: Aircraft Commander Feedback of the Flying Crew Chief (FCC)

Was the FCC knowledgeable of the aircraft and the systems?
a - Extremely knowledgeable c - Lacks knowledge
b - Sufficient knowledge d - Not observed
Did the FCC know the status of PMC and NMC discrepancies?
a - Always c - Rarely
b - Most of the time d - Never
Did the FCC perform duties willingly and enthusiastically?
a - Always c - Never
b - Sometimes d - Not Observed
What type of working relationship did the FCC have with the aircrew?
a - Outstanding c - Fair
b - Good d - Poor
Rate the overall maintenance support provided by the FCC:
a - Outstanding c - Fair
b - Good d - Poor
This FCC was:
a - An asset to the FCC program c - Just getting by.
b - A hard worker, but needs more experience d - Detriment to the FCC program

Remarks:
POC is <FCC Program Manager's Name, office symbol, duty phone number>.

<signed>
Aircraft Commander

Note: Please fold and return to the squadron FCC Program Manager upon return to home station.

Attachment 4

QUARTERLY FCC REPORT FORMAT

Figure A4.1. Quarterly FCC Report Format.

MEMORANDUM FOR HQ MAJCOM/A4L *Date*
FROM: <Unit Designation/Office Symbol>
<Street>
<Base and Zip Code>
SUBJECT: <State fiscal quarter (e.g., FY98/3)> Quarterly Flying Crew Chief Report (RCS: HAF-A4L(Q&A)0011)

In accordance with AFI 21-101 <unit designations> report is submitted.
Number of C-coded FCC positions on the Unit Manpower Document entitled to be filled.
Include approved changes (losses/increases):
Number of people filling C-coded positions:
Number of qualifying missions flown per quarter by C-coded crew chiefs. Include the number of TO directed missions:
Number of qualifying missions flown by personnel without C-coded prefix. Include TO directed missions flown by non c-coded prefix personnel:
Number of all missions away from home station that required FCCs:
Total number of days TDY for all C-coded crew chiefs on qualifying missions:
Total number of days TDY for all non C-coded crew chiefs on qualifying missions:
Unit and MAJCOM remarks and overall program assessment. Include remarks to justify vacant positions:
FCC Program Manager is <rank, name>, office symbol, DSN number.

<Sign>
Commander, <Unit Designation>

Attachment 5

ANNUAL FCC REPORT

Figure A5.1. Annual FCC Report.

MEMORANDUM FOR HQ MAJCOM/A4L or DOM *Date*
FROM: <Unit Designation/Office Symbol>
<Street>
<Base and Zip Code>
SUBJECT: <state fiscal year (e.g., FY98)> Annual Flying Crew Chief Report RCS: HAF-A4L(Q&A)0011)

In accordance with AFI 21-101<unit designations> report is submitted.
Number of C-coded FCC positions on the Unit Manpower Document entitled to be filled.
Include approved changes (losses/increases):
Number of people filling C-coded positions:
Number of qualifying missions flown per quarter by C-coded crew chiefs. Include the number of TO directed missions:
Number of qualifying missions flown by personnel without C-coded prefix. Include TO directed missions flown by non c-coded prefix personnel:
Number of all missions away from home station that required FCCs:
Total number of days TDY for all C-coded crew chiefs on qualifying missions:
Total number of days TDY for all non C-coded crew chiefs on qualifying missions:
Unit and MAJCOM remarks and overall program assessment. Include remarks to justify vacant positions:
FCC Program Manager is <rank, name>, office symbol, DSN number.

<Sign>
Commander, <Unit Designation>

Attachment 6

FCC SDAP REQUEST

Figure A6.1. FCC SDAP Request.

MEMORANDUM FOR HQ MAJCOM/A4L or DOM *Date.*
FROM: <Unit Designation/Office Symbol>
<Street>
<Base and Zip Code>

SUBJECT: Flying Crew Chief (FCC) SDAP Positions <Increase/Decrease> Request

In accordance with <unit designations> requests <increase or decrease> of <state quantity of positions>.
Provide brief justification; include comments about force structure changes, additional mission requirements, etc.
FCC Program Manager is <rank, name>, office symbol, DSN number.

<Sign>
Commander, <Unit Designation>

Attachment 7

MAINTENANCE RECOVERY TEAM (MRT) TASKING CHECKLIST.

Figure A7.1. Maintenance Recovery Team (MRT) Tasking Checklist.

1. The MRT POC will:
1.1. Record the following:
1.1.1. Aircraft MDS and tail number.
1.1.2. Location.
1.1.3. Point of contact (POC) and phone number.
1.1.4. All discrepancies requiring support.
1.1.5. Type of and desired skill level of needed technician.
1.1.6. Parts requirements.
1.1.7. Equipment requirements (including tools, testers, etc.)
1.1.8. Mode of transportation and projected date/time of departure. Evaluate capabilities and determine the best mode of transportation (military airlift, commercial, or government vehicle).
1.1.9. Passport/Visa/Immunization requirements for personnel.
1.2. Contact the applicable maintenance supervision to review requirements and request support from the responsible units to assemble an MRT.
1.3. Brief MRT personnel concerning their duties and responsibilities. Ensure the MRT chief understands the responsibilities Emphasize the following:
1.3.1. The MRT is required to call the home station MOC upon arrival to provide a phone number where they can be contacted.
1.3.2. The MRT is responsible for their equipment and parts:
1.3.2.1. Verify necessary parts are available. Open each container to ensure the right part(s) are in the box prior to departure.
1.3.2.2. Check special tools, support and test equipment for serviceability prior to departure.
1.4. Ensure TDY orders are generated for MRT. Consider the following authorizations and provide as required:
1.4.1. Mission Route Support (MRS) or Mission Essential Personnel (MEP).
1.4.1.1. MRS permits the bumping of cargo to allow space for the MRT and their equipment.
1.4.2. Advance per diem.
1.4.3. Commercial travel.
1.4.4. Rental car.
1.4.5. Variations:
1.5. Direct the responsible shop to order the required parts and the applicable unit to select the required equipment items. If requirements are not known, make contact with the AC/flight engineer/ crew chief to determine what items are required.
1.5.1. Items too large or heavy to be carried will be coordinated with Lead Command and processed by the responsible shop and given to the TMF for shipment.
1.5.2. If parts cannot be sourced locally, consider directing cannibalization.
1.6. Commercial transportation of a MRT and equipment is, in many cases, the most expeditious method. Consider the following:
1.6.1. Airline:
1.6.2. Surface (bus, rail, and limousine).
1.6.3. Air Express Small Package Service.

1.7. Coordinate transportation requirements with TMF. Review the following:
1.7.1. Destination, and priority.
1.7.2. Selected mode of transportation and itinerary.
1.7.3. Names for MRT personnel and nomenclature of equipment items and parts.
1.7.4. Authorization for excess baggage allowance if necessary.
1.7.4. Record TCNs, government bills of lading (GBL), and any applicable billing or shipment numbers.
Note: Shipment of large or heavy items by commercial airline mandates prior coordination with airline personnel by MOC or the MRT. To maintain control of parts/equipment, they must be hand-carried or checked as baggage. If an item is not accepted as carry-on luggage or checked as baggage, purchase of an extra seat to accommodate it must be considered and is recommended. Advance coordination with the airline is the key to a successful movement without unnecessary delays.
1.8. Maintain contact with the MRT or the unit responsible for the parts/equipment shipment to ensure that all resources arrive in time to make the scheduled departure.

Attachment 8

MAINTENANCE RECOVERY TEAM (MRT) CHIEF RESPONSIBILITIES

Figure A8.1. Maintenance Recovery Team (MRT) Chief Responsibilities.

1. Prior to Departure. The MRT chief will:
1.1. Receive complete MRT briefing.
1.2. Read and understand all MRT chief responsibilities.
1.3. Ensure all personnel on the MRT are prepared and aware of their part in recovery actions.
1.4. Ensure all equipment/parts/tool kits/technical orders are properly prepared for shipment.
1.4.1. Verify necessary parts are available. Open containers to ensure the right part(s) are in the box.
1.4.2. Check special tools, support and test equipment for serviceability.
2. Upon Arrival. The MRT chief will:
2.1. Contact home station MRT POC.
2.2. Report to the mission commander and/or MOC.
2.3. If possible, debrief air crew and make initial determination of discrepancy.
2.4. Compute MRT duty day:
2.4.1. Emphasize safety.
2.4.2. Your initial duty day begins at the time you reported to work prior to MRT tasking. The total duty day (home station duty, travel, and recovery site duty) will not exceed 16 hours for any team member. Technicians will be afforded a minimum 8 hours uninterrupted rest. (Refer to **Chapter 1**)
2.4.3. MRT work starts immediately upon arrival unless duty day has expired en route.
2.4.4. Normal work/rest period at recovery site is 12 hours of work, followed by 12 hours of rest. The 12-hour work period may be extended with concurrence of the MAJCOM and/or the group commander at the deployment site. Do not overwork your team and compromise safety. You are responsible for their care.
2.4.5. If any questions arise consult the AC, group commander, senior maintenance representative, or MAJCOM.
2.5. Report to home station MRT POC with the following information.
2.5.1. Specific discrepancies.
2.5.2. Estimated time in-commission (ETIC).
2.5.3. Billeting room/phone (if applicable).
2.5.4. Expiration time of MRT duty day.
3. During recovery, report to the MRT POC to the following schedule:
3.1. Upon initial assessment of actual discrepancy.
3.2. If maintenance/supply status changes.
3.3. As additional requirements become known (parts, equipment, expertise, etc.).
3.4. At the end of shift or upon job completion.
4. Upon completion of recovery. The MRT chief will:
4.1. Assemble all parts/equipment/tools and prepare them for return shipment. Reparable assets brought with you or shipped to you from your home unit must be returned to your unit. Reparable assets issued at the recovery location will require turn-in at the recovery location. If in doubt about disposition, contact the home station MRT POC.
5. Upon return to home station. The MRT chief will notify MRT POC of return.

Attachment 9

MAINTENANCE RECOVERY TEAM (MRT) CHIEF TASKING CHECKLIST

Figure A9.1. Maintenance Recovery Team (MRT) Chief Tasking Checklist.

1. Team Chief:
Name Rank AFSC
2. Other Personnel:
Name Rank AFSC
3. Recovery Location:
4. Aircraft Type:
5. Tail Number:
6. Mission Number:
7. Next Destination:
8. Mission Commander: Room/Phone:
9. Operations Officer/MX SUPT:
10. Communications at Recovery Site:
11. Specific Discrepancies:
12. Equipment Required: Item: TCN:
13. Part(s) Required: NSN: TCN:
Nomenclature:
Have required parts been bench checked before packing? Y / N / NA
14. Tool Kits Required: Kit Number: TCN:
15. Support Acft Tail No:
16. Mission Number:
17. Show Time:
18. Orders Prepared? Y / N
19. ETD:
20. Passport/Visa required? Y / N
21. Required Clothing/Money/Shot Records/etc.:
22. Military Travel Request (MTR) prepared? Y / N

Attachment 10

WAIVER/CHANGE REQUEST FORMAT

Figure A10.1. Waiver/Change Request Format.

The following format should be used in submitting waiver requests or recommended changes to this publication.

1. Submitting Organization
2. Date
3. Subject (Waiver or Change Request)
3.1. Priority of Request (Urgent or Routine)
4. Reference: include chapter, paragraph, and line number or Table/Figure number.
5. Proposed waiver or change requested
6. Background (unique circumstances or history leading up to request)
7. Discussion (rationale for waiver or change and any workarounds)
8. Recommendation (include unit(s) to which waiver/change applies and duration of waiver)
9. POC (Name, office symbol, DSN, and e-mail)

Attachment 11

DROPPED OBJECT PROGRAM (DOP) REPORTING FORMAT

Figure A11.1. Dropped Object Program (DOP) Reporting Format.

MEMORANDUM FOR *Date*

FROM: <Unit Designation/Office Symbol> <Street> <Base and Zip Code>

SUBJECT: <Dropped Object Report> . DOP program report number (unit, year, and month, followed by sequence number -- example, 301FW-060501).

1. DOP program report number (unit, year, and month, followed by sequence number -- example, 301FW-060501).
2. MDS.
3. Type mission and mission profile.
4. Aircraft tail number.
5. Owning organization and base.
6. Origin of sortie.
7. Date of incident and discovery location (if different than origin of sortie).
8. Geographical location of object, if known.
9. Item, noun, and description (use information from the applicable aircraft -4 series TOs).
10. TO, figure, and index.
11. Part number.
12. Correct WUC (full five-digit) or Logistics/Maintenance Control Number (full seven-digit).
13. Last PH, PE, PDM, HSC, or ISO inspection.
14. Last maintenance performed in the area and date.
15. Investigation findings (cause).
16. Costs in dollars to repair or replace dropped object and any collateral aircraft damage as appropriate and cost in man-hours to repair.
17. Actions to prevent recurrence.
18. DR Control Number (if submitted).
19. Unit POC information.
20. Other pertinent information.

<Sign>
DOP Monitor, <Unit Designation>

Attachment 12

FOREIGN OBJECT DAMAGE (FOD) REPORT

A12.1. Foreign Object Damage (FOD) Report.

MEMORANDUM FOR *Date*

FROM: <Unit Designation/Office Symbol> <Street> <Base and Zip Code>

SUBJECT: <Foreign Object Report> . FOD program report number (unit, year, and month, followed by sequence number -- example, 301FW-060501).

Type of report: Initial/Formal Update/Final FOD Report
Date and Time of Incident:
Unit and Base of Incident:
Origin of Sortie:
When discovered (Preflight, Postflight, In-Coming, Test Cell, etc)
Owning Unit, Base and MAJCOM
MDS and Tail Number (N/A for Test Cell incidents)
Engine Type, Make, Series, Modification (TMSM)
Engine S/N:
Engine Position (If Applicable):
Time Since Overhaul:
Description of Incident:
Material Failure: (Yes or No)
Tech Data Deficiency: (Yes/No)
Preventable/Non-Preventable:
Investigation Findings:
Action Taken to Prevent Recurrence:
Parts Cost: Labor Cost: Total Cost:
Additional Comments (if necessary):

<Sign>
FOD Monitor, <Unit Designation>

Attachment 13 (Added-CAF)

SAMPLE MONTHLY ACTIVITY REPORT

Date

MEMORANDUM FOR (Office symbol for Contracting Office)
(Office symbol for Quality Assurance Function)
(Office symbol for Program Management Office)

FROM: (Office symbol for Chief Quality Assurance Evaluator)

SUBJECT: Monthly Activity Report for Month, Year

1. Site Audit Report(s): (Synopsis of functional area audit)

Insert audit reports, if applicable, here.

2. Technical Inspections:

Insert spreadsheet with all inspection results

Provide summary of results:

Technical Inspections 50 ea

Over The Back	6 ea
Total	56 ea
Unsatisfactory	5 ea

4. Deficiency Reports/Summary:

Summarize the audit/evaluation/inspection results and identify any trends within the month or from previous months.

5. CAR Status Report:

Update status from any current or previously issued CAR here.

6. Charts:

If applicable, insert any data analysis here.

7. Special Interest Items (SII):

Insert the findings from Special Interest Items here.

8. Action Items:

If analysis of the audit/evaluation/inspection results identifies adverse trends, develop an action plan and insert here.

9. CQAE Comments:

Insert CQAE comments here.

10. Summary of Business Relationship:

Insert any comments that characterize the nature of the business relationship between QAEs and the contractor here.

SIGNATURE BLOCK, Rank, USAF
Chief Quality Assurance Evaluator

Attachment 14 (Added-CAF)

SAMPLE CORRECTIVE ACTION REQUEST (CAR)

Corrective Action Request

Request initiated by:		**CAR Number:**	
Date:	**Contract Number:**	**Audit Report issued to:**	
Supplier, please respond with your action plan by this date:			

Source of Request:	o Internal Audit o External Audit	o CPET o Customer Complaint	o Product Audit o Process Audit
	o Site Visit o On-site QAE	o Supplier Internal Audit	o Systems Audit o Risk Assessment

Describe the nonconformity. Use continuation sheet if necessary. Attach or embed any relevant records, documents, or evidence.

What is the nonconformity?

Why is it a nonconformity?

Based on *what* evidence?

Supplier Action Plan:

Government Follow-up Activities:

Supplier Action Plan Acceptance:	o Full	o Partial	o Non
Justification for Partial or Non:			
Risk Rating:	o LOW	o MODERATE	o HIGH

CAR CLOSE-OUT (Initials and Date)

Functional	PM/FD	CQAE	QAM	CO

CAR FORM – AUG 2006

PREVIOUS EDITION MAY BE USED