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This publication implements Air Force Policy Directive (AFPD) 21-1, Maintenance of Military Materiel. It is the basic Air Force Instruction (AFI) for all weapon system and support equipment maintenance management guidance. It provides the minimum essential guidance and procedures to safely and effectively maintain, service, and repair weapon systems and support equipment.

This publication applies to all military and civilian members of the Regular Air Force (RegAF), Air Force Reserve (AFR) and Air National Guard (ANG) and those with contractual obligation to comply with Air Force publications. Supplements and addendums are written in accordance with (IAW) AFI 33-360, Publication and Forms Management. Supplements must identify and document Major Command (MAJCOM), AFR, and ANG required deviations (applicability, variance, exception and differences in organizational placement of responsibilities/processes) in their supplement and addendums with the abbreviation “(DEV)”. Place the “DEV” entry after the **Paragraph** number and directly preceding the affected text, such as (AMC) (DEV) Use the... or (ADDED-AMC) (DEV) Use the...). All supplements and addendums are submitted to the Air Force Maintenance Division (AF/A4LM) @ [usaf.pentagon.af-a4.mbx.a4lm-maintenance-policy@mail.mil](mailto:usaf.pentagon.af-a4.mbx.a4lm-maintenance-policy@mail.mil) for approval and are published in the e-Publishing website. The authorities to waive wing and unit level requirements in this publication are identified with a Tier (“T-0, T-1, T-2, T-3”) number following the compliance statement. See AFI 33-360 for a description of the authorities associated with the Tier numbers. Submit requests for waivers through the chain of command to the appropriate Tier waiver approval authority, or alternately, to the requestor’s commander for non-tiered compliance items. For questions on interpreting this instruction, first contact your MAJCOM maintenance functional activity. Refer recommended changes and questions about this publication through your MAJCOM, AFR or ANG, to the Office of Primary Responsibility (OPR) using the Air Force (AF) Form 847, Recommendation for Change of Publication; route AF Forms 847 from the field through the appropriate functional chain of command. Ensure all records created as a result of processes prescribed in this publication are maintained in accordance with AFI 33-322, *Records Management and Information Governance Program*, and disposed of in accordance with the Air Force Records Disposition Schedule located in the Air Force Records Information Management System. The use of the name or mark of any specific manufacturer, commercial product, commodity, or service in this publication does not imply endorsement by the AF.

(**AFRC**) This instruction implements AFPD 21-1, *Air and Space Maintenance*, and extends guidance of Air Force Instruction (AFI) 21-101, *Aircraft and Equipment Maintenance Management*. This supplement applies to AFRC unit equipped (UE) organizations, as well as Active Associate units when AFRC is the lead. Classic associate units will follow the guidance of their host unit MAJCOM except for Administrative Control (ADCON) functions. **Paragraph 11.15** applies to all AFRC units that own/utilize GITA/TAA to train. This supplement does not apply to the ANG. Refer questions for interpreting this supplement and the basic AFI to AFRC/A4MM ([afrc.a4mm-02@us.af.mil](mailto:afrc.a4mm-02@us.af.mil)), Maintenance Policy and Procedures. 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 IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS). Submit AF Form 847, *Recommendation for Change of Publication* for recommended changes concerning this publication to the field unit commander, then Numbered Air Force maintenance office (NAF/A4M), to HQ AFRC/A4MM ([afrc.a4m@us.af.mil](mailto:afrc.a4m@us.af.mil)) Units will develop supplements to further extend guidance in the basic AFI and this supplement. Supplements to this publication and the basic AFI are not

required to be sent to the OPR for review unless they have deviations. Tier waiver authority to compliance items are identified as (“T-0, T-1, T-2, T-3”) following the compliance statement. Process AF Form 679, *Air Force Publications Compliant Item Waiver Request/Approval* for compliance waiver request. See AFI 33-360, *Publications and Forms Management*, for guidance on waiver approval authorities, waiver process and limitations. HQ AFRC/CC delegates Tier 2 waiver authority to AFRC/A4. The use of the name or mark of any specific manufacturer, commercial product, commodity, or service in this publication does not imply endorsement by the Air Force.

### ***SUMMARY OF CHANGES CORRECTIVE ACTION***

This corrective action revises paragraph 11.15, by changing “AFI 16-204” to “AFI 16-402.”

### ***SUMMARY OF CHANGES***

This publication has been substantially revised and must be completely reviewed in its entirety. Significant changes include the addition of Maintenance Cyber Discipline requirements, Decentralized Materiel Support, incorporation of four AFIs superseded above and establishes a Wing Avionics Manager Position requirement. Additionally, eTool and World Wide Identification (WWID) management procedures were expanded to provide standardized enterprise requirements. MAJCOMs/ANG designated to establish Special Certification Roster (SCR) prerequisites to optimize workforce alignment to mission requirements.

(AFRC) This interim change revises AFI 21-101 AFRC Supplement by add Rapid Crew Swap (RCS) and Engine Running Crew Change (ERCC) policy and guidance.

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## Chapter 1

### MANAGEMENT OVERVIEW, SUPPORTING CONCEPTS AND REQUIREMENTS.

**1.1. Introduction.** This instruction prescribes basic aircraft and equipment maintenance management policy implementation and procedures used throughout the United States Air Force (USAF) to perform Mission Generation (MG) functions.

**1.2. Organization.** AF organizations are structured according to AFI 38-101, *Air Force Organization*, or as authorized by the Director of Manpower, Organization & Resources (AF/A1M). Contracted maintenance functions are not required to organize IAW AFI 38-101, but will implement the organization as outlined in their proposal as accepted by the government. For the definition of “Lead Command” see AFPD 10-9, *Lead Command Designation and Responsibilities for Weapon Systems*.

**1.3. Maintenance Concept.** Per AFPD 21-1, organizational, intermediate and depot maintenance capabilities for operational readiness shall be maintained to ensure effective and timely response to peacetime operations, mobilizations, national defense contingencies and other emergencies. **Note:** Guidance for the use of Additive Manufacturing to build replacement parts is prescribed in AFI 63-101/20-101, *Integrated Life Cycle Management*.

1.3.1. As a minimum each capability will be able to:

1.3.1.1. Organizational: launch and recover sorties, maintain and repair materiel coded for organizational level repair.

1.3.1.2. Intermediate: repair materiel coded for organizational and intermediate level repair in back shops, centralized repair facilities, or both.

1.3.1.3. Depot-level Maintenance: Provides the capability to maintain materiel coded for organizational, intermediate and depot levels of maintenance. Includes maintenance requiring the overhaul, upgrading, or rebuilding of parts, assemblies, or subassemblies, and the testing and reclamation of equipment as necessary.

1.3.2. Organizational and intermediate-level maintenance is organized into two mutually exclusive networks, the Mission Generation Network (MGN) and the Repair Network (RN). The MGN is optimized for mission generation at the wing level and consists of authorized “on-equipment” and “off-equipment” maintenance capabilities required to launch, recover, configure, inspect and repair AF systems and equipment. The RN supports the MGN by providing the maintenance required to fulfill operational needs outside the capability or capacity of MGN activities. The interface between the two networks takes place when the MGN activity relinquishes control of reparable assets to the RN activity (such as, supply counter turn-in) or changing an end item Purpose Identifier Code (PIC) from an operational activity to a repair network activity (such as, depot maintenance).

1.3.2.1. Most MGN units possess a complement of equipment and supplies necessary to perform on-equipment and off-equipment maintenance.

1.3.2.2. RN units may reside at bases that perform mission generation. RN requirements and processes are identified in AFI 20-117, *Repair Network Management*.

1.3.3. MAJCOMs assigned combat coded fighter aircraft will coordinate with Mission Design Series (MDS) lead and using commands and the MAJCOM Operations Directorate (MAJCOM/A3) to develop and document standardized MDS and Primary Aerospace Vehicle (Aircraft) Authorized (PAA) specific utilization rate standards in their supplements to this instruction. At a minimum the rates will:

1.3.3. (AFRC) See AFRC/A4MM SharePoint for utilization rate standards (T-2).

1.3.3.1. Consider aggregated and analyzed unit generation capability data to identify and document standard MDS turn patterns by PAA in their supplements to **Chapter 14** of this instruction.

1.3.3.2. Account for standard avionics and weapons training configurations.

1.3.3.3. Account for standard Technical Order (TO) driven turn time inspections and Average Sortie Duration.

1.3.3.4. Include a process for supporting units in assessing shortfalls and developing action plans.

1.3.3.5. (Added-AFRC) Units will notify HQ AFRC/A4MA ([afrc.a4ma@us.af.mil](mailto:afrc.a4ma@us.af.mil)) with an info copy to applicable NAF/A4M, when processing Maintenance/Technical Assistance Requests (MARs/TARs. (T-2).

1.3.3.5.1. (Added-AFRC) TO 00-25-107 request which require MAJCOM funding, Dash 6 extensions, Dash 6 waiver requests, Depot Field Teams (DFT) or any request for which the Program Office requires MAJCOM concurrence/approval must have AFRC/A4MA approval prior to submitting TAR/MAR to Program Office (T-2).

1.3.4. Requests for Assistance. If a maintenance activity requires assistance for evaluation, repair, or both, beyond unit capability, requests are 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 MDS Program Manager (PM) (for example, C-130 Automated Inspection, Repair, Corrosion and Aircraft Tracking (AIRCAT), F-16 Technical Assistance Request). All requests for assistance must be coordinated through the originating MAJCOM and Lead Command as applicable. (T-2).

**1.4. Aircraft Maintenance Tactics, Techniques and Procedures (TTP).** TTPs are developed from lessons learned and best practices that provide valuable reference documents to improve maintenance processes and procedures. Maintenance leaders should utilize the maintenance fundamentals TTP volumes (Aircraft, Munitions and Missile) to effectively and efficiently support mission generation. Maintainers who attend the USAF Advanced Maintenance and Munitions Operations School are trained in advanced operational, expeditionary and tactical maintenance management concepts stemming from the alumni's development and formalization of TTPs. Maintenance Group Commander (MXG/CC) should identify their Advanced Maintenance and Munitions Operations School graduates and utilize them as advisors and instructors to enhance mission capability. AFTTP 3-4.21V1, *Aircraft Maintenance*, can be found at: <https://cs2.eis.af.mil/sites/10070/Documents/AFTTP3-4.21V1ACMX.pdf>. For additional information on Advanced Maintenance and Munitions Operations School and TTP development

see Air Force Manual (AFMAN) 21-111, *Advanced Maintenance and Munitions Operations School*.

**1.5. 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, analyzing condition, performance and maintenance documentation. All levels of supervision need to 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. Exploiting repair network capability and maintaining visibility of repair cycle assets throughout the maintenance cycle are also critical elements of the equipment maintenance program.

1.5.1. Preventive Maintenance. AF units implement and manage the tasks specified in the scheduled recurring maintenance program for their assigned aircraft and associated support equipment (SE). Preventive maintenance is achieved through the inspection requirement concepts described in TO 00-20-1, *Aerospace Equipment Maintenance Inspection, Documentation, Policy, and Procedures*, and applicable weapon system -6 TO

1.5.2. MAJCOMs that conduct Mission Generation Assessments or similar weapon system logistic evaluations in order to validate unit readiness will:

1.5.2.1. Provide units a standardized assessment report containing, at a minimum, positive, negative and areas for improvement feedback to facilitate crosstell to like units.

1.5.2.1.1. Analyze unit generation processes to capture and communicate best practices.

1.5.2.1.2. Analyze unit generation performance to identify and communicate noteworthy trends.

1.5.2.2. Directorates of Logistics, Engineering & Force Protection (MAJCOMs A4s) will semi-annually report their top three trends and causal factors to the Logistics Board to facilitate debate to identify and mitigate potential limiting factors. Submit MAJCOM top three trends to the AF/A4LX workflow no later than 30 days prior to each Logistics Board meeting for consolidation at: [usaf.pentagon.af-a4.mbx.a4-elg-workflow@mail.mil](mailto:usaf.pentagon.af-a4.mbx.a4-elg-workflow@mail.mil).

**1.6. 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 compliant, safe, timely, and effective manner. Supervisors are responsible for enforcing and establishing a climate that promotes maintenance and supply discipline. Unless expressly stated otherwise in a particular instruction, waiver, or deviation in this AFI granted by the appropriate authority, all Airmen must follow AFIs. **(T-1)** AFIs do not provide optional guidance, and failure to comply with AFIs can result in disciplinary action as described in AFI 1-1, *Air Force Standards*. Civilian personnel who violate punitive publications may also be subject to disciplinary action. See AFI 33-360 for more detailed information on the use of punitive language in publications.



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

1.6.1.1. Shall, Must, Will - Indicates mandatory requirements. **Note:** “Will” is also used to express a declaration of purpose for a future event.

1.6.1.2. Should - Indicates a preferred method of accomplishment.

1.6.1.3. May - Indicates an acceptable or suggested means of accomplishment.

1.6.2. Use of TOs and TO Supplements. All personnel will enforce compliance with technical data. **(T-1)**. Use of prescribed technical data to maintain aircraft and equipment is mandatory and will be conducted and managed IAW TO 00-5-1, *Air Force Technical Order System*. **(T-1)**.

1.6.3. AFTO Form 492, *Maintenance Warning Tag*. The Air Force Technical Order (AFTO) Form 492, *Maintenance Warning Tag*, is used as prescribed in technical data, local procedures, or both, to flag a condition that could cause damage or injury if ignored. Refer to TO 00-20-1 for additional guidance. **Note:** The AFTO Form 492 is replacing the AF Form 1492, *Warning Tag* referenced in AFMAN 91-203, *Air Force Occupational Safety, Fire, and Health Standards*. Use of the AF Form 1492 is authorized until supplies are exhausted.

**1.7. Communications Security (COMSEC)/Controlled Cryptographic Item (CCI) Accountability.** The Air Force COMSEC/Central CCI Authority is the Cryptologic and Cyber Systems Division, Joint Base San Antonio-Lackland, Texas.

1.7.1. Installed COMSEC/CCI accountability will be accomplished IAW AFMAN 17-1302-O, *Communications Security (COMSEC) Operations* and AFI 23-101, *Air Force Material Management*. **(T-1)**. Ensure all serially controlled and serially tracked COMSEC/CCI information is entered into the Maintenance Information System (MIS) IAW TO 00-20-2, *Maintenance Data Documentation*. **(T-1)**.

1.7.1.1. Maintain serial number inventory accountability for all COMSEC/CCI issued or removed to Facilitate Other Maintenance (FOM) in Tail Number Bin (TNB) IAW **Paragraph 9.19** Tail Number Bins of this instruction.

1.7.1.2. Questions concerning COMSEC/CCI accountability can be directed to the Cryptologic and Cyber Systems Division’s COMSEC Policy Office Air Force Life Cycle Management Center (AFLCMC/HNCLS).

1.7.2. Maintenance Cybersecurity Discipline.

1.7.2.1. Maintaining positive maintenance cyber discipline practices of Department of Defense (DoD) Information Technology (IT) is critical to sustaining the mission. Department of Defense Instruction (DoDI) 8500.01, *Cybersecurity*, defines both hardware and software that is physically part of, dedicated to, or essential in real-time to the mission assurance of special purpose weapon systems. DoD IT is the most common IT encountered in flightline environments, and includes (but is not limited to) electronic tools (eTools), aircraft and associated support equipment. The culture of positive cybersecurity awareness and actions necessary to sustain cyber resiliency is required by all maintenance personnel to mitigate allusive cyber threats and optimize enduring mission generation capabilities.

1.7.2.1.1. All users perform an integral role in prevention, detection, and reporting suspected corrupted software of DoD IT which includes Information Systems (IS) and Platform Information Technology (PIT), which is an electronic platform with information technology for a specific function. See [Table 1.1](#)

**Table 1.1. Tiered Interface Examples.**

TIER	Type of Interface	Examples	Applicable TOs
1	On-Board	EC-130, XX-135, E-3, E-8	Device TO
2	Directly Connected	F-22 PMA, F-35 PMA, Viper MLV, CAPRE, CETS, DTADS	Device TO
3	Indirectly Connected	Test Eqpt., Support Eqpt., ATS, ATE, AIS, VDATS	TO 33-1-38
4	Not Connected	eTools	TO 00-5-1

1.7.2.1.1.1. All users must consult airframe Security Classification Guides, TO 33-1-38, *Cybersecurity for Automatic Test Equipment and Support Test Equipment (ATE/STE)*. TO 33-1-38 provides guidance for Cybersecurity Incident Reporting and refers users to applicable technical manuals, instructions and publications when determining the classification of cybersecurity incidents and vulnerability documents. **(T-1)**.

1.7.2.1.2. Authorized and unauthorized uses of IT and PIT. All users must have the ability to distinguish between authorized and unauthorized uses. **(T-1)**.

1.7.2.1.2.1. Authorized uses must be vetted through a formal cybersecurity assessment process and be directed in specific TO guidance. **(T-1)**. The governing TOs or equivalent publications specifically define authorized uses.

1.7.2.1.2.2. Unauthorized uses include: connecting any hardware, uploading or downloading software, or media not explicitly defined by TOs. This includes but is not limited to: personal devices, phones, tablets, computers, Universal Serial Bus drives, and similar devices.

1.7.2.1.2.3. DoD IT, derivative AF Publications, and TOs provide users guidance on Automated Computer Program Identification Number System devices acquired from local Communications Squadrons and media obtained from DoD contractors.

1.7.2.1.2.4. All users will follow the applicable TO when directly or indirectly connecting computers and equipment to the aircraft or support equipment, and when uploading or downloading data. **(T-1)**.

1.7.2.1.2.5. All users will immediately discontinue use, report, and turn into the appropriate functional authority IT and PIT (WAM, Wing Cybersecurity Office, and the Mission Defense Teams/Cyber Squadron, if assigned) that are suspect for containing malicious software, malicious code, software bugs or unauthorized use. **(T-1)**.

1.7.2.1.2.6. All users will complete Maintenance Cyber Discipline Training annually in Advanced Distributed Learning Service (ADLS) or equivalent training method. **(T-1)**.

1.7.2.1.3. MDS Lead Commands in coordination with the applicable PM will develop MDS and Support Equipment (SE) cyber threat mitigation methods and procedures for Organizational and Intermediate level maintenance activities. The methods and procedures must detect malicious code, report cyber incidence and issues, and remediate the incidence and issue affecting the MDS or SE. **Note:** Mitigation plan should be developed per DoDI 8500.01; TO 33-1-38, DoD 8570.01M, *Information Assurance Workforce Improvement Program*; Military Standard (MIL-STD)-38784A, *General Style and Format Requirements For Technical Manuals*; 17- series AFIs.

1.7.2.1.3.1. The cyber threat mitigation methods must include MDS and SE specific training requirements. **(T-1)**. **Note:** Training requirements could include training aids, for example, computer-based training on how the flightline maintainer should scan support equipment for malicious software.

1.7.2.1.3.2. Lead Commands must ensure current MDS and SE specific malicious code definitions are available to ensure positive cyber threat mitigation management support is available. **(T-1)**.

1.7.2.1.3.2.1. MAJCOM and ANG will report system-specific cyber incidents to the applicable MDS Lead Command.

1.7.2.1.3.2.2. MAJCOM and ANG will follow airframe Security Classification Guides, TOs, and applicable technical manuals when providing “cross tell” to inform their subordinate units about system-specific cyber incidents, threats, and issues.

### 1.7.3. eTools.

1.7.3.1. eTools are portable electronic devices (such as laptop computer, handheld device) that operate in a disconnected mode and, are certified to inter-operate on AF networks. eTools are mission critical; the primary purpose is for viewing electronic technical publications and in some cases are used to exchange maintenance data with approved MIS at the point of maintenance. eTools are procured IAW AFMAN 17-1203, *Information Technology (IT) Asset Management (ITAM)*. **Note:** eTools do not include electronic devices and test equipment issued and configuration managed by a system PM (aircraft test and support equipment).

1.7.3.2. MAJCOM/ANG A4s, will develop and implement standardized guidance on the management, use, storage, configuration, content update, security and cyber hygiene processes necessary to support the approved use of all assigned eTools consistent and IAW the weapon system MDS specific technical orders and threat specific Air Force and DoD cyber publications.

1.7.3.3. The MAJCOM/ANG A4 guidance will include any assigned command-wide cyber threat awareness and mitigation strategies with reference to supporting publications, technical orders, and MAJCOM eTool OPR contact information in their supplement or addendum to this AFI.

**1.8. Environmental Compliance.** It is the responsibility of all maintenance personnel to comply with all written guidance to ensure compliance with hazardous material, hazardous waste management and air emissions record keeping as required for environmental compliance IAW AFI 90-821, *Hazard Communication (HAZCOM) Program*, installation Environment, Safety, and Occupational Health Management System/Environment Management System (ESOHMS/EMS) policy/guidance and applicable environmental requirements and guidance. **(T-1)**.

**1.9. Publications.** Units may tailor procedures to the unique aspects of their own maintenance operation and publish directives, instructions, supplements, addendums, and, for functional areas, Operating Instructions (OI) IAW AFI 33-360.

1.9.1. Develop, control, and maintain functional and emergency action checklists. At a minimum, each checklist is titled, dated and coordinated with the wing safety office. Functional checklists are not to be used in place of or to circumvent technical data for operation, servicing, inspection or maintenance of aircraft, aircraft systems, munitions, and all other equipment supporting aircraft and munitions maintenance.

1.9.2. Methods and Procedures Technical Orders (MPTOs): Due to the close relationship between MPTOs and this AFI, all changes and revisions to the MPTOs cited in **Attachment 1**, References of this AFI will be routed from Air Force Material Command (AFMC) to AF/A4LM for content review for conflicts and policy gaps identification and mitigation prior to submission for publication.

**1.10. Maintenance Training.** Maintenance training provides initial, recurring and advanced proficiency, qualification, or certification skills needed by a technician to perform duties in their primary Air Force Specialty Code (AFSC), Civilian Job Series, or equivalent. Maintenance training includes combat and sortie generation skills not normally integrated into peacetime operations (such as, munitions handling, and external fuel tank build-up, hot refueling). Maintenance training carries an equal priority with the operational training mission. For maintenance training policy and guidance, refer to AFI 36-2650, *Maintenance Training* and MAJCOM supplements.

**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 PM approval. **Note:** PM is used in this publication as defined in AFPD 63-1, *Integrated Life Cycle Management*. Refer to AFI 63-101/20-101, for modification management procedures.

**1.11. (AFRC) Modification Management.** Submit all modification proposals to HQ AFRC/A4MA ([afrc.a4ma@us.af.mil](mailto:afrc.a4ma@us.af.mil)) NLT 75 days prior to the projected modification **(T-2)**.

1.11.1. Modifications to Munitions. All proposed modifications to aircraft-carried munitions include AFI 63-101/20-101 and SEEK EAGLE certification IAW AFI 63-101/20-101 and Air Force Pamphlet (AFPAM) 63-129, *Air System Development Process and Procedures*. All modifications to AF nuclear munitions or their associated support and training equipment are nuclear certified IAW AFI 91-103, *Air Force Nuclear Safety Design Certification Program* and AFI 63-125, *Nuclear Certification Program*. All modifications to AF conventional munitions or their associated support and training equipment are certified IAW AFI 91-205, *Non-Nuclear Munitions Safety Board*.

1.11.1. (AFRC) HQ AFRC/A4MA 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, *Lead Command Designation and Responsibilities for Weapon Systems* and the System Program Manager (SPM) responsible for Operational Safety, Suitability, and Effectiveness (OSS&E) of the systems and end items prior to implementation (T-2).

**1.12. Maintenance Information Systems (MIS).** MIS refers to automated maintenance information systems that support and enable maintenance business processes. MIS is used to document maintenance actions and track fleet health. The information entered into the MIS is accomplished IAW TO 00-20-2 and matches the content of the aircraft forms. MIS data entries do not have to be accomplished by the same individual who documented the aircraft forms, but employee numbers, man numbers, and User IDs of individuals accomplishing the actual work are entered into the MIS. Red Ball maintenance is documented IAW **Chapter 11** of this instruction. Data integrity is the responsibility of every member of the unit. All personnel are responsible for ensuring accuracy and completeness.

1.12.1. Units use the approved MIS for their assigned weapon system.

1.12.2. Serial numbers will be documented in the MIS for all serially-controlled and tracked assemblies that are identified by an asterisk in the Work Unit Code (WUC) or Logistics Control Number (LCN) manual IAW TO 00-20-2.

**1.13. 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 approved procedures, asking for assistance when needed, and using all required personal protective equipment (PPE).

1.13.1. Safety “Knock It Off” and Risk Management. Due to the inherent danger to life, limb, and property associated with maintenance operations, personnel are empowered to terminate an operation or situation which they perceive is unsafe or too dangerous. When supervisors or crew leaders become task-focused, junior personnel are often better able to assess the danger; however, deferring to the experience and judgment of the supervisor or crew leader, they may choose to remain silent, missing an opportunity to break the mishap sequence chain. Maintenance commanders and supervisors are responsible for fostering a culture in their units so that a simple, but recognizable “audible” from anyone can prevent a potential mishap. **Note:** See AFI 90-802, *Risk Management*, and AFPAM 90-803, *Risk Management (RM) Guidelines and Tools* for additional information.

1.13.2. Visitors. Unit Commanders shall not permit visitors to operate any AF equipment unless they are qualified to operate such equipment and are doing so in the performance of their assigned official duties. (T-1). Visitors will not be allowed in the flightline area if munitions operations are present IAW AFMAN 91-201, *Explosive Safety Standards*. (T-1).

**1.14. Duty Shifts and Rest Periods.** MXG/CC or equivalent will establish minimum requirements that ensure units (home station or deployed) maintain an equitable distribution of supervision (Officer and Senior Non-Commissioned Officer (SNCO)) across all on-duty shifts in their supplement to this AFI. (T-2).

1.14.1. During normal operations, maintenance personnel are scheduled for duty based on a 40-hour work week. Maintenance personnel duty hours are aligned to provide optimal mission support.

1.14.2. Personnel will not be scheduled for more than 12 hours of continuous duty time. **(T-1)**. Duty time begins when personnel report for duty and ends when their supervisor releases them. Time spent in exercise or contingency deployment processing lines and in-transit counts toward the total duty day. Exception: MXG/CCs are the final approval authority for duty time extensions exceeding the 12-hour limit up to a maximum of 16 hours. **Note:** Aircraft or detachment commanders assume this responsibility in Temporary Duty (TDY)/travel status.

1.14.3. Commanders and supervisors will provide a rest period after each shift. **(T-1)**. A rest period is a block of time that gives a person the opportunity for 8 hours of uninterrupted sleep in a 24-hour period. **Note:** This rest period also applies during exercises or inspections.

1.14.4. Personnel will not handle, load or perform maintenance on nuclear weapons, conventional munitions, or egress explosives beyond a 12-hour continuous duty period. **(T-1)**. This requirement may not be waived for exercises or inspections; however, the 12-hour continuous duty period may be exceeded for shift turnover or administrative actions only and will be avoided to the maximum extent possible. The MXG/CC or equivalent may waive this requirement during advance defense readiness conditions, actual emergencies as defined in DoD Directive 3150.02, *Department of Defense Nuclear Weapons Surety Program*, or to resolve an unexpected event (such as disabled vehicle, Weapons Storage and Security System fault, hoist failure).

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

1.14.6. Commanders and supervisors will ensure individuals are afforded adequate duty rest periods and breaks to prevent fatigue or thermal injury. **(T-1)**. Stop anyone if fatigue may jeopardize safety. In all cases, aircraft commanders or 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.

1.14.7. MAJCOM Commanders will assume the risk for any Flying Crew Chief (FCC) deviations from normal duty shifts, rest periods, and exceedance of the 16-hour maximum duty day. MAJCOM Commanders will publish risk-mitigation procedures in order to meet critical mission requirements.

1.14.7. **(AFRC)** The aircraft commander (AC) must conduct a risk assessment prior to the FCC/crew chief(s) exceeding the 16 hour duty day while the FCC/crew chief is part of the aircrew complement **(T-2)**. The AC has authority over the FCC/crew chief's work/rest cycles when the mission/flight is designated Reserve Airlift Support (RAS) or an Executive Airlift (EA) Mission **(T-2)**. The AC must complete **Attachment 16 Extended Workday Risk Assessment** prior to FCC/crew chief(s) exceeding the 16 hour work day **(T-2)**, and document assessment for MXG/CC review **(T-3)**. **Note:** Refer to AFRCI 11-201, *AFRC Flying Operations* for more on RAS and crew rest reporting procedures and refer to AFMAN 11-2EA

Vol 3, *Executive Airlift (EA) Operating Procedures* for more on EA Missions and crew rest reporting procedures. Refer to [paragraph 11.20](#) for more on FCC guidance.

**1.15. Communications.** Commanders shall develop communication plans according to AF mission requirements. (T-2). See [Chapter 11](#) for detailed communication requirements.

1.15.1. Effective maintenance accomplishment requires the ability to efficiently and effectively communicate across all facets of the maintenance operation. Communication technology (government issued Portable Electronic Devices (PED), Portable Maintenance Aid (PMA), radios, cell phones, computers, wireless internet) must be available to expedite personnel, equipment, material, and maintenance data throughout the maintenance complex. (T-2).

1.15.2. MAJCOMs will publish guidance for the use and control of personal communications devices (personal cell phones, tablets and computers) on the flightline, in munitions areas, hangars, and other industrial work areas as required to mitigate cyber risk and ensure compliance with cyber and communication AFI requirements relevant to their operational environments.

1.15.2. (AFRC) Personal cell phones and other electronic devices possessed on the flight line or in maintenance work areas will only be used for official/authorized business (T-2). Cell phones will not be used while actively performing maintenance (T-2). While performing maintenance actions, electronic devices not required in the performance of maintenance, will be powered off. Placing these devices in the silent or vibrate mode does not satisfy this requirement (T-2). This restriction does not apply to personnel performing maintenance management duties (e.g., Pro Super, Expediter), or official duties while TDY. Personnel will also comply with restrictions in TO 00-25-172, *Ground Servicing of Aircraft and Static Grounding/Bonding*; AFMAN 91-201, *Explosive Safety Standards*; AFI 91-207, *The USAF Traffic Safety Program*; AFI 31-218, *Motor Vehicle Traffic Supervision*; and aircraft and equipment TOs (T-1). Base/unit instructions may dictate additional guidance/restrictions.

1.15.3. Unit Commanders will enforce procedures that prohibit the introduction of government or personal cellular, personal communications system, Radio Frequency (RF), Infrared (IR) wireless devices, and other devices such as cell phones and tablets, and devices that have photographic or audio recording capabilities into areas (for example, rooms, offices) where classified information is stored, processed, or discussed IAW AFMAN 17-1301, *Computer Security (COMPUSEC)*. (T-1). Coordinate waiver requests with the applicable Approving Official (AO), and ensure adherence to Certified TEMPEST Technical Authority (CTTA) requirements IAW Department of Defense Directive (DoDD) 8100.02, *Use of Commercial Wireless Devices, Services, and Technologies in the DoD Global Information Grid (GIG)* written approval by the AF CTTA IAW AFI 16-1404, *Air Force Information Security Program*, NIST SP 800-53A Revision 4, *Assessing Security and Privacy Controls in Federal Information Systems and Organizations: Building Effective Security Assessment Plans*, and the Enterprise Authorizing Official (AO) IAW AFI 31-101, *Integrated Defense (ID)* and AFMAN 17-1301. (T-1).

**1.16. Maintenance Repair Priorities.** Maintenance repair priorities are listed in [Table 1.2](#) This does not prohibit the Production Superintendent (Pro Super), in coordination with the Maintenance Operations Center (MOC), from changing the maintenance repair priority when warranted. During tasked Operational Plan (OPLAN) or operational exercise, the pre-planned maintenance flow

determines the job sequence. The maintenance repair priority and the Logistics Readiness Squadron (LRS) delivery priorities (listed in Air Force Handbook (AFH 23-123V, *Material Management* Reference Information) are normally identical. Raising or lowering maintenance repair priorities does not necessarily require a corresponding change in the LRS delivery priority. However, the Pro Super may authorize the use of a less responsive LRS delivery priority.

**Table 1.2. Maintenance Repair Priority Designators.**

PRIORITY	APPLICATION
1	Aircraft on alert status, war plan or national emergency missions, including related Aerospace Ground Equipment (AGE), munitions and Munitions Support Equipment.
2	<p>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 scheduled launch, alert or test flight and during simulated generation or Operational Readiness Exercises (ORE). Air evacuation, rescue, weather (WX) mission aircraft, related AGE, munitions, and munitions support equipment.</p> <p>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 preventing or delaying student training.</p>
3	<p>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.</p> <p>Administrative aircraft within 8 hours of scheduled flight or on alert status with standby crews.</p> <p>Time change requirements for nuclear weapons.</p> <p>Repair cycle assets to satisfy a Mission Impaired Capability Awaiting Parts (MICAP) condition. Spares not available in supply.</p> <p>Critical end items and spares not available in supply.</p> <p>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.</p> <p>Avionics shop electronic AGE and automated test stations.</p>



4	<p>Routine or extensive repair of primary air mission and related AGE and repair cycle assets.</p> <p>Administrative aircraft undergoing scheduled or unscheduled maintenance.</p> <p>Routine maintenance of AGE, not otherwise listed above.</p> <p>War Reserve Materiel (WRM) items due maintenance or inspection.</p>
	<p>Inspection, maintenance, and Time Compliance Technical Order (TCTO) compliance of Mission Support Kit or Mobility Readiness Spares Package (MRSP) materiel.</p> <p>Extensive repair of aircrew or missile training simulators, other training devices, or related AGE.</p> <p>Inspection, maintenance, and TCTO compliance of munitions and munitions equipment, excluding spares excess to base requirements not listed above.</p> <p>Scheduled calibration and unscheduled repairs on Precision Measurement Equipment (PME) not listed above.</p> <p>Scheduled maintenance to include periodic inspections, routine TCTO, Master Configuration Lists (MCL) Grounding, and Time Change Items (TCIs).</p> <p>Primary mission Comprehensive Engine Management System (CEMS) or equipment including associated AGE undergoing extensive repair or modification.</p>
5	<p>Non-tactical or non-primary-mission aircraft undergoing extensive repair. Fabrication and repair of aeronautical items not carrying a higher priority.</p> <p>Bench stock requirements.</p> <p>Extensive repair of aircrew training devices.</p> <p>Time change requirements not listed above.</p> <p>Routine repair of AGE and repair cycle assets.</p> <p>Alternate and other CEMS or equipment, including associated AGE undergoing extensive repair or modification.</p> <p>Clearing routine delayed discrepancies on training equipment or AGE, and routine maintenance which will not impair or affect mission accomplishment.</p> <p>Equipment requirements.</p>
6	<p>Fabrication and repair of non-aeronautical items.</p> <p>Repair cycle asset shortages required to fill a peacetime operating stock authorization</p>

7	Spares/repair cycle assets excess to base requirements.
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**1.17. Associate Unit Program/Total Force Integration (TFI).** The USAF employs the Associate Unit/TFI program in some locations where RegAF and Air Reserve Component (ARC) units are collocated and share aircraft, equipment, facilities, and other resources IAW AFI 90-1001, *Planning Total Force Associations (TFAS)*, and MAJCOM supplements. For the purpose of this instruction, in an Active Association, the ANG or AFR owns the aircraft, and RegAF personnel will follow ANG or AFR maintenance policy. **(T-1)**. In an ARC association, AFR owns the aircraft, and ANG personnel will follow AFR guidance, or vice versa. **(T-1)**. In a classic association, RegAF owns the aircraft, and ANG or AFR personnel will follow RegAF maintenance policy. **(T-1)**. Type of association is determined by the Program of Record for the associated unit.

**1.18. Performance-Based Activities.** MAJCOMs may publish the basic responsibilities for managing performance-based activities.

1.18.1. If published MAJCOMs will:

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

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

1.18.1.3. Specify the forms, methods of documentation, and frequency of reporting used to assess performance-based activities and ensures these requirements are included in the Quality Assurance Surveillance Plan (QASP).

1.18.1.4. Ensure units with assigned Contracting Officer Representative personnel meet requirements in AFI 63-138, *Acquisition of Services*.

1.18.1.5. Ensure aircraft depot maintenance contracts, Statements of Work (SOW), and Performance Work Statements (PWS) are coordinated with the applicable MAJCOM Functional, to include Munitions.

1.18.2. Unit Commanders will:

1.18.2.1. Designate a focal point for all functional, technical, and contracting officer representative matters pertaining to performance-based activities. **(T-1)**.

1.18.2.2. In coordination with the contracting officer and the Program Manager of Functional Services Manager, provide specific guidance to the performance-based activity to ensure proper maintenance discipline and flight worthiness of aircraft and subsystems. **(T-2)**.

1.18.2.3. Develop and publish contingency procedures for support of continuing operations in the event of disruption, termination, or default of contracts. **(T-1)**.

**1.19. Changes to Technical Orders.** Official TO updates are the only valid authority for maintaining TO accuracy and currency. To maintain this currency, the AF has instituted an enterprise electronic TO Recommended Change (RC) process.

1.19.1. The Enhanced Technical Information Management System (ETIMS) is the required system for Recommended Change management and this process replaces the AFTO Form 22,

*Technical Manual(TM) Change Recommendation and Reply, AFTO Form 252, Technical Order Publications Change Request and the AF Form 847.*

1.19.2. There are specific organizations that may require the deviations or exceptions for those who do not have access to ETIMS. Refer to TO 00-5-1 for specific guidance on the RC process.

## Chapter 2

### ROLES AND RESPONSIBILITIES

**2.1. General.** This chapter outlines responsibilities for commanders and key leaders involved in maintenance activities. Compliance of this instruction, in units where there is not a military commander responsible for maintenance, the applicable civilian Director of Maintenance (DOM) will ensure compliance with all responsibilities in this instruction. **(T-1)**. For organizations without all commanders and key leaders assigned, MAJCOMs will identify equivalent positions of authority commensurate with the responsibilities of the leadership positions identified in this **Chapter** in a MAJCOM supplement to this instruction.

2.1.1. 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, branch chief or higher. MAJCOMs may determine grade and skill level equivalents for civilians.

2.1.2. The functional authority to determine the need and design for civilian uniforms, under the purview of maintenance is delegated to the MAJCOMs/ANG. As such, all functional authority requirements set forth in AFI 36-128, *Pay Settings and Allowances* will also reside at the respective MAJCOM. The routing requirements for final approval of uniform requests and the establishment of uniform allowances will be in accordance with AFI 36-128.

**2.2. Wing Commander (WG/CC) Responsibilities.** The WG/CC allocates resources to meet all mission requirements. The WG/CC will:

2.2.1. Ensure that maintenance organizations are not overtasked with augmentation duties outside maintenance functional areas. **(T-1)**.

2.2.2. Conduct a "Wing Standup" meeting. **(T-1)**. The MAJCOM/ANG will establish "Wing Standup" meeting frequency that synchronizes communications necessary to optimize fleet readiness and mission generation capability in their supplement to this AFI. **(T-2)**.

2.2.3. Ensure a coordinated wing or base instruction is developed that implements procedures to control tools, equipment, electronic devices, and establishes cyber discipline and reporting requirements that provide operational guidance across all wing or base agencies dispatching to aircraft runway, taxiways, parking and maintenance areas. **(T-1)**.

2.2.3.1. Ensure home station Base Support Plans (BSP) include contingency eTools bare base, comm-out and cyber-out operating procedures based on worst-case deployment requirements. Periodically exercise operations (as part of scheduled local exercises) in this simulated deployed environment to validate equipment, personnel and processes provide the required mission generation capability. **(T-1)**.

2.2.3.1.1. Develop and maintain local cyber abatement and status reporting procedures that optimize cyber resiliency and the ability to mitigate and recover from cyber threats affecting assigned mission or sortie generation operations. **(T-1)**.

2.2.3.1.2. Ensure maintenance and communications organizations have procedures in place to effectively collaborate and expeditiously respond to cybersecurity incidents

for maintenance Platform Information Technology (PIT) and report in accordance with TO 33-1-38 or equivalent publication. **(T-1)**.

2.2.4. Ensure maintenance and operations develop a joint annual maintenance and Flying Hour Program (FHP) that establishes a balance between the requirement for sorties and maintenance capability. **(T-1)**. The WG/CC will:

2.2.4.1. Establish 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. **(T-1)**.

2.2.4.2. Approve the weekly; monthly, quarterly, and annual flying or test schedules IAW **Chapter 14** of this instruction. **(T-1)**.

2.2.4.3. Direct the use of the Maintenance Capability and Capacity (MxCAP2) model or equivalent, if available, for the assigned MDS. **(T-1)**. The MxCAP2 model provides the ability to forecast and evaluate the impact of changing requirements (such as, deployments, changes in aircraft availability, maintenance AFSC shortages, or locally developed scenarios) on a maintenance unit's sortie generation capacity.

2.2.5. Vector future leaders to attend the Senior Leader Mission Generation (SLMG) Course following the course description and criteria listed in **Chapter 11** of this AFI. **(T-1)**.

2.2.5. **(AFRC)** Attend the Senior Leader Mission Generation (SLMG) Course IAW **Chapter 11 (T-2)**.

2.2.6. Sustain a Crashed, Damaged, or Disabled Aircraft Recovery (CDDAR) capability for assigned active airfields and runways IAW **Chapter 11** of this instruction and develop a wing publication IAW AFI 33-360 containing specific responsibilities for all applicable base support agencies. **(T-1)**.

2.2.6. **(AFRC)** AFRC WG/CCs will actively engage with host or tenant units (as applicable) to ensure a viable CDDAR program **(T-2)**.

2.2.7. Identify specific responsibilities and outline unique materiel management support requirements necessary to optimize wing level maintenance and mission generation operations. Establish processes and responsibilities for maintenance units and work centers without materiel management support in a local publication. **(T-1)**.

**2.3. Wing Vice Commander (WG/CV) Responsibilities.** The WG/CV (or equivalent) will:

2.3.1. Manage the Foreign Object Damage (FOD) and Dropped Object Prevention (DOP) Programs. **(T-1)**. The WG/CV is the FOD/DOP Prevention Program Manager and will appoint 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 11** of this instruction. **(T-1)**.

2.3.2. Ensure the wing safety office, base operations, and emergency services actively participates in development and coordination of base functional and emergency action checklists. **(T-2)**. Ensure content includes and complies with all required safety standards, evacuation distances and MDS specific hazards (such as, egress systems, Hydrazine). **(T-1)**. Ensure checklists address all known hazards associated in responding to mishaps, adverse weather, natural disaster, and other emergency responses. **(T-2)**. **Note:** Review, update and

coordinate functional and emergency action checklist with using units every two years IAW **Paragraph 6.3.4** of this instruction.

**2.4. Maintenance Group Commander (MXG/CC) Responsibilities.** In addition to the responsibilities listed below, the MXG/CC or equivalent must ensure compliance with the maintenance requirements and programs in **Chapter 11** of this instruction. **(T-1)**. Approved variations in the MXG organization does not relieve the MXG/CC of compliance with all the requirements of this AFI. **(T-1)**. The MXG/CC (or equivalent) will:

**2.4. (AFRC) Maintenance Group Commander (MXG/CC) Responsibilities.** For an AFRC unit where the MXG/CC position is not authorized, the senior Maintenance ART is considered the MXG/CC equivalent and is responsible for all associated MXG/CC duties outlined in this instruction; example, for consolidated Airlift, Bomber, and Fighter Groups the senior Maintenance ART is delegated the responsibility of MXG/CC duties **(T-2)**.

2.4.1. Establish a radiation protection program IAW AFI 48-109, Electromagnetic Field Radiation Occupational & Environmental Health Program, when applicable. **(T-1)**.

2.4.2. Appoint an MXG Environmental Coordinator IAW AFI 32-7001, *Environmental Management*. **(T-1)**. Refer to AFI 90-821, installation ESOHMS/EMS policy, guidance and applicable environmental requirements and guidance, AFMAN 91-203, and AFMAN 32-7002, *Environmental Compliance and Pollution Prevention*, for additional guidance.

2.4.3. Ensure maintenance is only performed by personnel who are trained, qualified, and certified, unless under the direct supervision of a trainer or certifier. **(T-1)**.

2.4.4. Ensure standardization of maintenance discipline, procedures, organizational structures, compliance, and management philosophy. **(T-1)**.

2.4.5. Coordinate functional and emergency action checklist with Fire Emergency Services, Wing Safety, and the Airfield Operations Flight in developing adverse weather procedures for protecting aircraft and equipment IAW AFMAN 91-203, AFI 10-2501, *Air Force Emergency Management Program*, and MDS-specific technical data. **(T-1)**.

2.4.6. Establish and support a Data Integrity Team (DIT), refer to **Chapter 5** of this instruction. **(T-1)**.

2.4.7. Approve and publish In Process Inspection (IPI) listings every two years IAW **Chapter 6** of this instruction. **(T-1)**.

2.4.7.1. **(Added-AFRC)** IPI list must include all MDS and support equipment IPIs from TO, local directives, and higher level guidance.

2.4.8. Ensure the Maintenance Standardization and Evaluation Program (MSEP) requirements are implemented IAW **Chapter 6** of this instruction. **(T-1)**.

2.4.8.1. **(Added-AFRC)** Ensure failed QA inspections are answered by the office with primary responsibility **(T-3)**. **Note:** QA office should champion appropriate use of root-cause analysis (RCA)

2.4.9. Ensure effective management of the MXG's total maintenance training program IAW AFI 36-2651, *Air Force Training Program* and AFI 36-2650. **(T-1)**. **Note:** The MXG/CC may authorize the Munitions Squadron, Flight Commander, or Chief to chair the munitions scheduling and training meetings and publish schedules. The MXG/CC will:

2.4.9.1. Ensure Master Training Plans (MTPs) are developed IAW AFI 36-2651 and training is accomplished according AFI 36-2650. **(T-1)**.

2.4.9.2. Assign and manage Special Experience Identifier (SEI) referenced in the Air Force Enlisted Classification Directory at: <https://www.my.af.mil/gcss-af/USAF/ep/globalTab.do?channelPageId=s6925EC134CCB0FB5E044080020E329A9> in the AF Portal.

2.4.9.3. Support the maintenance training program by allocating aircraft, personnel, facilities and equipment. **(T-1)**.

2.4.10. Approve requests for assistance IAW **Chapter 1** of this instruction after they are coordinated with Plans, Scheduling, and Documentation (PS&D), Quality Assurance (QA), and all applicable maintenance organizations. **(T-1)**.

2.4.11. Designate a focal point for all functional, technical, and COR matters pertaining to performance-based activities. **(T-1)**. Refer to **Chapter 1** of this instruction.

2.4.12. Review the weekly, monthly, quarterly, annual flying or test schedules IAW **Chapter 5** and **Chapter 14** of this instruction. **(T-1)**.

2.4.13. Ensure munitions are accounted for IAW AFMAN 21-201, *Munitions Management*, AFMAN 21-200, *Munitions and Missile Maintenance Management*, AFI 21-203, *Nuclear Accountability*, and AFI 20-110, *Nuclear Weapons-Related Materiel Management*. **(T-1)**.

2.4.14. Establish measures that ensure all maintenance personnel are assigned IAW the Duty Title Tool, are available, and utilized to accomplish critical maintenance tasks necessary to integrate maintenance capabilities that optimize Aircraft Availability (AA). **(T-1)**. Maximize utilization of 7-skill level maintenance personnel in the grade of E-5 to E-7 in direct mission generation roles and minimize their use in staff positions or non-maintenance duties. **(T-1)**. **Note:** Consider utilization of Civil Service MXG/SQ Unit Program Coordinators to consolidate programs to maximize availability of sortie generation maintainers (NCOs) on the flightline to maximize AA.

2.4.15. Establish Minimum Equipment Levels (MELs) for essential maintenance assets to include engines, pods, AGE, vehicles, advocate and reconcile authorized shortfalls and overages. **(T-1)**. Coordinate with the applicable MAJCOM functional to advocate with the respective Program Manager to address any requests to change authorized quantities. **(T-1)**.

2.4.16. 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*; TO 1-1-691 *Cleaning and Corrosion Prevention and Control, Aerospace and Non-Aerospace Equipment*. **(T-1)**.

2.4.16.1. Appoint a WG Corrosion Manager (2A7X3, 2A7X5) to implement local requirements, ensure implementation of MAJCOM directed requirements and act as the focal point for communicating with external stakeholders. **(T-1)**.

2.4.17. 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 AFMAN 21-204, *Nuclear Weapons Maintenance*, AFI 21-203. **(T-1)**.

- 2.4.17.1. For units possessing Nuclear Certified Equipment (NCE), the MXG/CC will 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, *Safety Investigation and Reports*. (T-1).
- 2.4.18. Ensure effective management of the Engine Trending and Diagnostic (ET&D) program IAW AFMAN 20-116, *Propulsion Life Cycle Management for Aerial Vehicles*. (T-1).
- 2.4.19. Establish CDDAR capability IAW **Chapter 11** of this instruction and applicable MDS technical data. (T-1). The MXG/CC will ensure resources and trained personnel are available to perform responsibilities of the CDDAR Program. (T-1).
- 2.4.20. Develop a 10-year facility plan specifying maintenance, upgrade, and replacement projections for the group's facilities. (T-1). The MXG/CC will:
- 2.4.20.1. Coordinate plan updates with the installation Civil Engineer (CE) annually. (T-1).
  - 2.4.20.2. Coordinate and prioritize group maintenance facility work orders monthly. (T-2).
- 2.4.21. Ensure adequate government issued Personal Wireless Communications Systems are available to support mission requirements. (T-1). Refer to **Chapter 11** of this instruction for further information on Personal Wireless Communications Systems requirements.
- 2.4.22. 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, *Maintenance Processing of Repairable Property and The Repair Cycle Asset Control System*, TO 00-25-240, *Uniform Repair/Replacement Criteria for Selected USAF Support Equipment (SE)* and TO 35-1-24, *Air Force Economic Repair/Replacement Criteria For Selected Warner Robins Logistics Complex (ALC) Managed Support Equipment (SE)*. (T-1).
- 2.4.23. Ensure effective use of the assigned AF Engineering and Technical Services (AFETS), Contractor Engineering and Technical Services (CETS), and contracted Field Service Representatives (FSRs) IAW **Chapter 11** of this AFI. (T-1).
- 2.4.24. Establish the group maintenance awards and recognition program to meet AF and MAJCOM requirements refer to <https://access.afpc.af.mil/Trophies/searchtrophies.aspx>. (T-1).
- 2.4.25. Ensure procedures are followed to properly turn in recoverable and consumable items IAW AFI 23-101. (T-1).
- 2.4.26. Ensure the applicable section "safes" all static display aircraft/systems IAW the applicable 00-80-series and weapon system-specific TOs. (T-1).
- 2.4.27. Approve MXG Key Task List (KTL) and Routine Inspection Lists (RIL). (T-1).
- 2.4.28. Ensure an orientation program is developed and conducted for all personnel newly assigned to MXG maintenance or equivalent maintenance activities IAW AFI 36-2650. (T-1).
- 2.4.29. Implement MAJCOM Lead the Fleet (Pacer) Program for engine type IAW AFMAN 20-116. (T-2).



- 2.4.29. (AFRC) [DEV] Currently, AFRC does not have Lead the Fleet engines.
- 2.4.30. Establish and document MXG local manufacture procedures and controls in a supplement to this instruction. (T-1).
- 2.4.31. Ensure the MXG Oil Analysis Program (OAP) complies with **Chapter 11** of this AFI. (T-1).
- 2.4.32. Appoint a Stock Record Account Number (SRAN) Engine Manager (EM) or a Unit Engine Manager (UEM) to accomplish duties outlined in TO 00-25-254-1, *Comprehensive Engine Management System (CEMS) (D042) Engine Status, Configuration, and TCTO Reporting Procedures*. (T-1).
- 2.4.33. Ensure Engine Health Management Plus (EHM+) duties are performed IAW AFMAN 20-116 for EHM products managed by Air Force Life Cycle Management Center AFLCMC/LP. If EHM data is not managed by AFLCMC/LP, ensure Contractor Logistics Support (CLS) provided EHM products are managed according to respective contract. (T-1).
- 2.4.34. Ensure the Aero Club is operated IAW AFI 34-101, *Air Force Morale, Welfare, and Recreation (MWR) Programs* and Use Eligibility, when assigned. (T-1).
- 2.4.35. Appoint a hot refueling/hot defueling OPR for the Wing (WG) and designate an OPR for hot refuel training (if applicable) IAW **Chapter 11** of this instruction. (T-1).
- 2.4.36. Ensure maintenance requirements (such as, 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. (T-1).
- 2.4.37. Ensure unit personnel collect and report Aircraft Structural Integrity Program (ASIP) data IAW AFI 63-140, *Aircraft Structural Integrity Program* and **Chapter 11** of this instruction. (T-1).
- 2.4.38. Ensure aircraft shelters at bases with permanently assigned aircraft are maintained, unless otherwise stipulated in contracting arrangements, IAW **Chapter 11** of this instruction. (T-1). **Note:** If an aircraft shelter is used for other than its designed purpose, the using activity will maintain it. (T-1).
- 2.4.39. Ensure aircraft and equipment sun shades are maintained IAW **Chapter 15** of this AFI. (T-1).
- 2.4.40. Ensure management of the Weight and Balance (W&B) program IAW **Chapter 6** of this instruction. (T-1).
- 2.4.41. Coordinate with the Operations Group (OG) and establish Functional Check Flight (FCF), Operational Check Flight (OCF), and High Speed Taxi Check programs. (T-1).
- 2.4.42. Implement the Hangar Queen Program IAW **Chapter 11** of this instruction. (T-1).
- 2.4.43. Develop a MXG Impoundment Program and ensure compliance with the procedures IAW **Chapter 7** of this instruction. (T-1).
- 2.4.44. Establish written procedures to review and clear “repeat”, “recur”, and “cannot duplicate” (CND) discrepancies. (T-1).

2.4.45. Ensure compliance with Identification Friend or Foe Program or equivalent IAW **Chapter 11** of this instruction (if equipped). **(T-1)**.

2.4.46. Provide Subject Matter Expertise (SME) support for the development of the wing or installation instruction to control tools, equipment, and electronic devices from all wing agencies dispatching to aircraft parking, runway, taxi areas and aircraft maintenance areas IAW **Paragraph 2.2.3** and **Chapter 8** of this instruction. **(T-1)**.

2.4.47. Establish written guidance on individual responsibilities and specific procedures for Cannibalization (CANN) actions IAW **Chapter 11** of this instruction. **(T-1)**.

2.4.47.1. Ensure aircraft possessed by AFMC for depot maintenance are not cannibalized without coordination through the MAJCOM functional manager who will then request approval from the applicable Air Logistics Complex (ALC) Maintenance Group Commander/Director and Program Manager. **(T-1)**.

2.4.47.1. **(AFRC)** Submit MAJCOM functional manager coordination to HQ AFRC/A4MA ([afrc.a4ma@us.af.mil](mailto:afrc.a4ma@us.af.mil)) and courtesy copy appropriate NAF/A4 organizational box **(T-2)**.

2.4.48. Establish local procedures for management and maintenance of assigned Ground Instructional Training Aircraft (GITA) and Training Aircraft Aids (TAA) to ensure they remain useful and safe within guidelines stated in **Chapter 11** of this instruction, AFI 84-103, *U.S. Air Force Heritage Program*, AFI 21-103, and 23-series publications. **(T-1)**.

2.4.49. Sustain a Transient Alert (TA) function (if required). **(T-1)**. The MXG/CC 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. **(T-1)**. Special consideration should be given to medical or air evacuation aerospace vehicle, emergency missions, and special missions.

2.4.50. Ensure Air Force Repair and Enhancement Program (AFREP) is managed IAW **Chapter 11** of this AFI. **(T-1)**.

2.4.51. Ensure unit FCC program(s) are established IAW **Chapter 11** of this instruction, if applicable. **(T-1)**.

2.4.52. Establish procedures to ensure assigned units have sufficient eTools availability for technical order viewing. **(T-1)**.

2.4.53. Develop procedures and assign responsibilities to ensure aircraft, aircraft system forms, equipment forms, and MIS documentation are complete, accurate, and a thorough review is accomplished for each shift. **(T-1)**. Documented procedures as a minimum will include:

2.4.53.1. The process to ensure aircraft, aircraft systems and equipment status is correctly reflected in maintenance forms and the MIS IAW TO 00-20-1, *Aerospace Equipment Maintenance, Inspection, Documentation, Policies and Procedures*, TO 00-20-2, AFI 21-103 and **Chapter 1** of this instruction. **(T-1)**.

2.4.53.2. The process for recovering aircraft, aircraft systems from extensive maintenance events and down time (CANN, local depot maintenance (MX)) include independent screening and validation that all maintenance actions (IPIs, operational checks,

configuration management, W&B, serial number (S/N) tracking (COMSEC/CCI and other significant items as designated by an asterisk in the applicable WUC/LCN Manual), AFTO Form 95, *Significant Historical Data* have been accurately documented in the forms, MIS, or both before being scheduled for a sortie or mission. (T-1).

2.4.53.3. The process for determining if an OCF or FCF is required. (T-1).

2.4.54. Ensure that when no 2W1X1 weapons AFSCs are assigned and units are required to install/remove chaff/flare on unique mission aircraft, train and qualify personnel to perform these tasks IAW procedures outlined in AFMAN 21-201 and **Chapter 11** of this instruction. (T-1). As a minimum, the program will include academic, explosive safety, load and unload training. (T-1).

2.4.55. Appoint a Wing Avionics Manager (WAM) or designated representative to act as the maintenance focal point for wing avionics related programs. (T-1). **Note:** See **Chapter 11** for WAM responsibilities.

2.4.55.1. Designate individuals to be primary responders and facilitators for maintenance cybersecurity incident reporting (typically the Wing Avionics Manager). (T-2).

2.4.56. Ensure storage, physical security, corrupt systems quarantine procedures, and cyber threat mitigation management of MXG assigned PIT and eTools is supported and sustained. (T-1).

2.4.57. Establish a read file or equivalent for distributing maintenance cross-talk messages, QA newsletters, Higher Headquarters (HHQ) and local policy announcements, technical notifications, and other important maintenance information to all assigned airman. (T-1).

2.4.58. Ensure personnel are trained and appointed as Aircraft Battle Damage Evaluators IAW **Chapter 11** of this instruction. (T-1).

2.4.59. **(Added-AFRC)** Ensure effective debriefings between Operations Squadron (Ops) and Mx Unit (T-2).

2.4.60. **(Added-AFRC)** In addition to mandatory reporting requirements, ensure that mishap/incident/OPREP reports concerning aircraft/equipment damage and/or personnel injuries are forwarded to HQ AFRC/A4M ([afrc.a4m@us.af.mil](mailto:afrc.a4m@us.af.mil)) and the appropriate NAF/A4 organizational box (T-2).

2.4.61. **(Added-AFRC)** Call-in to the MAJCOM True North teleconference as required by HQ AFRC/A4 (T-2).

2.4.62. **(Added-AFRC)** In the absence of a full time MXG/CD, chair and designate mandatory attendees for the daily maintenance production/scheduling meeting (T-2).

2.4.63. **(Added-AFRC)** Ensure effective aircraft flash blindness protective device maintenance is accomplished IAW applicable TOs, and **Chapter 11** (as required) (T-2).

2.4.64. **(Added-AFRC)** Attend the Air University Group Commander's course at Maxwell AFB prior to (not later than six months after assignment) going into the MXG/CC command position (T-2).

2.4.64.1. **(Added-AFRC)** Complete the SLMG course, as part of the AU Group Commander's course (T-2).

2.4.65. **(Added-AFRC)** Ensure Unit Corrosion Control Program IAW **paragraph 11.41 (T-2)**. Appoint, in writing, a Wing Corrosion Prevention and Control Manager **(T-2)**. **Note:** This person will normally be in the Fabrication Flight of the Maintenance Squadron (or equivalent).

2.4.66. **(Added-AFRC)** MXG/CC, OG/CC, and Wing Weapons Manager will determine the need to employ Integrated Combat Turn (ICT) to meet the unit's combat sortie generation tasking under current war plans/contingency operations **(T-2)**.

2.4.66.1. **(Added-AFRC)** If ICTs are necessary, develop local procedures which supplement combat sortie production plans, and determine the number of weapons load crews and maintenance personnel required to support ICT operations **(T-2)**.

2.4.66.1.1. **(Added-AFRC)** Incorporate ICTs into the unit's aircraft utilization and maintenance plan **(T-2)**.

2.4.66.1.2. **(Added-AFRC)** The need for ICTs will be reviewed annually/updated to meet changes in the unit's combat sortie generation requirements **(T-2)**.

2.4.66.1.3. **(Added-AFRC)** At a minimum, the Loading Standardization Crew (LSC), lead crews, and ICT instructors will be fully ICT qualified **(T-2)**.

2.4.67. **(Added-AFRC)** For F-16 maintenance units, unless directed by technical order or host TFA unit, MXG/CC will publish when unit personnel are required to use the antipersonnel engine run screen **(T-2)**. **Note:** Factors to consider, but not limited to: engine operation location, engine operation parameters, time of day, experience level of maintenance crew, weather conditions, and variations in requirements based on use at home station, deployed, and temporary duty locations.

2.4.68. **(Added-AFRC)** If Rapid Crew Swaps (RCS) are employed, develop and publish local procedures. **(T-2)**. The local procedures will be a Wing level publication with WG/CC approval. **(T-2)**. Concurrence by Wing's MXG/CC and OG/CC is required. **(T-2)**. **Note:** MXG/CC and OG/CC must agree to terms, thresholds, and limitations to exercising RCS operations.

## **2.5. Deputy Maintenance Group Commander (MXG/CD).** The MXG/CD will:

2.5.1. Chair and designate mandatory attendees for the daily maintenance production/scheduling meeting. **(T-1)**. The purpose of this meeting is to verify aircraft and equipment utilization, scheduled maintenance requirements, establish work priorities, and coordinate schedule changes for the next day. Topics reviewed will include as a minimum:

2.5.1.1. Aircraft and aircraft system status. **(T-1)**.

2.5.1.2. MICAP and repair cycle status. **(T-1)**.

2.5.1.3. AF Form 2407s, Weekly/Daily Flying Schedule Coordination. **(T-1)**.

2.5.1.4. Current-day flying and maintenance schedule execution. **(T-1)**.

2.5.1.5. Remaining portion of the current day's schedule. **(T-1)**.

2.5.1.6. Previous week/day's flying and maintenance schedule deviations to the published schedule. **(T-1)**.

2.5.1.7. Prioritizing aircraft requiring/competing for shared resources. **(T-1)**.

- 2.5.1.8. Special inspections (SIs). **(T-1)**.
- 2.5.1.9. Time Change Items (TCIs). **(T-1)**.
- 2.5.1.10. Time Change Technical Orders (TCTOs). **(T-1)**.
- 2.5.1.11. Depot Field Team (DFT)/Contract Field Team (CFT) schedules. **(T-1)**.
- 2.5.1.12. Due In From Maintenance (DIFMs) to ensure no overdue DIFM assets exist. **(T-1)**.
- 2.5.1.13. Condition Based Maintenance (CBM+) component status to ensure proactive aircraft maintenance practices.

**2.6. MXG Superintendent Responsibilities.** In addition to the Group Superintendent responsibilities outlined in Air Force Handbook (AFH) 36-2618, *The Enlisted Force Structure*, the MXG Superintendent is responsible to the MXG/CC and shall advise and assist the MXG/CC on their responsibilities as outlined in this **Chapter**. The MXG Superintendent will:

2.6.1. Conduct a quarterly manning meeting with Squadron Superintendents and Wing Weapons Manager (WWM) to review MXG manning status, Duty Title Tool usage, and ensure manning resources are strategically distributed to provide the greatest possibility for mission success. **(T-1)**. The MXG Superintendent is the focal point for ensuring squadron superintendents receive adequate manpower management training.

2.6.1.1. Meeting will consist of a review and evaluation of the impact on the MXG of personnel actions such as: work center/organizational manpower Authorization Change Requests (ACR), AFSC changes, re-training, special duty requests, special assignment actions (SWAP, Palace Chase), SEI balance, overseas Date Eligible for Return from Overseas extensions/In Place Consecutive Overseas Tour (IPCOT) requests, physical profile changes and personnel rotation plans as applicable to enhance mission effectiveness. **(T-1)**.

2.6.1.2. MXG Superintendent will provide the MXG/CC coordinated manning recommendations that develop enlisted individual experience and knowledge for consideration. **(T-1)**.

2.6.2. Ensure all AFSC 2A and 2W maintenance personnel are only assigned authorized duty titles. **(T-1)**. Reference the Duty Title Tool: [https://cs2.eis.af.mil/sites/10820/medac/2A\\_DTT/SitePages/Home.aspx](https://cs2.eis.af.mil/sites/10820/medac/2A_DTT/SitePages/Home.aspx), and the AFSC 2W1 Standardized Duty Titles located at <https://cs2.eis.af.mil/sites/12231/2W1%20Standardized%20Duty%20Titles/Forms/AllItems.aspx> for all assigned AFSC 2W1X1 and 2W100 positions.

**2.7. Wing Weapons Manager (WWM).** The WWM is the wing's focal point for all weapons loading and armament systems related matters and serves as the functional manager for all assigned 2W1X1's. The WWM's primary efforts focus on compliance, continuity, and standardization. The WWM will be a 2W100 CMSgt assigned directly to the MXG/CC. **(T-1)**. 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 (T-1)**. 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 Aircraft Maintenance Squadrons, Weapons Sections, Armament Flight, Wing Safety, Wing Weapons and Tactics Officer, the Munitions Squadron/Flight, and other unit agencies on weapons related matters. The WWM is a certifying official and evaluator for weapons loading task certifications and qualifications. WWM will coordinate on support agreements and provide support for geographically separated units (GSU). **(T-1)**. Exception: Unless outlined under additional TFI guidance. The WWM is the wing Point of Contact (POC) for all 2W1XX manpower issues to include coordination on all manning (AFSC, grade and skill-level) changes, work center and organizational changes. The WWM will:

2.7.1. Review and coordinate on the Unit Manpower Document(s) (UMD). **(T-1)**. The WWM will ensure assignment of position numbers to new arrivals, and existing 2W1 personnel are properly assigned on the UMD to balance 2W1XX grades, experience and skill-levels between all 2W1XX work centers across the wing. **(T-1)**. The WWM will coordinate on all 2W1 personnel position change requests. **(T-1)**.

2.7.2. Ensure sufficient quantities of serviceable load crew training munitions are available to support both load crew and Dual Loading Operations training programs. **(T-1)**.

2.7.2. **(AFRC)** Ensure sufficient quantities of serviceable load crew training support ICTs **(T-2)**.

2.7.3. Ensure all wing 2W1X1 personnel regardless of duty position receive initial and recurring weapons academics. **(T-1)**. The WWM will ensure introductory training is provided to newly assigned personnel on aircraft familiarization, safe for maintenance, explosive safety, weapons release and gun system safety prior to performing duties (as applicable to work center). **(T-1)**.

2.7.4. Designate the Weapons Standardization (WS) Superintendent (SUPT), Loading Standardization Crew (LSC), lead crews as WS certifying officials and the primary weapons academic instructor. **(T-1)**. The WWM may designate the weapons section Non-Commissioned Officer in Charge (NCOIC) to perform WS functions of academics and weapons task qualification in HH-60/CV-22 units.

2.7.5. Determine the number of load crews (based on unit taskings), other than the LSC and lead crews, to be certified on support or limited use munitions. **(T-1)**. In nuclear-tasked units, the WWM will determine the number of load crews required to be certified on applicable nuclear weapons in support of OPLANs when the OPLANs' Designed Operational Capability (DOC) statement does not dictate load crew requirements. **(T-1)**. **Note:** The WWM coordinates with the MXG/CC in determining the number of load crews to be certified on support or limited use munitions.

2.7.5.1. Determine need for cross-loading program in coordination with wing safety and approved by MXG/CC. WWM will establish procedures and a training program, as a minimum will include: checklist documentation, restrictions, inherent safety and list of authorized conventional munitions. **(T-1)**. If required, a training program and procedures will be established per [Paragraph 10.16.9](#) of this instruction.

2.7.6. Use the Weapons Load Crew Management Tool (WLCMT) or MAJCOM-equivalent automated database to track load crew certification and qualification status. **(T-1)**.

2.7.7. Monitor overall load crew status and advise the MXG/CC when the number of fully certified load crews fall below the Unit Committed Munitions List (UCML) or Test/Training Munitions List (TTML) minimum requirements. **(T-2)**. If this occurs and cannot be corrected within 30 days, a secure message will be sent via Secret Internet Protocol Router (SIPR), through the MXG/CC, to the appropriate MAJCOM 2W1XX functional manager. **(T-1)**. **Note:** All 2W1X1s working outside their respective work center or Duty AFSC will be qualified and certified if possible to fill load crew shortfalls before sending a message to the MAJCOM. **(T-2)**. The MAJCOM will send the message via SIPR to AF/A4LW at [usaf.pentagon.af-a4.mbx.a4lw-workflow@mail.mil](mailto:usaf.pentagon.af-a4.mbx.a4lw-workflow@mail.mil). The message will include:

2.7.7.1. 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.

2.7.7.2. Number of 2W1X1 personnel working outside the AFSC/work center.

2.7.7.3. Number of 2W1X1s not able to perform primary duties and the reason.

2.7.7.4. 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.

2.7.7.5. Remarks: List limiting factors, equipment shortages, availability of training aircraft.

2.7.8. Annually review DOC Statements, OPLANs, Syllabus, Ready Aircrew Program tasking memorandum, UCML/TTMLs, unit-tasked Unit Type Code (UTC) requirements (for equipment and personnel) and UMD to identify any disconnects or problems for weapons. **(T-2)**. The WWM will coordinate changes and appendices with the Wing Weapons and Tactics Officer and the Munitions Squadron/Flight and report any findings to the MAJCOM. **(T-1)**.

2.7.8.1. In taskings that involve 2W1's, the WWM ensures no shortfalls exist by aligning required skill level, grade, line remarks and Career Field Education and Training Plan (CFETP) qualifications against tasked UTCs to include Aerospace Expeditionary Force taskings for all assigned 2W1XX personnel. The WWM will start a training program to eliminate any identified shortfalls. **(T-1)**.

2.7.9. Resolve scheduling conflicts affecting weapons loading and Dual Loading Operation training programs. **(T-3)**.

2.7.9. **(AFRC)** Resolve scheduling conflicts affecting ICTs **(T-2)**.

2.7.10. Provide input during development of local exercises involving weapons loading and armament functions and serve as an advisor/evaluator to the Wing Inspection Team (WIT). **(T-3)**.

2.7.11. Ensure a recognition program for weapons and armament personnel is established. **(T-2)**.

2.7.12. Ensure standardization of load crew Composite Tool Kit (CTK) by aircraft MDS to the maximum extent possible to provide interoperability of load crews; and, in coordination with the Weapons Section NCOIC and WS Superintendent, determine the number of CTKs required. **(T-2)**.

2.7.12.1. Load crew CTK contents will be approved by the WWM. **(T-2)**.

2.7.13. In coordination with Wing Safety, Airfield Operations Flight, and Quality Assurance, develop an installation publication or supplement to this AFI for parking, launch and recovery of explosives-loaded aircraft, end-of-runway procedures, hung stores/jammed gun system safing and to outline situations warranting impoundment of aircraft with hung ordnance, delayed release or jammed gun systems. **(T-1)**.

2.7.14. The WWM will ensure arm/de-arm of munitions loaded aircraft is accomplished in approved areas. **(T-1)**. 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 Operations Flight, and the MXG/CC.

2.7.15. 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. **(T-2)**. **Note:** Units follow MAJCOM and local reporting instructions.

2.7.15. **(AFRC)** Units will inform HQ AFRC/A4MS, appropriate NAF/A4M, and utilize the weapons incident reporting tool located on the AF Armament SharePoint site: <https://usaf.dps.mil/sites/12231/sitepages/home.aspx> **(T-2)**.

2.7.15.1. 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.

2.7.16. Monitor weapons release/gun fire-out rates, malfunctions and corrective actions to assess weapons and armament systems reliability. **(T-1)**.

2.7.16. **(AFRC)** Take appropriate action to resolve any problems **(T-2)**. Contact HQ AFRC/A4M ([afrc.a4m@us.af.mil](mailto:afrc.a4m@us.af.mil)) for assistance, if required.

2.7.16.1. Weapons release reliability rates are calculated by dividing the number of successful releases by the number of attempts.

2.7.16.2. The gun fire-out rate is calculated by dividing the number of successful bursts by the number attempted. Once a malfunction occurs, any further attempts for the purpose of clearing the malfunction should not be counted as attempts.

2.7.17. Ensure compliance with local accountability procedures IAW AFI 11-212, *Munitions Requirements for Aircrew Training*, and AFMAN 21-201. **(T-1)**. In conjunction with the Weapons Section(s) and Munitions Flight, the WWM will develop a standard local format for the AF Form 2434, *Munitions Configuration and Expenditure Document*. **(T-2)**. A computer-generated product may be used if it contains all required information.

2.7.18. Coordinate with Maintenance Supervision, Munitions Squadron/Flight, Operations Support Squadron (OSS) Operations Plans, and Wing Safety in developing nuclear weapons operations procedures (such as, convoy, custody transfer, no-lone-zone), if applicable. **(T-3)**.

2.7.19. Conduct a quarterly meeting with representatives from Weapons Standardization, Wing Safety, Quality Assurance, Munitions Squadron/Flight, Armament Flight, and Weapons



Section(s) to discuss and resolve any weapons-related issues, concerns or problems. **(T-1)**. Weapons AFETS are encouraged to attend.

2.7.20. Ensure enroute training requirements for inbound 2W1X1 personnel are identified and requested through the MAJCOM, as applicable. **(T-2)**.

2.7.21. Monitor WRM Rack, Adapter, Pylons and guns/components status to ensure required assets are available to support OPLAN taskings. **(T-1)**.

2.7.22. Provide monthly load crew, weapons release and gun reliability rates, equipment, and tester status (9405 report, or equivalent) to MAJCOM No Later Than (NLT) the 5th of each month. **(T-2)**. The WWM will monitor the status of critical armament and weapons systems support equipment and testers for serviceability, accountability and status of TCTO modifications. **(T-2)**.

2.7.22. **(AFRC)** Report monthly information using the 9405 report on the AF Armament SharePoint site: <https://usaf.dps.mil/sites/12231/sitepages/home.aspx> **(T-2)**.

2.7.22.1. The WWM will provide a valid document number and off-base requisition number for all items listed in Awaiting Parts (AWP) status in the remarks column of the report if the item is procured through USAF supply channels. **(T-2)**. If parts are obtained from commercial sources, and purchased using Government Purchase Card, provide source, date ordered, and status in the remarks column.

2.7.23. Utilize and involve assigned AFETS and/or contractors in weapons and armament related issues and meetings IAW **Chapter 11** of this instruction. **(T-2)**.

2.7.24. Ensure at least two certified WS personnel are included on TDY where live munitions will be expended and on deployments exceeding 30 days to provide Minimum Required Proficiency Load (MRPL) and recertification capability. **(T-3)**. The WWM is the approval authority for exceptions.

2.7.25. Perform an annual assessment to evaluate programs and technical proficiency of personnel assigned to Weapons Sections, Armament Flights, and AFSC 2W1 personnel assigned to QA. **(T-1)**. The WWM will ensure the assessment incorporates a process to document findings, track corrective actions and store data. **(T-2)**.

2.7.26. Determine when Armament Flight personnel are required to perform load crew duties or related certifiable tasks and gain concurrence from MXG/CC. **(T-3)**.

2.7.27. Determine need for a formal supervisory postload program. **(T-3)**. If negative performance metrics, special missions, warrant a supervisory postload program, WWM will establish procedures and a training program to ensure standardization between units. **(T-3)**. Supervisors (7-skill level minimum, expeditors, shift supervisors, section NCOICs) 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 Special Certification Roster (SCR). **(T-1)**. Document Supervisory Postload on AF Form 2430, *Specialist Dispatch Control Log* (or equivalent). **(T-3)**.

2.7.28. Ensure requirements for submitting AFTO Form 375, *Selected Support Equipment Repair Cost Estimate*, on all weapons support equipment identified in TO 35-1-24, are accomplished. **(T-1)**. 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.

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

2.8.1. Ensure compliance with AFI 90-821, AFI 91-202, *The US Air Force Mishap Prevention Program*, AFMAN 91-203 and other publications necessary to perform the commander functions assigned to the squadron. **(T-1)**.

2.8.2. Establish and administer squadron training programs IAW AFI 36-2650 and AFI 36-2651; monitor upgrade training, Personnel Reliability Program (PRP) status, and qualifications of assigned work center personnel; and, ensure MAJCOM Mandatory Course List requirements are met (if applicable). **(T-1)**.

2.8.3. Ensure upgrade training and maintenance qualification programs emphasize quality and are not primarily focused on meeting minimum upgrade time frames. **(T-1)**.

2.8.3.1. Ensure all maintenance personnel who utilize DoD Information Technology have received appropriate Maintenance Cyber Discipline Training. **(T-1)**.

2.8.4. Monitor all personnel working outside of their primary AFSC to ensure that it does not degrade mission accomplishment. **(T-3)**.

2.8.5. Establish a squadron Vehicle Control Program IAW AFI 24-302, *Vehicle Management*. **(T-1)**.

2.8.6. Establish and manage squadron FCC program IAW **Chapter 11** of this instruction (if applicable). **(T-1)**.

2.8.7. Protect and secure munitions as outlined in AFI 31-101. **(T-1)**. The SQ/CC will ensure Intrusion Detection Systems requirements are identified when required to store munitions. **(T-1)**.

2.8.8. Appoint equipment custodians to manage the Custodian Authorization/Custody Receipt Listing (CA/CRL) (R14) of assigned equipment IAW AFI 23-101 and AFMAN 23-122, *Materiel Management Procedures*. **(T-1)**.

2.8.9. Ensure personnel and equipment are identified and prepared to deploy for taskings IAW AFI 23-101, AFI 10-403, *Deployment Planning and Execution*, AFI 36-3802, *Force Support Readiness Programs*, and AFMAN 10-409-O, *Support to Adaptive Planning*. **(T-1)**.

2.8.10. Recommend personnel for QA duty positions. **(T-1)**.

2.8.11. Designate Flight CC/Chiefs. **(T-1)**.

2.8.12. Ensure the UMD is consistent with the approved organizational structure. **(T-1)**.

2.8.12.1. **(Added-AFRC)** Any deviations between UMD and approved organizational structure will be coordinated via Manpower Change Request action through the appropriate NAF to HQ AFRC/A4MM ([afrc.a4mm@us.af.mil](mailto:afrc.a4mm@us.af.mil)) **(T-2)**.

2.8.13. Coordinate support from the local communication squadron or equivalent functional entity to ensure proper eTools configuration (operating system, virus checkers) are maintained. **(T-1)**. The SQ/CC will coordinate with lead TODO/Functional System Administrator to resolve TO requirements that are not being satisfied. **(T-1)**.

2.8.13.1. Ensure licenses, certification, maintenance and security of eTools (hardware and software) is conducted IAW 33/17-series AFIs, TO 31S5-4-ETOOOL-1, and **Chapter 8** of this AFI. **(T-1)**.

2.8.14. Ensure members assigned to the DIT are qualified to accurately assess the Maintenance Data Documentation. **(T-1)**.

**2.9. Maintenance Supervision Responsibilities.** Maintenance Supervision consists of the Operations Officer and Maintenance Superintendent (MX SUPT). Maintenance Supervision 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 and control maintenance through Pro Supers, Flight CC/SUPT, and Section NCOICs/Chiefs. The MX SUPT is responsible to the Operations Officer. Maintenance Supervision will:

2.9.1. Ensure adequate levels of supervision and manning are balanced across all shifts to safely and efficiently accomplish the mission. **(T-1)**.

2.9.2. Ensure timely and accurate engine data is provided to the EM element for all engines IAW **Chapter 14** of this instruction. **(T-3)**.

2.9.3. Enforce procedures to prevent FOD and dropped objects IAW **Chapter 11** of this instruction. **(T-3)**.

2.9.4. Monitor and recommend updates to local IPI requirements and recommendations to QA IAW **Chapter 6** of this instruction. **(T-3)**.

2.9.5. Ensure a sufficient number of personnel are qualified to perform mission critical tasks listed on the SCR **Table 11.1** in **Chapter 11** of this instruction. **(T-3)**. Review and/or recommend individuals for addition to the SCR. **(T-3)**. Approve individuals for addition to the SCR. **(T-3)**. Review and approve individuals for addition to the SCR. **(T-3)**.

2.9.6. Ensure aircraft systems and equipment are available to support unit training objectives. **(T-3)**.

2.9.7. Ensure distribution of maintenance cross-tell messages, QA newsletters, policy announcements, technical notifications, and other important maintenance information to all members of the organization. **(T-3)**.

2.9.8. Review and evaluate management and production effectiveness. **(T-3)**. Maintenance Supervision will analyze personnel and equipment performance history. **(T-3)**. Initiate management actions to meet new workloads or correct reported/perceived deficiencies. **(T-3)**.

2.9.9. Ensure an annual maintenance plan is developed and reconciled with the flying schedule and flying requirements to ensure maintenance can support the annual flying hour/test program. **(T-3)**.

2.9.9.1. Participate in the maintenance planning cycle. **(T-3)**.

2.9.9.2. Utilize the MxCAP2 model or equivalent for the assigned MDS (if available). **(T-1)**.

- 2.9.10. Ensure a squadron SERENE BYTE or PACER WARE response capability is available to support reprogramming requirements IAW AFI 10-703, *Electronic Warfare Integrated Reprogramming* (if applicable). **(T-1)**.
- 2.9.11. Ensure a squadron Corrosion Control Program is implemented and managed IAW TO 1-1-8, TO 35-1-3, TO 1-1-691, MDS-specific TOs and MAJCOM instructions. **(T-1)**.
- 2.9.11. **(AFRC) Note:** Refer to paragraph **11.41** for AFRC Corrosion Control Program guidance.
- 2.9.12. Ensure squadron ASIP responsibilities are accomplished IAW **Chapter 11** of this instruction and AFI 63-140. **(T-1)**.
- 2.9.13. Develop written procedures in coordination with the WWM, Weapons Safety Manager, and Airfield Management to establish EOR inspection procedures as required by aircraft specific -6 TO, MAJCOM directed requirements and **Chapter 11** of this instruction. **(T-1)**.
- 2.9.13.1. Ensures sufficient personnel, equipment, and facilities are assigned, maintained, and available to properly perform EOR inspections IAW **Chapter 11** of this instruction.
- 2.9.13.2. Ensure EOR procedures for transient aircraft are developed IAW TO 00-20-1 and MAJCOM directives. **(T-2)**.
- 2.9.14. Review and support the monthly Weapons Load Training (WLT) schedule. **(T-3)**.
- 2.9.15. Ensure deferred maintenance, Pilot Reported Discrepancy, and back-ordered parts are properly managed. **(T-1)**.
- 2.9.16. Review supply products to monitor supply discipline. **(T-2)**.
- 2.9.16.1. Maintenance Supervision will manage DIFMs IAW AFI 23-101. **(T-2)**.
- 2.9.16.2. Monitor and reconcile changes in base-level repair capabilities under their supervision as they occur with the LRS/Material Management activities IAW AFI 23-101. **(T-1)**.
- 2.9.17. Ensure lost, damaged, destroyed or stolen government assets are dispositioned IAW DoD 7000.14-R, *DoD Financial Management Regulation*, Vol 12, **Chapter 7**, Financial Liability for Government Property Lost, Damaged or Destroyed (Formerly Report of Survey). **(T-1)**.
- 2.9.18. Ensure Special Purpose Recoverable Authorized Maintenance (SPRAM) accounts are established IAW AFI 21-103, **Chapter 9** of this instruction, and maintained IAW AFI 23-101. **(T-2)**.
- 2.9.19. Ensure reporting of materiel deficiencies IAW TO 00-35D-54, *USAF-Deficiency Reporting, Investigating, and Resolution*. **(T-1)**.
- 2.9.20. Monitor requirements for CTK, special tools, and SE and take necessary action to ensure availability, as required IAW **Chapter 8** of this instruction. **(T-1)**.
- 2.9.21. **(Added-AFRC)** Active Associate unit Maintenance Supervision will ensure Special Experience Identifier (SEI) qualified RegAF individuals are matched against proper SEI positions on the UPMR IAW owning MAJCOM guidance **(T-2)**. Ensure SEIs are awarded to

RegAF individuals meeting the qualification criteria and are reflected in the personnel data subsystem (T-2). SEI reporting is required for all AFRC AFSC 2W0X1 Munitions Inspectors and must be matched against the proper SEI positions on the UPMR (T-2).

**2.10. Flight Supervision.** Flight Supervision consists of the Aircraft Maintenance Unit (AMU) Officer in Charge (OIC)/Superintendent and Flight Commander/Flight Superintendent (Flight CC/Chief). Flight Supervision will:

**2.10. (AFRC) Flight Supervision/Flight Chief or AMU Officer in Charge/Chief. Note:** Flight Supervisor who is also the Section NCOIC/Chief must ensure Section 2.12 compliance (T-2).

2.10.1. Provide management and oversight and ensure each section is adequately resourced to efficiently execute their mission. (T-1).

2.10.1. (AFRC) See AFI 36-2115, *Assignments Within the Reserve Components*, for additional guidance.

2.10.2. Manage, distribute and adjust the flight's manning to support the maintenance plan across all shifts. (T-1).

2.10.2.1. Distribute all levels of supervision based on manning and workload to supervise all duty periods. (T-1).

2.10.2.2. Identify imbalances between authorizations and the number of personnel assigned, or between authorized and assigned skill levels or grades to SQ/CC and Maintenance Supervision. (T-1).

2.10.2.2.1. Review unit DOC Statements, OPLANs, unit-tasked UTC requirements for personnel and equipment then compare requirements to UMD to identify existing shortfalls. Scrutinize critical AFSCs qualifications and equipment based on their impact on mission generation. Document and report personal and equipment deficiencies through the chain of command and monitor until resolved. (T-2).

2.10.2.3. Manage additional duties, leaves, ancillary training, and rotate/assign manning across shifts to balance the workload and minimize negative impacts on the workforce. (T-1).

2.10.3. Execute the squadron's Mishap Prevention Program for the flight/work center IAW AFI 91-202 and **Chapter 1** of this instruction. (T-1).

2.10.3.1. Ensure all personnel obtain the required safety training, and document it on the AF Form 55, Employee Safety and Health Record, or equivalent IAW AFI 91-202. (T-1).

2.10.4. Coordinate occupational and environmental health risk assessments with Bioenvironmental Engineering IAW AFMAN 48-146, *Occupational & Environmental Health Program Management*, to identify, assess and evaluate process hazards in the workplace and identify controls. (T-1).

2.10.4.1. Monitor and ensure environmental and applicable health requirements, physicals and respirator training, initial and recurring requirements are accomplished when required for assigned personnel IAW AFMAN 48-146; AFI 48-137, *Respiratory Protection Program*; and AFI 48-127, *Occupational Noise and Hearing Conservation Program*. (T-1).

- 2.10.5. Ensure organizational compliance IAW the installation ESOHMS/EMS Program. (T-1).
- 2.10.6. Advocate use of the TO improvement program, and ensure work center TO files are maintained IAW TO 00-5-1. (T-1).
- 2.10.7. Ensure Materiel Potentially Presenting an Explosive Hazard requirements in AFMAN 21-201 and TO 11A-1-60, *General Instructions Inspection of Reusable Munitions Containers and Scrap Material* Generated from Items Exposed to or Containing Explosives, are complied with when certifying items associated with explosives such as: Multiple Ejector Rack, Triple Ejector Rack, pylons, launchers, rafts, bomb racks, ejection seats, fire suppression bottles, and gun systems and components. (T-1).
- 2.10.7.1. Ensure associated items are explosive free prior to being turned in to LRS or the Defense Logistics Agency Disposition Services (DLADS). (T-1).
- 2.10.8. Review deferred maintenance in the MIS and coordinate with the Pro Super to schedule and/or validate task accomplishment. (T-1).
- 2.10.9. Ensure operator inspections and user servicing requirements are accomplished on all assigned support equipment IAW TO 00-20-1. (T-1).
- 2.10.10. Ensure records of inspection, lubrication, and maintenance of industrial equipment are maintained IAW TO 00-20-1, TO 34-1-3, *Machinery and Shop Equipment*, to include documentation of records maintained in a MIS. (T-1).
- 2.10.11. Ensure proper calibration, use, care, handling and transportation of Test Measurement and Diagnostic Equipment (TMDE) IAW TO 00-20-14 and AFMAN 21-113, *Air Force Metrology and Calibration (AFMETCAL) Program Management*, and applicable Calibration Measurement Summaries. (T-1).
- 2.10.12. Evaluate maintenance quality, personnel qualifications, and training of assigned personnel. (T-1).
- 2.10.13. Review/update flight IPI requirements listing every two years and route through Maintenance Supervision. (T-1).
- 2.10.14. Ensure only designated personnel identified in the MIS verify MICAPs/Urgency of Need Designator 1A and JA requirements. (T-1).
- 2.10.15. Select personnel to perform special certification tasks IAW **Chapter 11** and **Table 11.1** of this instruction and forward names to Maintenance Supervision for approval and addition to the SCR. (T-1).
- 2.10.15. (AFRC) Use AFRC Form 176, *Request for Placement on Special Certification Roster*, to request addition to SCR (T-2). Waiver requests shall be maintained with the individuals AF training record until waiver is no longer needed or valid. (T-2).
- 2.10.16. Ensure training requirements are executed to support established training plan and individual AFSC Career Field Education and Training Plans (CFETP) IAW AFI 36-2651 and AFI 36-2650. (T-1).
- 2.10.17. Ensure Cross Utilization Training requirements are identified as required by the unit mission IAW AFI 36-2650. (T-1).

- 2.10.17.1. Ensure Cross Utilization Training does not interfere with upgrade/qualification training. **(T-1)**.
- 2.10.18. 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. **(T-1)**.
- 2.10.19. Develops maintenance and flying schedules, and execute scheduled maintenance plans. **(T-1)**.
- 2.10.20. Establish flight/AMU-specific emergency action procedures to respond to disaster control and severe weather and forward to MOC. **(T-1)**.
- 2.10.20.1. Review unit responsibilities pertaining to aircraft/SE movement and personnel evacuation IAW AFI 10-2501. **(T-1)**.
- 2.10.21. Manage the flight/AMU's participation in the FOD and DOP program IAW **Chapter 11** of this instruction. **(T-1)**.
- 2.10.22. Oversee the flight/AMU's FCC/Dedicated Crew Chief (DCC) Program (if applicable). **(T-1)**.
- 2.10.23. Establish and enforce a flight/AMU Precious Metals Recovery Program, as applicable, IAW AFI 23-101 and TO 00-25-113, *Conservation and Segregation of Critical Alloy and Precious Metal Bearing Parts and Scrap*. **(T-1)**.
- 2.10.24. Assign section supervisors IAW this instruction and the UMD. **(T-1)**.
- 2.10.25. Ensure proper asset management by reviewing MIS data records, the Repair Cycle Asset Management Listing (D23) and other pertinent products to minimize shortfalls. **(T-1)**.
- 2.10.25.1. When applicable, ensure warranty items are loaded in MIS according to applicable directives. **(T-1)**.
- 2.10.25.2. Ensure Deficiency Reports (DR) are accomplished IAW TO 00-35D-54. **(T-1)**.
- 2.10.26. Ensure repairable/non-repairable parts are promptly processed through repair channels within the required time frame IAW AFI 23-101. **(T-1)**.
- 2.10.26.1. Team with Decentralized Materiel Support (DMS) Flight Service Center to conduct a quarterly reconciliation of all DIFM assets and follow up on delinquent DIFMs and document action taken to correct identified discrepancies. **(T-1)**.
- 2.10.26.2. Immediately identify lost, damaged, destroyed or stolen assets that require a financial liability investigation IAW DoD 7000.14-R, Vol 12, **Chapter 7**, *Financial Liability for Government Property Lost, Damaged or Destroyed* (Formerly Report of Survey) and forward to Maintenance Supervision for review and processing. **(T-1)**.
- 2.10.27. Approve requirements for bench stocks IAW qualification criteria in AFMAN 23-122. **(T-1)**.
- 2.10.28. Consolidate lists of items received in supply requiring functional check, operational programming, user calibration or corrosion control/painting. **(T-1)**.
- 2.10.28.1. Submit listing to the LRS Materiel Management Flight IAW TO 00-20-3. **(T-1)**. **Note:** Does not include TMDE IAW TO 00-20-14.

2.10.29. Coordinate all AGE requirements through the AGE Flight Chief to ensure support capability and eliminate unnecessary duplication of equipment. **(T-1)**.

2.10.30. Report cyber threats, incidences, and issues per Wing cyber status reporting procedures. **(T-1)**.

2.10.30.1. Consult airframe Security Classification Guides, TOs, and/or applicable technical manuals, instruction and publication when addressing or reporting cybersecurity threats, incidents and issues. **(T-1)**.

2.10.31. Ensure Nuclear Weapons-Related Materiel (NWRM) is controlled IAW AFI 20-110. **(T-1)**.

**2.11. Production Superintendent (Pro Super).** Senior NCO responsible for squadron maintenance production. The Pro Super directs the overall maintenance effort of their unit. The Pro Super will be a SNCO or civilian equivalent. **(T-1)**. Squadron specific Pro Super responsibilities are outlined in **Paragraph 3.5** of this AFI.

**2.12. Section NCOIC/Chief.** The Section NCOIC/Chief is responsible to the Flight CC/SUPT or AMU OIC/SUPT for the leadership, supervision, and training of assigned personnel. The Section NCOIC/Chief 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/Chief will:

2.12.1. Establish a Work Center Safety Program IAW AFI 91-202, AFMAN 91-203 and include any locally prescribed safety requirements (if applicable). **(T-1)**.

2.12.2. Monitor, track, and ensure occupational safety, fire prevention, occupational and environmental health requirements are accomplished for assigned personnel. **(T-1)**.

2.12.2.1. Ensure Job Safety Training is documented IAW AFI 91-202 (AF Form 55 or equivalent) for each assigned individual. **(T-1)**.

2.12.3. Ensure maintenance is performed by personnel who are trained, qualified, and certified, unless under the direct supervision of a trainer or certifier. **(T-1)**.

2.12.4. Advocate use of the TO improvement program and ensure work center TO files are maintained according to TO 00-5-1. **(T-1)**.

2.12.4.1. **(Added-AFRC)** Section Supervisor must have knowledge and skill to initiate and ensure accuracy and applicability of an ETIMS TO Recommended Change. (RC) **(T-2)** **Note:** Supervisors should review TO 00-5-1 Ch. 9 for more RC details.

2.12.5. Establish procedures and ensure configuration control for all applicable software required for the sections assigned systems. **(T-1)**. Section NCOIC/Chief will:

2.12.5.1. Access Computer Program Identification Number System (CPINS) in ETIMS or equivalent system. **(T-2)**.

2.12.5.1. **(AFRC) Note:** Software sub-accounts are established through the TODO to allow the section access to ACPINS (refer to 00-5-1 AFRC supplement). **(T-2)**.

2.12.5.2. Ensure technicians check ETIMS/equivalent system for software updates for assigned systems. **(T-2)**.



- 2.12.5.3. Ensure software configuration control is maintained IAW TO 00-5-16, *Management of Computer Program Identification Number System (CPINS)* and equivalent systems are maintained by use of AF approved and authorized publications. **(T-1)**.
- 2.12.6. Perform production and supervisory inspections. **(T-1)**.
- 2.12.6. **(AFRC) Note:** Supervisory Inspection Training aid can be found on the HQ AFRC/A4MM SharePoint® site at <https://afrc.eim.us.af.mil/sites/A4/A4M/Pages/A4MM.aspx> **(T-2)**.
- 2.12.7. Validate classified parts/materiel are managed IAW AFI 23-101. **(T-1)**.
- 2.12.8. On a daily basis, review, monitor and correct, as needed, the work center's scheduled and deferred events in the MIS. **(T-1)**.
- 2.12.8.1. Close, reschedule, or defer all events beyond their scheduled start date and time (Integrated Maintenance Data System (IMDS)-CDB screen #100/380 and G081 Screen #8035/8069/67150). **(T-1)**.
- 2.12.9. Review transcribed AFTO Form 781-series 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 #9154). **(T-1)**.
- 2.12.10. Validate scheduled aircraft document reviews using applicable MIS/records check package and automated aircraft forms IAW **Chapter 14** of this instruction. **(T-1)**.
- 2.12.11. Develop and manage the Work Center Training Program. **(T-1)**.
- 2.12.11.1. Evaluate the quality of maintenance, training, and personnel qualifications, track training requirements and ensure training documentation is complete and accurate. **(T-1)**.
- 2.12.11.2. Conduct On-the-Job training (OJT)/certifying as required. **(T-1)**.
- 2.12.12. Review and recommend changes for maintenance tasks requiring IPIs to the Flight Supervision. **(T-1)**.
- 2.12.13. Review, evaluate, and take corrective action based on QA and other inspection reports. **(T-1)**.
- 2.12.14. Ensure all required work center publications necessary for the work center to meet its functional requirements are current and available for use. **(T-1)**.
- 2.12.14.1. **(Added-AFRC)** Section office is the OPR for shop specific JSTs and will ensure the accuracy and currency of tasks within the JST.
- 2.12.14.2. **(Added-AFRC)** Section office is the OPR for shop specific OIs **(T-2)**.
- 2.12.15. Ensure section personnel coordinate all flightline maintenance with the Flightline Expediter. **(T-1)**.
- 2.12.16. Manage CTK and supply programs (such as, bench stocks, and operating stocks) IAW **Chapter 8** and **Chapter 9** of this instruction. **(T-1)**. Section NCOIC/Chief will:
- 2.12.16.1. Ensure sections are organized with tools, equipment and materiel as close to the Point of Maintenance as possible, as approved by the Flight Supervision, without jeopardizing accountability and control procedures. **(T-1)**.

- 2.12.16.2. Ensure the Bench Stock Review Listing (M04) is reviewed monthly and all recommendations are adjudicated to most efficiently meet mission needs. **(T-1)**.
- 2.12.16.3. **(Added-AFRC)** Ensure shipment of parts IAW **Chapter 9 (T-2)**.
- 2.12.17. Ensure custodial responsibilities are accomplished on all assigned equipment IAW AFI 23-101, AFI 23-111, *Management of Government Property in the Possession of the Air Force* and AFMAN 23-122. **(T-1)**.
- 2.12.18. Manage the section's Repair Cycle Program. **(T-1)**. The Section NCOIC/Chief will review the D23 and other pertinent supply products to ensure proper supply discipline daily. **(T-1)**.
- 2.12.19. Establish procedures to control, store, and manage Alternate Mission Equipment (AME); Maintenance, Safety, and Protective Equipment; and -21 equipment IAW AFI 21-103. **(T-1)**.
- 2.12.20. Identify items requiring calibration (does not include TMDE calibrated by the Precision Measurement Equipment Laboratory (PMEL)) or operational check before installation and provide a list of these items to the Flight Supervision. **(T-1)**.
- 2.12.21. Recommend individuals for addition to the SCR to the Flight Supervision. **(T-1)**.
- 2.12.21. **(AFRC)** Use AFRC Form 176, *Request for Placement on Special Certification Roster*, to request addition to SCR **(T-2)**. Destroy form when request is confirmed loaded in the MIS. **Exception:** AFRC Form 176s with approved waiver requests shall be maintained with the individuals AF Form 623 until waiver is no longer valid **(T-2)**.
- 2.12.22. Participate in and enforce the Bad Actor Program IAW TO 00-35D-54. **(T-1)**.
- 2.12.23. Manage Hazardous Materiel (HAZMAT) and Environment Safety and Occupational Health (ESOH) items IAW AFI 32-70XX-series instructions, and AFI 90-821. **(T-1)**.
- 2.12.23.1. Ensure HAZMATs are used IAW TOs and conform to indicated Military Specifications (MIL-Spec) and monitor the Qualified Products List/Qualified Product Database for changes to specified HAZMAT. **(T-1)**.
- 2.12.24. Ensure assigned NCE (applies to both nuclear and non-nuclear tasked units) comply with requirements outlined in AFI 63-125 and associated MAJCOM supplements. **(T-1)**.
- 2.12.25. Ensure Dull Sword reports are submitted for nuclear deficiencies IAW AFMAN 91-221, and AFI 91-204. **(T-1)**.
- 2.12.26. Ensure aircraft -6 TO system, inspections, TCTOs and aircraft functional checks (except Isochronal (ISO), Phase (PH)/ Hourly Post-flight (HPO)) are accomplished as required to prevent overdue or over flight of equipment. **(T-1)**.
- 2.12.27. Comply with TCTO performing work center requirements below:
- 2.12.27.1. Report all deficiencies in technical instructions and applicability to the TCTO managing agency and QA. **(T-1)**.
- 2.12.27.2. Attend TCTO planning meetings. **(T-1)**. Review the TCTO prior to the meeting and request clarification of any requirements from QA and the appropriate TCTO managing agency during the meeting.

- 2.12.27.3. Inventory TCTO kits for completeness prior to starting work. **(T-3)**. If a discrepancy exists, contact the TCTO managing agency to resolve shortages.
- 2.12.27.4. Perform the inspection or modification procedures outlined in the TCTO and document results or findings in the MIS. **(T-1)**.
- 2.12.27.5. If an inspection TCTO generates a requirement for parts, the performing workcenter will create a new Job Control Number (JCN) and enter the discrepancy in the AFTO Form 781A, Maintenance Discrepancy and Work Document, or applicable equipment record and order the required parts. **(T-3)**. Inspection TCTOs are complete when the inspection is finished.
- 2.12.27.6. Order and maintain all HAZMAT required to comply with TCTOs and provide document numbers to the TCTO managing agency and supply TCTO monitor. **(T-3)**.
- 2.12.27.7. Validate technical instructions and data on AFTO Form 82, *TCTO Verification Certificate*, when performing TCTO kit proofing IAW TO 00-5-15, *Air Force Time Compliance Technical Order Process*. **(T-1)**.
- 2.12.28. **(Added-AFRC)** Track and coordinate PE requirements with QA **(T-2)**.
- 2.12.29. **(Added-AFRC)** Schedule test sets, support equipment, and shop equipment into the corrosion control facility **(T-3)**.

## Chapter 3

### AIRCRAFT MAINTENANCE SQUADRON (AMXS).

**3.1. General.** The AMXS provides direct MGN support by consolidating and executing on-equipment activities necessary to produce properly configured, mission ready weapon systems to meet contingency or training mission requirements. AMXS personnel service, inspect, maintain, launch, and recover assigned/transient aircraft (if applicable).

**3.2. Maintenance Supervision Responsibilities.** In addition to common responsibilities outlined in [Chapter 2](#) of this instruction, Maintenance Supervision will:

- 3.2.1. Ensure standardized procedures and organizations among AMUs as applicable to optimize effectiveness. **(T-3)**.
- 3.2.2. Establish hot brake response procedures in coordination with base support agencies, for example, Fire Emergency Services and CDDAR Team. **(T-1)**.
- 3.2.3. Monitor the squadron FCC program, if applicable. **(T-1)**.
- 3.2.4. Ensure personnel use and understand the purpose of the AF Form 2408, *Generation Maintenance Plan*, and the AF Form 2409, *Generation Sequence Action Schedule*, or electronic equivalent. **(T-3)**.
- 3.2.5. Ensure an explosive safety and chaff/flare academics and loading program is established for units without a 2W1 AFSC assigned (when applicable). **(T-1)**.
- 3.2.6. Publish procedures covering the storage, control, and handling of starter cartridges (if applicable). **(T-1)**.
- 3.2.7. Provide input to MMA for the monthly metrics report to MAJCOM. **(T-2)**.
- 3.2.8. Develops the annual maintenance plan IAW [Chapter 14](#) of this instruction. **(T-1)**.
- 3.2.9. **(Added-AFRC)** Coordinate Hot Refueling/Defueling operations into flying schedules to meet maintenance personnel training/proficiency requirements **(T-3)**.
- 3.2.10. **(Added-AFRC)** In units with one AMU or when no AMU OIC/Chief is assigned, Maintenance Supervision will ensure the AMU OIC/Chief responsibilities outlined in [paragraph 3.4](#) are accomplished **(T-2)**.
- 3.2.11. **(Added-AFRC)** Chair a daily AMXS/AMU maintenance production meeting **(T-3)**.
- 3.2.12. **(Added-AFRC)** Manage AMXS Supervision Responsibilities per Oil Analysis Program [paragraph 11.38](#). **(T-2)**.
- 3.2.13. **(Added-AFRC)** Manage AMXS Supervision Responsibilities per Corrosion Control Program [paragraph 11.41](#) **(T-2)**.

**3.3. Aircraft Maintenance Unit (AMU).** AMUs may include the following sections: Aircraft, Specialist, Weapons, Debrief, Supply and Support. MAJCOMs may approve additional sections and AFSC make up within existing sections to efficiently meet unique weapon system maintenance support requirements. **Note:** Organization modifications must be approved IAW AFI 38-101.

**3.3. (AFRC) Aircraft Maintenance Unit (AMU).** Note: Debrief is organized IAW the AFRC approved UMD applicable to MDS. Group leadership should consider where manpower is earned when assigning the debrief function.

**3.4. AMU OIC/SUPT Responsibilities.** Allocates personnel and resources to the production effort. In addition to the common responsibilities in **Chapter 2** of this instruction, the AMU OIC/SUPT will:

**3.4. (AFRC) AMU OIC/SUPT Responsibilities.** A Pro Super must be permanently assigned to a night duty shift performing aircraft maintenance or sortie production (**T-2**). During absents of a night shift Pro Super, a temporary Pro Super may be assigned by letter from the SQ/CC (**T-2**). Members temporarily assigned Pro Super duties must hold a supervisory position within the Mx complex and be current on applicable SCR items e.g. Exceptional Release (ER) (**T-2**).

3.4.1. Review Pilot Reported Discrepancies daily and ensure proper maintenance actions are taken. (**T-1**).

3.4.2. Review all aborts and ensure proper maintenance actions are taken. (**T-1**).

3.4.3. Monitor aircraft PH/ISO/Periodic (PE)/Home Station Check (HSC) flow. (**T-1**).

3.4.4. Ensure a sufficient number of personnel are engine run qualified to meet maintenance requirements IAW **Chapter 11** of this instruction. (**T-1**).

**3.5. Production Superintendent (Pro Super).** In squadrons with eight or fewer assigned aircraft, Pro Super and Flightline Expediter duties may be combined. The Pro Super will:

3.5.1. Make the final determination on aircraft status after reviewing aircraft forms. (**T-1**). Additionally, the Pro Super will review the forms after aircrew debrief. (**T-1**).

3.5.2. Sign the Exceptional Release (ER) IAW TO 00-20-1 when authorized by the MXG/CC IAW **Chapter 11** and **Table 11.1** of this instruction. (**T-1**).

3.5.3. Participate in developing and executing the monthly and weekly flying and maintenance schedules/plans. (**T-1**).

3.5.4. Manage the maintenance production effort by assigning priorities to meet the flying and maintenance schedules. (**T-1**).

3.5.5. Fully understand actions required by the squadron under OPLAN 8010 or contingency plans. (**T-1**).

3.5.5.1. Develop, ensure currency of, and direct the aircraft generation sequence. (**T-1**).

3.5.6. Fully understand and be prepared to implement specific disaster control duties and squadron responsibilities pertaining to aircraft/SE movement and personnel evacuation procedures developed IAW AFI 10-2501. (**T-1**).

3.5.6.1. Pro Super will maintain a current copy of the on-base disaster map with cordon overlay and appropriate functional checklists outlining duties during disaster scenarios. (**T-1**).

3.5.7. Determine, track, and report aircraft/systems status IAW AFI 21-103. (**T-1**).

3.5.8. Establish and track Estimated Time In Commission (ETIC). (**T-1**).

3.5.9. Monitor unit CDDAR Program activities and local procedures designed to protect personnel and prevent further damage to aircraft, equipment, and other resources. **(T-1)**.

3.5.10. Inform MOC of the maintenance effort and coordinate with MOC, Flightline Expediter, and other squadrons for support. **(T-1)**.

3.5.10.1. Pro Super will provide MOC with aircraft/systems status updates as required. **(T-1)**.

3.5.11. Verify aircraft/system is in an authorized status IAW MDS-specific Minimum Essential Subsystem List (MESL) or MDS equivalent and AFI 21-103 prior to verifying MICAP conditions. **(T-1)**.

3.5.12. Verify aircraft weapons/load configurations are authorized IAW AFI 63-104. **(T-1)**.

**3.6. Flightline Expediter.** The Flightline Expediter ensures maintenance is accomplished and coordinates on all aircraft maintenance actions. Flightline Expeditors manage, control and direct resources to accomplish maintenance. Flightline Expeditors or equivalent will:

3.6.1. Remain on the flightline when maintenance personnel are performing flightline maintenance and launching/recovering aircraft. **(T-1)**. Flightline Expeditors engage in direct sortie generation activities and work directly for the production superintendent. **(T-1)**.

3.6.1.1. Not perform production inspections (such as, sign off “Red Xs” and perform IPIs) unless waived to do so by the MXG. **(T-3)**.

3.6.1.1. **(AFRC) Note:** MXG/CC is the waiver authority.

3.6.2. Coordinate with the Weapons Expediter, ensure requirements in AFMAN 21-201 for flightline munitions accountability are strictly followed. **(T-1)**.

3.6.3. Develop and implement disaster control duties and squadron responsibilities pertaining to aircraft/SE movement and personnel evacuation IAW AFI 10-2501. **(T-1)**.

3.6.4. Maintain and have available for immediate use copies of the following as a minimum: flying schedule, emergency action and functional checklists, base grid map with cordon overlay, IPI listings, MESL, Quick Reference List (QRL) (if developed), WUC manual, and tracking device for aircraft status. **(T-1)**.

3.6.4. **(AFRC)** Items may be electronic or paper **(T-2)**. Maintain the ability to verify SCR qualifications within the expeditor vehicle **(T-2)**. Verify SCR qualifications when assigning personnel to SCR tasks (refer to **Table 11.1**) **(T-2)**.

3.6.4.1. Track, as a minimum, the following aircraft status information: aircraft serial number, location, priority, status and 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 or MDS equivalent. **(T-1)**. Ensure devices depicting aircraft status comply with program security requirements. **(T-1)**.

3.6.5. Follow established CANN procedures and ensure all CANNs are accurately documented in the aircraft/system forms and MIS as described in **Chapter 11** of this instruction. **(T-1)**.

3.6.6. Ensure aircraft OAP sampling is completed IAW **Chapter 11** of this instruction and applicable technical data. **(T-1)**.

3.6.7. Ensure parts are ordered with appropriate priorities and relay document numbers to the Pro Super, MOC, and appropriate technicians. **(T-1)**.

3.6.7.1. Ensure timely turn in of DIFM items to DMS/supply IAW AFI 23- 101. **(T-1)**.

3.6.8. Request support beyond AMU capability to the MOC. **(T-1)**.

3.6.9. Direct AGE drivers to position AGE as required and notify the driver of AGE on the flightline or sub-pools that require maintenance. **(T-1)**.

3.6.10. Ensure timely and accurate aircraft status (for example, discrepancies, WUC/LCN, ETIC, job completion) and configuration status is reported IAW AFI 21-103 to the Pro Super and MOC. **(T-1)**.

3.6.11. 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. **(T-1)**.

**3.7. Aircrew and Maintenance Debrief Section.** Debrief 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. MAJCOMs operating RPAs will develop and publish debrief procedures for Remote Split Operations in their supplements or addendum for both aircraft and ground control stations to adequately capture all maintenance discrepancies. The Debrief Section will:

**3.7. (AFRC) Aircrew and Maintenance Debrief Section.** The MXG/CC may delegate the responsibilities of debrief duties to best utilize human capital resources, but overall assurance of effective debrief will remain with AMXS.

3.7.1. Use aircraft fault reporting manuals and include fault codes when documenting discrepancies in the aircraft forms. **(T-1)**. Debrief Section will use automated debrief tools such as the Computerized Fault Reporting System. **(T-2)**.

3.7.1.1. Debrief Section will develop local aircrew debriefing guides when not provided and managed by the Weapon System PM. **(T-1)**. QA will review and approve local aircrew debriefing guides every two years. **(T-1)**.

3.7.1.1.1. **(Added-AFRC)** Debrief Section will include fuel usage into G081 using 9020 screen as part of the aircrew debrief guide **(T-2)**.

3.7.2. Implement procedures for reporting dropped objects, aborts, code 3 flight control malfunctions and engine malfunctions. **(T-1)**.

3.7.3. Use operational utilization update screens in MIS to enter flying time information. **(T-1)**. Debrief Section will 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. **(T-1)**.

3.7.4. Check AFTO Form 781H, *Aerospace Vehicle Flight Status and Maintenance*, to ensure updates to airframe time and applicable servicing data (in-flight/hot pit refueling) are entered

on the AFTO Form 781H or equivalent and/or applicable debrief system during the pilot/aircrew debrief. **(T-1)**.

3.7.5. Input discrepancy verbatim and deviation information, utilization, and applicable flight data (to include landing status, system capability IAW AFI 21-103 and other applicable cause codes) into the MIS. **(T-1)**. Unless using an automated 781 process, do not send AFTO Form 781-series forms to Operations Squadron(s) or to Aviation Resource Management before MIS updates. Use local backup procedures for recording data when the MIS is unavailable.

3.7.6. Utilize MIS to identify and research discrepancies for repeat/recur trends and document them accordingly on the AFTO Form 781A. **(T-1)**. Debrief Section will ensure previously documented discrepancies are reviewed and identified as repeat/recurs. **(T-1)**.

3.7.6.1. Debrief Section will identify repeat/recurs on automated debriefing sortie recaps and on the AFTO Form 781A. **(T-1)**.

3.7.7. Use the appropriate landing status code (**Table 3.1**) and the appropriate system capability code (**Table 3.2**) for the completion of a sortie/mission. **(T-1)**.

3.7.8. Provide the MOC with aircraft identification numbers and system WUCs for each aircraft debriefed with a landing status Code-3 IAW **Table 3.1** using the approved MESL or MDS equivalent IAW AFI 21-103. **(T-1)**.

3.7.9. Enter one of the deviation cause codes (**Table 3.3**) into the MIS. **(T-1)**. Indicate the reason for the deviation and the agency that caused a deviation as referenced in Air Force Computer Systems Manual (AFCSM) 21-574, *Automated Debriefing* <https://ceds.gunter.af.mil/Publications.aspx?AIS=35> or equivalent applicable MIS guidance.

3.7.10. Collect and submit ASIP aircraft usage data IAW the MDS specific TOs, AFI 63-140, and **Chapter 11** of this instruction. **(T-1)**.

3.7.11. If MIS is not available, use blank printouts as manual documentation method. **(T-2)**. If deployed, send documents to home station for data transcribing by the most expeditious means available. Debrief Section will turn in, validate and reconcile all documents with the MIS when it becomes available. **(T-1)**.

**Table 3.1. Landing Status Codes.**

CODE	STATUS
Code 0	Ground Abort
Code 1	Aircraft Mission Capable (MC) 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 Non-Mission Capable (NMC) flyable.
Code 4	Aircraft or system has suspected or known radiological, chemical, or biological contamination.
Code 5	Aircraft or system has suspected or known battle damage.
<b>Note:</b> Debrief will enter code “8” in MIS for aircraft debriefed as code “4” or “5”. MESL or MDS equivalent requirements determine if aircraft status is NMC or Partially Mission Capable (PMC).	

**Table 3.2. System Capability Codes**

<b>CODE</b>	<b>STATUS</b>
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 3.3. Deviation Cause Codes**

<b>CODE</b>	<b>DEVIATION REASON</b>
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
HQN	Higher Headquarters, NAF
HQP	Higher Headquarters, other
MTx	Maintenance
OPx	Operations
SUx	Supply
SYx	Sympathy
WXx	Weather
OTx	Other
Xxx	MAJCOM/local use
<b>Note:</b> Use x for any character for MAJCOM/local use.	

**3.8. Aircraft Section.** The Aircraft 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/recovery of aircraft, troubleshooting and adjustment, on-equipment repairs and component removal/replacement, documenting maintenance actions, and managing aircraft forms. AMUs with 18 or more Primary Aerospace Vehicle (Aircraft) Inventory (PAI) aircraft may have two Aircraft Sections. The Aircraft Section consists of Aircraft Technicians. Refer to [Chapter 11](#) of this instruction for FCC responsibilities.

3.8.1. Aircraft Technician Responsibilities. Aircraft Technicians manage and maintain assigned aircraft. Aircraft Technicians will:

3.8.1.1. Perform ground handling, servicing, -6 inspections, alert duties, maintenance ground tests, corrosion control, lubrication and maintenance and modification preparations, as applicable, on the assigned aircraft/system. **(T-1)**.

3.8.1.2. Inventory on-aircraft -21 equipment when this responsibility is not assigned to another function. **(T-1)**.

3.8.1.3. Perform engine operation when qualified and certified. **(T-1)**.

3.8.2. Dedicated Crew Chief (DCC) Program. The DCC program is optional with MXG/CC approval. 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 Assistant Dedicated Crew Chief name and rank is stenciled or painted on their assigned aircraft. Use only authorized wing paint scheme and marking procedures in TO 1-1-8. In addition to Aircraft Technician responsibilities, DCCs, if assigned, should:

3.8.2.1. Accompany their aircraft through scheduled inspections and assist the Inspection Section NCOIC/Chief as needed.

3.8.2.1.1. Attend pre- and post-dock meetings.

3.8.2.1.2. Assist the Inspection Section NCOIC/Chief with completing the required document review and validation at the end of the inspection.

3.8.2.2. Coordinate with Pro Supers and expediters for downtime to accomplish scheduled and unscheduled maintenance.

3.8.2.3. Manage deferred discrepancies.

**3.9. Specialist Section.** The Specialist 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, hydraulic, and electro/environmental technicians and other specialties approved through higher headquarters. When used, the Specialist Section Expediter coordinates maintenance priorities with the Pro Supers and Flightline Expediters.

3.9.1. In addition to the common responsibilities in **Chapter 2** of this instruction, the Specialist Section Chief will:

3.9.1.1. Ensure accurate and timely pod and support equipment status is updated or verified daily in Reliability, Availability, Maintainability, for Pods IAW AFI 21-103 for pods under the control of the Aircraft Maintenance Squadron. **(T-1)**.

3.9.2. Avionics Specialists will:

3.9.2.1. Perform PACER WARE, SERENE BYTE message, or TCTO reprogramming of avionics systems. **(T-1)**.

3.9.2.2. **(Added-AFRC)** Maintain inventory control of pods and associated equipment **(T-2)**.

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

3.9.3.1. Maintain inventory control of all installed Electronic Counter Measure (ECM) AME and ECM pods. **(T-1)**.

3.9.3.2. Perform reprogramming of avionics/electronic warfare systems (to include electronic attack pods) IAW applicable mission directives, PACER WARE/SERENE BYTE messages, or TCTO requirements. **(T-1)**.

3.9.3.3. Load contingency and training configuration settings in ECM pods, infrared countermeasures systems, and Radar Warning Receiver/Radar Threat Warning systems, unless the equipment is assigned to another section. **(T-1)**.

3.9.4. Propulsion Specialists will:

3.9.4.1. Troubleshoot, repair, and replace aircraft propulsion systems and components. **(T-1)**.

3.9.4.2. Perform engine flightline blade blending. **(T-1)**.

3.9.4.3. Perform flightline engine borescope inspections. **(T-1)**.

3.9.5. Electrical & Environmental (E&E) Specialists will:

3.9.5.1. Troubleshoot, repair and replace aircraft E&E system components including 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), On-Board Inert Gas Generation Systems (OBIGGS) and components. **(T-1)**.

3.9.5.2. Remove and install In Flight Refueling (IFR) carts and fire bottle squibs. **(T-1)**.  
**Note:** Ensure only approved temporary storage locations are used for these components.

3.9.6. Hydraulic Specialists will maintain authorized on-equipment/off-equipment pneumatic and hydraulic systems and components. **(T-1)**.

**3.10. Weapons Section.** The Weapons Section is responsible for supporting flightline munitions loading/unloading and weapon maintenance operations. The Weapons Section may consist of two elements: Weapons Loading and Weapons Maintenance. Weapons Section personnel are trained and utilized in both functions as needed to maximize both mission capability and develop individual functional expertise. The Weapons Section may be comprised of a Weapons Section NCOIC/Chief, Weapons Expeditors, an NCOIC for Weapons Loading, Load Crew personnel and a NCOIC for Weapons Maintenance and Weapons Maintenance personnel. When units are deployed where no AFSC 2W100 is assigned, the senior ranking 2W1 is the WWM. MAJCOMs will determine applicable portions of the Weapons Section responsibilities for contract organizations. Contract units are organized according to their respective contract. Exception: See AFI 21-101 ANG Supplement for details on the Weapons Section organizational structure within ANG.

3.10.1. Weapons Section NCOIC/Chief. In addition to the common section NCOIC responsibilities in [Chapter 2](#) of this instruction, the Weapons Section NCOIC/Chief will:

- 3.10.1.1. Assist the WWM in recommending distribution of wing 2W1X1 personnel. (T-3).
- 3.10.1.2. Review status of weapons **Section 2W1**'s positions on Unit Personnel Management Roster (UPMR) and advise WWM and AMU leadership on personnel concerns. (T-3).
- 3.10.1.3. Monitor load crew and PRP status (if applicable) and equipment and tester availability. (T-2). The Weapons Section NCOIC/Chief will advise the AMU OIC/SUPT and WWM regarding factors which affect training, weapons loading or maintenance capabilities, personnel actions impacting affecting manning levels (special duty, reassignment) or other key weapons related issues. (T-2).
- 3.10.1.4. In coordination with the WS Superintendent, identify and select the best qualified personnel to be loading standardization and lead crew members. (T-2).
- 3.10.1.5. Ensure the minimum UCML/TTML number of load crews are formed, trained and certified to perform the mission. (T-1). Maintain load crew integrity during training and evaluations to the maximum extent possible.
- 3.10.1.6. Ensure personnel receive a documented supervisory review and complete required prerequisite training before entering initial load crew certification or performing flightline operations (cockpit familiarization, firefighting, AGE). (T-2).
- 3.10.1.7. Annually review UCML/TTMLs and the unit tasked UTCs (for equipment and personnel) and UMD to identify any disconnects or problems. (T-1).
- 3.10.1.8. Maintain a visual aid or automated product depicting the current status of assigned load crews and members. (T-1). Printed products are not required if computer systems are networked or modem-interfaced with the WS load crew management system for on-line updates.
- 3.10.1.8.1. (**Added-AFRC**) When internet connectivity is not available, ensure printouts from the WLCMT accompany load crews to deployment/TDY locations if loading tasks are to be performed (T-2).
- 3.10.1.9. Ensure weapons load training aircraft requirements in coordination with the WS Superintendent, are developed and included in the weekly and monthly maintenance plans. (T-2).
- 3.10.1.10. Review and apply the Weapons Standardization Program, integrated loading procedures, cross-loading procedures, dual loading procedures (if applicable), and be familiar with local munition loading/maintenance areas. (T-1). Utilize the WLCMT. (T-2).
- 3.10.1.11. Review all AF Form 2419, *Routing and Review of Quality Control Reports*, load crew training, certifications, and decertification documentation. (T-2).
- 3.10.1.12. 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. (T-1). For bomber units and those that support operational test and evaluations, Remotely Piloted Aircraft (RPA) units, or training operations, coordinate with the WWM in determining the number of required load crew CTKs.

- 3.10.1.13. Ensure a checklist for each UCML/TTML munition is on hand for each assigned load crew CTK. **(T-1)**. Exception: Not applicable in units using electronic media devices (such as, F-22 PMA, F-35); test units are authorized reduced quantities.
- 3.10.1.14. Review all TO RCs, or Technical Order Data Change Requests (TODCR) prior to submission. **(T-1)**. The Weapons Section NCOIC/Chief will route all weapons loading related requests, for example, -16, -33 TOs, and F-22 TOD to WS and WWM for review. **(T-2)**.
- 3.10.1.15. Ensure Locally Manufactured Equipment (LME) and Munitions Materiel Handling Equipment (MMHE) meet requirements outlined in **Chapter 8** of this instruction. **(T-1)**.
- 3.10.1.16. Ensure Tamper Detection Indicators for nuclear applications are controlled IAW AFI 91-104, Nuclear Surety Tamper Control and Detection Programs. **(T-1)**.
- 3.10.1.17. Track all assigned AME and Normally Installed Equipment (NIE). **(T-1)**. If installed, track in MIS by aircraft tail number and position. Track uninstalled equipment in either the MIS or another equivalent means approved by the WWM.
- 3.10.1.18. Ensure positive control/accountability/serviceability for suspension equipment accessories (cables, fittings, adapters). **(T-1)**.
- 3.10.1.19. Coordinate with WS Superintendent to ensure MRPL and recertification capability exists on TDYs where live munitions will be expended and on deployments exceeding 30 days. **(T-1)**. Exceptions must be approved by the WWM. **(T-3)**.
- 3.10.1.20. Establish a munitions custody account for dummy test rounds (as applicable, if not tracked by Armament Flight). **(T-3)**.
- 3.10.1.21. Ensure prior to loading live and inert munitions that all requirements in **Chapter 10** of this instruction have been met and the WWM is aware of any changes that affect the munitions policy requirements. **(T-1)**.
- 3.10.1.22. Notify squadron leadership and the WWM within 24 hours of any significant issues such as dropped/hung munitions, aircraft armament system or equipment malfunctions and mishaps. **(T-3)**. Take appropriate follow up actions and provide updates until all corrective actions have been taken. Monitor actions taken by supporting agencies on dispensers, suspension equipment, training munitions, which were involved with specific system malfunctions.
- 3.10.1.23. Report weapons release reliability and gun fire-out rates; along with corrective actions, if required, to the WWM by the first of each month for the previous month. **(T-3)**.
- 3.10.1.24. Provide WWM 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. **(T-3)**.
- 3.10.1.25. Ensure requirements for submitting AFTO Form 375 on all weapons support equipment identified in TO 35-1-24, are accomplished. **(T-3)**.
- 3.10.1.26. Establish, monitor, and verify supervisory inspections on elements assigned with equipment and CTK's are completed. **(T-3)**.

3.10.1.27. **(Added-AFRC)** Ensure AME and SPRAM accountability (on hand and accounted for) and control requirements are met IAW AFI 21-103 **(T-2)**.

3.10.2. Weapons Expediter. The Weapons Expediter reports to the Weapons Section NCOIC/Chief and is responsible for managing all munitions loading and armament systems maintenance operations. The Weapons Expediter must be, as a minimum, a 2W171, knowledgeable of the assigned MDS maintenance and loading tasks and has completed the Weapons Expediter Course provided by WS. **(T-1)**. The Weapons Expediter coordinates maintenance priorities with the Pro Super and Flightline Expeditors. The Weapons Expediter will:

3.10.2.1. Remain on the flightline during all munitions loading/unloading. **(T-3)**.

3.10.2.2. Remain on the flightline to the maximum extent possible, when maintenance operations are being performed and during launch and recovery of aircraft. **(T-3)**. The Weapons Expediter will:

3.10.2.2.1. Monitor the safety of flightline weapons operations. **(T-1)**.

3.10.2.2.2. Supervise and provide technical guidance to individuals during weapons release system fault isolation, troubleshooting, and maintenance actions as needed. **(T-3)**.

3.10.2.2.3. Conduct weapons production and supervisory inspections. **(T-2)**.

3.10.2.3. Maintain copies of the following items in the Weapons Expediter's vehicle (if assigned): flying schedule, emergency action checklists, base grid map with cordon overlay identifying flightline Live Ordnance Loading Area, IPI listings, MESL or MDS equivalent, QRL (if developed) and/or WUC manual. **(T-3)**.

3.10.2.3. **(AFRC)** Maintain current copy of SCR in weapons expeditor vehicle **(T-2)**. Verify SCR qualifications when assigning personnel to SCR tasks (refer to [Table 11.1](#)) **(T-2)**.

3.10.2.4. Track status and configuration of aircraft, suspension equipment, and weapons. **(T-1)**. Ensure 100 percent documented accountability of in use AME/NIE by location and status, whether installed or stored.

3.10.2.5. Maintain a separate daily AF Form 2430, or locally produced standardized form with WWM approval, for each shift. **(T-1)**. The Weapons Expediter will ensure all required documentation is complete and accurate. **(T-1)**. As a minimum, the following fields of the AF Form 2430 will be completed: "AS OF" (date), "JOB CONTROL" (filled out for maintenance actions that have a JCN, such as, 18-month inspections, Pilot Reported Discrepancies), not required for weapons loading tasks, Aircraft "(ACFT)/TRAINER"(MDS), "SERIAL" (tail number/serial number of component), "TIME" ("Required" = start time, "Dispatched" = time completed, "Completed" = status code, (C/W, C/F, CANX)), "SPECIALIST(S) DISPATCHED" (load/maintenance crew number/ name), "DISCREPANCY & REMARKS" (discrepancy/task performed). **(T-1)**. Transcribe any actions not complied with or cancelled to the next shift's AF Form 2430.

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

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

3.10.2.5.2. **(Added-AFRC)** Retain copies of completed AF Form 2430s, *Specialist Dispatch Control Log*, (or equivalent) on file for six months **(T-2)**.

3.10.2.6. Manage munitions assets expenditures as follows:

3.10.2.6.1. Fill out an AF Form 2434, *Munitions Configuration and Expenditure Document*, or locally produced form, on all aircraft configured with munitions (includes impulse cartridges and chaff/flare). **(T-1)**. 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. Exception: Nuclear units are not required to fill out AF Form 2434 during nuclear generations.

3.10.2.6.1.1. **(Added-AFRC)** Retain copies of completed AF Form 2434s (or equivalent) for one year **(T-2)**.

3.10.2.6.2. Comply with flightline munitions accountability requirements outlined in AFMAN 21-201. **(T-1)**. The Weapons Expediter will provide copies of final expenditure documents to PS&D, the Munitions Flight and Armament Flight. **(T-1)**.

3.10.2.7. Coordinate with the MOC or Munitions Control for the delivery and pick-up of munitions items. **(T-3)**.

3.10.2.8. 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 Form 2430 (or equivalent). **(T-1)**. If negative trends are apparent, identify the trend and inspect remaining flyers prior to flight. Inform Weapons Section NCOIC/Chief on the negative trend that is identified during inspection.

3.10.2.9. Ensure inspection requirements are carried forward/documented for all items that have specific periodic inspections (such as, Electronic Control Units, Gun System Control Panel). **(T-1)**. Inform PS&D when actions affect the aircraft inspection schedule.

3.10.2.10. Ensure aircraft and equipment forms and MIS documentation is complete, accurate and accomplished. **(T-1)**.

3.10.2.11. Coordinate accomplishment of all scheduled and unscheduled maintenance and inspections with the Pro Super/Expediter. **(T-3)**. Inform the Pro Super/Expediter of all start and stop times, status changes, delays and extensions.

3.10.2.12. Ensure all mission specific safing gear is controlled and accounted for to preclude loss and potential FOD. **(T-1)**.

3.10.2.13. Ensure Captive Air Training Munitions missile devices are managed IAW the munitions policy requirements outlined in [Chapter 10](#) of this instruction (if applicable). **(T-1)**.

3.10.2.14. Track acceleration monitor assemblies by serial number, showing aircraft tail number and installed position. **(T-3)**.



3.10.3. Weapons Loading Element. The Weapons Loading Element is responsible for munitions loading and unloading during daily aircraft training, operational test and evaluations, and contingency operations. If a Weapons Maintenance Element is not formed, the Weapons Loading Element is responsible to perform all on-equipment armament system maintenance. The Weapons Loading Element consists of an NCOIC and Weapons Load Crews, (Weapons Load Team Chief and load crew members).

3.10.3.1. Weapons Loading Element NCOIC. The Weapons Loading Element NCOIC is responsible to the Weapons Section NCOIC/Chief. If an NCOIC of loading is not designated, the requirements below will be the responsibility of the Weapons Section NCOIC/Chief. The Weapons Loading Element NCOIC will:

3.10.3.1.1. Advise Weapons Section NCOIC/Chief on load crew status and load crew member concerns and issues related, but not limited to training, certification, qualification, and load crew personnel issues. **(T-3)**.

3.10.3.1.2. Review and become familiarized with the Weapons Standardization Program, integrated loading procedures, cross-loading procedures, dual loading procedures (if applicable), and local munition loading and maintenance areas. **(T-3)**.

3.10.3.1.3. Review AF Form 2419 on load crew training, certifications, and decertification documents. **(T-3)**.

3.10.3.1.4. For nuclear tasked units, ensure all loading supervisors and load crew members are trained to perform weapon system fault isolations and troubleshooting IAW AFI 91-107, *Design, Evaluation, Troubleshooting, and Maintenance Criteria for Nuclear Weapon Systems*. **(T-1)**.

3.10.3.2. Weapons Load Team Chief. The Weapons Load Team Chief is responsible to the Weapons Expediter for munitions loading and armament systems maintenance (if applicable). Weapons Load Team Chiefs are typically NCOs; however, Senior Airmen may perform conventional munition load team chief duties with concurrence of the WWM in writing. **(T-1)**. The Weapons Load Team Chief will:

3.10.3.2.1. Supervise the loading and/or unloading of only one aircraft at a time. **(T-1)**. Exception: unless operating within an approved cross-loading program.

3.10.3.2.2. Control all actions during the munitions load/unload operations environment and ensure the number of personnel in the area during explosives handling operations are kept to a minimum. **(T-1)**. The Weapons Load Team Chief may authorize other individuals to work on the aircraft provided they are briefed on emergency procedures, perform no maintenance or inspections which may jeopardize safety, hamper munition loading operations, or violate technical 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 Weapons Load Team Chief. Exception: During simultaneous loading/unloading and refueling during Concurrent Servicing Operations (CSOs), the Concurrent Servicing Supervisor is in charge and should still coordinate any aircraft activity with the Weapons Load Team Chief (See [Chapter 11](#) of this instruction for Concurrent Servicing Operations guidance).

- 3.10.3.2.3. Ensure compliance with AFI 91-101 and AFI 91-107 when responding to maintenance actions on nuclear loaded aircraft. **(T-1)**.
- 3.10.3.3. Certified weapons loading personnel will load and unload munitions in support of aircraft operations. **(T-1)**.
- 3.10.3.3.1. Certified weapons loading personnel may be task qualified to perform on-equipment armament maintenance, per direction of Weapons Section Chief.
- 3.10.4. Weapons Maintenance Element. The Weapons Maintenance Element is responsible for all on-equipment weapons maintenance, to include fault isolation and troubleshooting. The Weapons Maintenance Element may be required to perform munition loading/unloading operations as determined by Weapons Section NCOIC/Chief. **Note:** If the Weapons Maintenance Element is not formed, these tasks are performed by loading personnel.
- 3.10.4.1. Weapons Maintenance Element NCOIC. The Weapons Maintenance Element NCOIC is responsible to the Weapons Section NCOIC/Chief. The Weapons Maintenance Element NCOIC will:
- 3.10.4.1.1. Advise Weapons Section NCOIC/Chief on all maintenance personnel issues (training, certification, qualification, and personal). **(T-3)**.
- 3.10.4.2. Weapons maintenance personnel are responsible to the Weapons Expediter for all armament systems maintenance and munition loading (if applicable). **Note:** Weapons maintenance personnel may be certified as load crew members, per direction of Weapons Section NCOIC/Chief. Weapons maintenance personnel will:
- 3.10.4.2.1. Install and remove armament related suspension equipment, launchers, adapters, on assigned aircraft to support configuration requirements for daily and contingency operations. **(T-1)**.
- 3.10.4.2.2. Install and remove all armament AME and NIE to FOM or for repair action. **(T-3)**.
- 3.10.4.2.3. Maintain equipment historical records (AFTO Form 95) for AME, and weapons system NIE, if equipment is not assigned to Armament Flight. **(T-3)**.
- 3.10.5. Non-Standard Weapons Sections. (For example, F-35, CV-22/Helicopter/RPAs). Nonstandard units will organize into a consolidated Weapons Section, which will be a composite of both the Weapons Section and Armament Flight. **(T-3)**. Contract units are organized according to their respective contract. The Weapons Section NCOIC/Chief must also comply with the applicable requirements of the section chief responsibilities of **Chapter 2** of this instruction, to include **Paragraph 3.10** Weapons Section and **Paragraph 4.6** Armament Flight responsibilities. **(T-3)**. **Note:** When no WWM or WS Superintendent is assigned, the Weapons Section NCOIC/Chief will perform the duties of the WWM and WS Superintendent.
- 3.10.5.1. Personnel will be formed into maintenance/load crews and will be qualified to perform on/off equipment maintenance. **(T-1)**.
- 3.10.5.2. Coordinate with WWM to ensure sufficient quantities of qualified WS personnel are included on TDYs where live munitions will be expended and on deployments exceeding 30 days to provide qualification capability.

3.10.5.3. When Weapon Expediter manpower authorizations do not exist, the WWM will coordinate with the Squadron or equivalent to select and appoint a 2W171 individual(s) to perform weapons expediter duties within **Paragraph 3.10.2** of this instruction. **(T-3)**.

3.10.5.4. Weapons Section personnel will be qualified to perform on/off- equipment maintenance and munitions loading. **(T-3)**.

3.10.5.4.1. Personnel may perform rescue/guillotine hoist arm and de-arm procedures.

3.10.5.5. Weapons Section will track and issue small arms for armory security, maintenance security and courier operations for assigned and qualified weapons personnel only when required by unit commander authorization. **(T-2)**.

3.10.5.5.1. Weapons Section NCOIC/Chief will ensure personnel are trained to perform required security of high risk weapons at home station and deployed locations. **(T-3)**. Training will as a minimum include armory, anti-robbery, theft, recovery and resource protection procedures IAW AFI 31-101. **(T-3)**.

3.10.5.6. Weapons Section does not repair, maintain, or issue aircrew/mobility small arms weapons, for example, M9 and M16. **(T-2)**.

3.10.5.7. Personnel will not load ammunition on weapons systems where the flight engineer or aerial gunner performs this task (such as, CV-22 and Helicopters). **(T-3)**.

3.10.5.8. Geographically-Separated Weapons Sections. If a Weapons Section is geographically separated (determined locally) from the squadron support section, then items listed in **Paragraph 4.6.4** of this instruction (Armament Support Section) must be available to support the geographically separated Weapons Section. **(T-3)**.

**3.11. Support Section.** The Support Section may include the following elements/functions to support AMU flightline maintenance activities; support (CTKs/special tools, eTools, test equipment, TOs, bench stock), -21 equipment, AME, mobility equipment and DMS. Personnel will be assigned to the Support Section for a minimum of 12 months. **(T-3)**. 2W1X1 personnel may be required to maintain task qualification and certification. Support Sections must standardize procedures across the AMXS for security, control, and accountability of equipment. **(T-1)**. Materiel support procedures in this section do not apply to aircraft supported by Contractor Operated and Maintained Base Supply. The Support Section will:

3.11.1. Maintain TOs IAW TO 00-5-1. **(T-1)**.

3.11.2. Maintain bench, shop and operating stocks IAW AFI 23-101, and **Chapter 9** of this instruction. **(T-1)**.

3.11.3. Ensure maintenance, control and storage of assigned AME, -21 equipment, and Maintenance, Safety, and Protective Equipment IAW AFI 21-103. **(T-1)**.

3.11.3.1. Support Section will develop local procedures to control and store other equipment not identified as -21 equipment (such as, aircraft galley items, U-2 pod panels, aircraft pylon attachment cover panels, aircraft covers/plugs) using AFI 21-103 guidelines. **(T-1)**.

3.11.4. Ensure proper calibration, use, care, handling and transportation of TMDE IAW TO 00-20-14, AFMAN 21-113, and applicable Calibration Measurement Summaries. **(T-1)**.

3.11.5. Maintain and manage squadron Land Mobile Radio (LMR) IAW **Chapter 11** of this instruction (as applicable). **(T-1)**.

3.11.6. Monitor the status of critical support equipment and testers for serviceability, accountability and status of TCTO modifications. **(T-1)**. Support Section will provide monthly critical support equipment status update to Maintenance Supervision. **(T-3)**.

3.11.7. Maintain tools/CTKs IAW **Chapter 8** of this instruction. **(T-1)**.

**3.12. AMU Decentralized Materiel Support (DMS)**. In addition to the responsibilities in **Chapter 9** of this instruction for DMS procedures, AMU DMS personnel will:

3.12.1. Requisition parts and use supply management products. Initiate follow-up action when necessary. **(T-1)**.

3.12.2. Notify the Flightline Expediter of all back-ordered parts. **(T-1)**.

3.12.3. Develop and maintain a QRL as needed and provide it to technicians. **(T-2)**.

3.12.4. Track and process DIFM assets, to include warranty parts IAW AFI 23-101. **(T-1)**.

3.12.4.1. AMU DMS personnel will notify AMU leadership when DIFM asset turn-in times exceed requirements outlined in AFI 23-101. **(T-1)**.

3.12.5. Manage reusable containers IAW AFI 24-602V2, *Cargo Movement*, and TO 00-20-3. **(T-1)**.

3.12.6. Control and manage aircraft TNB if stored within the Support Section. **(T-1)**. When FOM assets are collocated with TNB, the items must be similarly controlled and managed. **(T-1)**.

3.12.7. Coordinate with the Pro Super and Flightline Expediter(s) for “mark for” changes. **(T-1)**.

3.12.8. Manage the AMU’s CANN program supply transactions and the associated documentation. **(T-1)**.

## Chapter 4

### MAINTENANCE SQUADRON (MXS)

**4.1. General.** The MXS supports MGN operations by providing centralized back shop support to perform on and off equipment maintenance tasks that are assigned to a specific back shop function. The MXS provides both organizational and intermediate level maintenance described in the "Maintenance Concept" section in **Chapter 1** of this AFI. Bases with permanently assigned Centralized Repair Facilities (CRF), which support enterprise RN functions, will develop and document the division of responsibilities between the MGN and RN, as outlined in **Chapter 13** of this AFI, to ensure both local and enterprise mission requirements are met. **(T-1)**. IAW AFI 38-101, the MXS may consist of personnel from various AFSCs organized into flights: Propulsion Flight, Avionics Flight, TMDE Flight, Accessories Flight, AGE Flight, Fabrication Flight, Armament Flight, Maintenance Flight, and Munitions Flight. 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. **Note:** For purpose of this instruction, MXS represents MXS, Equipment Maintenance Squadron (EMS), and Component Maintenance Squadron (CMS).

**4.2. Maintenance Supervision Responsibilities.** Maintenance Supervision may consist of an Operations Officer and Superintendent and is responsible to the SQ/CC for maintenance production. Maintenance Supervision manages the resources to accomplish the workload. In addition to general responsibilities in **Chapter 2** of this instruction, Maintenance Supervision will:

4.2.1. Review and consolidate monthly maintenance plan inputs from flights/sections and forward to Maintenance Operations PS&D. **(T-1)**.

4.2.2. Optimize local repair capability by ensuring base level repair constraints (for example, lack of equipment, manpower, parts) are elevated to the Repair Network Manager (RNM) and applicable stakeholder(s) in accordance with AFI 20-117, TO 00-20-3, and **Paragraph 1.3.2** of this AFI, and MAJCOM supplements to keep repair at the lowest level. **(T-1)**.

4.2.3. Ensure EOR procedures for transient aircraft are developed IAW TO 00-20-1 and MAJCOM supplements. **(T-1)**.

4.2.4. Ensure the MXS and WS develop procedures 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. **(T-1)**.

4.2.5. Ensure local manufacture capability and fabrication process is controlled IAW this instruction. **(T-1)**.

4.2.6. Ensure MXS personnel utilize Engineering Technical Service (ETS) personnel and the Joint Engineering Data Management Information and Control System (JEDMICS) <https://jedmics.af.mil/webjedmics/index.jsp> to obtain information and specifications when the information in TOs does not provide enough detail. **(T-1)**. **Note:** For drawings not available electronically, contact the appropriate JEDMICS help desk.

4.2.7. Appoint in writing MXS Pro Super(s) (if applicable). **(T-2)**.

**4.3. MXS Production Superintendent (Pro Super).** The MXS Pro Super will:

**4.3. (AFRC) MXS Production Superintendent (Pro Super).** When a MXS Pro Super is not assigned, MXS Maintenance Supervision will ensure the requirements of this section are accomplished **(T-2)**.

4.3.1. Monitor backshop production and flightline operations and coordinate support and priority with other squadron Pro Supers and MOC. **(T-1)**. MXS Pro Super will focus overall maintenance efforts toward MXG maintenance priorities. **(T-1)**.

4.3.2. Identify production requirements and shortfalls to Maintenance Supervision. **(T-1)**.

**4.4. Accessories Flight.** The Accessories Flight normally consists of four sections; Electrical and Environmental (E&E), Egress, Fuels, and Hydraulics and is responsible for performing on/off-equipment maintenance of systems and equipment.

4.4.1. Accessories Flight CC/Chief Responsibilities. In addition to the common responsibilities in **Chapter 2** of this instruction, the Accessories Flight CC/Chief will:

4.4.1.1. Ensure an egress training program is established IAW this instruction. **(T-1)**.

4.4.1.2. Coordinate with squadron superintendents to ensure E&E and hydro personnel rotation plans are established to comply with core task upgrade requirements. **(T-1)**.

4.4.1.3. Ensure explosives are controlled and stored in approved storage areas/containers. **(T-1)**.

4.4.2. Electrical and Environmental (E&E) Section. The E&E Section performs authorized local manufacture, repair, overhaul, testing, modification, and inspection of aircraft and SE electrical components, wiring harnesses, batteries, and charging units. The E&E Section will:

4.4.2.1. Ensure battery disposal procedures meet applicable environmental standards and batteries are controlled for accountability purposes. **(T-0)**.

4.4.2.2. Perform on/off-equipment maintenance on aircraft electrical and environmental systems and components. **(T-1)**.

4.4.2.3. Repair LOX/GOX/Liquid Nitrogen servicing units/carts. **(T-1)**. **Note:** AGE performs chassis, enclosure, and trailer maintenance on gaseous and cryogenic servicing units and all maintenance on Self-Generating Nitrogen Servicing Carts.

4.4.2.4. Perform off-equipment maintenance for aircraft and aircrew Carbon Dioxide cylinders. **(T-1)**.

4.4.2.5. Perform 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. **(T-1)**. **Note:** Ownership and storage of these cylinders remain with the appropriate support section.

4.4.3. Egress Section. The Egress Section maintains aircraft egress systems, components, and trainers (such as, aircraft ejection seats, extraction and escape systems, egress components of jettisonable canopies, explosive components of escape hatches/doors) and stores egress explosive components that are removed to FOM. Wings will identify the base level organization responsible for locating inadvertent beacon activations on the flightline and configuring survival kit personnel locator beacons (on-aircraft). **(T-1)**.

4.4.3. (AFRC) Aircrew Flight Equipment personnel will locate inadvertent beacon activations on the flightline (T-2). Egress personnel will configure survival kit personnel locator beacons (on-aircraft) in the correct mission configuration (T-2). AFE personnel will configure AFE (in-shop) in the correct mission configuration (T-2).

4.4.3.1. The Egress Section will:

4.4.3.1.1. Perform all off-equipment ejection seat maintenance in the egress maintenance facility. (T-1).

4.4.3.1.2. Ensure all personnel use the Demand Response Team during any task requiring the removal/installation of explosive components, and during egress final inspections. (T-1).

4.4.3.1.2.1. Demand Response Teams will be comprised of individuals who are certified to perform egress maintenance. (T-1). At least one team member must be a certified egress journeyman. (T-1).

4.4.3.1.3. Coordinate with PS&D and monitor the weekly maintenance schedule to identify egress items requiring removal for scheduled time changes/maintenance. (T-1).

4.4.3.1.4. Utilize a facility that meets the requirements of AFMAN 32-1084, *Facility Requirements*. (T-1). Locations are established IAW AFMAN 91-201 to store explosive components and ensure they are properly licensed.

4.4.3.1.4.1. Egress Section will ensure licensed explosive area will not exceed the licensed Net Explosive Weight capacity for each Hazard Class Division (HC/D) without approval from Wing Safety. (T-1). See AFMAN 91-201 for additional restrictions.

4.4.3.2. The Egress Section NCOIC/Chief will:

4.4.3.2.1. Ensure ejection systems are "safed" IAW with 00-80G-series technical orders and AFMAN 91-201 prior to an aircraft being placed on static display. (T-1).

4.4.3.2.2. Ensure egress systems on training aircraft are de-armed/"safed" IAW MDS specific TOs when an aircraft is used for Fire Emergency Services and/or aircrew extraction training. (T-1).

4.4.3.2.3. Ensure aircraft (to include GITA) are "safed" IAW 00-80-series TOs. (T-1).

4.4.3.2.4. Ensure all permanently decommissioned static display aircraft explosive devices are removed and turned in to munitions inspections IAW AFMAN 21-201. (T-1). Egress Section will sign the appropriate block on the AF Form 3580, *USAF Heritage Program Aerospace Vehicle Static Display Egress and Safety Certificate*, which is retained by the Historical Property Custodian(s). (T-1).

4.4.3.2.5. Request assistance from Explosive Ordnance Disposal (EOD) when egress explosive devices are damaged or suspected to be unsafe. (T-1).

4.4.3.2.6. Establish egress training program requirements and conduct reviews IAW AFI 36-2650. (T-1).

4.4.3.2.6.1. As a minimum, the program will include: a master training plan,

explosive safety certification requirements, and MIS time change documentation qualification minimums. **(T-1)**.

4.4.3.2.6.2. Certification requirements:

4.4.3.2.6.2.1. Egress personnel must successfully complete an Air Education and Training Command (AETC) Egress Technician Course for the specific aircraft to be maintained. **(T-1)**. 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 (on-equipment) egress technician course unless required by the Egress Section NCOIC/Chief.

4.4.3.2.6.2.2. **(Added-AFRC)** Egress Augmentee Certification Requirements.

4.4.3.2.6.2.2.1. **(Added-AFRC)** Non-egress personnel must successfully complete an AETC egress technician course for the specified aircraft to be maintained **(T-2)**.

4.4.3.2.6.2.2.2. **(Added-AFRC)** After completing the AETC technician course, non-egress personnel will be certified by a 2A673 trainer/certifier **(T-2)**.

4.4.3.2.6.2.2.3. **(Added-AFRC)** Egress augmentees will complete Egress Explosive Safety training **(T-2)**.

4.4.3.2.6.3. Decertification requirements:

4.4.3.2.6.3.1. Decertify egress personnel after not having performed egress maintenance for more than 18 months. **(T-1)**. Instructing and inspecting egress maintenance is not considered performing maintenance.

4.4.3.2.6.3.2. Document decertification in accordance with AFI 36-2651. **(T-1)**.

4.4.3.2.6.4. Recertification requirements:

4.4.3.2.6.4.1. Recertify egress personnel who have not performed egress maintenance for 18 months. **(T-1)**.

4.4.3.2.6.4.2. Recertification must be accomplished by a 2A673 trainer and certifier. **(T-1)**.

4.4.3.2.7. Review and validate all egress familiarization training documents at least every 24 months. **(T-1)**.

4.4.3.2.7. **(AFRC)** Maintenance Training will manage the course control documents for egress familiarization training **(T-2)**. The Egress Section Chief will provide SME for the development, review, and validation of the training **(T-2)**. Training will be tracked in the MIS **(T-2)**.

4.4.3.2.8. Ensure the egress Time Change Item (TCI) data in the MIS is accurate. **(T-1)**.



- 4.4.3.2.8.1. Ensure automated data products will be updated whenever an egress item is replaced to ensure the annual TCI forecast is correct. **(T-1)**.
- 4.4.3.2.8.2. Ensure separate databases are not used to manage the egress TCI program. **(T-1)**.
- 4.4.3.2.8.3. Ensure component background information is provided to PS&D to include a list of all components having multiple part numbers with a different service life. **(T-1)**.
- 4.4.3.2.9. Reconcile and verify each aircraft's egress data annually with PS&D. **(T-1)**.
  - 4.4.3.2.9.1. Document the annual verification on the AF Form 2411, *Inspection Document* maintained in the aircraft jacket file. **(T-1)**.
- 4.4.3.2.10. Establish egress systems inspection and documentation requirements. **(T-1)**.
  - 4.4.3.2.10.1. Egress Section will maintain an egress tail number binder for each assigned aircraft. **(T-1)**. **Note:** This binder should not to be confused with the aircraft jacket file of historical records maintained by PS&D, but serves to standardize the format for maintaining egress documentation requirements across AF egress shops. As a minimum the binder will include:
    - 4.4.3.2.10.1.1. Binder Spine - Aircraft assigned Serial Number. **(T-2)**.
    - 4.4.3.2.10.1.2. Front Cover - Delayed Discrepancies. **(T-2)**.
    - 4.4.3.2.10.1.3. Tab A - PRA or 5th Gen equivalent (Cross reference sheet stating digital location of data). **(T-2)**.
    - 4.4.3.2.10.1.4. Tab B - Completed In-Shop Maintenance Flow Sheet(s). **(T-2)**.
    - 4.4.3.2.10.1.5. Tab C - Completed Major Inspection Flow sheet(s) (for example, 36 month), or equivalent (if Mission Design Series applicable). **(T-2)**.
      - 4.4.3.2.10.1.5.1. Annotate pull check/inspection results on the flow sheet. **(T-2)**.
    - 4.4.3.2.10.1.6. Tab D - Egress Configuration Screen (IMDS 257 or 5th Generation equivalent), current manual Cartridge Actuated Device/Propellant Actuated Device (CAD/PAD) collection sheets. **(T-2)**.
    - 4.4.3.2.10.1.7. Tab E - Completed Time Change Item Replacement Sheets, for example, locally generated or equivalent. **(T-2)**.
    - 4.4.3.2.10.1.8. Tab F - Significant Historical Data (AFTO 95 or equivalent (cross reference to MIS maybe used), Depot/Program Depot Maintenance (PDM) package, -107 Technical Assistance Request or Engineering Assistance Request Responses). **(T-2)**.
    - 4.4.3.2.10.1.9. Tab G - Misc. (example, PAIR, Extension Letters). **(T-2)**.
    - 4.4.3.2.10.1.10. Tab H AF Form 2411, *Inspection Document*. **(T-2)**.

4.4.3.2.11. A certified egress production inspector (for example, Red X, IPI certified and tracked on the SCR IAW [Table 11.1](#)) will inspect any integral part of the egress system when any maintenance other than a visual inspection is performed. **(T-1)**.

4.4.3.2.11.1. The inspection must be an egress final inspection unless another inspection is prescribed by technical data. **(T-1)**.

4.4.3.2.11.2. Egress personnel will conduct an egress final every 30 days on ejection seats that have integrated personnel/recovery parachutes and/or survival kits as part of the seat if prescribed by technical data. **(T-1)**.

4.4.3.2.12. Egress Sections may store spare parachutes and survival kits for use in responding to Red Ball and unscheduled maintenance events.

4.4.4. Fuel Systems Section. The Fuel Systems Section repairs, functionally checks, and inspects aircraft fuel systems, fuel tanks, hydrazine systems, in-flight refueling receptacle systems, and related components. This section also performs maintenance on AME external fuel tanks, Conformal Fuel Tanks, and Weapons Bay Tanks and provides temporary storage for Conformal Fuel Tanks, and Weapons Bay Tanks.

4.4.4.1. The Fuels Systems Section will:

4.4.4.1.1. Maintain serial number inventory accountability for all removable external fuel tanks IAW AFI 21-103. **(T-1)**.

4.4.4.1.2. Purge and preserve fuel tanks for storage and shipment. **(T-1)**. **Note:** LRS is responsible for the storage, delivery, and shipment of fuel tanks in their possession.

4.4.4.1.3. Establish a local Memorandum of Agreement (MOA) or Memorandum of Understanding (MOU) (MXS with AMXS or equivalents) governing the storage, issue, receipt, and inventory control of in-use removable external fuel tanks. **(T-1)**.

4.4.4.1.4. Perform all maintenance and inspections on WRM fuel tanks. **(T-1)**.

4.4.4.1.4.1. Meet quarterly with installation War Reserve Materiel Officer/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. **(T-1)**.

4.4.4.2. In addition to the common responsibilities outlined in [Chapter 2](#) of this instruction, the Fuel Systems Section NCOIC/Chief will:

4.4.4.2.1. Establish controls to prevent unauthorized entry into fuel cell and hydrazine repair areas. **(T-1)**.

4.4.4.2.2. Provide required qualification training to all personnel who enter aircraft fuel tanks and/or open fuel tank areas to perform maintenance or to provide assistance. **(T-1)**.

4.4.4.2.3. When required, ensure Hydrazine Response Teams are formed with only team members/supervisors possessing AFSC 2A6X4. **(T-1)**. Refer to TO 00-25-172, *Ground Servicing of Aircraft and Static Grounding/Bonding*, TO 00-105E-9, *Aerospace Emergency Rescue and Mishap Response Information*, TO 42B1-1-18,

*General Procedures for Handling of H-70*, and review MDS-specific TOs and MAJCOM/Lead Command directives for additional information on hydrazine hazards and management. For Air Demonstration Squadron (Thunderbirds) only the Hydrazine Response Team Supervisor must possess AFSC 2A6X4. **(T-1)**.

4.4.4.2.3.1. Ensure initial and refresher hydrazine safety training is completed for all hydrazine response team members IAW TO 42B1-1-18. **(T-1)**.

4.4.4.2.3.2. Integrate Hydrazine Response Team responsibilities into the CDDAR Program and local In-Flight Emergency (IFE) functional checklists (as applicable). **(T-1)**.

4.4.4.2.4. 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, TO 42B1-1-18 and TO 1-1-3, *Inspection and Repair of Aircraft Integral Tanks and Fuel Cells* requirements. **(T-1)**.

4.4.4.2.5. Establish a Confined Space Entry Program IAW TO 1-1-3 and AFMAN 91-203. **(T-1)**.

4.4.4.2.6. Establish a Respiratory Protection Program IAW AFI 48-137. **(T-1)**.

4.4.4.2.6.1. All respiratory training requirements are documented on AF Form 55 or equivalent IAW AFI 91-202.

4.4.5. Hydraulic Section. The Hydraulic Section performs on- and off-equipment maintenance on pneumatic and hydraulic systems, components (except environmental and egress systems) and provides maintenance support for SE and test equipment. The Hydraulic Section also maintains hydraulic test stands, pumping units, and associated components.

4.4.5.1. The Hydraulic Section will:

4.4.5.1.1. Perform maintenance on munitions loading and handling equipment with discrepancies that exceed the munitions flight repair capabilities. **(T-1)**.

4.4.5.1.2. Maintain and inspect refueling drogues, booms, and refueling receptacle systems for large aircraft. **(T-1)**.

4.4.5.1.3. Repairs, overhauls, and bench checks flight control, landing gear, and hydraulic power system components (such as, brakes, struts, accumulators, reservoirs, actuators). **(T-1)**.

4.4.5.1.4. **(Added-AFRC)** Locally manufacture and test hose assemblies and rigid tube assemblies **(T-2)**.

**4.5. Aerospace Ground Equipment (AGE) Flight.** The AGE Flight is normally organized as a consolidated maintenance unit (repair, inspection, and servicing sections) or, at MAJCOM discretion, may be organized into teams for concentrated support efforts. The AGE Flight is responsible for providing powered and Non-Powered AGE (NPA) as defined in TO 00-20-1 to support both aircraft and non-aircraft weapon systems.

4.5.1. The AGE Flight will:

4.5.1.1. Maintain and inspect AGE, IAW TO 00-20-1, and equipment specific TOs in support of sortie production and back shop maintenance activities. **(T-1)**.

4.5.1.2. Pick up, service, deliver, repair, and perform approved modifications, TCTOs, inspect assigned AGE and perform corrosion control tasks. **(T-1)**.

4.5.1.3. Utilize AF Form 864, *Daily Requirement and Dispatch Record*, or MAJCOM-approved electronic product to record all equipment pickup and delivery. **(T-1)**.

4.5.1.4. Perform chassis, enclosure, and trailer maintenance on gaseous and cryogenic servicing units. **(T-1)**.

4.5.1.5. Manage maintenance and inspection scheduling activities for flight maintained equipment. **(T-1)**. **Note:** Maintain oversight of additional requirements for assigned Nuclear Certified Equipment IAW AFI 63-125.

4.5.1.5. **(AFRC)** Coordinate with the subsystem manager for MIS access **(T-2)**.

4.5.1.6. Safeguard any Item Unique Identification (IUID) marks during maintenance activities to the extent possible. **(T-1)**. In the event the Unique Item Identifier (UII) is damaged during maintenance activities, the AGE Flight will notify the responsible Equipment Custodian and/or Equipment Accountability Element (EAE) to replace the mark with the same UII. **(T-1)**.

4.5.1.7. **(Added-AFRC)** AGE does not maintain non-powered Munitions Material Handling Equipment (MMHE) (with the exception of ram assemblies), propulsion SE, vehicle SE, non-powered dock stands, and avionics SE **(T-3)**.

4.5.1.8. **(Added-AFRC)** AGE does not dispatch operator dispatched equipment (e.g. bomb lifts and powered munitions trailers) **(T-3)**.

4.5.2. AGE Flight Chief Responsibilities. In addition to the applicable Flight CC/Chief responsibilities in [Chapter 2](#) of this instruction, the AGE Flight Chief will:

4.5.2.1. Review and coordinate the AGE MEL annually with applicable Maintenance Supervision. **(T-1)**. The MXG/CC approves the identified types and quantities of AGE for the MEL.

4.5.2.1.1. AGE Flight Chief will provide copies of the approved MEL to the MOC. **(T-1)**.

4.5.2.2. Ensure AGE status/scheduling is tracked daily using the MIS. **(T-1)**.

4.5.2.2.1. Provide status and ETIC information to the MOC when it falls below MEL. **(T-1)**.

4.5.2.3. Ensure newly assigned AGE receives acceptance inspections IAW TO 00-20-1. **(T-1)**.

4.5.2.4. Control fuel dispensed from issue tanks IAW AFI 23-204, *Organizational Fuel Tanks*. **(T-1)**.

4.5.2.5. Ensure the Uniform Repair and Replacement Criteria Program is implemented IAW TO 00-25-240 and TO 35-1-24. **(T-1)**.

4.5.2.6. Coordinate welding requirements with the Fabrication Flight Chief. **(T-1)**.

4.5.2.7. Manage AGE CANN actions IAW [Chapter 9](#) and [Chapter 11](#) of this instruction. **(T-1)**.

4.5.2.8. Establish and monitor the AGE Operator Training Program and assist in the development of course control documents in conjunction with Maintenance Training (MT). **(T-1)**.

4.5.2.9. Ensure an AGE Corrosion Control and Prevention Program is maintained and a field number system is established IAW TO 35-1-3, TO 1-1-8, TO 1-1-691, MAJCOM instructions, and equipment specific TOs. **(T-1)**.

4.5.2.9. **(AFRC) Note:** Refer to paragraph **11.41** for AFRC Corrosion Control Program guidance.

4.5.2.9.1. **(Added-AFRC)** Review MAJCOM Corrosion Survey Final Reports semi-annually at the AFCPCO portal page link located at <https://www.my.af.mil/gcss-af/USAF/ep/globalTab.do?channelPageId=s6925EC133EFE0FB5E044080020E329A9> **(T-2)**. Click “PUBLICATIONS” to show “MAJCOM Corrosion Surveys”. Review reports for AGE related information to improve the AGE Corrosion Control and Prevention Program **(T-2)**.

4.5.2.10. Develop and implement a tracking system to prioritize complete repainting for AGE equipment based on a “worst is first” principle. **(T-1)**.

4.5.2.10.1. AGE Flight Chief will coordinate with Fabrication Flight Chief for work beyond the AGE work center capability. **(T-1)**.

4.5.2.11. 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. **(T-1)**.

4.5.2.12. Ensure annual transient aircraft landing data is submitted to the respective MAJCOM AGE functional manager by 1 February. **(T-1)**. Data will reflect previous year's TA aircraft landings by aircraft MDS and is obtained from local Transient Alert managing office. **(T-1)**.

4.5.2.13. Establish AGE sub-pools, as needed, in coordination with OSS's Airfield Operations Flight. **(T-1)**.

4.5.2.14. Ensure AGE tow vehicles are two-way radio equipped, permanent or hand-held, to expedite AGE deliveries. **(T-1)**. AGE Flight Chief will ensure any permanent installation of radios are accomplished IAW AFI 24-302. **(T-1)**.

4.5.3. AGE Pro Super Responsibilities (if not assigned, the AGE Flight Chief will fulfill these responsibilities). The AGE Pro Super will:

4.5.3.1. Monitor the production of AGE Flight and recommend equipment/personnel adjustments to the AGE Flight Chief as required. **(T-1)**.

4.5.3.2. Monitor adherence to AGE Flight's safety, training, and CTK programs. **(T-1)**.

4.5.3.3. Monitor serviceability status of equipment parked in sub-pools. **(T-1)**.

4.5.3.4. Monitor distribution, control, and condition of AGE Flight's assigned vehicles. **(T-1)**.

4.5.3.5. Monitor shop equipment for condition and documentation. **(T-1)**.

4.5.4. AGE Production Support Section. The AGE Production Support Section provides administration and ancillary services for TO file maintenance, supply support, and fuels management. A full-time Materiel Management Journeyman/craftsman (AFSC 2S0X1) should be assigned to the AGE Production Support Section when the workload warrants. In addition to the applicable Section NCOIC/Chief responsibilities outlined in **Chapter 2** of this instruction, the AGE Production Support Section NCOIC/Chief will:

4.5.4. (AFRC) In the absence of an AGE Production Support Section NCOIC/Chief, the AGE Flight CC/Chief will ensure the requirements of this section are accomplished. (T-2).

4.5.4.1. Manage the AGE Flight's TO libraries IAW TO 00-5-1. (T-1).

4.5.4.2. Manage the AGE Flight's tool storage and issue areas IAW **Chapter 8** of this instruction. (T-1).

4.5.4.3. Manage the AGE Flight's TMDE program IAW TO 00-20-14 and AFMAN 21-113. (T-1).

4.5.4.4. Manage the AGE Flight's materiel management function IAW **Chapter 9** of this instruction and AFI 23-101. (T-1).

4.5.4.4.1. Pre-assembled part kits are authorized; if required, assemble from bench stock in minimum quantities necessary to support workload requirements.

4.5.4.5. Coordinate the AGE Flight's scheduling function with PS&D. (T-1). The AGE Production Support Section NCOIC/Chief will:

4.5.4.5.1. Maintain AGE historical records. (T-1).

4.5.4.5.2. Prepare an AGE scheduled maintenance plan and maintain a current equipment scheduling report for all assigned equipment. (T-1).

4.5.4.6. Manage the AGE Flight's organizational fuel tank(s) IAW AFI 23-204. (T-1).

4.5.4.7. Manage the AGE Flight's HAZMAT/ESOH programs IAW AFI 90-8XX series ESOH instructions and the AFI 32-70XX series environmental instructions. (T-1).

**4.6. Armament Flight.** The Armament Flight, when formed, will be part of either MXS, EMS or Munitions Squadron (MUNS), and performs off-equipment maintenance for assigned aircraft armament systems, guns, pylons, racks, launchers and adapters. (T-1). An AFSC 2S0X1 Materiel Management journeyman/craftsman may be assigned to the flight if mission dictates and respective SQ/CC and MXG/CC concurs. The Armament Flight normally consists of three sections: Armament Maintenance Section, AME Section, and Support Section. The WWM, with MXG/CC concurrence, determines when armament systems personnel are required to perform load crew duties or related certifiable tasks.

4.6.1. Armament Flight Chief Responsibilities. In addition to common Flight CC/Chief responsibilities outlined in **Chapter 2** of this instruction, the Armament Flight Chief will:

4.6.1.1. Assist the WWM in recommending distribution of AFSC 2W1X1 personnel to satisfy on-and off-equipment weapons release and gun system maintenance. (T-1).

4.6.1.2. Advise the Operations Officer/MX SUPT and the WWM regarding factors which affect training, or maintenance capabilities, personnel actions affecting manning levels

(cross-training, special duty, reassignment) equipment shortfalls and other key weapons related issues. **(T-1)**.

4.6.1.3. Establish and monitor gunroom security IAW AFI 31-101. **(T-1)**.

4.6.1.4. Ensure AME and SPRAM accountability and control requirements are met IAW AFI 21-103. **(T-1)**.

4.6.1.5. If applicable, support WRM rack, adapter, pylon, launcher and gun maintenance requirements IAW AFI 25-101, *Air Force War Reserve Materiel (WRM)*. **(T-1)**.

4.6.1.6. 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. **(T-3)**.

4.6.1.7. Ensure requirements for submitting AFTO Form 375 on all weapons support equipment identified in TO 35-1-24, are accomplished. **(T-1)**. This process provides vital information and source documentation for the Product Group Manager to adequately reflect equipment sustainment costs, attrition rates, and to enable timely forecasting for replacement funding.

4.6.1.8. Establish procedures to ensure items requiring explosive-free certification IAW TO 11A-1-60 are properly inspected, marked and certified prior to shipment. **(T-1)**.

4.6.2. Armament Maintenance Section: The Armament Maintenance Section performs TCTOs, inspections and maintenance on assigned armament systems, guns, pylons, racks, launchers, and adapters. In addition to the applicable Section NCOIC/Chief responsibilities outlined in **Chapter 2** of this instruction, the Armament Maintenance Section NCOIC/Chief will:

4.6.2.1. In coordination with PS&D, ensure 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 are scheduled and performed. **(T-3)**.

4.6.2.2. Ensure the off-equipment portion of major inspections is performed. **(T-1)**. In bomber and special mission aircraft units, the AME Section NCOIC/Chief will facilitate assistance with the on-equipment portion of major aircraft inspections that pertain to the armament system. **(T-1)**.

4.6.2.3. Ensure WRM assets are maintained (if applicable). **(T-1)**.

4.6.2.4. Ensure equipment historical records (AFTO Form 95) for AME, aircraft guns and weapons system NIE are maintained. **(T-1)**.

4.6.2.5. Ensure ammunition loading assemblies and systems are maintained and inspected. **(T-1)**. **Note:** The Munitions Flight maintains the chassis portion.

4.6.2.6. **(Added-AFRC)** Maintain the MIS database for installed guns, gun systems, and gun component time change items (TCI) or inspection data, based on round count limits in the -6 TO, to include updating rounds from the AF Form 2434 or locally developed form **(T-2)**.

4.6.2.7. **(Added-AFRC)** Ensure compliance with hazardous material, 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 **(T-1)**.

4.6.3. Alternate Mission Equipment (AME) Section. The AME Section accounts for, stores and controls AME. If not formed, the responsibilities detailed in this section will be accomplished by the Armament Maintenance Section. **(T-2)**. In addition to the applicable Section NCOIC/Chief responsibilities outlined in **Chapter 2** of this instruction, the AME Section NCOIC/Chief will:

4.6.3.1. Develop procedures governing accountability and control of AME, in coordination with Weapons Section NCOIC/Chief and WWM. **(T-1)**.

4.6.3.2. Ensure all weapons assigned, non-load box/tester-configured (bomber aircraft), F-2/utility type trailers are maintained. **(T-1)**.

4.6.3.3. Ensure SPRAM accounts are maintained IAW AFI 21-103 and AFI 23-101. **(T-1)**.

4.6.4. Support Section: The Support Section stores and maintains tools/equipment and manages the supply and bench stock functions for Armament Flight. The Support Section will:

4.6.4. **(AFRC)** In the absence of an Armament Support Section NCOIC/Chief, the Armament Flight Chief will ensure the requirements of this section are met **(T-2)**.

4.6.4.1. Ensure tools and equipment are managed IAW **Chapter 8** of this instruction. **(T-1)**.

4.6.4.2. Ensure maintenance materiel management support is managed IAW **Chapter 9** of this instruction. **(T-1)**.

**4.7. Avionics Flight.** The Avionics Flight normally consists of some combination of; a Communication-Navigation Section, an Radio Frequency (RF) Multiplexing Section, an Instrument and Flight Control Systems (IFCS) section, a Weapons Control System Section, a Sensors Section, an Electronic Warfare System (EWS) Section, an Avionics Intermediate Section, a Computer Section, a Surveillance Radar Section, a Combat Systems Section, a Cryptographic Section, an Offensive Avionics Section, and a Cyber/Information Security Section. **Note:** Do not authorize additional manpower positions to form sections resulting from local management decisions.

4.7.1. Sections within the Flight are responsible for maintaining avionics systems and components and the associated test/support equipment. They perform authorized equipment repairs, TCTOs, component programming/reprogramming, troubleshooting, CND/BCS screening of line replaceable units (LRUs), sub-component removal and replacement, management, programming and status reporting for assigned pods and SE, and in-work classified avionics systems component management. They 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 (Lead Command, depot). MAJCOMs will identify any additional mission support requirements in their supplements and addendums.



4.7.2. Avionics Flight CC/Chief Responsibilities. In addition to the applicable Flight CC/Chief responsibilities listed in **Chapter 2** of this instruction, the Avionics Flight CC/Chief will:

4.7.2.1. Support Wing EW system programming. **(T-1)**.

4.7.2.2. Ensure control and storage of assigned AME IAW AFI 21-103. Develop local procedures for control and storage of items not specified in -21 TOs. **(T-1)**.

4.7.2.3. Ensure accurate and timely pod and SE status is updated or verified daily in RAMPOD IAW AFI 21-103. **(T-1)**.

4.7.2.4. 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*. **(T-1)**.

4.7.2.5. Ensure cryptography components are controlled and maintained IAW National Security Agency publications and directive for the functions preformed. **(T-1)**.

4.7.2.6. When applicable, determine maintenance responsibility for aircraft adapter group equipment. **(T-2)**.

4.7.3. Section NCOICs will maintain AFTO Form 95, or equivalent on selected, significantly repairable, serialized components for which historical failure data will enhance repair. **(T-1)**. Historical records are mandatory for SPRAM LRUs, and items asterisked in weapons system -6 TOs. Historical records will be maintained IAW TO 00-20-1. **(T-1)**.

4.7.3.1. The record will remain with the component anytime it is undergoing maintenance. **(T-1)**. **Note:** Data is provided from these records, upon request, to the analysis function to aid in defining avionics maintenance problems and recommended solutions.

4.7.4. Avionics Flight's within established Repair Networks shall collaborate with the Repair Network Manager (RNM) for maintenance constraint resolution. If the SMR code in the 4th position is "F" (I-Level Repair) will require RNM and all applicable stakeholders to determine next step or appropriate Action Taken Code to use when resolving the maintenance constraint.

4.7.5. Implement the "Bad Actor" program IAW TO 00-35D-54. **(T-1)**. The purpose of the Air Force Bad Actor Program is to identify serial-numbered items that enter the repair cycle at an abnormally high rate when compared to the total population of like assets and to repair them or remove them from the exhibit holding activity.

4.7.6. 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:

4.7.6.1. Process items into and out of the section, ensuring all documentation is accurate and complete. **(T-2)**.

4.7.6.2. Advise the section NCOICs and Pro Supers of item status. **(T-2)**.

4.7.6.3. Assist the section NCOICs in managing the DIFM program by complying with MAJCOM instructions to ensure ordered and received parts are documented; and uses, maintains and files, management and computer records. **(T-1)**. Repair Monitors will

maintain and update a working copy of the D-23, *Repair Cycle Asset Management Listing*, sorted by location and detail number. **(T-1)**.

4.7.6.4. Designate and maintain an AWP area, ensure accurate documentation, and submit supply assistance requests, as required. **(T-1)**.

4.7.6.5. Track and monitor MICAP status for all assigned DIFM and parts affecting section repair capabilities using automated Integrated Logistics System -Supply (ILS-S) reports. **(T-1)**.

4.7.6.6. Ensure the MIS is updated with current supply data, location changes and DIFM status changes. **(T-1)**.

4.7.7. **(Added-AFRC)** Report Electronic Attack (EA) pod status in RAMPOD IAW AFI 21-103, if maintaining EA pod equipment **(T-2)**. Report other EWS status IAW TO 00-20-1 and TO 00-20-2 **(T-2)**.

4.7.8. **(Added-AFRC)** Maintain inventory control of EWS AME **(T-2)**.

4.7.9. **(Added-AFRC)** Develops a EWS assessment program to verify system operation IAW applicable aircraft and system TOs **(T-2)**.

**4.8. Fabrication Flight.** The Fabrication Flight may consists of four sections; Aircraft Structural Maintenance (ASM), Metals Technology, Nondestructive Inspection (NDI), and Low Observable Aircraft Structural Maintenance (LOASM) and is responsible for performing on/off-equipment maintenance of systems and equipment.

4.8.1. Fabrication Flight CC/Chief Responsibilities. In addition to the applicable Flight CC/Chief responsibilities outlined in **Chapter 2** of this instruction, the Fabrication Flight CC/Chief will:

4.8.1.1. Provide local manufacture capability to meet mission requirements and monitor all local manufacture work order requests. **(T-1)**.

4.8.1.2. Coordinate AGE welding requirements with the AGE Flight Chief. **(T-1)**.

4.8.1.3. Ensure corrosion prevention and control requirements, wash rack procedures, and established paint schemes are accomplished IAW TO 1-1-691, TO 1-1-8, TO 35-1-3, MAJCOM/Lead Command instructions, and MDS-specific TOs. **(T-1)**.

4.8.1.3. **(AFRC)** Refer to AFI 20-114, *Air and Space Equipment Structural Management* for additional guidance, and paragraph **11.41** **(T-2)**.

4.8.1.4. **(Added-AFRC)** Ensure assigned personnel receive periodic Occupational Health examinations established by directives and work center Bio-Environmental surveys **(T-2)**.

4.8.2. Aircraft Structural Maintenance (ASM) Section. Manages structural repair, corrosion control, Low Observable, inspection, damage evaluation, repair, manufacture, and/or modification of metallic, composite, fiberglass, plastic components, and related hardware associated with aircraft and SE. In addition to applicable Section NCOIC/Chief responsibilities in **Chapter 2** of this instruction, the ASM Section NCOIC/Chief will:

4.8.2.1. Ensure appropriate resources are available to all personnel to chemically or mechanically inspect, remove, and treat corrosion on aircraft, engines, AGE, and components. **(T-1)**.

4.8.2.2. Monitor the aircraft wash and corrosion inspection schedule in the weekly and monthly maintenance plans. **(T-1)**.

4.8.2.3. Provide training and assistance to sections managing their own corrosion programs to include cleaning operations, corrosion prevention, inspection, removal and treatment techniques. **(T-1)**.

4.8.2.4. Develop maintenance procedures IAW **Chapter 11** of this instruction, AFMAN 91-203, and ensure assigned ASM personnel are trained and qualified on aircraft intake maintenance. **(T-1)**.

4.8.2.5. Review the Qualified Product List/Qualified Product Database for changes to cleaners that must conform to a MIL-Spec as specified in applicable TOs for aircraft wash rack. **(T-1)**.

4.8.2.5. **(AFRC)** Advise all maintenance functions of QPL/QPD changes, as applicable **(T-2)**.

4.8.2.6. Stock supplies and equipment necessary to support aircraft and equipment washing, inspection, and treatment. **(T-1)**.

4.8.3. 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 2**, the metals technology section NCOIC will:

4.8.3.1. Ensure assigned welders are certified in all base metal groups prescribed by the MAJCOM Fabrication functional manager (or equivalent) IAW TO 00-25-252, *Aeronautical Equipment Welding*. **(T-1)**.

4.8.3.1. **(AFRC)** See TO 00-25-252, AFRC supplement, for AFRC welding requirements.

4.8.3.1.1. Ensure assigned welders conducting Gas Tungsten Arc Welding, Gas Metal Arc Welding, or Shielded Metal Arc Welding repairs on support equipment are certified IAW TO 00-25-252. **(T-1)**.

4.8.3.1.2. Ensure welding proficiency is documented IAW TO 00-25-252. **(T-1)**.

4.8.3.2. Provide safety briefings stressing Arc radiation hazards. **(T-1)**.

4.8.3.3. Ensure special tools, jigs, and fixtures are designed, fabricated, protected and properly stored. **(T-1)**.

4.8.4. Nondestructive Inspection (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. In addition to the applicable Section NCOIC/Chief responsibilities in **Chapter 2** of this instruction, the NDI Section NCOIC/Chief will:

4.8.4.1. Ensure OAP requirements are accomplished (if applicable to assigned MDS) IAW AFI 21-131, Joint Oil Analysis Program and **Chapter 11** of this instruction. **(T-1)**.

4.8.4.1.1. 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 Volume II* and TO 33-1-37-3, *Joint Oil Analysis Program Laboratory Manual, Volume III*, TO 33-1-37-4, *Joint Analysis Program Manual, Volume IV*. The owning organization provides samples in an expeditious manner to the supporting OAP laboratory.

4.8.4.1.1.1. The owning organization will 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. **(T-1)**.

4.8.4.2. Advise Maintenance Supervision, MOC and the owning work center of abnormal OAP trends. **(T-1)**.

4.8.4.3. Ensure capability exists to perform optical, dye-penetrant, magnetic particle, ultrasonic, eddy current, radiographic and special inspections as required. **(T-1)**.

4.8.4.4. Ensure process control procedures IAW TO 33B-1-2, *Nondestructive Inspection General Procedures and Process Controls* are completed at the required or established frequency. **(T-1)**.

4.8.4.5. Establish technique files using AFTO Form 242, *Nondestructive Inspection Data*, and TO 33B-1-1, *Nondestructive Inspection Methods Basic Theory*. **(T-1)**. **Note:** Locally developed inspection techniques for use on aircraft and their components will be approved by the responsible ALC NDI manager prior to use. **(T-1)**. All other non-aircraft related AFTO Form 242 established techniques may be approved by the lab Chief.

4.8.4.6. Maintain coordination with the base medical service that 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. **(T-1)**.

4.8.4.7. Ensure a Radiation Safety Program is established IAW TO 33B-1-1. **(T-1)**.

4.8.4.8. Control and dispose of radiographic silver-bearing materiel IAW AFI 23-101. **(T-1)**.

4.8.4.9. Ensure radiographic film files and computed radiography files contain, as a minimum:

4.8.4.9.1. The last complete set of radiographs taken by owning organization, for each assigned aircraft and engine by serial number or identification number. **(T-1)**.

4.8.4.9.2. The name of the person who interpreted the radiography. **(T-1)**. **Note:** Radiography identification procedures will be followed IAW TO 33B-1-1. **(T-1)**.

4.8.4.9.2.1. Ensure the person interpreting the film also initials the set of radiographs or a locally developed interpretation worksheet, as applicable. **(T-1)**.

- 4.8.4.9.3. All NDI radiographic film exposures, to include paper, will be filed and maintained for all One Time Inspection (OTI), TCTO, -6 TO, -9 TO, and -36 TO inspection requirements. **(T-1)**. The NDI Section NCOIC/Chief will ensure disposition of radiographic film IAW Air Force Records Disposition Schedule located at <https://www.my.af.mil/gcss-af61a/afirms/afirms/rims.cfm>. **(T-1)**.
- 4.8.4.10. Ensure all NDI technicians are certified IAW TO 33B-1-1. **(T-1)**.
- 4.8.4.10. **(AFRC)** Contact HQ AFRC/A4MS ([afrc.a4ms@us.af.mil](mailto:afrc.a4ms@us.af.mil)) for assistance, as required **(T-2)**.
- 4.8.4.11. **(Added-AFRC)** All unit equipped AFRC NDI laboratories will document process control verifications via the Process Control Automated Management System (PCAMS) **(T-2)**. **Note:** Classic associated AFRC NDI laboratories shall follow host unit guidance.
- 4.8.5. Low Observable (LO) Aircraft Structural Maintenance Section. LO ASM Section manages structural repair, corrosion control, composite repair, LO coatings. **Note:** The Fabrication Flight CC/Chief will determine which tasks listed in **Paragraph 4.8.2** in this instruction (ASM Section) will be applicable to this section based on flight configuration. In addition to applicable Section NCOIC/Chief responsibilities in **Chapter 2** of this instruction, the LO ASM Section NCOIC/Chief will:
- 4.8.5.1. Provide inspection, damage evaluation, repair, manufacture, and/or modification of LO components, and related hardware associated with aircraft. **(T-1)**.
- 4.8.5.2. Ensure appropriate resources are available to perform all LO related tasks. **(T-1)**.
- 4.8.5.3. Stock supplies and equipment necessary to support aircraft inspection, and treatment. **(T-1)**.
- 4.8.5.4. Monitor the inspection schedule in the weekly and monthly maintenance plans. **(T-1)**.
- 4.8.5.5. Ensure protective/LO coatings are applied to aircraft, AGE, applicable munitions, and components IAW applicable TOs. **(T-1)**. Ensure protective/LO coatings are applied IAW local, state and federal environmental directives. **(T-0)**.
- 4.8.5.6. Provide training and assistance to sections managing their own LO programs. **(T-1)**.

**4.9. Maintenance Flight.** May consist of Repair and Reclamation, Wheel and Tire, Inspection, and TA Sections.

- 4.9.1. The Maintenance Flight CC/Chief will comply with the common Flight CC/Chief responsibilities in **Chapter 2** of this instruction and locally established management requirements. **(T-1)**.
- 4.9.2. Repair and Reclamation Section. When established, 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. MAJCOM or MXG/CC may identify delineation of complex tasks to optimize maintenance capability in supplements or addendums to this AFI as required.

4.9.2.1. Repair and Reclamation Section, when established, will remove, install, and repair towed-targets and airborne reel pods. **(T-1)**.

4.9.3. Wheel and Tire Section. Manages the build-up, repair, test, and storage of wheel and tire assemblies and components. Wheel and Tire Section will:

4.9.3.1. Degrease and disassemble wheel components for NDI inspection IAW TO 4W-1-61, *Maintenance and Overhaul Instruction - All Types Aircraft Wheels*, prior to processing through the ASM and NDI Sections. **(T-1)**.

4.9.3.2. Clean, inspect, and properly store (do not co-mingle) wheel bearings. **(T-1)**.

4.9.4. Aircraft Inspection Section. Performs aircraft PH, PE, ISO or letter check inspections. **Note:** Section may be divided into separate elements for each type aircraft maintained. In addition to the applicable Section NCOIC/Chief responsibilities in **Chapter 2** of this instruction, the Inspection Section NCOIC/Chief will:

4.9.4.1. Ensure assigned non-powered SE (such as, dock stands) is maintained. **(T-1)**.

4.9.4.2. Review inspection schedules and ensure dock teams are available to meet inspection needs. **(T-1)**.

4.9.4.3. Develop standardized inspection flow plan to aid in managing the inspection progress and to control dock personnel and support specialists. **(T-1)**.

4.9.4.3.1. Units may use an Automated Data System instead of the inspection flow plan to request specialist support.

4.9.4.3.2. Inspection Section NCOIC/Chief will ensure flow plan data remains current with -6 TO requirements. **(T-1)**.

4.9.4.4. Inform the MOC and owning agency of all MICAP parts. **(T-1)**.

4.9.4.5. Provide PS&D with an inspection document record upon completion of the inspection. **(T-1)**.

4.9.4.6. Ensure components are tagged with an AFTO Form 350, *Reparable Item Processing Tag*, IAW TO 00-20-2. **(T-1)**.

4.9.4.6.1. Ensure serially-controlled components are reinstalled on the same aircraft and position from which they were removed. **(T-1)**. Exception: If it is absolutely necessary to install serially-controlled components in a different position, the Inspection Section NCOIC/Chief will notify PS&D to update the records. **(T-2)**.

4.9.4.7. **(Added-AFRC)** Utilize a status board (may be an electronic display) to track in-progress and scheduled inspections. Ensure the status board/display shows the following information **(T-3)**.

4.9.4.7.1. **(Added-AFRC)** Aircraft type.

4.9.4.7.2. **(Added-AFRC)** Aircraft serial number.

4.9.4.7.3. **(Added-AFRC)** Inspection type and when due (sequence).

4.9.4.7.4. **(Added-AFRC)** Scheduled in (date and time).

4.9.4.7.5. **(Added-AFRC)** Actual start (date and time).

4.9.4.7.6. **(Added-AFRC)** Scheduled out (date and time).

4.9.4.7.7. **(Added-AFRC)** Dedicated Crew Chief and Assistant Dedicated Crew Chief names and duty phone.

4.9.4.7.8. **(Added-AFRC)** Remarks (status of aircraft, delays, possible MICAP conditions, etc.).

4.9.4.7.9. **(Added-AFRC)** Safety/danger considerations (power/hydraulic applications, stress panels removed, aircraft on jacks, W&B, Warning Tags, etc.).

4.9.4.8. **(Added-AFRC)** Develop a plan to ensure maintenance is documented if the MIS is down **(T-2)**. Documentation must be tracked to ensure all discrepancies have been cleared or transferred to AFTO Form 781-series and the MIS IAW TO 00-20-1 and TO 00-20-2 **(T-2)**. These documents will be treated the same as aerospace vehicle documents and filed with the inspection historical documents **(T-2)**.

4.9.5. Transient Aircraft (TA) Section. Recovers, services, inspects, maintains, and launches transient aircraft. Transient aircraft are those aircraft not assigned to a base that are enroute from one location to another that may require routine servicing. Aircraft are not considered transient aircraft when deploying to, staging from or departing from any location for the purpose of flying sorties or conducting training, either with or without the necessary maintenance support from the aircraft's home base. MOC coordinates specialist support for transient aircraft through appropriate squadrons. For off-station recovery procedures refer to owning MAJCOM instructions and command-to-command agreements. In addition to the applicable Section NCOIC/Chief responsibilities outlined in [Chapter 2](#) of this instruction, the TA Section NCOIC/Chief will:

4.9.5.1. Recover and deliver all deceleration chutes for assigned, transient, and tenant aircraft to the AFE. **(T-1)**.

4.9.5.2. Complete reimbursement documentation. **(T-1)**.

4.9.5.2.1. AFTO Form 726, *Transient Aircraft Service Record*, may be used for documenting maintenance servicing requirements and necessary billing information and is prescribe in TO 00-20-1.

4.9.5.3. Record arrivals and departures of transient aircraft on AF Form 861, *Base/Transient Job Control Number Register* or locally-approved form if it captures all AF Form 861 fields. **(T-1)**. TA Section NCOIC/Chief (or equivalent) will:

4.9.5.3.1. Assign each aircraft a single Event Identification Description (EID) for all support general work performed by TA. **(T-3)**.

4.9.5.3.2. Enter, as a minimum, "P" for park, "I" for inspect, "S" for service, "L" for launch, and "E" for EOR in the job description/remarks block. **(T-1)**.

4.9.5.3.3. Forward completed AF Form 861 for contracted TA activities to the COR monthly. **(T-2)**. The COR forwards completed forms to the applicable contracting officer managing the TA contract for inclusion in the contract file.

4.9.5.3.4. Route the AF Form 861 for non-contracted TA activities to the Maintenance Flight CC/Chief for review. **(T-1)**.

- 4.9.5.3.4.1. After review, the TA Section NCOIC/Chief will file AF Form 861 for a minimum of 1 year. **(T-2)**.
- 4.9.5.3.4.2. AF Form 861 may be used as a reference to quantify tasked performed to validate manpower and equipment requirements against current AF standards.
- 4.9.5.4. Close out support general EIDs daily. **(T-1)**.
  - 4.9.5.4.1. Use the same last four digits on subsequent days for the same aircraft.
  - 4.9.5.4.2. Use a separate EID for each discrepancy that is not support general.
- 4.9.5.5. Ensure that 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. **(T-1)**.
  - 4.9.5.5.1. The TA Section NCOIC/Chief will coordinate all required FCF requirements through owning MXG/CC, off-station TA and off-station QA sections. **(T-1)**.
  - 4.9.5.5.2. If no off-station agencies exist, owning MXG/CC and owning OG/CC will issue guidance directly to the aircraft commander and off-station maintenance personnel. **(T-1)**.
- 4.9.5.6. Supervise maintenance performed by assigned personnel on transient aircraft. **(T-1)**.
- 4.9.5.7. Maintain the appropriate TOs for aircraft that can be expected to transit the function on a regular basis. **(T-1)**.
- 4.9.5.8. Ensure personnel are trained and strictly adhere to oil sample requirements specified in the respective -6 TO. **(T-1)**.
- 4.9.5.9. Ensure personnel authorized to run engines are qualified IAW **Chapter 11** of this instruction. **(T-1)**.
  - 4.9.5.9.1. Request the aircrew to run engines if TA or maintenance personnel are not authorized.
  - 4.9.5.9.2. If qualified aircrew members are not available, contact MOC to request assistance from the home station.
- 4.9.5.10. Ensure transient aircraft status changes are reported to MOC. **(T-1)**. If support is required, the MOC notifies the home station for support.
- 4.9.5.11. Ensure EOR procedures for transient aircraft are developed IAW TO 00-20-1. **(T-1)**.
- 4.9.5.12. Ensure procedures exist for required weapons loading actions on transient aircraft, transient aircraft impulse cartridge tracking and storage, and weapons “safing” equipment requisition and maintenance for frequently transiting aircraft. **(T-1)**.
  - 4.9.5.12.1. Arming, de-arming and munitions unloading/loading operations on transient aircraft will be performed by a weapons load crew certified/qualified on the munitions and aircraft. **(T-1)**.



4.9.5.12.2. The MXG/CC may direct the WS Personnel to arm, de-arm, and unload an aircraft on which they are not certified and/or qualified, if appropriate technical data and support equipment is available.

4.9.5.12.2.1. In such cases, the aircrew shall be available for consultation on aircraft peculiarities. (T-2).

4.9.5.12.2.2. If these criteria cannot be met, request assistance from higher headquarters.

4.9.5.12.2.2. (AFRC) Send requests for assistance to HQ AFRC/A4M ([afrc.a4m@us.af.mil](mailto:afrc.a4m@us.af.mil)) (T-2).

4.9.5.13. Ensure checklists exist to ask pilots about explosive egress systems pertaining to unfamiliar aircraft that do not normally transit their base. (T-1).

4.9.5.13.1. Aircrew members remove and install flight status safety pins on aircraft when transient maintenance personnel are not qualified.

4.9.5.13.1.1. The host MXG/CC or authorized representative may delegate this responsibility to the transient aircraft commander/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. (T-3).

4.9.5.13.1.2. If TA cannot accomplish the required inspections, servicing, or repairs because of a lack of qualified personnel, facilities, or materiel (or there is no TA support available), and the transient aircraft commander does not wish to continue the flight without accomplishment of these items, the transient aircraft commander is responsible for requesting assistance through the appropriate external organizations.

**4.10. 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. 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 AFMAN 21-200.

**4.11. 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); Engine Test Stands (ETS) and Noise Suppression Systems (NSS); accessory and Quick Engine Change (QEC) repair; small gas turbine; module/accessory repair section; support equipment; and turbo-prop/turbo-shaft repair, engine PH/ISO inspections, as required. Sections may be combined or grouped at the discretion of the squadron commander. When an engine CRF is co-located with an operational wing, a MOA or MOU may be developed to clarify mutual support responsibilities. In addition, the flight will be the focal point for common propulsion support equipment, for example, flexible borescopes, engine trailers and download equipment.

4.11.1. In addition to the applicable Flight CC/Chief responsibilities in **Chapter 2** of this instruction, the Propulsion Flight CC/Chief will:

- 4.11.1.1. 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. **(T-1)**.
- 4.11.1.1.1. **(AFRC)** Forward unit Propulsion Flight CC/Chief contact information to the Command Engine Manager (CEM) in HQ AFRC/A4MS ([afrc.a4m@us.af.mil](mailto:afrc.a4m@us.af.mil)) **(T-2)**.
- 4.11.1.2. Act as the wing 2A6X1 AFSC functional manager and provide technical guidance to maintain propulsion systems to support the wing mission. **(T-2)**.
- 4.11.1.3. Coordinate with Engine Manager (EM) and organization leadership to support War Readiness Engine (WRE) requirements. **(T-1)**.
  - 4.11.1.3.1. Propulsion Flight CC/Chief will 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, OAP code (if applicable), and remarks. **(T-1)**.
- 4.11.1.4. Review production data to ensure propulsion units and components processed through the flight are repaired and functionally checked IAW TO 2-1-18, *Aircraft Engine Operating Limits and Factors*, including QEC configuration when applicable. **(T-1)**.
- 4.11.1.5. Coordinate with the EM to ensure accurate engine and equipment status reporting IAW AFI 21-103, AFMAN 20-116, AFPAM 63-129 and TO 00-25-254-1 and **Chapter 14** of this instruction. **(T-1)**.
- 4.11.1.6. Develop guidelines to comply with AF and wing OAP requirements IAW 33-series TOs and **Chapter 11** of this instruction. **(T-1)**.
- 4.11.1.7. Review/analyze all unscheduled engine or module removals and ETS rejects. **(T-1)**.
  - 4.11.1.7.1. Review/analyze major component failure trends. **(T-1)**.
- 4.11.1.8. Ensure in-shop CANN actions are accomplished IAW local procedures, **Chapter 9** and **Chapter 11** of this instruction and TO 00-20-2. **(T-1)**.
  - 4.11.1.8.1. Ensure local procedures are coordinated with Engine Management (EM) to ensure sufficient time remains on TCIs prior to CANN action approval. **(T-1)**.
- 4.11.1.9. Coordinate with base civil engineering to provide maintenance on NSS and ETS supporting structures that are categorized as real property. **(T-1)**. If the wing or squadron is a tenant, incorporate this maintenance requirement into the host-tenant support agreement. **(T-1)**.
  - 4.11.1.9.1. Ensure NSS and/or ETS repair discrepancies that exceed the base repair capability are reported in Web Applications Software Product (WASP). **(T-1)**. **Note:** Entering repair requirements into WASP establishes official repair request and ensures visibility to MAJCOM and SE Product Group Manager at WR-ALC.
- 4.11.1.10. Ensure an uninstalled engine run qualification and certification program is established IAW **Chapter 11** of this instruction. **(T-1)**.

4.11.1.10. (AFRC) Maintenance Training will develop and manage the course control documents for uninstalled engine run training (T-2). The Propulsion Flight Chief will provide SME for the development of the training (T-2). Training will be tracked in the MIS (T-2).

4.11.1.11. Ensure specialized and long life shipping devices and containers are accounted for and maintained in a serviceable condition IAW AFI 23-101 and TO 00-85-20, *Engine Shipping Instructions*. (T-1).

4.11.1.12. Ensure engines and engine components removed from crash damaged aircraft are correctly dispositioned for termination IAW 21-103 and disposed of IAW AFI 23-101. (T-1).

4.11.1.13. Ensure an engine flexible borescope certification and blade-blending certification program, for each Type, Model, Series (TMS) possessed, is established IAW [Chapter 11](#) of this instruction. (T-1).

4.11.1.13. (AFRC) Maintenance Training will develop and manage the course control documents for engine flexible bore-scope and blade blending training (T-2). The Propulsion Flight CC/Chief will provide SME input for the development of the training (T-2). Training will be tracked in the MIS (T-2).

4.11.1.14. Monitor scheduled and unscheduled engine removals to balance Propulsion Flight workload with production capability and coordinate with EM section to program engine removals for the weekly and monthly maintenance plans. (T-1).

4.11.1.14.1. Coordinate with EM to develop a 6-month plan to smooth surges in the engine maintenance workload. (T-1).

4.11.1.14.1.1. Use automated methods to develop the 6-month plan and include scheduled engine removals for TCIs, PE, TCTOs and a projected unscheduled removals factor.

4.11.1.14.1.2. Ensure Reliability-Centered Maintenance principles IAW AFMAN 20-116 are followed. (T-1).

4.11.1.15. Ensure Engine Automated Work Package (EAWP) user permissions mirror current training and certification authorizations. (T-1).

4.11.1.15.1. Ensure EAWP users use the EAWP program in lieu of a work folder to meet minimum requirements of this AFI.

4.11.1.16. Coordinate with the OAP laboratory to obtain maximum benefits from OAP data when abnormal wear-metal trends are indicated. (T-1).

4.11.1.16.1. Ensure all OAP responsibilities are performed IAW [Chapter 11](#) of this instruction. (T-1).

4.11.1.16.2. Establish procedures to monitor OAP trends. (T-1).

4.11.1.16.3. 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. (T-1).

- 4.11.1.16.4. Ensure oil samples taken at the ETS are promptly delivered to the OAP laboratory. **(T-1)**.
- 4.11.1.16.5. Act as a central point-of-contact for all abnormal OAP laboratory results. **(T-1)**.
- 4.11.1.16.6. Forward information to the OAP laboratory concerning actions taken as a result of OAP recommendations. **(T-1)**.
- 4.11.1.16.7. Review OAP response time (from sampling to receipt at the laboratory and return to the unit) to ensure processing time meets mission needs. **(T-1)**.
- 4.11.2. Support Section. The Support Section manages the flight's HAZMAT program and operates tool storage areas. DMS or designated personnel process supply requests to facilitate the issue request, tracks MICAP due-outs, monitors bench stock, conducts bench stock/adjusted stock level reviews IAW AFMAN 23-122. **(T-1)**. In addition to the applicable Section NCOIC/Chief responsibilities outlined in **Chapter 2** of this instruction, the Support Section NCOIC/Chief will:
- 4.11.2. **(AFRC)** In units where no Support Section NCOIC/Chief is authorized, the Propulsion Flight CC/Chief will ensure the responsibilities within this paragraph are accomplished within the flight **(T-2)**.
- 4.11.2.1. Ensure a flight due-out release point and holding bins are established, and Urgency of Need Designator "A" and Urgency Justification Code BQ requirements are verified. **(T-1)**.
- 4.11.3. 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 the applicable Section NCOIC/Chief responsibilities in **Chapter 2** of this instruction, the JEIM Section NCOIC/Chief will:
- 4.11.3. **(AFRC)** In units where no JEIM Section NCOIC/Chief is authorized, the Propulsion Flight CC/Chief will ensure the responsibilities within this paragraph are accomplished within the flight (as applicable) **(T-2)**.
- 4.11.3.1. Plan and monitor the progress of propulsion system maintenance production, ensuring maintenance schedules are met by anticipating materiel required and managing delays to prevent schedule disruptions to support operational requirements and maintain required WRE levels. **(T-1)**.
- 4.11.3.1.1. Report production to Propulsion Flight CC/Chief and immediately inform EM of engine status changes.
- 4.11.3.2. Ensure personnel prepare propulsion units and components for shipment and properly identify units to be returned to depot. **(T-1)**.
- 4.11.3.2.1. Attach CEMS and/or MIS paper products to life-limited components IAW 00-20-series TOs if required by the source of repair. **(T-1)**.
- 4.11.3.3. Ensure documentation of TCTO compliance IAW 00-20-series TOs. **(T-1)**.
- 4.11.3.4. Ensure CEMS and/or MIS products obtained from EM are used for all assigned engines. **(T-1)**.

- 4.11.3.4.1. CEMS and/or MIS products will list all parts and serial numbers installed on the engine. **(T-1)**.
- 4.11.3.5. Establish procedures to ensure all parts and serial numbers are inventoried when an engine is received or released by the section. **(T-1)**.
  - 4.11.3.5.1. The JEIM Section NCOIC will notify EM when a different serial numbered part is installed or changed so the automated record is updated. **(T-1)**.
  - 4.11.3.5.2. EAE is the change correction authority on Part Number/Serial Number Record updates in EAWP. **(T-1)**.
- 4.11.3.6. Ensure an engine work folder is established for each engine during PE, reconditioning, or other maintenance. **(T-1)**.
  - 4.11.3.6.1. One work order is initiated in MIS for an entire job.
    - 4.11.3.6.1.1. MIS work orders are completed during inspection, reconditioning or maintenance.
    - 4.11.3.6.1.2. Separate JCN/Work Center Event (WCE)/Work Event Separator 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.
  - 4.11.3.6.2. Establish engine work folders on all possessed engines and EM or JEIM will maintain the folders until the engine is transferred. **(T-1)**. As a minimum, engine work folders will contain the following:
    - 4.11.3.6.2.1. List of all parts, TCTOs and TCI requirements for the engine. **(T-1)**.
    - 4.11.3.6.2.2. Engine/Module/Accessories Information Worksheet. **(T-1)**. This document is used to provide a quick synopsis of maintenance accomplished. Minimum requirements will 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. **(T-1)**.
      - 4.11.3.6.2.2.1. A supervisory review of signature blocks (Crew Chief, Support Section, EM Section) to verify all repair requirements have been accomplished and are correctly documented in the work folder. **(T-1)**.
      - 4.11.3.6.2.2.2. Validation that a JCN was created by the JEIM/Module/Accessories Section or EM section and used to account for maintenance events completed in the process of repairing the engine and modules. **(T-1)**. This procedure ensures all maintenance data is documented against one JCN and engine failure information is connected to the in-shop action.
    - 4.11.3.6.2.3. Receiving Inspection Worksheet. **(T-1)**. The worksheet is used for documenting items to be accomplished by JEIM prior to engine repair. Minimum requirements will include: FOD check of engine inlet and exhaust, inspection of engine for general condition and fluid leakage, EHR/Turbine Engine Monitoring System 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. **(T-1)**.

4.11.3.6.2.4. Serially-Controlled/Time-Tracked Item Replacement Record. **(T-1)**. This document shows a list of components replaced by nomenclature, old and new part number (if applicable), and serial number.

4.11.3.6.2.5. Daily Summary Record. **(T-1)**. This document provides a synopsis of maintenance performed during each shift.

4.11.3.6.2.5.1. Each entry in the Daily Summary Record includes the Employee Number of the person who accomplished the maintenance action. For EAWP users, this process may be automated.

4.11.3.6.2.5.2. Include a sufficient reference in the summary block (such as, 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).

4.11.3.6.2.5.3. 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. **(T-1)**. Units may use a general purpose or MAJCOM/locally approved form.

4.11.3.6.2.6. IPI Worksheet. **(T-1)**. 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 (such as, Interactive Electronic Technical Manual (IETM)).

4.11.3.6.2.7. Parts Requisition Record. **(T-1)**. This document is used to list all parts (including TCIs) on order. As a minimum, this document will include the following headings: Engine/ Module/Accessory, TMS, Engine/Module/Accessory Serial Number, Nomenclature, Part Number, National Stock Number (NSN), Requisition Number, Priority, Status, and DIFM Clear with “Yes” and “No” sections. **(T-1)**.

4.11.3.6.2.8. JEIM ETS Preparation Worksheet. **(T-1)**. This worksheet contains a list of items/tasks to be accomplished by JEIM prior to sending an engine to the ETS. As a minimum, document the following:

4.11.3.6.2.8.1. Inlet and exhaust FOD inspection; any pre-run servicing required (such as, cap open lines, cannon plugs, engine intake and exhaust inspection). **(T-1)**.

4.11.3.6.2.8.2. A thorough tool inventory and an inspection for loose hardware. **(T-1)**.

4.11.3.6.2.8.3. The section supervisor will document a review of the work folder to ensure maintenance performed or required actions are documented. **(T-1)**.

4.11.3.6.2.9. ETS Pre-run Worksheet. **(T-1)**. ETS personnel will complete this document prior to an engine run. **(T-1)**.

4.11.3.6.2.9.1. As a minimum, this document will include the following headings: Engine TMS; Engine Serial Number; Engine Operating Time (EOT)/Cycles; JCN; Remarks; Pre-run Emergency Briefing Accomplished with run Supervisor's Name, Signature and Date sections; and Inspection with Area, Employee Number, and Date sections. **(T-1)**.

4.11.3.6.2.9.2. 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 Complied With (C/W); Engine Servicing Check; all preliminary engine installation and run requirements C/W; and, serviceable fire extinguisher on hand. **(T-1)**.

4.11.3.6.2.9.2.1. Each area inspection will have the performing technician's employee number and date accomplished annotated. **(T-1)**.

4.11.3.6.2.10. ETS Post Run Worksheet. **(T-1)**. This document is used to document items/tasks accomplished by ETS personnel after engine run.

4.11.3.6.2.10.1. As a minimum, this document will include the following headings: Engine TMS; Engine Serial Number; EOT/Cycles; JCN; Maintenance Actions Performed; ETS Supervisors Post-run Review with Name, Signature and Date; and Area Inspections, Employee Number and Date. **(T-1)**.

4.11.3.6.2.10.2. 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*, annotate: 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; ETS Discrepancies Cleared; 7-Level Inspection of Components Replaced or Disconnected; and Final Leak Check. **(T-1)**.

4.11.3.6.2.10.3. ETS personnel will leak-check items not accessible with the engine installed in or on the aircraft prior to leaving ETS. **(T-1)**.

4.11.3.6.2.10.4. Each area inspection will have the performing technician's employee number and date accomplished annotated. **(T-1)**.

4.11.3.6.2.11. Final Inspection Worksheet. **(T-1)**. This document is used to document JEIM requirements after repair or testing has been completed.

4.11.3.6.2.11.1. As a minimum, this worksheet will include: 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 ETS); attaching AFTO Form 350 and/or serviceable tag to engine, ensure supply accounts and MIS entries have been cleared. **(T-1)**.

4.11.3.6.2.12. Borescope Worksheets. **(T-1)**. Borescope inspection worksheets will be used for engines requiring borescope documentation. **(T-1)**.

4.11.3.6.2.13. Uninstalled Engine/Module Blade Blending/FOD Damage Worksheet. **(T-1)**. This worksheet is used to document blade blending/FOD damage for uninstalled engines/modules. As a minimum, this worksheet will include: Engine/Module Serial Number, Date, Discrepancy, Stage and Corrective Action including number of blades blended, depth of damage before and after blend, area of damage and Employee Number. **(T-1)**.

4.11.3.6.2.14. Reliability Centered Maintenance Worksheets (if applicable). **(T-2)**.

4.11.3.6.2.14.1. For JEIM engine builds, a copy of the “Reliability Centered Maintenance Build Options” and “Reliability Centered Maintenance Calculator Summary” worksheets are maintained in the engine work folder or EAWP for documenting life-limited component engine build recommendations.

4.11.3.6.2.14.1.1. Utilize Reliability Centered Maintenance calculator software accessed through CEMS prior to engine build.

4.11.3.6.2.14.1.2. The sheets are required only if life-limited components (excluding LRU) are removed and replaced during the JEIM engine build and the TMS engine is available in the Reliability Centered Maintenance Calculator. The calculator is not used for engines which do not have the calculator developed.

4.11.3.6.2.15. Worksheets that document engine historical information, critical maintenance management stages, and employee numbers of technicians and supervisors completing maintenance and inspections.

4.11.3.6.2.15.1. Supplement work folders and worksheets to fit unit needs.

4.11.3.6.2.15.2. Flights may use computer-generated products, provided they include all required information. If TMS has an established EAWP, it will be utilized. **(T-1)**.

4.11.3.6.2.15.2.1. EAWP users will ensure all maintenance discrepancies are documented in the system’s appropriate discrepancy block. **(T-1)**.

4.11.3.7. Ensure MICAPs are processed in Enterprise Solution-Supply; ensure all pertinent data is included. **(T-1)**.

4.11.3.8. Upgrade, downgrade and cancel MICAP requirements. **(T-1)**.

4.11.4. Noise Suppression Systems (NSS) and Engine Test Stands (ETS) Section. Tests engines to evaluate the quality of maintenance, engine performance, and accomplish engine preservation including engines installed on aircraft in coordination with owning squadron. In addition to the applicable Section NCOIC/Chief responsibilities outlined in [Chapter 2](#) of this instruction, the NSS and ETS Section NCOIC/Chief will:

4.11.4. **(AFRC)** In units where no NSS and ETS Section NCOIC/Chief is authorized, the Propulsion Flight CC/Chief will ensure the responsibilities within this paragraph are accomplished within the flight (as applicable) **(T-2)**.



4.11.4.1. Assign primary and alternate WASP custodians to perform -107 engineering support request and status updates in WASP for WR-ALC-managed NSSs and ETSs. **(T-1)**.

4.11.4.2. Monitor repair activity and ensure reporting and status updates are timely, accurate and kept current in WASP. **(T-1)**.

4.11.4.3. Ensure NSS and ETS personnel accomplish minor maintenance, make adjustments to engines, and document engine condition. **(T-1)**.

4.11.4.3.1. Ensures ETS components are calibrated on site, if practical. **(T-1)**.

4.11.4.4. Brief maintenance personnel on NSS/ETS operating/emergency procedures. **(T-1)**.

4.11.4.5. Handle and report halon releases IAW AFMAN 32-7002. **(T-1)**.

4.11.5. 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* (if applicable).

4.11.5. **(AFRC)** In units where no Module/Accessory/Repair Section is authorized, the Propulsion Flight CC/Chief will ensure the responsibilities within this paragraph are accomplished within the flight (as applicable) **(T-2)**.

4.11.6. Small Gas Turbine Engine Section. Repairs and maintains small gas turbines used in aircraft. In addition to applicable Section NCOIC/Chief responsibilities outlined in **Chapter 2** of this instruction, the Small Gas Turbine Engine Section NCOIC/Chief will ensure personnel are qualified to operate small gas turbine engines and test stands. **(T-1)**.

4.11.6. **(AFRC)** In units where no Small Gas Turbine Engine Section is authorized, the Propulsion Flight CC/Chief will ensure the responsibilities within this paragraph are accomplished within the flight (as applicable) **(T-2)**.

4.11.7. Engine Equipment Maintenance Section. Maintains, manages, and stores engine support and removal/installation/transportation equipment and trailers. The Engine Equipment Maintenance Section NCOIC/Chief will:

4.11.7. **(AFRC)** In units where no Engine Equipment Maintenance Section is authorized, the Propulsion Flight CC/Chief will ensure the responsibilities within this paragraph are accomplished within the flight (as applicable) **(T-2)**.

4.11.7.1. Ensure engine removal/installation/transportation trailers and adapters status is properly reported IAW AFI 21-103 and MAJCOM supplements. **(T-1)**.

4.11.7.2. Track and schedule all inspections and maintenance, removal, installation, transportation trailers and adapters in the MIS. **(T-1)**.

4.11.7.3. Ensure equipment forms and MIS documentation are complete, accurate, and accomplished for all maintenance and scheduled inspections. **(T-1)**.

4.11.7.4. Ensure status is accurately reflected in both the maintenance forms and the MIS. (T-1).

4.11.8. Propeller Section. Repairs, builds up, tears down, inspects, tests, and modifies propellers, valve housings, pump housings, and associated components.

4.11.8. (AFRC) In units where no Propeller Section is authorized, the Propulsion Flight CC/Chief will ensure the responsibilities within this paragraph are accomplished within the flight (as applicable) (T-2).

4.11.9. Quick Engine Change (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.

4.11.9.1. In addition to repair cycle procedures outlined in **Chapter 9** in this instruction, the technician removing a QEC kit item from an engine will complete an AFTO Form 350, enters the reason for removal in Block 14, and annotates the QEC kit inventory for each repairable item. (T-1).

4.11.9.2. Technicians will complete the AF Form 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. (T-1).

4.11.9.2.1. If TO requirements restrict reuse of items, the technician will mark the AF Form 596 with an asterisk to show a demand has been placed on supply. (T-1).

**4.12. Test, Measurement, and Diagnostic Equipment (TMDE) Flight.** 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 GSU. TMDE Flight ensures Calibration, certification and maintenance of TMDE is accomplished IAW AFMAN 21-113, TO 00-20-14, TO 33K-1-100-1, *Calibration Procedure for Maintenance Data Collection Codes and Calibration Measurement Summaries*. A Rapid Assistance Support for Calibration may also be assigned.

**4.12. (AFRC) Test, Measurement, and Diagnostic Equipment (TMDE) Flight.** Refer to **Chapter 8** for AFRC TMDE procedures (T-2).

4.12.1. In addition to applicable Flight CC/Chief responsibilities in **Chapter 2** of this instruction, the TMDE Flight Chief (referred to as “PMEL Manager” in AFMAN 21-113 and TO 00-20-14) will:

4.12.1.1. Establish a PMEL Quality Assurance Section IAW AFMAN 21-113 and TO 00-20-14. (T-1).

4.12.1.2. Publish a monthly PMEL Activity Summary and route it through the Operations Officer/MX SUPT to the SQ/CC (or organizational equivalent). (T-2).

4.12.1.2.1. The report format shall comply with TO 00-20-14 and meet local requirements. (T-2).

4.12.1.3. Ensure all Groups with TMDE Flights assigned include the TMDE Quality Program Activity Summary in the QA monthly summary IAW **Chapter 6** of this instruction. **(T-2)**.

4.12.2. Establish a Production Control Section IAW AFMAN 21-113. **(T-1)**. The Production Control Section will:

4.12.2.1. Ensure TMDE monitors are properly trained and maintain a database or log to track training events (dates, names, organizations). **(T-3)**.

4.12.2.2. TMDE will be scheduled using one of the three following categories:

4.12.2.2.1. EMERGENCY Calibration or Repair: TMDE that is inoperable or due calibration and for which a critical job is at a work stoppage.

4.12.2.2.1.1. A letter of justification signed by the Owing Work Center (OWC) Maintenance Operations Officer /Maintenance Superintendent must accompany the TMDE. **(T-3)**. The letter may be handwritten to prevent delay. Telephone verification between the OWC and PMEL is encouraged.

4.12.2.2.1.2. PMEL must accept emergency TMDE at any time. **(T-2)**. Immediate and continuous repair action is required until repair/calibration is completed or status of the item changes (such as, AWP, deferred for lack of standards or technical data).

4.12.2.2.2. MISSION ESSENTIAL Calibration or Repair: TMDE that is part of a unit's deployment package, is critical to daily peacetime operations, or TMDE assets falling below critical availability levels.

4.12.2.2.2.1. A letter of justification signed by the OWC Flight CC/Chief or equivalent will accompany the TMDE unless pre-identified by OWC Flight CC/Chief and approved by TMDE Flight Chief or delegated approval authority. **(T-3)**.

4.12.2.2.2.2. 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. **(T-3)**.

4.12.2.2.3. 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. **(T-3)**.

## Chapter 5

### MAINTENANCE OPERATIONS (MXO).

**5.1. General.** MXO is directly responsible to the MXG/CC for the administration, analysis, training management of assigned personnel, and programs and resources necessary to support the group's production effort. MXO is comprised of the following sections: EM, PS&D, MMA, MOC, MT, and Programs and Resources (P&R). In missile organizations, MXO will be organized as a Maintenance Operations Squadron, as applicable. For the purposes of this instruction, the term MXO is equivalent with Maintenance Operations Flight for ANG units.

**5.2. Maintenance Operations.** MXO is the central agency for monitoring and developing long-range strategies of fleet management 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 operations schedule execution. It is a disciplined and prioritized scheduling effort that optimizes support to aircraft requirements such as flying/operational events, ground training events, scheduled maintenance inspections, aircraft/system configuration control, aircraft/system modification schedules and aircraft/system recovery maintenance. Effective fleet management results in consistent availability of quality aircraft/systems to meet operational requirements. The Maintenance Operations Superintendent position will be filled by SNCO 2RXXX personnel. **(T-2)**.

5.2.1. Maintenance Operations Officer-in-Charge/Superintendent (OIC/SUPT). In addition to the applicable Flight CC/SUPT responsibilities in **Chapter 2** of this instruction, the MXO OIC/SUPT will:

5.2.1.1. Develop and publish the wing operations/maintenance schedule in coordination with other squadrons and submit to both the OG/CC and MXG/CC for approval. **(T-1)**.

5.2.1.2. Determine long-range fleet health maintenance priorities. **(T-1)**.

5.2.1.3. Manage the data collection process, review data and verify analysis for maintenance data collection requirements. **(T-1)**.

5.2.1.4. Evaluate and provide trend analysis information to the MXG/CC and SQ/CCs. **(T-1)**.

5.2.1.5. Ensure aircraft status is properly reported and maintained IAW AFI 21-103. **(T-1)**.

5.2.1.5.1. Coordinate with the PS&D Aerospace Vehicle Distribution Officer (AVDO) to ensure all assignment and possession changes are accurately reported to the MAJCOM AVDO IAW AFI 21-103 and AFI 16-402, *Aerospace Vehicle Programming, Assignment, Distribution, Accounting, and Termination*. **(T-1)**.

5.2.1.6. Initiate, review, and validate special analysis studies. **(T-1)**. MXO OIC/SUPT will:

5.2.1.6.1. Determine planning factors for the next year's flying hour program. **(T-1)**.

5.2.1.6.2. Ensure the MxCAP2 model or equivalent is utilized for the assigned MDS, if available. **(T-1)**.

5.2.1.7. 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). **(T-1)**.

5.2.1.8. IMDS units will use code “XXXX,” and G081 units will use “CCCC” for classified locations. **(T-1)**.

5.2.1.8.1. The MXO OIC/SUPT will ensure any deploying unit loads all equipment into the IMDS-CDB Aerospace Expeditionary Force subsystem (G081 units are exempt). **(T-1)**.

5.2.1.9. Host DFTs/CFTs, provide in-briefs on unit-specific maintenance and tool-control requirements, review plans, coordinate/monitor status of aircraft and progress of repair work. **(T-1)**.

5.2.1.10. Participate in the review of base level repair capability IAW TO 00-20-3, AFREP in [Chapter 11](#) of this AFI, and supplements. **(T-1)**.

5.2.1.11. Publish wing notification requirements for munitions-loaded or unloaded aircraft. **(T-2)**.

5.2.1.12. Establish/sustain local radio call signs for maintenance LMR networks IAW AFI 17-210, Radio Management. **(T-1)**.

5.2.1.13. Develop a training plan for individuals assigned to QA that will inspect MXO functions. Minimum training requirements will include, MIS (G081/IMDS/or equivalent) online and background products for inspections, time changes, TCTOs, and aircraft configuration management. **(T-1)**. For units with IMDS, the QA inspector will be trained on the use of DS Maintenance Scheduling Module (MSM) to provide the capability for a qualified QA inspectors to evaluate and report PS&D compliance with functional requirements. **(T-2)**. The senior 2R in the MOC will provide assistance to the inspector as required. **(T-2)**.

5.2.1.14. Ensure MAJCOM Master Course Listing includes 2R weapon system familiarization courses requirements. **(T-1)**.

5.2.1.14.1. As a minimum, the course will include weapon system/communications electronics familiarization, flightline and shop operations, organizational structure and roles of each group, squadron, and flight. **(T-1)**.

5.2.1.14.2. Analysts will attend the course within 6 months of assignment to the unit. **(T-1)**.

5.2.1.14.3. For remote assignments, analysts will attend within 1 month of assignment. **(T-1)**.

5.2.1.14.4. For ARC, analysts will attend the course within 6 months of assignment to the unit. **(T-1)**.

5.2.2. Maintenance Operations Center (MOC). The MOC monitors and coordinates sortie generation, maintenance production, and execution of the operations and maintenance schedules while maintaining visibility of fleet health indicators. Through coordination with maintenance units, the MOC communicates priorities for competing limited resources (such

as, fuel or calibration docks, wash racks, and dispatched specialists from the maintenance squadron(s) (for example, egress) based on daily operations 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. **(T-1)**.

5.2.2.1. The MOC will:

5.2.2.1.1. Monitor the status of aircraft/systems, as directed, (through the use of electronic or manual visual aids) including ETIC, progress of FCFs, and location of each aircraft on station. **(T-1)**.

5.2.2.1.1.1. **(Added-AFRC)** MOC will ensure status is updated within 30 minutes of aircraft status change (does not include MDC) with the EXCEPTION of jobs created during major scheduled inspections (e.g., ISO and Refurb, etc.) and off station jobs **(T-2)**.

5.2.2.1.2. Track contingency and exercise aircraft generation activities. **(T-1)**.

5.2.2.1.2.1. Maintain and update aircraft generation line up and display aircraft status using AF Form 2408, *Generation Maintenance Plan* and AF Form 2409, *Generation Sequence Action Schedule* or locally computer generated equivalents. **(T-2)**. **Note:** If the tail number, mission number or specifically tasked no-later-than times are linked, this form becomes classified. See AFI 16-1404.

5.2.2.1.2.2. Monitor and report aircraft generation progress with a minimum of the following information: ETIC, location of each aircraft, status of generation actions, progress against timeline necessary to meet mission requirements. **(T-2)**. **Note:** The display format should be compatible with OPLANS and command post displays.

5.2.2.1.3. Utilize the Enhanced Maintenance Operations Center. **(T-1)**.

5.2.2.1.4. Track aircraft maintained or supported by the unit but not on station. (Aircraft cross-country). **(T-1)**.

5.2.2.1.5. Coordinate maintenance on the alert force, if applicable. **(T-1)**.

5.2.2.1.6. Ensure status boards depict aircraft status and location comply with Security Program guidelines. **(T-1)**.

5.2.2.1.7. Monitor the status and ETIC of MEL-designated AGE if it falls below critical levels. **(T-1)**.

5.2.2.1.8. Monitor the status of ECM and sensor pods IAW AFI 10-201, *Force Readiness Reporting*. **(T-1)**.

5.2.2.1.8.1. When MC pod availability falls below requirements per the DOC or OPLAN, the MOC will track/monitor the following information: pod serial number, status (AWP/Awaiting Maintenance (AWM)), MICAP NSN, off-base requisition numbers, and ETIC. **(T-1)**.

5.2.2.1.9. Classify information IAW AFI17-130, *Cybersecurity Program Management*.

5.2.2.1.10. Verify aircraft status and ETICs with the Pro Super(s) and ensure they are properly documented in the MIS IAW AFI 21-103, **(T-1)**. Reference AFCSM, 21-564, Vol 2, *Status and Inventory Reporting Software User Manual* or equivalent MIS guidance.

5.2.2.1.10.1. When the Production Superintendent (Pro-Super) or equivalent notifies the Maintenance Operations Center (MOC) that an aircraft is “Crew Ready” the MOC will review the Maintenance Information Systems (MIS) for each Crew Ready aircraft to ensure there are no open Red Xs. **(T-1)**. If open Red X(s) are present in the MIS, the MOC will notify the Pro-super or equivalent for action. **(T-1)**.

5.2.2.1.11. The MOC will verify aircraft status using the MIS and ETIC before reporting it. **(T-1)**.

5.2.2.1.12. Inform affected activities of changes in priorities, plans, and schedules. **(T-1)**.

5.2.2.1.13. Coordinate on changes to the operations schedule with applicable agencies by use of AF Form 2407. **(T-1)**.

5.2.2.1.13.1. **(Added-AFRC)** MOC will track both flying schedule deviations and scheduled maintenance event deviations from the weekly flying schedule and forward results to MMA and PS&D **(T-2)**. The AFRC Form 303, *Operational and Maintenance Scheduling Report*, or equivalent automated product, will be completed by MOC and forward weekly to MMA and PS&D **(T-2)**. See **Attachment 13** for deviation codes and definitions.

5.2.2.1.13.2. **(Added-AFRC)** For CAF, AFSOC, AFGSC units, MOC will review the online IMDS debriefed sortie recap and the IMDS background program daily; Accomplishment Utilization Report, Deviation Detail Listing and Deviation Summary Reports and uncompleted operational events to ensure accuracy of deviation reporting **(T-2)**.

5.2.2.1.14. Ensure all deviations to the daily operations schedule are reviewed and accurately reported. **(T-1)**.

5.2.2.1.14.1. Forward a copy of each AF Form 2407 and the daily flying schedule, with all annotated deviations, to MMA. **(T-1)**.

5.2.2.1.15. Request support services outside the scope of the MXG (such as, standby firefighting capability, aircraft water, snow removal, fueling and defueling service, civil engineer support, or control tower clearances for ground movement of aircraft and equipment). **(T-1)**.

5.2.2.1.15.1. Coordinate on all aircraft engine runs and all aircraft ground movements conducted by maintenance personnel prior to execution. **(T-1)**.

5.2.2.1.15.2. **(Added-AFRC)** Maintain an engine run log consisting of personnel name(s), date, and aircraft tail number for engine run tracking. The log will be maintained per records management rules **(T-2)**.

5.2.2.1.16. Develop, coordinate, implement, and maintain functional and emergency action checklists. **(T-1)**.

5.2.2.1.16.1. Functional checklists are required for use during actions such as nuclear mass loads, Broken Arrow, Dull Swords, Bent Spear, aircraft crash/mishap/incident, aircraft FOD, aircraft damage, flightline fire, severe weather warning or evacuation, runway closure, hazardous chemical release (example, Hydrazine, Broken Pod Glass release of Thorium Fluoride or Americium), Quick Reaction Checklists, injuries resulting from aircraft maintenance and any other unusual circumstances deemed necessary.

5.2.2.1.16.1. **(AFRC)** Maintain a current copy of the on-base disaster map with cordon overlay **(T-2)**.

5.2.2.1.16.2. For OPLAN 8010 notification, use the plan implementation checklists.

5.2.2.1.16.3. Use unit OPLANs as a guide in developing these checklists.

5.2.2.1.16.4. Checklists contain those actions required to be taken by functional area(s).

5.2.2.1.16.5. The MOC will maintain checklists that implement all approved MAJCOM and local requirements. **(T-2)**.

5.2.2.1.16.6. Establish a command/contingency focal point to coordinate ABDR and or Joint Combat Assessment Team (JCAT) response requests with AFMC. **(T-1)**. **Note:** If data collection forms are required forms will be forwarded to the Aircraft Battle Damage Repair (ABDR) Technical Support Office (TSO) and JCAT. **(T-1)**. For ABDR TSO, CLASSIFIED messages must be sent to: [usaf.wright-patt.afsc-lg.mbx.afsc-lgpm-abdr-tso@mail.smil.mil](mailto:usaf.wright-patt.afsc-lg.mbx.afsc-lgpm-abdr-tso@mail.smil.mil) \_\_\_\_\_ and UNCLASSIFIED messages must be sent to NIPR: [afsc.lgpm.abdrtsso@us.af.mil](mailto:afsc.lgpm.abdrtsso@us.af.mil) for filing in the historical archives. For JCAT, CLASSIFIED data must be submitted via the Intellopedia Secret Internet Protocol Router Network (SIPRNET) link

[https://www.intellipedia.intelink.sgov.gov/wiki/Portal:Joint\\_Combat\\_Assessment\\_Team](https://www.intellipedia.intelink.sgov.gov/wiki/Portal:Joint_Combat_Assessment_Team). UNCLASSIFIED data can sent to: JCAT ([JCAT@us.af.mil](mailto:JCAT@us.af.mil)).

5.2.2.1.17. Coordinate munitions delivery priorities with flying units and munitions maintenance activities, and control when tasked. **(T-1)**.

5.2.2.1.17.1. Maintain a contact list and notify the base Fire Emergency Services and all applicable agencies that require notification of munitions-loaded or unloaded aircraft. **(T-2)**.

5.2.2.1.17.1. **(AFRC)** Publish notification procedures in MOC functional checklists **(T-2)**.

5.2.2.1.17.1.1. The MOC will provide agencies with the aircraft type, tail number, location, type of explosives, and arming status. **(T-1)**.



- 5.2.2.1.18. Upon notification of deployments, ensure all deploying equipment is identified and loaded into the IMDS-CDB, Aerospace Expeditionary Force subsystem or designated MIS equivalent for the duration of the deployment. **(T-1)**.
- 5.2.2.1.19. Monitor and manage reporting of Hangar Queen aircraft/systems IAW **Chapter 11** of this instruction. **(T-1)**.
- 5.2.2.1.20. Notify Flightline Expeditors of OAP code “C” and “E” conditions. **(T-1)**.
- 5.2.2.1.21. Ensure facilities and visual aids meet the following minimum standards:
- 5.2.2.1.21.1. A completely enclosed room with air conditioning and heating. **(T-1)**.
    - 5.2.2.1.21.1.1. An observation room is permitted.
      - 5.2.2.1.21.1.1.1. Doors to the MOC and the observation room will be either mechanically or electrically locked to control access. **(T-1)**.
    - 5.2.2.1.21.1.2. Isolate MOC electrical power circuits and provide a standby power source and emergency lighting. **(T-1)**.
      - 5.2.2.1.21.1.2.1. The MOC will establish procedures to operate standby power sources. **(T-1)**.
- 5.2.2.1.22. Maintain the status and location of all transient aircraft. **(T-1)**.
- 5.2.2.1.22.1. Post the priority of each transient aircraft on the status board, based on the maintenance priorities listed in **Table 1.2** **(T-1)**.
  - 5.2.2.1.22.2. Coordinate with the appropriate agency for aircraft maintenance support. **(T-1)**.
  - 5.2.2.1.22.3. Contact WS for arming or de-arming of transient aircraft IAW **Chapter 11** of this instruction. **(T-1)**.
- 5.2.2.1.23. **(Added-AFRC)** Manage MOC duties per Oil Analysis Program **paragraph 11.38**. **(T-2)**.
- 5.2.2.2. MOC Maintenance Communications. Reliable, redundant and effective communications systems are essential for efficient operation. Communications equipment will be operated and managed IAW AFI 17-210, AFI 17-220, *Spectrum Management*, and AFI 17-130. The MOC NCOIC/SUPT will:
- 5.2.2.2.1. Establish a procedure to process requests for specific radio equipment to support MXG maintenance activities IAW AFMAN 23-122. **(T-1)**.
    - 5.2.2.2.1.1. Specific radio allowances are stated in Allowance Standard 660 at <https://earms.wpafb.af.mil/SITES/ASRS/HOME.ASP>.
  - 5.2.2.2.2. Ensure a Very High Frequency (VHF)/Ultra High Frequency (UHF)/ High Frequency (HF) radio is authorized and available to provide communications between aircraft and maintenance. **(T-1)**.
  - 5.2.2.2.3. Ensure the MOC has a hotline on the secondary crash phone net. **(T-1)**.
    - 5.2.2.2.3.1. 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. **(T-1)**.

- 5.2.2.2.4. Develop and exercise comm-out procedures to include loss of radios, Local Area Network (LAN) and phone. **(T-2)**.
- 5.2.2.2.5. Ensure MOC personnel receive initial radio operating training before assuming duties involving radio operations IAW AFI 17-210 and **Chapter 11** of this instruction. **(T-1)**.
- 5.2.2.2.6. **(Added-AFRC)** Maintain central key control for MXG facilities **(T-2)**.
- 5.2.3. Engine Management. EM manages unit efforts to maintain adequate engine support for mission requirements by monitoring engine removals and replacements, component tracking, engine TCTOs and TCIs, engine records in the MIS and CEMS; and perform Engine Manager duties. Functions supporting EM shall be combined within the wing and physically co-locate with the Propulsion Flight. **(T-2)**. The SRAN Engine Manager works and is co-located with the EM section. **(T-2)**.
- 5.2.3.1. Specific EM responsibilities are detailed AFMAN 20-116, AFPAM 63-129, TO 00-25-254-1, -2 and **Chapter 14** of this instruction.
- 5.2.4. Plans, Scheduling, and Documentation (PS&D). 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.
- 5.2.4.1. Specific PS&D responsibilities are detailed in **Chapter 14** of this instruction.
- 5.2.4.2. **(Added-AFRC)** Forward PS&D contact information to AVDO workflow (**A4.MM.AVDO@us.af.mil**) **(T-2)**.
- 5.2.5. Maintenance Management Analysis (MMA). MMA tracks, analyzes, and presents information to help senior leadership assess the health of the units' weapon systems and equipment. MMA acts as the group POC for MIS issues and performs analyses to assess and improve unit performance (such as, 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.
- 5.2.5. **(AFRC)** Forward MMA contact information to AVDO workflow (**A4.MM.AVDO@us.af.mil**) **(T-2)**.
- 5.2.5.1. MMA will:
- 5.2.5.1.1. Be centrally organized but may locate analysts in the squadron to enable maximum responsiveness and effectiveness. **(T-2)**.
- 5.2.5.1.1.1. When analysts are located in the squadron, they will still work directly for the MMA Section NCOIC/Chief who will provide their training and monitor the quality/relevancy of their workload. **(T-2)**.
- 5.2.5.1.2. Provide information on analysis services and capabilities to units and supervision. **(T-1)**.
- 5.2.5.1.2.1. Work with MTS and/or FTD for opportunities to provide training on analysis services and capabilities (example, Mx Orientation, DCC Course). **(T-2)**.

- 5.2.5.1.2.2. Conduct and document quarterly visits to maintenance work centers and provide information on analysis services and capabilities IAW MAJCOM guidance. **(T-2)**.
- 5.2.5.1.3. Calculate maintenance metrics and compare unit performance against MAJCOM and locally developed goals (if applicable). **(T-1)**.
- 5.2.5.1.4. Develop products to track, monitor and identify seasonal and cyclical trends at the group, squadron and AMU/HMU level for:
  - 5.2.5.1.4.1. MAJCOM reportable leading and lagging indicators. **(T-2)**.
  - 5.2.5.1.4.2. MAJCOM reportable indicators at the WUC/LCN system level (such as, break rate for landing gear system). **(T-2)**.
- 5.2.5.1.5. Review data for anomalies, variations and trends to identify areas requiring further study. **(T-1)**.
  - 5.2.5.1.5.1. When significant seasonal or cyclical trends are identified in leading or lagging indicators or their systems, accomplish and document further analysis. **(T-2)**.
    - 5.2.5.1.5.1.1. **(AFRC) Note:** Refer to **Attachment 11** for attrition and spares factors.
      - 5.2.5.1.5.1.1.1. Provide presentations, reports, studies/analyses and briefings as requested or deemed appropriate. **(T-2)**.
    - 5.2.5.1.5.2. Units with AMU/HMUs that have like MDSs will compare and contrast metrics to identify significant variation. **(T-2)**.
      - 5.2.5.1.5.2.1. When significant variation is identified, accomplish and document further analysis. **(T-2)**.
      - 5.2.5.1.5.2.2. Provide presentations, reports, studies, analyses and briefings as requested or deemed appropriate. **(T-2)**.
  - 5.2.5.1.6. Monitor wing, group, squadron, and AMU/HMU utilization rates. **(T-2)**.
    - 5.2.5.1.6.1. When operational requirements are not achieved, perform and document an investigation to determine if assignable causes are present. Recommend corrective actions or measures when necessary. **(T-2)**.
  - 5.2.5.1.7. Assist unit leaders with the application and interpretation of maintenance data. **(T-1)**.
  - 5.2.5.1.8. Coordinate with PS&D and unit's Maintenance Supervision to provide monthly airframe, facility and personnel capabilities (as required), attrition, and spare factors for use in planning the annual FHP. **(T-1)**.
    - 5.2.5.1.8.1. MAJCOMs will publish attrition and spare factors computations in a supplement to this instruction reference TO 00-20-2.
      - 5.2.5.1.8.1.1. MMA will use MAJCOM supplement guidance to calculate attrition and spare factor computations. **(T-1)**.
      - 5.2.5.1.8.1.2. MMA will provide required data to populate the MxCAP2

model, when used. **(T-1)**.

5.2.5.1.9. Analyze equipment performance trends to identify problems affecting the unit mission and, whenever possible, provide predictive analytical information with recommendations to unit's Maintenance Supervision. **(T-1)**.

5.2.5.1.10. Verify accuracy of Job Data Documentation (JDD), flying schedule deviations, aircraft status and utilization within the MIS. **(T-2)**.

5.2.5.1.10.1. Validate data entered into the MIS as part of daily analysis duties and inform affected agencies of discrepancies. **(T-1)**.

5.2.5.1.10.2. Identify erroneous or missing data to the responsible agency for correction or completion. **(T-1)**.

5.2.5.1.11. Control the assignment of unit work center and mnemonic codes. **(T-1)**.

5.2.5.1.11.1. Coordinate with P&R, MTS or responsible agency on the assignment of alphanumeric and work center codes. **(T-1)**.

5.2.5.1.11.2. Publish written guidance to control these codes when not provided by higher headquarters. Multiple mnemonic codes may be used within a work center code to accommodate different AFSCs assigned. **(T-1)**.

5.2.5.1.11.3. Coordinate new or revised mnemonic codes with affected activities for planning purposes. **(T-1)**.

5.2.5.1.12. Be responsible for MIS database management. **(T-1)**.

5.2.5.1.13. Assists MIS users in developing procedures for collecting information from deployments and exercises where the MIS is not available. **(T-1)**.

5.2.5.1.14. **(Added-AFRC)** Report Monthly Maintenance Performance Indicators Reports (Part I, Part I Comments, Monthly Maintenance Summary) to HQ AFRC/A4M ([afrc.a4m@us.af.mil](mailto:afrc.a4m@us.af.mil)) **(T-2)**. Compute capabilities IAW **Attachment 9 (T-2)**.

5.2.5.1.14.1. **(Added-AFRC)** Each wing/unit has a Part I and Comment report template specifically designed for its MDS(s) and reporting requirements. Use of the templates is mandatory **(T-2)**. The Part I and Comment templates will be obtained from the HQ AFRC/A4MZ Maintenance Analysis Branch ([afrc.a4m@us.af.mil](mailto:afrc.a4m@us.af.mil)) **(T-2)**.

5.2.5.1.14.2. **(Added-AFRC)** PART I. The Part I report is manually inputted. All areas identified in light blue on the AFRC Template will automatically be calculated. The remaining cells require manual inputs to include the name, rank, and telephone number of the unit POC responsible for report preparation on the Cover Page.

5.2.5.1.14.3. **(Added-AFRC)** COMMENTS. Provide explanations for all indicators not meeting HQ/AFRC standards or goals, per MDS for the previous month **(T-2)**. Unit's comments provide background information for briefings to the HQ AFRC/A4 and to the Weapons System Teams (WST). Therefore, quality, in-depth remarks are required **(T-2)**. Provide explanations for the unit's cumulative data. **(T-2)**. Combine all the comments into one narrative for each labeled metric

**(T-2).** Comments must be entered in the appropriate block (COMMENTS) of the report template **(T-2)**.

5.2.5.1.14.3.1. **(Added-AFRC)** Specific Template Guidance Comments. Provide explanations for all missed indicators each month **(T-2)**. Comments are not complete unless it covers the Who, What, When, Where, Why, and How of the indicator. Comments must provide important details explaining why an item drove unit performance **(T-2)**. Utilize raw data to emphasize a point rather than reiterating information already available in Part I **(T-2)**.

5.2.5.1.14.3.2. **(Added-AFRC)** When possible, quantify an issue or event's impact on mission capability, (e.g., one-time inspection reduced aircraft availability by 10%) **(T-2)**. Although the statement "No Trends Noted" is completely valid, do not use it lightly. Avoid using individual aircraft unless used to quantify specific problems.

5.2.5.1.14.3.3. **(Added-AFRC)** The unit report should include comments from maintenance management/sortie production personnel, (i.e., Maintenance Group/Deputy Group Commander, Maintenance Operations, AMXS Commander and Maintenance Supervision) **(T-2)**.

5.2.5.1.14.4. **(Added-AFRC)** Monthly Maintenance Summary. The Monthly Maintenance Summary is designed to be a senior leader analysis of major issues/factors that are affecting the unit health. See [Attachment 8](#) for HQ AFRC mandatory data fields and algorithms.

5.2.5.1.14.5. **(Added-AFRC)** Frequency of Reporting. The Part I and Comments report is submitted to AFRC/A4M SharePoint. Upload the Part I and Narratives NLT 1400 EST by the tenth calendar day following the month being reported and Monthly Maintenance Summary by 1400 EST by the twentieth **(T-2)**. Units will inform HQ AFRC/A4MM as soon as they are aware of any situation that may cause a late submittal **(T-2)**.

5.2.5.2. In addition to the applicable Section NCOIC/Chief responsibilities outlined in [Chapter 2](#) of this instruction, the MMA Section NCOIC/Supervisor will:

5.2.5.2.1. Ensure growth of analysis personnel by developing and maintaining a plan to rotate personnel through different sections within MMA. Allow sufficient time for them to become proficient and provide continuity. **(T-2)**.

5.2.5.2.2. Define the daily, weekly, monthly and annual roles and responsibilities for each function within MMA. Can be delegated to the function NCOIC. **(T-2)**.

5.2.5.2.3. Ensure the CFM approved AFSC duty titles are utilized for all MMA personnel. **(T-1)**.

5.2.5.3. Maintenance Information Systems (MIS). For management of IMDS-CDB, G081, and Reliability and Maintainability Information System (REMIS), follow AFCSM 21-556, Vol 2, *Intro to IMDS CDB*, MAJCOM/Lead Command guidance, unit procedures, and REMIS user manuals. Personal computers and software used as "stand-alone" systems are not considered MIS.

5.2.5.3.1. Request to modify/create new functionality within IMDS-CDB IAW AFCSM 21-556V2. (T-1). G081 units will submit a System Change Request for any new requirements or corrections to existing features. (T-1).

5.2.5.3.2. Database Manager (DBM) will identify functions that require subsystem monitors and provide applicable training to those responsible for ensuring the accuracy/sustainment of their subsystem. (T-2).

5.2.5.3.2.1. Subsystem monitors will be appointed by the Section Chief of subsystem functions (such as, PS&D Section Chief appoints and signs appointment letter for configuration management). (T-2).

5.2.5.3.2.2. MMA is responsible for the overall management of the JDD subsystem. (T-2).

5.2.5.3.3. MAJCOMs will provide guidance describing the management of the MIS assigned to wings within their command. (T-1).

5.2.5.3.3. (AFRC) Database Managers (DBMs) will refer to AFCSM 21-5XX, Volume X (IMDS users), G081 training manuals (Web G081 users), and TO 00-20-2, *Maintenance Data Documentation*, for management of the MIS (T-2).

5.2.5.3.4. At a minimum, the MMA MIS/Host DBM will ensure:

5.2.5.3.4. (AFRC) DBMs will contact the Host or Field Assistance Branch (FAB) on all matters concerning IMDS-CDB (T-2). The FAB is a 24-hour POC for all standard computer systems trouble calls. The FAB evaluates problems and provides solutions for all trouble calls.

5.2.5.3.4.1. MAJCOM coordination occurs when problems exist that are beyond the scope of responsibilities of Host DBMs. (T-2).

5.2.5.3.4.2. IMDS-CDB/G081 security is maintained IAW AFI 17-130, *Cybersecurity Program Management*. (T-2).

5.2.5.3.4.2.1. MMA personnel coordinate MIS access permission requirements to enable MDD on non-possessed aircraft. (T-2).

5.2.5.3.4.3. MMA personnel provide expertise on IMDS-CDB/G081 for resolution of problems beyond the work center and sub-system monitors' control. (T-2).

5.2.5.3.4.4. Support is provided to tenant organizations and users. (T-2).

5.2.5.3.4.5. Coordination with the Defense Enterprise Computing Center or AF Network Control Center on all matters concerning IMDS-CDB. (T-2).

5.2.5.3.4.6. The Defense Enterprise Computing Center supports all requirements concerning the operation and maintenance of IMDS-CDB. (T-2).

5.2.5.3.4.7. Scheduled MIS downtime is published for users. (T-2).

5.2.5.3.4.8. MMA personnel control and monitor submissions of IMDS-CDB Difficulty Report(s). (T-2).

5.2.5.3.4.9. Coordination occurs on matters pertaining to the interface of other automated systems with IMDS-CDB. (T-2).

5.2.5.3.4.10. Development of a functional checklist to establish timelines and MIS data capture requirements for use in the event of a weapon system mishap. **(T-2)**.

5.2.5.3.4.10.1. The checklist must require immediate capture and isolation of the historical data for the mishap weapon system regardless of the time or day of week. **(T-2)**. Contact the Host DBM to immediately put the IMDS-CDB in File Update Mode (when required) until the functional checklist can be completed. G081 equipment records will be locked using screen 9012 (Lock/Unlock Aircraft/Data Records). **(T-2)**.

5.2.5.3.4.11. Support of the Communications-Electronics maintenance community referring to AFI 21-103 and TO 00-33A-1001, *General Cyberspace Support Activities Management Procedures and Practice Requirements* for maintenance analysis and host DBM responsibilities. **(T-2)**.

5.2.5.3.4.12. Control of access to specific IMDS-CDB programs and subsystems by utilizing Transaction Identification Codes (TRICs) security profiles or screen 9057 (program access) for G081. **(T-2)**.

5.2.5.3.4.12.1. Audit permissions to IMDS security profiles and G081 access keys annually. Take appropriate measures when a compromise is suspected or reported. **(T-2)**.

5.2.5.3.4.12.1. **(AFRC)** Each subsystem manager monitors access to their subsystem via TRIC/L-Term security and has the authority to approve/disapprove requests **(T-2)**.

5.2.5.3.4.12.2. Semi-annually audit IMDS ELC access. **(T-2)**.

5.2.5.3.4.13. IMDS-CDB subsystem managers are informed of the status of applicable TRICs prior to turning the TRIC on or off. **(T-2)**.

5.2.5.3.5. MMA provides overall management and control of the maintenance deferred code listing. **(T-1)**.

5.2.5.3.5.1. Changes to the table will be coordinated with PS&D. **(T-1)**.

5.2.5.3.6. Data Integrity. MMA is the OPR for the Data Integrity Team (DIT). All maintenance units will participate in the DIT program. **(T-1)**.

5.2.5.3.6.1. 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 will ensure that all assigned DIT members are trained in the use of MIS applicable programs for the data integrity review/correction process. **(T-2)**. Errors identified by the DIT team will be reconciled IAW **Paragraph 5.2.5.3.6.5** of this instruction. **(T-1)**.

5.2.5.3.6.2. The DIT will include, at a minimum, one representative from each squadron under the MXG. It will include participation from PS&D, MOC, DMS, EM, Debrief Section, and QA as determined by MMA. **(T-2)**.

- 5.2.5.3.6.3. MAJCOMs will determine the frequency of DIT meetings.
- 5.2.5.3.6.3. **(AFRC)** Units will conduct a DIT/DIG meeting monthly **(T-2)**.
- 5.2.5.3.6.4. Representatives will be at least a SrA that possesses a 5-skill level and is familiar with the unit's assigned weapon system(s). **(T-2)**.
- 5.2.5.3.6.5. As a minimum, the following functions will be performed by the DIT:
  - 5.2.5.3.6.5.1. Educate group, squadron and AMU leadership on the importance of data integrity including the impacts of erroneous data.
  - 5.2.5.3.6.5.2. Ensure MIS accurately reflects AFTO Form 781-series forms entries.
  - 5.2.5.3.6.5.3. Run maintenance action review background reports for all work accomplished by squadrons and work centers.
    - 5.2.5.3.6.5.3.1. Audit the report by JCN/WCE (Work Event Separator for G081) to identify suspected errors.
    - 5.2.5.3.6.5.3.2. Responsibility for correcting errors belongs to the performing work center.
      - 5.2.5.3.6.5.3.2.1. The use of general WUCs/LCNs when a component level WUC/LCN exists will be counted as an error. **(T-2)**.
    - 5.2.5.3.6.5.3.3. Use of automated processes is authorized.
    - 5.2.5.3.6.5.3.4. **(Added-AFRC)** Develop a system to track the number of errors by work center and squadron **(T-2)**.
  - 5.2.5.3.6.5.4. Audit for Weapons System status, flying schedule deviation and utilization errors. **(T-2)**.
    - 5.2.5.3.6.5.4.1. The use of general WUCs/LCNs when a component level WUC/LCN exists will be counted as an error. **(T-2)**.
  - 5.2.5.3.6.5.5. Develop a system to track, measure and report data integrity errors by work center, AMU and squadron. **(T-2)**.
  - 5.2.5.3.6.5.6. Implement training programs that are geared toward correcting data integrity trends. **(T-2)**.
  - 5.2.5.3.6.5.7. **(Added-AFRC)** Perform these functions weekly **(T-2)**.

**5.3. Maintenance Training (MT).** MT consists of the Training Management Element and the Development and Instructor Element. Maintenance Training assists SQ/CCs by providing Unit Training Managers (UTM) to manage the enlisted specialty training program. MT will:

**5.3. (AFRC) Maintenance Training (MT).** In AFRC, Maintenance Training consists of Training Management and Maintenance Qualification Training Programs (MQTPs) **(T-2)**.

- 5.3.1. Provide initial, recurring and advanced proficiency, qualification, or certification training needed by a technician to perform duties in their primary AFSC and manage course codes to track training IAW AFI 36-2650 and AFI 36-2651. **(T-1)**.



5.3.2. Serve as the single point of contact for all training matters affecting maintenance. (T-1).

5.3.3. The MT Superintendent/NCOIC will maintain administrative responsibility for UTMs whether UTMs are centralized or decentralized. (T-1).

5.3.4. Develop and administer appropriate Maintenance Cyber Discipline training. Training shall be tailored to DoD Information Technology used locally and shall emphasize authorized, and unauthorized uses, prevention, detection, remediation, and provide an overview of recent negative trends and effective mitigation techniques. (T-1).

5.3.4.1. Coordinate with Quality Assurance, MXG/CC designated responders, and facilitators for action when discovery that DoD Information Technology lacks the capability to perform a mission function. (T-1). Example: Enhanced Technical Information Management System containing software for a TO task that does not have a hardware TO approving its installation or use.

**5.4. Programs and Resources (P&R).** P&R serves as the MXG focal point for interaction with external functional support activities to ensure critical mission generations support, infrastructure personnel management and resources are configured to maximize mission capability/AA. P&R program configurations may vary based on mission but generally P&R coordinates with functional base OPRs to interact on Facility Management (FM), Vehicle Control (VCO), Support Agreements, Unit Safety, Security, Resources, Manpower, Environment, Deployment and Maintenance Information System programs as applicable. Units will maximize consolidation of personnel assigned in P&R as described in [Paragraph 2.4.14](#) P&R will:

5.4.1. Develop, maintain, and coordinate all applicable AFI-directed programs and plans affecting maintenance. (T-1).

5.4.2. Act as the resource advisor to the MXG/CC. (T-2).

5.4.3. Coordinate with the MXG/Squadron SUPTs to manage manpower authorizations for the MXG. (T-2).

5.4.4. Serve as the focal point within the MXG for management of facilities. (T-2).

5.4.4. (AFRC) Refer to AFI 32-1024, *Standard Facility Requirements*, and AFRCH 32-1001, *Standard Facility Requirements*, for requirements pertaining to facilities (T-2).

5.4.4.1. Ensure fire detection and foam suppression training is included in unit facility manager/ occupant training briefings. (T-2).

5.4.5. Serve as the Environmental Coordinator focal point within the MXG. (T-1).

5.4.6. Serve as the focal point for MXG deployment planning and execution actions. (T-1). If designated as a UTC pilot unit IAW AFI 10-401, *Air Force Operations Planning and Execution*, P&R will:

5.4.6.1. Coordinate with other UTC tasked units on cargo and equipment authorizations/requirements to develop and maintain a standardized package to meet specific mission capability requirements. (T-1).

5.4.6.2. Coordinate with the unit equipment custodian(s) to review equipment changes and new equipment requirements driven by changes to UTCs and/or Allowance Standards (AS). **(T-1)**.

5.4.6.3. Assist with coordination of site surveys for deployment locations and maintain copies of the Expeditionary Site Plan (ESP) **Part I** for deployment locations IAW AFI 10-404, *Base Support and Expeditionary (BAS&E) Site Planning*. **(T-1)**.

5.4.6.4. Coordinate with QA biennially to verify aircraft MDS Hot Pit refueling capabilities are current and accurate in Base Support and Expeditionary and ensure applicable ESP/BSP **Parts I and II** accurately reflect unit capabilities IAW AFI 10-404, if applicable. **(T-1)**.

5.4.7. Oversee local, functional or host country unique support agreements applicable to the MXG IAW AFI 25-201, *Intra-Service, Intra-Agency, and Inter-Agency Support Agreements Procedures*. **(T-2)**.

5.4.8. Develop and coordinate MXG commercial contracts as directed by the MXG/CC. **(T-1)**.

5.4.9. Manage readiness reporting for the MXG IAW AFI 10-201. **(T-1)**.

5.4.10. Coordinate with LRS Deployment & Distribution Flight to obtain unit assistance in interpreting guidance for marking, packing and marshaling of tasked equipment IAW AFMAN 24-204, *Preparing Hazardous Materials for Military Air Shipments*; AFI 10-401 and AFMAN 91-201. **(T-1)**.

5.4.10.1. **(Added-AFRC)** Conduct staff assistance visits (SAVs) within the MXG to assist each maintenance functional area **(T-2)**.

## Chapter 6

### QUALITY ASSURANCE (QA)

**6.1. 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 MSEP. Personnel assigned to QA are not an extension of the work force and shall not be tasked to perform sortie production inspections (such as, clear “Red X” symbols and perform IPIs). **(T-1)**. QA serves as the primary technical advisory agency in the maintenance organization, assisting maintenance supervision at all levels to identify, validate and/or resolve quality, proficiency and/or compliance issues impacting mission generation. The evaluation and analysis of deficiencies and problem areas identified are key functions of QA that highlight and reveal 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 the Logistics Evaluation Assurance Program (LEAP) QA database. **(T-1)**. Civil service and contracted personnel are to follow requirements established in their respective civilian position description/contract and accepted quality assessment system.

**6.2. Responsibilities.** QA is responsible to the MXG/CC or equivalent to perform as the primary technical advisory agency for maintenance actions and to assist work center supervisors in reviewing tasks involved in supporting the maintenance effort. MXG QA Inspectors have the authority to observe, correct and document applicable maintenance activities performed within the MXG. QA will:

6.2.1. Implement and administer the MSEP and other programs as applicable to include:

6.2.1.1. Product Improvement Program (PIP). **(T-1)**.

6.2.1.1.1. DR. **(T-1)**.

6.2.1.1.2. Product improvement inputs. **(T-1)**.

6.2.1.2. Aircraft and equipment impoundment procedures IAW **Chapter 7** of this instruction. **(T-1)**.

6.2.1.3. Functional Check Flight (FCF) program IAW this **Chapter**. **(T-1)**.

6.2.1.4. W&B Program IAW this **Chapter**. **(T-1)**.

6.2.1.5. Hot Refuel/Defuel and Aircraft-to-Aircraft Refuel Programs if applicable. **(T-1)**.

6.2.2. Review and analyze aircraft aborts, IFEs, and incidents involving damage to equipment or injury of personnel to determine if trend analysis, cross-tell or MSEP focus is warranted. **(T-1)**.

6.2.3. Comply with the configuration management program requirements IAW **Chapter 14** of this instruction. **(T-1)**.

6.2.4. In coordination with PS&D, comply with TCTO Program requirements IAW **Chapter 14** of this instruction, TO 00-5-1 and TO 00-5-15. **(T-1)**.

6.2.5. In conjunction with PS&D, develop a local Job Standard (JST) for both gaining and losing aircraft and equipment transfer inspection IAW **Chapter 14** of this instruction. **(T-1)**. **Note:** For the purpose of this instruction JST is an alpha code identifying the type job represented in a job standard (defined in IMDS User's Manual AFSM 21-566, Volume 2).

6.2.6. Coordinate with PS&D on all AFTO Form 103s. **(T-1)**.

6.2.7. Manage OTIs. **(T-1)**.

6.2.8. Augment evaluations at the request of the WS. **(T-1)**. Flightline weapons loading inspections/evaluations are the responsibility of WS evaluators.

6.2.8.1. **(Added-AFRC)** Integrated Combat Turn (ICT) evaluations. At the request of WS and the Wing Weapons Manager, QA may be tasked to assist in evaluating a specified number or percentage of ICTs. WS will initiate the evaluation report for ICTs. The senior WS evaluator has the final authority on the overall ICT rating and will initiate any documentation **(T-2)**.

6.2.9. Evaluate unit maintenance management procedures, including locally developed forms, publications, OIs, checklists, for accuracy, intent, and necessity as referenced in this AFI. **(T-1)**.

6.2.10. Continuously evaluate cyber hygiene and discipline practices and cyber incident reporting per applicable TO, wing directive, and this instruction for compliance or deficiencies. **(T-1)**.

6.2.10.1. Report weapons system and support equipment cyber related deficiencies to the applicable Program Manager in accordance with T.O. 00-35D-54. **(T-1)**.

6.2.10.1.1. Elevate resolution of deficient cyber-requirements or issue via an AF Form 1067, Modification Proposal in accordance with AFI 63-101/20-101, and/or maintenance assistance request (such as, Technical Assistance Request) in accordance with TO 00-25-107 *Maintenance Assistance*. **(T-1)**.

6.2.11. **(Added-AFRC)** Ensure Mx related publications are developed and managed IAW AFI 33-360, *Publications and Forms Management*, 00-series TOs (if applicable), and **Chapter 1 (T-2)**. Coordinate with the Wing Publications and Forms Manager **(T-2)**.

6.2.11.1. **(Added-AFRC)** Maintain record sets for group publications (e.g. completed/approved AF Form 673, *Air Force Publication/Form Action Request*, AF Form 399, *Air Force Publication/Form Status Request*, email records, Staff Summary Sheets) **(T-2)**.

**6.3. QA Superintendent (QA SUPT) Responsibilities.** In addition to the applicable Flight CC/SUPT duties in **Chapter 2** of this instruction the QA SUPT will:

6.3.1. Develop and maintain a master training plan to train all QA Inspectors, and include augmentees, if applicable. **(T-1)**. **Note:** See **Paragraph 5.2.1.13** for minimum MAJCOM training requirements for inspectors inspecting MXO function.

6.3.1. **(AFRC)** Use the HQ AFRC QA Master Task Listing Guide as a baseline for developing the training plan **(T-2)**. Tailor to MDS/unit specific requirements **(T-2)**. The template is available on the HQ AFRC/A4MM SharePoint® site at <https://afrc.eim.us.af.mil/sites/A4/A4M/QA/default.aspx>.

- 6.3.2. Develop and monitor the MSEP using the LEAP QA database and provide supervisors access to MSEP data. **(T-1)**.
- 6.3.3. Notify the appropriate agencies when deficiencies are found in (AF, MAJCOM/Lead Command, WG, Group (GP)) instructions. **(T-1)**.
- 6.3.4. Review maintenance-related instructions, supplements, operating instructions, forms and local/functional and emergency action checklists every two years or when source data changes for accuracy, intent, and necessity. **(T-1)**.
- 6.3.4.1. The QA SUPT will document the review once complete. **(T-1)**.
- 6.3.5. Review JSTs annually or when source data changes for accuracy, intent and necessity. **(T-1)**.
- 6.3.5.1. The QA SUPT will document the review once complete. **(T-1)**.
- 6.3.6. Ensure management and special inspections are performed (when required). **(T-1)**.
- 6.3.7. Ensure the GP portion of the FOD Prevention Program is conducted IAW **Chapter 11** of this instruction. **(T-1)**.
- 6.3.8. Oversee and implement the GP Impoundment Procedures IAW **Chapter 7** of this instruction. **(T-1)**.
- 6.3.9. Coordinate on all requests for locally manufactured, developed, and modified tools and equipment, and maintain records for approved requests. **(T-1)**.
- 6.3.9.1. This includes pictures or drawings and a description of the use for each item.
- 6.3.9.1.1. If applicable technical data contains the option for use of these tools and equipment, QA does not need to coordinate or maintain the records on these items.
- 6.3.9.1.2. 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. **(T-1)**.
- 6.3.10. Verify IPI requirements from MAJCOM and sources outlined in TO 00-20-1 and publish combined MXG IPI listing every 2 years as a minimum or when source data changes. **(T-1)**.
- 6.3.10. **(AFRC) Note:** IPI list includes all MDS and support equipment IPIs from TO, MAJCOM, and local directives.
- 6.3.11. Develop KTL/RIL to supplement MAJCOM listings in conjunction with the Operations Officer/MX SUPT (if required). **(T-1)**.
- 6.3.11.1. Provide copies of approved KTL/RIL to all affected organizations. **(T-1)**.
- 6.3.12. Ensure Acceptable Quality Level (AQL) Standards are developed for all tasks including key tasks and routine inspections not included on the MAJCOM AQL. **(T-1)**.
- 6.3.13. Ensure agendas and presentations are compiled for the MSEP summary. **(T-1)**.
- 6.3.14. Review wing requests for assistance IAW **Chapter 1** and **Chapter 14** of this instruction. **(T-1)**.
- 6.3.15. Designate a Chief Inspector. **(T-1)**.

- 6.3.16. Designate individuals to be the Technical Order Distribution Office (TODO) and Product Improvement Manager (PIM). **(T-1)**.
- 6.3.17. Designate individuals to be the W&B and FCF Program managers. **(T-1)**.
- 6.3.18. Monitor the ASIP IAW **Chapter 11** of this instruction. **(T-1)**.
- 6.3.19. Maintain DOP program oversight IAW **Chapter 11** of this instruction. **(T-1)**.
- 6.3.20. When hot refueling is performed by maintenance personnel, ensure Hot Refueling Program is accomplished IAW TO 00-25-172 and this AFI. **(T-1)**.
- 6.3.21. Ensure non-resident organizations hot refueling aircraft at an AF certified hot pit coordinate site/personnel certification, utilization and documentation requirements with the supporting QA and Airfield Management/Operations. **(T-1)**.
  - 6.3.21.1. Using units are responsible for maintaining currency/reporting requirements. **(T-1)**.
- 6.3.22. Ensure designated Responders/facilitators respond to DoD IT incidents that lack the capability to perform a mission function. **(T-1)**.
  - 6.3.22.1. Consolidate and report incidents in coordination with the WAM or designated official. **(T-1)**. Example: ETIMS containing software for a TO task that does not have a hardware TO approving its installation or use.

**6.4. Chief Inspector Responsibilities.** The Chief Inspector is responsible to the QA SUPT for ensuring functions listed below are performed and is responsible for applicable Section NCOIC/Chief duties in **Chapter 2** of this instruction. The Chief Inspector will:

- 6.4.1. Use assigned inspectors/augmentees to provide on-the-spot assistance to correct problems. **(T-1)**.
- 6.4.2. Spot-check TOs, inspection work cards, checklists, job guides and WUC manuals during evaluations and inspections for currency and serviceability. **(T-1)**.
- 6.4.3. Assist MMA with investigations and studies. **(T-1)**.
- 6.4.4. Review QA LEAP MSEP inspection summary inputs for accuracy and content. **(T-1)**.
- 6.4.5. Initiate actions when additional attention is required to resolve adverse maintenance trends or training problems. **(T-1)**.
  - 6.4.5.1. Actions include preparing cross-tell information bulletins and messages for MXG/CC release to other similarly-equipped units and higher headquarters.
  - 6.4.5.1. **(AFRC)** Forward cross-tell information to the appropriate NAF/A4M and HQ AFRC/A4MM ([afrc.a4mm@us.af.mil](mailto:afrc.a4mm@us.af.mil)) **(T-2)**.
- 6.4.6. Review and compile inputs for updating the IPI listing. **(T-1)**.
  - 6.4.6.1. Maintain a copy of the MXG/CC or equivalent approved IPI listing with the signature and date of review and certification. **(T-1)**.
  - 6.4.6.1. **(AFRC) Note:** IPI list includes all MDS and support equipment IPIs from TO, MAJCOM, and local directives.
- 6.4.7. Review Category II major discrepancies for trends quarterly. **(T-1)**.

6.4.7.1. 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 RC or develop a local work card, local page supplement or checklist IAW TO 00-5-1. **(T-1)**.

6.4.8. Establish procedures for QA Inspectors to document completed inspections. **(T-1)**.

6.4.9. Perform inspections on GITA IAW **Chapter 11** of this instruction. **(T-1)**.

6.4.10. Construct and maintain a master standardized AFTO Form 781-series forms binder IAW TO 00-20-1. **(T-1)**.

6.4.11. Develop an aircrew briefing checklist specifically for high-speed taxi checks (see **Paragraph 6.14** of this instruction). **(T-1)**.

6.4.12. Review MSEP data monthly to identify high-missed carded items from Personnel Evaluations and Quality Verification Inspections (QVI). **(T-1)**. A high-missed carded item is defined as any work card item missed at least three times during a one-month period.

6.4.12.1. Coordinate with MMA to identify any relationships with repeat, recur and CND trends. **(T-1)**.

6.4.12.2. Include this data in the monthly MSEP summary. **(T-1)**.

6.4.13. Conduct Evaluator Proficiency Evaluations on each inspector. **(T-1)**.

6.4.13.1. Evaluators Proficiency Evaluation (EPEs) will be conducted while the Chief Inspector assesses one Personnel Evaluation (PE) and one technical inspection (QVI/Special Inspection (SI)). **(T-1)**.

6.4.13.2. Each QA Inspector, permanent or augmentee, must pass both EPEs prior to performing unsupervised evaluations and inspections. **(T-1)**.

6.4.13.3. **(Added-AFRC)** QA inspectors must pass one personnel (PE) EPE every 18 months after the initial QA inspector's proficiency evaluations **(T-2)**.

6.4.14. Document QA Inspector training in the Training Business Area (TBA). **(T-1)**.

## **6.5. Quality Assurance Inspector Responsibilities.** QA Inspectors will:

6.5.1. Evaluate flightline and back shop maintenance tasks/inspections and MXO functions to include items identified by the KTL/RIL. **(T-1)**.

6.5.2. Enter inspection and evaluation reports into the LEAP QA database. **(T-1)**.

6.5.3. Perform QA review of Dull Swords, TCTOs, OTIs, modification proposals, DRs, RCs, instructions and supplements. **(T-1)**.

6.5.4. Provide training/instruction as applicable to address deficiencies identified during evaluations/inspections. **(T-1)**.

6.5.5. Evaluate forms and MIS documentation to evaluate compliance IAW MXG written procedures described in **Chapter 2** of this instruction. **(T-1)**.

6.5.6. Evaluate maintenance TO files that are kept on the aircraft (G files). **(T-1)**.

## **6.6. Quality Assurance Inspector Training.** As a minimum, the local QA Inspector Training Plan will include the applicable items listed below to ensure QA program standardization. **(T-1)**.

6.6.1. Training must cover inspection and evaluation techniques, documenting inspection worksheets and actions to prevent injury to personnel or property/equipment damage. **(T-1)**.

6.6.1.1. **(Added-AFRC)** Document QA training in the individual training records **(T-2)**.

6.6.2. All EPEs must be tracked in the MIS and/or the LEAP QA database. **(T-1)**. **Note:** Additional requirements for Nuclear Weapons Certifying Officials are located in AFI 21-204.

6.6.3. QA Inspectors inspecting outside of their AFSC will be task qualified on a Work Center Job Qualification Standard (WJQS) in TBA for the KTL requirements they evaluate. **(T-1)**.

6.6.3.1. Chief Inspectors will identify other critical tasks requiring AF Form 797 qualification (QA WJQS) within TBA as required. **(T-1)**.

6.6.3.2. For all other tasks, QA Inspectors must be familiar with the requirements/procedures of tasks they evaluate. **(T-1)**.

6.6.3.2.1. Cross Utilization Training for QA Inspector is not allowed for 2W1/2W0 maintenance tasks. Only 2W1/2W0 personnel will perform these inspections. **(T-1)**.

6.6.3.2.1. **(AFRC)** 2AXXX/2WXXX personnel may evaluate/inspect routine weapons and munitions processes (i.e. CTKs, vehicles, TBA, AFTO Form 244s, etc.) **(T-2)**. Loading tasks can be evaluated by qualified 2W1XX personnel with approval from the WWM **(T-2)**. This does not include training, certification, proficiency evaluation and qualification of weapons loads **(T-2)**.

6.6.3.2.1.1. QA inspectors evaluating Scheduling and Analysis functions must be trained and qualified. **(T-1)**. **Note:** See **Paragraph 5.2.1.13** for additional requirements.

6.6.4. All QA Inspectors will complete egress certification IAW **Chapter 4** of this instruction before evaluating egress tasks (if applicable). **(T-1)**.

6.6.5. QA Inspectors may evaluate welding operations and processes. However, QA Inspectors will not evaluate completed welds unless certified IAW TO 00-25-252. **(T-1)**.

6.6.6. MAJCOMs will determine if QA personnel who conduct engine run evaluations are required to maintain the engine run proficiency requirements outlined in **Chapter 11** of this instruction and document requirements in their supplement to this AFI. **(T-2)**.

6.6.6. **(AFRC)** Engine run proficiency is not a condition of the QA personnel's qualification, however QA personnel who evaluate engine runs are required to maintain annual engine run certification per **Chapter 11** **(T-2)**.

6.6.7. Inspectors evaluating Low Observables (LO) maintenance must complete applicable LO TD courses and be certified in core training tasks contained in **Attachment 3** of the 2A7X5 CFETP. **(T-1)**.

6.6.8. 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. **(T-1)**.

6.6.9. QA Inspectors evaluating NDI technicians during PEs must be a trained and qualified 2A7X2 (or civilian equivalent) on the method being evaluated. **(T-1)**.



6.6.9. (AFRC) MSEP rated NDI proficiencies must be evaluated/inspected by a qualified (7-level or above) NDI technician serving as the NDI QA inspector/augmentee (T-2).

6.6.10. PMEL quality assurance program requirements are defined in AFMAN 21-113 and TO 00-20-14.

6.6.10.1. PEs, QVIs and EPEs will only be performed by PMEL trained and qualified 2P0X1 personnel or equivalent. (T-1).

6.6.10.2. MSEP related inspection (PEs and QVIs) may be performed on other logistics/maintenance actions within the PMEL to include, but not limited to, production control, maintenance supply actions, and QA functions not associated with calibration/certification tasks.

6.6.11. (Added-AFRC) QA ICT inspectors will attend ICT formal academic training provided by WS (T-2).

**6.7. Maintenance Standardization and Evaluation Program (MSEP).** The purpose of the MSEP is to provide units with a method of evaluating technical compliance and measure how well they comply with established standards.

6.7.1. Units will develop a MSEP and conduct local inspections to ensure their programs, processes, maintenance technician proficiency, equipment condition and other focus areas are in compliance with AF, MAJCOM and local directives. (T-1). The unit level MSEP is not applicable to contract maintenance activities unless required by the contract SOW or PWS.

6.7.1. (AFRC) Units will utilize the AFRC MSEP standardized template located on the HQ AFRC/A4MM SharePoint® site at <https://afrc.eim.us.af.mil/sites/A4/A4M/QA/default.aspx> when developing their MSEP (T-2). Review the template annually and forward recommendations for improvement or changes to HQ AFRC/A4M (afrc.a4m@us.af.mil) NLT 31 Aug (T-2). Info copy the appropriate NAF/A4M (T-2).

6.7.1.1. The MSEP will be developed in conjunction with inputs from assigned squadron Operations Officers/Superintendents and Group Leadership and will be executed by QA. (T-1).

6.7.1.2. The MXG/CC will focus the unit program on problem areas where improvements are needed. (T-1).

6.7.1.3. The following types of evaluations, inspections and observations support the MSEP: PEs, QVIs, SIs, Management Inspection (MI)s, Detected Safety Violation (DSV)s, Technical Data Violation (TDV)s, Unsatisfactory Condition Report (UCR)s, and when directed, other inspections.

6.7.1.3.1. These inspection terms may differ in the LEAP QA database however, MAJCOMs must provide non-standard terms and definitions in their supplement to this AFI when used.

6.7.1.3.2. Develop the monthly MSEP on the minimum personnel evaluations, inspections or observation requirements as depicted in Air Force Manpower Standard 21QX Quality Assurance Attachment 3, Application Tool, located on the Air Force Manpower Analysis Agency SharePoint site:

<https://cs2.eis.af.mil/sites/11190/AFMDandAFMS/AFMS/Forms/FAC1stFAC2nd.aspx>.

6.7.2. Unit MSEP Focus Areas. QA shall assess how units are meeting compliance goals and will identify areas of opportunity for improvement. **(T-1)**. A unit's MSEP will focus on:

6.7.2.1. Compliance with and currency of TOs and directives. **(T-1)**.

6.7.2.1.1. Ensure personnel at all levels are responsible and accountable for enforcing mandatory standards and ensuring all applicable TOs and directives are complete, current and used.

6.7.2.2. Aircraft, systems and equipment forms documentation. **(T-1)**.

6.7.2.2.1. Ensure forms used to document any maintenance related action for aircraft, systems or equipment are documented IAW 00-20 series TOs, specific equipment TO requirements, and other applicable directives and supplements. **(T-1)**.

6.7.2.2.2. MSEP will validate compliance with the MXG's or equivalents' written procedures to ensure aircraft/system forms, equipment forms and MIS documentation are complete, accurate, and accomplished for each shift as referenced in **Paragraph 2.4.53** of this instruction. **(T-1)**.

6.7.2.3. Aircraft, Systems and Equipment Inspections. **(T-1)**.

6.7.2.3.1. Ensure aircraft and equipment, including munitions, are inspected IAW TOs and directives. **(T-1)**.

6.7.2.4. Compliance and Management of Occupational Safety and Health, Environmental, Bioenvironmental, Housekeeping, and FOD Programs. **(T-1)**.

6.7.2.4.1. Personnel at all levels are responsible for minimizing risk to equipment, personnel and the environment. **(T-1)**.

6.7.2.5. Training. **(T-1)**.

6.7.2.5.1. Verify training is correctly documented and ensure individuals are qualified/certified to perform evaluated tasks. **(T-1)**.

6.7.2.6. Unit-Directed Programs. **(T-1)**.

6.7.2.6.1. Verify units' programs are in compliance with local directives. **(T-1)**.

6.7.2.7. Key Task List (KTL). **(T-1)**. The KTL is an AF, MAJCOM or unit developed list of required inspections that cover tasks that are complex and tasks affecting safety of flight.

6.7.2.7.1. MAJCOMs will identify minimum KTLs for each MDS.

6.7.2.7.2. All maintenance actions/functions listed on the KTL require mandatory call-in to QA each time the maintenance action/function is accomplished. **(T-1)**.

6.7.2.7.2.1. QA evaluators will respond and perform an evaluation. **(T-1)**.

6.7.2.7.2.1.1. The MXG/CC may waive the inspection or designate authorized a representative(s) to waive the inspection.

6.7.2.7.2.1.2. QA will track all KTLs called in, waived or completed and maintain a list of MXG-designated KTL waiver authorities. **(T-1)**.

6.7.2.7.3. QA will review and update the KTL list at least every 2 years to ensure it encompasses those maintenance actions/functions directly affecting quality of maintenance. **(T-1)**.

6.7.2.7.4. **(Added-AFRC)** KTL by MDS **(T-2)**:

6.7.2.7.4.1. **(Added-AFRC)** Engine installation (regardless of MDS).

6.7.2.7.4.2. **(Added-AFRC)** HC/MC/C-130:

6.7.2.7.4.2.1. **(Added-AFRC)** Flight control boost pack installation.

6.7.2.7.4.2.2. **(Added-AFRC)** MLG or NLG assembly installation.

6.7.2.7.4.3. **(Added-AFRC)** HH-60:

6.7.2.7.4.3.1. **(Added-AFRC)** Main rotor head installation.

6.7.2.7.4.3.2. **(Added-AFRC)** Tail rotor installation.

6.7.2.7.4.3.3. **(Added-AFRC)** Main gearbox installation.

6.7.2.7.4.3.4. **(Added-AFRC)** Tail gearbox installation.

6.7.2.7.4.4. **(Added-AFRC)** F-16:

6.7.2.7.4.4.1. **(Added-AFRC)** Throttle rigging/connection.

6.7.2.7.4.4.2. **(Added-AFRC)** Engine bay inspections.

6.7.2.7.4.4.3. **(Added-AFRC)** Engine build-up (JEIM).

6.7.2.7.4.4.4. **(Added-AFRC)** Gun installation.

6.7.2.7.4.4.5. **(Added-AFRC)** Post in-shop scheduled gun inspection.

6.7.2.7.4.5. **(Added-AFRC)** A-10:

6.7.2.7.4.5.1. **(Added-AFRC)** TF-34 build-up (442 FW engine repair node only).

6.7.2.7.4.5.2. **(Added-AFRC)** Throttle connection rig.

6.7.2.7.4.5.3. **(Added-AFRC)** APU build-up.

6.7.2.7.4.5.4. **(Added-AFRC)** APU installation.

6.7.2.7.4.5.5. **(Added-AFRC)** Gun installation.

6.7.2.7.4.5.6. **(Added-AFRC)** Post in-shop scheduled gun inspection.

6.7.2.7.4.5.7. **(Added-AFRC)** White Area.

6.7.2.7.4.6. **(Added-AFRC)** B-52, C-5, C-17, C-40, and KC-135:

6.7.2.7.4.6.1. **(Added-AFRC)** Any task that would require an FCF as specified in the MDS technical orders.

6.7.2.8. Routine Inspection List (RIL). **(T-1)**. The RIL is an AF, MAJCOM, or unit developed list of routine inspections that must be performed. Frequency is determined by the MXG/CC or equivalent if not mandated by the MAJCOM. **(T-1)**.

6.7.2.8.1. QA shall consolidate Operations Officer/MX SUPT inputs and suggested changes to the RIL and obtain MXG/CC approval. **(T-1)**.

6.7.2.8.2. Additional RIL requirements, for nuclear capable units, are located in AFMAN 21-200.

6.7.2.8.3. Tasks will not be removed from the RIL without issuing authorities' approval (such as, AF, MAJCOM, MXG/CC). **(T-1)**.

6.7.2.8.4. The RIL must contain the following if applicable to the unit:

6.7.2.8.4.1. Pre-flight. **(T-1)**.

6.7.2.8.4.2. Thru-flight. **(T-1)**.

6.7.2.8.4.3. Basic post-flight. **(T-1)**.

6.7.2.8.4.4. HSC/HPO inspections. **(T-1)**.

6.7.2.8.4.5. Aircraft forms/MIS documentation. **(T-1)**.

6.7.2.8.4.6. Equipment forms/MIS documentation. **(T-1)**.

6.7.2.8.4.7. Aircraft and munitions flightline accountability/accountable property system of record (APSR). **(T-1)**.

6.7.2.8.4.8. Aircraft ground handling. **(T-1)**.

6.7.2.8.4.9. Launch and recovery. **(T-1)**.

6.7.2.8.4.10. Servicing tasks. **(T-1)**.

6.7.2.8.4.11. Technical data. **(T-1)**.

6.7.2.8.4.12. CTK Program. **(T-1)**.

6.7.2.8.4.13. TMDE calibrations when the performing work center is not a PMEL IAW TO 00-20-14. **(T-1)**.

6.7.2.8.4.14. AGE maintenance. **(T-1)**.

6.7.2.8.4.15. AGE flightline use. **(T-1)**.

6.7.2.8.4.16. Housekeeping. **(T-1)**.

6.7.2.8.4.17. Vehicles. **(T-1)**.

6.7.2.8.4.18. Aircraft washes/aircraft corrosion inspections. **(T-1)**.

6.7.2.8.4.19. Supply discipline (example, TNB, DIFM management & coding). **(T-1)**.

6.7.2.8.4.20. Equipment washes/ equipment corrosion inspections. **(T-1)**.

6.7.2.8.4.21. Environmental compliance. **(T-1)**.

6.7.2.8.4.22. NWRM accountability and forms documentation. **(T-1)**.

6.7.2.8.4.23. TCTO Program. **(T-1)**.

6.7.2.8.4.24. Time-Change Program. **(T-1)**.

6.7.2.8.4.25. FHP management. **(T-1)**.

6.7.2.8.4.26. Maintenance Cyber Discipline. **(T-1)**.

6.7.2.8.4.26.1. Upload and download of software and data. **(T-1)**.

6.7.2.8.4.26.2. Malicious code detection and reporting. **(T-1)**.

6.7.2.8.4.27. **(Added-AFRC)** Mission Generation **(T-2)**.

6.7.2.8.4.28. **(Added-AFRC)** Engine Management **(T-2)**.

6.7.2.9. QA will coordinate with the Munitions Activity (Munitions Flight CC/SUPT; or Operations Officer/MX SUPT in the MUNS) and will develop quarterly standards (such as, number of inspections and frequency) for the following areas:

6.7.2.9.1. Munitions accountability. **(T-1)**.

6.7.2.9.2. Munitions storage practices, security and safety. **(T-1)**.

6.7.2.9.3. Munitions inspections. **(T-1)**.

6.7.2.9.4. Munitions materiel handling and test equipment. **(T-1)**.

6.7.2.9.5. Munitions stockpile management. **(T-1)**.

6.7.2.9.6. Tactical missile reporting system. **(T-1)**.

6.7.2.9.7. Munitions infrastructure (such as, adequacy of lightning protection and grounding systems, bonding of facility doors, adequate power conversion equipment). **(T-1)**.

6.7.2.9.8. Munitions training programs. **(T-1)**.

6.7.2.9.9. Maintenance Cyber Discipline. **(T-1)**.

6.7.3. Unit MSEP Evaluation and Inspection (E&I) Plan. QA will develop an E&I Plan specifying numbers of approved areas and types (PE, QVI, SI, MI) of inspections and evaluations to complete during the month. Types of inspections must be separated and shall not be combined (such as, PE/QVI). **(T-1)**.

6.7.3.1. The E&I Plan, and changes to it, will be coordinated through each squadron Operations Officer/MX SUPT and approved by the MXG/CC. **(T-1)**.

6.7.3.2. The E&I Plan will be reviewed and updated monthly based on trends in the maintenance complex and will be adjusted to meet the MXG/CC's focus areas. **(T-2)**.

6.7.3.3. When developing the E&I Plan, the QA SUPT will:

6.7.3.3.1. Address areas of concern identified by maintenance managers and the WWM. **(T-1)**.

6.7.3.3.2. Tailor the plan for each squadron, flight and section. **(T-1)**.

6.7.3.3.3. Coordinate and distribute the E&I Plan. **(T-1)**.

6.7.4. Evaluation Criteria.

6.7.4.1. Acceptable Quality Levels (AQL). AQLs denotes the maximum allowable number of minor findings that a process or product may be charged for the task to be rated “Pass” and are used to minimize subjectivity in assessing tasks identified by the MSEP.

6.7.4.1.1. MAJCOMs may develop standardized AQLs by weapon system and establish procedures to review at least annually.

6.7.4.1.1. (AFRC) Units will use the AFRC CTL posted on HQ AFRC/A4MM SharePoint® site at <https://afrc.eim.us.af.mil/sites/A4/A4M/QA/default.aspx> (T-2). Review the CTL annually and place change recommendations on applicable CRM posted on site listed above NLT 31 Aug (T-2).

6.7.4.1.2. MXG/CCs will establish AQLs for tasks/inspections not included on the MAJCOM AQL listing. (T-2).

6.7.4.1.2.1. AQLs need to be derived/revised from QA performance-based data.

6.7.4.1.3. AQLs/baselines for nuclear maintenance, cruise missile maintenance and nuclear weapons handling tasks are defined in AFMAN 21-200.

6.7.4.2. Discrepancy Categories.

6.7.4.2.1. Category I (CAT I). A required inspection/TO/AFI procedural item missed or improperly completed. This category is a specific AFI requirement, work card item or TO step, warning, caution, or note for a specific condition or action. Use sub-classifications of major or minor to indicate the discrepancy’s relative severity.

6.7.4.2.2. Category II (CAT II). An obvious defect, which could have been readily detected by a technician or supervisor, but is not a specific AFI requirement, work card item or TO step, warning, caution, or note for that specific evaluated task. Use sub-classification of major or minor to indicate the discrepancy’s relative severity.

6.7.4.3. Findings.

6.7.4.3.1. A major finding is defined as a condition that may endanger personnel, jeopardize equipment or system reliability, impact safety of flight or warrant discontinuing the process or equipment operation.

6.7.4.3.2. Any major discrepancy will result in an automatic inspection failure. (T-1).

6.7.4.3.3. The QA Inspector will intercede and declare a major finding when one additional action will 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. (T-1).

6.7.4.3.3.1. The QA Inspector will write up the major finding even though the jeopardizing action was never taken due to their intercession. (T-1).

6.7.4.4. 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.

6.7.4.4.1. CAT II minors shall be documented for trends, but must not be counted against the AQL. (T-1).

6.7.4.4.2. Soft 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 will require more than one additional action to meet the definition of a major finding.

6.7.4.4.2. (AFRC) This also includes Soft FO contained in vehicles or facilities which pose no FOD threat (T-3).

6.7.5. Observations. This category represents observed events or conditions with safety implications or technical violations not related to an evaluation or inspection, are considered unsafe, in violation of established procedures, or in the case of equipment, unfit for operations. Observations include: DSVs, TDVs and UCRs. The LEAP QA database is used to document any of the following conditions:

6.7.5. (AFRC) Use Discrepancy Category (Disc Cat) "NONE" in LEAP for all observations.

6.7.5.1. DSV. An observed unsafe act by an individual.

6.7.5.1.1. The QA Inspector must stop the unsafe act immediately. (T-1).

6.7.5.1.2. The QA Inspector will not document a separate DSV on an individual undergoing a PE since the unsafe act automatically results in a "Fail" rating on the PE. (T-1).

6.7.5.1.2.1. The QA Inspector will use DSV verbiage in the PE summary when a safety violation is committed during a PE. (T-1).

6.7.5.2. 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).

6.7.5.2.1. The technician must have knowledge of all general directives associated with the job prior to performing the task. (T-1). However, those general directives need not be present at the job site.

6.7.5.2.2. Do not document a separate TDV on an individual undergoing a PE, but use TDV verbiage in the PE summary since failure to use technical data automatically results in a "Fail" rating.

6.7.5.3. UCR. An unsafe or unsatisfactory condition, other than a DSV, chargeable to the work center supervisor.

6.7.5.3.1. UCRs will be documented even when it is not possible to determine who created the condition. (T-1).

6.7.6. Evaluations. An evaluation represents the direct evaluation of a logistics action, inspection, or training conducted/performed by an individual or team. Evaluations are used to evaluate job proficiency, degree of training, and compliance with technical data or instructions.

6.7.6.1. PE. A PE is an over-the-shoulder (direct) evaluation of a maintenance action, inspection, or internal MXG support process (such as, PS&D, Analysis, MOC). Individuals performing, supervising or evaluating tasks are subject to a PE. PEs may be performed on individuals working alone or as part of a team.

6.7.6.1.1. Rate PEs "Pass or Fail" based on established AQLs/standards. (T-1).

6.7.6.1.2. Document the PE in the LEAP QA database. **(T-1)**.

6.7.6.1.3. PEs will be accomplished on all technicians who perform maintenance. **(T-1)**. MAJCOMs will “established” the frequency. **(T-2)**.

6.7.6.1.3. **(AFRC)** A PE will be accomplished on Air Reserve Technicians, RegAF, and civilian employees every 18 months **(T-2)**. A PE will be accomplished on Traditional Reservists every 36 months **(T-2)**.

6.7.6.1.3.1. **(Added-AFRC)** Section NCOICs are responsible to track and coordinate PE requirements **(T-2)**.

6.7.6.1.4. Personnel in any AFSC certified to perform nuclear maintenance or logistics operations (example, limited general maintenance, transfer, transport) will also comply with applicable PE requirements in AFMAN 21-200. **(T-1)**.

6.7.6.1.5. Types of PEs.

6.7.6.1.5.1. Individual Evaluations. This is a QA over-the-shoulder (direct) evaluation of a technician or supervisor performing a job.

6.7.6.1.5.2. Team Evaluations. This is a QA over-the-shoulder (direct) evaluation of technicians and supervisors performing a team task.

6.7.6.1.5.2.1. A team task is one requiring more than one person to complete the task (for example, refueling, ECM pod up/down loading, bomb build-up, towing, weapons maintenance, pylon installation).

6.7.6.1.5.2.2. Team evaluations must accurately assess the proficiency of each individual under evaluation. **(T-1)**.

6.7.6.1.5.2.3. Refer to AFMAN 21-200 for nuclear weapons maintenance and handling evaluations.

6.7.6.1.5.3. **(Added-AFRC)** Trainer Proficiency Evaluation (TPE). A TPE is an over-the-shoulder evaluation of a unit instructor/trainer to determine their ability to teach/train accurately and sufficiently. Any individual training personnel on a task or process may be subject to a TPE.

6.7.6.1.5.4. **(Added-AFRC)** Evaluator Proficiency Evaluation (EPE). An EPE is a direct evaluation of a Quality Assurance (QA) individual or any individual (e.g. supervisors) performing a quality/compliance assurance function in a unit.

6.7.6.1.6. QA Inspectors will conduct PE's on each NDI technician, for each NDI method annually (every 2 years for the ARC) to ensure effective trending on NDI methods. **(T-1)**.

6.7.6.2. Performing a PE. When performing a PE, the QA Inspector will brief the individual or team on the evaluation and how it will be rated. **(T-1)**.

6.7.6.2.1. The QA inspector will determine what task will be evaluated. **(T-1)**.

6.7.6.2.2. The PE will include an evaluation of: the individual's training records, SCR (if task requires), tools, equipment, TMDE (use/impact of certification label limitation on maintenance being performed), and TOs used to perform the task. **(T-1)**.



- 6.7.6.2.3. 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. **(T-1)**.
- 6.7.6.2.4. Provide feedback to the individual or team and supervision upon completion. **(T-1)**.
- 6.7.6.3. Rating PEs. QA Inspectors rate each evaluation based on AQLs/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 QA Inspector must provide on-the-spot feedback. **(T-1)**. Determine ratings as follows:
- 6.7.6.3.1. Pass: Number of discrepancies does not exceed AQL/standards.
- 6.7.6.3.2. Fail: An evaluation that results in any of the following:
- 6.7.6.3.2.1. Number of discrepancies exceeds the established AQL/standards.
- 6.7.6.3.2.2. A technician fails to detect a major discrepancy while complying with an inspection or TO requirement.
- 6.7.6.3.2.3. A technician fails to comply with a technical data step that could affect the performance of the equipment involved or cause injury to personnel.
- 6.7.6.3.2.3.1. QA Inspectors will notify individuals immediately during the PE that a TDV was committed. **(T-1)**.
- 6.7.6.3.2.3.2. Do not document a separate TDV on an individual undergoing a PE, since failure to use technical data automatically results in a “Fail” rating.
- 6.7.6.3.2.4. A technician demonstrates a lack of technical proficiency, system knowledge or demonstrated knowledge commensurate with skill grade.
- 6.7.6.3.2.5. Training and certification not documented.
- 6.7.6.3.2.6. A technician commits a safety violation.
- 6.7.6.3.2.6.1. Use the word “Safety” when a safety violation is committed during a PE.
- 6.7.6.3.2.6.2. Do not document a separate DSV on an individual undergoing a PE since the unsafe act automatically results in a “Fail” rating on the PE.
- 6.7.6.3.2.7. A technician fails to document maintenance actions in appropriate equipment records.
- 6.7.6.3.2.8. For nuclear weapons maintenance, an unsatisfactory rating must be given when any deficiencies or applicable unsatisfactory conditions exist IAW AFMAN 21-200. **(T-1)**.
- 6.7.7. Inspections: An inspection represents inspections of equipment, programs and processes to ensure compliance with established standards. Inspections are rated as “Pass” or “Fail”. Inspections include:
- 6.7.7.1. QVIs. 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.

6.7.7.1.1. QVIs shall not be conducted after equipment operation when such operation could invalidate indications of proper job accomplishment.

6.7.7.1.2. 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.

6.7.7.1.3. A QVI required for -6 TO inspections may be accomplished by checking a portion of the required card or area.

6.7.7.1.4. The QVI report should reflect deficiencies by the individual who accomplished the task and identify specific discrepancies.

6.7.7.1.5. Document these discrepancies in active equipment records and forms, for example AFTO Form 781A, AFTO Form 244, *Industrial/Support Equipment Record*.

6.7.7.1.6. Rate QVIs “Pass” or “Fail” by comparing the number of discrepancies with the established AQLs/standards.

6.7.7.1.6.1. Pass: Number of discrepancies does not exceed established AQL/standard.

6.7.7.1.6.2. Fail: An inspection that results in any of the following:

6.7.7.1.6.2.1. A technician fails to detect a major discrepancy while complying with an inspection or TO requirement.

6.7.7.1.6.2.2. Number of CAT I minor discrepancies exceeds the established AQL/standard.

6.7.7.1.6.2.3. A technician is not signed off in training records as task qualified.

6.7.7.1.6.3. Document the QVI in the LEAP QA database.

6.7.7.1.6.3.1. 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.

6.7.7.1.6.3.2. When evaluating the technician who signed off the “inspected by” block, evaluate only the items normally verified by signing off the “Red-X”.

6.7.7.1.6.3.3. Only one evaluation is scored for each inspection.

6.7.7.2. Management Inspection (MI). Perform these inspections to follow-up on trends, conduct investigations or conduct research to get to the root cause of problems. MXG/CCs, SQ/CCs or work center supervisors may request MIs. MIs may encompass PE/QVI trends and other inspection data, NMC causes, aborts and trends, IFE trends, high component or system failure rates, suspected training deficiencies, and tasks outlined in aircraft -6 TOs. MI results are reported to the requester. MIs can be non-rated and may be counted in QA trends. The LEAP QA database will be used to document MIs. **(T-1)**.

6.7.7.3. Special Inspections (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, SIs may be condition, procedural or compliance oriented.

6.7.7.3.1. The LEAP QA database will be used to document special inspections. **(T-1)**.

6.7.7.3.2. SIs will be rated as “Pass” or “Fail” based on established AQLs/standards.

6.7.8. Discrepancy Reporting. Report all discrepancies to the applicable work centers. **(T-2)**.

6.7.8.1. QA will provide an authoritative, validated source reference for all reported discrepancies (such as, work cards, job guides, WUC manuals, checklists, occupational safety requirements, TOs, and other applicable references). **(T-1)**.

6.7.9. Units will grade their MSEP evaluations using objective ratings based on the following five-tier rating system:

6.7.9.1. Outstanding: 95-100% **(T-1)**.

6.7.9.2. Excellent: 90-94.99% **(T-1)**.

6.7.9.3. Satisfactory: 80-89.99% **(T-1)**.

6.7.9.4. Marginal: 70-79.99% **(T-1)**.

6.7.9.5. Unsatisfactory: 0-69.99% **(T-1)**.

6.7.9.6. Inspections and evaluations performed (such as, PE, SI, QVI) are rated “Pass/Fail”. Exception: Unless otherwise directed by AFMAN 21-200 and AFI 21-204 for Nuclear Weapons PEs and Certification Program.

6.7.9.6. **(AFRC)** EPEs are rated inspections but are not counted in the monthly MSEP rating **(T-2)**.

6.7.9.7. 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.

6.7.9.7.1. 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”.

6.7.10. A cumulative MXG score will be determined by dividing the Group’s total number of inspections and evaluations passed by the total inspections and evaluations completed. **(T-1)**.

6.7.10.1. Deduct 0.5 percentage points for each TDV, DSV, and UCR from the overall percentage grade, using same formula in **Paragraph 6.7.9.7.1** of this instruction.

6.7.11. Monthly Summary. QA shall publish and distribute the monthly summary to the MXG/CC or equivalent and inspected organizations. **(T-1)**.

6.7.11. (AFRC) Unit must use the AFRC MSEP Summary Report template (T-2). The AFRC MSEP Summary Report can be obtained from the HQ AFRC/A4MM SharePoint® site located at <https://afrc.eim.us.af.mil/sites/A4/A4M/QA/default.aspx> (T-2).

6.7.11.1. For security purposes, classified portions of the MSEP will be published separately from the main summary. (T-1).

6.7.11.2. QA will compile the summary from inspection data and attach the load crew evaluation statistics provided by WS. (T-2).

6.7.11.3. The MSEP summary should include visual information, graphs, narratives, quality trends identified through inspections and evaluations, discussion of common problem areas and descriptions of successful programs or initiatives.

6.7.11.4. The following areas must be addressed in the summary:

6.7.11.4.1. Compliance with and currency of TOs and directives to include unit. (T-1).

6.7.11.4.2. Aircraft and equipment forms documentation. (T-1).

6.7.11.4.3. Compliance and management of Safety, Environmental, Housekeeping, cyber discipline/Hygiene and FOD Programs. (T-1).

6.7.11.4.4. Training Program. (T-1).

6.7.11.4.5. Key Task List (KTL). (T-1).

6.7.11.4.6. Routine Inspection List (RIL). (T-1).

6.7.11.4.7. TDVs, DSVs, and UCRs. (T-1).

6.7.11.4.8. Munitions Program. (T-1).

6.7.11.4.9. TMDE PMEL Activity Summary (if TMDE lab assigned). (T-1).

6.7.11.4.10. High-missed carded items. (T-1).

6.7.11.4.10.1. A high-missed carded item is defined as any work card item missed at least three times during a one-month period.

6.7.11.4.10.2. Units should use the high-missed carded items to enhance maintenance training programs, detect trends and improve the quality of maintenance.

6.7.11.4.10.3. MMA will review items to identify any relationships with repeat, recur and CND trends. (T-1).

6.7.11.4.11. 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. (T-1).

6.7.11.4.11.1. Prior to preparing the narrative report, QA will conduct a study of trends. (T-1).

6.7.11.4.12. Trend Analysis. QA will review previous reports to determine if inspected areas have improved or declined. (T-1).

6.7.11.4.12.1. 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.

6.7.11.4.12.2. Highlight trends and root causes in the summary.

6.7.11.5. **(Added-AFRC)** Post a copy of the unit's monthly summary to HQ AFRC/A4MM SharePoint® site located at <https://afrc.eim.us.af.mil/sites/A4/A4M/QA/default.aspx>. Post to applicable unit folder **(T-2)**.

6.7.12. MSEP Meetings. The MXG or equivalent will conduct quarterly meetings to review a summary of the last three months of MSEP data. **(T-1)**.

6.7.12.1. The MXG/CC or equivalent shall chair the meeting. **(T-1)**.

6.7.12.2. Attendees must include, as a minimum, SQ/CCs, Operations Officers/MX SUPTs, WWMs, Chief Inspector, senior analysts, or their designated representative. **(T-1)**.

**6.8. LEAP QA Database.** Units will use the LEAP QA database to capture MSEP data. **(T-1)**. The LEAP User's Manual provides information on registration, site management, and evaluation/inspection input and can be found at: <https://amcgl.csd.disa.mil/mi/LEAPOA/Account/Login.aspx?ReturnUrl=%2fmi%2fLEAPQA%2fDefault.aspx>.

6.8.1. LEAP QA Database Roles and Responsibilities. Roles in LEAP are assigned based on each user's authorized level of control needed. The roles themselves operate in a hierarchical manner with each successively higher role possessing all of the rights of the subordinate roles. Only one role will be assigned to a LEAP user at any given time.

6.8.1.1. Application Administrator. This role is limited to Defense Information System Administration (DISA) programming staff and Program Management Office (PMO) personnel only. They perform Department of the AF-wide database management and modification. LEAP Application Administrator will:

6.8.1.1.1. Host a quarterly (virtual) Functional Review Board (FRB) and an annual (Physical or Virtual) Functional Review Board. **(T-1)**.

6.8.1.1.1.1. Attendees shall include: DISA Programming staff, PMO, AF/A4LM LEAP representative, Functional Administrators, and when possible, Site Managers. **(T-1)**.

6.8.1.2. Provide initial training to Functional Administrators and Site Managers as necessary. **(T-1)**.

6.8.1.3. Update the LEAP User's Manual as necessary. **(T-1)**.

6.8.1.4. Provide a monthly status of all System Change Requests (SCRs). **(T-1)**.

6.8.2. Functional Administrator. LEAP Functional Administrators provide overall database management and typically operate at the MAJCOM level. Usually assigned to a MAJCOM's policy section, they ensure proper use and alignment of the database with current policy

guidelines. They also operate as the primary focal point for all LEAP-related issues within their MAJCOM and coordinate directly with the LEAP PMO. LEAP Functional Administrators will:

6.8.2.1. Manage access to LEAP either directly or through local site offices that have the capability for delegation for Site Managers only, for example, G081 Manager on site. **(T-1)**.

6.8.2.2. Develop and assign LEAP Finding Codes IAW MAJCOM directives. **(T-1)**.

6.8.2.3. Create, modify, and manage sites within the LEAP Database for their MAJCOM. **(T-1)**.

6.8.2.4. Transcribe and manage Command Task Lists (CTL) in LEAP IAW MAJCOM directives (example, RILs).

6.8.2.5. Assist local Site Managers with day-to-day operations in LEAP to include troubleshooting and reporting SCRs to the PMO. **(T-1)**.

6.8.3. Site Manager. LEAP Site Managers provide local oversight for their respective Group (or equivalent). Possessing “base level” control, they are able to approve and modify LEAP Users and assign roles up to and including other Site Managers. While there is no limitation to how many Site Managers can be assigned per site, the level of control available should warrant assignment based on appropriate rank/position (typically, QA Superintendent and Chief Inspector). LEAP Site Managers will:

6.8.3.1. Manage access to LEAP by coordinating new user documentation with their assigned G081 Manager and approving accounts in LEAP after user registration. **(T-1)**.

6.8.3.2. Modify user accounts according to need. **(T-1)**.

6.8.3.3. Ensure LEAP users are deactivated or downgraded in LEAP when out-processing the QA office. **(T-1)**.

6.8.3.4. Create Flights and Sections in LEAP to which evaluations will be assigned. **(T-1)**.

6.8.3.5. Assign RILs (Command Task Lists/Site Task Lists) within the LEAP application to Organizational Sites in order to facilitate entry of the MXG’s Evaluation and Inspection Plan. **(T-1)**.

6.8.3.5. **(AFRC)** Current CTL posted on HQ AFRC/A4MM SharePoint® site located at <https://afrc.eim.us.af.mil/sites/A4/A4M/QA/default.aspx> **(T-2)**.

6.8.3.5.1. **(Added-AFRC)** Units and NAFs may develop STLs as required **(T-2)**.

6.8.3.6. Build and manage the E&I Plan (if used) in LEAP and ensure it incorporates all MAJCOM specific requirements. **(T-1)**.

6.8.3.6. **(AFRC)** Unit has an option; build and manage E&I plan in LEAP or use a locally created plan **(T-2)**.

6.8.4. Read-Only Guest. LEAP Read-Only Guests are intended to be supervisory personnel and unit leadership who require regular access to LEAP Reports and Evaluation documentation.

**6.9. QA Product Improvement Programs (PIP).** QA runs PIP for the maintenance complex. Combined with daily maintenance data reporting, the PIP monitors and reviews maintenance data to identify opportunities to improve aircraft and equipment. PIP includes the following programs:

6.9.1. DR Reporting.

6.9.2. TO RC requests.

6.9.3. SMR code change request(s).

6.9.4. Configuration Management (CM) and Modification Management Program; AF Form 1067, Modification Proposal; and TCTOs.

6.9.4.1. QA is responsible for CM and Modification Management. This includes reviewing, submitting and tracking unit modification proposals being worked by MAJCOMs/Lead Commands and ensuring proper implementation of approved modification instructions or TCTOs.

6.9.4.2. QA will manage/document modifications IAW **Chapter 14** of this instruction, AFI 63-101/20-101, TO 00-20-2 and TO 00-5-15. **(T-1)**.

6.9.4.3. QA will establish a process for updating the weapon systems MIS that require manual updates for TCTO configuration. **(T-1)**.

6.9.5. Product Improvement Manager (PIM). The MXG/CC or equivalent will assign a PIM within their organization with responsibilities as specified in this **Chapter**. **(T-1)**. The PIM promotes deficiency reporting and provides a sound PIP based on inputs from maintenance activities. The PIM interacts with assigned AFETS personnel, FSR and MAJCOM/Lead Command as applicable to remain cognizant of ongoing and new improvement initiatives. The PIM emphasizes and promotes product improvement initiatives 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.

6.9.5.1. Deficiency Reporting. DR is the process of reporting prescribed by TO 00-35D-54. Maintenance processing of warranty items is located in TO 00-20-3. The PIM's will:

6.9.5.1.1. Monitor the DR process to ensure items are properly loaded in the MIS database. **(T-1)**.

6.9.5.1.2. Ensure compliance with acceptance inspection reporting requirements on DRs for aircraft returning from depot or contractor maintenance. **(T-1)**.

6.9.5.1.3. Ensure DRs are submitted using Joint Deficiency Reporting System (JDRS) at <https://jdrs.mil>. **(T-1)**.

6.9.5.1.4. Review the DR prior to releasing to the ALC or AFMC Maintenance Wings IAW TO 00-35D-54. **(T-1)**.

6.9.5.1.5. Verify each report against pertinent publications and assign the appropriate precedence and category. **(T-1)**.

6.9.5.1.6. Screen reported deficiencies for possible unit-unique contributing factors and initiate management action on unsatisfactory conditions resulting from local procedures or a lack of technical capability. **(T-1)**.

6.9.5.1.7. Perform/coordinate a technical review of DRs returned to the unit without an adequate response to determine whether resubmitting with additional information is warranted. **(T-1)**.

6.9.5.1.8. Perform exhibit-processing oversight by coordinating with the ALC and the LRS to ensure proper exhibit control and handling. **(T-1)**.

6.9.5.2. RC Process. The PIM will review and route RCs IAW TO 00-5-1. **(T-1)**.

6.9.5.3. SMR code change request. Submit an SMR code change request IAW TO. 00-25-195, *AF Technical Order System Source, Maintenance, and Recoverability Coding of Air Force Weapons, Systems, and Equipment*. The PIM will:

6.9.5.3.1. Track the status of SMR change requests. **(T-1)**.

6.9.5.3.2. 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. **(T-1)**.

6.9.5.3.3. Coordinate repair evaluation meetings when approved SMR change requests affect several agencies. **(T-1)**. Ensure units with active AFREP coordinate SMR code changes through the PIM prior to submission to the MAJCOM AFREP Manager. **(T-1)**.

6.9.5.3.4. Serve as focal point for base-level repair and manufacturing capability. **(T-1)**.

**6.10. Technical Order Distribution Office (TODO).** The TODO ensures TOs and CPINS are managed IAW AFI 63-101/20-101, TO 00-5-1, TO 00-5-15 and TO 00-5-16. TO 00-5-1 provides criteria for establishing levels of TO distribution activities. Additionally, TODOs shall control electronic technical data configuration IAW **Chapter 8** of this instruction. **(T-1)**. Establish the PMEL TODO under the control of the TMDE Flight. **(T-1)**. The TODO will:

6.10.1. Coordinate with QA SME for each incoming TCTO to determine applicability. **(T-1)**.

6.10.1.1. All TCTOs received from outside agencies need to be routed through QA for the review process.

6.10.1.2. TCTO applicability is determined by aircraft serial number for aircraft, engine serial number for engines, and by part number or other specific criteria for commodities.

6.10.1.3. TCTOs need to be manually or electronically date stamped to reflect the date the electronic or hard copy is received.

6.10.1.3.1. Date stamping all TCTOs with the date received indicates QA has reviewed the TCTO and that applicability has been determined.

6.10.1.3.2. TCTO electronic date stamping can be accomplished by either (1) utilizing a locally-developed spreadsheet containing the minimum following information: TCTO number, MDS, receiving TODO name, applicability determination and the date received, all of which must be associated with the corresponding TCTO or (2) inserting the receipt date on the TCTO utilizing the Adobe Tools feature. For either option, the date received will be entered by the QA TODO responsible for tracking TCTOs. **(T-1)**.

6.10.1.3.2.1. If used, the TCTO tracking spreadsheet or Adobe-inserted date



stamped TCTOs will be electronically secured and controlled by the receiving QA office. **(T-1)**.

6.10.1.3.3. Only date-stamped TCTOs are authorized for use. **(T-1)**.

6.10.1.4. Post TCTO file copies IAW TO 00-5-1. **(T-1)**.

6.10.1.4.1. TCTO file copies may be posted and distributed in electronic format provide all requirements of TO 00-5-1 and AFMAN 33-363 are sustained. Electronic TCTO distribution is automated for ETIMS/IETM.

6.10.1.5. For hard copy TCTOs, provide a file copy of the TCTO to PS&D. **(T-1)**.

6.10.1.6. Ensure personnel assigned as TODO/Technical Order Distribution Account (TODA) managers meet requirements set forth in TO 00-5-1 and AFI 63-101/20-101. **(T-1)**.

6.10.2. Manage the QA Central TO File. **(T-1)**.

6.10.2.1. As a minimum, the QA Central TO File must contain copies of general and procedural TOs and copies of all TCTOs pertaining to the assigned aircraft and equipment owned, operated or maintained. (Paper copies for paper TOs or local access for digital TOs) **(T-1)**.

6.10.2.2. The file is kept to meet QA requirements, not to duplicate TOs held by maintenance work centers.

6.10.3. Manage TO accounts using ETIMS IAW TO 00-5-1. **(T-1)**.

6.10.4. Limit use of Local Work Cards, Local Job Guides, Local Page Supplements or Local Checklists to accomplish maintenance on AF equipment. **(T-1)**. Locally prepared technical instructions will not be used to circumvent approved technical data (see TO 00-5-1). **(T-1)**.

6.10.4.1. The TODO will review and manage all locally developed products IAW TO 00-5-1 and MAJCOM supplements for safety and adequacy of procedures. **(T-1)**.

6.10.4.2. Local Work Cards, Local Job Guides, Local Page Supplements and Local Checklists need to be reviewed for currency when source reference data changes.

6.10.4.3. TODO will develop local publications IAW AFI 33-360 to ensure compliance with these policies. **(T-1)**.

6.10.5. Prepare a list of all changes and revisions to indexes, TOs, inspection work cards and checklists. **(T-1)**.

6.10.5.1. This list will include TO number and date received. **(T-1)**.

6.10.5.2. The TODO will date stamp the cover page of all paper TOs, changes, supplements, Local Work Cards, Local Job Guides, Local Checklists and CPINS to reflect the date the hard copy is received. **(T-1)**.

6.10.5.2.1. This list will be included in the wing's weekly maintenance plan and flying schedule or electronically linked. **(T-1)**.

6.10.5.2.2. Supervisors need to review the list of changes and ensure all personnel are aware a change or revision has been received.

6.10.5.3. “Immediate” action TCTOs must be implemented upon receipt, and “Urgent Action” TCTOs, safety supplements and interim supplements must be brought to the attention of local maintenance supervision within 24 hours of receipt. **(T-1)**. **Note:** Communication of a grounding, or potential grounding event (TCTO, OTI, PM event) to weapon systems operating in a deployed environment and/or under the authority of an operational command must follow the grounding procedures outlined in AFI 11-401, and 63-101/20-101. Units will not directly communicate home station requirements to its deployed forces but provide communication through their respective MAJCOM. **(T-1)**.

6.10.6. Ensure all authorized technical data variances are kept with aircraft and equipment historical records IAW **Chapter 14** of this instruction. **(T-1)**.

6.10.7. If designated as Lead TODO (primary as designated in block 5 of the AFTO Form 43 per TO 00-5-1), will conduct a management inspection on other maintenance TODOs/TODAs in the maintenance complex at least annually along with performing spot checks of TO files. **(T-1)**.

6.10.7.1. 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. **(T-1)**.

6.10.7.2. The Lead TODO(s) will coordinate with other TODOs and TODAs, and local Client Support Administrators, Functional Systems Administrators, and applicable functional OPRs to ensure eTools are configured with current and only authorized software to support TO and maintenance documentation. **(T-1)**. **Note:** Coordination with the local Communications Squadron to verify network configuration requirements for eTools are available and sustained to meet the requirements listed in TO 31S5-4-ETOOOL-1-WA-1. Additional user support available through the Air Force Technical Order Functional Support Team, [af.etimstofst@us.af.mil](mailto:af.etimstofst@us.af.mil) or DSN 872-9300.

6.10.8. Control the electronic data configuration on applicable eTools IAW **Chapter 8** of this instruction. **(T-1)**.

6.10.8.1. TODO/ Functional Systems Administrators will develop local procedures to quarantine eTools and eTool update history in the event of a mishap. **(T-1)**.

6.10.9. Maintain records of ETIMS IAW TO 00-5-1. **(T-1)**.

6.10.9.1. TODOs shall set up software sub-accounts with each appropriate shop/section and ensure each shop/section has the most current software on hand. **(T-1)**.

6.10.9.2. TODOs will include ETIMS or equivalent system in the routine and annual checks required by TO 00-5-1. **(T-1)**.

**6.11. One-Time Inspections (OTI) program.** The OTI program is 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.

**6.11. (AFRC) HQ AFRC/A4MA is the MAJCOM OPR for OTIs.** HQ AFRC/A4MA will coordinate OTIs for consideration for AFRC fleet wide inspection and/or submittal to the Lead Command. HQ AFRC/A4MA will file MAJCOM OTIs and control MAJCOM OTI numbering.

6.11.1. (Added-AFRC) Send electronic copy of all unit OTIs to HQ AFRC/A4MA ([afrc.a4ma@us.af.mil](mailto:afrc.a4ma@us.af.mil)) and courtesy copy the applicable NAF/A4M (T-2).

## 6.12. Functional Check Flights (FCFs) to include Operational Check Flights (OCFs).

6.12.1. Check Flights are performed to ensure an aircraft is airworthy and/or capable of accomplishing its mission. Additional guidance may be found in AFI 11-401, AFI 11-202 V3, *General Flight Rules*; AFI 13-201, *AF Airspace Management*; TO 1-1-300, *Maintenance Operational Checks and Check Flights*; TO 00-20-1; and applicable -6 TOs and -1 Flight Manuals.

6.12.1.1. OCF shall be kept to a minimum and are not used to replace TO 1-1-300, *Maintenance Operational Checks and Check Flights* or MDS specific -6 TO Functional Check Flight (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. (T-1).

6.12.2. The QA FCF Program Manager will:

6.12.2.1. Establish local FCF procedures IAW TO 1-1-300 and checklists for any specific local aircraft requirements to include configuration, administration, control, and documentation of the FCF Program. (T-1).

6.12.2.1.1. Coordinate these procedures with OG Standardization/Evaluation and publish them in a wing publication/supplement IAW AFI 33-360. (T-1).

6.12.2.2. 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. (T-1).

6.12.2.3. Maintain an information file for briefing aircrews. (T-1).

6.12.2.3.1. As a minimum, this file must contain unit directives concerning FCF procedures and an FCF checklist for each MDS assigned. (T-1).

6.12.2.4. An FCF checklist will be used for each FCF. (T-1).

6.12.2.5. Ensure all FCFs are debriefed with the appropriate debrief function. (T-1).

6.12.2.5.1. During debriefing, the FCF checklist and aircraft forms will be reviewed to determine if all requirements have been accomplished. (T-1).

6.12.2.5.2. After completing the review, the FCF checklist will be sent to PS&D for inclusion in the aircraft jacket file. (T-1).

6.12.2.6. Maintain a copy of the AF Form 2400, *Functional Check Flight Log*, or equivalent automated product for deficiency and trend analysis. (T-1).

6.12.3. FCF-qualified QA Inspectors will:

6.12.3.1. 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. (T-1).

6.12.3.2. Ensure aircraft W&B documents are reviewed. (T-1).

6.12.3.3. Ensure AF Form 2400 or an equivalent automated product is maintained to provide information for evaluation and analysis. **(T-1)**.

6.12.3.3.1. Include the date and time of the FCF, aircraft serial number, reason for FCF, name of debriefer and name of aircraft commander. **(T-1)**.

6.12.3.3.2. The AF Form 2400 or equivalent automated product will also indicate 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. **(T-1)**.

6.12.3.4. Ensure all maintenance actions are completed and all AFTO Form 781-series forms are documented IAW MDS specific -6 TO and TO 00-20-1 or electronic equivalent. **(T-1)**.

6.12.3.5. All maintenance actions on transient aircraft requiring FCF must be reviewed by QA prior to FCF. **(T-1)**.

6.12.3.5.1. 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. **(T-1)**.

6.12.4. Flight Requirements. The mandatory requirements for FCF are outlined in TO 1-1-300 and the applicable -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. The FCF profile will be tailored for the discrepancy causing the FCF by applying the following guidance:

6.12.4.1. Require a clean configuration whenever FCFs are flown for flight controls, fuel controls or engine changes. **(T-1)**.

6.12.4.2. 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. **(T-1)**.

6.12.4.3. Do not fly FCFs in conjunction with other missions or training requirements, unless authorized in TO 1-1-300. **(T-1)**.

6.12.5. 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.

6.12.5.1. 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 upon 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.

6.12.6. MAJCOMs will determine the process and level of command that will issue instructions for FCF procedures away from home station in their supplements to this AFI.

6.12.6. (AFRC) Coordinate required FCF through off-station transient alert and off-station QA sections (if available) (T-2). If capability does not exist, owning MXG/CC and owning OG/CC will issue guidance directly to aircraft commander and off-station maintenance personnel (T-2).

**6.13. Inflight Operational Checks.** Inflight operational checks (as applicable) will be accomplished IAW TO 1-1-300, TO 00-20-1 and applicable -6 and -1 TOs. (T-1).

6.13.1. Document inflight operational checks IAW TO 00-20-1.

**6.14. High Speed Taxi Checks.** The MXG/CC and OG/CC may authorize high speed taxi checks when a maintenance ground operational check requires aircraft movement at higher than normal taxi speeds (with qualified FCF aircrews) to operationally check completed maintenance.

6.14.1. High speed taxi checks (as applicable) will be accomplished IAW TO 1-1-300 instead of FCFs. (T-1).

6.14.1.1. Process aircraft forms through QA using FCF procedures. (T-1).

6.14.1.2. QA will develop an aircrew briefing checklist specifically for high speed taxi checks, to include the required FCF briefing items and pertinent warnings, cautions. (T-1).

6.14.2. Configure aircraft with the minimum -1 operational fuel requirements. (T-1).

6.14.3. Ensure aircraft is prepared for flight and the Exceptional/Conditional Release is signed off prior to conducting high speed taxi checks. (T-1).

**6.15. Weight and Balance (W&B) Program.** QA will maintain the W&B Program IAW TO 1-1B-50, *Basic Technical Order for USAF Aircraft Weight and Balance*. (T-1).

6.15.1. W&B manuals for Class I and II aircraft are maintained in a central file. (T-1).

6.15.1.1. The Lead Command will standardize the method of supplemental handbook storage and physical location for like-MDS aircraft. (T-2).

6.15.2. QA will manage W&B on commercial derivative aircraft IAW **Chapter 6** of this instruction. (T-1). **Note:** The contractor is responsible for managing W&B programs on contract logistics supported aircraft.

6.15.3. The W&B Program Manager will ensure:

6.15.3.1. Sufficient personnel are qualified on assigned aircraft IAW TO 1-1B-50. (T-1).

6.15.3.2. All assigned aircraft are weighed IAW prescribe MDS specific publications and directives. (T-1). The W&B Program Manager will:

6.15.3.2.1. Keep W&B documents required by TO 1-1B-50 for each assigned aircraft. (T-1).

6.15.3.2.2. Use the Automated Weight and Balance System, and maintain a back-up copy of all W&B documents. (T-1).

6.15.3.3. Procedures are established for routing completed TCTO and modification information for W&B changes. (T-1).

6.15.3.4. Essential W&B data and changes to the basic weight and moment are available for appropriate mission planning (such as, Standard Configuration Loads, updates to supplemental handbook). **(T-1)**.

6.15.3.5. Periodic serviceability inspections are accomplished on unit-stored and maintained W&B equipment (as applicable). **(T-1)**.

6.15.3.6. Coordination with Operations Officer/MX SUPT in developing a W&B Preparation Checklist if the aircraft -5 TO is not comprehensive enough for the task. **(T-1)**.

6.15.3.7. The SCR reflects W&B certification. **(T-1)**.

6.15.4. W&B Qualified QA Inspector Responsibilities. The W&B Qualified QA Inspector will:

6.15.4.1. Verify scale readings and accomplish/oversee the actual computations. **(T-1)**.

6.15.4.2. Supervise the preparation, leveling and weighing of the aircraft IAW MDS specific -2 and -5 series TOs and TO 1-1B-50. **(T-1)**.

6.15.4.3. Inspect W&B documents before flight when locally-accomplished modifications affect the basic aircraft weight and moment. **(T-1)**.

6.15.4.4. Review computations for accuracy. **(T-1)**.

## Chapter 7

### IMPOUNDMENT PROCEDURES

**7.1. 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. Impounding aircraft and equipment enables investigative efforts to systematically proceed with minimal risk relative to intentional/unintentional actions and subsequent loss of evidence.

**7.2. Specific Guidance.** MXG/CCs, or equivalent, will develop and implement a standardized Impound Official training course. The course will include review of applicable AFIs, TOs, impoundment clearing procedures, and leverage FSR and AFETS expertise to ensure Impound Official is prepared to assume all duties and responsibilities of an impoundment official.

7.2.1. MXG/CCs, or equivalent, will ensure compliance with the procedures in this **Chapter** and will develop a local Impoundment Program. **(T-1)**. Local program procedures, requirements and responsibilities will be captured in a local supplement to this instruction. **(T-1)**.

7.2.1.1. QA is the OPR for the Impoundment Program and will develop local impoundment checklists. **(T-1)**.

7.2.1.2. QA in coordination with MT, will serve as the OPR and focal point for the management of the Impound Official training course. The course completion is mandatory prior to being assigned as an Impound Official. **(T-1)**.

7.2.2. The MXG/CC and MXG/CD or equivalents are the Impoundment Release Authorities. **(T-1)**.

7.2.2.1. In the event of a dual MXG/CC and CD absence, the MXG/CC or CD will appoint an individual as the designated Impoundment Release Authority for the period of the dual absence. **(T-1)**.

7.2.3. The Impoundment Release Authority determines the need for a one-time flight and will coordinate appropriate authorization IAW TO 00-20-1. **(T-1)**. **Note:** If the aircraft/equipment were impounded for a mishap, coordinate with the safety office prior to releasing the aircraft/equipment from impound. **(T-1)**.

7.2.4. MAJCOMs will determine the amount of time unit QAs will maintain copies of finalized Impoundment reports in their supplement to this AFI. **Note:** See Air Force Records Information Management System (AFRIMS) Reference.

### 7.3. Impoundment Authorities.

7.3.1. Impoundment Authorities are designated by the MXG/CC or equivalent and will be tracked on the SCR. **(T-1)**. Impoundment Authorities will:

7.3.1.1. Select the Impoundment Official. **(T-2)**.

7.3.1.2. Determine if impoundment is warranted when:

7.3.1.2.1. An aircraft landing gear fails to extend or retract due to an unknown condition. (T-1).

7.3.1.2.2. The aircraft has been confirmed as being contaminated with chemical, biological, or radiological materials. (T-1).

7.3.1.2.3. An aircraft sustains FO damage from an unknown cause. (T-1).

**7.4. Impoundment Official Responsibilities.** The Impoundment Official is designated as the single POC for impounded aircraft or equipment and will hold the minimum rank of MSgt and will be tracked on the SCR. (T-1). The Impoundment Official will:

7.4.1. Be responsible for controlling and monitoring the investigation of impounded aircraft or equipment. (T-1).

7.4.2. Use established checklists to guide the sequence of actions. (T-1).

7.4.3. Control and track access of personnel to impounded aircraft or equipment. (T-1).

**7.5. Mandatory Impoundments.** Aircraft and/or equipment will be impounded:

7.5.1. When the Impoundment Authority determines extraordinary measures are required to address any degradation of aircraft airworthiness or serious aircraft/equipment anomaly. (T-1).

7.5.2. Following an aircraft mishap as defined in AFI 91-204 and AFMAN 91-223, *Aviation Safety Investigations and Reports*. (T-1).

7.5.3. When support equipment is known or suspected to have been a factor in a mishap or may have contributed to injuries. (T-1).

7.5.4. Following an un-commanded flight control movement. (T-1). The MXG/CC and OG/CC will determine the need for an FCF for uncommanded flight control movement. (T-1).

7.5.5. Following an inadvertent ordnance release or explosive mishap. (T-1).

7.5.6. 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. (T-1).

7.5.7. Following aircraft engine anomalies to include but not limited to:

7.5.7.1. Unselected propeller reversal. (T-1).

7.5.7.2. Flameout/stagnation (for single engine aircraft). (T-1).

7.5.7.3. Unselected power reversal. (T-1).

7.5.7.4. Engine case penetrations, ruptures, or burn-through from an internal engine component. (T-1).

7.5.7.5. When an aircraft experiences a loss of thrust sufficient to prevent maintaining level flight at a safe altitude. (T-1). This includes all cases of multiple engine power loss or roll back.

7.5.7.6. Engine damage due to a foreign object and source of FO is determined to be internal to the engine. (T-1). For Propeller driven aircraft, both the propeller and engine will be impounded as a single unit when the engine has confirmed internal damage due to a foreign object. (T-1).



7.5.7.7. Engine damage which occurs during transport. **(T-1)**.

7.5.8. Following an in-flight fire. **(T-1)**.

7.5.9. When an aircraft experiences an in-flight loss of all pitot-static system instruments or all gyro stabilized attitude or direction indicators. **(T-1)**.

7.5.10. When there is evidence of intentional damage, tampering, or sabotage. **(T-1)**.

7.5.11. When physiological incidents attributable to aircraft systems or cargo occurs. **(T-1)**.

## **7.6. Impoundment Procedures.**

7.6.1. When the Impoundment Authority directs impoundment, a Red X symbol will be placed in the applicable AFTO Form 781A for aircraft, applicable engine work packages for uninstalled engines or AFTO Form 244 for equipment (or electronic form equivalents) with a statement indicating the reason for impoundment and the name of the assigned Impoundment Official. **(T-1)**.

7.6.2. The MOC will be notified when an impoundment decision has been made. **(T-1)**.

7.6.3. Aircraft or equipment records will be controlled at the discretion of the Impoundment Official. **(T-1)**. When required, the Impoundment Official will:

7.6.3.1. Obtain and secure the current aircraft forms and the aircraft jacket file for aircraft, applicable engine work packages for uninstalled engines, or the AFTO Form 244 for equipment (or electronic form equivalents). **(T-1)**.

7.6.3.2. Notify the MIS DBM administrator 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. **(T-1)**.

7.6.3.3. Request and collect any training records, required to complete the impoundment investigation. **(T-1)**.

7.6.3.4. On aircraft impounded for potential safety related incidents, ensure the Cockpit Voice Recorder/Flight Data Recorder circuit breakers are pulled immediately after engine shutdown or before applying external power to safeguard Cockpit Voice Recorder/Flight Data Recorder data, if equipped. **(T-1)**.

7.6.3.5. Ensure impounded aircraft/equipment is identified by cordon with cones, ropes or placards indicating impound condition and aircraft location. **(T-1)**.

7.6.4. Impoundment Official will limit maintenance actions on impounded aircraft or equipment until the cause is determined. **(T-1)**.

7.6.4.1. The Impoundment Official will determine what maintenance can be performed in conjunction with the maintenance required to release the aircraft or equipment from impoundment. **(T-1)**.

7.6.4.1.1. Impoundment Official will validate aircraft disposition with Wing Safety to determine if a safety investigation is ongoing. **(T-1)**.

7.6.4.2. Parts removed from impounded aircraft or equipment will be carefully controlled. **(T-2)**. This is to ensure that parts, once confirmed as the cause for impoundment, are available to be processed as DR exhibits.

7.6.5. The Impoundment Official will select a team of qualified technicians dedicated to determine the cause of the problem that led to the impoundment. **(T-1)**.

7.6.5.1. Impoundment team members will be relieved of all other duties until released by the Impoundment Official. **(T-2)**.

7.6.6. Once the cause of the malfunction or failure has been positively determined, the Impoundment Official will brief the Impoundment Release Authority on findings, corrective actions, and requests release of the aircraft or equipment from impoundment. **(T-1)**.

7.6.7. If the cause of the discrepancy could potentially affect other aircraft or equipment in the fleet, QA will provide cross-tell information for up-channeling to the MAJCOM and the designated Lead Command IAW AFD 10-9. **(T-1)**.

7.6.7. **(AFRC)** Up channel information to appropriate NAF/A4 and HQ AFRC/A4M ([afrc.a4m@us.af.mil](mailto:afrc.a4m@us.af.mil)). **(T-2)**.

7.6.8. Clear impoundments from forms/MIS IAW TO 00-20-1. **(T-1)**.

7.6.9. 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 (such as, requesting depot assistance, further troubleshooting, FCF/OCF). **(T-2)**.

7.6.10. MAJCOMs will publish guidance outlining impoundment and release procedures for transient aircraft.

7.6.10. **(AFRC)** The transient location MXG/CC (or equivalent) will coordinate with the home station MXG/CC on impounded aircraft **(T-2)**. The transient location MXG/CC (or equivalent) will be responsible for all impoundment procedures except impoundment release authority **(T-2)**. Coordinate with the home station MXG/CC for impoundment release **(T-2)**.

7.6.10.1. At locations where no MXG/CC or designated representative is available, the aircraft assigned MXG/CC may temporarily delegate Impoundment and Release Authority.

**7.7. Rules of Impoundment Specifically for Explosive-Related Events/Mishaps.** When an inadvertent release or an explosive mishap is reported, the following procedures will apply:

7.7.1. In-flight:

7.7.1.1. When the involved aircraft returns to the de-arm or parking area, the aircraft will be impounded. **(T-1)**. Limit maintenance actions to those required to make the aircraft safe.

7.7.1.2. The MXG/CC, MOC, Munitions Control, WWM, QA and Wing Safety will be notified of the impoundment action. **(T-1)**.

7.7.1.3. The aircraft with unsafe munitions will be parked and isolated in an area approved by the weapons safety office and airfield management. **(T-1)**.

7.7.1.4. Investigate and report the incident IAW AFI 91-204. **(T-1)**.

7.7.2. Ground:

7.7.2.1. The senior ground crew member will be in charge of the aircraft or equipment until relieved and will ensure involved persons remain at the scene. **(T-2)**.

7.7.2.2. Protect other aircraft or equipment located near the incident if an explosive hazard exists. **(T-1)**.

7.7.2.3. Do not change the position of any switches except as needed for safety. **(T-1)**.

7.7.2.3. **(AFRC) Note:** If possible, local QA should photograph switch positions prior to making the aircraft safe.

7.7.2.4. Limit maintenance actions to those actions required to make the aircraft or equipment safe. **(T-1)**.

7.7.3. Preserve mishap evidence to the maximum extent possible. **(T-1)**. 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.

7.7.4. If an incident, malfunction, or mishap is suspected to have occurred or caused by in-use, installed, or otherwise configured munition (live or inert), or a 20 or 30MM gun system jam creating a safety condition, notify the Global Ammunition Control Point Air Force Life Cycle Management Center, Munition Division (AFLCMC/EBH) Munitions Rapid Response Team: DSN: 312-777-2666; COMM: (801) 775-2666, and the MAJCOM munitions staff. **(T-1)**.

7.7.4. **(AFRC)** Notify the MAJCOM at HQ AFRC/A4M ([afrc.a4m@us.af.mil](mailto:afrc.a4m@us.af.mil)) **(T-2)**. Info copy the appropriate NAF A4M **(T-2)**.

7.7.4.1. Refer to AFI 91-202 for additional information about the Munitions Rapid Response Team. **Note:** The Munitions Rapid Response Team can also provide units technical assistance in resolving recurring 20 or 30MM gun system jams and malfunction isolation.

7.7.5. For impoundments involving nuclear loaded weapon systems (see [Paragraph 7.5.6](#) of this instruction) also follow applicable requirements/criteria outlined in AFI 91-107. **(T-1)**.

## Chapter 8

### TOOL AND EQUIPMENT MANAGEMENT

**8.1. 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. MAJCOMs will identify small unique unit tool and equipment management requirements in a supplement, addendum or deviation as described in the purpose statement of this AFI. DFT/CFT will adhere to local tool control policies and procedures provided in the MXG/MXO in-brief (see **Paragraph 5.2.1.9** of this instruction) when working on aerospace equipment possessed by the unit. The AF enterprise Tool Accountability System is TCMaX®. **(T-1)**. Exception: N/A to aircraft/weapon system programs that provide tool and equipment accountability support as an internal function of the program (e.g., F-35 ALIS).

**8.2. Guidelines for Program Management.** Wings will document procedures for the control and management of all tools/equipment used for aircraft/aerospace equipment maintenance or which enter the flightline or aerospace equipment maintenance industrial areas, to include all wing organization's (Hospital, CE, vehicle Mx, Security Forces), to provide mission support in a wing level publication IAW AFI 33-360. **(T-1)**. The MXG/CC, or equivalent, is the OPR for development of this publication and will coordinate with all wing organizations that work in, or enter, the above mentioned areas to ensure they have established tool/equipment control procedures documented in the wing publication. **(T-1)**. As a minimum, guidance will address the following:

8.2.1. Standardized procedures for security, control, and accountability of tools and equipment. **(T-1)**.

8.2.1. **(AFRC)** Units will develop local procedures to ensure positive control of dispatchable aircraft, vehicle, and trailer mounted CTKs **(T-2)**. Include procedures for the control of weapons load crew crimpers, die, lead seals, and engine blade blending blue dye **(T-2)**.

8.2.1.1. Chits are not authorized.

8.2.1.2. **(Added-AFRC)** Develop local procedures to cover out/in procedures for tool control in instances where only one person is assigned to a shift/work center **(T-2)**.

8.2.2. Inventory requirements. **(T-1)**. As a minimum, units will conduct and document an annual inventory of all tools and equipment. **(T-1)**.

8.2.2.1. **(Added-AFRC)** Replacement tools will be inventoried quarterly **(T-2)**. Document these inventories on locally identified form or electronic equivalent **(T-2)**.

8.2.3. Procedures for warranted tool management. **(T-1)**.

8.2.3.1. Procedures to tag/segregate unserviceable warranty tools. **(T-1)**.

8.2.3.2. **(Added-AFRC)** Warranty Tool Program. Warranty tools are obtained by local contracts with the warranty tool vendor. When preparing background information for base contracting office, the following general guidelines apply:

- 8.2.3.2.1. **(Added-AFRC)** Ensure all MIL SPEC and other requirements are identified **(T-3)**. Provide as much information as possible on desired strength, finish, insulation, physical dimensions, magnetic properties, laser etching, and size of letters.
- 8.2.3.2.2. **(Added-AFRC)** Specify desired replacement tool requirements **(T-3)**.
- 8.2.3.2.2.1. **(Added-AFRC)** Specify replacement tool delivery time **(T-3)**.
- 8.2.3.2.2.2. **(Added-AFRC)** Determine etching requirements of replacement tools **(T-3)**.
- 8.2.3.2.3. **(Added-AFRC)** Identify work center responsible for maintaining replacement tools and number of tools stocked **(T-3)**.
- 8.2.3.2.4. **(Added-AFRC)** Allow direct contact with the vendor to replace tools **(T-3)**.
- 8.2.4. Procedures for control and management of replacement, expendable and consumable hand tools, HAZMATs, and other items contained in CTKs. **(T-1)**.
- 8.2.4.1. **(Added-AFRC)** Expendable hand tools such as blades, apexes, files, and file cleaners consumed during use will be tracked in TCMax® **(T-2)**.
- 8.2.5. Procedures for transfer of tools/CTKs at the job site (on-site transfers). **(T-1)**.
- 8.2.5.1. 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. **(T-1)**.
- 8.2.5.2. **(Added-AFRC)** An AFRC Form 177, *Consolidated Tool Kit Inventory and Control Log*, will be maintained in each CTK (including aircraft, vehicle, trailer mounted CTKs), and is used to record CTK/tool transactions at the job site **(T-2)**. The person signing out/assuming responsibility for the CTK/equipment/tool annotates the “out” time/signature block. The “in” block is annotated when the user returns the CTK/equipment. The person annotating the “out” block is not the same person annotating the “in” block.
- 8.2.5.3. **(Added-AFRC)** For aircraft/vehicle/trailer mounted CTKs, the AFRC Form 177 will be annotated when individual tools are transferred from one job site to another (e.g. aircraft to aircraft) **(T-2)**.
- 8.2.6. Procedures for lost or missing tools. **(T-1)**.
- 8.2.6.1. **(Added-AFRC)** Establish procedures for lost tools discovered after aircraft taxi/takeoff **(T-2)**.
- 8.2.7. Assignment of Equipment Identification Designators (EID) for CTKs, non-CA/CRL equipment, and assignment of CTK numbers for tools. **(T-1)**.
- 8.2.8. Procedures for issue, marking, and control of PPE, tools or equipment (such as, hearing protectors, reflective belts, headsets) assigned/issued to individuals. **(T-1)**.
- 8.2.8.1. **(Added-AFRC)** If the unit purchases personal tools for Maintenance Group or Operations Group personnel, they will be etched with an EID and accounted for in TCMax® **(T-2)**. **Exception:** PPE, tools, and equipment issued to aircrew from AFE shall be marked with an EID and follow the tracking requirements in AFI 11-301, Vol. 1 **(T-2)**.

8.2.8.2. **(Added-AFRC)** Unit purchased personal tools may be long term issued. Include procedures for inventory and accounting for these items in the local tool control instruction per **paragraph 8.2.8. (T-2)**.

8.2.9. Procedures to ensure positive accountability and control of rags. **(T-1)**.

8.2.9. **(AFRC)** Rag control applies to all personnel performing aircraft, munitions, and equipment maintenance **(T-2)**.

8.2.9.1. 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.

8.2.9.1.1. Cheesecloth is considered a rag; however, paper products/paper towels are not considered rags.

8.2.9.2. Rags should be uniform in size and color.

8.2.9.3. Marking or identifying each shop rag with a CTK number is not necessary.

8.2.10. Procedures to limit numbers of personnel authorized to procure tools. **(T-1)**.

8.2.11. Procedures for control of locally manufactured or developed tools and equipment. **(T-1)**.

8.2.12. Procedures for FSRs/DFTs/CFTs when working on equipment within the unit. **(T-1)**.

8.2.13. Standardized procedures and responsibilities for decentralizing CTKs, tools, and equipment outside tool room/support section to meet mission requirements. **(T-1)**.

8.2.13.1. Inventory and accountability requirements described in this AFI apply equally to all decentralized CTKs tools, and equipment. **(T-1)**.

8.2.14. Procedures for control of response equipment permanently stored/located in trailers or vehicles. **(T-1)**.

8.2.15. Procedures for requiring a second party or on-duty supervisor inspection of CTKs when conditions warrant a single person shift. **(T-1)**.

8.2.15.1. The same individual that signs out a CTK cannot sign it back in. **(T-1)**.

8.2.16. Procedures for controlled access to tool rooms. **(T-1)**.

8.2.17. **(Added-AFRC)** Procedures for control electronic devices **(T-2)**.

8.2.18. **(Added-AFRC)** FOD container/pouch requirements for dispatchable CTKs **(T-2)**.

### **8.3. General Program Guidelines.**

8.3.1. The Flight CC/SUPT will designate CTK custodians. **(T-1)**.

8.3.1.1. CTK custodians are responsible for tool, HAZMAT, and consumable asset accountability and control. Exception: A separate person may be designated as the HAZMAT monitor.

8.3.1.1. **(AFRC)** The CTK custodian will ensure CTKs/TKs are not issued for personal use **(T-2)**.

8.3.2. Flight CC/SUPT and/or Section NCOICs/Chiefs (or equivalents) will determine the type, size, contents and number of CTKs required for their work centers. **(T-1)**.

8.3.2.1. The WWM will make this determination for load crew CTKs, when assigned. **(T-1)**.

8.3.3. Design CTKs to provide for quick inventory and accountability of tools. CTKs and tools will be clearly marked with the Equipment Identification Designator (EID) (follow guidance below). **(T-1)**.

8.3.3. **(AFRC)** Multiple cabinets may be identified as one CTK. Tools will be marked with the assigned EID number **(T-2)**.

8.3.4. CTK contents will be standardized to the maximum extent possible within functional elements of a squadron that have similar missions (such as, aircraft flights/sections and Combat Armament Support Team). **(T-1)**.

8.3.5. Each tool, item of equipment, or consumable contained in a CTK will have an assigned location identified either by inlay cuts in the shape of the item, shadowed layout, label, or silhouette. **(T-1)**.

8.3.5.1. No more than one item will be stored in a cutout, shadow, or silhouette except for tools too small to be etched individually may be placed in CTKs as a set (such as, drill bits, allen wrenches, apexes, or paired items like gloves, booties). **(T-1)**.

8.3.6. A Master Inventory List (MIL) will be required for each CTK or series of identical CTKs. **(T-1)**.

8.3.6.1. 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. **(T-1)**.

8.3.6.2. When items such as dispatchable support equipment or dispatchable special tools are issued separately (not contained in a CTK) and contain multiple parts that are required for its use (such as, cartridges containing consumables, cables, hoses, adapters), a MIL of all the items will be provided with the support equipment or special tools to facilitate positive accountability of all items during checkout, transfer, and check in. **(T-1)**.

8.3.6.2. **(AFRC)** Dispatchable CTKs/equipment that does not have a manufacturer inventory list will contain a copy of the MIL **(T-2)**.

8.3.6.3. The MIL resides in the TCMax®, but a hard copy of the signed MIL must reside with each dispatchable CTK to provide the ability to verify the inventory regardless of location. **(T-1)**.

8.3.6.4. If items such as identification tags or dust caps are attached to tools/equipment, they will be secured in a manner that will minimize any possibility of FOD. **(T-1)**.

8.3.6.4.1. Items not permanently attached, will be marked/etched with the appropriate CTK number. **(T-1)**.

8.3.6.4.2. All items will be listed on the MIL. **(T-1)**.

8.3.6.5. Consumables may be placed in CTKs. If so, they will be identified on the MIL as consumables. **(T-1)**. Examples of consumables include; safety wire, adhesive, wire bundle lacing, solder.

8.3.6.5. **(AFRC)** Consumables within CTKs will be marked with the 4-digit WWID and identifying character(s) that ties the consumable back to the CTK **(T-2)**.

8.3.6.5.1. Do not include common hardware items such as bolts, nuts, and/or screws unless they are required for the tool to perform its intended function. Cartridges or equivalents containing consumable items whether disposable or not will be accounted for to mitigate FOD hazards. **(T-1)**.

8.3.6.6. Tool sets placed within a CTK will be identified on the CTK MIL by total number of items in the set (such as, allen wrench set - 9 each allen wrenches + container for a total of 10). **(T-1)**.

8.3.6.6.1. Items identified as too small to be marked, etched, or stamped, as approved by QA, will be annotated with a description of the individual items contained within the set on the CTK/MIL (such as, the variation in the size of the items contained within the set, Apex, file, drill bit, size). **(T-1)**.

8.3.6.7. Missing, removed and/or broken tools/items will be documented in the TCMa<sup>x</sup>® if they cannot be replaced immediately. **(T-1)**.

8.3.6.7.1. In addition, for dispatchable CTKs, dispatchable support equipment, and dispatchable special tools containing multiple parts, missing, removed and/or broken tools/items will be documented on a MAJCOM/locally generated form, or on the hard copy MIL. **(T-1)**.

8.3.6.7.1. **(AFRC)** TCMa<sup>x</sup>® generated form or AFRC Form 175, *Broken/Missing/Removed Tools and Equipment*, will be used in conjunction with a TCMa<sup>x</sup>® entry **(T-2)**. Maintain the form in the CTK. **(T-2)**. When a tool is reported missing or lost, indicate the date and time lost tool procedures were initiated. Items removed for calibration will be entered on this form **(T-2)**. When an AFRC Form 175 is full, initiate a new form and transfer all open entries to the new form **(T-2)**.

8.3.6.7.1.1. If a MAJCOM/locally generated form is used, the form will be kept with each dispatchable CTK, dispatchable support equipment and dispatchable special tools. **(T-1)**.

8.3.6.7.1.2. Pencil/pen may be used for hard copy MIL documentation and erased/lined through when cleared.

8.3.6.7.2. The EID will be removed from any permanently removed item/tool. **(T-1)**.

8.3.6.7.3. A permanently removed (without planned replacement) item/tool constitutes a change to the inventory and requires a new MIL.

8.3.6.7.4. The CTK custodian has the authority to interchange "like" (form, fit, function) items.

8.3.6.7.5. **(Added-AFRC)** When interchanging like items that are not identical (different brand, shape, etc.), annotate changes on the MIL, initialed and dated by the approving authority until the MIL is updated and reproduced **(T-2)**.



8.3.7. 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; however, this equipment must have designated storage locations established. **(T-1)**.

8.3.7.1. Designated locations may be work areas or stations.

8.3.8. The CTK Custodian will establish designated locations for test equipment and common accessories (such as, waveguides, attenuators, fittings, cables, adapters) that are not part of a CTK. **(T-1)**.

8.3.8.1. As a minimum, designated locations will be labeled to identify the contents. **(T-1)**.

8.3.8.2. Industrial shop machinery accessories/attachments (example, blades, arbors, chucks, gears) need not be controlled as tools; however, these items will be maintained in designated storage locations for accountability. **(T-1)**.

8.3.8.2.1. As a minimum, storage cabinets/drawers will be labeled to identify the contents. **(T-1)**.

8.3.9. Tools/expendable items used for titanium engine blade blending or oxygen system maintenance will be kept in special purpose kits separate from other tools. **(T-1)**.

8.3.9.1. In addition to normal CTK identification, the titanium engine blade blending kits will be marked "For Titanium Engine Blade Blending Only". **(T-1)**.

8.3.9.2. In addition to normal CTK identification, oxygen system maintenance kits will be marked "For Oxygen System Use Only". **(T-1)**.

8.3.10. Discard removable (slide on) pocket clips and spare parts from tools when possible (flashlights, continuity testers, small screwdrivers) prior to placement in tool kits. **(T-1)**.

8.3.10.1. Do not disassemble or damage tools for sole purpose of removing clips (example, tape measures, rubber switch guards).

8.3.11. Tools not controlled through CTK procedures are NOT authorized on the flightline, or in any maintenance area (for example, personal Mini Maglite® flashlights, Leatherman®, Buck Knives®). **(T-1)**.

8.3.11.1. Units will mark and control equipment that a workcenter assigns/issues to an individual IAW MAJCOM supplements. **(T-1)**.

8.3.11.2. Personally-purchased tools are not authorized. **(T-1)**.

8.3.12. 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. **(T-1)**. **Note:** Aircraft and equipment TOs may dictate additional restrictions.

8.3.13. **(Added-AFRC)** FOD containers/pouches will be listed on the MIL **(T-2)**.

**8.4. TMDE Management Guidelines.** Support Sections will designate a TMDE Monitor who will act as the focal point with the designated servicing PMEL (whether on-base or off-base) for managing the TMDE calibrations requirements for the owning work center. **(T-1)**. The TMDE Monitor will:

**8.4. (AFRC) TMDE Management Guidelines.** Ensure all TMDE (AF owned, leased, or borrowed) used to support an AF mission is calibrated under the guidance of the Air Force Metrology and Calibration Program IAW TO 00-20-14 **(T-2)**.

8.4.1. Establish procedures for turn-in and pick-up of TMDE requiring calibration. **(T-3)**.

8.4.2. Coordinate emergency calibration requirements. **(T-3)**.

8.4.3. Review quarterly TMDE schedules and annual master identification (ID) lists within 5 duty days of receipt from servicing PMEL. **(T-3)**.

8.4.3.1. Forward any corrections to the servicing PMEL within 3 duty days to have the PMEL Automated Management System/MIS updated. **(T-3)**.

8.4.4. Take necessary actions to minimize the late delivery of TMDE for scheduled calibration. **(T-3)**. Servicing PMEL will notify OWC of overdue TMDE under established procedures. **(T-3)**.

8.4.5. Use PMEL Automated Management System or equivalent MIS (as coordinated with supporting PMEL) to control TMDE processed for maintenance. **(T-3)**.

8.4.6. Ensure TMDE submitted for calibration has all required documentation complete, the AFTO Form 350 (as applicable) provides adequate malfunction description and accessories/items required for calibration accompany the TMDE to include batteries (as applicable). **(T-1)**.

8.4.7. Ensure classified TMDE is protected IAW AFI 16-1404. **(T-1)**.

8.4.8. Ensure TMDE shipped off base for calibration or repair and return is shipped by traceable means and IAW AFI 24-602V2. **(T-1)**.

8.4.8.1. The TMDE Monitor will maintain a file consisting of all supporting documentation for each type of shipment. **(T-1)**.

8.4.8.2. Safeguard any IUID marks during calibration/TMDE activities to the extent possible. In the event the UII is damaged during calibration activities, the TMDE Monitor will notify the responsible Equipment Custodian and/or EAE to replace the mark with the same UII. **(T-1)**.

8.4.9. For deployment purposes, ensure equipment, tools, and HAZMAT items are properly identified, prepared, and documented IAW AFI 10-403. **(T-1)**.

**8.5. Tool Accountability.** Flight CC/SUPT and Section NCOICs/Chiefs, through CTK 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 considered the user and accountable for the item until it is returned to the tool room and accountability transfers back to the CTK Custodian (through a representative or tool room employee).

8.5.1. All units must use TCMax® for accountability and control of tools and equipment. **(T-1)**. Contractors and MEOs are not required to use TCMax® unless specified in the Performance Work Statement/Statement of Work. **Note:** Refer to **Paragraph 8.1** for exceptions.

8.5.1.1. Units are required to electronically back up TCMax® at least once a month. **(T-1)**.

- 8.5.1.1.1. This backup must be kept physically and electrically separate from the computer that houses the tool control database. **(T-1)**.
- 8.5.1.2. Units will use TCMa<sup>®</sup> to:
- 8.5.1.2.1. Track the issuance and receipt of all assigned tools, equipment, tool kits, HAZMAT items, TOs (does not apply to TOs, equipment and HAZMAT kept in a shop and not dispatched). **(T-1)**.
    - 8.5.1.2.1.1. HAZMAT items issued for one time use (oil cans, hydraulic cans, mixing compounds) are supply items and do not have to be tracked in TCMa<sup>®</sup>. However, HAZMAT and supply procedures will be followed. **(T-1)**.
  - 8.5.1.2.2. Track authorizations/restrictions for special tools/equipment (by individual). **(T-1)**.
  - 8.5.1.2.3. Track CTK and Support Section inspections. **(T-1)**.
  - 8.5.1.2.4. Track spare, lost, damaged, and/or removed tools. **(T-1)**.
  - 8.5.1.2.5. Develop and manage tool/equipment inventories. **(T-1)**.
  - 8.5.1.2.6. Develop and manage deployment kits (import/export). **(T-1)**.
- 8.5.1.3. If TCMa<sup>®</sup> is not available (such as at a deployed location), units will use the AF Form 1297, Temporary Issue Receipt, a MAJCOM, or locally approved form for accountability and control of CTKs, equipment, and tools. **(T-1)**.
- 8.5.1.3. **(AFRC)** TCMa<sup>®</sup> generated form or AFRC Form 177, *Consolidated Tool Kit Inventory and Control Log*, will be used for accountability and control when TCMa<sup>®</sup> is inoperative **(T-2)**. AFRC Form 177 will be maintained in each dispatchable, aircraft, vehicle, and trailer mounted CTK **(T-2)**.
- 8.5.1.4. **(Added-AFRC)** TCMa<sup>®</sup> field support is included in the MAJCOM TCMa<sup>®</sup> purchase contract. Contact the field support help desk at 1-866-826-0444 (toll free), 419-826-0444 (commercial), or through the field support website at [support@soaringsoftware.com](mailto:support@soaringsoftware.com). Units must have a current site license when contacting the field support help desk **(T-2)**.
- 8.5.2. The CTK Shift Supervisor will account for all dispatchable/decentralized CTKs, tools, and equipment at the beginning and end of each shift. **(T-1)**.
- 8.5.2.1. Shift inventories must be documented by both outgoing and incoming personnel. **(T-1)**.
  - 8.5.2.2. CTKs present during tool room shift inventories do not need to be opened for inventory.
- 8.5.3. At least annually or when the CTK Custodian changes, conduct a comprehensive inventory of all dispatchable/decentralized tools, non-Custodian Authorization/Custody Receipt Listing (CA/CRL) equipment, and CTKs. **(T-1)**.
- 8.5.3.1. 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/CRL Supplemental Listing.

8.5.3.2. CTK Custodians will ensure all tools are inspected for serviceability IAW TO 32-1-101, Use and Care of Hand Tools and Measuring Tools. **(T-1)**.

8.5.3.2.1. **(Added-AFRC)** Reconcile the TCMax® database **(T-2)**. Ensure database reflects contents assigned to the support section/tool room **(T-2)**.

8.5.3.3. CTK Custodians will document these inventories and maintain the most current inventory. **(T-1)**.

8.5.4. Users will perform a visual inventory of all dispatchable/decentralized CTKs when issued for use, at the completion of each job or tasks, and when returned to the tool storage facility. **(T-1)**.

8.5.4.1. Users will accomplish a CTK inventory prior to operation of any aircraft or equipment when maintenance actions are performed (such as, engine run, landing gear retraction, flight control operational checks). **(T-1)**.

8.5.4.2. Users will perform an immediate and complete inventory of all CTKs when returning to the work area after sheltering for real-world/exercise events. **(T-1)**.

8.5.4.3. Users will ensure dispatchable tools, equipment, eTools and CTKs are locked and/or secured when left unattended. **(T-1)**.

8.5.5. eTools: Units will use the following procedure to maintain positive control of assigned eTools:

8.5.5.1. Manage eTools IAW TO 00-5-1, and this instruction. **(T-1)**.

8.5.5.2. Track dispatchable eTools in TCMax®. **(T-1)**.

8.5.5.3. Ensure only serviceable eTools with current technical data are available for checkout, and any missing plugs/covers/doors are documented IAW [Paragraph 8.3.6.7](#) of this instruction. **(T-1)**.

8.5.5.4. Make maximum use of eTool warranties. **(T-1)**.

8.5.5.5. Ensure eTools are used for official and authorized purposes IAW TO 31S5-4-eTool, 17 & 33 Series instructions, MAJCOM guidance, and this AFI. **(T-1)**.

8.5.5.5.1. Not install unauthorized files or software (such as, games, mp3s). **(T-1)**.

8.5.5.5.2. Not use unauthorized external media devices to retrieve data from removable hard drives. **(T-1)**.

8.5.5.6. Coordinate with the local Cybersecurity Liaison and/or Information System Security Managers to identify publish local guidance on restrictions for the use of eTools/PEDs in classified processing areas. **(T-1)**.

8.5.5.7. Establish procedures for shipping TOs, eTools, and required support equipment needed to ensure eTools availability to support mobility and deployed operational requirements. **(T-1)**.

8.5.5.8. If applicable, units will update Defense Integration and Management of Nuclear Data Services (DIAMONDS) hardware and status IAW TO 11N-3150-8-1, USAF DIAMONDS Policy and Procedures. **(T-1)**.

8.5.5.8.1. For accountability, DIAMONDS laptops and hardware must be managed and tracked in TCMaX®, but do not require placement on unit equipment account IAW TO 11N-3150-8-1. **(T-1)**.

## **8.6. Tool and Equipment Marking and Identification.**

8.6.1. To ensure tool rooms have unique identifiers, wings (or equivalent) must ensure other units within the same wing or Personnel Assignment Symbol (PAS) code do not duplicate the WWID. **(T-1)**. MAJCOMs/ANG will develop, sustain, and review annually a complete listing of all the WWID utilized within their MAJCOM/ANG. MAJCOMs will update AF/A4LM with WWID changes as they occur. Reference the AF/A4LM SharePoint® site: [https://usaf.dps.mil/sites/haf-a4/A4L/AF\\_A4LM/Policy/SitePages/Home.aspx](https://usaf.dps.mil/sites/haf-a4/A4L/AF_A4LM/Policy/SitePages/Home.aspx)

8.6.1.1. All units must permanently mark their tools and equipment with the standard EID. **(T-1)**. GSU may use the parent wing EID. Replacement spare tools stored in the tool room do not need to be etched until placement in a specific CTK.

8.6.1.2. The EID will consist of nine characters (numbers/letters) of which the first four characters will be a unique WWID code. **(T-1)**.

8.6.1.2.1. The WWID identifies the base (first and second character), unit (third character), and shop (fourth character). The remaining five characters are available for tool/CTK equipment numbering.

8.6.1.2.1.1. The first two characters of the WWID in the EID are based on the wing/unit PAS base code. Multiple wings (or equivalent) at the same base (example, ANG, AFR, and RegAF) must have different WWID codes. **(T-1)**.

8.6.1.2.1.2. 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. **(T-1)**.

8.6.1.2.1.3. Request additional “base” code information from AF/A4LM at: [usaf.pentagon.af-a4.mbx.a4lm-m-maintenance-policy@mail.mil](mailto:usaf.pentagon.af-a4.mbx.a4lm-m-maintenance-policy@mail.mil), DSN 222-2345/2346.

8.6.1.3. The unit will establish the remaining five characters (any combination of numbers/letters) for CTKs, tools, and dispatchable equipment identification. **(T-1)**.

8.6.1.4. Units must place the 9-digit EID on all CTKs, tools not assigned to a box, and dispatchable equipment that is of sufficient size. **(T-1)**.

8.6.1.4.1. The 9-digit EID must be placed on the outside of dispatchable CTKs. **(T-1)**.

8.6.1.4.2. Tools located inside the tool box may be marked with less than 9-digits but must contain the 4-digit WWID and will have identifying character(s) that ties the tool back to the CTK. **(T-1)**. For example, tools inside an assigned dispatchable CTK “U6JG00001” may be marked “U6JG1.” Units may affix non-metallic barcode 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.

8.6.1.4.3. Tools will be marked with the most current EID. **(T-1)**.

- 8.6.1.4.4. All previous CTK identifiers will either be removed or marked out (this does not include PMEL markings). **(T-1)**.
- 8.6.1.4.5. Small tool sets and/or items that cannot be marked as described in **Paragraph 8.3.6.6** above (such as drill bits, allen wrenches in sets, apexes) will be maintained in a container marked with the EID and an identifying character(s) that ties the tool back to the CTK along with the number of tools contained. **(T-1)**.
- 8.6.1.4.5.1. The container is counted as one of the items.
- 8.6.1.5. MXG/CCs may require use of the EID in addition to AFTO Form 66, *TMDE Bar Codes (Polyester Film)*, for TMDE routinely (example, once per week) dispatched from a work center or use of the AFTO Form 66 alone.
- 8.6.1.6. For items that physically or mechanically check tolerances that require calibration, do not etch, or stamp an EID in any manner that will affect calibration or the ability to calibrate. **(T-1)**.
- 8.6.1.6.1. If marking is in question consult TO 00-20-14 and/or PMEL to validate applicable marking criteria.
- 8.6.2. 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. **(T-1)**. If the MILSPEC is subdivided into Grades, Classes, or Types, include that info on the permanent marking. **(T-1)**.
- 8.6.2.1. If no MILSPEC exists, the item will be marked with the manufacturer's name, part number/NSN from the applicable Safety Data Sheet. **(T-1)**.
- 8.6.2.2. Keep hoses and fittings separate for each type of grease. **(T-1)**.
- 8.6.2.3. If containers are used to hold or apply substances classified as hazardous materials, ensure labeling requirements are IAW AFI 90-821, *Title 29 Code of Federal Regulations 1910.1200(f), Occupational Safety and Health Standards, Toxic and Hazardous Substances*. **(T-0)**.
- 8.6.3. Prior to etching tools and equipment, consult applicable technical order to ensure no special circumstances apply for the item being etched (such as, fiberglass handled hammers are etched IAW TO 32-1-101 and safety glasses). **(T-1)**.
- 8.6.4. CTKs, tools, and dispatchable equipment that may possess a unique serial/tracking number must be marked with an EID number. **(T-1)**.
- 8.6.4.1. If the item cannot be marked, etched, or stamped, annotate the additional designator on the CTK contents list. **(T-1)**.
- 8.6.5. 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 (such as, scribes, flashlights, grease guns, feeler gauges). **(T-1)**.
- 8.6.6. Remove the EID from unserviceable tools and tools removed from the CTK (with the exception of warranty tools where removal of EID may void the tool warranty) and update TCMax® and the MAJCOM/locally generated form or hard copy MIL accordingly. **(T-1)**.

8.6.7. Ensure all tools which are accountable on a CA/CRL must be marked with a UII. (T-1). Units need to safeguard any IUID marks. In the event the UII is damaged, notify the responsible Equipment Custodian and/or EAE to replace the mark with the same UII.

**8.7. 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, their equivalent, or a designated representative and meet the requirements described in **Chapter 9** of this AFI. (T-1).

**8.7. (AFRC) Locally Manufactured, Developed, or Modified Tools and Equipment.** The using work center will ensure inspection and periodic maintenance criteria are established for all locally manufactured or modified tools and equipment IAW (as required) MDS TOs, TO 34-1-3, Machinery and Shop Equipment, or 32-series TOs (T-2). Ensure all local manufactured items are tracked in TCMaX® or the MIS (T-2). Develop local technical data for equipment operating procedures (if applicable) (T-2).

8.7.1. This procedure does not apply to tools and equipment authorized for local manufacture in MDS specific technical data or equivalent engineering approved document. QA will coordinate on all requests for approval and use of locally manufactured, developed, or modified tools or equipment. (T-1).

8.7.2. Work centers will review items and requirements every two years for applicability and current configuration. (T-1). See **Chapter 6** and **Chapter 9** of this instruction for additional guidance.

8.7.3. Weapons loading, maintenance and armament systems locally-designed equipment must be coordinated through the WWM. (T-1). Weapons loading, maintenance and armament systems locally-designed equipment must meet the following requirements:

8.7.3.1. In the event munitions/armament LME, is not included in technical data or listed on the MMHE Focal Point web site <https://cs2.eis.af.mil/sites/10134/sitepages/home.aspx>, contact the MMHE Focal Point AFLCMC/EBDW, 615 Apalachicola Road, Suite 101, Eglin AFB, FL 32542-6845 to establish/validate LME disposition.

8.7.3.1.1. Units must use MMHE Focal Point-designed munitions/armament LME for new procurements if a design exists and fills the requirement. (T-1).

8.7.3.1.1.1. 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). All munitions/armament LME contained on the MMHE Focal Point web site meets applicable AFMAN 91-203 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 website.

8.7.3.1.1.2. Munitions/armament LME specifically designed to interface with or support munitions that are not contained in technical data or on the MMHE Focal Point website (such as, hardened/protective aircraft shelter missile racks, Y-stands, munitions chocks, specialized tools) must be coordinated at unit level and forwarded to the MAJCOM Functional Manager for coordination, evaluation or

both. (T-1).

8.7.3.1.1.2. (AFRC) Forward to HQ AFRC/A4M ([afrc.a4m@us.af.mil](mailto:afrc.a4m@us.af.mil)), and info copy applicable NAF (T-2).

8.7.3.1.1.2.1. If the MAJCOM Functional Manager determines the item has AF utility, the drawings shall be forwarded to ACC/A4WC for review and addition to the MMHE Focal Point Master Project List that results in formal development and placement onto the MMHE Focal Point website.

8.7.3.1.1.3. Munitions/armament LME not designed to interface with or support munitions that are not contained in technical data or on the MMHE Focal Point web site must be approved by QA. (T-1).

8.7.3.1.1.3.1. 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.

8.7.3.1.1.3.1. (AFRC) Forward to HQ AFRC/A4M ([afrc.a4m@us.af.mil](mailto:afrc.a4m@us.af.mil)), and info copy applicable NAF (T-2).

8.7.3.1.2. All LME must meet applicable AFMAN 91-203 and USAF standards. (T-1).

8.7.3.1.3. All equipment designated for use with nuclear weapons test and handling must meet requirements in AFI 91-103. (T-1).

8.7.3.1.4. All weapons loading, maintenance and armament systems LME must be maintained and inspected for serviceability on a regular basis IAW applicable TO 00-20-series, TO 35D-1-2, *Maintenance Instructions WIPB-Miscellaneous Munitions Handling and Support (Munitions Related)*, and TO 35D-2-2 *Munitions Materiel Handling Equipment Miscellaneous And Locally Manufactured – Armament Related*. (T-1).

8.7.3.1.4.1. AFTO Form 244, or equivalent, must be maintained for all LME items (racks, stands, adapters) except hand tools. (T-1).

8.7.3.1.4.2. Equipment without technical data must, as a minimum, be inspected every 180 days for corrosion, physical defect, and lubrication as required. (T-1).

## 8.8. Tool Room Operations and Security.

8.8.1. Operations. Tool rooms will be set up to ensure accountability. (T-1).

8.8.1.1. Procedures will be established to ensure custodial control. (T-1).

8.8.1.2. Tools will not be issued individually from dispatchable CTKs. (T-1).

8.8.1.2.1. When a recurring need exists for common tools to be issued individually, (such as, hammers, screwdrivers, pliers, drills, wrenches) individual issue bins/drawers may be established as a CTK within the tool room. (T-2).

8.8.1.3. Process reports for tools that are lost, damaged, or destroyed, due to neglect IAW AFI 23-101. (T-1).



## 8.8.2. Security.

8.8.2.1. The tool room must be capable of being locked and afford protective measures such as monitoring, 24-hour coverage, or controlled key access. **(T-1)**.

8.8.2.1.1. When all CTKs are not capable of being secured in the tool room, the Section NCOIC/Chief will design a process to prevent the unauthorized use or access to tools and equipment. **(T-1)**.

8.8.2.1.2. Due to space and facility limitations, it may not be possible to store oversized tool kits in the tool room.

8.8.2.2. Locks will be used on tool kits stored outside the CTK to provide a physical barrier to opening the container lid, drawer or door and prevent the unauthorized removal of tools. **(T-1)**.

8.8.2.2. **(AFRC)** Combination locks are not authorized **(T-2)**.

8.8.2.2.1. Locks are not required on tools and equipment that are stored within secured tool rooms or work centers.

8.8.2.2.2. Tools and equipment will never be secured (locked) to the exterior of an aircraft. **(T-1)**.

8.8.2.2.3. Tool kits located within high traffic, controlled movement areas or that could limit aircraft movement or be exposed to jet blast are required to be locked when unattended/not in use and moved to un-obstructive/exposed location but do not need to be secured to another object if none are readily available. **(T-1)**.

8.8.2.2.3.1. Alert Aircraft in Protection Level Areas 1, 2 and Alert Status Aircraft in Protection Level Area 3. CTKs in these areas that are directly supporting alert status 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.

## 8.9. Lost Item/Tool Procedures.

8.9.1. Limit authorization to clear Red X's when an item/tool cannot be located to no lower than Operations Officer/MX SUPT. **(T-1)**.

8.9.2. Supervisors need to ensure all assigned personnel are familiar with lost item/tool procedures. If an item/tool or a portion of a broken item/tool is discovered missing, the following procedures apply:

8.9.2.1. The person identifying the missing item/tool will search the immediate work area for the item/tool. **(T-1)**.

8.9.2.1.1. If not found, after completing an initial search the individual will notify the expediter/Pro Super or equivalent. **(T-1)**.

8.9.2.2. Place a Red X in the aircraft or equipment forms of all affected aircraft or equipment with a description of the item/tool and a specific, last known, location of the item/tool. **(T-1)**.

8.9.2.3. Expediter/Pro Super or equivalent will immediately notify the Flight CC/SUPT, Support Section, MOC, and QA. **(T-1)**.

8.9.2.3.1. Initiate a thorough search for the item/tool. **(T-1)**.

8.9.2.3.2. Initiate the lost tool report if tool is not located during initial search. **(T-1)**.

8.9.2.4. If 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 item/tool. **(T-1)**.

8.9.2.4.1. 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 item/tool location and copies of all information concerning the lost item/tool are maintained in the aircraft historical file until the item/tool is recovered. **(T-1)**.

8.9.2.5. If at any time during the investigation the item/tool is found, notify the Flight CC/SUPT, Support Section, MOC, QA, expediter, Pro Super or equivalent, and the owning work center. **(T-1)**.

8.9.2.5.1. If the item/tool is found, but is inaccessible, the 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.

8.9.2.5.1.1. If the aircraft MDS is one that has a PDM or is scheduled for depot modification, any inaccessible lost item/tool will be listed with location on the AFTO Form 345, Aerospace Vehicle Transfer Inspection Checklist and Certification, for removal by the depot. **(T-1)**.

8.9.2.6. The Operations Officer/MX SUPT will determine when the search for the lost item/tool may be discontinued. **(T-1)**. If the item/tool is not found:

8.9.2.6.1. Notify the MOC and the MXG/CC when the search for the lost item/tool has been discontinued. **(T-1)**.

8.9.2.6.2. Ensure lost item/tool report is completed IAW locally established procedures. **(T-1)**.

8.9.2.6.2. **(AFRC)** Use the AFRC Form 174, *Lost Tool/Object Report* **(T-2)**. TCMax® generated forms can be used in lieu of the AFRC Form 174.

8.9.2.6.2.1. **(Added-AFRC)** The CTK Custodian will maintain copies of the AFRC Form 174, *Lost Tool/Object Report*, until the lost tool is recovered or for a period of one year **(T-2)**.

8.9.2.6.3. If applicable, ensure the TCMax® is documented IAW [Paragraph 8.3.6.7](#) of this instruction. **(T-1)**.

## Chapter 9

### MATERIEL MANAGEMENT SUPPORT

**9.1. General.** Material management plays a critical role in optimizing mission generation capabilities. Although assigned to LRS, all DMS personnel must be integrated into daily mission generation operations both at home station and deployed. The critical nature of direct interaction between maintenance and materiel management activities at the point of maintenance provides units direct access to materiel management SMEs to accurately identify, communicate, acquire or disposition materiel management support necessary to maximize combat capability. MXG/CC and MSG/CC will coordinate to ensure direct mission generations support focuses on readiness and the unit's ability to execute daily and deployed flying operations simultaneously. **(T-1)**. This **Chapter**, coupled with AFI 23-101, provides the minimum materiel management support requirements necessary to provide the best possible opportunity for success in meeting mission generation requirements. The AF has consolidated materiel management support under the AF Sustainment Center. The AF Sustainment Center provides fleet-wide supply support to all AF weapon systems and leverages consolidated repair facilities and ALCs capability to optimize weapon system availability.

**9.1. (AFRC) General.** When no DMS is assigned, or requirements are not accomplished by the LRS, Maintenance Supervision will ensure unit materiel management requirements within this chapter are complied with by subordinate supervisors **(T-2)**.

**9.2. Decentralized Materiel Support.** Decentralized Materiel Support personnel coordinate maintenance and materiel management actions and manage supply transactions for the MXG. The duty location for DMS personnel is the applicable maintenance unit as agreed upon by the MXG and base 2S0 functional manager. Personnel rotations, as determined by the base 2S0 functional manager will be accomplished with consideration of operational, career development, and training requirements. **(T-1)**.

9.2.1. In units with Decentralized Materiel Support personnel, the LRS Superintendent exercises control and career-field development opportunities for Decentralized Materiel Support (2S0XX) personnel. **(T-1)**.

9.2.2. In units/work centers directly supported by Decentralized Materiel Support personnel, the Logistics Readiness Squadron Materiel Management Flight is responsible for ensuring materiel management support roles and responsibilities listed are completed IAW 23-series publications.

9.2.3. LRS Superintendent will ensure complete DMS coverage of MXG duty periods, to include weekend duty. **(T-1)**.

9.2.4. At a minimum, DMS personnel will provide the following support functions to the maintenance unit: monitor and track assets in the repair cycle, resolve supply support problems, and report aircraft parts status and changes in base level repair capability to maintenance supervision. **(T-1)**.

9.2.4.1. Decentralized Materiel Support personnel also support maintenance in processing issue requests, researching sources of supply, entering manual requisitions (part number only), updating exception code lists, and resolving other peculiar maintenance supply problems. **(T-1)**.

9.2.4.2. DMS personnel will manage processes, in addition to those previously described, such as parts ordering, backorder review and validation, Readiness Spares Packages, and TNB. **(T-1)**.

**9.3. Supply Discipline.** Supply discipline is the responsibility of all military and civilian personnel regardless of grade or position. Personnel at all levels need to ensure the practice of good supply discipline IAW AFI 23-111.

**9.4. Readiness Spares Package Review.** Maintainers play a critical role in the annual Readiness Spares Package review process. This role includes active maintenance participation in the base level validation process conducted by the LRS and their MAJCOM during the annual Readiness Spares Package pre-review process in preparation for the Weapon System Program Manager final review. Close maintenance-materiel management collaboration is essential to ensure RSPs are properly sized to support contingency maintenance requirements. See AFMAN 23-122 for further details.

**9.5. Bench Stock.** Flight CCs/SUPT and/or Section NCOICs/Chiefs will determine the contents of their bench stock IAW qualification criteria in AFMAN 23-122. **(T-1)**. 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. Monthly and semi-annual bench stock listings are provided by the LRS/DMS. A thorough review of these listings is extremely important to ensure that bench stock supports the mission efficiently and economically.

9.5.1. Bench stock assets are organizationally purchased and therefore organizationally owned. Appointment of DMS personnel as bench stock monitors must be agreed upon by the applicable Squadron Superintendents.

9.5.2. Mark bins containing 50 percent or less of the authorized quantity to facilitate monthly inventories. **(T-1)**. Do not include items coded TCTO, unacceptable for AF use and critical in bench stock. Controlled Item Code S and C may be in bench stock with MAJCOM approval. Other controlled Item Codes are authorized with written approval from Unit Commander. See AFMAN 23-122 for additional information.

9.5.3. Work center supervisors will:

9.5.3.1. Semi-annually complete a bench stock joint review with the Customer Support Liaison Element, Materiel Control. **(T-1)**.

9.5.3.1.1. During these reviews, special emphasis needs to be given to items with no demands in the past year and items with excessive quantities not supported by demands. The continuance of stocking such items is the exception and not the normative process. See AFMAN 23-122 for further details.

**9.6. Consumable Readiness Spares Package.** The Consumable Readiness Spares Package 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. Additionally, Consumable Readiness Spares Package procedures provide MAJCOMs with a standard process to support consumable item requirements during contingency operations. Refer to AFMAN 23-122 for Consumable Readiness Spares Package procedures and options.

**9.7. Shop Stock.** 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 materiel 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 materiel as “Shop Stock” and label them with noun, national stock number or part number, unit of issue, and shelf-life, if applicable.

**9.8. Operating Stock.** 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 AFI 23-101. Clearly identify items as “Operating Stock” and label them with noun, national stock number or part number, unit of issue, and shelf-life as applicable.

**9.9. Work Order Residue.** 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 as applicable. Control all work order residues used on or around aircraft, uninstalled engines, and AGE.

**9.10. Adjusted Stock Levels.** Adjusted stock 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 but should result in a LRS/materiel management activity review of demand data for accuracy. The using work center, with assistance from LRS/materiel management activity, will prepare the request IAW AFMAN 23-122 and provide adequate justification (such as, seasonal materiel requirements, long lead-time items, infrequent use components that cause an NMC condition and result in a new procurement or excessive lead-time to restock). Route the request through the applicable Squadron Operations Officer/MX SUPT for approval prior to submitting to LRS/materiel management activity. Using work centers will maintain a master file of approved adjusted stock level items and follow-up on all requests until completed. (T-1).

**9.11. Shelf-life Items.** Using work centers will control the quantity and inspect (Type I and Type II) shelf-life items kept in unit bench stock, operating/shop stock and work order residue IAW AFMAN 23-122. (T-1). Personnel managing bench, shop, or operating stocks will:

**9.11. (AFRC) Shelf-Life Items.** Includes hazardous material items (T-2).

9.11.1. Identify serviceable shelf-life items/locations with a colored and/or highlighted label that clearly states the items expiration date. (T-2).

9.11.1. (AFRC) Identify serviceable shelf life items with a colored and/or highlighted label on the storage bin (T-2). Individuals are responsible for checking expiration dates on shelf life items before consuming (T-2).

9.11.2. Check expiration dates on issued items and do not accept outdated items. (T-2). Refer to AFMAN 23-122 for outdated and/or unserviceable shelf-life items.

9.11.3. Not open shelf-life containers until needed and use the oldest items first. (T-2).

9.11.4. Ensure shelf-life material stored in other than original containers are marked with original shelf-life expiration codes. (T-2).

9.11.5. Recycle, reclaim, or turn-in for disposal, shelf-life items which are loose in the bin and expiration dates cannot be determined. (T-2).

**9.12. Equipment Items.** Flight CCs/SUPTs and/or Section NCOICs/Chiefs will review equipment items needed for mission accomplishment IAW AFI 23-101. (T-1).

9.12.1. Equipment Custodians will contact the EAE for assistance in researching and preparing documents for gaining authorizations and ordering equipment items IAW AFI 23-101. (T-2). Refer to AFMAN 23-122, for the required procedures to order and deploy equipment items.

**9.13. Special Purpose Recoverable Authorized Maintenance (SPRAM).** SPRAM assets are fault isolation spares, shop standard spares, training spares, -21 TO spares (AME), test station spares, and stand-alone spares. These assets are Expendability, Recoverability, Reparability Code (ERRC) XD/XF items, which are controlled and managed as in-use supplies.

9.13.1. Flight CCs/SUPTs and/or Section NCOICs/Chiefs will review all SPRAM authorizations annually and certify as valid IAW AFI 23-101, AFMAN 23-122, and AFI 21-103. (T-1).

9.13.1. (AFRC) Document reviews on the SPRAM Listing (R25) (T-2).

**9.14. 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. (T-3).

9.14.1. Maintenance sections will prepare a list of items, (including the repair section's organization and shop code) for items requiring functional checks, calibration, or operational flight programming. (T-3).

9.14.1.1. The list will be routed through the Operations Officer/MX SUPT to the LRS. (T-3).

9.14.1.2. This list shall be updated/validated IAW AFMAN 23-122. (T-3).

9.14.2. The LRS/management materiel activity issues the items to repair sections when assets are initially received on station, when functional checks, calibration, or programming is due or when serviceability is doubtful.

9.14.3. If a Part issues requiring a functional check, ensure it is not restricted in the weapon system -6 TO. Refer to TO 00-20-3 for functional check and frequency requirements.

**9.15. Time Compliance Technical Order (TCTO) Kit Procedures.** TCTO kit management is a shared responsibility between maintenance and supply IAW TO 00-5-15 and AFI 23-101.

9.15.1. Initiate requests for kits, parts and special tool requirements through LRS as outlined in [Chapter 14](#).

9.15.2. Transfer TCTO kits with aircraft or equipment. AFMAN 23-122, TO 00-5-15, and TO 00-5-1 contain detailed guidance for the transfer of TCTO kits. 9.15.3. Retain TCTO kits for aircraft returning to the unit for TCTO compliance.

**9.16. Supply Points.** Supply points may be established within individual work centers when time or resources required to move items dictates the need to do so.

9.16.1. Storage space for the supply points is provided by the supported work center.

9.16.2. Management of the supply point processes will be agreed to and documented by participating group commanders. **(T-1)**. Participating group commanders will require appointment of supply point monitors to manage and account for supply point assets as part of their agreement. **(T-1)**. LRS Materiel Management Activities will maintain overall accountability and control of supply point assets. **(T-1)**.

9.16.3. Supply points must be reconciled semi-annually by the Supply Point Monitor. **(T-1)**.

9.16.3.1. One of the semiannual reconciliations will be done at the same time as the annual supply point inventory IAW AFI 23-101. **(T-1)**.

**9.17. Local Manufacture.** Local manufacturing is an essential part of maintenance unit support. The applicable end-item TOs identify items subject to local manufacture and specific procedures for processing are in AFMAN 23-122.

9.17.1. MXG/CCs will publish directives outlining procedures covering the manufacture of items source coded local manufacture IAW **Chapter 2**, **Chapter 4**, and **Chapter 8** of this instruction. **(T-1)**.

9.17.2. MXG directives as a minimum will include:

9.17.2.1. Procedures that prevent abuses and specify coordination requirements as a minimum coordination will include: QA, EAE, office Wing/Base Safety and indorsement by the approval authority. **(T-1)**.

9.17.2.2. Identifying the approval authority for local manufacture requests. **(T-1)**.

9.17.2.3. Identifying drawing, sample, technical data and DD Form 1348-6, *DoD Single Line Item Requisition System Document*, source requirements as required. **(T-1)**.

9.17.2.3.1. Ensure guidance identifies that drawings are obtained from the appropriate repository (such as, Engineering Data Service Center or JEDMICS).

9.17.2.4. Establishing coordination process for all the appropriate fabricating sections to determine the bits and pieces required to manufacture the item. **(T-1)**.

9.17.2.4.1. Coordinating bit and piece parts requirements and availability with the LRS/DMS.

9.17.2.5. Identifying all work centers that have action on the AFTO Form 350 for items requiring multiple section processing. **(T-1)**.

**9.18. DIFM Management.**

9.18.1. DIFM inputs are critical to recording and getting credit for proper repair cycle times.

9.18.2. DIFM status codes are 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 that should be stocked. Not using the proper codes when they change reduces the number of assets on base.

9.18.3. The roles and responsibilities for DIFM management are identified in AFI 23-101. The LRS/DMS provides the D23 or equivalent to assist each repair section in DIFM Management. The D23 is provided in both maintenance location and stock number sequence. Repair sections use the D23 to manage the flow of serviceable and unserviceable DIFM assets in the repair cycle and to ensure the DIFM status and location is updated.

9.18.3.1. If a parts request is backordered and the removal of the unserviceable DIFM item does not further limit or restrict the operational capability of the end item, it will be removed and sent to the applicable support section for either repair, NRTS approval, or condemnation with a subsequent turn-in to LRS/materiel management activity (as a credit DIFM) IAW TO 00-20-3. **(T-1)**.

9.18.3.1.1. Repair assets to the fullest extent authorized.

9.18.3.2. Repairable components will be processed, repaired, and returned to the FSC within the required time frame IAW AFI 23-101. **(T-1)**.

9.18.3.3. The D23 will not be used to manage serviceable assets.

9.18.4. Repair Cycle Throughput. Throughput is the average time it takes to move individual items through the repair cycle. Timelines for turn-in are outlined in AFI 23-101.

9.18.5. Units will establish local procedures for the control of repair cycle assets throughout the maintenance repair cycle IAW AFI 23-101 and AFMAN 23-122. **(T-1)**.

9.18.5.1. Procedures will 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. **(T-2)**.

9.18.6. AWP and cross-CANN assets will be controlled and managed IAW AFMAN 23-122. **(T-1)**.

9.18.6.1. Maintenance activities will closely control reparable assets in AWP status. **(T-1)**.

9.18.7. Maintenance Turn-In to Supply. Maintenance is responsible for DIFM items until the item is returned to LRS/DMS.

9.18.7.1. 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. **(T-1)**.

9.18.7.1.1. 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. **(T-1)**.

9.18.7.1.2. The work center must comply with packaging, environmental control, inert certification, purge and preservation requirements as specified in applicable TOs, AFI 24-602V2, AFMAN 24-204, and place sufficient copy(s) of the technical document(s) for handling, storage, shipping and distribution of copies inside the container. **(T-1)**.



9.18.7.2. Include AFTO Form 350, **Parts I and II**, and a condition tag or label with all items turned into supply IAW TO 00-20-3. **(T-1)**. **Note:** Some DIFM assets may require additional tags.

9.18.7.2.1. Enter the correct action taken code on AFTO Form 350, **Part II**.

9.18.7.3. Accomplish proper reclamation and demilitarization actions on condemned repair cycle assets IAW AFMAN 23-122 and AFH 23-123, Vol. 2, **Part I, Sec. 6C**.

9.18.7.4. DIFM items (serviceable or unserviceable) will be processed and turned in to LRS IAW AFI 23-101. **(T-1)**.

## **9.19. Tail Number Bins (TNB).**

9.19.1. Establishment and management of TNBs is a shared responsibility between maintenance and supply. 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.

9.19.2. TNB items used to satisfy MICAP conditions are not CANNs. If a TNB asset is issued to satisfy a part request, maintenance personnel will:

9.19.2.1. Reorder the item and notify the expeditor of the new document number. **(T-3)**.

9.19.2.2. Update the aircraft forms and the MIS. **(T-3)**.

9.19.2.3. If a due-out is created prior to transfer of these items, notify the LRS/materiel management activity to change the "mark-for" field on the due-out detail. **(T-3)**.

9.19.3. 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. **(T-1)**.

9.19.4. Maintain security and control of TNB assets. **(T-1)**.

9.19.5. Track property placed in the TNB by tail number, serial number, or equipment identification number. Each entry will indicate:

9.19.5.1. Date received. **(T-2)**.

9.19.5.2. Noun/nomenclature. **(T-2)**.

9.19.5.3. Document number. **(T-2)**.

9.19.5.4. Status (FOM, Issue/Due-Out Release (ISU/DOR), TCTO). **(T-2)**.

9.19.5.5. Removal information (date, time, signature, and employee number of the person who picked up the property). **(T-2)**.

9.19.5.6. Remarks. **(T-2)**. Enter "NONE" if no remarks are necessary.

9.19.5.7. Current JCN. **(T-2)**.

**9.20. CANN Actions.** See **Chapter 11** of this instruction for CANN procedures and responsibilities.

**9.21. Bench Check and Repair Policy.** Maintenance sections bench check items as part of the off-equipment troubleshooting process. When workload requires, the Section NCOIC/Chief

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:

9.21.1. Order required parts “fill or kill.”

9.21.1.1. If the part is not in stock and a MICAP condition exists, backorder the new request.

9.21.1.2. Determine local repair capability before requisitioning off-base support or going lateral support.

9.21.2. 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.

9.21.3. Bench-check, repair, take NRTS action, or condemn the item.

9.21.3.1. 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.

9.21.3.2. 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.

**9.22. Maintenance Turn-Around Record Update Processing.** Work centers processing TRNs will coordinate with LRS/DMS and follow requirements outlined in AFI 23-101, AFMAN 23-122, and AFH 23-123. **(T-1)**.

**9.23. Buildup Items.** Maintain items requiring build-up prior to use (such as, wheels and tires) in supply points in a built-up configuration.

9.23.1. Send items to appropriate work centers for build-up and return them to the supply point for re-issue.

9.23.1.1. Use AF Form 1297 or control log to control assets sent for build-up when the supply point is operated by other than maintenance personnel.

9.23.1.2. Validate AF Form 1297 daily if over 10 days old.

9.23.2. Local procedures will be established to control assets when maintenance operates the supply point and assets are sent to another organization for build-up. **(T-1)**.

**9.24. DR Exhibits.** DR exhibit procedures for issue, turn-in, and storage are contained in TO 00-35D-54 and AFI 23-101. DRs shall be inputted into the JDRS at <https://jdrs.mil>. **(T-0)**.

**9.25. Destruction of TOP SECRET Material.** Destruction of TOP SECRET material requires a receipt according to DODM 5200.01, Vol 3, DOD Information Security Program: Protection of Classified Information and AFI 16-1404. A copy of the destruction certificate will be included with the turn-in documentation. **(T-0)**.

9.25.1. Provide sensitive instruments interior container protection. **(T-1)**.

9.25.2. Ensure a copy of the LRU/SRU historical record accompanies turn-in of all items. **(T-1)**.

**9.26. Certifying Items Associated With Explosives.** Ensure items such as MERS, TERS, pylons, launchers, rafts, bomb racks, ejection seats, fire suppression bottles, gun systems and components are certified explosive-free prior to turn-in to LRS and/or Defense Logistics Agency (DLA) Disposition Services. **(T-1)**. Refer to TO 11A-1-60 and AFMAN 21-201 for specific certification requirements.

## Chapter 10

### MUNITIONS POLICY AND WEAPONS LOAD CREW PROGRAM

**10.1. AF Munitions Policy.** AF munitions policies are contained in AFMAN 21-200 and AFMAN 21-201. AF nuclear munitions policy is contained in AFI 21-204.

10.1.1. Live and inert missiles (or electrical simulators) of the same type, for example Captive Air Training Munitions with Air to Air must not be loaded or flown together on an aircraft for any purpose. **(T-2)**. 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. **(T-2)**. 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. **(T-2)**. **Note:** Units that fly rocket pods will not fly TP rockets with any combination of live rockets. **Note:** With Program Office/Seek Eagle approval, configurations with inert Air-to-Ground Missiles (AGM) can be flown with all types of bombs and rockets. 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 Program Office/Seek Eagle office has been properly obtained.

10.1.1. **(AFRC)** WG/CCs will submit waiver or deviation requests to HQ AFRC/A4M ([afrc.a4m@us.af.mil](mailto:afrc.a4m@us.af.mil)), who will further staff to HQ AFRC/A3 and SE **(T-2)**. HQ AFRC/A4M is the approval authority **(T-2)**. Info copy NAF/CC.

10.1.2. Request for waiver of, or deviation to, this policy will include as a minimum: (1), an 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. **(T-2)**. Approved requests will remain valid only for the event requested and will not exceed 60 days. **(T-2)**.

10.1.3. Captive Air Training Munitions. Safety pins/streamers for arming keys/safe-arm handles on Captive Air Training Munitions may be removed for daily training/flying operations provided positive control and accountability is maintained for these items.

10.1.3.1. Captive Air Training Munitions AIM-9M arming handles will be permanently removed. **(T-1)**. These components are only removed for foreign or dropped object prevention.

10.1.3.2. Any Captive Air Training Munitions missile used for exercises, Load Crew Training and inspections should be configured to the maximum extent possible with all safety devices and components to mirror the parent tactical munitions.

10.1.3.3. **(Added-AFRC)** WRM ammunition, missiles, countermeasures, SUU-25 dispensers, rockets and rocket launchers will not be removed from storage, loaded, or flown on aircraft during peace time operations unless authorized by HQ AFRC/A4 **(T-2)**. Send authorization requests to [afrc.a4m@us.af.mil](mailto:afrc.a4m@us.af.mil).

**10.2. Unit Committed Munitions List (UCML), Test/Training Munitions List (TTML).** Operational units will use UCMLs. **(T-1).** Test/Training units will use TTMLs unless they require a UCML, for example North American Aerospace Defense Command (NORAD) Committed. **(T1).** The UCML/TTML is a list of Primary Munitions (PM), Support Munitions (SM), and Limiteduse Munitions (LM) necessary to meet unit operational/test/training requirements and is published IAW this instruction. The list of PM will not include more than 10 individual munitions or Munitions Family Groups (MFG) combined per mission, design, and series (MDS) aircraft assigned. **(T-2).** 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.

10.2.1. As a minimum, UCML/TTML's will be updated annually to identify all munitions tasked and/or required to support test/training or OPLANs, DOC statements, and Ready Aircrew Program tasking memorandum. **(T-1).** 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. **(T-2).** MAJCOMs will supply approved UCML/TTML to the units in September.

10.2.1. **(AFRC)** Send coordinated inputs to HQ AFRC/A4M ([afrc.a4m@us.af.mil](mailto:afrc.a4m@us.af.mil)) through the NAF/A4.

10.2.2. Unit changes to the UCML/TTML will be justified by Wing Weapons and Tactics, coordinated and processed through the WWM, Munitions Squadron/Flight, MXG/CC and OG/CC before sending it to higher headquarters and MAJCOM. **(T-2).**

10.2.3. Standard Conventional Load lists are not part of the UCML/TTML. They are stand-alone documents.

10.2.4. The WWM determines the minimum number of certified load crews depicted on the UCML and recommends approval to the MXG/CC. The minimum number should be based on supporting the initial/lead UTC requirements. Additionally, follow-on UTCs tasked simultaneously with the initial/lead UTC will be considered to determine minimum load crew requirements. 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 will specify in writing the minimum number of load crews required in aggressor units when no UCML/TTML exists. **(T-1).**

**10.3. Weapons Load Crew Training Program (WLCTP).** The USAF WLCTP ensures all weapons load crew members obtain and maintain the certification/qualification and proficiency needed to effectively meet safe, secure, and efficient munitions loading/unloading operations supporting their unit's mission. The objective of the WLCTP is to develop and maintain a high state of mission readiness for immediate and effective generation/employment of munitions loaded aircraft. WLCTP provides the basis for accomplishing peacetime missions while maintaining critical wartime capability. The WLCTP is managed by Weapons Standardization.

10.3.1. Weapons Standardization (WS). WS plans and conducts nuclear and conventional weapons load certification and training requirements to support unit tasking and operational

plans. WS is comprised of the superintendent, the LSC, lead crews and an academic instructor. WS will manage and govern the Weapons Standardization Program. **(T-1)**. In TFI-associated units, the WWM will ensure ARC/RegAF LSC (minimum of two certifying officials) are available to cover weekend loading evaluations. **(T-2)**. This arrangement must be in writing (grade, names) and reviewed on an annual basis. **(T-2)**. Training, certification, proficiency evaluations and qualifications required to load munitions on aircraft are the sole responsibility of Weapons Standardization.

10.3.2. Weapons Standardization Program. The Weapons Standardization Program is established to ensure munitions loading standardized training, procedures, and policies, are in place to support mission requirements. The Weapons Standardization Program is made up of the WS personnel, weapons academic training, practical training, munitions loading certification, weapons task qualification, and proficiency evaluations. These core elements are managed and governed by the WS. WS will establish and manage a program to train, certify and maintain proficiency for each load crew based on the munitions designated by the UCML/TTML and/or those munitions designated by the WWM for SM's and LM's. **(T-1)**.

10.3.2.1. **(Added-AFRC)** WS is responsible for Wing Integrated Combat Turn (ICT) training, qualification and proficiency requirements **(T-2)**. **Note:** Separate APG ICT academic requirements may be established.

10.3.2.2. **(Added-AFRC)** Proficiency training must consist of:

10.3.2.2.1. **(Added-AFRC)** Knowledge of MDS specific TO 33-1-4 and TO 00-25-172 **(T-2)**.

10.3.2.2.2. **(Added-AFRC)** Knowledge of ICT Task Assignment List (TAL)s **(T-2)**.

10.3.2.2.3. **(Added-AFRC)** Familiarization of System Safety Engineering Analysis (SSEA) **(T-2)**.

10.3.2.2.4. **(Added-AFRC)** Familiarization with Munitions Accountability **(T-2)**.

10.3.3. WS Superintendent (SUPT) Responsibilities. The WS SUPT is responsible to the WWM, and performs Section NCOIC/Chief duties outlined in **Paragraph 3.10** of this instruction. The WS SUPT 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. **Note:** ARC & Air Force Special Operations Command (AFSOC) WS SUPT responsibilities may be performed by the LSC Team Chief. The WS SUPT will:

10.3.3.1. Manage WLT training munitions, components, and accessories. **(T-1)**.

10.3.3.1.1. Ensure load crew training munitions are maintained to the same standard and are representative of the parent munitions to the maximum extent possible. **(T-1)**.

10.3.3.1.2. If defects exist that preclude the use of training munitions for WLT/ Dual Loading Operation, they will be turned in to the Munitions Flight/Squadron for maintenance or replacement IAW AFMAN 21-201. **(T-1)**.

10.3.3.2. Ensure training munitions and munitions items meet unit needs. **(T-1)**. The UCML/ TTML will be the source document for WLT munitions requirements and

authorizations and the WS SUPT must ensure correct munition variants are requested to support unit taskings. **(T-2)**.

10.3.3.2.1. The WS SUPT will ensure sufficient quantities of load crew training munitions are forecasted for IAW AFMAN 21-201 and issued assets are serviceable to support both load crew and Dual Loading Operation training programs. **(T-1)**.

10.3.3.2.1.1. If sufficient training munitions are not available to support Dual Loading Operation training, coordinate use of assigned items from WS supply point for management flexibility.

10.3.3.2.2. The WS SUPT will review and validate all munitions forecasts submitted by WS and the Armament Flight prior to submission to MAJCOM. **(T-1)**. Refer to AFMAN 21-201 for guidance on submitting the annual non-expendable air-munitions training forecast to the MAJCOM.

10.3.3.2.3. Training munitions. Authorized quantities of training munitions can be referenced in the “Air Force Standard for Non-Expendable Air-Munitions Training” located on the Air Force Conventional Munitions SharePoint site at: <https://cs2.eis.af.mil/sites/10027/SitePages/Home.aspx>. These numbers reflect the maximum munitions required exclusively for weapons load crew certification and recurring training. These munitions are forecasted by and assigned to weapons load training (W1) accounts.

10.3.3.2.3.1. Units may request and justify additional quantities of munitions than specified on these tables but may not be allocated munitions unless sufficient quantities are available and approved.

10.3.3.2.4. Units with multiple MDS will use the authorization for the MDS that provides the greater quantity per item; these authorizations are not cumulative. **(T-1)**. For example, if a base has both F-15E and F-16 aircraft assigned and both MDS are tasked on the UCML/TTML for Guided Bomb Unit (GBU)-12 then only two, not four, GBU-12s will be allocated to support both MDS.

10.3.3.2.4.1. 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. **(T-2)**.

10.3.3.3. Ensure load crews demonstrate proficiency on each type aircraft racks and stations prior to certification on that munition. **(T-1)**.

10.3.3.3.1. For conventional munitions capable of multiple carriage, both aircraft parent station and multiple carriage loading are required.

10.3.3.3.2. For nuclear weapons, only the aircraft stations that are maintained in nuclear certified status are loaded.

10.3.3.3.3. Develop an annual load crew proficiency schedule to ensure one third of the required munitions will be loaded bi-monthly (monthly for short tour locations) and one quarter of required munitions will be loaded quarterly for Traditional Reservist/Drill Status Guard members to demonstrate crew proficiency. Additionally, WS SUPT will ensure munitions with multiple configurations such as JDAM MFG,

AIM-9 L/M/X are loaded in different months to provide adequate munitions coverage during the year. (T-1).

10.3.3.4. Ensure load crews are familiar with fuse inspection, installation and wiring IAW MDS-33 series TO procedures or TO 11A-1-63, Munitions Assembly Procedures— Inspection and Assembly of Conventional Munitions. (T-1).

10.3.3.4.1. Conduct this training during initial certification.

10.3.3.5. Ensure EPEs are performed on each LSC/Lead Crew member at least semi-annually to validate standardization of the weapons load training program. (T-1).

10.3.3.5.1. Results will be documented on the AF Form 2419 and will be maintained within the WLCMT or MAJCOM approved equivalent. (T-1).

10.3.3.5.2. WWM and/or WS SUPT will perform EPEs on LSC members during load crew evaluations. (T-1). Exception: For the 354th Fighter Wing EPEs will be accomplished during weapons task qualification training. (T-1).

10.3.3.5.3. LSC members perform EPEs on Lead Crew members during load crew evaluations. (T-1).

**10.4. Loading Standardization Crew (LSC).** The LSC is assigned to WS and reports to the WS SUPT. The LSC administers the Weapons Standardization Program and the WWM and/or WS SUPT evaluate and certify the LSC according to criteria in this AFI.

10.4.1. The LSC Team Chief must be at least a TSgt 2W171. (T-1).

10.4.2. The LSC trains, evaluates, and certifies the lead crews and load crews.

10.4.2.1. The LSC will perform semi-annual evaluations, (quarterly at short tour locations), on all certified load crews on at least one of the unit's PM. (T-1). Lead crew members may assist; however, at least one member of the LSC must be present. (T-1).

**10.5. Weapons Academic Instructor.** A WS member is designated to oversee and manage the Weapons Academic Training Program.

10.5.1. The WWM will designate WS members (minimum 7-skill level) as primary (primary instructor will be a permanently assigned individual to WS, minimum grade of TSgt) and alternates, to conduct initial and recurring weapons academic training for all wing 2W1XXs (or equivalent contractor personnel). (T-1).

10.5.1.1. The instructors will have a SEI for at least one of the assigned MDS weapons system and familiarized with all UCML/TTML items. (T-1).

10.5.2. The primary academic instructor will manage the Weapons Academics Training Program and associated materiel. (T-1).

10.5.3. The primary weapons academic instructor will review the Weapons Academics Training Program annually IAW AFI 36-2650. (T-1).

10.5.3.1. The weapons academics instructor is not considered a maintenance instructor.

**10.6. Squadron 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.



10.6.1. For contingency operations or deployed locations a lead crew should deploy to perform WS functions.

10.6.2. If a lead crew is not deployed, the senior 2W1X1 weapons loading person (with WWM coordination) on location will have WS authority. **(T-1)**. For 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).

### **10.7. Training Facilities/Aircraft.**

10.7.1. Practical training will be conducted in a facility dedicated to load crew training that is of sufficient size to accommodate required aircraft, training munitions and associated support equipment. **(T-1)**.

10.7.1.1. Adequate office space and classroom with appropriate heating and cooling are required in the academic and practical training area. See AFMAN 32-1084 for facility requirements.

10.7.2. Aircraft will have a fully configured and operational (electrical and mechanical) weapons system for load training purposes. **(T-1)**.

10.7.2.1. If a permanent load trainer for example, Armament Systems Trainer and/or GITA) is assigned, it also will have a fully configured and operational weapons system. **(T-2)**.

10.7.2.2. In addition, WS will develop a schedule for periodic maintenance to weapons system components. **(T-1)**.

**10.8. Weapons Academics.** 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 will complete initial and recurring (not exceeding a 15-month interval) weapons academic training. **(T-1)**.

10.8.1. Complete initial academic training before the start of any practical training. **(T-1)**.

10.8.1.1. Recurring academic training may also be part of training and recertification for failed loads.

10.8.1.2. Initial and recurring course outlines may be combined.

10.8.1.3. A minimum score of 80 percent must be attained to receive credit for academic testing. **(T-1)**.

10.8.2. Coordinate training requirements and course control documents annually through Wing Safety or the safety officer and MT. **(T-1)**.

10.8.2.1. Wing Safety will approve all nuclear surety training lesson plans. **(T-1)**.

10.8.2.2. The WWM is the final approval authority for course documents. **(T-1)**.

10.8.3. Weapons 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. Course control documents are tailored to unit and contingency needs and, as a minimum, will include the following items:

- 10.8.3.1. Local publications that prescribe weapons related operating procedures or directives. **(T-1)**.
  - 10.8.3.2. Safety (occupational and explosive) and security. **(T-1)**.
  - 10.8.3.3. Aircraft, munitions, AGE, SE, TMDE, and munitions trailer familiarization. **(T-1)**.
  - 10.8.3.4. Testers, handling equipment and special tools. **(T-1)**.
  - 10.8.3.5. Operations in revetments/protective aircraft shelters. **(T-1)**.
  - 10.8.3.6. Weapons storage and security system vaults (tasked units). **(T-1)**.
  - 10.8.3.7. Applicable command unique training requirements in 36-26XX supplements. **(T-1)**.
  - 10.8.3.8. Hazards inherent during Concurrent Servicing Operations. **(T-1)**.
  - 10.8.3.9. Task Assignment List and applicable -16/-33 TOs (initial academics/ load crew personnel only). **(T-1)**.
  - 10.8.3.10. 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). **(T-1)**.
  - 10.8.3.11. Nuclear weapons systems fault isolation and troubleshooting procedures (if applicable). **(T-1)**.
  - 10.8.3.12. Explain procedures for operations involving nuclear weapons, to include safety wiring and sealing, use of Tamper Detection Indicators, two-person concept, no-lone zone, PRP, and AF Form 504, *Weapons Custody Transfer Document*, custody transfer procedures (if applicable). **(T-1)**.
  - 10.8.3.13. 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). **(T-1)**.
- 10.8.4. Weapons Expediter training. Weapons Expediter training will be instructed by the Weapons Academic Instructor. **(T-1)**.
- 10.8.4.1. Initial training is required prior to assuming duties as a Weapons Expediter. **(T-1)**.
  - 10.8.4.2. Expediter training will address the following subject areas:
    - 10.8.4.2.1. Basic Expediter duties within this AFI. **(T-1)**.
    - 10.8.4.2.2. AF Forms 2430 and AF Form 2434 documentation. **(T-1)**.
    - 10.8.4.2.3. Munitions flightline accountability. **(T-1)**.
    - 10.8.4.2.4. Emergency procedures. **(T-1)**.
    - 10.8.4.2.5. NET Explosive Weight/Explosive Site Planning. **(T-1)**.
    - 10.8.4.2.6. Review and monitor JSTs (screen 469, 100, and 122 as a minimum). **(T-1)**.

10.8.4.2.7. Aircraft MESLs (as applicable). **(T-1)**.

10.8.4.2.8. Maintenance on conventional and nuclear explosives loaded aircraft. **(T-1)**.

10.8.4.2.9. MNCL items (as required) and nuclear policies pertaining to flightline activity. **(T-1)**.

**10.9. Practical Training.** Practical training starts when academic training is complete. Practical training is the initial hands-on procedural training given to load crew members. 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 loading/unloading on/off various types of munitions trailers (with applicable accessories), DLOs, two-person concept, safety wiring and sealing/roto sealing, controlled access and weapon custody receipt and transfer procedures, as required.

**10.10. Task Assignment List.** A Task Assignment List 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. Task Assignment Lists 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 Conventional Air Launched Cruise Missile pylon and Conventional Stores Rotary Launcher loading/unloading is accomplished procedurally parallel to the -16 procedures). Task Assignment Lists are not a replacement for TO procedures, but are used to standardize procedures and facilitate the training of unit load crews.

10.10.1. Task Assignment Lists will include single, dual loading operation, cross-loading and integrated munitions loading procedures (including gun and chaff/flare loading) as applicable. **(T-1)**.

10.10.2. Units may develop task assignment lists for aircraft armament electrical functional checks (at unit's discretion).

10.10.3. Separate Task Assignment Lists will be developed for weapons qualification tasks performed by non-2W1X1 personnel. **(T-1)**.

10.10.4. MRPLs and semi-annual evaluations are not considered training operations.

10.10.5. Minimum responsibilities of each load crew position (MAJCOMs may develop more detailed Task Assignment Lists).

10.10.5.1. Two member load crews (CV-22, MC-130J/H/P, and HH-60).

10.10.5.1.1. Crew member number one will be the load crew chief and is in charge of the loading operation. **(T-1)**.

10.10.5.1.2. Crew member number two will assist crew member number one in performing the aircraft preparation and loading munitions. **(T-1)**.

10.10.5.2. Three member load crews. (AC-130U/W/J, A/OA-10, F-15, F-16, F-22, F-35 and MQ-9).

10.10.5.2.1. Crew member number one will be the load crew chief and is in charge of the loading operation. **(T-1)**.

10.10.5.2.2. Crew member number two will perform aircraft preparation, load munitions, and assist as required. **(T-1)**.

10.10.5.2.3. Crew member number three will perform munitions preparation, operate the bomb lift truck, and assist as required. **(T-1)**.

10.10.5.3. Four member load crews. (B-1, B-2, and B-52).

10.10.5.3.1. Crew member number one will be the load crew chief and is in charge of the loading operation. **(T-1)**.

10.10.5.3.2. Crew member number two will perform the aircraft preparation and assist as required. **(T-1)**.

10.10.5.3.3. Crew member number three will perform munitions preparation and assist as required. **(T-1)**.

10.10.5.3.4. Crew member number four will operate the bomb lift truck and assist as required. **(T-1)**.

### **10.11. Munitions Aircraft Loading Certification/Decertification.**

10.11.1. Certification. These guidelines are used to establish the weapons standardization program. Only individuals with 2W1X1 AFSC (contractor or civilian equivalent) are certified/qualified to load/unload munitions items on aircraft except for those weapons task qualifications outlined in [paragraph 10.16.7](#). **(T-1)**. A minimum of one certifying official is required for two-person load crews. **(T-1)**. A minimum of two certifying officials are required to evaluate three and four-member load crews. **(T-1)**. Certification and training requirements are as follows:

10.11.1.1. LSC, lead crew and load crew personnel will be certified by position. **(T-1)**.

10.11.1.2. Personnel must be certified before loading live conventional munitions, unless loading under the direct supervision of a minimum of two certifying officials. **(T-1)**.

10.11.1.3. Personnel must be certified before loading war reserve nuclear weapons. **(T-0)**.

10.11.1.3.1. Certified load crews may be evaluated by using war reserve weapons if the weapons are scheduled for loading or movement.

10.11.1.4. LSC, lead crews, and load crews will be certified on all PMs. **(T-1)**. Exception: AFGSC units follow [Paragraph 2.7.5](#) of this instruction for nuclear PM requirements.

10.11.1.4.1. The LSC and lead crews are certified on all SMs to provide the cadre for future certification of unit load crews. **(T-1)**.

10.11.1.4.2. The LSC is certified (or qualified for items so identified by unit tasking) on unit LMs. **(T-1)**.

10.11.1.5. Load crews can only be certified on up to 15 total MFGs (primary, support, limited). **(T-1)**.

10.11.1.6. Dual position (LSC and lead crews) or multiple MDS (LSC, F-15C/D/E lead crews, Test Wing personnel, 174 ATKW Det 1, and AFSOC only) certification is authorized; however, personnel will not be certified on more than 15 UCML/TTML primary MFGs. **(T-1)**.

10.11.1.6.1. Proficiency requirements are accomplished on all aircraft IAW this **Chapter**.

10.11.1.6.2. Personnel who are dual position certified will ensure they comply with MRPL and SAE requirements in both positions for which they are certified; they will not alternate between the two. **(T-1)**.

10.11.1.6.3. In the dual or secondary position, personnel will only load munitions for which they are certified, and will comply with requirements stated above. **(T-1)**.

10.11.1.6.4. Only dual certify in the MFGs required to meet mission requirements. **(T-1)**. **Note:** 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.

10.11.1.7. 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 MRPL or SAE requirements are current.

10.11.1.7.1. Units will develop procedures to ensure load crew certification status is provided to the individual prior to Permanent Change of Station (PCS) departure. **(T-3)**.

10.11.1.8. Units will alternate loading operations on different AME configurations for same munitions. **(T-2)**.

10.11.1.8.1. Units with GBU-39 on UCML/TTML will train Bomb Rack Unit-61 asymmetrical or unbalanced center of gravity loadouts, for example, with 1-3 GBU-39/53s loaded. **(T-1)**.

10.11.1.9. Personnel certified to load nuclear weapons on aircraft, will perform weapons transfer and tie-down procedures to and from trailers, Weapons Storage and Security System vaults, and support stands for which load standardization training has been established and conducted IAW this instruction. **(T-2)**. These actions are not required as separate certification items.

10.11.2. Decertification. Document decertification and/or disqualification actions in the WLCMT or MAJCOM-approved equivalent. **(T-1)**. Decertify and disqualify individual load crew members if they:

10.11.2.1. Fail to complete a required evaluation (SAE, MRPL, Qualification). **(T-1)**.

10.11.2.1.1. 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/MRPL/Qualification requirements (plus all past-due evaluations) are completed within one month of returning to duty (two months for Traditional Reservist/Drill Status Guard members).

10.11.2.2. Fail to accomplish recurring academic training. **(T-1)**.

10.11.2.2.1. All personnel exceeding the 15-month interval will not operate, handle, transport, maintain, or load munitions until academic training is accomplished. **(T-1)**.

10.11.2.3. Fail an evaluation due to the following criteria:

10.11.2.3.1. Safety Error. **(T-1)**. A violation of safety publications, TO warnings, any unsafe act (personal injury or death). Evaluators will immediately intervene to prevent such acts. **(T-1)**.

10.11.2.3.2. Reliability Error. **(T-1)**. A violation of TO requirements that could reasonably lead to damage/premature failure of equipment, prevent safe reliable operation of weapons system or weapon release, or intervention by the evaluator to prevent such violations.

10.11.2.3.3. Lack of technical proficiency. **(T-1)**. Any load crew member failing to demonstrate technical proficiency results in a failed rating.

10.11.2.3.3.1. A crew member exceeding three technical order errors results in a fail rating for lack of technical proficiency.

10.11.2.3.4. Time standard. **(T-1)**. Exceeded time standard results in a failed rating for the load crew chief.

10.11.2.3.4.1. If the time standard is exceeded for other load crew member's lack of technical proficiency, the Load Team Chief does not need to be decertified. Time standard will not be applied to flightline evaluations. **(T-1)**.

10.11.2.4. When a member is decertified on a munition, the member will be decertified on all items within the MFG. **(T-1)**. Personnel may recertify on any MFG item. **Note:** Bomber units may certify by loading methods for nuclear munitions. This will be accomplished by documenting the munition method in block seven of the AF Form 2435. EXAMPLE, AGM-86/B Pylon, AGM-86/B Conventional Stores Rotary Launcher, B-61/83 Rotary Launcher Assembly, B-61/83 S/B.

10.11.2.4.1. For integrated loads, the evaluator may decertify on all munitions or a specific munition loaded. When the same rating is not applied to all munitions loaded during an integrated load, the load crew records will be annotated accordingly. **(T-2)**.

10.11.2.4.2. A failure for safety or reliability does 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.

**10.12. Proficiency Review Period.** Immediately following initial certification, crews will load one-third of all munitions monthly for a minimum of three months, after which the LSC or lead crew will recommend to the WS SUPT to place them in the normal bi-monthly evaluation cycle (N/A for short tour locations and Traditional Reservist/Drill Status Guard members). **(T-1)**.

**10.13. Minimum Required Proficiency Load.** All certified load crews will perform proficiency loads and be evaluated by the LSC or a lead crew. **(T-1)**.

10.13.1. 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 six month period (three month period for short tour locations and twelve month period for Traditional Reservist/Drill Status Guard members). **(T-1)**.

10.13.1.1. One third of the required munitions will be loaded bi-monthly (monthly for short tour locations), and one quarter of required munitions will be loaded quarterly for Traditional Reservist/Drill Status Guard members to demonstrate crew proficiency. **(T-1)**.

10.13.2. MRPL credit may be given during any certified loading operations on the flightline provided complete MRPL requirements are performed and evaluated by WS personnel. MRPL credit during flightline evaluations is only authorized when loading live munitions, Dummy Air Training Missiles, or D-2 type inert munitions.

10.13.3. In units where no munition training assets exist (Cluster Bomb Unit CBU-105, M129) difference training will be provided prior to initial certification and during recurring academics training. **(T-1)**.

10.13.4. Load crews in air defense/air superiority units perform proficiency loads bi-monthly using all committed primary munitions. **(T-1)**.

10.13.5. Nuclear-tasked units. LSC, lead crews, and load crews will load nuclear PMs monthly. **(T-1)**.

10.13.5.1. Only one type of munition within a MFG requires loading each month.

10.13.6. Load crew integrity must be used to the maximum extent possible. **(T-3)**.

10.13.6.1. Certified Load Team Chiefs may perform MRPLs in any position provided they load under the supervision of LSC or lead crew using inert conventional training munitions only. This requirement applies at home station only. No MRPL credit is given to those individuals during evaluations unless loading in the position for which they are certified.

10.13.7. Load crews will annually perform an evaluated load while wearing the ground crew Chemical Warfare Defense Equipment using 33-1-2/33-2-1 procedures as determined by the WWM. **(T-3)**. Credit may be given during exercises provided operations are evaluated by WS personnel. **(T-2)**.

**10.14. Load Crew Semi-Annual Evaluations (SAE).** 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. **(T-1)**.

10.14.1. SAE's are not required for lead crews.

10.14.2. Load crews failing to accomplish semi-annual evaluations on all munitions will be decertified unless exempted IAW provisions in this **Chapter**. **(T-1)**.

10.14.3. If an integrated load is accomplished as the SAE (such as, AIM-9, -120), document the SAE accordingly.

10.14.4. There is no need to document both SAE and MRPL.

10.14.5. Certified Load Team Chiefs may perform SAEs in any position provided they load under the supervision of LSC or lead crew using inert conventional training munitions only. This requirement applies at home station only.

10.14.6. No SAE credit will be given to those individuals during evaluations unless loading in the position for which they are certified. **(T-1)**. This 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 necessary.

10.14.7. The letter "E" will be placed after the date for the semi-annual evaluation regardless of rating. **(T-1)**.

### **10.15. Documenting Load Crew Certification/Decertification/Qualification.**

10.15.1. The LSC will manage load crew certifications, qualifications, SAEs (quarterly evaluation (QE) for short tour locations), and MRPLs by means of the WLCMT or MAJCOM approved equivalent. **(T-1)**.

10.15.1.1. All decertification and subsequent recertification actions must be documented on AF Form 2435 via WLCMT or MAJCOM approved equivalent process. **(T-1)**.

10.15.1.2. Aircraft parent station, multiple carriage, difference training and asymmetrical loads will be documented on AF Form 2419, AF Form 2435, or MAJCOM approved equivalent. **(T-1)**.

10.15.2. Enter one of the following codes in the month column, as applicable, if required loads are not completed and provisions of this **Chapter** apply: Temporary Duty (TD), Emergency Leave (LV), Incapacitated (ED), Exercises/Contingency (EX), or Weather (WX). **(T-1)**.

10.15.2.1. Code outs will not be used as a substitute for ineffective scheduling. **(T-1)**. WWM has final decision authority on coding disputes.

10.15.2.2. RPA contractor personnel who deploy immediately after weapons load certification are not required to be coded out monthly.

10.15.3. Route AF Form 2419 after semi-annual evaluations (quarterly for short tour locations) to the Weapons Section NCOIC/Chief, Operations Officer/MX SUPT, WWM, and the WS SUPT. **(T-1)**.

10.15.4. When internet connectivity will not be present, send printouts from the WLCMT or MAJCOM-approved equivalent product with the crew to deployed/TDY locations if loading tasks are to be performed. **(T-1)**.

10.15.4.1. The following statement will be added after the last entry on each product: "AF Form 2435 reviewed; the member is certified/qualified on the items listed on this product." **(T-1)**. This statement is followed by the signature and date of a WS certifying official.

10.15.5. Academic and practical training will be tracked and documented in a MIS, however the WLCMT or MAJCOM-approved equivalent may be used for this purpose. **(T-2)**.

**10.16. Weapons Task Qualification.** A weapons task qualification is a munitions-related task that does not require certification to include inert/training munitions. Individuals require both initial/recurring weapons academics and initial/annual practical qualification training for these tasks.

10.16.1. All individuals will receive full task qualification training to include use of the checklist. **(T-1)**.

10.16.2. Recurring practical training should be conducted during normal flightline operations to the maximum extent possible.



10.16.3. Training is provided, documented and tracked by WS.

10.16.4. Checklist Qualification. Indicates that the person with the checklist is trained, knowledgeable and in-charge of the overall operation or task.

10.16.4.1. Members must possess a minimum 5-skill level to be checklist qualified. **(T-1)**.

10.16.5. Full scale inert/training munitions (such as, BDU-50/TGM-65/Captive Air Training Munitions -120/M129). If load crew personnel are certified on a munition, they are considered qualified (by position certified, except #1 position) on its inert version.

10.16.6. Two or more qualified personnel in AFSC 2W1X1 (or civilian equivalent) shall be required to perform the following tasks:

10.16.6.1. Practice Bombs: load and unload BDU-33, BDU-48 and MK-106. **(T-2)**.

10.16.6.2. Load and unload ammunition in internal and external gun systems (the GAU-8 requires three people). **(T-2)**. Exception: Personnel do not load GAU-2, GAU-18, GAU-21, or M240 machine guns and are authorized to unload ammunition only during Hot Gun emergency or gun jams that require safing prior to maintenance actions.

10.16.6.3. Load and unload single 2.75 rockets. **(T-2)**.

10.16.6.4. Load and unload Miniature Air Launched Decoy (three person minimum). **(T-2)**.

10.16.6.5. Load and unload captive AGM-114 missiles (M36). **(T-2)**.

10.16.7. Two or more qualified personnel in any aircraft maintenance AFSC shall be required to perform the following tasks (members must be qualified in all aspects of task to be performed; for example, aircraft prep, rack/launcher prep, munitions prep.

10.16.7.1. Install and remove impulse cartridges if the task is not accomplished as a part of a loading operation. **(T-2)**.

10.16.7.2. Load/unload pyrotechnics. **(T-2)**.

10.16.7.3. Install and remove chaff and flare magazines and other defensive countermeasures. **(T-2)**.

10.16.7.4. Perform portions of the conventional loading checklist pertaining to delayed-flight or alert, and Immediate Prior to Launch/Safing procedures. **(T-2)**. **Note:** Removal of dome/Target Designator cover(s) is not considered Immediate Prior to Launch and does not require initial/recurring academics.

10.16.7.5. Perform munitions/missile isolation procedures to facilitate other maintenance on conventional loaded aircraft only. **(T-2)**.

10.16.7.6. Install and remove Captive Air Training Munitions/ Dummy Air Training -9 missiles (must have three personnel minimum and one person must be checklist qualified). **(T-1)**.

10.16.7.7. Install and remove Acceleration Monitor Assemblies and Airborne Instrumentation System pods. Academics are not required for Acceleration Monitor Assemblies and Airborne Instrumentation System pods. (Minimum crew size per TO directives). Acceleration Monitor Assemblies and Airborne Instrumentation System

qualification training is a one-time trained item that will be entered on an AF Form 797. **(T-1)**.

10.16.8. A Load Team Chief may perform in any crew member position when loading inert/training munitions if certified on the parent munition. **(T-1)**.

10.16.8.1. The two and three members can only perform those positions for which they are certified or qualified. **(T-1)**.

10.16.9. Cross-loading Operations will be trained and documented as a Qualification. Cross-loading operations are only applicable to conventional loading operations and are only authorized upon MXG/CC approval and WS program implementation.

10.16.9.1. The following minimum conditions will be included in the Cross-loading training plan (if implemented) **(T-2)**.

10.16.9.1.1. Procedures for clearly identifying aircraft involved in cross-loading operations.

10.16.9.1.2. A list of MXG/CC authorized munitions eligible for cross-loading operations.

10.16.9.1.3. Local procedures, restrictions and safety requirements as determined by the WWM and MXG/CC.

10.16.9.1.4. Procedures for annotating loading checklist within the cross-loading program to ensure compliance, for example, emergency data page info, when to check steps.

**10.17. 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.

10.17.1. Units may establish more restrictive standards for local use.

10.17.2. Unless otherwise noted in [Table 10.1](#), [Table 10.2](#), or [Table 10.3](#), the WS SUPT shall determine and set load time standards for qualification items, for integrated loads (including nuclear, if tasked), and for loads performed wearing the Chemical Warfare Defense Equipment **(T-3)**.

10.17.2. **(AFRC)** WS SUPT shall determine and set ICT load time standards for qualifications **(T-3)**.

10.17.3. All items require certification IAW this **Chapter**, unless otherwise indicated.

10.17.4. The standard load times, from the MFG [Table 10.1.](#), [Table 10.2.](#), and [Table 10.3.](#) are standard load times for initial and recurring training and evaluations for the respective single store (including full munitions preparation) and installation of impulse cartridges, if required.

10.17.4.1. Except for Bomb Rack Unit-57, an additional 10 minutes is allowed for each added aircraft station check on fighter aircraft, if performed as part of an evaluated load.

10.17.4.2. An additional 7 minutes is allowed for each like store added to fighter aircraft loads.

10.17.4.3. 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.

10.17.4.4. Units may develop optimum time standards for integrated loads (including nuclear, if tasked).

**Table 10.1. Fighter Aircraft Munitions Family Group and Munition Load Time Standards (in minutes).**

MUNITIONS FAMILY GROUP	A-10	F-15	F-16	F-22	F-35	REMARKS
AIM-9 L/M/X	20	20	20	30	20	Note 6
AIM-120		25	25	40	25	Note 6
AGM-65	25	25	25			Note 1, 2, 6
AGM-88			25			Note 6
AGM-154 (JSOW)		25	25			Note 1, 5, 6
AGM-158 (JASSM)		25	25			Note 1, 6, 8
B-61		90	90			Note 3
CBU-87/89	25	25	25			Note 6
CBU-103/104/105/107 (WCMD)	25	25	25			Note 5, 6
GBU-10/12/51	25	25	25		30	Note 1, 6
GBU-24/27, EGBU-24/27		30	25			Note 1, 6

GBU-28, EGBU-28		35				Note 1, 6, 8
GBU-31/32/38/54/56 (JDAM)	25	25	25	35	25	Note 5, 6
GBU-39/53 (SDB)		25	25	40	25	Note 6, 7
MK81/82/83/84/110 Low Drag (LD)	25	25	25	25		Note 4, 6
MK82/MK84 High Drag (HD)	25	25	25			Note 4, 6
<b>QUALIFICATIONS</b>	<b>A-10</b>	<b>F-15</b>	<b>F-16</b>	<b>F-22</b>	<b>F-35</b>	<b>REMARKS</b>
20MM/30MM/25MM	X	X	X	X	X	
ADM-60			X			
ALE-50/70			X		X	
CHAFF/FLARES	X	X	X	X	X	
M129/PDU-5B	X	X	X			
ROCKETS (2.75)	X		X			
SUU-25	X		X			

**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, such as F-16, 75060/W-11; or F-15E, A/E24T-199 check. When a long flight circuit test is to be included in a loading operation, add the time standard listed in the applicable -6 tech order to the time standard.
4. Add 5 minutes for each fuse extender used.
5. F-16 add 35 minutes if BRU-57 functional check is performed as part of the load.
6. Add 10 minutes if functional check is to be accomplished as part of the load evaluation.
7. Time standard for a preloaded carriage system is 40 minutes.
8. Add 5 additional minutes when loading AGM-158/GBU-28 on F-15E Station 5

**Table 10.2. Bomber Aircraft Munitions Family Group and Munition Load Time Standards.**

<b>MUNITIONS FAMILY GROUP</b>	<b>B-1</b>	<b>B-2</b>	<b>B-52 INT</b>	<b>B-52 EXT</b>	<b>REMARKS</b>
AGM-86			85	95	Note 1, 2, 5
AGM-158	50	50	50	50	Note 1, 4, 7
B-61/B-83		45			Note 1, 2, 6
CBU-87/89	40		40	40	Note 1, 3, 7
CBU-103/104/105/107 (WCMD)	40			40	Note 1, 4, 7
GBU-10/12				40	Note 3, 7
GBU-28		50		40	Note 3, 4, 7
GBU-31/38/54 (JDAM)	40	40	45	45	Note1, 4, 7

GBU-57 (MOP)		70			Note 4, 7
MK-56/60/62/63/65 (Mines)	40	40	25	40	Note 1, 3, 7
MK-82LD/83LD/84LD/M117/BLU-109/110 (GP LD)	40	40	25	40	Note 1, 3, 7
MK82A, MK84A (GP HD)	40	40		40	Note 1, 3, 7
<b>QUALIFICATIONS</b>	<b>B-1</b>	<b>B-2</b>	<b>B-52-I</b>	<b>B-52-E</b>	<b>REMARKS</b>
ADM-160				X	
ALE-50	X				
CHAFF/FLARES	X			X	
M129/PDU-5			X	X	

**Notes:**

1. Pre-load; time standard 40 minutes for preloaded B-1 CBM+, MRPL and SECBM. B-52/B-2 add 40 minutes for each additional preload Conventional Stores Rotary Launcher//Rotary Launcher Assembly or Pylon on the B-52.
2. B-52 post-load for one missile: Add 50 minutes for AGM-86B, 60 minutes for AGM-86D, and 70 minutes for AGM-86C. Add 5 minutes for each additional missile. B-2 post-load check add 20 minutes if accomplished as part of the load.
3. Add 3 minutes for each additional store Non MIL-STD-1760E capable store. Exception: Add 10 minutes per store for GBU/EGBU 10/12/28.
4. MIL-STD-1760E; Add 5 minutes per additional store. Exception: B-52 add an additional 5 minutes per store if MIL-STD-1760E cable installation is required. B-52 (internal) for AGM- 158 load add 20 minutes per additional store. The LSC will develop a local time standard for the 8th weapon. B-52 add an additional 10 minutes per additional store for CRL loading. B-1 and B-52 (external), for AGM-158 load, add 20 minutes per additional store. B-2, for the AGM-158 load, the first store is 50 minutes; add 20 minutes per additional store. The LSC will develop a local time standard for the 8th weapon.
5. Time for single missile loading is 70 minutes per store.

6. Time for single bomb is 40 minutes, add additional 15 minutes per store; B-2 add 20 minutes if post-load check is performed as part of the load.

7. B-2 add 20 minutes if post load checks are performed part of the load. B-1 add 45 minutes if status checks are performed as part of the load. N/A for B-52.

**Table 10.3. Remote Piloted/Special Mission Aircraft Munitions Family Group and Munition Load Time Standards**

	MQ-1	MQ-9	AC-130U, W, and J	REMARKS
AGM-114	20	20		Note 1, 2
AGM-176 (SOPGM)			30	
GBU-12		25		Note 1, 2
GBU-38/GBU-54		25		Note 1, 2
GBU-39			45	
<b>QUALIFICATIONS</b>				<b>REMARKS</b>
25MM/30MM			X	
CHAFF/FLARES			X	

<b>Notes:</b>				
Add 15 minutes for each additional store or M299.				
Add 10 minutes if functional check is to be accomplished as part of the load evaluation.				

**10.18. (Added-AFRC) Integrated Combat Turnaround (ICT).** It is a simultaneous aircraft fueling, servicing, and loading operation as approved by the SSEA. A “Hot” ICT is performed with at least one engine running; a “Cold” ICT is performed when the aircraft is shut down. ICT are performed by a trained and qualified team using approved MDS-ICT checklists/tech data procedures under the direct supervision of an Aircraft Turnaround Supervisor (ATS). With the exception of Hot Pit refueling, an ICT is a start-to-stop operation conducted in a single location/aircraft parking spot. The ability to integrate weapons loading, refueling minor inspection/servicing, and aircraft preparation tasks are key to enhancing aircraft availability during combat operations.

10.18.1. **(Added-AFRC)** The ICT checklist will not be used to replace the thru-flight inspection TO during routine flying operations **(T-2)**.

10.18.2. **(Added-AFRC)** WS will:

10.18.2.1. **(Added-AFRC)** Ensure fully qualified personnel receive recurring evaluations semi-annually **(T-2)**.

10.18.2.2. **(Added-AFRC)** Ensure initial and recurring ICT evaluations are documented on AF Form 2419 **(T-2)**.

10.18.2.3. **(Added-AFRC)** Document ICT academics training and qualification in MIS **(T-2)**.

10.18.2.4. **(Added-AFRC)** Disqualify personnel who fail to complete ICT evaluations. ICT disqualification of a load crewmember does not necessarily result in munitions decertification **(T-2)**.

10.18.2.5. **(Added-AFRC)** Ensure aircraft configurations are consistent with those anticipated during combat operations **(T-2)**.

10.18.2.6. **(Added-AFRC)** Incorporate ICTs into the unit's aircraft utilization and maintenance plan **(T-2)**.

10.18.3. **(Added-AFRC)** ICT area key personnel and responsibilities.

10.18.3.1. **(Added-AFRC)** Sortie Production (SP). Will have overall responsibility for all maintenance personnel and resources dedicated to the ICT area **(T-2)**.

10.18.3.2. **(Added-AFRC)** Aircraft Turn Supervisor (ATS). Will be a 7-level maintenance technician with at least one year MDS experience, and will be approved by MXG/CC. The ATS will:

10.18.3.2.1. **(Added-AFRC)** Supervise only one ICT at a time.



- 10.18.3.2.2. **(Added-AFRC)** Ensure the ICT progresses safely and on schedule (**T-2**).
- 10.18.3.2.3. **(Added-AFRC)** Terminate actions when hazards jeopardize the safety of personnel or equipment (**T-2**).
- 10.18.3.2.4. **(Added-AFRC)** Maintain communication with SP, appropriate flightline supervisor, and MOCC (**T-2**).
- 10.18.3.2.5. **(Added-AFRC)** Ensure sufficient serviceable material and equipment is available and properly positioned for the ICT (**T-2**)
- 10.18.3.3. **(Added-AFRC)** The ICT time standard for F-16 and A-10 aircraft will be 45 minutes. The time standard all other fighter aircraft is 60 minutes. NOTE: The WSS with the maintenance group commander's approval may increase the time standard as necessary to account for munitions assembly, hanging external fuel tanks or uncommon munitions configurations providing the time standard does not exceed 60 minutes for F-16 or A-10 aircraft and 75 minutes for all other fighter aircraft. ICT timing begins when the aircraft is first chocked on the ICT spot or combat turn area and ends at the completion of the final aircraft preparation procedures of the applicable aircraft tech order or checklist.

## Chapter 11

### ADDITIONAL MAINTENANCE REQUIREMENTS AND PROGRAMS

**11.1. Facility Housekeeping and Contamination Control.** Units will publish housekeeping and contamination procedures which protect the health of workers and maintain areas as free as practical from surface contamination. **(T-1)**. Units will:

11.1.1. Ensure Bioenvironmental Engineering approved workplace-housekeeping procedures are employed to prevent the spread of contamination within a work center. **(T-1)**.

11.1.2. Emphasize controlling the source of the contamination and ensure workplace personnel follow proper work procedures, PPE use, and hygiene practices. **(T-1)**.

11.1.3. Ensure housekeeping procedures will account for the dangers and hazard exposures found in the work center and will be consistent with mitigation methods outlined in AFMAN 91-203. **(T-1)**.

**11.2. Personal Wireless Communications Systems Management.**

11.2.1. Maintenance Communications. The MXG/CC has the overall responsibility to ensure Personal Wireless Communications Systems communication resources are available to support mission requirements. Reliable, redundant, cyber resilient, and effective communications systems are essential for efficient maintenance operations. These systems shall provide accurate, timely, secure, programmable frequency and jam resistant communications needed to securely accomplish the maintenance mission in a fully deployed and isolated mode.

11.2.2. Commanders or designated representative will coordinate base Communication Squadron or equivalent to ensure compliance with Personal Wireless Communications Systems management requirements IAW AFI 17-210, AFI 17-220, *Spectrum Management*, AFI 17-130, and AFMAN 17-1203. **(T-1)**. The following general guidelines apply:

11.2.2.1. Allowance for specific radios is 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 AFI 23-101, AFI 17-210, AFI 17-220, AFI 17-130, and AFH 23-123 V3, *Air Force Equipment Management*.

11.2.3. A VHF/UHF radio is authorized for use in maintenance operations to facilitate communications between aircraft and maintenance personnel. Additionally, aircrews may relay advance aircraft status information to maintenance personnel using VHF/UHF channels.

11.2.3.1. Maintenance Operations will coordinate procedures for use of these radio communications with operations and other essential wing organizations. **(T-1)**.

11.2.3.2. For effective flightline operations, more than one non-tactical radio nets are authorized when large numbers or different types of weapon systems are assigned or when Allowance Standards specify.

**11.3. MAJCOM/ANG Special Certification Rosters (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 personal injury or damage to equipment will 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. AF/A4LM establishes mandatory SCR Item Titles in Column A of **Table 11.1 (T-1)**. Based on the evolving complexity of weapon systems and the associated task diversity the process of assigning prerequisite to SCR tasks are assigned to using MAJCOMs/ANG as follows: MAJCOMs/ANG A4s will coordinate with their applicable Lead Commands to develop and document SCR item “Prerequisite” criteria in Column B of **Table 11.1** based on task complexity of their assigned weapons systems. MAJCOMs/ANG may add additional items and remove non-applicable Items on their SCR using the standardized **Table 11.1** format provided. MAJCOM/ANG Supplements must include their complete SCR table when coordinating supplement approval with AF/A4LM as described in the opening **Paragraph** of this AFI. Special Certification approval authority will be accomplished IAW notes at the bottom of the SCR. **(T-1)**. The MXG/CC and CD are not required to be on the SCR by virtue of their position as the SCR approval authority.

**11.3. (AFRC) Special Certification Roster (SCR).** Maintenance Training will maintain the original signed SCRs **(T-2)**.

11.3.1. MXG/CC will approve items identified in **Table 11.1**, Note 1. **(T-1)**. The MXG/CC at their discretion, may delegate approval authority to MXG Squadron Commanders.

11.3.1.1. The Squadron Operations Officer/MX SUPT approves individuals in their primary AFSC based on their experience and technical expertise regardless of their assigned skill or position. 7-skill level personnel may be certified outside their primary AFSC only when specific Cross Utilization Training task qualification is documented in their training records.

11.3.1.2. MXG/SUPT will review and sign SCR actions for those individuals administratively assigned to MXO (QA, AFREP). **(T-1)**.

11.3.1.2.1. MXG/SUPT will coordinate with the Field Training Detachment (TD) CC/SUPT to validate currency of Field TD personnel on the SCR. **(T-1)**.

11.3.1.3. WWM will review and sign WS SCRs. **(T-1)**.

11.3.2. TFI units will establish a process for approving SCR additions in a MOA/MOU to provide visibility across participating organizations. **(T-1)**.

11.3.3. The MXG/CC may waive 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 mission generation.

11.3.3.1. Operations Officer/MX SUPT or equivalent will retain file copies of approved waivers. **(T-1)**.

11.3.3.1.1. Approved waiver file copies may be discarded if SCR specifically identifies task as waived in the Maintenance Information System.

11.3.3.2. 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 a waiver. **Note:** 2W0XX certified munitions inspectors are exempt from these requirements.

11.3.4. MAJCOM Waiver Policy. If local conditions require assignment of other than MAJCOM approved mandatory SCR grade (to include civilian equivalents) and skill level prerequisite requirements, and cannot be fulfilled using the MXG/CC authority stated in **Paragraph 11.3.3** of this instruction then the MXG/CC (or equivalent) must request a waiver from the MAJCOM. (T-2).

11.3.4. (AFRC) Send waiver requests to HQ AFRC/A4MM ([afrc.a4mm@us.af.mil](mailto:afrc.a4mm@us.af.mil)) for further MAJCOM processing attention training manager (T-2).

11.3.5. MAJCOMs may add additional mandatory critical tasks or inspections they deem necessary.

11.3.5. (AFRC) See **Table 11.1**.

11.3.5.1. Identify each task on the SCR by a specific course code.

11.3.6. SCR Documentation. Flight CCs/SUPTs and Section NCOICs/Chiefs will review each individual's qualifications prior to recommending approval to perform SCR tasks to the appropriate approval level. (T-1).

11.3.6.1. AF Form 2426, *Training Request and Completion* or MAJCOM-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 the training section to update the MIS.

11.3.6.1. (AFRC) Use the AFRC Form 176, *Request for Placement On Special Certification Roster*, to add personnel to the SCR (T-2).

11.3.6.2. The appropriate level of authority approves the individual for addition to the SCR as listed in **Table 11.1**.

11.3.6.3. On approval, the UTM IAW AFI 36-2650, loads the approved name into the Maintenance Information System.

11.3.6.4. Flight CCs/SUPTs and Section NCOICs/Chiefs will retain their copy of AF Form 2426 or MAJCOM-approved form until they verify proper loading. (T-1).

11.3.6.5. Appointment letters are not required if loaded in the MIS.

11.3.6.6. Work center supervisor, AMU/Flight supervision, Operations Officer/MX SUPT, SQ/ CC, or MXG/CC may decertify individuals at any time and remove them from the SCR.

11.3.7. Units will ensure a current copy of the SCR is taken on all deployments. (T-2).

**Table 11.1. Mandatory Special Certification Roster and Prerequisites.**

	<b>A</b>	<b>B</b>
<b>ITEM</b>	<b>Mandatory SCR Item Titles</b>	<b>MAJCOM/ANG Prerequisites</b>
1	All Systems "Red-X" (no egress, welding, munitions, fuel cell (in-tank work)) (Note 1)	Refer to MAJCOM Supplement

2	Exceptional Release (ER) (Note 1)	Refer to MAJCOM Supplement
3	“Red-X” Downgrade (Note 1)	Refer to MAJCOM Supplement
4	All Systems In Process Inspection (no egress, welding, munitions, fuel cell in-tank work) (Note 1)	Refer to MAJCOM Supplement
5	Installed Engine Run Certifying Officials (Note 1)	Refer to MAJCOM Supplement
6	Aircraft Inlet/Intake/Exhaust Certifying Officials (Note 1)	Refer to MAJCOM Supplement
7	Flexible Borescope Certifying Officials (Note 1)	Refer to MAJCOM Supplement
8	Engine Blade Blending Certifying Officials (Note 1)	Refer to MAJCOM Supplement
9	“Red-X” by Primary AFSC (PAFSC) and Mission Design Series (For multiple Mission Design Series, list separately) (Note 2)	Refer to MAJCOM Supplement
10	IPI by PAFSC and Mission Design Series (For multiple Mission Design Series, list separately) (Note 2)	Refer to MAJCOM Supplement
11	“Red-X” and/or In Process Inspection - Limited (Note 2)	Refer to MAJCOM Supplement
12	“Red-X” and/or In Process Inspection - Cross Utilization Training (For multiple MDSs, list separately), for tasks outside PAFSC (Note 2)	Refer to MAJCOM Supplement
13	NWRM packaging (Notes 4 and 5)	Refer to MAJCOM Supplement
14	Installed Engine Run by Mission Design Series (Note 2)	Refer to MAJCOM Supplement
15	Engine Blade Blending	Refer to MAJCOM Supplement
16	QA hot pit certifying officials and QA hot pit certifier augmentees (squadron certifying officials) (Note 1)	Refer to MAJCOM Supplement

17	Hot Refueling PAD Supervisor/"A" Member (Note 2)	Refer to MAJCOM Supplement
18	Hot Refueling Team Member ("B" or "D" member) (Note 2)	Refer to MAJCOM Supplement
19	Aircraft to Aircraft Refueling Supervisor (Note 2)	Refer to MAJCOM Supplement
20	Uninstalled Engine Operations (Test Stand and ETS) Run by TMS (Note 2)	Refer to MAJCOM Supplement
21	Uninstalled Engine Run Certifying Officials by TMS (Note 1)	Refer to MAJCOM Supplement
22	Aircraft Inlet/Intake/Exhaust Inspection/Certification (Note 2)	Refer to MAJCOM Supplement
23	Engine Flexible Borescope Inspections (Note 2)	Refer to MAJCOM Supplement
24	Chief Servicing Supervisor (Heavy Aircraft/Commercial Derivative Aircraft) (Note 2)	Refer to MAJCOM Supplement
25	Concurrent Servicing Supervisor (Fighter Aircraft) (Note 2)	Refer to MAJCOM Supplement
26	W&B Certified/Clear Red X (refer to TO 1-1B-50) (Note 2)	Refer to MAJCOM Supplement
27	Impoundment Official (refer to <b>Chapter 7</b> of this instruction) (Note 2)	Refer to MAJCOM Supplement
28	Impoundment Authority (refer to <b>Chapter 7</b> of this AFI) (Note 1)	Refer to MAJCOM Supplement
29	CANN Authority (Note 1)	Refer to MAJCOM Supplement
30	Auxiliary Power Unit (APU) Operation (In Cockpit) (Note 2)	Refer to MAJCOM Supplement
31	Calibration Limitation Approval (refer to TO 00-20-14) (Notes 2 and 3)	Refer to MAJCOM Supplement
32	CDDAR Team Chief (Note 1)	Refer to MAJCOM Supplement
33	Weapons Task Qualification Manager (WTQM) (Note 1)	Refer to MAJCOM Supplement

34	Weapons Task Qualification Crew (WTQC) (Note 2)	Refer to MAJCOM Supplement
35	NSS and T-9/T-10/T-11/T-12/T-20 sound suppressor Fire Control Panel (Note 2)	Refer to MAJCOM Supplement
36	Aircraft Rapid/Hot Defueling Supervisor (Note 2)	Refer to MAJCOM Supplement
37	Clear Red X when a lost item/tool cannot be located (refer to <b>Chapter 8</b> of this instruction) (Note 1)	Refer to MAJCOM Supplement
38	Aircraft APU Run Certifying Officials (In Cockpit) (Note 1)	Refer to MAJCOM Supplement

**Notes:**

1. Approved by MXG/CC or equivalent may be delegated IAW **Paragraph 11.3.1**.
2. Approved by Operations Officer/MX SUPT or equivalents.
3. Operations Officer/MX SUPT may delegate approval authority to the AMU OIC/SUPT or Flight CC/SUPT.
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 11.1. (AFRC) Mandatory Special Certification Roster (SCR) and Prerequisites (T-2).**

Use **Attachment 15** for MDS specific prerequisites.

**Table A15.1. for C-5, C-17, C-40, C-130, KC-46, KC-135, WC-130.**

**Table A15.2. for A-10, F-16, F-35, HH-60, HC-130.**

**Table A15.3. for B-52.**

#### 11.4. Aircraft Grounding.

11.4.1. Definition. Aircraft 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. Implemented from a higher echelon of command (MAJCOM/CC) when conditions in multiple aircraft, engines, missiles, munitions, or related installed flight equipment create a sufficient risk to personal injury or equipment damage which warrant fleet grounding until the matter can be properly investigated and resolved.

11.4.1.1. Communication of a grounding, or a potential grounding event (TCTO, OTI, PM event) to weapon systems operating in a deployed environment and/or under the authority of an operational command must follow the grounding procedures outlined in AFI 11-401 and 63-101/20-101. **(T-1)**.

11.4.1.1.1. Units must not directly communicate home station requirements to its deployed forces but provide communication through their respective MAJCOM. **(T-1)**. **Note:** This section does not apply to conditions which are clearly limited to the affected unit/base (such as, lost tool, fluid contamination, aircraft and equipment damage of known origin, or other strictly local event). In these circumstances, the affected unit follows the impoundment procedures specified in **Chapter 7** of this instruction.

11.4.2. Initial Investigation. The owning MXG/CC or equivalent will direct QA to develop a local OTI IAW TO 00-20-1 and this instruction. **(T-1)**.

11.4.2.1. The OTI will require an inspection of a representative number of systems or units (aircraft, engines, missiles, or munitions) of the same mission and design to determine if the condition exists on other aerospace equipment within the wing's assigned aircraft/systems or equipment. **(T-1)**.

11.4.2.1.1. 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. **(T-1)**.

11.4.2.2. 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 appropriate weapon system program manager IAW TO 00-25-107 or equivalent process. **(T-1)**.

11.4.2.3. **(Added-AFRC)** Forward results of OTI to HQ AFRC/A4M ([afrc.a4m@us.af.mil](mailto:afrc.a4m@us.af.mil)) for consideration for fleet wide implications **(T-2)**. Submit requests for assistance IAW **paragraph 1.3.3 (T-2)**. Forward recommendations to HQ AFRC/A4M ([afrc.a4m@us.af.mil](mailto:afrc.a4m@us.af.mil)) for further processing to MAJCOM/CC (as required) **(T-2)**. Info copy the appropriate NAF/A4.

11.4.3. Grounding Authority. The approved procedures for grounding aircraft or stand-down for operational reasons are determined and executed IAW AFI 11-401 and AFI 63-101/20-101. **(T-1)**.

11.4.3.1. Notification and final reporting for grounding and release status will be accomplished IAW AFMAN 10-206, *Operational Reporting*. **(T-1)**.

11.4.3.2. Annotate aircraft grounding in the aircraft forms IAW TO 00-20-1. **(T-1)**.

**11.5. Ramp Inspection Program.** 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. **(T-0)**.

11.5.1. Air Mobility Command (AMC) is lead for the DoD in the management and administration of the Ramp Inspection Program.

11.5.1.1. AMC will publish specific guidance for this Program in a supplement/addendum/or equivalent publication IAW AFI 33-360 to communicate requirements and processes necessary for MAJCOMS to effectively comply with public law requirements in all using commands.

11.5.1.2. AMC will coordinate with other MAJCOMS as required to accomplish ramp inspections to ensure the maximum efficiency and utilization of resources.



11.5.1.3. When requested by AMC, MAJCOMs if able should provide support to reduce the TDY and manpower impact associated with the execution of this program.

**11.6. Red Ball Maintenance.** 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 (such as, in a truck or standby in the shop) during launch and recovery operations to troubleshoot, isolate, and repair system malfunctions. Red Ball maintenance does not authorize technicians to take shortcuts or deviate from TOs, disregard personnel safety requirements or fail to properly document the aircraft forms and the MIS for all completed repair actions.

11.6.1. 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. **(T-1)**.

11.6.2. Maintenance repair actions must be cleared in the MIS as soon as possible. **(T-1)**. It is imperative that maintenance documentation is performed regardless of the timing of the action in the generation and launching of the aircraft.

11.6.3. All grounding inputs must be cleared from the forms prior to flight. **(T-1)**.

11.6.4. 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. **(T-1)**.

11.6.5. Units will develop written procedures to capture, document, and clear Red Ball maintenance actions in the event the MIS is down. **(T-1)**.

11.6.5.1. Procedures must require MIS entry of Red Ball maintenance actions as soon as the MIS becomes operable. **(T-1)**.

**11.7. Maintenance Recovery Team:** MAJCOMs will publish standardized procedures to recover assigned aircraft at remote locations.

**11.7. (AFRC) Maintenance Recovery Team (MRT). Note:** AFRC Aircrew responsibilities of NMC aircraft while on an AFRC missions, MRT taskings, C2 authority, and stranded aircraft CANN actions are outlined in AFRCI 11-201 and AFRC Force Generation Center Battle Watch (FGC BW) directives.

11.7.1. Procedures at a minimum will identify how resources, including personnel, supplies, and equipment will be made available to support transient aircraft recovery.

11.7.1. **(AFRC)** Wing/CC or delegated authority will ensure Wing processes expedite the deployment of MRT to recover stranded aircraft possessed or assigned to the Wing, or tasked by the FGC BW. **(T-2)**.

11.7.2. If required, establish multiple command MOUs/MOAs/collaboration necessary to achieve efficient aircraft recovery and MIS documentation.

11.7.2. **(AFRC)** MXG/CC or designated authority is responsible for deployment of MRTs and equipment to recover aircraft at off station locations, and will ensure Unit resources are

available to coordinate and support stranded MRT tasked by the FGC BW to recovery aircraft similar to the MDS possessed by the unit **(T-2)**.

11.7.2.1. **(Added-AFRC)** MXG/CC or designated authority will ensure sufficient personnel with appropriate maintenance specialties have official government passports to reduce deployment limitations in support of MRT taskings **(T-2)**.

**11.8. Foreign Object Damage (FOD) Prevention Program.** All personnel (military, civilian, and contractors) working in, on, around, or traveling through areas near aircraft, flightline munitions, AGE, engines, or components thereof will comply with FOD prevention. **(T-1)**. FOD prevention training requirements are outlined in AFI 36-2650. This section establishes minimum requirements for a FOD Prevention Program.

11.8.1. The WG/CV is responsible for ensuring an effective FOD prevention program is established.

11.8.2. 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.

11.8.3. FOD Prevention.

11.8.3.1. 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. **(T-1)**. **Note:** Do NOT place items (such as, trash bags, rags, cloths) inside open cavities or ducts. When no approved manufactured coverings and/or caps are available for use, securely cover open ducts and/or cavities externally to prevent foreign objects from being introduced. Prior to installation, inspect openings, cavities and ducts for FO.

11.8.3.1.1. Items that are actively being disconnected, installed, and/or removed will be capped IAW technical data or at completion of the task. **(T-1)**.

11.8.3.1.2. At no time will items, (such as, aircraft forms binders, video tape recorder tapes, checklists, tools.), be placed in or on engine intakes. **(T-1)**. **Note:** Does not apply to technicians performing inlet maintenance, inspections and blade blending requiring lights, files, or other tools inside aircraft inlets.

11.8.3.1.3. Inventory all items IAW **Chapter 8** of this instruction. **(T-1)**.

11.8.3.2. MAJCOMs in coordination with Safety, applicable MDS Lead Commands and Weapon System Teams will review FOD, Incident, and Mishap reports to determine if MAJCOM directed IPI or KTL additions are needed to mitigate identified FOD trends.

11.8.3.2.1. Units will establish MDS specific procedures that ensure pre-launch removal and post-recovery installation of intake/inlet plugs and covers (such as, pitot tubes to include ejection seats as required) remain installed on aircraft as close to crew show as possible to prevent FOD, as determined by MXG/CC guidance. **(T-3)**.

11.8.3.2.2. Units will establish MDS specific FOD prevention guidance that standardizes mitigation procedures when performing high FOD risk maintenance task (use of plugs/barrier paper, tape, inlet/intake/ECS maintenance or equivalent tasks). **(T-2)**.

- 11.8.3.2.3. Technicians will ensure engine inlet run-up screens and anti-personnel guards are used IAW applicable weapon system TOs. **(T-1)**.
- 11.8.3.3. Covers (such as, engine, pitot tube(s) to include ejection seat) need to remain installed on aircraft as close to crew show as possible to prevent FOD, as determined by MDS/local MXG/CC guidance.
- 11.8.3.4. Technicians should use a light source of sufficient illumination to inspect the aircraft intakes and exhaust for FO/FOD.
- 11.8.3.5. Whenever physical entry into an aircraft intake or exhaust is required technicians will wear a pocket-less, zipper-less, button-less, bunny-suit marked "Intakes Only" and cloth over-booties or stocking feet, (Boots may be worn if not restricted for use by TO/MAJCOM and are authorized by the MXG or equivalent), boots if worn must be inspected and FOD removed from boots prior to installing cloth over-booties. **(T-2)**.
- 11.8.3.5. **(AFRC)** Personnel will ensure all pockets are emptied and accessories removed prior to donning bunny-suits **(T-2)**.
- 11.8.3.5.1. When performing intake inspections while wearing a Chemical Warfare Defense Equipment, pockets will be emptied and all accessories removed. **(T-1)**.
- 11.8.3.5.1.1. During exercises/inspections, the Chemical Warfare Defense Equipment will be removed and the bunny-suit will be utilized. **(T-1)**.
- 11.8.3.5.1.2. Chemical Warfare Defense Equipment will only be worn during "real world" situations. **(T-1)**. To minimize the potential for FOD and intake damage where Chemical Warfare Defense Equipment zippers are exposed, cover them with any type of tape and account for the tape upon completion of the inspection. **(T-1)**.
- 11.8.3.6. Each base will develop a local flightline clothing policy that addresses wearing of hats, badges, and passes aimed at FOD prevention while considering climate and safety. **(T-1)**. As a minimum, it will include the following requirements:
- 11.8.3.6.1. Restricted area badges will be secured with a subdued non-metallic cord or plastic armband when worn on the flightline. **(T-1)**.
- 11.8.3.6.1. **(AFRC)** When worn around the neck, cords will have breakaway feature **(T-2)**.
- 11.8.3.6.2. Restricted area badges will be removed when performing intake/inlet/exhaust inspections if personnel physically enter these areas. **(T-1)**.
- 11.8.3.6.3. Metal insignias/badges will not be worn on the flightline. **(T-1)**.
- 11.8.3.6.4. Wigs, hairpieces, metal hair fasteners, earrings, or any other jewelry/loose items that may fall off without notice, are not authorized on the aircraft and industrial work areas. **(T-1)**.
- 11.8.3.6.5. Escorts of visiting personnel will ensure FOD prevention measures are taken. **(T-1)**.
- 11.8.3.7. All maintenance production areas must have FO containers readily accessible. **(T-1)**.

- 11.8.3.7.1. All vehicles driven primarily on the flightline for direct aircraft maintenance support activities must be equipped with secured and lidded FO containers. **(T-1)**. **Note:** Permanently affixed FO containers must be approved by Vehicle Management prior to installation IAW AFI 24-302.
- 11.8.3.7.1. **(AFRC)** Flight-line vehicle FOD containers will be marked with the word “FOD” in contrasting letters no smaller than two inches and the FOD containers shall be emptied daily **(T-2)**.
- 11.8.3.8. Control all work order residue used on or around aircraft, uninstalled engines, and AGE. **(T-1)**.
- 11.8.3.9. Rags will be controlled and accounted for IAW **Chapter 8** of this instruction. **(T-1)**.
- 11.8.3.9.1. Rag control applies to all organizations and personnel performing aircraft, missile, munitions, and equipment maintenance.
- 11.8.3.10. FOD walks are mandatory to remove FO from ramps, runways, maintenance areas and access roads.
- 11.8.3.10.1. In addition, mechanical/vacuum sweepers, magnetic bars or sweeping by hand are highly encouraged to supplement FOD walks.
- 11.8.3.10.1. **(AFRC)** Mechanical/vacuum sweeper use (e.g. FOD Boss) is mandatory for F-16 and F-35 units **(T-2)**.
- 11.8.3.11. When FOD is discovered on a transient aircraft, depot input/output or CRF engine, the host FOD monitor or aircrew must notify the owning organization within 24 hours. **(T-1)**.
- 11.8.3.11.1. 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. **(T-1)**.
- 11.8.3.11.2. For depot input/output 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. **(T-1)**. If discovered any other time at one of the aforementioned locations, it will be tracked/charged to the ALC or CRF. **(T-1)**.
- 11.8.3.11.3. **(Added-AFRC)** MXG directive will included deployed FOD prevention procedures **(T-2)**.
- 11.8.3.12. Ensure local FOD Prevention Program addresses the elimination of FOs to include aircraft cockpits and flight decks before and after flight. **(T-1)**.
- 11.8.3.12.1. When an item is lost on or in the vicinity of aircraft or equipment, lost item/tool procedures in **Chapter 8** of this instruction will be followed. **(T-1)**.
- 11.8.3.12.2. The MXG/CC will coordinate with the OG/CC to develop procedures to ensure pilots and aircrew members 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 781A. **(T-1)**.

- 11.8.3.12.3. These procedures will be documented in the wing tool/equipment management publication referenced in **Paragraph 8.2** of this instruction. **(T-1)**.
- 11.8.3.13. Use extreme care during engine ground runs. Jet blast and helicopter hover power check areas need to be free of debris that could cause FOD.
- 11.8.3.14. 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.
- 11.8.3.14.1. Units will account for -21 equipment and covers IAW AFI 21-103. **(T-1)**.
- 11.8.3.14.2. Weapons Expeditors must ensure all mission specific safing gear is controlled and accounted for to preclude loss and potential FOD. **(T-1)**.
- 11.8.3.15. Vehicle operators will stop and perform a visual FOD inspection on all vehicles, equipment and tires prior to entering the flightline. **(T-1)**. Refer to AFI 13-213, *Airfield Driving*, and AFMAN 91-203 for additional requirements, restrictions and exemptions.
- 11.8.3.16. Grounding wires/points:
- 11.8.3.16.1. Two allen head screws, or equivalent, will be utilized to secure cable to grounding clip. **(T-1)**.
- 11.8.3.16.1.1. Screw heads will be coated with sealant or screws will be staked in order to prevent screws from backing out. **(T-1)**.
- 11.8.3.16.1.2. Unused screws will be removed. **(T-1)**.
- 11.8.3.16.2. All grounding points will be kept clean of debris at all times and shall be a high interest item for FOD walks. **(T-1)**.
- 11.8.3.17. 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 and will be inspected and made FOD free daily. **(T-2)**.
- 11.8.3.18. 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. **(T-2)**.
- 11.8.3.19. Remove metal identification bands from all tubing (except aircraft installed egress system components) and cables on the aircraft.
- 11.8.3.19.1. With the exception of factory-installed ID tags attached to cargo chains/devices to identify the type being used, remove metal identification bands from cargo tie-down chains/devices prior to use around aircraft.
- 11.8.3.19.2. Do not remove manufacturer installed metal identification bands from hydraulic hoses.
- 11.8.3.19.3. Mark hydraulic lines IAW TO 42E1-1-1, *Aviation Hose and Tube Manual*.
- 11.8.3.20. Use X-ray, borescope, and other equipment to locate FO in inaccessible areas.
- 11.8.4. FOD Prevention Responsibilities.

11.8.4.1. The WG/CV will be assigned as the FOD Prevention Program Manager and will appoint a qualified maintenance AFSC, civilian equivalent or contractor if designated by SOW or PWS, to the position of FOD Monitor. **(T-1)**.

11.8.4.1. **(AFRC)** A copy of the FOD monitor appointment letter will be sent to HQ AFRC/A4MS ([afrc.a4ms@us.af.mil](mailto:afrc.a4ms@us.af.mil)) **(T-2)**.

11.8.4.1.1. The appointed individuals name will be posted in a prominent place within the unit on a locally-developed visual aid which also provides contact information. **(T-1)**.

11.8.4.2. The WG/CV will:

11.8.4.2.1. Ensure all personnel actively support the FOD Prevention Program. **(T-1)**.

11.8.4.2.2. Provide local guidance to ensure each FOD mishap is investigated and action taken to solve any underlying problems. **(T-1)**.

11.8.4.2.3. Review all unit FOD mishap reports and analyze the reports and other data for trends identifying areas requiring management action. **(T-1)**.

11.8.4.2.4. 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. **(T-1)**.

11.8.4.2.5. Ensure FOD prevention is part of QA inspections. **(T-1)**.

11.8.4.2.6. Coordinate with the airfield manager to identify and properly mark FOD checkpoints. **(T-1)**.

11.8.4.3. Tenant Unit FOD Prevention Responsibilities. The host base FOD Prevention Program Manager will incorporate tenant units in the host unit program. **(T-1)**.

11.8.4.3.1. Tenant units shall establish their own FOD Prevention Program, but will still participate in the host program and comply with host program requirements. **(T-1)**.

11.8.4.3.1. **(AFRC)** Tenant unit FOD Prevention Program monitors will be appointed in writing **(T-2)**. A copy of the letter will be sent to HQ AFRC/A4MS ([afrc.a4m@us.af.mil](mailto:afrc.a4m@us.af.mil)) **(T-2)**.

11.8.5. FOD Monitor. The Wing FOD Monitor's office shall be located within QA or at the discretion of the WG/CV. **(T-3)**. The Wing FOD Monitor, at a minimum, will:

11.8.5.1. Inform all wing agencies of FOD hazards. **(T-1)**.

11.8.5.2. Develop wing procedures to document and perform spot checks of selected areas weekly. **(T-1)**.

11.8.5.3. Be involved in each FOD investigation and help ensure corrective actions are sound. **(T-1)**.

11.8.5.4. Monitor and recommend changes to FOD prevention training. **(T-1)**.

11.8.5.4.1. Those units having several types of aircraft assigned will have their FOD prevention training incorporated into one wing/center training program. **(T-1)**.

11.8.5.4.2. Units will ensure an initial FOD awareness and responsibilities briefing is given to all newly assigned personnel. **(T-1)**.

11.8.5.5. 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. **(T-1)**.

#### 11.8.6. FOD Investigation and Reporting.

11.8.6.1. When suspected or confirmed FOD is discovered, the MOC will be notified immediately. **(T-1)**.

11.8.6.1.1. Upon notification, the MOC will immediately notify the Wing FOD Monitor, and Wing Safety as required, IAW AFMAN 91-223. **(T-1)**.

11.8.6.2. Units must make every attempt to determine the root cause of FOD-related mishaps before returning engines and modules to the depot for investigation. **(T-1)**.

11.8.6.2.1. If engines/modules are returned to the depot, an information DR will be completed and forwarded IAW procedures outlined in AFI 91-204 and TO 00-35D-54. **(T-1)**.

11.8.6.2.2. All FOD-mishap engines and modules returned to the depot must be properly marked on the outside of the packaging as a FOD-mishap asset. **(T-1)**.

11.8.6.2.3. Mark container or package in red with the following statement, "FOD mishap investigation required." **(T-1)**.

11.8.6.3. FOD incidents are classified as preventable and non-preventable. Only preventable FOD over \$50K (parts and labor) are to be chargeable to the FOD rate. FOD is considered preventable except when the damaged can be attributed to the following:

11.8.6.3.1. 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.

11.8.6.3.2. From internal engine materiel failure, as long as damage is confined to the engine.

11.8.6.3.3. 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.

11.8.6.3.4. Found during depot overhaul for maximum operating time.

11.8.6.4. Additionally, the following apply:

11.8.6.4.1. Engine damage caused by improper anti-ice/de-ice procedures by either flight or ground crews are considered preventable.

11.8.6.4.2. Engine or airframe damage caused by gunnery or rocket mission ricochets are considered non-preventable provided mission parameters were not exceeded and range cleaning was sufficient.

11.8.6.4.3. Engine and propeller damage caused by rocks, stones, wood, or other objects ingested during low hover operations or unimproved runway landings are considered non-preventable, provided mission parameters were not exceeded.

11.8.6.4.4. MAJCOMs will determine reporting criteria for FOD incidents that result in a blade blending requirement IAW applicable tech-data.

11.8.6.4.4. (AFRC) See [paragraph 11.8.6.9](#) for reporting requirements.

11.8.6.5. Preventable FOD over \$50K incurred at ETS or on trim pad will be chargeable. **(T-1)**.

11.8.6.6. Appropriate MAJCOM offices will assist in resolving any questionable FOD issues, preventable or non-preventable.

11.8.6.6. (AFRC) Contact HQ AFRC/A4MS ([afrc.a4ms@us.af.mil](mailto:afrc.a4ms@us.af.mil)) for AFRC assistance **(T-2)**.

11.8.6.7. The Wing FOD Monitor will provide an initial report of all FOD incidents to the MAJCOM FOD monitor within 24 hours of occurrence. **(T-1)**.

11.8.6.7.1. A follow-up report will be required every 45 days until closeout. **(T-2)**. Use the FOD report format as listed in [Attachment 6](#) of this instruction.

11.8.6.7.2. MAJCOMs will determine FOD standards, MDS specific flying hour source data, period of time for calculation, reporting procedures, and meeting frequency for units that exceed standards in their supplement to this AFI.

11.8.6.7.2.1. (**Added-AFRC**) Standard is 3.0 for C-5, C-17, C-130H/J, WC-130J, C-40, and KC-135 **(T-2)**. Standard is 1.0 for A-10, B-52, F-16, HH-60, and HC-130 **(T-2)**.

11.8.6.7.2.2. (**Added-AFRC**) MDS specific flying hour source data is defined as the flying hours flown. Period of time for calculation will be the previous month **(T-2)**.

11.8.6.8. FOD rates are computed by MDS as follows: Number of Preventable FODs (damage exceeding \$50K) ÷ Aircraft Flying Hours X 10,000 = FOD Rate. **Note:** ALCs compute FOD rates as follows: Number of Preventable FODs (damage exceeding \$50K) ÷ Aircraft Flying Hours X 1,000 = FOD Rate. ALCs compute aircraft flying hours by using acceptance flights, functional check flights, ground runs, and the number of un-installed ETS starts.

11.8.6.9. (**Added-AFRC**) Reporting requirements. All FOD incidents (except for engine blade minor sand nicks and scratches) will be reported **(T-2)**.

11.8.6.9.1. (**Added-AFRC**) Engine Management (EM) section must be notified immediately upon engine FOD, and receive a Blade Blending/FOD Damage Work Sheet or applicable form for EM to file **(T-2)**. The EM section will transcribe information provided in the Blade Blending/FOD Damage Work Sheet into the applicable engine/module records (i.e. AFTO Form 95) MIS, and CEMS, IAW TO 00-20-1 **(T-2)**.



11.8.6.9.2. **(Added-AFRC)** The wing FOD Monitor will report all FOD incidents to the wing safety office and AFRC FOD Manager ([afrc.a4ms@us.af.mil](mailto:afrc.a4ms@us.af.mil)) immediately upon discovery of FOD **(T-2)**. Send a courtesy copy to the appropriate NAF/A4M. The AFRC FOD Manager will assign the unit a FOD Control Number (FCN).

11.8.6.9.3. **(Added-AFRC)** The wing FOD Monitor, engine technician, and wing safety office will jointly investigate FOD mishaps which meet the reportable criteria requirements of AFI 91-204, *Safety Investigation Reports* **(T-2)**.

11.8.6.9.4. **(Added-AFRC)** The wing FOD Monitor will ensure all AFRC Form 42s are completed and forwarded to the AFRC FOD Manager within 30 days of the incident **(T-2)**.

11.8.7. FOD Prevention Committee Meeting. This meeting is mandatory for units that exceed the MAJCOM-established standard. **(T-1)**.

11.8.7. **(AFRC)** Meetings will continue until the unit goes three consecutive months without exceeding the standard **(T-2)**.

11.8.7.1. The WG/CV will chair the meeting, if required, and will determine minimum required attendees. **(T-1)**. The purpose of this meeting is to identify negative trends and develop and execute action plans to resolve them.

11.8.7.1.1. The MXG/CC (or equivalent) will chair the meeting in the absence of the WG/CV. **(T-2)**.

11.8.7.2. Meeting agenda items should include issues that resulted in the wing exceeding the FOD standard, such as:

11.8.7.2.1. 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.

11.8.7.2.2. Mechanical/vacuum sweeper status.

11.8.7.2.3. Review and refinement of the existing FOD prevention program.

11.8.7.2.4. New directives/actions established to minimize FOD.

11.8.7.2.5. Status and condition of engine run-up screens as applicable.

11.8.7.2.6. Results of X-rays for FOs during engine bay inspections, acceptance inspections, and PH inspections. Maintenance trends should be discussed when an increase in FO is discovered during these X-rays.

11.8.7.2.7. Identification of potential FOD sources.

11.8.7.2.8. Lost tools/items.

11.8.7.2.9. Increased potential for FOD within the next 30-60 days.

11.8.7.2.10. Dropped objects. Pay particular attention to those that result in downstream FOD.

11.8.7.2.11. Breakdown of FOD inspections/assessments.

11.8.7.2.12. Cockpit FO incidents.

11.8.7.2.13. Recognition of personnel making significant contributions to FOD prevention (such as, golden bolt program, FOD poster contests, or other FOD recognition programs locally-developed at each unit).

11.8.8. Bird Strikes. Consult TO 1-1-691 for bird strike clean-up procedures and AFMAN 91-223 for bird strike reporting procedures.

**11.9. Dropped Object Prevention (DOP) Program.** A dropped object is any aircraft part, component, surface, LO coating exceeding 8 inches in any dimension 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/Decoy end-caps are not reportable dropped objects.

11.9.1. Responsibilities. All units, which fly, service, or maintain aircraft, will develop a DOP Program with the following provisions: **(T-1)**.

11.9.1.1. MAJCOM DOP monitors or aircraft functional managers will act as OPR for all dropped object inquiries IAW MAJCOM established standards.

11.9.1.1. (AFRC) HQ AFRC/A4MA ([afrc.a4ma@us.af.mil](mailto:afrc.a4ma@us.af.mil)) is the MAJCOM DOP OPR.

11.9.1.2. The WG/CV serves as the Wing DOP Program Manager and will appoint a Wing DOP Monitor. **(T-1)**.

11.9.2. Investigation. The DOP Monitor will investigate each dropped object incident. **(T-1)**.

11.9.2.1. Every effort needs to 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. **(T-1)**.

11.9.2.2. Investigation results will be distributed to each appropriate work center for inclusion in personnel training and education programs. **(T-1)**.

11.9.3. Reporting. Units will follow MAJCOM DOP Program reporting procedures. **(T-2)**.

11.9.3.1. Transient Aircraft. The host Wing DOP Monitor will be responsible to investigate dropped objects from a transient aircraft. **(T-1)**.

11.9.3.1.1. The host Wing DOP Monitor will provide the home station Wing DOP Monitor with sufficient data to generate a report for trending and tracking purposes. **(T-1)**.

11.9.3.2. **(Added-AFRC)** AFRC Reporting Requirements.

11.9.3.2.1. **(Added-AFRC)** Submit Initial dropped object report to HQ AFRC/A4MA ([afrc.a4ma@us.af.mil](mailto:afrc.a4ma@us.af.mil)) within 24 hours of occurrence **(T-2)**. Utilize the reporting format in **Attachment 14 (T-2)**. If email capability does not exist, notify by any means possible. Courtesy Copy the appropriate NAF/A4M. If the dropped object involves casualties, property damage, or if adverse publicity is likely, report IAW AFI 10-206, *Operational Reporting (T-2)*. The wing DOP monitor notifies the base/wing safety office of all dropped objects **(T-2)**. Separate reports will be initiated for each dropped object **(T-2)**.

11.9.3.2.2. **(Added-AFRC)** Submit a Follow-up final report to HQ AFRC/A4MA ([afrc.a4ma@us.af.mil](mailto:afrc.a4ma@us.af.mil)) within three duty days after the occurrence **(T-2)**. Courtesy copy appropriate NAF/A4M.

11.9.3.2.3. **(Added-AFRC)** 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 **(T-2)**.

11.9.3.3. **(Added-AFRC)** The Wing DOP monitor will calculate unit DOP rates monthly and compare them to the MAJCOM standard **(T-2)**.

11.9.3.3.1. **(Added-AFRC)** DOP rates are calculated by the following formula: (Number of Dropped Objects ÷ Total Sorties) X 1,000 = Dropped Object Rate **(T-2)**.

11.9.3.4. **(Added-AFRC)** MAJCOM DOP standards by MDS will be published annually.

11.9.4. **(Added-AFRC)** Training. Maintenance personnel who perform on-equipment maintenance must receive initial DOP training **(T-2)**. The wing DOP monitor will develop and provide initial MDS specific DOP training **(T-2)**.

**11.10. Aircraft Structural Integrity Program (ASIP).** The ASIP includes requirements for collection and evaluation of aircraft usage data to update or confirm the original design or baseline spectrum and to adjust maintenance intervals on an individual aircraft basis. The Loads/Environment Spectra Survey data is collected via flight data recorders of instrumented aircraft to evaluate the loads spectrum. The Individual Aircraft Tracking data is collected via flight data recorders or manual forms such as “bubble sheets” and the data is used to make maintenance/inspection/force structure decisions. Both the Loads/Environment Spectra Survey and Individual Aircraft Tracking usage data programs are established by applicable MDS-specific TOs and AFI 63-140 and require coordinated action by a number of base-level maintenance activities to achieve the required data capture rates. An effective ASIP aircraft usage data collection program is essential to establish, assess and support inspections, maintenance activities, repairs and required modification/replacement actions. MAJCOMs will:

11.10.1. Publish ASIP roles and responsibilities for each assigned weapon system IAW AFI 63-140.

11.10.2. Ensure operational units continuously meet authorized reporting requirements established by Program Offices.

11.10.3. Document causes and corrective actions for units that fail to meet reporting requirements and retain until resolved or relief of the reporting requirement is granted from the Program Office in writing.

11.10.4. **(Added-AFRC)** The MAJCOM OPR for ASIP is HQ AFRC/A4MA ([afrc.a4ma@us.af.mil](mailto:afrc.a4ma@us.af.mil)).

### **11.11. Identification Friend or Foe (IFF) Program.**

11.11.1. MAJCOMs will establish an Identification Friend or Foe Program for aircraft in their command (if equipped).

11.11.1. **(AFRC)** Units will perform IFF Mode 4 or Mode 5 checks as determined by MDS specific technical data **(T-2)**.

11.11.1.1. MAJCOM programs will identify additional requirements necessary to ensure status of Identification Friend or Foe systems meets mission requirements.

11.11.2. The MXG/CC will appoint an Identification Friend or Foe Program Manager for Identification Friend or Foe systems cryptographically keyed by MXG personnel (if equipped, see [Paragraph 11.34.1.8](#)). (T-2).

11.11.3. Equipped aircraft will be checked prior to its first sortie of the day during contingency operations. (T-1).

## **11.12. Radar Warning Receiver/Radar Threat Warning Testing.**

11.12.1. MAJCOMs will identify weapon systems with enhanced on-board diagnostics and internal testing capabilities which do not require external testing in their supplement to this instruction (if equipped).

11.12.1.1. MAJCOMs will determine non-contingency system functional check requirements necessary to ensure Radar Warning Receiver/Radar Threat Warning systems are maintained operationally ready to meet mission requirements IAW the MESL or MDS equivalent.

11.12.1.1. (AFRC) For non-contingency missions RWR/RTHW checks are accomplished IAW MDS specific technical data (T-2).

11.12.2. The MXG/CC will designate a Radar Warning Receiver/Radar Threat Warning Manager (if equipped as required). (T-2).

11.12.2.1. The Radar Warning Receiver/Radar Threat Warning Manager if assigned, will coordinate test procedures with the Wing Electronic Warfare Officer and the MXS, if applicable. (T-2).

11.12.2.2. The Radar Warning Receiver/Radar Threat Warning Manager if assigned will ensure each unit accomplishes the required minimum number of checks as defined below. (T-2).

11.12.2.2.1. For contingency missions, the Radar Warning Receiver/Radar Threat Warning Manager will coordinate with the Electronic Warfare Officer/Electronic Combat Officer who will determine system check requirements and specific threats to be simulated. (T-3).

11.12.2.2.2. (Added-AFRC) The RWR/RTHW manager will develop procedures to maintain -6 test results, data logs, and other documentation to determine EW maintenance capability and/or to provide feedback to Combat Shield IAW ACCI 10-707, *Air Combat Command (ACC) Electronic Attack and Emissions Control (EMCOM) Procedures* (T-2).

11.12.2.2.3. (Added-AFRC) RWR/RTHW manager will monitor EW specific test equipment condition and will coordinate with the equipment custodian to correct discrepancies (T-2).

11.12.3. When an aircraft is found to have a malfunctioning Radar Warning Receiver/Radar Threat Warning system prior to flight, the Aircraft Commander (AC) determines the course of action based on operational needs and requirements.

### 11.13. Cannibalization Program.

11.13.1. 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. When authorizing a CANN, the expenditure of man-hours and potential damage to equipment need to 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 1.2](#) of this instruction. (Reference AFTTP 3-4.21V1).

11.13.2. 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, Communications-Electronics equipment, AGE, TMDE, serviceable uninstalled pods, and guns.

11.13.3. Responsibilities. CANN Authorities (CA) will be approved by the MXG/CC or equivalent and tracked in the MIS and SCR (see [Table 11.1](#) of this instruction). **(T-1)**.

11.13.3.1. CA will be SNCOs, officers or civilian equivalents. **(T-1)**. These personnel are typically Pro Supers.

11.13.3.2. Those who are authorized to approve CANNs will not further delegate their responsibility. **(T-1)**.

11.13.4. If an assembly is cannibalized to satisfy a condition caused by lack of bits and pieces (such as, 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.

11.13.5. 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 (such as, Red Ball maintenance). The CA will give this approval only after confirming the part is not readily available in LRS, TNB, forward supply points, or back shops. **(T-1)**.

11.13.5.1. The CA will notify the appropriate supply activity to change the “mark-for” components in the document number. **(T-1)**.

11.13.5.2. The CA will also ensure complete documentation is accomplished for each CANN action. **(T-1)**.

11.13.6. 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. **(T-1)**.

11.13.6.1. If the CANN action takes place, the performing work center will update the MIS and notify PS&D or EM. **(T-1)**.

11.13.7. Installed engines are not end items; installed engines are considered a LRU (similar to a radar component, gun, seat, canopy, radio, multifunction display unit).

11.13.7.1. 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 is considered a CANN.

11.13.8. Restrictions.

11.13.8.1. Egress system component CAD/PAD cannibalization actions are considered "High-Risk" and should not be performed unless priority aircraft are involved (example, higher headquarters/alert status), or lack of ready equipment will impede mission accomplishment.

11.13.8.1.1. To ensure system integrity and validation of the explosive CAD/PAD listing, cannibalization of egress explosive components and/or seats will not be accomplished without the approval of the MXG/CC or MXG/CD. **(T-3)**.

11.13.8.1.2. After cannibalization actions, Egress Red X discrepancies in the aircraft AFTO Form 781As will not be cleared until verification that CAD/PAD S/N content matches the S/N content entries in the MIS. **(T-1)**.

11.13.8.1.3. Only (2A6X3) Egress personnel will accomplish this action. **(T-1)**.

11.13.8.2. CANN actions involving parts from ABDR aircraft, AF Museum Aircraft, Maintenance Training Devices, GITA, TAA, or DLADS will not be accomplished without authorization from the Program Office. **(T-1)**.

11.13.8.2.1. Parts will not be removed from static display/AF Museum Aircraft except as authorized by AFI 84-103. **(T-1)**.

11.13.8.2.2. If the part is approved for CANN, it must not be put into service until all necessary inspections (such as, NDI, pressure checks, operational checks, TCTOs) have been accomplished using specific guidance from the item manager to ensure proper serviceability. **(T-1)**.

11.13.8.3. Units will not CANN parts from aircraft possessed by AFMC (B or D PIC) without first coordinating through the MAJCOM functional manager who will request approval from the applicable PM. **(T-1)**.

11.13.8.4. 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 rebuild without the owning MXG/CC approval. **(T-2)**.

11.13.8.4. **(AFRC)** Coordinate requests with HQ AFRC/A4M ([afrc.a4m@us.af.mil](mailto:afrc.a4m@us.af.mil)) **(T-2)**.

11.13.9. **(Added-AFRC)** CANNs will be documented in the MIS for paperless ISO/PHASE/HSC **(T-2)**.

#### **11.14. Hangar Queen Aircraft.**

11.14.1. 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. MAJCOMs will establish a Hangar Queen Management Program.

11.14.2. Definitions. 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 10 days immediately following DFT/CFT repair or maintenance; however, if an aircraft is not flown after the 10th day, the 10 days are included in the total number of days since last fly date to determine the Hangar Queen category computation. Hangar Queen aircraft will be further defined by the following three categories:

11.14.2.1. Category 1: Aircraft that have not flown for 30 to 59 calendar days. **(T-1)**.

11.14.2.2. Category 2: Aircraft that have not flown for 60 to 89 calendar days. **(T-1)**.

11.14.2.3. Category 3: Aircraft that have not flown for 90 or more calendar days. **(T-1)**.

11.14.3. All aircraft placed on higher HHQ alert status are exempt from the Hangar Queen Management Program and reporting throughout the duration of alert status/posturing.

11.14.4. An aircraft is released from Hangar Queen status after the first flight. The following examples are provided to clarify when an aircraft becomes a Hangar Queen:

11.14.4.1. 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 will become 36-day Category 1 Hangar Queen on the next day.

11.14.4.2. 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 a Category 1 Hangar Queen.

11.14.5. **(Added-AFRC)** Aircraft last fly day shall be accessible through LIMS-EV or GCSS data service **(T-2)**.

11.14.5.1. **(Added-AFRC)** MOC will provide a monthly report of Hangar Queen Category 2 and 3 aircraft/systems to HQ AFRC/A4M ([afrc.a4m@us.af.mil](mailto:afrc.a4m@us.af.mil)) **(T-2)**. Info copy the appropriate NAF/A4M. Reports must be submitted NLT the 5th day of the month **(T-2)**. Provide the following information in the monthly report: **(T-2)**.

11.14.5.1.1. **(Added-AFRC)** Unit, MDS, and tail number.

11.14.5.1.2. **(Added-AFRC)** Date aircraft last flown.

11.14.5.1.3. **(Added-AFRC)** Reason for Hangar Queen Status.

11.14.5.1.4. **(Added-AFRC)** Supply pacing item, supply document number, and estimated delivery date.

11.14.5.1.5. **(Added-AFRC)** ETIC, estimated fly date.

11.14.5.1.6. **(Added-AFRC)** Identify any assistance needed from NAF or HQ AFRC/A4.

11.14.5.2. **(Added-AFRC)** When an aircraft becomes a Category 1 Hangar Queen, establish a maintenance recovery plan that minimizes the time needed to get the aircraft airborne **(T-2)**. Assign a Hangar Queen Manager to implement the plan **(T-2)**. Forming a temporary dedicated recovery team is also an option. Ensure strict management, control,

and documentation of CANNs, transfer, and diversion actions from the Hangar Queen aircraft **(T-2)**. Brief aircraft maintenance and supply status at the daily maintenance production/scheduling meeting **(T-2)**.

11.14.5.2.1. **(Added-AFRC)** When briefing Hangar Queen Category 1 aircraft, provide the information in [paragraph 11.14.5.1.1](#) through [paragraph 11.14.5.1.6](#) **(T-2)**.

11.14.5.3. **(Added-AFRC)** When an aircraft becomes a Category 2 Hangar Queen, assign a SNCO or officer (or civilian equivalent) to manage the Hangar Queen **(T-2)**. The MXG/CC or designated representative must approve any further CANNs, transfer, and diversion actions from the Hangar Queen aircraft **(T-2)**. Brief aircraft maintenance and supply status at the daily maintenance production/scheduling meeting **(T-2)**.

11.14.5.3.1. **(Added-AFRC)** When briefing Hangar Queen Category 2 aircraft, provide the information in [paragraph 11.14.5.1.1](#) through [paragraph 11.14.5.1.6](#) **(T-2)**.

11.14.5.4. **(Added-AFRC)** When an aircraft becomes a Category 3 Hangar Queen, aircraft maintenance and supply status will be briefed at the daily maintenance production/scheduling meeting **(T-2)**.

11.14.5.4.1. **(Added-AFRC)** When briefing Hangar Queen Category 3 aircraft, provide the information in [paragraph 11.14.5.1.1](#) through [paragraph 11.14.5.1.6](#) **(T-2)**.

11.14.5.5. **(Added-AFRC)** Ensure applicable -6 and 00-20 series TO requirements and grounding TCTOs are accomplished **(T-2)**.

11.14.5.6. **(Added-AFRC)** Inform the MOC of any change in aircraft status **(T-2)**.

11.14.5.7. **(Added-AFRC)** MXG/CC will determine the need for an FCF/OCF (if not otherwise identified by the MDS specific TO) **(T-2)**.

11.14.5.8. **(Added-AFRC)** Quality Assurance will perform a final review of aircraft forms/MIS since the last flight prior to the first flight **(T-2)**.

**11.15. Ground Instructional Trainer Aircraft (GITA).** GITA are permanently grounded aircraft declared excess to future operations or flying requirements by higher headquarters and will be re-designated by the addition of the prefix “G” to the basic MDS. **(T-1)**. GITA are not maintained in a flyable condition but maintain system/subsystem operational condition for purposes of maintenance training and will be carried in assignment/PIC outlined in AFI 21-103 and AFI 16-402. **(T-1)**. This section does not apply to ABDR training aircraft. ABDR training aircraft are managed by AFSC/LGPM (ABDR Program Office (PO)). This **Chapter** does not apply to training equipment maintained by Contract Logistics Support contracts administered by commands other than AETC.

**11.15. (AFRC) Request and Dispose of GITA/TAA.** Per AFI 16-402, *Aerospace Vehicle Programming, Assignment, Distribution, Accounting and Termination*.

11.15.1. Only those items requested by the PM are 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 the ALC MXG/CC’s (or equivalent) instructions. **(T-2)**.



11.15.1.1. Units are responsible for storing uninstalled or removed equipment that is not required for training. **(T-1)**.

11.15.2. Training Aid Aircraft (TAA). TAA are permanently grounded aircraft that, at a minimum, require an aircraft fuselage that was previously in the AF inventory as an aircraft.

11.15.2.1. Assigned TAA 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/organizational training. **(T-2)**.

11.15.2.2. TAA used for training are not terminated from the AF inventory IAW AFI 16-402. TAA requests for use by non-maintenance AFSCs require coordination through AFMC/LCMC and the PM prior to approval of assignment via an AF Form 913. **(T-1)**.

11.15.2.3. Questions about the designation of an aircraft used for training should be directed to the MAJCOM AVDO.

11.15.2.4. Permanently grounded missiles retain their original MDS without a prefix.

11.15.2.5. Upon assignment of a permanently grounded GITA/TAA, the MXG/CC or equivalent will contact the applicable MAJCOM to coordinate "save list" requirements identified by the applicable PM. **(T-2)**.

11.15.2.5.1. "Save list" items removed will be turned into LRS for shipment. **(T-2)**.

11.15.2.5.2. If an item on the "save list" is not removed, the reason for not removing it will be annotated and coordinated with the applicable MAJCOM. **(T-2)**.

11.15.2.5.3. If items on the "save list" are required for training and an unserviceable item will suffice, units will coordinate with the applicable MAJCOM for receipt of the unserviceable item(s). **(T-2)**.

11.15.2.5.4. All unserviceable items furnished by ALC will be marked/identified as "unserviceable" in a conspicuous manner (such as, Red X or Red dot system). **(T-2)**.

11.15.3. MAJCOM Responsibilities. MAJCOMs will determine use of MIS for permanently grounded GITA records management.

11.15.3.1. MAJCOMs will coordinate "save list" requirements/changes with the applicable PMs.

11.15.4. MXG/CC Responsibilities. MXG/CC or equivalent will:

11.15.4.1. 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. **(T-1)**.

11.15.4.2. Ensure maintenance support of GITA/TAA used for training. **(T-1)**. Units that do not have organic maintenance capability will establish a Support Agreement or MOA assigning maintenance responsibility for GITA/TAA training use. **(T-1)**.

11.15.4.2.1. 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.

11.15.4.2.2. TAA require minimal maintenance on systems/subsystems used to meet training requirements and should be maintained in a safe and presentable condition.

11.15.4.2.3. 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. **(T-1)**.

11.15.4.2.4. Ensure explosive components are removed that are not required to support training requirements.

11.15.4.2.5. Place retained systems and subsystems not currently being used for training into extended storage IAW applicable technical data.

11.15.4.2.6. 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.

11.15.4.2.7. 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.

11.15.4.2.7.1. Prior-to-use inspections will be conducted by the using organization employing a tailored weapon system pre-/post-dock checklist. **(T-1)**.

11.15.4.2.7.2. Conduct periodic maintenance inspections using a tailored work deck. **(T-1)**.

11.15.4.2.8. Prepare a separate memorandum for each GITA/TAA, addressed to the appropriate PM for the aircraft and inform them of the systems and subsystems that will be maintained in operational configuration. **(T-1)**.

11.15.4.2.8.1. When changes in requirements occur, initiate a new memorandum.

11.15.4.2.8.2. Ensures copies of all GITA/TAA memorandums to the MAJCOM AVDO. **(T-1)**.

11.15.4.2.9. Air and space vehicle inventory will be reported IAW AFI 21-103 as required for ground trainers. **(T-1)**. Aircraft used for ground trainers are exempt from status and utilization reporting.

11.15.4.2.10. Maintenance actions will be documented IAW TO 00-20-1. **(T-1)**.

11.15.4.2.10.1. Owning units not having maintenance capability will establish MOAs or MOUs with organizations which can provide maintenance support. **(T-1)**.

11.15.4.2.11. Ensure timely completion of TCTOs on systems designated for configuration management and proper configuration status accounting is maintained.

11.15.4.2.11.1. Accomplish TCTOs on systems not designated for configuration management as required to ensure safety of operation or as directed by the PM.

11.15.4.2.11.2. TCTOs are not maintained on TAA.

11.15.4.2.12. Ensure proper coordination and documentation of parts removed from training aircraft are accomplished as follows:

11.15.4.2.12.1. When an item is removed or replaced, supervisors will ensure this action is documented in the aircraft forms. **(T-1)**. Include the authority for removal (such as, message number, telecon, letters, and dates) and condition of installed/replacement items.

11.15.4.2.12.2. When the limited save list actions have been done, a copy of the completed list will be forwarded to the appropriate PM and the local documentation function which will be added to the TAA historical record. **(T-1)**.

11.15.4.2.12.3. W&B handbook requirements will be maintained IAW TO 1-1B-50 and applicable -5 series TOs. **(T-1)**.

11.15.4.2.12.4. Operating and maintenance technical data will be readily accessible whenever the GITA/TAA is in use or undergoing inspection. **(T-1)**.

11.15.4.2.12.5. MXG/CC will designate a GITA/TAA Manager as an additional duty. **(T-1)**.

11.15.4.2.12.5.1. The GITA/TAA Manager must be qualified to operate GITA/TAA systems and appropriate support equipment to conduct GITA/TAA maintenance. **(T-1)**.

11.15.4.2.12.5.2. The GITA/TAA Manager will accomplish and/or coordinate maintenance actions for the GITA/TAA and ensure GITA/TAA documentation is accurate and complete. **(T-1)**.

11.15.4.2.13. 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. **Note:** This does not apply to "temporarily" grounded aircraft or operational equipment or systems on loan from MAJCOMs or ALCs.

11.15.4.2.14. **(Added-AFRC)** Ensure RPA man-day funding requirements for personnel (if needed), O&M funding requirements (e.g., replacement parts, supplies, travel, and per diem, etc.), and funding requirements for required inspections **(T-2)**.

11.15.4.2.15. **(Added-AFRC)** Identify responsibility to fund disposal of the GITA/TAA when no longer needed for training or becomes unserviceable for training.

#### 11.15.5. Technical Data Applicability.

11.15.5.1. Operational systems on GITA/TAA are maintained IAW applicable technical data. The specific policy governing the use and modification of technical data is contained in TO 00-5-1.

11.15.5.1.1. 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.

11.15.5.2. Inspection and lubrication requirements may be adjusted to correspond with training requirements and equipment usage and to prevent over or under inspection.

11.15.5.3. When significant savings may be achieved, the commander or contract project manager must request deviations or changes to technical data requirements, including substitution of materiel from the weapon system program manager.

11.15.5.3.1. If deviations are approved, the unit will retain approved deviations/changes in the GITA historical records. **(T-1)**. In all cases, safety or design function must not be compromised.

11.15.5.4. TCTOs. The QA function or other designated agency will be responsible for determining applicability of TCTOs for GITAs. **(T-1)**. TCTO upgrades are not required on TAA.

11.15.6. **(Added-AFRC)** All GITA/TAA Manger and Operators shall be trained by qualified maintenance personnel possessing the required AFSC on active aircraft systems and subsystems and the necessary actions to maintain the aerospace vehicle in a safe and presentable condition **(T-2)**.

11.15.6.1. **(Added-AFRC)** GITA/TAA training must be documented in the individual's record in TBA and AFRC Air Transportation Special Certification database, where applicable **(T-2)**.

11.15.7. **(Added-AFRC)** GITA/TAA checklist(s) must contain all phases of operations: pre-operation, during operations, and post-operation inspections **(T-2)**. Checklists must be reviewed and approved every two years. Checklists must be reviewed when GITA/TAA's technical/source data or support/operational directive(s) change **(T-2)**. Checklists must reflect all usable systems that apply to the assigned GITA/TAA **(T-2)**.

11.15.8. **(Added-AFRC)** Maintain a local log reflecting date/time of GITA/TAA use, date/time/type of inspections performed, and name and contact number of the GITA/TAA Manager, and name of Operator(s) **(T-2)**.

11.15.9. **(Added-AFRC)** GITA/TAA Operators will:

11.15.9.1. **(Added-AFRC)** Utilize unit specific GITA/TAA operator checklists applicable systems TO(s), and maintenance directives, during all phases of operations **(T-2)**.

11.15.9.2. **(Added-AFRC)** Certify compliance of pre-, during-, and post-operations inspections using local log **(T-2)**.

## **11.16. Aircraft Inlet/Intake/Exhaust Certification.**

11.16.1. MAJCOMs will determine the requirement to implement an Aircraft Inlet/Intake/Exhaust Certification program and certification frequency requirements.

11.16.1.1. **(Added-AFRC)** Applicable to only F-16 and F-35 aircraft technician **(T-2)**. Certification and training of other MDS will be IAW Lead Command directive, AFSC skill, and applicable TOs.

11.16.1.2. **(Added-AFRC)** The number of individuals authorized to perform engine inlet/intake/exhaust inspections should be sufficient to meet mission requirements and production needs, and ensure competency through regular performance. Authorized AFSCs are specified in [Table 11.1](#); however, based on manning considerations, the

MXG/CC may approve personnel in other AFSCs to perform inlet/intake/exhaust inspections.

11.16.1.2.1. **(Added-AFRC)** Units will limit the number of certifying officials to a minimum to ensure standardized training and certifications **(T-2)**. Certifying officials will maintain proficiency in the same manner as other technicians **(T-2)**. Certifying officials will recertify each other **(T-2)**. Certifying officials will recertify annually **(T-2)**.

11.16.1.2.2. **(Added-AFRC)** Each technician certified to perform inlet/intake/exhaust inspections is required to be recertified annually by a certifying official **(T-2)**. Recertification is accomplished by having the technician demonstrate they can perform the tasks **(T-2)**. A QA PE may be used to satisfy this requirement if the QA evaluator is a certifying official.

11.16.1.3. **(Added-AFRC)** Maintenance Training, in coordination with subject matter experts (SMEs), will develop and conduct a comprehensive training program to ensure personnel are knowledgeable and proficient in the performance of inlet/intake/exhaust inspections **(T-2)**. **Note:** Do not confuse this certification program with ground maintenance foreign object (FO) inspections.

11.16.1.3.1. **(Added-AFRC)** As a minimum, course will include dangers associated with the inlet/intake/exhaust, care and handling of applicable technical data, foreign object damage (FOD) prevention, inspection criteria, fault isolation/damage assessment, techniques required to inspect engine inlet/intake/exhaust, and performance of an engine inlet/intake/exhaust inspection **(T-2)**.

11.16.1.3.2. **(Added-AFRC)** Upon completion of formal training, individuals are task evaluated by a certifying official (an individual other than the instructor who administered the course) **(T-2)**.

11.16.2. Units will track these programs on the SCR when implemented. **(T-1)**.

11.16.2.1. **(Added-AFRC)** Formal training and certification to perform inlet/intake/exhaust inspections must be completed prior to placement on the SCR **(T-2)**.

11.16.2.1.1. **(Added-AFRC)** Certified individuals who transfer to the same MDS and engine Type, Model, Series, Modification (TMSM) may bypass the formal training course. These individuals must be recertified prior to being added to the SCR **(T-2)**. Carry over date of original class completion from previous documentation (certificate, training record, MIS printout).

11.16.2.2. **(Added-AFRC)** Certifying officials will be appointed by the MXG/CC and tracked on the SCR IAW [Table 11.1](#) **(T-2)**.

## **11.17. Engine Run Training and Certification Program.**

11.17.1. A comprehensive engine run certification program will be developed and strictly enforced to prevent safety mishaps and potential loss of life. **(T-1)**.

11.17.1.1. The MXG/CC is responsible for ensuring the MT develops and manages an effective engine run certification program. **(T-1)**.

11.17.1.2. All maintenance personnel authorized to start and operate aircraft engines, APUs, and uninstalled engines and APUs will be trained and certified to operate engines at TO determined power settings. **(T-1)**.

11.17.1.3. Aircraft engine motoring will only be performed by qualified engine run personnel. **(T-1)**. Exception: Rotary wing maintenance personnel qualified through OJT may motor engines IAW prescribed TO.

11.17.1.4. The following minimum requirements will be used to certify engine run personnel:

11.17.1.4.1. The MT 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. **(T-1)**.

11.17.1.4.1. **(AFRC)** While MT has overall OPR and focal point management responsibilities, SMEs from appropriate work centers within the group will assist in the development of the engine run training and certification program **(T-2)**. Develop training plans that address all the requirements of this section as well as local/MDS specific training requirements **(T-2)**. Training plans will be managed by MT **(T-2)**. Trainers/certifiers from within the group will train and certify individuals **(T-2)**. MT will administer engine run written tests **(T-2)**.

11.17.1.4.2. Pre-run training will be conducted in the trainee's work center through OJT. **(T-1)**. Pre-run training is designed to prepare the trainee for successful completion of initial engine-run training. As a minimum, pre-run training will include:

11.17.1.4.2.1. An evaluation by immediate supervisor or NCOIC/Flight Chief to determine the individual's level of maturity and experience prior to being selected for engine-run training. **(T-1)**.

11.17.1.4.2.2. The trainee will review and become familiar with engine-run operations to include emergency procedures IAW the applicable aircraft general system type TO and engine run checklist. **(T-1)**.

11.17.1.4.2.3. MTs may develop a handout to facilitate learning engine-run procedures, engine limitations, and emergency procedures.

11.17.2. Certifying Officials. Certifying official certification requirements are listed in **Table 11.1** of this instruction.

11.17.2.1. Instructor Pilots (IP) can also be used as certifying officials during the practical engine-run demonstration.

11.17.2.2. Certifying officials must maintain proficiency in the same manner as other technicians; certifying officials must recertify each other. **(T-1)**.

11.17.3. 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: 2A3X3/7/8, 2A5X1/2/4, 2A6X1 or civilian equivalent, a qualified contractor, or AFETS/CETS personnel. **(T-1)**.

11.17.3.1. AFI 11-218, Aircraft Operations and Movement on the Ground, aircraft and engine TOs, commercial aircraft/engine operating procedures, and special test project

engineering procedures will be used to develop engine run certification training programs. **(T-1)**.

11.17.4. Installed Engine Run Personnel. Prior to entering engine run training, personnel will meet the following requirements:

11.17.4.1. Personnel will be selected IAW criteria established in **Table 11.1** of this instruction. **(T-1)**. MXG/CCs may designate contractors in writing to run aircraft engines.

11.17.4.2. Qualified to operate the aircraft APU as applicable. **(T-1)**.

11.17.4.3. Qualified as a brake operator. **(T-1)**.

11.17.4.4. Qualified in basic radio and interphone systems operation. **(T-1)**.

11.17.4.5. Qualified on marshalling signals. **(T-1)**.

11.17.5. The initial engine run certification program will consist of following three phases, each of which will be successfully completed before progressing to the next phase:

11.17.5.1. Phase 1. **(T-1)**. Phase 1 is formal classroom training. Classroom instruction will include:

11.17.5.1.1. 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. **(T-1)**.

11.17.5.1.2. A thorough review of TO procedures with emphasis on and notes, cautions, and warnings. **(T-1)**.

11.17.5.1.3. Engine/APU operation, to include normal operational parameters and limitations. **(T-1)**.

11.17.5.1.4. Ensuring aircraft, engine, and APU emergency procedures are memorized. **(T-1)**.

11.17.5.1.5. UHF/VHF radio operation, Air Traffic Control tower procedures, and emergency radio transmissions. **(T-1)**.

11.17.5.1.6. A two-part closed book examination (students will successfully complete **Part I** before taking **Part II**). **(T-1)**. The examination will consist of the following:

11.17.5.1.6.1. Part I - Students will be given a written/computer-based examination on all boldface emergency procedures or all emergency procedures identified in applicable technical data requiring a passing score of 100 percent. **(T-1)**.

11.17.5.1.6.2. 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. **(T-1)**.

11.17.5.1.7. Personnel failing the written/computer-based examination will receive additional instruction before being re-tested. **(T-1)**.

11.17.5.1.8. Students will not be given the same **Part II** test during re-testing efforts. **(T-1)**.

11.17.5.1.9. After a second failure of the two part closed book examination, the SQ/CC (or equivalent) will determine if personnel may retest and continue with the program. **(T-1)**.

11.17.5.2. Phase 2. **(T-1)**. Phase 2 is simulator training. All maintenance personnel requiring engine run certification will receive simulator training on each specific aircraft MDS and APU. **(T-1)**.

11.17.5.2.1. Training will be accomplished in an Aircrew Training Device, Cockpit Trainer, simulator, Maintenance Training Device or approved Technology Development Trainer. **(T-2)**. **Note:** If any of the above are not available, a similar MD(S) simulator may be used if the procedures are the same or “dry run” procedures will be accomplished in an aircraft to ensure procedural knowledge.

11.17.5.2.2. As a minimum, students will demonstrate knowledge and proficiency in the following areas:

11.17.5.2.2.1. Proper run clearance procedures. **(T-1)**.

11.17.5.2.2.2. UHF/VHF radio operation, Air Traffic Control tower procedures, and emergency radio transmissions. **(T-1)**.

11.17.5.2.2.3. Normal APU, engine start, run, and shutdown procedures. **(T-1)**.

11.17.5.2.2.4. Augmentor or thrust reverser operation (as applicable). **(T-1)**.

11.17.5.2.2.5. Applicable aircraft systems/subsystems normal operating parameters. **(T-1)**.

11.17.5.2.2.6. Ensure TO emergency bold face items are memorized. **(T-1)**.

11.17.5.2.2.6.1. Instructors will evaluate the student on response time and ability to handle emergency situations to include egress procedures. **(T-1)**.

11.17.5.3. Phase 3. **(T-1)**. Phase 3 is practical demonstration. Each individual will receive a practical engine run evaluation after successful completion of Phase 1 and Phase 2 training. **(T-1)**. For fighter-type aircraft, it is preferable to conduct the evaluation in a NSS, 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:

11.17.5.3.1. Run clearance procedures. **(T-1)**.

11.17.5.3.2. UHF/VHF radio operation, Air Traffic Control tower procedures, and emergency radio transmissions. **(T-1)**.

11.17.5.3.3. Normal APU, engine start, run, and shutdown procedures, including notes, cautions, and warnings. **(T-1)**.

11.17.5.3.4. Augmentor or thrust reverser operation as applicable, including notes, cautions, and warnings. **(T-1)**.

11.17.5.3.5. Applicable aircraft systems/subsystems normal operating parameters, including notes, cautions, and warnings. **(T-1)**.



11.17.5.3.6. Ensure TO emergency bold face items are memorized. **(T-1)**. Instructors will evaluate the student on response time and ability to handle emergency situations. **(T-1)**.

11.17.5.3.7. Egress procedures. **(T-1)**. MAJCOM/Lead Command, TO, and checklist procedures for the applicable MDS will be demonstrated without error. **(T-1)**.

11.17.6. Annual recertification for certifying officials and engine run certified personnel will be accomplished by successfully completing the written test (**Part I** and **Part II**) administered by the MT and demonstrating knowledge of normal and emergency procedures to a certifying official by operating one of the following: Aircrew Training Device, Cockpit Trainer, authorized Technology Development Trainer (if assigned or available), or aircraft as appropriate. **(T-1)**.

11.17.6.1. Personnel failing the written examination will receive additional instruction before being re-tested. **(T-1)**.

11.17.6.2. Students will not be given the same **Part II** test during re-testing efforts. **(T-1)**.

11.17.6.3. After a second failure of the two-part closed book examination, the individual will be decertified. **(T-1)**.

11.17.6.3.1. The SQ/CC (or equivalent) will determine if personnel may retest and continue with the program, and whether they must attend all three phases of initial training prior to being recertified. **(T-1)**.

11.17.6.4. Certified individuals who PCS to the same MDS, and engine type and model 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. **(T-1)**. **Note:** MAJCOMs will determine if additional training is required for the specific engine series.

11.17.6.4.1. The evaluation will include, as a minimum, familiarization of local procedures and requirements. **(T-1)**.

11.17.6.4.2. Carry over the date of original class completion from previous documentation (certificate, training record, MIS printout).

11.17.7. Documentation. Qualifications of installed engine run certifying officials and engine run certified personnel, will be documented in the MIS and entered on the SCR. **(T-1)**.

11.17.8. Proficiency. MAJCOMs will determine proficiency requirements for maintenance personnel authorized to operate installed engines.

11.17.8. **(AFRC)** All engine run certified personnel will perform a minimum of one proficiency run (N/A for trim boxes) during a 120 day period (MAF) or 90 day period (CAF/AFSOC/AFGSC) **(T-2)**. Quality Assurance personnel are not required to maintain the 90/120 day engine run proficiency requirement **(T-2)**. Proficiency runs may be accomplished in an Aircrew Training Device (ATD), Cockpit Trainer (CPT), simulator, Maintenance Training Device (MTD) or approved Technology Development (TD) trainer.

11.17.8.1. Units will track run proficiency requirements in the MIS. **(T-1)**.

11.17.8.1. **(AFRC)** Work center supervisors are responsible for ensuring engine run proficiencies are updated in the MIS **(T-2)**.

11.17.8.2. Supervisors will ensure individuals who fail to maintain proficiency are decertified. **(T-1)**.

11.17.8.2.1. Decertified individuals will recertify IAW **Paragraph 11.17.6** of this instruction. **(T-1)**.

11.17.9. Engine run certification tests are controlled items and will be handled IAW AFI 36-2605, Air Force Military Personnel Testing System, and administered only by MT personnel. **(T-1)**.

11.17.10. Aircraft APU Installed Operation Training. The following requirements and standards will apply to qualifying maintenance personnel on operating the aircraft APU:

11.17.10.1. When conducting initial operator qualification training for APU, use the applicable video or other training program. **(T-2)**.

11.17.10.2. A two-part closed book examination consisting of the following: **Note:** MAJCOMs will determine examination applicability requirements for PMA only APU operations in their supplement/addendum to this AFI.

11.17.10.2. **(AFRC)** PMA operations currently N/A to AFRC UE units.

11.17.10.2.1. Part I - Students will be given a written/computer-based examination on all boldface emergency procedures or all emergency procedures identified in applicable technical data requiring a passing score of 100 percent. **(T-1)**.

11.17.10.2.2. Students will successfully complete **Part I** before taking **Part II**. **(T-1)**.

11.17.10.2.3. Part II - Students will be given a written/computer-based examination covering normal APU run procedures and limitations requiring a minimum passing score of 90 percent, corrected to 100 percent. **(T-1)**.

11.17.10.3. Personnel failing the examination will receive additional instruction before being re-tested. **(T-2)**.

11.17.10.4. Students will not be given the same **Part II** test during re-testing efforts. **(T-2)**.

11.17.10.5. After a second failure of the two-part closed book examination, the individual will be decertified. **(T-2)**.

11.17.10.5.1. The SQ/CC (or equivalent) will determine if personnel may retest and continue with the program prior to being recertified. **(T-2)**.

11.17.10.5.2. Individuals must attend all three phases of initial training prior to being recertified. **(T-1)**.

11.17.10.6. Part III Personnel must then accomplish an on-equipment practical evaluation for certification completion. **(T-2)**.

11.17.10.7. Personnel will be recertified annually using the initial certification procedures. The practical evaluation portion will be accomplished by operating one of the following: Aircrew Training Device, Cockpit Trainer, authorized Technology Development Trainer (if assigned or available), or aircraft as appropriate (or as determined by the certifying

official). **(T-1). Note:** Recertification is not required if the individual is engine run certified and has maintained annual engine-run certification requirements.

11.17.11. Documentation. Qualifications of APU run certifying officials and APU run certified personnel, will be documented in the MIS and entered on the SCR. **(T-1).**

11.17.11.1. If applicable, MAJCOMs will define SCR applicability requirements for PMA only APU operations in their supplement/addendum to this instruction.

11.17.11.1. **(AFRC)** PMA operations currently N/A to AFRC UE units.

11.17.12. Proficiency. MAJCOMs will determine proficiency requirements for maintenance personnel authorized to operate APUs.

11.17.12. **(AFRC)** The MXG/CC will determine APU proficiency requirements **(T-2)**. Personnel will be decertified due to non-compliance of APU proficiency run **(T-2)**. Decertified individuals will recertify IAW **paragraph 11.17.10.7. (T-2)**.

11.17.12.1. Units will track run proficiency requirements in the MIS. **(T-1)**.

11.17.12.2. Supervisors will ensure individuals who fail to maintain proficiency are decertified. **(T-1)**.

11.17.13. Certification tests are controlled items and will be handled IAW AFI 36-2605 and administered only by MT personnel. **(T-1)**.

11.17.14. Uninstalled Engine Operation on Test Stands and Cells (includes Jet Fuel Starter /APU uninstalled operations). All personnel identified for uninstalled engine run qualification will complete an uninstalled engine run training program prior to certification. **(T-1)**. The following minimum requirements will apply:

11.17.14.1. Certification Requirements. Individuals will be certified for each specific engine TMS authorized to run IAW criteria established in **Table 11.1** of this instruction. **(T-1)**.

11.17.14.2. Certifying Officials. The MXG/CC will designate qualified TSgts or higher or civilian equivalent or fully qualified/certified contractors or AFETS/CETS personnel, to serve as certifying officials IAW criteria established in **Table 11.1** of this instruction. **(T-1)**.

11.17.14.3. Instructors. Individuals selected as instructors will be 7-skill level SSgts or above or civilian equivalent, a qualified contractor, or an AFETS/CETS representative, and be run certified on each TMS (if they are to be certifying officials). **(T-1)**.

11.17.14.4. Training. Uninstalled engine run training will consist of the following three phases:

11.17.14.4.1. Phase 1. **(T-1)**. Phase 1 is formal training. Instruction will include, as a minimum, the following areas:

11.17.14.4.1.1. General engine familiarization to include, as a minimum, basic engine description, component location, and functions. **(T-1)**.

11.17.14.4.1.2. Thorough familiarization of control cabs, NSSs, ETSSs, and T-9 fire suppression control panels (if applicable). **(T-1)**.

- 11.17.14.4.1.3. Thorough review of TO procedures with emphasis on notes, cautions, and warnings. **(T-1)**.
- 11.17.14.4.1.4. Uninstalled engine operation to include normal operating parameters and limitations. **(T-1)**.
- 11.17.14.4.1.5. Ensuring uninstalled engine emergency procedures are memorized. **(T-1)**.
- 11.17.14.4.1.6. Local communication procedures. **(T-1)**.
- 11.17.14.4.1.7. A two-part closed book examination (students will successfully complete **Part I** before taking **Part II**) consisting of the following:
- 11.17.14.4.1.7.1. Part I - Students will be given a written/computer-based examination on all boldface emergency procedures or all emergency procedures identified in applicable technical data requiring a passing score of 100 percent. **(T-1)**.
- 11.17.14.4.1.7.2. 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. **(T-1)**.
- 11.17.14.4.1.8. Personnel failing the examination will receive additional instruction before being re-tested. **(T-1)**.
- 11.17.14.4.1.9. Students will not be given the same **Part II** test during re-testing efforts. **(T-1)**.
- 11.17.14.4.1.10. After a second failure of the two part closed book examination, the individual will be decertified. **(T-1)**.
- 11.17.14.4.1.10.1. The SQ/CC (or equivalent) will determine if personnel may retest and continue with the program prior to being recertified or be removed from program. **(T-1)**.
- 11.17.14.4.1.10.1.1. Individuals must attend all three phases of initial training prior to being recertified. **(T-1)**.
- 11.17.14.4.2. Phase 2. **(T-1)**. Phase 2 is the 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:
- 11.17.14.4.2.1. Proper uninstalled engine start, run, and shutdown procedures, including notes, cautions, and warnings (engine not operating). **(T-1)**.
- 11.17.14.4.2.2. Proper uninstalled engine boldface emergency procedures, including notes, cautions, and warnings (engine not operating). **(T-1)**.
- 11.17.14.4.2.3. Knowledge of normal uninstalled engine operating limits, including notes, cautions, and warnings. **(T-1)**.
- 11.17.14.4.2.4. Augmentor or thrust reverser operation (as applicable), including notes, cautions, warnings and emergency procedures. **(T-1)**.

11.17.14.4.3. Phase 3. **(T-1)**. Phase 3 is the 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. **(T-1)**. As a minimum, the student will demonstrate successful completion of the following areas without discrepancies based on a go/no-go standard:

11.17.14.4.3.1. Run clearance procedures. **(T-1)**.

11.17.14.4.3.2. Emergency communication procedures. **(T-1)**.

11.17.14.4.3.3. Normal uninstalled engine start, run, and shutdown procedures, including notes, cautions, and warnings. **(T-1)**.

11.17.14.4.3.4. Augmentor or thrust reverser operation (as applicable), including notes, cautions, and warnings. **(T-1)**.

11.17.14.4.3.5. Proper emergency procedure corrective actions during all bold face uninstalled engine emergency conditions. **(T-1)**.

11.17.14.5. Recertification. Recertification for certifying officials and uninstalled engine run qualified personnel will be accomplished annually. **(T-1)**.

11.17.14.5.1. The following three requirements must be met to obtain recertification:

11.17.14.5.1.1. Successfully completing the written test (**Part I** and **Part II**) administered by the MT. **(T-1)**.

11.17.14.5.1.2. Passing a control cab evaluation demonstrating knowledge of normal and emergency procedures to a certifying official. **(T-1)**.

11.17.14.5.1.3. Completing a practical engine run demonstration. **(T-1)**.

11.17.14.5.2. Personnel failing the written examination will receive additional instruction before being re-tested. **(T-1)**.

11.17.14.5.3. Students will not be given the same **Part II** test during re-testing efforts. **(T-1)**.

11.17.14.5.4. After a second failure of the two part closed book examination, the individual will be decertified. **(T-1)**.

11.17.14.5.4.1. The SQ/CC (or equivalent) will determine if personnel may retest and continue with the program prior to being recertified. **(T-1)**.

11.17.14.5.4.2. Individuals must attend all three phases of initial training prior to being recertified. **(T-1)**.

11.17.14.6. Proficiency. MAJCOMs will determine proficiency requirements.

11.17.14.6. **(AFRC)** For operations of engines on test stands/cells, individuals will perform a minimum of one proficiency engine run during a 180 day period **(T-2)**. Track operations of engines on test stands/cells proficiency in the MIS **(T-2)**.

11.17.14.6.1. Supervisors will ensure individuals who fail to maintain proficiency are decertified. **(T-1)**.

11.17.14.6.1.1. Decertified individuals will recertify IAW **Paragraph 11.17.14.5**

of this instruction. **(T-1)**.

11.17.15. Fire Control Panel Operation in NSS. This section applies to all NSS designed for enclosed aircraft and uninstalled engine operation (such as, T-9, T-10, T-11, T-12, and T-20) with fire suppression systems. Only qualified personnel will be certified to use the NSS Fire Suppression Systems. **(T-1)**. The following certification requirements will apply:

11.17.15.1. Meet criteria established in **Table 11.1** of this instruction. **(T-1)**.

11.17.15.2. Training will consist of formal training using TOs and hands on familiarization and will include the following minimum requirements:

11.17.15.2.1. NSS Fire Suppression System familiarization and operation. **(T-1)**.

11.17.15.2.2. Emergency procedures, including local notification procedures. **(T-1)**.

11.17.15.3. NSS supervisor, contractor, AFETS/CETS personnel or individual designated by the NSS supervisor will serve as certifying official(s). **(T-1)**.

11.17.15.4. Annual recertification of NSS Fire Suppression System certified personnel will be accomplished utilizing the same criteria as initial certification. **(T-1)**.

#### **11.18. Engine Blade Blending Training and Certification Program.**

11.18.1. General. All units will have a comprehensive training program to ensure technical standards are met, and proficiency is maintained. **(T-1)**. The number of individuals authorized to inspect and repair blades should be sufficient to meet mission requirements and production needs. Personnel will be certified IAW criteria established in **Table 11.1** of this instruction. **(T-1)**. MXG/CCs may designate contractors in writing to complete blade blending certification.

11.18.2. Responsibilities and Management. The MT or TD will be responsible for management and development of the blade blending training program. **(T-2)**.

11.18.2.1. 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. **(T-1)**.

11.18.2.2. Prior to placement on the SCR, the formal blade blending training (MT or TD course) and initial engine blade blending certification will be mandatory. **(T-1)**.

11.18.3. MXG/CCs will appoint in writing maintenance, TD, or AFETS/CETS personnel as instructors and ensure the following certification and proficiency requirements are tracked in the MIS by course code:

11.18.3.1. Formal training, engine blade blending course. **(T-1)**.

11.18.3.2. Annual engine blade blending recertification. **(T-1)**.

11.18.3.3. 180-day engine blade blending proficiency. **(T-1)**.

11.18.4. Certification Criteria. Certifying officials will be selected IAW criteria established in **Table 11.1** of this instruction. **(T-1)**.

11.18.4.1. **(Added-AFRC)** Units will limit the number of certifiers to a minimum to ensure standardized training and certification **(T-2)**. Certifiers will maintain proficiency in the same manner as other technicians **(T-2)**. Certifiers may recertify each other.

11.18.4.2. **(Added-AFRC)** Limit the number of individuals authorized to perform engine blade blending to the amount necessary to accomplish the unit mission, but still maintain the 180 day proficiency requirement **(T-2)**. Work center supervisors ensure personnel who do not meet this requirement are decertified **(T-2)**.

11.18.4.3. **(Added-AFRC)** Certified individuals who PCS to the same MDS and engine TMSM may bypass formal training course. These individuals will be re-certified by a certifier prior to being added to the SCR **(T-2)**. Carry over date of original class completion from previous documentation (certificate, training record, MIS printout).

11.18.4.4. **(Added-AFRC)** Upon completion of formal training, individuals are task evaluated by the certifier (an individual other than the instructor who administered the course), and placed on the SCR **(T-2)**.

11.18.4.5. **(Added-AFRC)** Technicians authorized to perform engine blade blending will be recertified annually **(T-2)**. Recertification is accomplished by having the technician demonstrate they can perform the tasks **(T-2)**. A QA PE may be used to satisfy this requirement if the QA evaluator is a certifier.

11.18.5. **(Added-AFRC)** Blade Blending Procedures:

11.18.5.1. **(Added-AFRC)** Notify the Wing FOD Monitor prior to blade blending anytime FOD is identified, other than for minor sand nicks or scratches (i.e. blending with emery cloth) **(T-2)**.

11.18.5.2. **(Added-AFRC)** 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 of maintenance personnel **(T-2)**.

11.18.5.3. **(Added-AFRC)** Notify Engine Management (EM) section and forward Blade Blending/FOD Damage Work Sheet or applicable form to EM for filing **(T-2)**. The EM section will transcribe information provided in the Blade Blending/FOD Damage Work Sheet into the applicable engine/module records (i.e. AFTO Form 95) MIS, and CEMS, IAW TO 00-20-1 **(T-2)**.

**11.19. Engine Flexible Borescope Inspection Training and Certification Program.** The purpose of this program is to ensure individual knowledge and proficiency levels; proper care and use of equipment; and standardization of program requirements.

11.19.1. All units maintaining engines using flexible borescopes will establish a comprehensive training program. **(T-1)**. Certification procedures described here are only for engine borescope certification.

11.19.1. **(AFRC)** Only certified 2A3X3/7/8, 2A5X1/2/4, and 2A6X1, 5-, 7-, and 9-levels, or civilian equivalent, are authorized to perform flexible borescope inspections on engines **(T-2)**. Limit the number of individuals authorized to perform engine flexible borescopes to the amount necessary to accomplish the unit mission, but still maintain the proficiency requirement below **(T-2)**.

11.19.1.1. Training will be annotated in training records. **(T-1)**.

11.19.2. MAJCOMs will:

11.19.2.1. Ensure an engine flexible borescope formal training course is developed, tracked and managed by MT/TD.

11.19.2.1. **(AFRC)** Formal Training: MT has overall OPR and focal point management responsibilities **(T-2)**. SMEs from appropriate work centers within the group will assist MT in the development of the Engine Flexible Borescope Inspection Training and Certification Program **(T-2)**. Training plans will be managed by MT **(T-2)**. MT will administer any written tests **(T-2)**.

11.19.2.1.1. **(Added-AFRC)** Ensure training plans meet all the requirements of this section as well as local/MDS specific training requirements **(T-2)**. 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 **(T-2)**.

11.19.2.1.2. **(Added-AFRC)** Instructors will be the most qualified 7- or 9-level 2A6X1, 2A3X3, 2A5X1X, 2A5X2, or AFETS/CETS personnel certified to perform flexible borescope inspections **(T-2)**. Instructors will use the unit developed training plan to train personnel to conduct flexible borescope inspections **(T-2)**. Limit instructors to the amount needed to meet training requirements in order to ensure standardized training **(T-2)**.

11.19.2.1.3. **(Added-AFRC)** Certifying officials will be the most qualified 7- or 9-level 2A6X1, 2A3X3, 2A5X1X, 2A5X2, or AFETS/CETS **(T-2)**. Certifying officials will be approved by the MXG/CC and tracked on the SCR IAW [Table 11.1](#) **(T-2)**. Certifying officials will maintain proficiency in the same manner as other technicians **(T-2)**. Certifiers may recertify each other. Units will limit the number of certifiers to a minimum to ensure standardized training and certification **(T-2)**.

11.19.2.1.4. **(Added-AFRC)** Upon completion of formal training, individuals are task evaluated by the certifying official (an individual other than the instructor who administered the training), and placed on the SCR **(T-2)**.

11.19.2.2. Ensure engine flexible borescope proficiency and annual recertification (by a certifying official) requirements are established by course code.

11.19.2.2.1. **(Added-AFRC)** Proficiency Requirements: Personnel certified to perform engine flexible borescopes will perform a minimum of one engine flexible borescope every 180 days to maintain proficiency **(T-2)**. Work center supervisors will ensure personnel who do not meet this requirement are decertified **(T-2)**.

11.19.2.2.2. **(Added-AFRC)** Personnel certified to perform engine flexible borescopes will be recertified annually **(T-2)**. Recertification is accomplished by having the technician demonstrate they can perform the tasks **(T-2)**. A QA PE may be used to satisfy this requirement if the QA evaluator is a certifier.

11.19.2.3. Ensure time, training and documentation currency requirements are established for engine flexible borescope certified personnel who PCS to the same MDS/engine.



11.19.2.3. (AFRC) Certified individuals who PCS to the same MDS and engine TMSM may bypass formal training course. These individuals will be re-certified by a certifier prior to being added to the SCR. (T-2). Carry over date of original class completion from previous documentation (certificate, training record, MIS printout).

11.19.2.4. Determine training requirements for personnel using borescopes for non-engine type inspections (such as, behind ejection seats, wing boxes) to include, as a minimum, proper use and care of borescopes.

11.19.2.5. (Added-AFRC) Units will track flexible borescope training and proficiency in the MIS (T-2).

**11.20. Flying Crew Chief (FCC) Program.** The purpose of the FCC Program is to enhance mission effectiveness by providing qualified maintenance support for aircraft at locations other than home station. The FCC flies in Mission Essential Personnel status. FCC's typically fly with the aircraft for the purpose of accomplishing ground maintenance at the TDY location. The duty period typically starts when the FCC shows at the aircraft prior to departure. 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.

11.20.1. MAJCOMs may authorize/develop a FCC Program under the direction of AF/A4LM for maintainers who are required to regularly fly and maintain aircraft.

11.20.1.1. FCCs will be selected per mission requirements as directed by MAJCOMs and qualify for Special Duty Assignment Pay (SDAP) IAW AFI 36-3017, *Assignment Incentive Pay and Special Duty Assignment Pay*. (T-1).

11.20.2. The FCC program only applies to personnel assigned to positions on the Unit Manning Document with a "C" prefix for the Duty AFSC.

11.20.3. The following situations will not qualify the FCC for SDAP:

11.20.3.1. Occasional flights where the aircraft is used as transportation in lieu of commercial air.

11.20.3.2. Incentive or indoctrination flights.

11.20.3.3. Deployments where additional maintenance personnel are required at the designated location to supplement assigned maintainers.

11.20.4. Qualifying missions. A mission consists of one or more sorties with a mission number as entered on the AFTO Form 781, *Aircrew/Mission Flight Data Document*. The mission must meet the following criteria to qualify for this program:

11.20.4.1. The FCC is required to accomplish maintenance at locations other than home station to prepare the aircraft for its next departure. (T-1).

11.20.5. FCC Program responsibilities.

11.20.5.1. AF/A1PA oversees the overall SDAP and provides guidance in AFI 36-3017.

11.20.5.2. AF/A4LM is the SDAP functional manager for FCCs.

- 11.20.5.2.1. AF/A4LM sets criteria for FCCs, validates MAJCOM FCC reports, and forecasts FCC SDAP budget needs.
- 11.20.5.2.2. AF/A4LM approves/disapproves FCC position increases/decreases in coordination with AF/A1PA.
- 11.20.5.3. MAJCOMs implement the FCC Program and will appoint in writing a FCC Program Manager to enforce standards and prepare the annual report.
- 11.20.5.3. (AFRC) MAJCOM program manager for the FCC program is HQ AFRC/A4MM ([afrc.a4mm-02@us.af.mil](mailto:afrc.a4mm-02@us.af.mil)).
- 11.20.5.4. MAJCOM FCC Program Managers will determine which squadrons will participate in the FCC Program and will:
  - 11.20.5.4.1. Validate and forward squadron FCC SDAP requests ([Attachment 5](#)) to AF/A4LM and AF/A1PA.
  - 11.20.5.4.2. Annually validate FCC SDAP positions.
  - 11.20.5.4.3. Assign FCC SDAP positions with an AFSC prefix of "C" and an appropriate SEI on command manpower documents.
  - 11.20.5.4.4. Establish command unique training requirements and set additional qualification standards for their FCCs as needed.
  - 11.20.5.4.5. Maintain quarterly and annual FCC reports ([Attachment 3](#) and [Attachment 4](#)).
  - 11.20.5.4.6. Prepare and submit the command annual FCC report to AF/A4LM at [usaf.pentagon.af-a4.mbx.a4lm-workflow@mail.mil](mailto:usaf.pentagon.af-a4.mbx.a4lm-workflow@mail.mil) and AF/A1PA by 15 August each year. Submit the biennial FCC report to AF/A1PA upon request.
  - 11.20.5.4.7. Review and approve/disapprove ACR for changes of the "C" prefix to an AFSC on the UMD.
  - 11.20.5.4.8. Review and recommend approval/disapproval of ACRs for additions, deletions of the "C" prefix to an AFSC on the UMD.
- 11.20.5.5. MAJCOM (A1M) Command Manpower and Organization Responsibilities. A1M will:
  - 11.20.5.5.1. Coordinate and obtain approval/disapproval from MAJCOM for Installation Manpower and Organization Office ACRs pertaining to validation of "C" prefix to AFSCs on the UMD.
  - 11.20.5.5.2. Assign the "C" prefix to AFSCs upon approval from MAJCOM FCC Program Manager. This provides MAJCOM functional managers and unit senior maintenance managers the visibility of squadron FCC SDAP positions. **Note:** FCC SDAP positions do not effect a unit's manpower authorizations.
- 11.20.5.6. SQ/CC's will:
  - 11.20.5.6.1. Administer the squadron FCC Program IAW AFI 36-3017, AFI 36-2101, *Classifying Military Personnel (Officer and Enlisted)*, and this instruction. (T-1).
  - 11.20.5.6.2. Ensure FCCs fly only when required for the mission. (T-1).

11.20.5.6.3. Appoint and remove personnel from the FCC Program IAW AFI 36-2101. **(T-1)**.

11.20.5.6.3.1. Assign FCCs for a minimum of one year, unless removed for cause. **(T-1)**.

11.20.5.6.4. Ensure only qualified FCCs and assistant FCCs who meet minimum requirements IAW AFI 36-3017 receive SDAP and fly a minimum of three qualifying missions per quarter. **(T-1)**. An indicator of having too many FCCs may be reflected in a unit whose FCCs routinely do not meet minimum quarterly requirements.

11.20.5.6.5. Assign no more than two FCCs per aircraft (an FCC and assistant FCC) to each qualifying mission unless otherwise approved by MAJCOM. **(T-2)**. Exception: SQ/CC may assign the minimum number of additional FCCs when required to maintain proper work-rest cycles or to meet TO requirements.

11.20.5.6.6. Appoint in writing a Unit FCC Program Manager. **(T-1)**.

11.20.5.7. Unit FCC Program Managers will:

11.20.5.7.1. Track status and prepare unit reports. **(T-1)**.

11.20.5.7.2. Ensure personnel possess the appropriate SEI for their MDS aircraft. **(T-1)**.

11.20.5.7.3. Provide a letter to their Installation Manpower and Organization Office and an information copy to the MAJCOM FCC Program Manager to change, add, or delete a "C" prefix to the AFSC on the UMD. **(T-1)**.

11.20.5.7.3. **(AFRC)** Send letter information copy to HQ AFRC/A4M ([afrc.a4m@us.af.mil](mailto:afrc.a4m@us.af.mil)).

11.20.5.7.3.1. The letter will contain the unit designation, function account code, AFSC, position number, and a POC. **(T-1)**.

11.20.5.7.4. Ensure FCCs and assistant FCCs are aligned in a duty position with a "C" prefix by initiating an AF Form 2096, *Classification/On-the-Job Training Action*, or special order. **(T-1)**.

11.20.5.7.5. Counsel FCCs and assistant FCCs on SDAP termination (AFI 36-3017, **Table 3** lists reasons for termination). **(T-1)**.

11.20.5.7.5.1. 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. **(T-1)**.

11.20.5.7.6. Review, update, and authenticate the monthly SDAP roster. **(T-1)**. The SDAP roster is the only administrative tool used to start, stop or continue the FCC pay entitlement.

11.20.5.7.6.1. If changes are made on the monthly SDAP roster, an AF Form 2096 or special order must be submitted to the Military Personnel Section (MPS). **(T-1)**.

11.20.5.7.6.2. Authentication of the monthly SDAP roster validates that each FCC is meeting the full intent of the program. **Note:** AFI 36-3017 provides commanders conditions concerning pay entitlements.

11.20.5.7.7. Submit SDAP position increase/decrease requests to MAJCOM FCC Program Manager by message, e-mail, or letter stating the number of positions to be increased/decreased with a brief justification. **(T-1)**.

11.20.5.7.7. **(AFRC)** Submit via e-mail to HQ AFRC/A4M ([afrc.a4m@us.af.mil](mailto:afrc.a4m@us.af.mil)).

11.20.5.7.7.1. MAJCOMs will forward requests to AF/A4LM for final approval.

11.20.5.7.8. Provide information for processing DD Form 1610, *Request and Authorization for TDY Travel of DoD Personnel*, for FCCs. **(T-3)**.

11.20.5.7.9. Ensure TDY orders authorize FCCs to travel in Mission Essential Personnel status. **(T-1)**. **Note:** Aeronautical orders do not apply to this program, as FCCs are not aircrew members.

11.20.5.7.10. Monitor training qualifications and currency to ensure only qualified FCCs are scheduled for missions. **(T-1)**.

11.20.5.7.10.1. As a minimum, maintain a folder for each FCC containing training qualifications, immunizations, military passport information, appointment letters, and FCC Mission Reports. **(T-1)**. If the unit mobility section already maintains these source documents, either electronic or paper copies may be maintained.

11.20.5.7.11. Coordinate scheduling of FCCs through Flight CC/Chiefs and operations schedulers. **(T-1)**.

11.20.5.7.12. Maintain a Unit FCC Program Manager's Continuity Book. **(T-1)**. As a minimum the continuity book will include:

11.20.5.7.12.1. Lists of required instructions with web addresses (including AFI 36-3017, AFMAN 36-2108 and this instruction). **(T-1)**.

11.20.5.7.12.2. Unit FCC Program Manager appointment letter, AF Form 2096 or special orders. **(T-1)**.

11.20.5.7.12.3. Manpower correspondence assigning "C" prefix AFSC. **(T-1)**.

11.20.5.7.12.4. Quarterly and annual FCC status reports, SDAP position requests and miscellaneous FCC and SDAP correspondence. **(T-1)**.

11.20.5.7.12.5. **(Added-AFRC)** MDS specific critical systems FCCs are required to be qualified to operate, troubleshoot, service, and perform maintenance on **(T-2)**.

11.20.5.7.13. Report program status by Fiscal Year (FY) quarters to MAJCOM FCC 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. **(T-1)**.

11.20.5.7.13. **(AFRC)** Send reports to HQ AFRC/A4M ([afrc.a4m@us.af.mil](mailto:afrc.a4m@us.af.mil)).

11.20.5.7.13.1. Annual report will consist of the previous FY 4th quarter and current FY 1st, 2nd, and 3rd quarters (1 Jul - 30 Jun). **(T-1)**.

11.20.5.7.14. 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). **(T-1)**.

11.20.5.8. Installation Manpower and Quality Office will:

11.20.5.8.1. Forward ACR to MAJCOM to add, delete, or change “C” prefixes on AFSCs existing on the UMD. **(T-1)**.

11.20.5.9. Enroute supervisors will:

11.20.5.9.1. Not assign FCCs to work other enroute aircraft. **(T-2)**. However, FCCs left at an enroute location and awaiting transportation may be assigned to work other enroute aircraft.

11.20.5.9.2. Brief FCCs on local safety precautions, maintenance practices, and limitations. **(T-2)**.

11.20.5.9.3. Coordinate with the Pilot In Charge (PIC) and FCC to obtain transportation to/from quarters. **(T-2)**.

11.20.5.10. The FCC will:

11.20.5.10.1. Establish duty shifts and rest periods with the PIC and enroute supervisor based on maintenance and mission requirements. **(T-2)**. **Note:** Consider the duration of the flight, the ability to rest during the flight, and the quality of the rest during the flight. FCCs do not automatically enter crew rest with the aircrew upon arrival at an enroute/transient location unless the duty day was exceeded.

11.20.5.10.1.1. If the FCC's safety is jeopardized by fatigue, the FCC's duty day must end. **(T-2)**.

11.20.5.10.2. Upon arrival at enroute locations, determine their ability to safely and effectively perform duties. **(T-2)**. **Note:** The FCC's primary job is preparing the aircraft (inspect, service, aircraft forms maintenance) for the next mission.

11.20.5.10.2.1. Notify Tanker Airlift Control Center/Logistics Cell of planned crew rest periods and or establish an alternate point of contact during scheduled rest periods to minimize rest cycle interpretations. **(T-2)**.

11.20.5.10.3. Coordinate with the PIC to ensure crew integrity for quarters is maintained. **(T-2)**.

11.20.5.10.4. Coordinate with the PIC to ensure the FCC Performance Feedback Form in **Attachment 2** of this instruction is completed by the PIC and provided the Unit FCC Program Manager upon return to home station. **(T-2)**.

11.20.6. FCC qualifications and responsibilities.

11.20.6.1. FCCs should be a 2AX AFSC 5- or 7-skill level.

11.20.6.2. As a minimum, the FCC must be qualified and certified on the following MDS applicable items:

11.20.6.2. **(AFRC)** The unit FCC program manager will identify additional MDS specific critical systems and ensure assistant FCCs are qualified to operate, troubleshoot, service, and perform maintenance on their aircrafts' critical systems **(T-2)**.

11.20.6.2.1. Possess a SEI of the aircraft assigned to the FCC. **(T-2)**.

- 11.20.6.2.2. Refuel/defuel member and supervisor; concurrent servicing supervisor (as applicable). **(T-2)**.
- 11.20.6.2.3. Tow member, tow supervisor, and tow brake operator. **(T-2)**.
- 11.20.6.2.4. LOX/GOX servicing, nitrogen and tire servicing. **(T-2)**.
- 11.20.6.2.5. Tire and brake change; launch; recovery; marshalling; pre-flight, thru-flight and post-flight inspection. **(T-2)**.
- 11.20.6.2.6. APU operation/quick air start system. **(T-2)**.
- 11.20.6.2.7. Engine run. **(T-2)**.
- 11.20.6.2.8. Kneeling operation and cargo door/ramp/visor operation on applicable MDS. **(T-2)**.
- 11.20.6.2.9. All applicable powered/non-powered AGE. **(T-2)**.
- 11.20.6.2.10. Qualified to operate, troubleshoot, service, and perform maintenance on their aircraft's critical systems as required by the MAJCOM. **(T-2)**.
- 11.20.6.3. Assistant FCC qualifications and responsibilities.
  - 11.20.6.3.1. Assistant FCCs must be a 5-level A1C or above with at least a SEI on their assigned aircraft, and must accompany a fully qualified FCC. **(T-2)**.
  - 11.20.6.3.2. As a minimum, the Assistant FCC will be qualified and certified on the following MDS applicable items:
    - 11.20.6.3.2.1. Refuel/defuel member. **(T-2)**.
    - 11.20.6.3.2.2. Tow member and tow brake operator. **(T-2)**.
    - 11.20.6.3.2.3. LOX/GOX servicing, nitrogen and tire servicing. **(T-2)**.
    - 11.20.6.3.2.4. Tire and brake change; launch; recovery; marshalling; pre-flight, thru-flight and post-flight inspection. **(T-2)**.
    - 11.20.6.3.2.5. APU operation/quick air start system. **(T-2)**.
    - 11.20.6.3.2.6. Cargo door/ramp/visor operation on applicable MDS. **(T-2)**.
    - 11.20.6.3.2.7. All applicable powered/non-powered AGE. **(T-2)**.
- 11.20.7. Work/rest plan (see [Chapter 1](#) of this instruction).
- 11.20.8. MAJCOM FCC Program reporting.
  - 11.20.8.1. MAJCOMs will forward a yearly report to AF/A4LM by 15 August.
  - 11.20.8.2. Use previous FY 4th quarter; and current FY 1st, 2nd, and 3rd quarters. Late reports may postpone FCC waiver requests. Refer to [Attachment 3](#) and [Attachment 4](#) for reporting criteria.
- 11.20.9. Waivers.
  - 11.20.9.1. Forward unit waiver requests to the MAJCOM FCC Program Manager, who will either disapprove/return to unit, or recommend approval/forward to AF/A4LM for final approval IAW AFI 33-360. **(T-1)**.

11.20.9.1. (AFRC) Forward unit waiver requests to HQ AFRC/A4M ([afrc.a4m@us.af.mil](mailto:afrc.a4m@us.af.mil)).

11.20.9.1.1. All approved waivers are reviewed annually as part of the annual report unless otherwise stipulated by the approval authority.

11.20.9.1.2. Waiver renewals. Submit a brief justification for waivers requiring renewal.

### 11.21. Maintenance of Flash Blindness Protective Devices.

11.21.1. MAJCOMs will define responsibilities across maintenance for sustainment of flash blindness protective devices for assigned aircraft in a supplement to this instruction. As a minimum, MAJCOM supplements will assign responsibilities that ensure:

11.21.1.1. Units maintain aircraft thermal protective devices, shields, and associated hardware IAW aircraft TOs.

11.21.1.2. Units will establish a training program to qualify individuals to install, inspect, and when required, seal aircraft thermal protective devices and shields. (T-2).

11.21.2. (Added-AFRC) Aircraft thermal radiation barrier curtains are maintained serviceable to provide the flight crew optimum protection from thermal radiation and light during Emergency War Order (EWO)/OPLAN 8010 conditions. This program standardizes procedures for cleaning, repairing, installing, inspecting, storing, packaging, and sealing of thermal radiation shields, thermal radiation barrier curtains and thermal radiation barriers on applicable aircraft. The MXG/CC is responsible for ensuring effective aircraft thermal curtain maintenance is accomplished IAW applicable aircraft TOs, and this instruction (T-2).

11.21.3. (Added-AFRC) Aircraft Maintenance Squadron Responsibilities:

11.21.3.1. (Added-AFRC) Ensure aircraft thermal curtains and associated hardware are maintained IAW aircraft TOs, AFI 11-301, Vol 1, *Aircrew Flight Equipment (AFE) Program*, and this instruction (T-2).

11.21.3.2. (Added-AFRC) Establish an effective training program to train and qualify individuals to install, remove, inspect, clean, repair, and seal aircraft thermal curtains (T-2). **Note:** Units are authorized and encouraged to maintain sufficient condemned curtains to allow maintenance and aircrew personnel installation practice without using serviceable items. Thermal curtains designated for training will be plainly labeled “FOR TRAINING ONLY” to preclude inadvertent use for Alert or OPLAN 8010/Theater Nuclear Option (TNO)/EWO purposes (T-2). 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 (T-2).

11.21.3.2.1. (Added-AFRC) Do not store training curtains on-board aircraft (T-2). Use of training curtains is encouraged during local generations.

11.21.3.3. (Added-AFRC) Do not seal thermal radiation curtain containers unless directed by aircraft technical orders (T-2). When sealing thermal curtains on the aircraft, a qualified maintenance technician will perform the task using a lead-seal-crimping tool (T-2). Ensure lead-seal crimping tools reflect the unit numerical code (e.g., 452 – 452 AMW,

459 – 459 ARW, 916 – 916 ARW) which is reflected on the lead seal after crimping (T-2). Control and account for lead-seal crimping tools IAW procedures in **Chapter 8 (T-2)**.

11.21.4. **(Added-AFRC)** Operations Squadron Responsibilities:

11.21.4.1. **(Added-AFRC)** The Aircrew Flight Equipment Section ensures aircraft flash blindness protective devices are repaired IAW appropriate aircraft TOs and AFI 11-301, Vol 1, *Aircrew Flight Equipment (AFE) Program (T-2)*.

11.21.5. **(Added-AFRC)** Additional Requirements. In addition to the inspection requirements contained in aircraft TOs, perform the following inspection, certification, and sealing procedures:

11.21.5.1. **(Added-AFRC)** Conduct a pre-alert inspection of all thermal curtains and associated hardware IAW aircraft technical orders (T-2). Document the pre-alert inspection on a red dash in the AFTO Form 781A, with the following statement: "Thermal Radiation Curtain Inspection Required" (T-2). During the aircraft pre-alert inspection, a qualified maintenance technician assists the aircrew in accomplishing this inspection (T-2). The aircraft commander certifies the aircraft thermal curtains for alert (T-2). Upon acceptance, the maintenance technician signs the "Corrected By" block of the AFTO Form 781A entry, and the aircraft commander signs the "Inspected By" block (T-2).

11.21.5.2. **(Added-AFRC)** Upon aircraft alert termination, a qualified maintenance technician inspects and reseals serviceable thermal curtains (T-2). Transport unserviceable devices to the AFE section for any repairs that cannot be accomplished by following MDS Technical Orders (T-2).

11.21.5.3. **(Added-AFRC)** Prior to deployment and after return from deployment, verify lead seals are intact. (T-2). If seals are broken, re-inspect the flash blindness protective device and reseal (T-2).

**11.22. WRM External Nestable Fuel Tank Build-Up.** MAJCOMs will ensure units sustain the capability to support assigned wartime taskings. External Nestable Fuel Tank Build-Up is a wartime capability, supported/tasked through a UTC to provide a critical wartime skill that compensates for the expenditure of aircraft fuel tanks (refer to **Chapter 4** of this instruction). With exception of the core 2A6X4 personnel, augmentees may come from any group or squadron within the wing. MAJCOMs, as applicable, will:

**11.22. (AFRC) WRM External Nestable Fuel Tank Build-Up (NFTBU).** N/A to AFRC. Units will follow procedures of host unit at deployment location (T-2).

11.22.1. Ensure units adhere to the direction outlined in their particular Mission Capability statement and DOC statement IAW AFI 10-401, governing the quantity, size, and composition of fuel tank build-up teams.

11.22.2. Provide guidance for UDMs to ensure personnel tasked/selected for WRM Nestable Fuel Tank Build-Up team augmentees are not tasked for other wartime UTCs.

11.22.2.1. MAJCOMs must ensure UDMs responsible for deploying 2A6X4 personnel are designated as the focal point for WRM Nestable Fuel Tank Build-Up team assembly and are required to develop/maintain a written plan. The plan must be kept current, reviewed annually and contain the following:



11.22.2.1.1. Specific manning positions across the wing to be tasked as Nestable Fuel Tank Build-Up team augmentees. **Note:** The applicable independent Nestable Fuel Tank Build-Up UTC Manpower Force Packaging System will be used as a guide to construct the teams.

11.22.2.1.2. Guidelines for activation of the tank build-up teams are established.

**11.23. Protective Aircraft Shelters (PAS).** MAJCOMs that possess PAS will publish guidance for aircraft maintenance operations in a PAS environment. At a minimum, MAJCOM guidance and procedures will address:

**11.23. (AFRC) Protective Aircraft Shelters (PAS).** N/A to AFRC. Units will follow procedures of host unit at deployment location (**T-2**).

11.23.1. PAS marking and floor plans.

11.23.2. Electrical Requirements.

11.23.3. Refueling/Defueling Operations.

11.23.4. Shelter Door Operations.

11.23.5. Aircraft Engine Operation.

11.23.6. Aircraft Positioning inside the PAS.

11.23.7. Aircraft Winching (Hot/Cold).

11.23.8. Placement and Storage of Munitions in the PAS.

11.23.9. Collocating Nuclear and Conventional Munitions (AF Munitions).

11.23.10. External Fuel Tank storage.

11.23.11. PAS maintenance and Inspection requirements not covered by existing publications (such as, grounding and ventilation, mods).

**11.24. 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. Combat sortie generation may include fueling, munitions/ammunition loading/unloading, aircraft reconfiguration, -6 TO inspections, and other servicing requirements, IAW applicable MDS TOs, Technical Order Data (TOD), IETM, TO 11A-1-33, *Handling and Maintenance of Explosives-Loaded Aircraft*, TO 00-25-172 and other applicable directives. Procedures can be compressed through pre-positioning resources and concurrent performance of tasks.

11.24.1. Wings will define when to exercise combat sortie generation procedures. Procedures may be used during actual contingencies, scheduled exercises, and daily flying operations.

11.24.2. **(Added-AFRC)** War Mobilization Plan (WMP) -5 rates (or higher) should be used for planning combat sortie generation/regeneration.

11.24.3. **(Added-AFRC)** AFMC approved -6 quick turn work cards are authorized for A-10 aircraft.

11.24.4. **(Added-AFRC)** During combat sortie generations, DLOs are authorized for B-52 aircraft. DLOs will not be conducted concurrent with aircraft refueling or defueling operations

(T-2). Load Crew Chief will brief CSO/DLO personnel on munitions emergency procedures IAW TO 1B-52H-33-2-1, *Non-Nuclear Munitions Loading Procedures, Cluster, Clip-in, Ext Heavy Stores, Ext Stores, Flares* (T-2).

11.24.5. (Added-AFRC) Training Requirements.

11.24.5.1. (Added-AFRC) Maintenance Supervision designates in writing a 2A3X3/2A5X1 (for Concurrent/Chief Servicing Supervisor) and 2W1X1 (for Weapons Loading) SME to develop and manage their respective duties and responsibilities pertaining to CSO/CSS training development (T-2). CSO/CSS trainers/certifiers will be designated by the respective SME in writing (T-2).

11.24.5.2. (Added-AFRC) Prior to accomplishing CSO/CSS training, 2AXXX and 2WXXX personnel must:

11.24.5.2.1. (Added-CSSs) Meet the minimum skill-level and time requirements of [Table 11.1](#) (T-2).

11.24.5.2.2. (Added-AFRC) Have a thorough knowledge of safety requirements contained in TO 00-25-172, TO 11A-1-33, and MDS specific 1X-XXX-2 and 1X-XXX-6 technical orders (T-2).

11.24.5.2.3. (Added-AFRC) Be qualified in applicable tasks accomplished in support of Combat Sortie Operations/Concurrent Servicing Operations (T-2).

11.24.5.2.4. (Added-AFRC) Document training for CSO/CSS in the CFETP (T-2). CSS certification will be tracked on the SCR IAW [Table 11.1](#). (T-2).

11.24.5.3. (Added-AFRC) At a minimum, Combat Servicing Operation training will consist of the following (T-2):

11.24.5.3.1. (Added-AFRC) Concept of operations.

11.24.5.3.2. (Added-AFRC) Inherent risks associated with CSO.

11.24.5.3.3. (Added-AFRC) MDS specific requirements.

11.24.5.3.4. (Added-AFRC) Safety and emergency procedures.

11.24.5.3.5. (Added-AFRC) CSS departure from the CSO area.

11.24.5.3.6. (Added-AFRC) Fire protection.

11.24.5.3.7. (Added-AFRC) Unique local operating procedures.

11.24.5.4. (Added-AFRC) At a minimum, Concurrent Servicing Supervisor/Chief Servicing Supervisor training and certification will consist of the following (T-2):

11.24.5.4.1. (Added-AFRC) Safety requirements contained in TO 00-25-172, and TO 11A-1-33.

11.24.5.4.2. (Added-AFRC) Fuel spill classification and response.

11.24.5.4.3. (Added-AFRC) Fuel Servicing Safety Zone (FSSZ) requirements.

11.24.5.4.4. (Added-AFRC) Emergency notification procedures and withdrawal distances.

11.24.5.5. **(Added-AFRC)** Coordinate training for augmentees from base support agencies to support combat sortie generation **(T-2)**.

11.24.5.6. **(Added-AFRC)** Cross-utilization of skilled personnel may be employed to ensure maximum productivity.

**11.25. Hot Refueling Procedures.** For the purpose of this instruction hot refueling is the transfer of fuel into an aircraft having one or more engines running and is conducted by certified AF maintenance and fuels personnel IAW this instruction. 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 00-25-172 CL-4, *Checklist -- Aircraft Fuel Servicing with R-9, R-11 and Commercial Fuel Servicing Trucks and with Fuels Operational Readiness Capability Equipment (FORCE)*, TO 37A9-3-11-1CL-1, *Checklist, Operational and Organizational Maintenance Hot Refueling and Hot Integrated Combat Turnaround Procedures, Aircraft Fuel Servicing Unit Type GRU 17/E Pantograph PACAF Type IV Hydrant Servicing*, and AFMAN 91-203. Exception: N/A for MAJCOMs/Mx units not tasked to maintain hot pit refueling capabilities.

**11.25. (AFRC) Hot Refueling Procedures.** MAJCOM OPR for hot refueling is HQ AFRC/A4M ([afrc.a4m@us.af.mil](mailto:afrc.a4m@us.af.mil)). Units whose taskings include the ability to hot refuel will develop and maintain the capability to quickly and safely hot refuel assigned aircraft **(T-2)**. This requirement also applies to “TF” coded units who support specific contingency taskings.

11.25.1. Maintenance personnel will not perform hot refueling operations until the location, equipment requirements, and personnel qualifications are certified IAW this instruction and TO 00-25-172. **(T-1)**.

11.25.1.1. Site Certification. MAJCOMs will develop hot pit refueling site certification requirements which as a minimum will include:

11.25.1.1.1. Field grade maintenance operations officer as the site certifying official.

11.25.1.1.2. Representative from OSS’s Airfield Operations Flight, knowledgeable of aircraft taxiways, parking ramp, and hot refuel safe distance requirements.

11.25.1.1.3. Maintenance member with AFSC 2AXXX from MXG/QA.

11.25.1.1.4. Wing Occupational Safety member, minimum SSgt with AFSC 1S071 or civilian equivalent, task qualified in site certification and knowledgeable of hot refueling operations.

11.25.1.1.5. AFSC 2F071 Fuels Management Flight Member or civilian equivalent.

11.25.1.1.6. Civil engineering member with AFSC 3E271 or civilian equivalent familiar with aircraft ramp requirements for hot refueling.

11.25.1.1.7. Fire protection member with a minimum AFSC 3E771 or civilian equivalent familiar with fire protection standby requirements in TO 00-25-172 for hot refueling.

11.25.1.1.8. The following questions will be addressed as part of the site certification:

11.25.1.1.8.1. Has the aircraft been approved by System Safety Engineering

Analysis (SSEA) for hot pit refueling?

11.25.1.1.8.2. Is adequate area provided to position the aircraft safely (evaluate ability to reposition due to wind direction)?

11.25.1.1.8.3. Is the ramp level to prevent drainage that could cause environmental impact? Request the fire department dump water to verify flow, if questionable.

11.25.1.1.8.4. Is the location adequate for the number of aircraft to be serviced?

11.25.1.1.8.5. Has a hot brake holding area been established?

11.25.1.1.8.6. Is there proper clearance between the hot pit area and hot brake holding area to prevent conflict?

11.25.1.1.8.7. 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?

11.25.1.1.8.8. Is the hot pit adequately clear of the aircraft/vehicle traffic area?

11.25.1.1.8.9. Is the hot pit and cursory check area of the ramp clear of FOD potential?

11.25.1.1.8.10. Does the location provide for rapid access of emergency equipment and egress of aircraft/equipment?

11.25.1.1.8.11. Are adequate grounding points available?

11.25.1.1.9. QA or responsible unit will maintain site certification documentation and a master listing of hot pit refueling sites administered by the MXG.

11.25.1.1.9.1. QA or responsible unit will coordinate with P&R to ensure hot pit site certification listing is updated any time sites are added, changed, or deleted. **(T-1)**. Reference <https://www.my.af.mil/BASE/baseapp>.

11.25.1.1.10. Each unit hot refueling site will be certified by a unit certification team, and approved by Installation Commander, when one of the following occurs:

11.25.1.1.10.1. Construction of new hot refueling sites. **(T-1)**.

11.25.1.1.10.2. Change in the unit MDS, or when an additional MDS is acquired. **(T-1)**.

11.25.1.1.10.3. Change in refueling equipment. **(T-1)**.

11.25.1.1.10.4. Changes in the certified site areas which affect/change the previous certification. **(T-1)**.

11.25.1.1.11. **(Added-AFRC)** The host Installation Commander is the approval authority for Hot Pit request(s) **(T-2)**. The approval coordination package must include the final Site Certification, final Hot Pit Master Listing, and Official Certification Approval memo from requesting unit/commander with the following attachments:

11.25.1.1.11.1. **(Added-AFRC)** Appointment letter signed by MXG/CC identifying the Field grade maintenance operations officer as the site certifying official **(T-2)**.

11.25.1.1.11.2. **(Added-AFRC)** Appointment letter signed by MSG/CC identifying the base site certification team members, and Fuels specialist(s) with 2F0X1 AFSC as hot pit team "C" member **(T-2)**.

11.25.1.1.11.3. **(Added-AFRC)** Hot refueling checklists for each respective MDS **(T-2)**.

11.25.1.1.11.4. **(Added-AFRC)** Unit published procedures for hot refueling, if any **(T-2)**.

11.25.1.1.11.5. **(Added-AFRC)** Acknowledgement that applicable TO 00-25-172 requirements are met **(T-2)**.

11.25.1.1.12. **(Added-AFRC)** MXG/CC must forward approved Site Certification, Hot Pit Master Listing, and Official Certification Approval memo with all attachments to HQ AFRC/A4M upon Installation Commander's signature; courtesy copy respective Reserve NAF/A4M **(T-2)**.

11.25.2. Hot pit site master listing. **(T-1)**. This listing must contain the following information for all hot pit sites established and/or sustained by an AF installation or equivalent:

11.25.2.1. All sites must be identified by coordinates on a map. **(T-1)**.

11.25.2.1.1. 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. **(T-1)**.

11.25.2.1.2. Other refueling sites, aircraft parking areas, also need to be identified and all distances must be shown even if a violation exists. **(T-1)**.

11.25.2.1.3. The request cover letter will state if there are no violations. **(T-1)**.

11.25.2.1.4. Procedures such as aircraft taxi routes should also be shown. Use arrows or dotted lines to show taxi directions, both entry and exit.

11.25.2.1.5. Address any restrictions to normal operations and actions required IAW TO 00-25-172.

11.25.2.2. State the type of equipment used for hot refueling at each site, (such as, hose carts, truck). **(T-1)**.

11.25.2.2.1. Show the location of any fixed fuel pits and usual location of cart or truck if used. **(T-1)**.

11.25.2.2.2. Unit-approved sites will be identified on the aircraft parking plan. **(T-1)**.

11.25.2.2.3. OSS, CE and QA and will maintain copies of hot refueling sites on file. **(T-1)**.

11.25.2.3. 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.

11.25.3. Hot refueling requires detailed procedures be published in appropriate TOs and unit-developed Local Checklists. Unit Local Checklists will be developed IAW **Chapter 6** of this

instruction and include detailed procedures, normal and emergency, to meet requirements of the local environment. **(T-1)**.

11.25.3.1. Units will forward Local Checklists to their respective QA office for approval. **(T-2)**.

11.25.4. Units will 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. **(T-1)**.

11.25.5. AMXS tasked to perform hot refueling operations will ensure hot refueling crews are available to meet mission requirements. **(T-1)**. MXS maintenance personnel may be utilized.

11.25.6. Hot Refueling Team Members and Duties.

11.25.6.1. 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).

11.25.6.1.1. Individual will possess a 5-skill level or higher qualification in an aircraft maintenance AFSC and be hot refueling supervisor "A" member qualified. **(T-2)**.

11.25.6.1.1. **(AFRC)** Individual will possess a 7-skill level or higher qualification in an aircraft maintenance AFSC and be hot refueling supervisor "A" member qualified **(T-2)**.

11.25.6.1.2. Supervisors must have full view and control of multiple hot refueling operations. **(T-1)**.

11.25.6.2. Refuel supervisor "A" member. Individual will be refuel task qualified, capable of supervising hot refuel crew, possess an aircraft maintenance AFSC 5-skill level qualification and 1 year of flightline aircraft maintenance experience. **(T-2)**.

11.25.6.3. Refuel crew "B" member. Individual will be task qualified, possess a flightline maintenance AFSC, and 1 year of flightline maintenance experience. **(T-2)**.

11.25.6.4. Fuels specialist with 2F0X1 AFSC, "C" member. Individual will be refuel task certified on the specific facility/equipment, and task qualified for aircraft hot refueling. **(T-2)**.

11.25.6.5. Additional refuel crew "D" member. Individual will be task qualified, possess a flightline maintenance AFSC, and have at least 1 year of flightline maintenance experience. **(T-2)**. Use "D" members as required by applicable aircraft technical data.

11.25.7. Hot refueling team members and QA certifying officials/evaluators may be multi-MDS qualified when more than one weapons system is permanently assigned to a squadron.

11.25.7.1. After initial certification on each MDS, personnel must update their hot refueling currency by performing hot refueling on any assigned weapon system. **(T-1)**.

11.25.7.2. Section NCOICs/Chiefs will ensure personnel maintain proficiency on each assigned MDS. **(T-1)**.

11.25.8. Conducting Hot Refueling Training, Certification and Documentation. [For additional information, refer to AFI 11-235, *Specialized Refueling Operations*]. Qualification

training of hot refueling personnel will be conducted in three distinct phases. **(T-1)**. The three hot refueling qualification training phases are as follows:

11.25.8.1. 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 ordinance loaded, when authorized.

11.25.8.2. Phase 2. “Hands-on” phase. Apply information learned in Phase 1 to develop in-depth knowledge and proficiency in all facets of hot refueling. Training will include proper operation, preventive maintenance, use of hand signals and emergency procedures. **(T-1)**. Simulate hot refueling by performing all hot refueling tasks without aircraft engines running (cold pit). Designated instructors will demonstrate tasks then require trainees to perform tasks, practice emergency procedures, critique performance and provide additional training as required. **(T-1)**.

11.25.8.3. Phase 3. “Demonstration/Certification” phase. Trainees will demonstrate hot refueling under the supervision of designated certifying officials with aircraft engine(s) running. **(T-1)**. The Squadron Certifying Officials will certify individuals upon successful demonstration of hot refueling. **(T-1)**. If Phase 3 training has not been completed within 30 days of Phase 2 training, Phase 2 training must be repeated. **(T-1)**.

11.25.8.4. Qualification training will:

11.25.8.4.1. Stress safety requirements, emergency procedures and equipment inspection in all three phases of training. **(T-1)**.

11.25.8.4.2. Ensure 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. **(T-1)**.

11.25.8.4.3. Allow Phase 2 and Phase 3 training to be conducted utilizing joint sessions including 2F0X1 AFSC personnel and all maintenance AFSCs. **(T-1)**.

11.25.8.4.4. Utilize both fuels (2F0X1) and maintenance AFSC instructors for joint sessions.

11.25.8.4.5. Be conducted by MT (QA if MT not available). **(T-1)**.

11.25.8.4.5. **(AFRC) Note:** Maintenance Training will, in conjunction with subject matter experts, assist in the development of course documents, and will control all course document and testing material.

11.25.8.5. QA hot pit certifying officials and QA hot pit certifier augmentees (squadron certifying officials) will train, evaluate, and certify unit personnel. **(T-1)**.

11.25.8.5. **(AFRC)** Trainers/Certifiers will be minimum 7-skill level, 2AX7X, with a minimum of 1 year flightline maintenance experience **(T-2)**. In order to keep training standardized, limit the amount of trainers/certifiers to the least amount to meet mission requirements **(T-2)**. MXG/CC will designate trainers/certifiers in writing **(T-2)**.

11.25.8.5.1. QA hot pit certifying officials will ensure augmentees conduct evaluations using procedures outlined in this instruction, applicable aircraft TOs and local procedures. **(T-1)**.

11.25.8.6. Hot pit certifying officials will be approved by the MXG/CC and tracked on the SCR. **(T-1)**.

11.25.9. Document training for personnel performing, evaluating, supervising or instructing hot refuel operations as follows:

11.25.9.1. Document all aircraft maintenance and 2FOX1 AFSC personnel Phases 1, 2, and 3 initial training in the TBA. **(T-1)**.

11.25.9.1.1. For AFSCs where “refuel aircraft with engines operating” is not contained in the TBA, use AF Form 797/MIS to document initial hot refuel training. **(T-1)**.

11.25.9.1.2. Track recurring hot refueling certification in the MIS (initial and annual) IAW 00-25-172 and this AFI. **(T-1)**.

11.25.9.2. 2FOX1 AFSC personnel will use the TBA/AF Form 1098, *Special Tasks Certification and Recurring Training*, to document Phases 1, 2, and 3 initial/recurring hot refuel training. **(T-1)**. **Note:** Fuels (2FOX1) certifying officials will be appointed by the LRS/CC IAW AFI 36-2651.

11.25.10. Track hot refueling members, by position, on the SCR. **(T-1)**.

11.25.11. Unique proficiency, certifying, and decertifying actions for hot refuel team members will be outlined in MAJCOM supplements/addendums to this AFI. **(T-1)**.

11.25.11.1. **(Added-AFRC)** Proficiency Requirement. Personnel certified to conduct hot refueling will conduct a minimum of two separate hot refuel events every 12 months **(T-2)**.

11.25.11.2. **(Added-AFRC)** Personnel who fail to demonstrate proficiency during training, or fail to maintain annual proficiency requirements, will be decertified **(T-2)**. Personnel who fail to demonstrate proficiency during phase 2 or 3 training will have to re-accomplish phase 1 training prior to being certified **(T-2)**. Personnel decertified for failing to maintain 12 month proficiency requirement will have to accomplish phase 2 and 3 training with a certifier prior to being recertified **(T-2)**.

**Table 11.2. (Added-AFRC) Hot Refueling Training/Certification Requirements (T-2).**

Position	Required Phase Training	Proficiency Requirements	Special Requirements
QA/Squadron Hot Refueling Trainer, Evaluator & Certifier	1, 2 and 3	1 Hot Refuel Semi-Annually	One time PE by QA Chief Inspector; thereafter, annual recertification by another hot refueling certifier or QA Chief Inspector
Pad Supervisor	1, 2 and 3	1 Multiple Hot Refuel Semi-Annually	Annual recertification by hot refueling certifier



Refuel Member	1, 2 and 3	1 Hot Refuel Semi-Annually	Annual recertification by hot refueling certifier
Fuels Specialist (2FOX1)	1, 2 and 3	1 Hot Refuel Annually	Annual recertification by Fuels 7-level Supervisor
Decertified Certifier	Repeat 2 and 3		Recertification must be started within 90 days or Phase I will also be completed. Recertification by another hot refueling certifier or QA Chief Inspector
Decertified (Other than certifier)	Repeat 2 and 3		Recertification must be started within 90 days or Phase I will also be completed. Recertification by hot refueling certifier.

### 11.26. Aircraft Rapid/Hot Defueling.

11.26.1. Rapid defueling presents hazards which are not normally encountered in normal defueling operations. Owing MAJCOMs will develop and sustain a rapid defueling capability to meet routine and contingency mission requirements IAW TO 00-25-172 and MDS-specific TOs.

11.26.1.1. Rapid defueling operations are considered hot defueling operations whenever the provider/source aircraft has an engine running.

11.26.2. **(Added-AFRC)** The MXG/CC will establish an Aircraft Rapid/Hot Defueling capability as required by Career Field Education Training Plans (CFETPs), MDS specific technical orders, TO 00-25-172, and this instruction **(T-2)**.

11.26.2.1. **(Added-AFRC)** MXG/CC will designate a unit OPR for rapid/hot defueling training **(T-2)**.

11.26.3. **(Added-AFRC)** Maintenance Training, in conjunction with the OPR and subject matter experts, will develop a local training plan and JQS that addresses technical order requirements, local conditions, and training/certification requirements for each position of the aircraft rapid/hot defueling team **(T-2)**. Maintenance Training will control any course documents/testing material and administer tests (as required) **(T-2)**.

11.26.3.1. **(Added-AFRC)** All rapid defueling ground crew members will be qualified to perform rapid/hot defueling operations by a qualified trainer **(T-2)**. Training will be documented in the individual training records and tracked in the MIS **(T-2)**.

11.26.3.2. **(Added-AFRC)** Individuals also require annual refresher training **(T-2)**. Training will be tracked in the MIS **(T-2)**.

11.26.3.3. **(Added-AFRC)** The rapid/hot defuel supervisor will be certified annually and tracked on the SCR **(T-2)**.

### **11.27. 406 MHz Emergency Locator Transmitter Systems Program.**

11.27.1. Units will ensure procedures are established to update the Emergency Locator Transmitter registration database whenever 406 MHz Emergency Locator Transmitter–equipped aircraft are transferred to other commands/wings, Emergency Locator Transmitter that are taken out of service, removed for maintenance or destroyed. **(T-0)**. **Note:** Emergency Locator Transmitter systems are not authorized for use in unmanned AF systems.

11.27.1. **(AFRC)** Establish an account on the PRMS website located at <https://prmsglobal.prms.af.mil/prmsconv/Login/start.aspx> **(T-2)**.

11.27.2. Aircraft maintenance functions must register and track status of fixed-mounted aircraft 406 MHz Emergency Locator Transmitter systems. **(T-0)**.

11.27.3. In accordance with DoDI 3002.02, *Personnel Recovery and 406 MHz Search and Rescue (SAR) Emergency Beacons in the Department of Defense*, USAF 406 MHz Emergency Locator Transmitter systems must be registered in the DoD Joint Search and Rescue Satellite Aided Tracking Electronic Tracking System database. **(T-0)**.

11.27.3.1. The POC for JSETS registration is the Personnel Recovery Mission Software Help Desk at [PRMSMail@jricp.osis.gov](mailto:PRMSMail@jricp.osis.gov).

11.27.3.2. The governing agencies are the Joint Personnel Recovery Agency and the Electronic Services Command at Hanscom AFB, MA. Refer to AFMAN 10-207, *Command Posts*, for Command Post or C2 function responsibilities regarding 406 MHz Emergency Locator Transmitter and Personal Locator Beacon systems.

### **11.28. Crashed, Damaged or Disabled Aircraft Recovery (CDDAR) Program.**

11.28.1. Installation/WG/CCs responsible for active airfields/runways, and flying missions will implement a CDDAR Program IAW TO 00-80C-1, *Crashed, Damaged, Disabled Aircraft Recovery Manual*. **(T-1)**. The program must be designed to provide a response and/or recovery capability of assigned host, tenant, and consider transient aircraft consistent with the following considerations: (1) urgency to open the runway for operational use; (2) prevention of secondary damage to the aircraft; and (3) preservation of evidence for mishap or accident investigations IAW AFI 91-202 and AFI 91-204. **(T-1)**.

11.28.1.1. **(Added-AFRC)** WG/CC and MXG/CC involvement is critical to the success of this program. The CDDAR program shall be a high interest item for commanders and supervisors so that the requirements listed in this section can be accomplished in the event of a Crash, Damaged, Disabled Aircraft Recovery **(T-2)**. WG/CCs shall ensure organizations outside of the Maintenance Group that are required to contribute to this program provide the appropriate support to the successful planning and execution of a viable CDDAR program **(T-2)**.

11.28.1.2. **(Added-AFRC)** The aircraft maintenance responsibility of CDDAR program development and execution shall normally be assigned to the unit Maintenance Flight **(T-2)**. In the event the unit does not have a Maintenance Flight, the MXG/CC will determine who is best suited to execute the CDDAR Program **(T-2)**.

## 11.28.2. Responsibilities:

## 11.28.2.1. MAJCOMs will:

11.28.2.1.1. Ensure flying units maintain a CDDAR capability IAW 00-80C-1.

11.28.2.1.2. Designate a MAJCOM CDDAR OPR. As a minimum, the CDDAR OPR will:

11.28.2.1.2. (AFRC) MAJCOM OPR is HQ AFRC/A4M ([afrc.a4m@us.af.mil](mailto:afrc.a4m@us.af.mil)).

11.28.2.1.2.1. Standardize CDDAR equipment inventory accountability and reporting requirements by MDS for all on hand CDDAR equipment prescribed by TO 00-80C-1, allowance standard and applicable weapons system TOs across assigned units with active airfields/runways.

11.28.2.1.2.1.1. Review unit's annual CDDAR equipment inventories to identify and document equipment shortfalls.

11.28.2.1.2.1.2. Coordinate AS change request with the applicable AFMC AS activity IAW AFI 23-101.

11.28.2.1.2.1.3. Ensure excess CDDAR equipment is redistributed to fill internal shortfalls prior to units turning equipment into supply/DLADS as excess.

## 11.28.2.2. AETC will:

11.28.2.2.1. Develop, sustain, and administer the CDDAR training program.

## 11.28.2.3. AFMC will:

11.28.2.3.1. Provide approved tech-data outlining equipment procedures to safely respond and/or recover aircraft from a CDDAR event.

11.28.2.3.2. Provide timely engineering support to facilitate resolution of unique CDDAR events which cannot be resolved by existing tech-data.

11.28.2.3.3. Develop, manage, and maintain AS needed to sustain a weapon systems for peacetime and wartime operations IAW AFI 23-101.

## 11.28.2.4. WG/CCs responsible for active airfields/runways will:

11.28.2.4.1. Collaborate to develop a publication IAW AFI 33-360, that assigns specific responsibilities and procedures to implement a CDDAR program IAW TO 00-80C-1. (T-1).

11.28.2.4.1.1. The following additional references are to be used in developing the publication: AFI 10-2501, AFI 21-103, AFMAN 10-206, AFMAN 91-203, TO 00-105E-9, *Aerospace Emergency Rescue and Mishap Response Information* and this instruction.

11.28.2.4.2. Ensure CDDAR responsibilities and procedures are coordinated with Fire Emergency Services, Wing Safety, CES, LRS, SFS, MDS, OSS, and other on-/off-base agencies, as applicable. (T-1).

11.28.2.4.2. (AFRC) AFRC host bases will determine assignment of responsibilities for supporting Aero Club activities if there is an installation Aero Club (T-2). Ensure deployed unit CDDAR requirements are addressed when units deploy to AFRC host base locations (e.g. homeland defense alert aircraft) (T-2).

11.28.2.4.3. Ensure wings with GSU/auxiliary fields outline support requirements in their publication. (T-1).

11.28.2.4.4. (Added-AFRC) As required, ensure support agreements (SA) are established to support CDDAR requirements IAW AFI 25-201 (T-2). Wing Support Agreement Managers (SAM) will route SAs to the MAJCOM SAM at [afrc.a4r@us.af.mil](mailto:afrc.a4r@us.af.mil) (T-2).

11.28.2.5. MXG/CC or equivalent will:

11.28.2.5.1. Ensure CDDAR mobility UTC equipment requirements are available to deploy and accounted for on an AS (if applicable). (T-1).

11.28.2.5.2. In coordination with the MSG/CC, determine unit vehicle/equipment requirements beyond those authorized in the AS(s) to provide 24/7 CDDAR response/runway clearing capability. (T-1). Units must identify vehicles and SE designated to support CDDAR recovery in a local publication to ensure 24-hour availability. (T-2).

11.28.2.5.2. (AFRC) When AFRC host base vehicle organizations cannot support heavy equipment requirements such as cranes and/or semi tractors and trailers, the CDDAR Team Chief, in conjunction with the AFRC base vehicle transportation office, must establish procedures to gain this support from local suppliers IAW lease procedures established in AFI 32-302, *Vehicle Management* (T-2).

11.28.2.5.3. Ensure as a minimum, units with a CDDAR requirement possess sufficient equipment to accomplish a recovery of the assigned MDS aircraft. (T-1).

11.28.2.5.3. (AFRC) Units will maintain the minimum CDDAR bag/manifold requirements outlined in **Table 11.3** (T-2). A CDDAR bag consists of 5 segments. Before ordering replacement bags/manifolds or turning in excess bags/manifolds, contact HQ AFRC/A4M ([afrc.a4m@us.af.mil](mailto:afrc.a4m@us.af.mil)) to determine if assets can be redistributed within the MAJCOM (T-2).

**Table 11.3. (Added-AFRC) Minimum CDDAR Bag/Manifold Requirements (T-2).**

MDS	15 Ton Bag Requirement	26 Ton Bag Requirement	Manifold Requirement
A-10	4	0	4
F-16	4	0	4
F-35	4	0	4
HH-60	0	0	0
C-5	0	8	8

C-17	0	6	6
C-40	0	4	4
C-130	0	4	4
KC-46	0	6	6
KC-135	0	6	6
B-52	0	6	6

11.28.2.5.3.1. **(Added-AFRC)** Provide adequate weather proof storage for all recovery equipment **(T-2)**.

11.28.2.5.4. Establish an IFE response capability. **(T-1)**.

11.28.2.5.4. **(AFRC)** In-flight emergency (IFE) response capability is normally assigned to the AMXS. MXG/CC may determine to assign IFE response capability elsewhere based upon unit or mission requirements.

11.28.2.5.4.1. **(Added-AFRC)** The MXG/CC will determine minimum IFE response requirements **(T-2)**.

11.28.2.5.5. Participate in CDDAR training exercises. **(T-1)**.

11.28.2.5.5. **(AFRC)** Ensure all host or tenant (as applicable) units participate in at least one exercise annually with the host unit **(T-2)**. Tenant units will coordinate with the host unit for exercises **(T-2)**.

11.28.2.5.6. Manage base level CDDAR equipment to minimize duplication of resources. **(T-1)**.

11.28.2.5.7. Ensure an annual CDDAR equipment inventory is completed and an inventory report containing CACRL inventory of CDDAR equipment that indicates excess or shortage items is completed, signed by MXG/CC or equivalent and sent to the MAJCOM CDDAR OPR, NLT 30 Sep. **(T-1)**.

11.28.2.5.7. **(AFRC)** Send CDDAR equipment inventories to ([afrc.a4m@us.af.mil](mailto:afrc.a4m@us.af.mil)). Equipment inventories will consist of CA/CRL items and equipment locally purchased at \$5,000 and above **(T-2)**. Submit inventories NLT 30 June **(T-2)**.

11.28.2.5.8. **(Added-AFRC)** Appoint a CDDAR Team Chief and alternate in writing **(T-2)**. Add to the SCR as required by [Table 11.1](#) **(T-2)**.

11.28.2.5.9. **(Added-AFRC)** Semi-annually, ensure a CDDAR program status review with the WG/CC, MXG/CC, and the CDDAR Team Chief **(T-2)**. The CDDAR Team Chief will address any deficient areas of the CDDAR program, funding requirements, and equipment shortfalls **(T-2)**. The WG/CC should be made aware of any obstacles presented by agencies outside of the MXG for a viable CDDAR program. The CDDAR Team Chief will document these reviews **(T-2)**.

11.28.2.6. CDDAR Team Chief and alternate will:

11.28.2.6.1. Be designated as the unit's subject matter expert on aircraft recovery operations and equipment and will be thoroughly familiar with and perform their Team Chief duties IAW TO 00-80C-1. **(T-1)**.

11.28.2.6.2. **(Added-AFRC)** CDDAR Team composition and training requirements. The unit CDDAR Team will consist of primary and secondary team members **(T-2)**.

11.28.2.6.2.1. **(Added-AFRC)** Primary team members are those individuals who will have the primary responsibility of responding to a CDDAR event for the purpose of recovering the aircraft. Primary team members shall attend initial training at the AETC formal training course IAW TO 00-80C-1, and annual training thereafter IAW the CDDAR Team Chief developed unit training plan **(T-2)**. Primary team members will participate in annual exercises **(T-2)**.

11.28.2.6.2.2. **(Added-AFRC)** Secondary team members are those members who would respond to a CDDAR event as required to assist the primary team with the recovery. Secondary team members will be trained IAW the CDDAR Team Chief developed initial and annual training plan **(T-2)**. Secondary team members will participate in annual exercises **(T-2)**.

11.28.2.6.3. **(Added-AFRC)** Develop, in coordination with Maintenance Training, course control documents for CDDAR initial and annual training **(T-2)**. Develop, IAW TO 00-80C-1, a local training plan and Job Qualification Standard (JQS) that addresses technical order requirements, local conditions, and training/certification requirements for each CDDAR team position **(T-2)**. A sample training guide to aid units in developing their training plan is available on the HQ AFRC/A4M AF Portal page at [https://www.my.af.mil/gcss-af/USAF/ep/contentView.do?contentType=AF\\_MULTIMEDIA&contentId=cA4057E1F2F99DB88012F9CFFCFE80303&channelPageId=s6925EC1351370FB5E044080020E329A9&programId=tA4057E1F2F99DB88012F9CFAA1EA0301](https://www.my.af.mil/gcss-af/USAF/ep/contentView.do?contentType=AF_MULTIMEDIA&contentId=cA4057E1F2F99DB88012F9CFFCFE80303&channelPageId=s6925EC1351370FB5E044080020E329A9&programId=tA4057E1F2F99DB88012F9CFAA1EA0301).

11.28.2.6.4. **(Added-AFRC)** Ensure all recovery equipment is inspected for serviceability and inventory all recovery equipment to include air bags, manifolds, jacks, slings, shoring, etc., before and after each exercise and use **(T-2)**. Periodic equipment inspections must be accomplished IAW intervals established in TOs or annually, if no TO intervals have been identified **(T-2)**. Perform operational checks IAW applicable directives during exercises and/or inventory reviews **(T-2)**. Document inspections and maintenance IAW 00-20-1 **(T-2)**.

11.28.2.6.5. **(Added-AFRC)** Conduct annual classroom and hands-on training **(T-2)**. Training, accomplished through a combination of classroom academics and practical hands-on training events with equipment, is how CDDAR team members prepare for CDDAR activities. Classroom and hands on training shall be a separate event from CDDAR exercises **(T-2)**.

11.28.2.6.6. **(Added-AFRC)** Develop and exercise multiple scenarios to be as realistic as possible to simulate an actual CDDAR event **(T-2)**. Exercises are essentially rehearsals of the entire operation that enable everyone to practice what they have trained for in a realistic environment. Coordinate with the wing's Readiness and Emergency Management Office before exercises to encourage maximum wing

participation (T-2). Exercises shall be a separate event than classroom and hands-on training events (T-2). Document after action reports and suspense corrective actions (T-2).

11.28.2.6.7. (Added-AFRC) At host base locations, ensure CDDAR program addresses procedures for transient aircraft that most frequent the base (T-2).

**11.29. Aircraft Battle Damage Repair (ABDR).** ABDR is an effective force multiplier contributing to wartime sortie production by assessing and repairing battle damaged aircraft rapidly to support flying operations. ABDR repairs will be accomplished during contingency or wartime only. However, weapons system program managers may approve ABDR repairs during peacetime on a case-by-case basis using trained ABDR Technicians.

11.29.1. Responsibilities:

11.29.1.1. The Directorate of Logistics (AF/A4L) will provide overall policy and guidance for the USAF ABDR Program.

11.29.1.2. AFMC will:

11.29.1.2.1. Assume management responsibility for USAF ABDR Programs.

11.29.1.2.2. Publish a MAJCOM instruction to implement the ABDR requirements contained in this instruction.

11.29.1.2.3. Develop and manage ABDR policy for pre-positioning of tools, materiel kits, related SE, and management of ABDR training aircraft.

11.29.1.2.4. Support development and publication of ABDR TOs for new weapon systems.

11.29.1.2.5. Maintain ABDR UTCs for AFMC organizations.

11.29.1.2.6. Plan for and develop capability to repair battle/crash damaged aircraft.

11.29.1.2.6.1. Ensure plans include procedures to add additional repair capabilities into operating locations and provide aircraft evacuation alternatives.

11.29.1.2.7. Plan, program, and submit ABDR funding requests.

11.29.1.2.8. Maintain 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.

11.29.1.2.9. Provide support in determining technical requirements, repair techniques, repair materials, assessment aids and Research & Development (R&D) efforts.

11.29.1.2.10. Manage TO 1-1H-39, *Aircraft Battle Damage Repair General Technical Manual*, and the engineering handbook for ABDR engineers and support initiatives to develop, publish, and maintain weapon system-specific –39 TOs.

11.29.1.2.11. Ensure the status of aircraft permanently grounded for ABDR training is reported IAW AFI 21-103.

11.29.1.2.12. Establish Aircraft Battle Damage Evaluator training program, manage course documentation and provide training to MT Instructors as required. (T-1).

## 11.29.1.3. MAJCOMs will:

11.29.1.3.1. Establish a command focal point to work ABDR issues with AFMC.

11.29.1.3.2. In conjunction with AFMC, develop a command ABDR Concept of Operations and ensure Concept of Operations covers unit plans for repair of battle/crash damaged aircraft during combat operations.

11.29.1.3.3. Address ABDR in mission need statements for new weapon systems that support or engage in combat operations. **(T-1)**.

11.29.1.3.4. Incorporate ABDR in command war planning documents.

11.29.1.3.5. Task AFMC ABDR UTCs to support OPLANs. **(T-1)**.

11.29.1.3.6. Develop plans for the reception and employment of AFMC ABDR teams at the onset of hostilities. **(T-1)**.

11.29.1.3.7. Formalize integration and bed down requirements in applicable BSP IAW AFI 10-404.

11.29.1.3.8. USAFE and Pacific Air Forces (PACAF) will store and maintain serviceability, accountability and status reporting to include Financial Improvement and Audit Readiness reporting of AFMC owned and provided WRM ABDR trailers IAW established procedures. **(T-1)**.

11.29.1.3.9. Provide unit level weapon-system-specific tools (other than common hand tools) and equipment needed to repair battle/crash damaged aircraft.

11.29.1.3.10. Provide technical support to the ABDR Technical Support Office for live fire or similar testing.

## 11.29.1.4. Unit Responsibilities. Units will:

11.29.1.4.1. Utilize trained Aircraft Battle Damage Evaluators to evaluate aircraft battle damage and mishap damage sustained during combat or contingency operations. **(T-3)**.

11.29.1.4.2. 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. **(T-3)**.

11.29.1.4.3. Ensure aircraft battle damage is documented on an AFTO Form 97, *Aerospace Vehicle Battle Damage Incident Debrief/Assessment/Repair Record* or AFTO Form 97B, *Aircraft Battle Damage Evaluator Checklist* as required IAW TO 1-1H-39. **(T-1)**. Completed forms will be forwarded to the Aircraft Battle Damage Repair Program Office. **(T-1)**. CLASSIFIED messages must be sent to SIPR: [usafsaf.wright-patt.afsc-lg.mbx.afsc-lgpm-abdr-tso@mail.smil.mil](mailto:usafsaf.wright-patt.afsc-lg.mbx.afsc-lgpm-abdr-tso@mail.smil.mil) and UNCLASSIFIED messages must be sent to NIPR: [afsc.lgpm.abdrtsso@us.af.mil](mailto:afsc.lgpm.abdrtsso@us.af.mil) for filing in the historical archives. **(T-1)**.

## 11.29.1.5. Aircraft Battle Damage Evaluator/Training:

11.29.1.5.1. Aircraft Battle Damage Evaluator training provides MXG/CC's with ABDR knowledgeable forces and prepares units to execute Air Tasking Orders in a



denied airspace with potential heavy losses. Aircraft Battle Damage Evaluator roles and responsibilities are outlined in TO 1-1H-39.

11.29.1.5.2. Maintenance Supervision will determine the proper mixture of personnel to attend Aircraft Battle Damage Evaluator training from: 2A3, 2A5, 2A6, 2A773, QA and Production personnel. **(T-3)**.

11.29.1.5.3. Aircraft Battle Damage Evaluator formal training will be IAW the approved ABDR course control documents. **(T-1)**.

11.29.1.5.4. Aircraft Battle Damage Evaluators will complete refresher training every 24 months. **(T-1)**.

11.29.1.5.5. Course documents and instructor training is provided by the ABDR Technical Support Office NIPR, and can be requested at: [afsc.lgpm.abdrts@us.af.mil](mailto:afsc.lgpm.abdrts@us.af.mil).

### **11.30. Egress/Cockpit Familiarization Training.**

11.30.1. All non-egress personnel who access aircraft cockpits with egress systems maintained and managed by 2A6X3 Egress Systems personnel must complete initial and refresher familiarization training. **(T-1)**.

11.30.1.1. As a minimum, initial and refresher egress/cockpit familiarization training will include location and installation procedures of egress system safety devices, cockpit entry/exit procedures, procedures for determining whether or not an egress component is expended, emergency procedures associated with an expended egress component, and local maintenance concerns identified by the egress work center supervisor. **(T-2)**.

11.30.1.2. 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. **(T-1)**.

11.30.1.3. Personnel not requiring initial training will attend refresher training when they become due. **(T-1)**.

11.30.1.4. Initial egress familiarization training will normally be hands-on using an aircraft. **(T-1)**.

11.30.1.4.1. Due to the diverse egress systems across all weapon systems, units desiring to use an aircraft maintenance trainer in lieu of an aircraft must submit a request from the MXG/CC to the MAJCOM for approval/disapproval. Approving MAJCOM must coordinate with the MDS lead command to ensure no technical/other mitigating factors exist and to provide transparency. **(T-2)**.

11.30.1.4.1. **(AFRC)** Send requests to HQ AFRC/A4MA ([afrc.a4ma@us.af.mil](mailto:afrc.a4ma@us.af.mil)).

11.30.1.5. Refresher familiarization training will be conducted annually using an aircraft, maintenance trainer or media, which is approved and designated by the egress work center supervisor. **(T-1)**.

11.30.1.5.1. Non-egress personnel may administer training media (slideshow/video) during refresher familiarization training.

11.30.1.5.2. Direct students to the egress section if technical assistance is required and/or questions are raised concerning course subject matter.

11.30.1.6. Only egress personnel, certified on assigned egress system(s), will conduct initial egress familiarization training. **(T-1)**. Exception: MT personnel may conduct this training provided they are currently certified to perform egress maintenance.

11.30.1.7. Training media must meet approval of the 2A6X3 AFSC MAJCOM Functional Manager (MFM) or current media produced by the 367 Training Support Squadron listed on the Defense Imagery at <http://www.defenseimagery.mil>. **(T-1)**.

11.30.1.7. **(AFRC)** Send requests for approval to HQ AFRC/A4MA ([afrc.a4ma@us.af.mil](mailto:afrc.a4ma@us.af.mil)) **(T-2)**.

11.30.1.8. Individuals overdue for annual egress familiarization training will not access aircraft cockpits until they complete familiarization training. **(T-1)**.

11.30.1.9. Units with unique, experimental, or test aircraft requirements.

11.30.1.9.1. If training courses are not available through AETC, units must use interagency training before considering non-government training sources. **(T-1)**.

11.30.1.9.1.1. If courses in both of these sources are not available, units will establish a documented training program that meets the intent of this instruction. **(T-1)**.

11.30.1.9.1.2. Training will be conducted by the most qualified personnel and must be approved by the MFM prior to implementation. **(T-1)**.

11.30.2. MAJCOMs in coordination with the applicable lead command will identify emergency aircraft egress/evacuation training and frequency requirements in their supplement to this AFI for personnel assigned to weapon systems that do not have aircraft egress systems maintained and managed by 2A6X3 personnel.

### **11.31. Aircraft Defensive Systems Loading Program.**

11.31.1. Aircraft Defensive Systems Loading Program provides instruction required to install/remove chaff/flare on unique mission aircraft in units where there are no 2W1 AFSC authorizations assigned.

11.31.1. **(AFRC)** AFRC owned C-5, C-17, and C-130 (to include the 920th RQW HC-130s) unit equipped units are approved to install/remove chaff/flare **(T-2)**.

11.31.2. Authorized units will establish a program to train and qualify personnel to perform these tasks IAW procedures outlined in AFMAN 21-201 and this **Chapter**. **(T-1)**.

11.31.3. Units will work with the installation Weapon System Manager (WSM) and Airfield Operations Flight to develop written instructions for handling chaff/flare-loaded aircraft IAW AFMAN 91-201 and AFI 91-202. **(T-1)**.

11.31.3.1. As a minimum, written instructions will include procedures for launch/recovery/parking of chaff/flare-loaded aircraft; chaff/flare storage and transportation; and partially ejected flares and minimum requirements outlined in AFMAN 91-201. **(T-1)**.

11.31.4. The MXG/CC will appoint 7-skill or 9-skill level individual with maintenance AFSC as the Weapons Task Qualification Manager (WTQM). **(T-1)**. **Note:** Units with 2W1 AFSCs assigned will comply with training/qualification requirements in **Chapter 10** of this instruction. **(T-1)**.

11.31.5. WTQM and Weapons Task Qualification Crew (WTQC) responsibilities. The WTQM/WTQC provide oversight of chaff/flare loading operations to ensure they are conducted safely by providing initial and recurring load training, serving as the focal point for all chaff/flare loading issues, and observing loading operations during training. The WTQM and WTQC will not participate in load operations during training. **(T-1)**.

11.31.5.1. WTQM. The WTQM typically holds a 2A871X AFSC; however, other flightline personnel with the 2AX7X AFSC may perform this function. The WTQM develops and oversees the chaff/flare loading standardization program, sets standards, and develops local policies and procedures. The WTQM will be tracked on the SCR. **(T-1)**. The WTQM will:

11.31.5.1.1. Receive initial and recurring load qualification training from a WTQC and maintain currency on chaff/flare loading tasks. **(T-1)**.

11.31.5.1.2. Once trained and qualified, the WTQM will develop and administer the unit's chaff/ flare load training program and train/qualify home station WTQC personnel. **(T-1)**. **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. The WTQM will:

11.31.5.1.2.1. Ensure sufficient numbers of personnel are qualified to load chaff/flare to support the unit's mission requirements. **(T-1)**.

11.31.5.1.2.1.1. A course code will be loaded in the MIS to identify trained personnel and qualification status. **(T-1)**.

11.31.5.1.2.2. Establish time standards for initial and recurring loading tasks. **(T-1)**.

11.31.5.1.2.2.1. Lead wings will develop time standards for each MDS for qualification purposes. **(T-1)**.

11.31.5.1.2.2.2. 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.

11.31.5.1.2.3. As a minimum, the WTQM will identify the number of qualified personnel, names and employee numbers, MDS qualification, Defensive Systems, equipment type, qualification date, and date(s) recurring training is due. **(T-1)**.

11.31.5.1.2.4. The WTQM will select, train, evaluate, and qualify a minimum of two personnel as the WTQC on safe and reliable munitions loading procedures. **(T-1)**.

11.31.5.1.2.4.1. The WTQM will evaluate and re-certify WTQC members annually. **(T-1)**. WTQC members will be tracked on the SCR. **(T-1)**.

11.31.5.1.3. Review and approve/disapprove RCs that pertain to chaff/flare loading technical data. **(T-2)**.

11.31.5.1.4. Develop a local Task Assignment List by utilizing lead wing-developed MDS-specific Task Assignment Lists for use during training for all chaff/flare loading operations. **(T-1)**. A Task Assignment List is derived from applicable MDS munitions load checklist (TO 33-1-20-series) and identifies the load crew members' responsibilities by step.

11.31.5.1.5. Ensure chaff/flare loading CTKs are standardized to the maximum extent possible. **(T-1)**.

11.31.5.1.5.1. Chaff/flare loading CTKs must include all tools and equipment necessary to support applicable MDSs and AME configurations. **(T-1)**.

11.31.5.1.6. Coordinate the scheduling of personnel for chaff/flare load training. **(T-1)**.

11.31.5.1.6.1. The WTQM may delegate this duty to the WTQC.

11.31.5.1.7. Coordinate with PS&D, or the Regional Training Center, if applicable, to obtain chaff/flare dispensing system-equipped aircraft for training purposes. **(T-1)**.

11.31.5.1.8. Ensure training magazines match the characteristics and "feel" of live magazines (such as, weight, dimensions). **(T-2)**.

11.31.5.2. WTQC. 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-skill level technician with the 2AX7X AFSC. Initial training will be conducted using inert munitions. **(T-1)**. 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:

11.31.5.2.1. Provide personnel with initial and recurring load qualification training. **(T-1)**. One WTQC member will be required to conduct practical training. **(T-1)**.

11.31.5.2.2. Monitor personnel qualifications to ensure required academic and practical training is complete. **(T-1)**.

11.31.5.2.2.1. Disqualify individuals if recurring requirements are not met. **(T-1)**.

11.31.5.2.3. Spot-check personnel to evaluate proficiency. **(T-1)**.

11.31.5.2.3.1. The WTQC will disqualify personnel who violate safety, technical data, and reliability procedures, or fail to demonstrate proficiency. **(T-1)**.

11.31.5.2.4. Develop/coordinate training schedules and provide to PS&D for inclusion in the appropriate schedule (monthly, weekly). **(T-1)**. **Note:** Enroute WTQMs forward training requirements to the UTM, who coordinates for ground training aircraft with the Regional Training Center.

11.31.6. Training Requirements. Personnel are considered qualified upon successful completion of training provided by a qualified WTQC.

11.31.6.1. Initial qualification will be conducted using inert munitions. **(T-1)**.

11.31.6.2. Live munitions may be used during annual qualification to maintain currency. Load qualification training consists of academic and practical training.

11.31.6.3. Document the initial and recurring load qualification training requirements in the TBA. **(T-1)**.

11.31.6.4. Academic and practical training must be provided during initial and recurring load qualification training. **(T-1)**.

11.31.6.4.1. Academic training is required before practical training is accomplished. **(T-1)**.

11.31.6.4.2. Initial practical training must be completed within 14 days of successfully completing initial academic training. **(T-1)**.

11.31.6.4.2.1. Practical training should duplicate operational conditions as closely as possible.

11.31.6.4.3. Recurring practical task qualification is administered at least annually. **(T-1)**.

11.31.6.4.3.1. 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. **(T-1)**. **Note:** Weapons task qualification academic training may fulfill the requirements for explosive safety training if the requirements of AFI 91-202 are included.

11.31.6.5. Academic training is administered every 12 months. **(T-1)**. As a minimum, academic training will include:

11.31.6.5.1. Familiarization with chaff/flare loading publications, including TO 11A-1-33, MAJCOM and local procedures. **(T-1)**.

11.31.6.5.2. Aircraft and munitions familiarization. **(T-1)**.

11.31.6.5.3. Safety, security, and emergency procedures. **(T-1)**.

11.31.6.5.4. Support, test, handling equipment, and special tools familiarization. **(T-1)**.

11.31.6.5.5. Task Assignment Lists and aircraft specific 33-1-2 series TOs must be available at the load-training site. **(T-1)**. **Note:** Training course control documents will be coordinated annually through the Wing Safety and MT. **(T-1)**.

11.31.6.6. 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 (such as, cockpit switch locations). **(T-1)**.

11.31.6.6.1. The WTQM or WTQC will provide practical, on-aircraft training on these differences and document these qualifications for each dispensing system in the qualification status or equivalent system. **(T-1)**.

11.31.7. Disqualifying Chaff/Flare Load Personnel. Disqualification will be documented in the TBA and the qualification status system. **(T-1)**.

11.31.7.1. Although not all-inclusive, the following criteria constitute grounds for disqualifying personnel from chaff/flare loading duties:

11.31.7.1.1. Failing to complete recurring training.

11.31.7.1.2. Committing a safety or reliability error.

11.31.7.1.3. Lack of proficiency.

#### 11.31.8. Transient Aircraft.

11.31.8.1. Apply the following when working transient aircraft:

11.31.8.1.1. Under no circumstances will personnel attempt chaff/flare load operations without current technical data. **(T-1)**.

11.31.8.1.2. If current technical data is available, then qualified personnel may perform chaff/flare load operations. **(T-1)**.

11.31.8.1.3. If current technical data is available but no one is qualified on the transient aircraft type, then the MXG/CC (or Air Mobility Squadron (AMS)/CC at enroute locations) may authorize the WTQC or WTQM to de-arm and/or unload the aircraft.

11.31.8.1.3.1. The WTQM will submit a written request to the MXG/CC (or AMS/CC at enroute locations) identifying personnel selected to perform the task, aircraft type and (if applicable) number of aircraft to be de-armed and unloaded. **(T-1)**.

11.31.8.1.3.1.1. Approved requests will be maintained for 90 days. **(T-2)**.  
**Note:** This is a temporary, one-time authorization to facilitate required maintenance when qualified personnel are not available.

11.31.9. Identification of Chaff/Flare-Loaded Aircraft. Verify chaff/flare load status of aircraft by checking AFTO Form 781A/C before performing any maintenance.

11.31.9.1. Explosive placards are not required on AMC aircraft.

11.31.9.2. If an aircraft is loaded with chaff/flare, it will be safed IAW applicable technical data prior to performing any maintenance. **(T-1)**.

11.31.9.3. Before loading chaff/flares, review the AFTO Form 781C, *Avionics Configuration and Load Status Document*, for defensive systems inspection status. **(T-1)**.

11.31.9.3.1. If chaff/flare is loaded on aircraft, ensure/verify applicable MIS documentation requirements are completed. **Note:** Do not load chaff/flares if the aircraft is overdue a scheduled DS inspection.

#### 11.31.10. Tracking and Reconciliation of Chaff/Flare-Loaded Aircraft.

11.31.10.1. Expenditure tracking and processing will be handled by Munitions Personnel (2W0X1) IAW AFMAN 21-201, **Chapter 7**. **(T-1)**.

11.31.10.2. Munitions personnel will not use the direct input method to process flightline chaff/flare expenditures; all chaff/flare expenditures will be returned to the Munitions Storage Area (MSA) for verification by munitions personnel before processing expenditures in Combat Ammunition System. **(T-1)**.

11.31.11. Additional Requirements (as applicable).

11.31.11.1. Document DS software version data and aircraft inspections (such as, 90-, 120-, or 180-day checks) on AFTO Form 781C. **(T-1)**.

11.31.11.2. 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 (such as, ALE-47, OFP XXXX, MDF XXXX).

11.31.11.2.1. If a system contains multiple OFPs, list all applicable versions (such as, ALE-47, Programmer OFP XXXX, Sequencer OFP XXXX, MDF XXXX).

11.31.12. Chaff/Flare Build-up. Chaff/flare magazine build-up will only be accomplished by personnel with 2W0 AFSC or qualified contractors. **(T-1)**.

11.31.12.1. Units will only perform chaff/flare build-up in facilities/locations approved by the installation WSM IAW AFMAN 91-201. **(T-1)**.

11.31.12.2. Units must have an approved explosive site plan or explosives facility license on file with Wing Safety prior to initiating chaff/flare build-up or storage operations. **(T-1)**.

**11.32. Aircraft and Equipment Decontamination.**

11.32.1. Maintenance organizations need to have the Ability to Survive and Operate in a Chemical, Biological, Radiological, Nuclear and high-yield Explosives (CBRNE) environment and have the capability to decontaminate operational aircraft, vehicle, and SE.

11.32.2. Units will employ AF and locally-developed TTPs IAW AFMAN 10-2503, *Operations in a Chemical, Biological, Radiological, Nuclear, and High-Yield Explosive (CBRNE) Environment*. **(T-1)**.

11.32.2.1. TTPs provide the fundamental counter-chemical warfare (CCW) tools to survive to operate and maximize combat sortie generation capabilities in a CBRNE environment.

11.32.3. The following references in addition to MDS-specific technical data should be utilized when developing unit decontamination programs: AFMAN 91-203, AFI 10-2501, AFTTP 3-4, *Airman's Manual*, 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, *Decontamination Apparatus, Power Driven, Portable Type A/E32U-8, (Engineered Air)*.

**11.33. End-of-Runway (EOR) Inspection.**

11.33.1. EOR is MDS specific, PM directed inspection of aircraft systems identified in the Dash 6 TO or equivalent and published in Dash 6 work cards IAW TO 00-20-1. (N/A to aircraft that do not have an EOR -6 TO requirement).

11.33.2. If local requirements dictate, publish additional guidance to TOs for EOR inspections IAW TO 00-20-1, and TO 00-5-1. **Note:** Safing, arming, and de-arming of live munitions will be accomplished by personnel qualified IAW Chapter 4, 5, and 10 of this instruction.

11.33.2. (AFRC) POC for enrollment is HQ AFRC/A1KE, DSN 497-0265. POC for the course for HQ AFRC/A4 is HQ AFRC/A4R ([afrc.a4r@us.af.mil](mailto:afrc.a4r@us.af.mil)).

11.33.3. The EOR team chief (identified by a reflective vest) will carry an EOR checklist and ensures each item is inspected as required. (T-1). 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.

#### 11.34. Wing Avionics Manager (WAM).

11.34.1. WAM Duties and Responsibilities. The WAM will:

11.34.1.1. Be in the minimum grade of MSGT, 7 Level or equivalent and 2A Avionics AFSC. (T-3).

11.34.1.2. Act As the Wing Avionics Functional Manager. (T-1).

11.34.1.3. Serve as the maintenance group focal point for all avionics related interactions between PMs, MAJCOMs, Lead Commands, Wings, Operations and Maintenance or equivalent activities to discern and implement changes in avionics configuration requirements. (T-2).

11.34.1.4. Ensure RAMPOD updates are completed daily IAW AFI 21-103. (T-1).

11.34.1.5. Ensure classified pods/components and equipment are stored in authorized areas IAW AFI 16-1404. (T-1).

11.34.1.6. Ensure classified aircraft/Support/Test equipment are stored in authorized areas IAW AFI 16-1404. (T-1).

11.34.1.7. Meet quarterly with MXG Superintendent to review avionics manning status and ensure manning resources are strategically distributed to provide the greatest possibility for mission success. (T-2).

11.34.1.8. Serve as the MXG Identify Friend or Foe Program Manager IAW [Paragraph 11.11](#) of this publication. (T-2).

11.34.1.9. Serve as the MXG Radar Warning Receiver/Radar Threat Warning program manager IAW [Paragraph 11.12](#) of this publication. (T-2).

11.34.1.10. Serve as the MXG EW program manager and EW Integrated Reprogramming focal point. (T-2).

11.34.1.11. Serve as MXG focal point for external organizations 406 MHz Emergency Locator Transmitter Systems Program. (T-2).

11.34.1.12. Coordinate with the wing EW POC to ensure compliance with AFI 10-703, *Electronic Warfare Integrated Reprogramming*. (T-1).

11.34.1.13. Track wing assigned ECM, electronic attack and sensor pods, and associated support equipment. (T-2).

11.34.1.14. Coordinate all pod shipments as directed by MAJCOM to/from base or operating location. (T-2).



11.34.1.15. Track all incoming and outgoing pod parts and SE until received or arrived at destination. **(T-2)**.

11.34.1.16. Coordinate with Electronic Combat Pilot/Electronic Warfare Officer to ensure most current MDF to configure Radar Warning Receiver/Radar Threat Warning to meet mission requirements. **(T-2)**.

11.34.1.17. Serve as the MXG focal point for external organizations on all cybersecurity matters pertaining to aircraft interface equipment. **(T-2)**.

### **11.35. Fire Extinguisher Requirements.**

11.35.1. Coordinate with Fire Emergency Services Flight and Airfield Operations Flight to ensure required number of portable fire extinguishers are available for on and off installation operational requirements. Refer to AFMAN 91-203, TO 00-25-172, *Ground Servicing of Aircraft and Static Grounding/Bonding*.

### **11.36. Air Force Repair Enhancement Program (AFREP).**

11.36.1. The AFREP optimizes AF resources and repair capability of aerospace parts and equipment by increasing the wing-level (referred also as field-level) participation with the appropriate Program Office. This is accomplished by field-level identification and recommendation of candidates for reparability consideration by the appropriate PO.

11.36.1.1. The AFREP is an optional program. Maintenance personnel performing AFREP repairs, will perform the repair action only as an additional duty or as part of normal maintenance workload.

11.36.1.2. Unit leadership must verify mission benefit outweighs the cost and obtain MAJCOM AFREP Manager Approval prior to program implementation.

11.36.2. AFREP is repairing consumable/expendable items (XF3 and XB3). Repair Network is repairing XD2 (recoverable) and XF3 (field level/condemnable). The concept is to make recommendations to the PM of consumable/expendable items which the field-level has identified as desirable candidates to be considered for conversion to field-level repair, limited repair or even full depot-level repair, contract or organic as directed by the Depot Source of Repair process in AFI 63-101/20-101, in addition, ensure repair cost/benefit analysis takes into consideration the total costs to the AF as outlined in Air Force TO 00-20-3, *Maintenance Processing of Reparable Property and Repair Cycle Asset Control System*.

11.36.2.1. The approval authority to change the SMR/ERRC codes, or select, use, arrange for, contract with, qualify sources of repair, or authorize the initiation of any local or other repair action rests solely with the PM.

11.36.2.2. Repair Approval. The MXG/CC or equivalent will ensure all items being repaired by AFREP have been approved by the appropriate repair authority (such as, Program Manager or Program Office). **(T-1)**. IAW AFI 63-101/20-101, personnel must coordinate any operational change to the system, end item, modified configuration or maintenance procedure prior to implementation. For example, additional base-level repair or contract repair of any item beyond the provisions which already exist in field-level TOs. **(T-1)**.

11.36.2.3. Field-level personnel, including AFREP work centers, shall not contract out or arrange for repair services without prior written authorization by the PM and approval by the MAJCOM AFREP Manager. **(T-1)**. The PM responsible for the system or end item shall retain responsibility for making any decision stemming from such a recommendation. Field-level TOs do not give permission for local contract or off-base repair of any item, only on-base repair to the extent specified by the SMR code for a given item.

11.36.3. Operational Safety, Suitability & Effectiveness (OSS&E). OSS&E is an outcome of properly planned and applied systems engineering.

11.36.3.1. Organizations responsible for preserving OSS&E of AF systems or end items must ensure that operational use, configuration changes, maintenance repairs, aging, part substitutions, and similar activities and events do not degrade baselined characteristics of systems or end items over their operational life.

11.36.3.2. OSS&E is an integrated effort to ensure items are not allowed to degrade as a result of maintenance, repairs, parts substitutions, and similar activities.

11.36.3.2.1. The program manager is responsible for the assurance of OSS&E throughout the life cycle of each configuration of each component of each system. Only the PM may convert an item from non-repairable to repairable.

11.36.4. Requirements. Given authorized repair of a consumable/expendable item, the PM will determine the SMR/ERRC code validity. All resulting changes are linked with Supply Chain Manager Consideration for that item.

11.36.4.1. Supply Chain Management issues must be considered as a matter of law, given these issues affect Congressionally Authorized budget authority and funds allocated to accomplish specifically different supply chain functions (spares buys versus repairs).

11.36.4.1.1. Any personnel, organization or AFREP work center may request SMR/ERRC code changes IAW TO 00-25-195 and AFH 23-123, Volume 2, **Part 2, Integrated Logistics System-Supply (ILS-S), Standard Base Supply System Operations, Chapter 8**.

11.36.4.2. Non-repairable (XB3) assets submitted to PM for repair approval will contain RC (SMR/ERRC change) IAW TO 00-25-195 and a MAJCOM published form for the AFREP Vendor Repair Approval that will include all supply data, full justification and test/repair procedures. This document will be reviewed by the MAJCOM AFREP Manager IAW **Paragraph 11.36.8** of this instruction. **(T-2)**.

11.36.4.3. Repairable (XF3) assets submitted to PM for vendor repair approval will be submitted on MAJCOM published form. The form must contain all current vendor certifications and governing technical procedures utilized for test/repair by vendor. This document will be reviewed by MAJCOM AFREP Manager and signed off.

11.36.5. Asset Turn-In. Items repaired IAW technical data will be turned in to the supply system following guidance in AFMAN 23-122 and TO 00-20-3. **(T-1)**.

11.36.6. AFREP Reporting Instructions: Wing AFREP Managers will provide quarterly updates to the MAJCOM AFREP Manager. **(T-1)**.

11.36.6.1. MAJCOM AFREP Managers will report yearly activity updates from October 1 to September 30 and file their yearly report with AF/A4LM by 15 October.

11.36.6.1.1. The quarterly/yearly updates will include at a minimum the nomenclature of items repaired, total cost, and total amount saved for each item.

11.36.7. AF/A4L Roles and Responsibilities.

11.36.7.1. Prepares, publishes and reviews AF-level policy and guidance for AFREP.

11.36.7.2. Perform annual program analysis to verify mission benefits outweigh costs.

11.36.8. MAJCOM AFREP Manager Responsibilities.

11.36.8.1. Administer/manage the MAJCOM AFREP in coordination with the applicable Program Office.

11.36.8.2. Perform annual analysis on program viability.

11.36.8.3. Mandate use of Program Office/selection authority criteria guidance and recommendations related to maintenance, supply, and repair sources.

11.36.8.4. Designate a focal point within the applicable Program Office for the MAJCOM and end users to contact regarding AFREP recommendations and OSS&E issues.

11.36.8.5. Establish a process to identify candidate items for submission to Program Office for consideration.

11.36.8.5.1. At a minimum, process will ensure base AFREP certifies the candidate item is beyond repair from all applicable on-base organic maintenance work centers/back shops. Certification must be documented (email, log book). Parts coded direct NRTS are exempt from this requirement. **(T-2)**.

11.36.8.6. Establish and maintain an AFREP Program Office submission and status tracking web-site.

11.36.8.7. Compile annual program cost benefit analysis information and forward to AF/A4L.

11.36.8.8. Provide Program Office repair recommendations for evaluation and track their status (**Part I** identification, initiation date, submittal date, closure date).

11.36.8.9. Maintain, update and distribute a list of Wing/Unit AFREP POCs to include representatives from other agencies (such as, DLA, ALCs, MAJCOMs).

11.36.8.10. Review/Validate Wing/Unit SMR/ERCC requests IAW TO 00-25-195 and TO 00-20-3 prior to submission to the applicable Program Office for evaluation/approval.

11.36.8.11. Validate items are approved for contract repair for strategic sourcing opportunities.

11.36.8.12. Initiate the opportunity assessment of strategic sourcing candidates when deemed appropriate or when requested by the Program Office.

11.36.8.13. Provide quarterly MAJCOM cross-tell of AFREP repairs to Base/Center AFREP managers. The minimum data will include nomenclature, total cost, and total amount saved for each item across the MAJCOM.

### 11.36.9. Wing/Unit Responsibilities:

11.36.9.1. Participate in AFREP when approved by the MAJCOM AFREP Manager. **(T-1)**.

11.36.9.1.1. MXG/CC or equivalent will assign a unit AFREP Manager. **(T-1)**.

11.36.9.1.2. MXG Superintendent will ensure AFREP Manning Positions are categorized as an additional duty and not listed as positions on the MXG UMD. **(T-1)**.

### 11.36.10. Wing/Unit AFREP Manager Responsibilities:

11.36.10.1. Submit SMR/ERRC change recommendations to the MAJCOM AFREP Manager for Program Office coordination. See TO 00-25-195, and this AFI. **(T-1)**. **Note:** Field-level TOs do not give authorization for local contract repair of any item, only on-base repair to the extent specified by the SMR code for a given item. AFREP or any other field level personnel will not perform repairs not authorized by technical data. **(T-1)**.

11.36.10.1.1. Workcenters participating in AFREP repairs will submit Critical Application Items (CAI) and Critical Safety Items (CSI) repair recommendations to the MAJCOM AFREP Manager for screening to determine appropriate PM for submission. **(T-1)**. **Note:** CAIs, CSIs, or elements of a system which the PM has designated as a CAI system or a CSI system are prohibited from consideration under the AFREP program unless otherwise approved by an authorized engineering authority.

11.36.10.1.1.1. All Electronic Warfare (EW) Systems are CAI-designated systems. Verify CAI and CSI items on the Joint Services Critical Item Data Viewer, located at: <https://remote3.amrdec.army.mil/csviewer/>. See **Attachment 2**, CAI & CSI for additional information.

11.36.10.1.2. Contractor repairs of any item are not allowed without prior written authorization from the PM and approval by the MAJCOM AFREP Manager. **(T-1)**. **Note:** AFREP work centers are prohibited from entering into repair source contractual/obligation relationships with contractors. DoD regulations exist to assign such actions (finding and qualifying repair sources) to the authorized engineering authority.

11.36.10.1.2.1. If contract repairs are authorized, contracts will be established IAW local contracting procedures. **(T-1)**.

11.36.10.1.3. The Wing/Unit AFREP Manager will ensure the SOW includes, as a minimum, the following items for contracted repairs:

11.36.10.1.3.1. Requirement for the contractor to perform/document receiving inspections. **(T-1)**.

11.36.10.1.3.2. Requirement for the contractor to inspect/test the item following repair. **(T-1)**.

11.36.10.1.3.3. Requirement for the contractor to provide a record of the repair and test results to the AFREP office and made available for the Government Inspector (such as, Defense Contract Management Agency (DCMA)). **(T-1)**.

11.36.10.1.3.4. Contract will specify expected shipping, transportation and repair-

estimate completion dates. **(T-1)**.

11.36.10.1.3.5. Repair items in accordance with Technical Data. **(T-1)**. **Note:** Restricted use of systems will result from use of components which have been repaired as described immediately above, without prior written authorization from the program manager.

11.36.10.1.3.6. Enter data into the AFREP Recommendation Submittal site: [https://usaf.dps.mil/sites/haf-a4/A4L/AF\\_A4LM/Policy/AFREP/SitePages/Home.aspx](https://usaf.dps.mil/sites/haf-a4/A4L/AF_A4LM/Policy/AFREP/SitePages/Home.aspx) The minimum data consists of a roll up AFREP repair total cost and will include:

11.36.10.1.3.6.1. Time expended coordinating PM approval for AFREP repair authorization. **(T-1)**.

11.36.10.1.3.6.2. Man hours to complete repair “labor hours”. **(T-1)**.

11.36.10.1.3.6.3. Nomenclature/Stock Number of part being repaired. **(T-1)**.

11.36.10.1.3.6.4. Total cost of item if sourced from the supply chain. **(T-1)**.

11.36.10.1.3.6.5. Total cost of tangible resources expended to complete AFREP repair (such as, wiring/consumables). **(T-1)**.

11.36.10.1.3.7. Assist technicians by interfacing with engineering, Equipment Specialists (ES), QA, Air Force Engineering Technical Services, and other field-level agencies. **(T-1)**.

11.36.10.1.3.8. Accumulate and forward data requested by MAJCOMs concerning AFREP. **(T-1)**.

11.36.10.1.3.9. Provides repair authorizations to the MXG QA PIM IAW AFI 21-101. **(T-1)**.

11.36.10.1.3.10. Ensure individuals assigned AFREP extra duties are trained, qualified and maintains a minimum five-skill level in their AFSC IAW AFI 36-2651. **(T-1)**.

11.36.10.1.3.11. Submit and monitors DR for deficiencies discovered during a Wing/Unit AFREP initiative, IAW TO 00-35D-54 or equivalent PM approved DR process. **(T-1)**.

11.36.10.1.3.12. Review daily Awaiting Parts (AWP) and MICAP lists from maintenance activities to determine if the AFREP office can recommend to the appropriate PO, items from those lists. **(T-1)**.

11.36.10.1.3.13. Provided quarterly AFREP repair updates to MXG/CC. The repair updates at a minimum will include nomenclature, total cost, and total amount saved for each item. **(T-1)**.

11.36.10.1.3.14. Establish collection points within unit supply sections for consumable/expendable items coded with ERRC XB3 to determine reparability of assets prior to permanent disposal.

### **11.37. Calibration Limitation Approval Certification Program.**

11.37.1. General. A limited TMDE calibration could seriously impact mission capability of weapon systems. All units will have a comprehensive training program to ensure authorized personnel can interpret TMDE calibration limitations to the specified requirement of the applicable weapon system. (T-1). Personnel will be certified IAW criteria established in **Table 11.1** of this instruction. (T-1). MXG/CCs may designate contractors in writing to authorize calibration limitations.

11.37.2. Responsibilities and Management. The MT or TD will be responsible for management and development of the calibration limitation approval training program. (T-2).

11.37.2.1. As a minimum, the course will include when to consider a limited calibration, impact of using improperly calibrated equipment, and how to apply calibration specifications to weapon system requirements. (T-1).

11.37.2.2. Prior to placement on the SCR, the calibration limitation approval training (MT or TD course) will be mandatory. (T-1).

11.37.3. MXG/CCs will appoint maintenance, TD, or PMEL personnel as instructors and ensure the following certification and proficiency requirements are tracked in the MIS by course code:

11.37.3.1. Formal training, calibration limitation approval course. (T-1).

11.37.3.2. Annual calibration limitation approval recertification. (T-1).

11.37.4. Certification Criteria. Certifying officials will be selected IAW criteria established in **Table 11.1** of this instruction. (T-1).

### **11.38. Oil Analysis Program (OAP).**

11.38.1. Program. Oil Analysis is the process of analyzing oil and other fluids used to lubricate or operate mechanical equipment, evaluating the condition of the fluid or the equipment from which the fluid originated, and recommending maintenance actions to the equipment operating activity. An OAP ensures timely and accurate oil analysis support through the strategic location of oil analysis laboratories and the standardization of procedures, data elements, analytical instrumentation and diagnostic techniques. The Joint Oil Analysis Program (JOAP) is a combined effort of the Army, Navy and AF to set-up and maintain a standard program. Oil analysis requires a centrally-managed program and the integration of AF OAP and JOAP plans.

11.38.2. Objectives. The overall objective of the AF OAP is to detect oil-wetted air and space equipment failures before serious malfunction or secondary damage occurs. The specific objectives of the AF OAP and JOAP programs are as follows:

11.38.2.1. Improve the operational safety, readiness and economy of military equipment through the use of on-board and off-board oil analysis, a condition-monitoring concept that relies on the detection and measurement of wear-metals in the fluid.

11.38.2.2. Collect and analyze oil analysis data in order to increase the effectiveness of oil analysis techniques in the diagnosis of potential equipment failures and lubricant condition; to provide wear metal and lubricant physical property data to the various weapons system managers and others, as required.

11.38.2.3. Ensure oil analysis plans and operations are integrated (where practical) to provide:

11.38.2.3.1. Standard laboratory techniques, procedures, data, calibration standards, and analytical instruments.

11.38.2.3.2. Inter-service oil analysis support to all military departments.

11.38.2.3.3. The most cost-effective means of determining the condition of lubricants, fluids, and mechanical system through the use of various analytical techniques.

11.38.3. Guidance. The OAP helps aircraft technicians and supervisors to make informed, condition-based, preventive maintenance decisions, and can reduce equipment costs, increase equipment availability, and reduce in-flight risk. This is primarily achieved by monitoring the concentration of wear metals in fluids used to lubricate or power mechanical systems.

11.38.3.1. To monitor engine health, the OAP uses a variety of testing mechanisms. These include:

11.38.3.1.1. Atomic Emission spectrometric wear metal analysis.

11.38.3.1.2. Magnetic Chip Detectors/Magnetic Chip Detectors with on-board sensors.

11.38.3.1.3. Scanning Electron Microscope/Energy Dispersive X-ray system technology.

11.38.3.2. To the extent deemed cost effective, EOT shall be used as the standard time interval between oil analysis sampling when in-service engines are equipped with an Engine Monitoring System or other operating time recorders.

11.38.3.2.1. For engines without Engine Monitoring System or other operating time recorders, oil analysis trending intervals will be standardized based upon Engine Flying Hours.

11.38.3.3. Analyze oil samples from transient aircraft IAW applicable technical data and owning activity requirements.

11.38.3.3.1. For transient aircraft with an EMS, at bases without the capability to download EOT data, Engine Flight Hours shall be used to continue oil analysis trending.

11.38.3.4. Responsible activities must ensure the resultant data is accurate and given promptly to all customers so they can effectively monitor the condition of their equipment.

11.38.3.4.1. AF OAP laboratories will evaluate response times to optimize support of the customer. **(T-2)**. Evaluation frequency is established by MAJCOM supplemental guidance.

11.38.3.4.2. **(Added-AFRC)** Sample response time should be two and one half-hours for one and two engine aircraft; four hours for engine ground/trim and Test Cell runs; and five hours for all other aircraft **(T-3)**. MXG/CC may adjust the sample response time as needed to accommodate flying windows.

11.38.3.5. Laboratory operation.

11.38.3.5.1. Each OAP laboratory must be certified IAW TOs 33-1-37-1/-2. (T-1).

11.38.3.5.2. Seek to maximize inter-service use of existing laboratories through laboratory consolidation, workload sharing, and use of standardized instrumentation, techniques and procedures. (T-1).

11.38.3.5.3. AF OAP laboratories must provide oil analysis services at no charge for all US Government, North Atlantic Treaty Organization (NATO) and friendly Foreign Military Sales aircraft. These services include analyzing oil samples from transient aircraft IAW applicable technical data within the AF OAP laboratory capabilities. (T-1).

#### 11.38.4. Roles and Responsibilities

11.38.4.1. AF/A4L is the chief Air Staff agency with policy responsibility for the maintenance of air and space equipment.

11.38.4.1.1. Guidance. Prepares, publishes and reviews AF-level policy and guidance for the AF OAP.

11.38.4.1.1.1. Coordinates with MAJCOMs to review and resolve guidance-related issues.

11.38.4.1.2. Management. Designates a POC for AF OAP. The representative shall manage this publication while closely coordinating with functional experts.

11.38.4.1.2.1. Works with AF representative to the JOAP-Coordinating Group (CG) on policy issues.

11.38.4.2. Major Command. Each MAJCOM establishes a headquarters POC for complying with MAJCOM OAP responsibilities.

11.38.4.2. (AFRC) AFRC/A4M ([afrc.a4m@us.af.mil](mailto:afrc.a4m@us.af.mil)) is the MAJCOM POC (T-2).

11.38.4.2.1. Establishes or relocates OAP laboratories to support MAJCOM mission. Coordinates establishment or relocation with the AF OAP Manager.

11.38.4.2.2. Ensures quality deficiency reports are submitted to the unit Product Improvement Manager IAW TO 00-35D-54. DRs must be submitted to engine program offices on all equipment requiring tear down or overhaul due to an OAP laboratory maintenance recommendation and on all oil-wetted component failures where no OAP laboratory maintenance recommendation was made.

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

11.38.4.2.4. Ensures laboratories process and evaluate samples IAW TO 33-1-371/- 2.

11.38.4.2.5. Ensures proper training of AF OAP laboratory technicians. This includes identifying training requirements to the AETC.

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

11.38.4.2.7. Provides guidance necessary to execute the AF OAP and ensures all subordinate organizations understand and properly execute AF OAP and JOAP



responsibilities. MAJCOMs/ANG may provide additional guidance in their supplements or addendums to this AFI as required.

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

11.38.4.2.9. Supports equipment evaluations and field surveys for the AF OAP Office.

11.38.4.3. Air Force Materiel Command (AFMC). AFMC is the lead MAJCOM for the AF OAP and AF participation in the JOAP. AFMC is also responsible for oil analysis Research, Development, Test and Evaluation (RDT&E). The Directorate of Logistics, Civil Engineering, Force Protection, and Nuclear Integration (AFMC/A4/10) is the headquarters office of primary responsibility for AF OAP guidance coordination and implementation within AFMC.

11.38.4.3.1. Propulsion Directorate.

11.38.4.3.1.1. Sustainment Chief Engineer represents the AF on the JOAP-Executive Committee.

11.38.4.3.1.1.1. Establishes, funds, staffs and directs the AF OAP Office.

11.38.4.3.1.2. The Development Program Manager ensures specification guidance for oil analysis sampling provisions or other appropriate measures to detect oil-wetted failures, where applicable, are included during the design phase.

11.38.4.3.1.3. AF OAP Office, AFLCMC/LP. The AF OAP Office manages the AF OAP, and in coordination with the MAJCOMs and propulsion community, leads AF participation in the JOAP.

11.38.4.3.1.3.1. Certifies/decertifies AF OAP laboratories for participation in the JOAP.

11.38.4.3.1.3.2. Maintains a list of AF OAP laboratories, equipment and customers.

11.38.4.3.1.3.3. Assists MAJCOM/Center managers in program execution. This includes recommending the establishment, location, and relocation of AF OAP laboratories.

11.38.4.3.1.3.3.1. Communicates AF OAP objectives, policies and procedures to the Director of Propulsion, Engine OAP Managers, equipment specialists and program managers.

11.38.4.3.1.3.3.2. Evaluates the need for and performs special studies, as requested by the MAJCOMs or depots.

11.38.4.3.1.3.3.3. The AF OAP Office should periodically conduct laboratory assistance/assessments to determine adequacy and effectiveness of the AF OAP. Identifies problems and recommends solutions.

11.38.4.3.1.3.4. Establishes and manages a data system, meeting tri-service requirements, to evaluate AF OAP participation and effectiveness and to provide engine program offices with historical data on oil sample analysis

results.

11.38.4.3.1.3.5. Coordinates and consolidates AF/MAJCOM requirements with Army/Navy to ensure, where practical, the procurement of common OAP equipment.

11.38.4.3.1.3.6. Represents the AF on the JOAP-CG.

11.38.4.3.1.3.7. Develops a comprehensive OAP laboratory certification and quality control program.

11.38.4.3.1.3.8. Maintains and provides AF inputs to TOs 33-1-37-1/-2/-3/-4, *JOAP Manual*.

11.38.4.3.1.3.9. Reviews and evaluates the JOAP school curriculum.

11.38.4.3.1.3.10. Assists the Engine OAP Manager and serves as an advisor for the engine Maintenance Planning Working Group (MPWG) for OAP issues.

11.38.4.3.2. Director of Propulsion (DOP). The DOP AFLCMC/LP in conjunction with Engine Single Managers at AFLCMC/LPS, AFLCMC/LPA and the AF OAP Office assess existing/potential oil analysis technologies. The DOP also ensures wear metal debris and oil analysis is an integral part of the Engine Health Management Program. The DOP appoints Engine OAP Managers for each AF managed engines.

11.38.4.3.2.1. Engine OAP Managers. The Engine OAP Manager is the engineer in charge of a particular engine and is solely responsible for the OAP-related issues on that particular engine.

11.38.4.3.2.1.1. Serves as the focal point for the engine MPWG for OAP issues, provides the guidance necessary to accomplish engine-specific oil analysis.

11.38.4.3.2.1.2. Ensures expeditious handling of equipment returned for tear down or overhaul because of an OAP laboratory maintenance recommendation or where oil analysis results indicated a potential problem.

11.38.4.3.2.1.3. Provides guidance necessary to accomplish engine-specific oil analysis. Provides updates for TOs 33-1-37-1/-2/-3/-4 to the OAP Office.

11.38.4.3.2.1.4. Provides accurate and timely feedback to the MPWG and field units on OAP-monitored equipment. This includes maintenance findings on equipment in for tear down or overhaul as a result of an OAP laboratory maintenance recommendation. It also includes failure reports and related wear metal and oil analysis data on oil-wetted components where no OAP laboratory maintenance recommendation was made.

11.38.4.3.2.1.5. Works with the MPWG to establish and maintain wear metal limits, diagnostic criteria and other oil analysis parameters. This is based on a review of data from equipment tear-down and overhaul findings.

11.38.4.3.2.1.6. Maintains metrics on hits, misses and escapes. Once oil analysis data is included in the Engine Health Management AF Enterprise Center with software capability to perform metric monitoring, the AF OAP will

concurrently monitor metrics with the Engine OAP managers.

11.38.4.3.2.1.7. Works with the MPWG, MAJCOM customers and the AF OAP Office to establish engine-specific technical and performance requirements for all wear metal debris and oil analysis equipment.

11.38.4.3.2.1.8. Utilizes the Component Improvement Program as needed to evaluate the cost effectiveness of existing and potential wear metal debris and oil analysis applications, establish test programs and implement the most cost effective method(s).

11.38.4.3.2.1.9. Sends updates of specific oil sampling intervals and wear metal limits (evaluate for new engines during the design phase; reconsider for existing engines when oil-wetted parts undergo any material or strength changes) to the MPWG.

11.38.4.3.3. SE and Vehicles Division (AFLCMC/WNZ) procures oil analysis equipment at the request of the AF OAP Office.

11.38.4.3.3.1. Maintains a contract for procurement of JOAP AE spectrometers used by the Army, Navy, and AF laboratories.

11.38.4.3.3.2. Provides technical order provisioning and support.

11.38.4.3.3.3. Establishes inter-service logistics support. This includes spare parts support, instrument repair and overhaul, procurement of common JOAP laboratory equipment and supplies, item management and equipment specialist activities, and funding status of existing contracts.

11.38.4.3.4. Air Force Research Laboratory. The Air Force Research Laboratory accomplishes RDT&E to improve wear metal and oil analysis instruments, materials and techniques. **(T-1)**.

11.38.4.3.4.1. Supports the AF OAP charter to conduct test and evaluation for the oil analysis programs, including the JOAP and the AF OAP, as applicable. **(T-1)**.

11.38.4.3.4.2. Coordinates RDT&E activities with the MAJCOMs, DOP, and AF OAP Office as applicable. **(T-1)**.

11.38.4.4. AETC. Provides initial oil analysis training for AFSC 2A7X2 through the Nondestructive Inspection course. The AF OAP Management Office and MAJCOMs may request additional training, as required.

11.38.4.4.1. Coordinates course material changes with the AF OAP Office and the MAJCOM POCs.

11.38.5. Reporting and Measurement. All MAJCOMs and laboratories must collect and report metrics to the AF OAP Manager IAW TOs 33-1-37-1/-2/-3/-4.

11.38.5.1. All laboratories must collect and report hits, misses and escapes as a minimum. **(T-1)**.

11.38.6. **(Added-AFRC)** MXG/CC Responsibilities. MXG/CC will:

11.38.6.1. **(Added-AFRC)** Designate Wing OAP Monitors (primary and alternate) in writing **(T-2)**.

11.38.6.2. **(Added-AFRC)** Consider requesting the NDI/OAP facility be on the priority repair list with Civil Engineering Squadron (CES) based on mission support requirements.

11.38.6.3. **(Added-AFRC)** Consider requesting CES maintain an alternate power source of sufficient voltage capacity at the OAP laboratory to be used in times of power outage based on mission support requirements.

11.38.6.4. **(Added-AFRC)** Ensure the NDI/OAP facility has a direct line to MOC or a Land Mobile Radio (LMR) to expedite the reporting of abnormal wear-metal trends **(T-3)**.

11.38.7. **(Added-AFRC)** Wing OAP Monitor Responsibilities.

11.38.7.1. **(Added-AFRC)** Ensure compliance with the JOAP IAW TO 33-1-37, Joint Oil Analysis Program Manual, including this instruction, and other applicable directives.

11.38.7.2. **(Added-AFRC)** Establish standardized local methods for tracking and documenting samples. **(T-2)**.

11.38.7.2.1. **(Added-AFRC)** Include all organizations requiring OAP support **(T-2)**.

11.38.7.2.2. **(Added-AFRC)** Ensure organizations requiring OAP support appoint an OAP Monitor and alternate in writing to serve as liaison between the organization and the OAP lab **(T-2)**.

11.38.7.3. **(Added-AFRC)** Conduct quarterly OAP meetings with the MXG/CC (or equivalent), Maintenance Supervision, Propulsion Flight Chief, all organizational OAP Managers, and the NDI Section chief. **(T-2)**. Note: Meeting may be combined with other meetings. As a minimum, address the following topics during the quarterly meeting **(T-2)**:

11.38.7.3.1. **(Added-AFRC)** Number of OAP samples processed.

11.38.7.3.2. **(Added-AFRC)** Number and percentage of DD Form 2026, Oil Analysis Request, errors.

11.38.7.3.3. **(Added-AFRC)** Number of OAP laboratory maintenance recommendations.

11.38.7.3.4. **(Added-AFRC)** Average OAP sample response time (SRT). Note: Enter SRT to the nearest tenth of an hour, but do not include the time when the OAP laboratory is not manned. Samples from unit assigned aircraft engines should be tracked separately from transient aircraft samples.

11.38.7.3.5. **(Added-AFRC)** Number and percentage of OAP samples that exceeded required SRT.

11.38.7.3.6. **(Added-AFRC)** Number and percentage of required samplings not accomplished.

11.38.7.3.7. **(Added-AFRC)** Number of OAP laboratory maintenance recommendations "Hits", "Misses", and "Escapes".

11.38.7.3.8. **(Added-SEM/EDX equipped bases only)** Information contained on Quarterly SEM/EDX Report.

11.38.7.3.9. **(Added-SEM/EDX equipped bases only)** Number and percentage of AFRC Form 22, Unit SEM/EDX Debris Analysis Form, errors.

11.38.8. **(Added-AFRC)** AMXS Superintendent. AMXS Superintendent will:

11.38.8.1. **(Added-AFRC)** Ensure expedient delivery of samples to OAP laboratory (**T-2**). Samples should be delivered to the OAP lab within 75 minutes after shutdown of engines.

11.38.8.2. **(Added-AFRC)** Ensure aircraft engines, under special OAP codes IAW TO 33-1-37-1, Joint Oil Analysis Program Laboratory Manual, Volume 1, are not operated until results of the OAP sample(s) are known.

11.38.8.3. **(Added-AFRC)** Ensure DD Form 2026 errors are corrected immediately (**T-2**).

11.38.8.4. **(Added-SEM/EDX equipped bases only)** Ensure accurate data entry of aircraft serial number, engine serial number and operating times on all SEM/EDX magnetic chip detector paperwork IAW 33-1-37-1 (**T-2**).

11.38.8.5. **(Added-AFRC)** Ensure an Oil Analysis Record is placed in the aircraft AFTO Form 781-series forms binder prior to aircraft departing on a cross-country flight/deployment (**T-2**).

11.38.8.5.1. **(Added-AFRC)** Ensure OAP laboratory is notified 48 hours prior to aircraft departure (**T-2**).

11.38.8.5.2. **(Added-AFRC)** Ensure AMXS personnel sign out the Oil Analysis Record from the OAP laboratory (**T-3**).

11.38.8.6. **(Added-AFRC)** Ensure Oil Analysis Record is returned to the OAP laboratory the day cross-country flight/deployment aircraft return to home station (**T-2**).

11.38.9. **(Added-AFRC)** Propulsion Flight Chief Responsibilities.

11.38.9.1. **(Added-AFRC)** Propulsion Flight Chief will follow guidance and responsibilities for the Propulsion Flight Chief outlined in AFI 21-101, Aircraft and Equipment Maintenance Management.

11.38.9.2. **(Added-AFRC)** Ensure OAP laboratory is informed by 0800 next business day of any engine change (**T-3**).

11.38.10. **(Added-AFRC)** MOC Responsibilities.

11.38.10.1. **(Added-AFRC)** Maintain OAP status on unit assigned aircraft/engines (**T-2**).

11.38.10.1.1. **(Added-AFRC)** Verify status of aircraft or engines on special surveillance prior to commencing the flying day (**T-2**).

11.38.10.2. **(Added-AFRC)** Inform the Expediter of the oil sample status when the results are known (**T-3**).

11.38.10.3. **(Added-AFRC)** Notify the OAP laboratory when cross country/deployed aircraft return (**T-2**).

11.38.10.4. **(Added-AFRC)** Immediately notify all applicable works centers when an engine becomes restricted from operation or is placed on special sampling status based on results from OAP laboratory **(T-2)**.

11.38.11. **(Added-AFRC)** NDI/OAP Section NCOIC Responsibilities. NDI/OAP Section NCOIC will:

11.38.11.1. **(Added-AFRC)** Ensure OAP laboratory maintains certification IAW TO 33-1-37.

11.38.11.2. **(Added-AFRC)** Ensure scheduled aircraft records are reviewed, documented on the affected engine's Oil Analysis Record with the date of the review, and the initials of the OAP laboratory personnel who accomplished the review **(T-2)**.

11.38.11.3. **(Added-AFRC)** Ensure the Transit Oil Analysis Record, or equivalent historical record, accompany aircraft for mission(s) away from the home installation/base IAW TO 33-1-37-1, WP 003.

11.38.11.4. **(Added-AFRC)** Provide a copy of the Oil Analysis Record, or a suitable locally approved automated form, to the Propulsion Flight for each engine undergoing scheduled maintenance, depot overhaul, JEIM or CRF **(T-3)**.

11.38.11.5. **(Added-AFRC)** Notify MOC of all oil analysis results **(T-2)**.

11.38.11.6. **(Added-AFRC)** Coordinate with AMXS Superintendent to correct DD Form 2026 and DD Form 2027 data entry errors **(T-3)**.

11.38.11.7. **(Added-AFRC)** Maintain current appointment letter of all OAP monitors **(T-2)**.

11.38.11.8. **(Added-AFRC)** Ensure Oil Analysis Record accountability by ensuring maintenance personal sign out the Oil Analysis Record from the OAP laboratory **(T-2)**.

11.38.11.9. **(Added-AFRC)** Ensure Oil Analysis Record from cross country/deployed aircraft is returned to the OAP lab by next duty day **(T-2)**.

11.38.11.10. **(Added-AFRC)** Provide AF OAP laboratory training to assigned Maintenance Group OAP personnel IAW TO 33-1-37-1 and CFETP 2A7X2 **(T-2)**.

### **11.39. Air Force Engineering and Technical Services (AFETS).**

11.39.1. General. The AF must maintain its weapons systems and equipment to meet worldwide mission requirements and operational needs at a reasonable cost. To accomplish this, units need the capability to quickly resolve complex or unusual technical problems and provide enhanced system-specific technical training to AF technicians, contractors and operators. Engineering and Technical Services (ETS) provides this expeditionary resource and is prepared to deploy AFETS and CETS as needed.

11.39.1.1. AFETS personnel are the primary source of Engineering and Technical Services support in the AF. AFETS field engineers are Emergency Essential DoD civilian employees, highly experienced and thoroughly trained technical specialists.

11.39.1.2. CETS can be an important element in developing an independent AF capability on new systems; however, units must develop their own organic capability and/or request

AFETS support. **(T-2)**. Organizations should normally terminate CETS within 12 months after obtaining self-sufficiency.

11.39.2. AFETS are DoD civilians who provide advantages of long-term continuity and decreased retraining costs provided by a civilian work force. AFETS field technicians shall be used and retrained as necessary to meet technical needs and changing mission requirements. **(T-1)**.

11.39.2.1. AFETS can design special test equipment, develop special maintenance procedures, develop and conduct technical training for unit maintainers and operators, and recommend changes to maintenance processes.

11.39.2.2. AFETS also serve as the unit technical liaison and work with MAJCOM functional managers, depot technicians, engineers, item managers, and equipment manufacturers to resolve complex equipment problems.

11.39.2.3. AFETS will certify tasks IAW AFI 36-2650 and AFI 36-2651 in USAF personnel training records when training is provided to the go/no-go level. **(T-1)**.

11.39.2.3.1. **(Added-AFRC)** Training requirements must be established in the civilian position description (PD) **(T-2)**.

11.39.3. AFETS personnel should be functionally aligned under the local ETS OPR (typically the MXG/CC or equivalent commander) and reside within the assigned organizations maintenance complex.

11.39.3. **(AFRC)** AFETS will be aligned under MXG/CC or senior maintenance ART **(T-2)**.

11.39.3.1. AFETS will not be authorized to overcome manning shortfalls or to perform duties considered organic to the unit's manning. **(T-1)**.

11.39.3.2. When AFETS and contracted engineering support (example, CETS, Field Service Engineer or FSR) are assigned to a unit every effort shall be made to co-locate these resources to maximize effectiveness of technical support within the organization. **(T-2)**.

11.39.4. The AF may utilize CETS to provide on-site proficiency training, technical advice, and technical assistance for initial system bed-down or major modifications when AFETS are unavailable. Units desiring services of strategically assigned CETS will direct their requests to their MAJCOM OPR. **(T-2)**.

11.39.4.1. When CETS and AFETS are assigned to the same unit, CETS will support and train AFETS personnel as required. **(T-1)**.

11.39.4.2. CETS will certify tasks IAW AFI 36-2651, and AFI 36-2650, in USAF personnel training records when training is provided to the go/no-go level. **(T-1)**.

11.39.5. Exclusions. ETS covered in this AFI excludes:

11.39.5.1. Engineering review and resolution of service-revealed deficiencies reported through normal maintenance information systems.

11.39.5.2. Material DR covered in TO 00-35D-54.

11.39.5.3. The engineering determination of material integrity.

11.39.5.4. The engineering or technical services used in 61-series instructions.

11.39.6. Limits: CETS are restricted to the duties and responsibilities outlined in this AFI and specific tasks listed in the Task Work Specification. MAJCOM OPRs (with approval by the applicable MAJCOM Directorate) may grant exceptions to these limits only on a case-by-case basis based on mission need. Do not use CETS to avoid manpower ceilings or other personnel rules and regulations.

11.39.6.1. CETS will not:

11.39.6.1.1. Perform non-ETS duties or normal unit duties. **(T-3)**.

11.39.6.1.2. Make policy or represent the using activity at meetings or conferences. **(T-3)**.

11.39.6.1.3. Supervise or control AF personnel or personnel of other contractors. **(T-3)**.

11.39.6.1.4. Hold engineering decision-making positions. **(T-3)**.

11.39.6.1.5. Perform direct maintenance except in emergency situations. **(T-3)**.

11.39.7. MAJCOM Responsibilities. MAJCOMs will:

11.39.7.1. Supplement this document as necessary to ensure standardization among subordinate units.

11.39.7.2. Designate a Lead ETS Program Office in a single MAJCOM to administer the activities of the member MAJCOMs merged by MOA/MOU.

11.39.7.3. Designate an ETS OPR in the appropriate Headquarters Directorate or Field Operating Unit (FOA) to serve as the MAJCOM ETS OPR for member MAJCOMs merged by MOA/MOU.

11.39.7.4. Ensure all applicable requirements of this AFI are met by units authorized to decentralize management of their ETS programs to the using activities.

11.39.7.4. **(AFRC)** AFRC/A4M is the MAJCOM functional for AFETS **(T-2)**.

11.39.7.5. Program and defend MAJCOM ETS funds and manpower requirements over the Future Years Defense Program (FYDP) consistent with AF mission requirements.

11.39.7.6. Budget and fund AFETS PCS, TDY, and Developmental Training costs to support their MAJCOM requirements and submit Program Objective Memorandum (POM) for all ETS requirements.

11.39.7.6. **(AFRC)** [DEV] MXG/CC is responsible for their own AFETS funding and budget requirements **(T-2)**.

11.39.7.7. Identify and ensure mobility statements are in AFETS Standard Core Personnel Document and designate positions as Emergency-Essential. Refer to AFI 36-202, *Civilian Mobility*.

11.39.7.8. Ensure general personnel management records are maintained at the unit of assignment on all ETS personnel to assure proper management and administration of ETS resources.



11.39.7.9. Ensure training for AFETS receive proper priority in AF training plans.

11.39.7.9.1. **(Added-AFRC)** MXG/CC must forecast AFETS proficiency training schedules and send forecast to A4M Training Program Manager {A4M training manager email workflow}(T-2).

11.39.7.10. Redistribute ETS resources between major activities when mission changes dictate such realignment. All redistribution efforts will be coordinated with losing and gaining organizations.

11.39.7.10. **(AFRC)** [DEV] HQ AFRC will not redistribute AFETS resources. MXG/CC has authority to share AFETS resources with other units (T-2).

11.39.7.11. Provide government property support to CETS IAW Federal Acquisition Regulation (FAR), Subpart 45.3, Authorizing the Use and Rental of Government Property.

11.39.7.12. Coordinate CETS contract questions with the AFLCMC/Enterprise Acquisition Division (PZIEB) who performs all central acquisition contracting functions for CETS.

11.39.8. Lead ETS Program Office/Decentralized Management Activities Responsibilities (as applicable). Lead ETS Program Office/Decentralized Management Activities will:

11.39.8. **(AFRC)** [DEV] AFRC will not have a Lead ETS Program Office. MXG/CC is delegated Decentralized Management Activities Responsibilities (T-2) **Note:** MXG/CC should work with AFRC/A4M for AFETS functional needs.

11.39.8.1. Develop Task Work Specification and initiate procurement packages for each approved CETS requirement using appropriate Advisory & Assistance Service policies and procedures IAW FAR Subpart 37.2, *Advisory and Assistance Services*.

11.39.8.2. Oversee Contract Officer Representative (COR) activities.

11.39.8.3. Establish procedures to notify subordinate activities of CETS termination.

11.39.8.4. Develop and utilize assessment criteria to effectively manage, administer, and control ETS activities.

11.39.8.5. Conduct annual assessments of ETS Team performance at each field unit.

11.39.8.6. Validate manpower requirements at least every 24 months. Validation should be accomplished with inputs and recommendations from unit leadership and MAJCOM ETS OPR.

11.39.8.7. Realign AFETS manpower as needed when the mission, system, or equipment changes dictate.

11.39.8.8. Coordinate AFETS placement and Standard Core Personnel Documents with manpower and civilian personnel offices.

11.39.8.9. Maintain the knowledge, training abilities and skills of the AFETS workforce.

11.39.8.10. Update/train AFETS on new weapon systems, equipment conversions and major system modifications.

11.39.8.11. Coordinate with weapon system and equipment managers to program AETC Type I Training and other types of training for AFETS on a priority basis for current and new systems.

11.39.8.12. Provide AFETS instructor training.

11.39.8.12. (AFRC) [DEV] AFETS personnel must attend Basic Instructor Course (AETC BIC) within 12 months of employment (T-2) **Note:** Course is type 4 or 5 unit funded FTD.

11.39.8.13. Verify need for CETS personnel security clearances and take action to maintain access at the minimum level required IAW AFMAN 16-1405, *Air Force Personnel Security Program*.

11.39.8.14. Include Personnel Reliability Program guidance in the Task Work Specification of contractors whose duties involve nuclear weapons.

11.39.8.15. Consolidate subordinate units' requirements and establish a validation process through the MAJCOM, FOA, or Direct Reporting Unit (DRU) ETS OPR (as applicable).

11.39.8.15. (AFRC) [DEV] Not applicable to AFRC.

11.39.8.16. Establish, maintain and manage MAJCOM ETS TDY and training budget to include planning and execution of funds.

11.39.8.16. (AFRC) [DEV] Unit must manage assigned AFETS personnel TDY and training budgets (T-2).

11.39.9. Using Activity will:

11.39.9.1. Employ ETS resources effectively and efficiently to enhance mission capability IAW AF and MAJCOM guidance. (T-1).

11.39.9.2. Provide specific direction and guidance on maintenance activities requiring focused AFETS attention and/or technical support. (T-2).

11.39.9.3. Ensure AFETS personnel attend and participate in Group, Squadron, and unit maintenance meetings, as required. (T-2).

11.39.9.4. Ensure AFETS personnel are providing desired coverage on all shifts, as required, with a focus on shifts where the significant maintenance and repair activities are ongoing. (T-3).

11.39.9.5. Provide local access and oversight of Time and Attendance actions for assigned AFETS personnel.

11.39.9.6. AFETS assigned as tenants will be afforded command/base support by the host commensurate with other assigned DoD civilians to include eligibility for local awards, security clearance processing, annual physicals, passport/visa processing. (T-1).

11.39.9.7. Fund AFETS to attend conferences, Technical Interchange Meetings (TIM), and deployments as required. (T-3). In addition, fund training requirements to ensure AFETS remain current on assigned and emerging systems. (T-3).

11.39.9.8. Provide office supplies, special Information Technology (IT) equipment as necessary to support the unit's mission. (T-3).

11.39.9.9. Adhere to AF and ETS TDY/Deployment Policies and regulations. **(T-1)**. Units are authorized and encouraged to deploy AFETS to support mission requirements worldwide. AFETS employees must be assigned UTC positions in mobility tasked units on the Deployment Manning Document (DMD) as required. **(T-1)**. CETS representatives are typically not deployed, but may be deployed on specific approval of the MAJCOM OPR if AFETS personnel are not available, subject to contract provisions and funding availability.

11.39.9.10. UDM/deployment functions/processes are the responsibility of assigned unit for AFETS personnel.

11.39.9.11. Adhere to Adverse Action, Appeal and Grievance Procedures. **(T-1)**. Refer to AFI 36-704, Discipline and Adverse Action of Civilian Employees, issue based 36-Series AFIs, and Negotiated Labor Management (Union) Agreement as applicable, before proceeding.

11.39.9.12. Provide support through the local security manager to process AFETS personnel security periodic reviews and updates.

11.39.9.13. Provide AF Certifying Officer Support. **(T-1)**. The using activity OPR will serve as or designate AF Certifying Officers for CETS personnel and provide the name, office symbol, signature, and telephone number of the Air Force Certifying Officer to the Administrative Contracting Officer, with a copy to the MAJCOM OPR, no later than 30 days after the CETS assignment or within five workdays of any AF Certifying Officer change. **(T-2)**.

11.39.9.13.1. The CETS contract line items assigned to each certifying officer will be clearly identified in this designation.

11.39.9.13.2. The AF Certifying Officer is responsible for certifying the monthly Certificate of Service. It is recommended that the using activity delegate the AF Certifying Officer responsibilities to the Operations Officer of the squadron primarily using the individual CETS employee's services.

11.39.9.13.2.1. The designated certifying officer will be a commissioned officer. **(T-2)**. When it is impractical to designate a commissioned officer or one is not available, requests for approval to appoint a senior NCO or AF civilian (GS-11 or above) as AF Certifying Officer will be submitted by the using activity OPR in writing to the MAJCOM OPR. Each request will be evaluated on an individual basis.

11.39.10. AFETS Responsibilities. AFETS personnel will:

11.39.10.1. Provide field service engineering, technical advice; and assistance to resolve system anomalies and equipment failures. **(T-1)**.

11.39.10.2. Develop and teach specific technical training for maintaining and operating unit equipment and assigned weapons systems. **(T-1)**.

11.39.10.3. Investigate equipment failures and mishaps and train personnel to help prevent recurrence. **(T-1)**.

11.39.10.4. Develop contacts with contractor, depot, and AFLCMC engineers, technicians, and item managers to resolve maintenance problems, design deficiencies, and supply problems. **(T-1)**.

11.39.10.5. Develop special test equipment and maintenance procedures to resolve complex system problems. **(T-1)**.

11.39.10.6. Perform emergency maintenance (direct assistance) on equipment when temporary skill or manning shortages prevent accomplishment by other assigned personnel. **(T-1)**.

11.39.10.7. Advise the ETS OPR on the best utilization and management of CETS. **(T-1)**.

11.39.10.8. Document technical activities and provide stakeholders a written account of maintenance activities by the end of each month. **(T-2)**.

11.39.10.8. **(AFRC)** MXG/CC must provide written accounts of AFETS maintenance activities to the AFRC/A4M staff to ([afrc.a4m@us.af.mil](mailto:afrc.a4m@us.af.mil)) **(T-2)**.

11.39.10.9. Maintain mobility readiness and accomplish unit required ancillary training. Training must be kept current. **(T-1)**.

11.39.11. CETS Contractor Responsibilities. CETS contractor will:

11.39.11.1. Provide ETS through CETS employees to perform the duties described in the Task Work Specification. **(T-1)**.

11.39.11.2. Select, supervise, and exercise sole and autonomous control and direction over CETS employees. **(T-1)**.

11.39.11.3. Comply with the administrative and security regulations of the using activities. **(T-1)**.

11.39.11.4. Provide copies of the Task Work Specification to CETS employees. **(T-1)**.

11.39.11.5. Provide CETS security clearance certification to the unit security office. **(T-1)**.

#### **11.40. Senior Leader Mission Generation (SLMG) Course.**

11.40.1. The Senior Leader Mission Generation (SLMG) Course was developed in 2013 and focused on wing leadership teaming between maintenance, operations, and logistics support to achieve safe and effective mission generation. SLMG objectives are to: 1) comprehend the organizational dynamics and responsibilities of operational, maintenance, logistics support, and medical functions for aircraft mission generation; 2) comprehend the necessary integration and teamwork between operational, maintenance, logistics support, and medical functions for aircraft mission generation.

11.40.2. Only Wing CCs/CVs, Operations Group Commander (OG/CCs), MXG/CCs, Mission Support Group (MSG/CCs), MDG/CCs and their equivalent to be stationed at wings with a flying or nuclear mission are required for attendance. **(T-2)**. **Note:** MAJCOM/CV is the waiver authority for attendance. Officers in Space, Cyber, Intel, Air Base Wings or other "non-traditional" wings are not mandated to attend; however, officers desiring to attend from non-mandated wings can contact their Senior Leader Management office and be added to the

course. Registration for SLMG will be accomplished during registration for Pre-Command Training. **Note:** The SLMG course is a unit funded TDY.

#### **11.41. (Added-AFRC) Corrosion Control Program.**

11.41.1. **(Added-AFRC)** MAJCOM Corrosion Control Program OPR is HQ AFRC/A4M ([afrc.a4m@us.af.mil](mailto:afrc.a4m@us.af.mil)).

11.41.2. **(Added-AFRC)** Ensure all maintenance personnel (AFSC 2A7X3/2A7X5 personnel are exempt) receive annual Corrosion Prevention and Control training **(T-2)**. **Note:** CBT training is available and is the preferred method. Access CBT at [https://a4mxtng.csd.disa.mil/kc/main/kc\\_frame.asp?blnWhatsNew=True](https://a4mxtng.csd.disa.mil/kc/main/kc_frame.asp?blnWhatsNew=True). Once logged on to the site, select Course List/General/Corrosion and Prevention from the menu on the left. Additionally, annual training will include specific excerpts in regard to local/unique corrosion factors **(T-2)**.

11.41.2.1. **(Added-AFRC)** The Wing Corrosion Control Program Manager will coordinate with the MXG training monitor to development applicable training course requirements and designation of instructors **(T-2)**.

11.41.3. **(Added-AFRC)** Corrosion prevention and control programs are oriented towards the preventative maintenance concept in controlling corrosion through the maintenance of protective coatings, equipment cleanliness, timely detection, and correct treatment. Prevention is the hub of an effective corrosion control program; therefore, strict adherence to corrosion prevention policies is essential **(T-2)**. **Note:** For additional guidance refer to: AFI 20-114, TO 1-1-691, TO 1-1-8, TO 1-1-689, Cleaning and Corrosion Control, Volume I, Corrosion Program and Corrosion Theory, TO 35-1-3, and applicable weapon system specific -3, -23 TOs, and this instruction.

11.41.4. **(Added-AFRC)** Duties and responsibilities outlined in this section are applicable to units that use a private contractor to wash their aircraft and support equipment **(T-2)**. Use of private contractor does not negate unit responsibilities **(T-2)**.

11.41.5. **(Added-AFRC)** Wing Corrosion Control Program.

11.41.5.1. **(Added-AFRC)** MXG/CC will appoint in writing a Wing Corrosion Control Program Manager **(T-2)**.

11.41.5.2. **(Added-AFRC)** If corrosion prevention and control is locally contracted, ensure contracts are reviewed by the Wing Corrosion Control Program Manager to ensure they meet government requirements **(T-3)**.

11.41.6. **(Added-AFRC)** Wing Corrosion Control Program Manager Responsibilities. The Wing Corrosion Control Program Manager will:

11.41.6.1. **(Added-AFRC)** Manage the Corrosion Control Program IAW AFI 20-114, TOs 1-1-691, 1-1-8, 1-1-689, 35-1-3, applicable weapon system specific -3, -23 TOs, and this instruction **(T-2)**.

11.41.6.2. **(Added-AFRC)** Submit budget requests for equipment, materials, and facilities **(T-2)**.

11.41.6.3. **(Added-AFRC)** Ensure a schedule is developed to prevent high and low corrosion control facility demand **(T-3)**.

11.41.6.4. **(Added-AFRC)** Submit all CPAB action items to HQ AFRC/A4M ([afrc.a4m@us.af.mil](mailto:afrc.a4m@us.af.mil)) and info copy the appropriate NAF/A4M **(T-2)**.

11.41.6.5. **(Added-AFRC)** Be familiar with contract specifications, applicable technical orders, and inspection criteria for contracted washes **(T-2)**.

11.41.7. **(Added-AFRC)** Aircraft Structural Maintenance (ASM) Section NCOIC/Chief responsibilities. The ASM Section NCOIC/Chief will:

11.41.7.1. **(Added-AFRC)** Ensure ASM personnel complete a corrosion inspection after each aircraft wash using AFRC Form 165, Aircraft After Wash Corrosion Inspection Checklist **(T-2)**.

11.41.8. **(Added-AFRC)** AMXS Supervision Responsibilities. AMXS Supervision will:

11.41.8.1. **(Added-AFRC)** Accomplish a cleanliness inspection of aircraft after completion of the aircraft wash using the MDS specific TO Aircraft Wash Cleanliness Inspection Checklist (if available) or the AFRC Form 164, Aircraft Wash Cleanliness Inspection Checklist **(T-2)**.

11.41.8.2. **(Added-AFRC)** Coordinate procurement of aircraft cleaners with the unit Corrosion Control Program Manager to ensure only qualified products are used during wash operations **(T-2)**.

11.41.8.3. **(Added-AFRC)** Appoint an aircraft wash supervisor for each wash **(T-2)**.

11.41.8.3.1. **(Added-AFRC)** The wash supervisor uses the AFRC Form 163, Aircraft Wash Supervisor's/Employees' Certification, to track wash-qualified personnel until uploaded in the MIS (N/A for contractor personnel) **(T-3)**.

11.41.9. **(Added-AFRC)** Quality Assurance Responsibilities. Quality Assurance will:

11.41.9.1. **(Added-AFRC)** Evaluate a minimum of one aircraft per quarter for cleanliness, corrosion and lubrication after washing **(T-2)**.

11.41.10. **(Added-AFRC)** Avionics Responsibilities. Avionics will:

11.41.10.1. **(Added-AFRC)** Be familiar with, ensure compliance with, and have available for use TO 1-1-689 **(T-2)**.

11.41.11. **(Added-AFRC)** General Corrosion Prevention and Control.

11.41.11.1. **(Added-AFRC)** Products used in and around the flightline, hangars and industrial areas that are not on the approved QPL will not be used on Aircraft/Aerospace Equipment **(T-2)**. The following link can be used to access the existing QPL and or QPD listing: <http://qpldocs.dla.mil>.

11.41.11.2. **(Added-AFRC)** Corrosive Chemical Substances.

11.41.11.2.1. **(Added-AFRC)** A corrosive chemical spill aboard an aircraft is one of the most potentially hazardous situations encountered by maintenance and aircrew personnel. When a chemical leak or spill occurs aboard an AFRC aircraft, refer to TO 1-1-691 for cleanup procedures and TO 00-20-1 for documentation guidance **(T-2)**.

11.41.11.2.2. **(Added-AFRC)** If equipment is contaminated with fire extinguishing materials refer to TO 1-1-691 **(T-2)**.

11.41.11.3. **(Added-AFRC)** Aircraft Munitions and Support Equipment.

11.41.11.3.1. **(Added-AFRC)** Owning work center supervisor is responsible for establishing and enforcing an effective corrosion program for section support and test equipment **(T-2)**.

11.41.11.3.2. **(Added-AFRC)** As a minimum equipment will be cleaned and corrosion treated during each periodic inspection **(T-2)**.

11.41.11.3.3. **(Added-AFRC)** Surface preparation will be accomplished to the maximum extent possible by owning work center with Fabrication Flight assistance **(T-2)**. Coordinate with the Wing Corrosion Control Program Manager for determining extent of work center required preparation **(T-2)**.

**11.42. (Added-AFRC) Lead Technicians.** MXG/CCs are encouraged to identify Lead Technicians. A Lead Technician is the AFSC subject matter expert (SME) and represents all personnel in that AFSC. Serving as a Lead Technician is considered an additional duty, not a duty title or full time position **(T-2)**. Lead Technicians, if established, will:

11.42.1. **(Added-AFRC)** Be the lead troubleshooter for their AFSC **(T-2)**.

11.42.2. **(Added-AFRC)** Work with the Flight Chief/Section NCOIC/Chief to ensure personnel in the Lead Technician's AFSC receives proficiency training **(T-2)**.

11.42.3. **(Added-AFRC)** Serve as technical advisor to the Flight Chief/Section NCOIC/Chief for matters relating to their AFSC **(T-2)**.

11.42.4. **(Added-AFRC)** Work with the Flight Chief/Section NCOIC/Chief to ensure special tools and equipment utilized by personnel in their AFSC are serviceable and meet mission requirements **(T-2)**.

11.42.5. **(Added-AFRC)** Evaluate trends and indicators of troubleshooting effectiveness and maintenance efficiency **(T-2)**. Unit "re-test OK" (RTOK) components are costly and often indicative of 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.

11.42.6. **(Added-AFRC)** Evaluate repeat/recur write-ups for their AFSC monthly **(T-2)**. Repeat/Recur write-ups are costly and often are indicative of opportunities to improving troubleshooting or repair processes and/or technician skills. Lead Technicians shall evaluate to determine trends and whether improvements to training or processes can be developed to help prevent repeat/recur write-ups **(T-2)**.

**11.43. (Added-AFRC) Mitigation Guidance for Un-Commanded Aqueous Film Forming Foam (AFFF)/High Expansion Foam (HEF) Discharge.**

11.43.1. **(Added-AFRC)** Due to extensive repair costs associated with an un-commanded AFFF/HFF discharge, the following mitigation guidance is established for hangars with AFFF/HEF systems:

11.43.1.1. **(Added-AFRC)** Unless an aircraft is placed in a hangar for weather, it should be removed from the hangar when maintenance is no longer required **(T-3)**.

11.43.1.2. **(Added-AFRC)** All engine intake covers/exhaust plugs and pitot covers will remain installed and may only be removed when necessary to facilitate maintenance **(T-3)**. Any cover/plug removed will be reinstalled if maintenance will cease for more than two hours or the required maintenance action is complete **(T-3)**.

11.43.1.3. **(Added-AFRC)** Aircraft doors, ramp, hatches, canopies and windows that are not required to be opened for emergency egress, or allow adequate ventilation for the work environment will be closed unless the system/component is not operational **(T-3)**.

11.43.1.4. **(Added-AFRC)** For aircraft unattended during off shifts or weekends, all air and power cords will be disconnected from the aircraft and properly stowed **(T-3)**. To the maximum extent possible, aircraft doors, ramps, canopies and windows will be closed unless the system/component is not operational **(T-3)**. Aircraft with canopies removed will have the crew station covered with a tarp or plastic sheeting to prevent contamination **(T-3)**.

11.43.1.5. **(Added-AFRC)** Aircraft in hangars for extended periods of time (i.e. Isochronal Inspection) are most vulnerable to damage as a result of un-commanded discharge of AFFF/HEF. Many areas of the aircraft are opened with components exposed during inspections. Every effort must be made to protect highly vulnerable systems and equipment, i.e. avionics systems, during this time **(T-3)**.

11.43.1.6. **(Added-AFRC)** If the AFFF/HEF system is activated for any reason, with or without aircraft damage or personnel injury, immediately notify HQ AFRC/A4M ([afrc.a4m@us.af,mil](mailto:afrc.a4m@us.af.mil)) **(T-2)**.

**11.44. (Added-AFRC) Mission Essential Personnel (MEP).** This section outlines requirements for maintenance personnel designated as Mission Essential Personnel (MEP). MEP status is granted to individuals who perform unique support duties directly associated with and essential to a particular mobility/special operations aircraft, aircrew, or mission. These duties require direct access to the aircraft and/or aircrew during ground operations.

11.44.1. **(Added-AFRC)** MEP are required to accomplish maintenance at locations other than home station to prepare the aircraft for its next departure or to perform in-flight maintenance.

11.44.1.1. **(Added-AFRC)** SQ/CCs, or equivalent, approve MEP requirements **(T-2)**.

**11.45. (Added-AFRC) Scanning Electron Microscope/Energy Dispersive X-Ray (SEM/EDX) Master Chip Detector Analysis Program (MCDP).**

11.45.1. **(Added-AFRC)** 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 engines.

11.45.2. **(Added-AFRC)** The NDI section NCOIC will be the POC for SEM/EDX related matters **(T-2)**.

11.45.3. **(Added-AFRC)** All organizations requiring recurring chip detector analysis service shall identify by letter a primary and alternate MCDP monitor for their unit **(T-2)**. Letters will include the phone numbers of both the primary and alternate monitors **(T-2)**. The letter will be updated annually or when personnel or phone numbers change **(T-2)**.



11.45.3.1. **(Added-AFRC)** All newly assigned MCDP monitors will attend a briefing by NDI lab **(T-2)**. This briefing will cover the duties and responsibilities of MCDP monitors **(T-2)**.

11.45.4. **(Added-AFRC)** MCDP Monitors or their representatives will ensure the following:

11.45.4.1. **(Added-AFRC)** Magnetic Chip Detectors (MCD) are submitted for debris analysis for their aircraft and assigned engines IAW TOs **(T-2)**.

11.45.4.2. **(Added-AFRC)** 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 **(T-2)**. This information will be annotated on the AFRC Form 22, *SEM/EDX Debris Analysis Form*, or locally developed form **(T-2)**.

11.45.4.3. **(Added-AFRC)** Ensure all MCD debris analysis documentation errors are corrected as soon as possible when notified of the error by the NDI lab **(T-2)**.

11.45.5. **(Added-AFRC)** 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 **(T-2)**.

11.45.5.1. **(Added-AFRC)** The NDI Lab will:

11.45.5.1.1. **(Added-AFRC)** Complete analysis and notify MOC of results in sufficient time to meet TO directed notification intervals **(T-2)**.

11.45.5.1.2. **(Added-AFRC)** MCD analysis indicating significant levels of M50 or other critical materials will be immediately reported to the MOC **(T-2)**. MOC will in-turn contact the owning AMU to coordinate immediate return of affected aircraft to home station **(T-2)**.

11.45.5.1.3. **(Added-AFRC)** Immediately notify test cell personnel of analysis results for engines in the test cell **(T-2)**.

11.45.5.1.4. **(Added-AFRC)** Notify the MOC, Maintenance Supervision, Propulsion Flight, and MAJCOM NDI and Propulsion Functional Managers when a SEM/EDX unit becomes inoperable **(T-2)**.

11.45.5.1.5. **(Added-AFRC)** Immediately notify the AF Oil Analysis Program Office (AFMC AFLCMC/LPZ) to initiate repair action as soon as a SEM/EDX unit becomes inoperable **(T-2)**.

11.45.5.1.6. **(Added-AFRC)** Notify the AF OAP Office, MOC, Maintenance Supervision, Propulsion Flight, MAJCOM Propulsion and NDI functional managers when the SEM/EDX unit has been repaired and is operational **(T-2)**.

11.45.5.1.7. **(Added-AFRC)** Provide AMUs with one clean MCD for each detector submitted for analysis **(T-2)**.

11.45.6. **(Added-AFRC)** Maintenance Supervision will:

11.45.6.1. **(Added-AFRC)** Be responsible for monitoring the MCDP on the flightline **(T-2)**.

11.45.6.2. **(Added-AFRC)** Ensure visual inspection of the MCD is performed IAW applicable TOs **(T-2)**.

11.45.6.2.1. **(Added-AFRC)** Ensure a Red dash entry is made in the aircraft forms when a visual MCD inspection is due **(T-2)**.

11.45.6.3. **(Added-AFRC)** Ensure MCDs are submitted for analysis within 60 minutes after engine shutdown **(T-2)**.

11.45.6.4. **(Added-AFRC)** Ensure current SEM/EDX levels are maintained for each aircraft serial number to indicate aircraft status relative to MCD analysis results **(T-2)**.

11.45.6.5. **(Added-AFRC)** Coordinate with MOC to recall aircraft determined to be flying with unacceptable levels of debris **(T-2)**.

11.45.7. **(Added-AFRC)** The MOC will:

11.45.7.1. **(Added-AFRC)** Serve as primary communication link for transfer of SEM/EDX information between the NDI lab and affected activities **(T-2)**.

11.45.7.2. **(Added-AFRC)** 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 **(T-2)**.

11.45.7.3. **(Added-AFRC)** Immediately notify the AMU when MCD analysis indicates unacceptable levels of debris so they can coordinate recall of affected aircraft **(T-2)**.

11.45.8. **(Added-AFRC)** Cross Country/Deployed MCDP Analysis Requirements.

11.45.8.1. **(Added-AFRC)** NDI will be notified prior to deployment to determine if MCDP support is available at the deployed location **(T-2)**.

11.45.8.2. **(Added-AFRC)** If it is determined that MCDP is not available, visual MCD inspections will be performed IAW applicable engine directives **(T-2)**.

11.45.9. **(Added-AFRC)** SEM/EDX Interactive Multimedia Instruction (IMI) Training Requirements.

11.45.9.1. **(Added-AFRC)** This training is required in addition to CFETP qualification training **(T-2)**.

11.45.9.1.1. **(Added-AFRC)** F110 Engine Oil System Awareness Training (OSAT) (Course C6ADU00TIV0110) is required for all 2A3X3, 2A6X1, and 2A7X2 Flightline, Phase, and back shop personnel performing maintenance on F110 engines **(T-2)**. Course is Interactive Multimedia Instruction through local Maintenance Training Section and must be completed within 90 days of assignment and annually **(T-2)**. Access the course at <https://367TRSS.hill.af.mil>.

## Chapter 12

### MAINTAINING COMMERCIAL DERIVATIVE AIRCRAFT (CDA).

**12.1. Background Information, Objective and Roles and Responsibilities.** The USAF procures CDA for various missions. These aircraft are originally type certificated to Federal Aviation Administration (FAA) regulations/orders and have FAA-approved aircraft maintenance manuals. If the aircraft are civil registered (N number displayed) in lieu of military registration and military tail number, it may carry an FAA standard airworthiness certificate if operated and maintained in full compliance with civil regulations.

12.1.1. Civil registered aircraft owned and operated by the USAF in accordance with Title 10 U.S. Code are public use aircraft. When these aircraft are engaged in civil aircraft operations, such operations must be conducted in accordance with FAA and civil. When these aircraft are engaged in public aircraft operations, they are exempt from civil regulations and FAA oversight. Civil registered aircraft owned and operated by the USAF may be declared public use at any time, and are then exempt from civil regulations and FAA oversight. If the aircraft are civil registered but do not have a civil airworthiness certificate, or are operated by the USAF under a military registration and tail number, the aircraft are for public use and operate entirely under the authority of the USAF military technical airworthiness authority.

12.1.2. All USAF-managed aircraft, and associated modifications, must meet the requirements of AFI 62-601, *USAF Airworthiness*, and AFI 63-101/20-101. **(T-1)**. PMs are ultimately responsible for maintaining configuration control and ensuring flight safety of systems within their portfolio. When a military mission is compatible with a certified civil usage, the USAF will utilize FAA-type certified CDA to the maximum extent practicable. **(T-1)**. To ensure safety and support, all modifications performed on CDA type certificated components or systems shall be FAA certified (example, supplemental type certificate). Modifications to CDA military type certificated components or systems require approval of AF chief engineer, or delegated authority.

12.1.3. For maintenance and operations of CDA the AF will use AF-managed TOs or FAA-approved aircraft and component maintenance manuals and FAA regulations called out in Title 14 Code of Federal Regulation Parts **43, 91, 121, and 145** as a guide. **(T-0)**. FAA Advisory Circulars, Notices to Airmen, and other FAA information sources may also be used to satisfy all requirements of Title 14 Code of Federal Regulations Parts **43, 91, 121, and 145**.

#### **12.2. AF/A4L will:**

12.2.1. Coordinate relevant policies and procedures with SAF/AQ and the FAA.

#### **12.3. The Program Manager (PM) will:**

12.3.1. Be responsible for all elements of life cycle management IAW AFI 63-101/20-101. **(T-1)**.

12.3.2. When FAA manuals are used, issue technical data for configuration items and inspection requirements that are not approved by the FAA or supplied by the Original Equipment Manufacturer. **(T-1)**.

12.3.3. Review evaluations from the Lead Commands concerning Airworthiness Directives (AD), Service Bulletins (SB), Customer Bulletins (CB), All Operator Letters, and Aircraft Service Changes (ASC) and will determine extensions for each, if required. **(T-1)**.

12.3.4. For CDA which maintain an FAA Type Certified, ensure that the MAJCOM performs overhauls, rebuilding, major repairs, major alterations, minor repairs, and minor alterations in FAA-authorized repair facilities with appropriate ratings and authorizations or an AF-approved AFSC Military Repair Station depot facility, as directed by the PM. **(T-1)**.

12.3.5. Establish a maintenance plan and Service Action Review process with the Lead Command for aircraft originally Type Certified by the FAA. **(T-1)**.

12.3.6. Follow AFI 63-101/20-101 for modification requests and approvals. **(T-1)**.

12.3.7. Obtain airworthiness approvals IAW AFI 62-601. **(T-1)**.

12.3.8. Coordinate with the FAA Military Certification Office for approval of modifications that affect commercial derivative aircraft configuration IAW USDOT/FAA Order 8110.101, *Type Certification Procedures for Military Commercial Derivative Aircraft*. **(T-0)**.

12.3.9. Ensure FAA ADs and SBs are utilized in place of TCTOs and commercial maintenance manuals are utilized in lieu of AF TOs to the greatest extent possible. **(T-1)**.

12.3.10. For units possessing CDA that strictly utilize commercial manuals, may issue original FAA SBs, ADs or other FAA-approved modifications in-place of TCTOs. **(T-1)**.

12.3.11. For units possessing CDA that strictly utilize USAF managed T.O.s, in order to implement ADs, SBs or other FAA-approved modifications, issue TCTOs IAW TO 00-5-1 and TO 00-5-15. **(T-1)**. Reference one of the following in each TCTO:

12.3.11.1. The AD and/or SB involved.

12.3.11.2. The Supplemental Type Certificate number.

12.3.11.3. Other FAA approval.

12.3.12. Ensure maintenance planning data is supplied to units or contractors in order to appropriately track TCIs and inspections.

#### **12.4. Lead Commands will:**

12.4.1. Ensure any new or modified configurations or maintenance conditions are coordinated with, and approved by, the designated Lead Command IAW AFRD 10-9 and the PM or equivalent responsible for the reliability, maintainability and availability of the systems and end-items prior to implementation. **(T-1)**.

12.4.2. Assist ALC in determining additional inspection and component time-change requirements, intervals, documentation and publication update requirements. **(T-1)**.

12.4.3. Review evaluations from their field units on ADs, SBs, CBs, All Operator Letters, or ASCs and make recommendations to the aircraft's PM. **(T-1)**.

12.4.4. Ensure depot and contractor maintenance providers are furnished with lead command maintenance program and they meet AF approved FAA equivalent requirements or are a FAA approved repair station, as applicable. **(T-1)**.

**12.5. Units will:**

- 12.5.1. Participate in the Service Action review process established by the PM. **(T-1)**.
- 12.5.2. Assist Lead Commands and the PM to determine additional inspection intervals and requirements. **(T-1)**.
- 12.5.3. Comply with FAA ADs as directed by the Chief Engineer or delegated authority. **(T-1)**.

**12.6. Maintenance Personnel Requirements.** For AF-managed aircraft that maintain an FAA TC, maintenance personnel shall meet the PM established requirements and procedures to maintain airworthiness. **(T-1)**. AF maintenance technicians performing organic depot maintenance follow Air Force Sustainment Center Instruction (AFSCI) 62-100, *Military Repair Station Program*.

12.6.1. For CDA that do not maintain a civil airworthiness certificate, maintenance is not required to be completed by an FAA-certificated mechanic. However, a maintenance plan detailing the maintenance personnel requirements shall be established between the PM and the Lead Command. **(T-1)**.

12.6.1.1. The plan shall address as a minimum the training requirements, the level of effort allowed (such as, specific maintenance tasks as identified in the Original Equipment Manufacturer maintenance manuals), and tasks that shall be performed by FAA-certified mechanics, repair stations, AFSC Military Repair Stations, or the Original Equipment Manufacturer. **(T-1)**.

12.6.1.2. The maintenance plan will be approved by the PM with coordination by the FAA Military Certification Office or Military Repair Station/Flight Standards Management Office as appropriate. **(T-1)**.

**12.7. Deviations/Changes to Inspection Requirements, Time Change Intervals, and Component/Aircraft Overhaul.** Commercial derivative aircraft inspection requirements, time change, component and aircraft overhaul intervals are established and controlled by the Original Equipment Manufacturer and approved by the FAA. When deviation from the Original Equipment Manufacturer established maintenance standards/configuration is needed to meet AF mission requirements, units will send proposed changes to the PM through MAJCOM and for evaluation. **(T-1)**.

**12.8. Air Force Modifications to CDA and Components.** AF modifications to CDA and components are developed following procedures outlined in AFI 63-101/20-101. All AF modification requests require coordination with the Chief Engineer or delegated authority who will provide assistance in determining applicable requirements, forms and coordination necessary to correctly disposition aircraft and component modification requests. **(T-1)**.

**12.9. Certification Basis for CDA.** Elements of the certification basis for any CDA which are not met via FAA certification are satisfied by compliance with approved military airworthiness requirements derived from MIL-HDBK-516C, *DoD Handbook, Airworthiness Certification Criteria*. CDA whose primary mission is the transport of passengers are FAA Type Certified; FAA certification of these CDA passenger carrying aircraft are maintained for the life of the air system.

## Chapter 13

### CENTRALIZED REPAIR FACILITIES (CRF).

**13.1. Introduction.** CRFs consolidate off-equipment intermediate-level, and in some instances, depot-level tasks for commodities such as aircraft engines, electronic warfare pods, avionics line replaceable units, wheel and tire assemblies, and other aircraft components. CRFs focus on efficiently providing maintenance, repair, and/or overhaul capabilities, support RN efficiencies and will be fully integrated into the AF Supply Chain. CRFs are considered part of the repair network and exist to ensure responsiveness to MGN requirements to sustain operations both at home station and/or when deployed. Management and control procedures are outlined in AFI 20-117.

**13.1. (AFRC) Introduction.** HQ AFRC POC for Repair Network Management is HQ AFRC/A4M ([afrc.a4m@us.af.mil](mailto:afrc.a4m@us.af.mil)).

**13.2. Organization.** CRFs will be established within existing maintenance organizations (EMS, CMS, MXS), minimizing requirements for overhead and support. **(T-1)**. Production oversight and monitoring of repair operations is the responsibility of the owning maintenance organization in which the CRF is established. Commanders with CRFs will manage the personnel, facilities, and processes for the CRF following the policies and procedures in this AFI and AFI 20-117. **(T-1)**.

**13.3. CRF Production Requirements.** Maintenance Squadron (EMS, CMS, MXS) Operations Officer/MX SUPT will:

13.3.1. Ensure the Node Manager (NM) executes enterprise production duties as outlined in AFI 20-117. **(T-1)**.

13.3.2. Ensure the NM identifies and up-channels repair constraints that affect CRF repair/RN CAP2 to the MFM and RNM as prescribed in AFI 20-117. **(T-1)**.

13.3.3. Ensure the NM utilizes information management systems and participates in RNM collaboration calls to provide timely status reports, resolve repair constraints, and receive revised repair requirements/RN changes. **(T-1)**.

13.3.4. Identify systemic distribution, transportation, and supply difficulties and coordinate with base LRS leadership and/or up-channel concerns to the RNM and MFM for resolution. **(T-1)**.

13.3.5. Follow established procedures to ensure the rapid movement of retrograde and sustainment assets to support enterprise requirements.

**13.4. MGN Support.** Units supported by CRFs will maintain the level of intermediate-level repair capability necessary to sustain MGN operations. MAJCOMs must identify intermediate-level tasks and resources required to perform MGN maintenance tasks for assigned weapon systems (for example, repair of XF3 assets, hose/tube testing, functional checks, NRTS screening).

13.4.1. Rotable Pools. Customer Wait Time and transportation constraints may drive the establishment of a Centralized Rotable Pool for Class VII end items such as engines and pods to meet established weapons system availability goals. Use of a Centralized Rotable Pool can enhance mission capability by placing serviceable assets closer to the user when the repair capability is off installation. Centralized Rotable Pool size, compared to support unit spare

levels, will be determined during deliberate planning between the appropriate RNM and MAJCOMs.

13.4.2. 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 shall be by exception, and must be approved by the appropriate RNM in coordination with the supporting MAJCOM CRF Manager. **(T-2)**. CRFs will document their cannibalization process and notify supporting unit of approval to retain CANN assets. **(T-1)**.

13.4.3. Provide CRF node performance, CAP2, and commodity status reports and metrics as defined in AFI 20-117. **(T-1)**.

13.4.4. Ensure the NM utilizes information management systems to provide timely status reports and receive workload requirements/ changes for commodity group repairs supported by the CRF IAW with AFI 20-117. **(T-1)**.

**13.5. CRF Enterprise Information Management.** Managers require accurate, timely, and enterprise repair data to make CRF command and control and production decisions. To facilitate this requirement, NMs will utilize systems, processes, and business rules prescribed by AFI 20-117 to provide repair data and ensure enterprise visibility. **(T-1)**.

**13.6. Documentation.** The CRF and supported units will maintain all required status, inventory, and historical record documentation on CRF-repaired assets, IAW TO 00-20-1 and AFI 21-103. **(T-1)**.

**13.7. Metrics.** CRFs will report performance against metrics IAW AFI 20-117. **(T-1)**.

## Chapter 14

### MAINTENANCE PLANS, SCHEDULING AND DOCUMENTATION (PS&D).

#### 14.1. Responsibilities:

##### 14.1.1. AF/A4L will:

14.1.1.1. Prioritize development and distribute MxCAP2 models and supporting guidance as available. **Note:** The MxCAP2 Model or equivalent is intended to establish a standardized and empirically supported process for projecting MDS-specific, wing-level maintenance capability and capacity. It provides maintenance units the ability to accurately develop and support flying hour projections and accommodate FHP reflows. Reference MxCAP2 model support files located at: <https://cs2.eis.af.mil/sites/10585/mxcap2/Mx%20CAP%202%20Data/Forms/AllItems.aspx>. For additional information on the MxCAP2 model contact: [usaf.pentagon.af-a4.mbx.a4lm-workflow@mail.mil](mailto:usaf.pentagon.af-a4.mbx.a4lm-workflow@mail.mil) or AF/A4LM at DSN 223-7803, Comm: (703) 693-7803. For technical support contact: Mon-Fri, 0900-1700 EST, DSN: 224-8314, Comm: (703) 614-8314.

##### 14.1.2. MAJCOMs will:

14.1.2.1. Supplement this instruction to establish minimum requirements for the following:

14.1.2.1.1. TCTO folders and monthly/weekly utilization and maintenance schedules.

14.1.2.1.2. Publish MAJCOM procedures for verification of configuration items.

14.1.2.1.3. Determine whether to ship removed engines to depot or induct into CRF repair.

14.1.2.1.4. Determine routing and approval for AF Form 2407.

14.1.2.1.4. (AFRC) See **Attachment 12** for AF Form 2407 routing.

##### 14.1.3. PS&D will:

14.1.3.1. Maintain historical documents and maintenance data essential for the development of wing plans, schedules and analysis of historical maintenance events. **(T-1)**.

14.1.3.2. Maintain historical maintenance data within the MIS. **(T-1)**.

14.1.3.3. Develop wing maintenance plans using MIS aircraft/system historical data input by all maintenance personnel. **(T-1)**.

##### 14.1.4. The PS&D Section NCOIC/Chief (or equivalent) will:

14.1.4.1. Act as the wing 2R1XX functional manager. **(T-2)**.

14.1.4.2. Establish and coordinate plans for rotating 2R1XX personnel through various duty positions to increase field knowledge and experience every 24 months, not to exceed 36 months. **(T-2)**.



- 14.1.4.2.1. This rotation plan applies to TSgts and below as well as 3- or 5-skill level personnel of any rank. **(T-3)**.
- 14.1.4.3. Evaluate quarterly the performance of workcenters performing scheduling functions to include TCTO, SI, and Job Standard Master Listing (JML) management (such as, AGE, Armament, Egress, Fuels, MXO, PS&D). **(T-2)**.
  - 14.1.4.3.1. During the visit, ensure historical documents are properly maintained and review and discuss the 2R1X1 training and rotation plan with each section NCOIC that have 2R1s assigned. **(T-2)**.
  - 14.1.4.3.2. Provide formal written reports of deficiencies found during the visits to the MXO OIC/SUPT and applicable section NCOIC. **(T-2)**.
    - 14.1.4.3.2.1. Deficiencies will not be closed until validated by the MXO OIC/SUPT. **(T-2)**.
- 14.1.4.4. Develop and sustain the PS&D Master Training Plan IAW AFI 36-2650 and AFI 36-2651. **(T-1)**.
  - 14.1.4.4.1. Document familiarization training in the individual's TBA. **(T-1)**.
  - 14.1.4.4.2. Ensure civil service training is conducted IAW applicable local bargaining agreements and contractor maintenance organizations comply with training plans established in the PWS, SOW, or Performance Requirements Statement (PRS). **(T-1)**.
- 14.1.4.5. Provide SME on all maintenance scheduling issues and equipment historical document AFTO Form 95 management to QA during inspection/evaluations. **(T-1)**.
- 14.1.4.6. Designate the MSM administrator from within PS&D (for units utilizing IMDS only). **(T-1)**.
- 14.1.5. The Wing AVDO will:
  - 14.1.5.1. Complete AVDO duties IAW AFI 21-103 and maintain the inventory and utilization portion of the MIS Inventory, status and utilization subsystem. **(T-1)**.
  - 14.1.5.2. Maintain a PDM schedule by tail/serial number for all assigned aircraft and equipment in support of AFMC and Lead Command plans and requirements. **(T-1)**.
- 14.1.6. AMXS/AMU Dedicated Scheduler will:
  - 14.1.6.1. Provide dedicated support to AMXS/AMU. **(T-2)**.
  - 14.1.6.2. Attend and actively participate in daily, weekly, and monthly scheduling, and quarterly and yearly planning programs and meetings. **(T-2)**.
    - 14.1.6.2.1. Inform AMXS/AMU supervision of maintenance capabilities or limiting factors that could affect maintenance production. **(T-2)**.
  - 14.1.6.3. Coordinate with AMXS/AMU supervision and Operational Squadron (OS) operations schedulers when scheduling AMU aircraft to meet flying requirements. **(T-2)**.
  - 14.1.6.4. Provide a listing of JCNs for following week's scheduled maintenance. **(T-1)**.
    - 14.1.6.4.1. This list will be used to track Maintenance Scheduling Effectiveness (MSE). **(T-1)**.

14.1.6.4.2. PS&D will determine causes of missed maintenance for reporting MSE. (T-1).

14.1.6.5. Manage TCTOs, TCIs, and SIs (including installed engine inspections) for aircraft assigned to their appointed AMXS/AMU. (T-1).

14.1.6.6. Generate AFTO Form 103, *Aircraft/Missile Condition Data*, to record certified maintenance needs for PDM aircraft IAW TO 00-25-4, *Depot Maintenance of Aerospace Vehicles and Training Equipment*, coordinate it with PS&D, QA, and AMXS maintenance supervision. (T-1).

## 14.2. Data Documentation.

### 14.2.1. Maintenance Historical Documentation.

14.2.1.1. Maintenance historical documentation will be accomplished in accordance with TO 00-20-1 which outlines the requirements to capture and record the significant maintenance actions on aerospace vehicles and equipment. (T-1).

14.2.1.2. Historical documentation will be entered and tracked in the authorized MDS MIS. (T-1). When the MIS is not available, historical documentation will be documented and tracked on the AFTO Form 95, or equivalent. (T-1).

14.2.1.3. MAJCOMs should develop supplements to this instruction to identify aerospace vehicle and support equipment historical file content and retention requirements needed beyond the minimum requirements outlined in this instruction and TO 00-20-1.

14.2.2. Aircraft jacket files. Units will develop and maintain a standardized master aircraft jacket file for use throughout the wing following the requirements listed in this instruction, TO 00-20-1 and AFMAN 33-363. (T-1).

14.2.2.1. MAJCOMs will standardize MDS-specific requirements not captured in this instruction in supplements and addendums to this instruction.

14.2.2.1. (AFRC) AFRC has no MDS specific requirements.

14.2.2.2. Aircraft jacket files will be maintained in PS&D and standardized IAW the master aircraft historical file developed by the PS&D NCOIC. (T-1).

14.2.2.2.1. Off-equipment maintenance documents may be decentralized to sections maintaining installed-on equipment assets (examples include fuel cell records at fuel systems section, landing gear strut records at hydraulics section).

14.2.2.2.1.1. Decentralized records are filed by and are the responsibility of the owning work center.

14.2.2.2.2. PS&D will list all historical records, including those decentralized in their file plan or office of record. (T-1).

14.2.2.2.2.1. The DD Form 2861, *Cross-Reference*, will be used to cross-reference documents decentralized from PS&D to other sections and will be filed to cross reference AFTO Form 95 records that are maintained in the MIS. (T-1).

14.2.2.2.3. Wing-assigned aircraft jacket files may be maintained electronically, however, they must mirror the standardized master aircraft jacket file in organization

and appearance. **(T-1)**. **Note:** Slight variations in composition are allowed between different MDS weapons systems located within the same wing.

14.2.2.3. MXG/CC may identify additional local items for inclusion in aircraft jacket files. Aircraft jacket files as a minimum will include:

14.2.2.3.1. Packages for one complete inspection cycle. **(T-1)**. Units may download paperless inspections to automated storage media from MIS for filing in aircraft jacket files.

14.2.2.3.2. Last FCF documentation (such as, FCF certification letter/FCF checklist). **(T-1)**.

14.2.2.3.3. Last depot package. **(T-1)**.

14.2.2.3.4. Transfer packages. **(T-1)**.

14.2.2.3.5. Applicable weapon system -6 TO AFTO Form 95s. **(T-1)**.

14.2.2.3.6. W&B records. **(T-1)**.

14.2.2.3.7. Engine Records. **(T-1)**.

14.2.2.3.8. Document review records/checklists. **(T-1)**.

14.2.2.3.9. NDI records. **(T-1)**.

14.2.2.3.10. AF Form 2411, Inspection Document (or equivalent). **(T-1)**.

14.2.2.3.11. Annual aircraft jacket file review checklist. **(T-1)**.

14.2.2.3.12. Authorized TO variances. **(T-1)**.

14.2.2.3.13. Requests for assistance meeting the requirements for retention as historical records IAW TO 00-25-107, or equivalent/like MDS specific requirements for retention of documents as historical records. **(T-1)**. **Note:** Contact the Lead Command as identified in AFRPD 10-9 for guidance for meeting retention as historical records requirements outside the scope of TO 00-25-107. 14.2.2.3.14. Pulled AFTO Form 781-series aircraft forms. **(T-1)**.

14.2.2.3.14.1. Pulled paper forms retained as part of the jacket file will be destroyed after 3 months if they do not contain historical information IAW AFRIMS. **(T-1)**.

14.2.2.3.14.2. Fusing fully automated forms will maintain the last 7 copies of the pulled aircraft forms and destroy the earliest record when the 8th report is received IAW AFRIMS. **(T-1)**.

14.2.2.3.14.3. Units not required to use a MIS will use aircraft forms and maintain the current and the last 3 months' worth of pulled aircraft forms. **(T-1)**.

14.2.2.3.14.4. Pulled 781 forms will be filed in order by sets identified by the "From and To" date at the top of each 781-series form (see TO 00-20-1). **(T-1)**.

14.2.2.3.14.5. Sets of forms may or may not include an AFTO Form 781J, *Aerospace Vehicle - Engine Flight Document* and AFTO Form 781K, *Aerospace Vehicle Inspection, Engine Data, Calendar Inspection and Delayed Discrepancy*

*Document.* AFTO Forms 781J and K will be included in the set of forms they were pulled with and retained for the same period of time. **(T-1)**.

14.2.2.3.14.6. When PS&D discovers the AFTO Form 781-series missing during a jacket file inspection, a missing-forms letter will be sent to the appropriate Operations Officer/MX SUPT of the maintenance unit responsible for pulling the forms with a 5 duty-day suspense. **(T-2)**.

14.2.2.3.14.6.1. If a response is not returned within 5 duty days, notify the applicable maintenance unit supervision. **(T-2)**.

14.2.2.3.14.6.2. If the forms cannot be located, file the missing forms letter, endorsed by the Operations Officer/MX SUPT in place of the missing forms. **(T-2)**. See TO 00-20-1 for missing form procedures and AFMAN 33-363 for records management and disposition instructions

14.2.2.4. Annual jacket file review. Review aircraft jacket files annually using a locally-developed PS&D checklist. **(T-1)**.

14.2.2.4.1. The last completed checklist will be kept on file in each aircraft jacket file. **(T-1)**.

14.2.3. Aircraft Document Reviews (ADR). 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 deferred discrepancies. The aircraft AFTO Form 781-series for possessed aircraft are reviewed by aircraft crew chiefs, flightline maintenance functions, PS&D, Engine Management (EM) and LRS personnel to ensure the accuracy and validity of entries.

14.2.3.1. MAJCOMs will standardize the MIS/on-line products used to perform ADR on like-MDS weapons systems.

14.2.3.1.1. Units using MDS-specific laptop forms (for example Integrated Maintenance Information System (IMIS), Autonomic Logistics Information System (ALIS)) must develop procedures to ensure intent of ADRs is implemented. **(T-1)**.

14.2.3.2. An ADR will be accomplished at least every 60 days for units using the fully automated AFTO Form 781-series (AFTO Form 781A, AFTO Form 781J, *Aerospace Vehicle - Engine Flight Document*, AFTO Form 781K, *Aerospace Vehicle Inspection, Engine Data, Calendar Inspection, and Delayed Discrepancy Document*). **(T-1)**.

14.2.3.2.1. Units without access to a MIS and authorized to use manual AFTO Form 781-series, must accomplish an ADR at least every 30 days. **(T-1)**.

14.2.3.2.2. ADRs will also be accomplished when an aircraft is transferred, before and after scheduled inspections (PH or ISO), before and after storage and after fatigue tests. **(T-1)**.

14.2.3.2.3. For CANN aircraft, conduct ADRs at least every 30 days. **(T-2)**.

14.2.3.3. Units will develop and publish an ADR checklist for use by home station and deployed units. **(T-1)**.

14.2.3.3.1. This checklist will identify who initiates the ADR, reviewing agencies (to include the OAP lab), AFTO Form 781-series entry requirements, agency responsible for completing the AFTO Form 781-series/MIS entry, and outline any configuration verification requirements. **(T-1)**.

#### 14.2.3.4. ADR Procedures.

14.2.3.4.1. PS&D will create a JST for ADRs on a red dash symbol and ensure it is loaded against all assigned aircraft. **(T-3)**.

14.2.3.4.2. ADRs will be scheduled and added to the appropriate maintenance plan. **(T-2)**. An ADR is a scheduled maintenance action and will be included in MSE computations. **(T-1)**.

14.2.3.4.3. PS&D and EM will validate applicable inspection, TCI, TCTO data for correct due dates/time or expiration dates, airframe and engine operating times (or flight times if applicable) and appropriate symbol entry IAW TO 00-20-1. **(T-2)**.

14.2.3.4.4. Units will coordinate with /LRS to run a tail number inquiry to validate backorders and correct any discrepancies discovered. **(T-2)**.

14.2.3.4.5. Maintenance personnel will correct all discrepancies discovered during the ADR, prior to signing off the ADR JCN. **(T-1)**.

14.2.3.4.5.1. If an ADR discrepancy cannot be corrected immediately, document the ADR discrepancy in the AFTO Form 781A with a JCN and applicable symbol and retain it in the AFTO Form 781-series forms until corrected and signed off. **(T-1)**. Once all the uncorrected discrepancies are documented in the AFTO Form 781-series the ADR can be signed off as complete.

#### 14.2.4. Pre-Dock Meetings. PS&D personnel will:

14.2.4.1. Review planned aircraft inspection schedules and initiate an AF Form 2410, *Inspection/TCTO Planning Checklist*, or locally-developed product for each aircraft prior to the pre-inspection meeting. **(T-2)**.

14.2.4.1.1. MAJCOMs 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 Form 2410 is not necessary.

14.2.4.2. Host meetings and notify the appropriate Operations Officer/MX SUPT and flight supervisors of any recurring problems with attendance. **(T-2)**. Prior to the pre-dock meeting, PS&D will:

14.2.4.2.1. Determine pre-dock meeting attendees. **(T-2)**.

14.2.4.2.1.1. The following personnel will attend the meeting as a minimum: PS&D, Pro Super, Inspection Dock NCOIC, aircraft crew chief, DMS, and EM representative. **(T-2)**.

14.2.4.2.1.2. Include other agencies as required for performance of the work package.

14.2.4.2.2. Review and list all known aircraft and equipment TCTOs, TCIs, SIs and other major requirements to be accomplished during the inspection on the AF Form 2410, or locally-developed product. **(T-2)**.

14.2.4.2.3. Identify requirements for kits or parts. **(T-2)**.

14.2.4.2.4. List all Delayed Discrepancies to be accomplished during the inspection on the AF Form 2410 keeping the original JCN. **(T-2)**.

14.2.4.2.5. Incorporate all requirements against the aircraft into a work package. **(T-2)**.

14.2.4.2.6. List specialist tasks required in addition to normal inspection needs. **(T-2)**.

14.2.4.2.7. Develop a list of items identified as out-of-configuration for verification/correction during the inspection. **(T-2)**.

14.2.4.2.7.1. For non-configuration tracked aircraft, compile a list of missing serially-controlled items and coordinate/forward them to Inspection Dock NCOIC for verification. **(T-2)**.

14.2.4.3. At the pre-dock meeting, PS&D will brief representatives of the inspection schedule and scope, including TCTOs, TCIs, SIs, DDs and special requirements to be accomplished. **(T-2)**.

14.2.4.3.1. Agency representatives will inform PS&D of limiting factors that might affect the schedule. **(T-2)**.

14.2.4.3.2. PS&D will discuss aircraft configuration during all aircraft pre-dock meetings. **(T-2)**.

14.2.4.3.3. Wings will use the AF Form 2410, or locally-developed product to record additional information discussed during the pre-dock meeting. **(T-2)**.

14.2.4.3.3.1. Maintain the original AF Form 2410, or locally-developed product on file in the aircraft jacket file for use as a guide when conducting the post-dock meeting. **(T-2)**.

14.2.4.3.3.2. Provide a copy to the Inspection Dock NCOIC or equivalent for use during the post-dock meeting. **(T-2)**.

14.2.4.3.4. PS&D will provide a copy of the applicable “out of configuration” MIS products (such as, IMDS screen 810 and 990; G081, screen 8110; serial number checklists) to Inspection Dock NCOIC in pre-dock package for verification/correction. **(T-2)**.

14.2.4.3.4.1. The responsible work center will correct verified erroneous data and “out of configurations” in the MIS prior to post-dock. **(T-2)**.

14.2.4.3.5. As a minimum, the following will also be discussed at the pre-dock meeting:

14.2.4.3.5.1. The type and number (if applicable) of the inspection to be performed. **(T-2)**.

14.2.4.3.5.2. Validation of current aircraft and engine operating times. **(T-2)**.

- 14.2.4.3.5.3. Parts in the TNB that require aircraft installation. **(T-2)**.
- 14.2.4.3.5.4. Any known post inspection fuel cell work required. **(T-2)**.
- 14.2.4.3.5.5. Date the aircraft is to be ready for the flightline to accept back. **(T-2)**.
- 14.2.4.3.5.6. All known engines requiring replacement. **(T-2)**.
- 14.2.4.3.5.7. Review of the aircraft forms open discrepancies including Delayed Discrepancies and develop a joint plan to work as many discrepancies as feasible/applicable. **(T-2)**.
- 14.2.4.3.5.8. Any inspections that will require maintenance personnel to stop work (such as, NDI shop requirements) and when the maintenance dock needs to be clear of personnel to perform the inspections. **(T-2)**.
- 14.2.4.3.5.9. All meeting attendees will sign the AF Form 2410. **(T-2)**.
- 14.2.4.3.5.10. **(Added-AFRC)** Units will accomplish part/serial number verification during scheduled inspections (e.g. ISO, PHASE, HSC and letter check inspections) **(T-2)**.

14.2.5. Post-Dock Meetings. Units will hold a post-dock meeting as soon as possible after the inspection but no later than before the FCF or first flight. **(T-2)**. PS&D will:

14.2.5.1. Lead a post-dock meeting for all inspections that required a pre-dock meeting. **(T-2)**. As a minimum, discuss and validate the following information at the post-dock meeting:

14.2.5.1.1. PS&D, Pro Super, Inspection Dock NCOIC, Aircraft Section representative/crew chief and other locally-determined attendees will discuss open discrepancies, review any significant inspection events and identify any problems that may adversely affect future scheduling. **(T-2)**.

14.2.5.1.2. The Inspection Dock NCOIC will provide the completed inspection work package to PS&D for filing until it is replaced by the next similar inspection work package. **(T-2)**. For example, an HPO1 will be replaced by the next HPO1 and the HPO2 will be replaced with the next HPO2.

14.2.5.1.2. **(AFRC)** The completed inspection work package will be hardcopy or electronic copy **(T-2)**

14.2.5.1.3. The Inspection Dock NCOIC will return the completed serial number verification sheet to the PS&D representative. **(T-2)**.

14.2.5.1.4. The Inspection Dock NCOIC or designated representative and the aircraft crew chief or equivalent will perform an aircraft documents review. **(T-2)**.

14.2.5.1.5. PS&D personnel will validate TCTOs, TCIs, and SIs scheduled during the inspection were completed and signed off in the MIS prior to the post dock meeting. **(T-2)**.

14.2.5.1.5.1. Any action that was scheduled but not complied with will be annotated on the AF Form 2410 (used at the pre dock meeting) with the reason why it was not performed. **(T-2)**.

14.2.5.1.5.2. Validate that any TCTO/TCI/SI not complied with will not ground the aircraft before releasing the aircraft back to flightline maintenance personnel. **(T-2)**.

14.2.5.1.6. Verify all parts placed on order during the inspection but not received have valid document numbers.

14.2.5.1.7. The Inspection Dock NCOIC and flightline maintenance supervisor (Pro Super or above) agree that all inspection requirements are completed and the flightline supervisor agrees to accept or “buy back” the aircraft. **(T-1)**.

14.2.5.1.7.1. If maintenance actions previously identified for completion were not accomplished, establish agreements as to how these inspection requirements will be completed and documented on the AF Form 2410 or locally-developed product. **(T-1)**.

14.2.5.1.8. PS&D will file the completed AF 2410, or locally-developed product, and completed/verified copies of the output products in the aircraft jacket file (PS&D retains completed package until the next scheduled PH/ISO inspection for that aircraft). **(T-1)**. Electronic versions may be saved to digital media.

14.2.6. MIS (G081/IMDS) extended downtime (more than 48 hours).

14.2.6.1. If the MIS is not available for more than 48 hours, maintenance organizations will use the most current data contained in MSM for IMDS units and “Global Reach” system products for G081 units. The MSM database will be refreshed with new MIS products daily. **(T-2)**.

14.2.6.1.1. MSM usage may continue in a digital format as long as updates can be made and retained.

14.2.6.2. If data cannot be retained by MSM or Global Reach, the use of AFTO Form 349, *Maintenance Data Collection Record*, or will be initiated for use in data collection/completion. **(T-2)**.

14.2.6.2.1. The most current paper or electronic version of MIS products will be used once AFTO Form 349 or electronic equivalent usage is initiated. **(T-2)**.

14.2.6.2.2. The AFTO Form 349 or electronic equivalent, will be used to update applicable MIS products once brought back online. **(T-2)**.

14.2.6.2.3. The AFTO Form 349 or electronic equivalent, will be maintained until the data listed on it has been verified as captured/loaded in the MIS. **(T-2)**.

14.2.6.2.4. After all changes have been verified in the MIS, destroy the AFTO Form 349 or electronic equivalent.

14.2.6.3. If an aircraft is temporarily moved to an operating location away from the unit of assignment and connectivity to the MIS is unavailable, units will send only those documents necessary to ensure safety of flight and current aircraft status. **(T-2)**.

14.2.7. Aerospace Vehicle and Equipment Mishap Response Procedures:

14.2.7.1. PS&D will coordinate with MMA or equivalent to ensure MIS lock out procedures to prevent further manipulation of data concerning the aerospace vehicle and/or



equipment used during maintenance prior to the mishap event are completed IAW **Chapter 5** of this instruction. **(T-1)**.

14.2.7.2. At a minimum, produce, consolidate and impound the following products: aircraft jacket file, aircraft AFTO Form 95s, TCTO history, debriefing records, pulled AFTO Form 781-series forms, SI/TCI data, maintenance history, automated records check. **(T-1)**. Include any additional significant historical data, and other decentralized records. **(T-2)**.

14.2.7.3. EM will download and impound engine records from the applicable MIS and CEMS. **(T-1)**.

### **14.3. Configuration, TCTO, SI and TCI Management.**

14.3.1. Responsibilities. MAJCOMs will establish PS&D requirements and responsibilities to support work centers who's AFSCs require scheduling functions for the equipment they maintain (such as, Egress, Armament, and Aerospace Ground Equipment, Fuels) in a supplement to this instruction.

14.3.1.1. PS&D will provide work centers who's AFSCs require scheduling functions (such as, Egress, Armament, and Aerospace Ground Equipment, Fuels) SME training support and oversight of scheduling products necessary to ensure configuration data integrity is maintained. **(T-1)**. PS&D will:

14.3.1.1.1. Outline procedures for ordering hazardous materials for TCIs and TCTOs (such as, batteries). **(T-2)**.

14.3.1.1.2. Units using a MIS will not delegate suspense validation processing for TCIs installed on aircraft to the performing work center unless the written procedures include the following: 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) (IMDS units only). **(T-2)**.

14.3.1.1.2.1. Ensure EM processes all IMDS suspense validations for engines and engine components. **(T-2)**.

14.3.1.1.3. Validate that data errors are corrected with appropriate personnel and updated in the MIS weekly. **(T-1)**.

14.3.1.1.4. Submit MSM trouble tickets at <https://midtier.gunter.af.mil/>, call the Field Assistance Branch at DSN 596-5771, or e-mail [team4@gunter.af.mil](mailto:team4@gunter.af.mil) to correct program deficiencies. **(T-1)**.

14.3.2. Configuration Management. Configuration management provides unit managers the capability to determine the actual versus approved configuration of an aircraft or equipment. 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 and Next Higher Assembly items by WUC/LCN. PS&D has overall responsibility for the Equipment Configuration Management or Aircraft Configuration Management subsystem of the MIS and will provide assistance to maintenance personnel. **(T-1)**. The performing work center supervisor and PS&D conduct supervisory reviews of configuration change, TCTO, SI and TCI events using MIS on-line capabilities. **(T-1)**.

Individual work centers accomplishing TCIs are responsible for changing configuration information in MIS. Unless otherwise specified in local procedures, schedulers will process all removal, installation, TCI, SI and TCTO compliance updates for aircraft and equipment in the applicable MIS and EM will process engines and engine components in applicable engine information system. **(T-1)**.

14.3.2.1. Lead Commands will ensure procedures exist and are executed to provide system configuration tables which are updated, validated, and provided to field maintenance personnel as configurations change. **(T-1)**.

14.3.2.1.1. Items not accessed or visible during field-level maintenance shall be identified to Lead Command and AFSC managers for disposition. **(T-1)**.

14.3.2.2. Maintenance personnel discovering an item with a missing data plate, or one which does not have a serial number, will contact PS&D who will coordinate with the Lead Command system functional manager and/or AFSC item manager for disposition. **(T-1)**.

14.3.2.3. For those aircraft that do not currently have an established configuration table, the Lead Command will develop procedures to identify, track and validate installed configuration managed items against the data in the MIS.

14.3.2.4. PS&D will coordinate the daily resolution of IMDS configuration management notices with the appropriate maintenance section utilizing the applicable MIS screen. **(T-1)**.

14.3.2.4.1. Uncorrected discrepancies will be briefed weekly at the daily production/scheduling meeting and forwarded to the appropriate maintenance supervision for corrective action. **(T-2)**.

14.3.2.5. When out of configuration items or missing serially-tracked items are discovered, establish a single DD for the “out-of-configuration” condition. **(T-2)**.

14.3.2.5.1. Additionally, add a MIS WCE for each WUC/LCN and part/serial number item requiring verification to the single DD. **(T-2)**.

14.3.3. TCTO Management. TCTOs are AF, MAJCOM/Lead Command or Numbered Air Force (NAF) directed modifications and inspections that provide units with instructions for doing a one-time change, modification, or inspection of equipment, (includes applicable FAA Airworthiness Directives, original equipment manufacturer service bulletins and service instructions, after concurrence by Lead Command). Lead Command, NAF and local inspections are considered OTIs. 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. TCTOs, with the exception of immediate and urgent action, are considered scheduled maintenance and integrated into maintenance planning cycles. **(T-1)**. Consider concurrent accomplishment of TCTO work with other unscheduled or scheduled maintenance (such as, PH, ISO, HSC, HPO). Manage TCTOs using the MIS, TO 00-5-15 and specific MAJCOM instructions. **Note:** Communication of a grounding, or potential grounding event (TCTO, OTI, PM event) to weapon systems operating in a deployed environment and/or under the authority of an operational command must follow the grounding procedures outlined in AFI 11-401 and 63-101/20-101. Units must not directly communicate

home station requirements to its deployed forces but provide communication through their respective MAJCOM. **(T-1)**.

14.3.3.1. PS&D is responsible for managing all assigned weapon system TCTO programs and will monitor/provide oversight of all AF owned aircraft, weapon system, AGE and commodity TCTOs to ensure all compliance requirements are met. **(T-1)**.

14.3.3.1.1. Munitions-related TCTOs will be managed by the munitions scheduler (if assigned) and engine-related TCTOs will be managed by EM schedulers. **(T-1)**.

14.3.3.1.2. PMEL TCTOs will be managed by the owning agency with PS&D oversight. **(T-1)**.

14.3.3.1.3. The parent technical training center manages and schedules all TCTOs for training equipment assigned to a TD or Mobile Training Team.

14.3.3.2. PS&D will review MIS products weekly to ensure proper documentation and management by owning and managing TCTO agencies. **(T-1)**.

14.3.3.2.1. When an error is detected, PS&D will inform affected work centers and provide assistance to correct the discrepancy IAW TO 00-20-2. **(T-1)**.

14.3.3.2.2. Units will complete an annual TCTO status review between MIS and REMIS or equivalent systems. **(T-1)**.

14.3.3.2.2.1. Units will reconcile rescinded TCTOs using a REMIS Master TCTO report or equivalent annually (NLT 30 Sep) and before deleting/retiring TCTO records from the appropriate MIS. **(T-1)**.

14.3.3.2.2.2. If REMIS or equivalent access is not available, request a REMIS Master TCTO report or equivalent from the MAJCOM MDS Weapon Systems Team/Program Office identified in the subject TCTO. If TCTO status conflicts are identified, units will contact the applicable Lead Command to establish the process for resolving conflicts and facilitating status correction in REMIS or equivalent system. **(T-2)**.

14.3.3.2.2.3. Once all status errors are corrected, and reconciliation is complete and verified, IMDS units can delete the TCTO from the MIS. G081 automatically retires TCTOs 60 days after rescission, and all equipment shows as complete.

14.3.3.2.2.3.1. Document completion on AF Form 2411. **(T-1)**.

14.3.3.2.3. PS&D will brief the MXG/CC (or equivalent) weekly on unaccomplished TCTOs that are within 60 days of grounding. **(T-1)**.

14.3.3.2.3.1. Significant problems or potential delays in TCTO accomplishment will be brought to the immediate attention of the MXO OIC/SUPT and MXG/CC (or equivalent). **(T-2)**.

14.3.3.2.4. PS&D will chair a TCTO review meeting attended by all TCTO owning and managing agencies after the monthly supply TCTO reconciliation meeting. **(T-1)**. These meetings may be combined.

14.3.3.2.4.1. PS&D will discuss the supply reconciliation, supply status, scheduling factors, current TCTO status and anticipated problems for all active

TCTOs. **(T-2)**.

14.3.3.2.4.2. PS&D will produce meeting minutes on the AF Form 2410 and distribute to all affected agencies. **(T-3)**.

14.3.3.2.5. Depot-level TCTOs, excluding commodities, will be loaded and tracked in the MIS for auditing compliance and applicability. **(T-1)**.

14.3.3.2.5.1. Depot-level engine TCTOs will be loaded in CEMS only. **(T-1)**.

14.3.3.2.5.1. **(AFRC)** Exception: C-17 units will have depot level engine TCTOs loaded in the MIS **(T-2)**.

14.3.3.2.5.2. Units shall ensure dual reporting of completed depot-level TCTOs is prevented. **(T-1)**.

14.3.3.2.5.3. All field-level companion TCTOs for commodities must be loaded in the MIS. **(T-1)**.

14.3.3.2.6. PS&D will monitor, track, and administer all applicable CPINS as commodity TCTOs for configuration management purposes IAW TO 00-5-15 and TO 00-5-16. **(T-1)**.

14.3.3.2.6.1. PS&D will coordinate reprogramming of all passive/active aircraft internal and external electronic warfare systems and equipment with the wing Electronic Warfare Officer or equivalent before implementing any CPIN changes. **(T-1)**.

14.3.3.2.6.2. PS&D will coordinate with EM before issuing NSS/ETS CPINS. **(T-1)**.

14.3.3.2.7. When TCTOs are directed for items without serial numbers, assign permanent serial numbers IAW TO 00-20-2 and AFI 23-101. **(T-1)**.

14.3.3.2.7.1. For serial numbers that cannot be created IAW TO 00-20-2 or AFI 23-101, use the associated equipment serial number the item is assigned to (for example, an aircraft chock serial number would be 0000AXXXC1).

14.3.3.2.8. Control and Transfer of TCTO Kits. Units will transfer aircraft or equipment, with any TCTOs still pending completion, with their applicable TCTO kits. **(T-1)**.

14.3.3.2.8.1. Retain engine TCTO kits for engines installed on aircraft at depot locations if the aircraft is returning to that unit for TCTO compliance. **(T-2)**.

14.3.3.2.8.2. Transfer TCTO kits IAW AFI 23-101, TO 00-5-15 and TO 00-5-1. **(T-1)**.

14.3.3.3. Specific TCTO Responsibilities.

14.3.3.3.1. QA personnel will:

14.3.3.3.1.1. Review all new and revised technical data and TCTO's for completeness, accuracy and applicability. **(T-1)**. Inform applicable work centers of changes and up channel any problems discovered during this review. **(T-1)**.

14.3.3.3.1.2. Determine if the TCTO impacts W&B. **(T-1)**.

- 14.3.3.3.1.3. Distribute copies of TCTOs to the managing agency, performing work centers, and LRS. **(T-2)**.
- 14.3.3.3.1.4. Provide a supply cover letter requesting the number of items in supply (including WRM) affected by the TCTO. **(T-2)**.
- 14.3.3.3.1.5. Report all deficiencies in technical instructions and kit-proofing to the appropriate TCTO Manager IAW TOs 00-5-1 and 00-5-15. **(T-1)**.
- 14.3.3.3.1.6. Attend TCTO planning meetings. **(T-2)**.
- 14.3.3.3.1.7. Provide technical support to performing work centers. **(T-3)**.
- 14.3.3.3.1.8. **(Added-AFRC)** Track active TCTO reviews via a locally approved tracking method **(T-2)**.
- 14.3.3.3.2. PS&D personnel will:
- 14.3.3.3.2.1. Determine the total number of end items applicable to the TCTO. **(T-1)**.
- 14.3.3.3.2.1.1. Items that are assigned with the same Mission Design Series, WUC, Part Number, but are not applicable to the TCTO will be loaded in "22" status. **(T-1)**. This ensures accurate accountability that all equipment has been verified as being affected or not applicable to TCTO.
- 14.3.3.3.2.2. Chair a TCTO planning meeting with attendees from QA, owning and performing work centers and Flight Service Center/LRS IAW AFI 23-101, **Chapter 4. (T-1)**.
- 14.3.3.3.2.2.1. Record meeting minutes on AF Form 2410, or locally-developed product and provide an overall plan to implement the TCTO. **(T-2)**.
- 14.3.3.3.2.2.2. Minutes will include TCTO applicability by ID number (or applicable part number or serial number for commodity TCTOs), purpose of the inspection/modification and clearly identify and document the performing work centers, training requirements, scheduling parameters, remove from service date, a review of the TCTO procedures, form entries and supply requirements prior to scheduling the TCTO for completion. **(T-2)**.
- 14.3.3.3.2.2.3. All attendees sign the AF Form 2410, or locally developed product, at the conclusion of the planning meeting indicating agreement with the conditions. **(T-1)**.
- 14.3.3.3.2.3. Establish and maintain a TCTO folder for each active TCTO. **(T-1)**.
- 14.3.3.3.2.3.1. TCTO folders will be standardized and include the basic TCTO and any supplements, completed AF Form 2410, or locally developed product, AF Form 2001, *Notification of TCTO Kit Requirements* (if required), messages and the supply cover letter from QA (if required). **(T-2)**.
- 14.3.3.3.2.3.1. **(AFRC)** Units may use digitalized TCTO folders.
- 14.3.3.3.2.3.2. 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. **(T-1)**.

14.3.3.3.2.3.2.1. Move the folder to an inactive TCTO file. **(T-1)**.

14.3.3.3.2.3.2.2. The TCTO managing agency will maintain the folder until the TCTO is rescinded in the applicable MIS IAW TO 00-5-15. MIS TCTO records will be deleted (scheduled to retire for G081 users) at that time. **(T-1)**.

14.3.3.3.2.3.3. TCTOs will not be deleted from the MIS prior to the rescission date. **(T-1)**.

14.3.3.3.2.3.4. Validate in REMIS that no additional requirements have been submitted or extensions applied. **(T-1)**.

14.3.3.3.2.4. If an initial TCTO load is not received from REMIS or equivalent, notify the single manager and/or equipment specialist IAW TO 00-5-15. **(T-1)**.

14.3.3.3.2.5. Use the ILS-S to order required kits/parts/tools IAW MIS manuals. **(T-1)**. Kits, parts, tools, and software will be ordered within 24 hours of the TCTO meeting and document numbers input on the AF Form 2001. **(T-2)**. Locally manufactured and obtained parts will be documented on the AF 2001. **(T-2)**.

14.3.3.3.2.5.1. When ILS-S is not available, initiate three copies of the AF Form 2001 and forward two copies of the Form with a copy of the TCTO to the supply TCTO monitor. **(T-2)**.

14.3.3.3.2.5.2. For locally obtained parts, prepare an AF Form 2001 listing each item by NSN, noun and quantity required. **(T-2)**.

14.3.3.3.2.6. Assign ID numbers to kits as they are received. **(T-1)**.

14.3.3.3.2.6.1. Use **Part II** of the AF Form 2001 to manage kit/part assignment and track individual end items, date issued, document numbers and the number of kits remaining. **(T-1)**.

14.3.3.3.2.6.2. The LRS/Flight Service Center TCTO monitor will ensure kits and/or parts are assembled prior to release. **(T-1)**.

14.3.3.3.2.7. Control and release TCTO kits from LRS. **(T-1)**.

14.3.3.3.2.8. Notify appropriate MAJCOM, by message, when local managers anticipate a problem with TCTO compliance within prescribed time limits. **(T-1)**.

14.3.3.3.2.8. **(AFRC)** Send messages to HQ AFRC/A4M ([afrc.a4m@us.af.mil](mailto:afrc.a4m@us.af.mil)).

14.3.3.3.2.8.1. 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.

14.3.3.3.2.8.2. The message will be endorsed by MXG/CC (or equivalent) prior to submission to MAJCOM. **(T-2)**.

14.3.3.3.2.9. 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. **(T-1)**.

14.3.3.3.2.10. Schedule, track and monitor TCTO accomplishment. **(T-1)**.

14.3.3.3.2.10.1. 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. **(T-3)**.

14.3.3.3.2.11. Review suspense validation or equivalent inputs prior to processing TCTO suspenses and updating the MIS. **(T-1)**.

14.3.3.3.2.12. Annotate back-up MIS products as changes occur. **(T-1)**.

14.3.3.3.2.13. Ensure TCTOs are scheduled for completion prior to expiration or grounding date whichever comes first. **(T-1)**.

14.3.3.3.2.14. Schedule all workable TCTOs for accomplishment prior to permanent equipment transfer or storage input. **(T-2)**.

14.3.3.3.2.15. For TCTOs with compliance periods calculated in operating time (hours, cycles, starts, landings, or rounds) create a local JST and load the JST to the equipment; schedule for completion prior to expiration of the compliance period operating time. **(T-2)**. **Note:** Once compliance period operating time has been reached remove equipment from service until the TCTO has been completed. **(T-2)**.

14.3.3.3.2.15.1. Document the JST number in the TCTO notes.

#### 14.3.4. SI and TCI Management:

##### 14.3.4.1. Job Standard Master Listing (JML) Management.

14.3.4.1.1. PS&D will maintain (load, change, and delete) the JML for all inspections and time changes listed in the applicable aircraft/system -6 TO and commodity TOs. **(T-1)**.

14.3.4.2. Develop a matrix/chart depicting the total number of SIs and TCIs to be loaded in the MIS for each assigned aircraft/system. **(T-1)**.

14.3.4.2.1. Maintain JMLs for off-equipment items in the OWC. PS&D will provide written guidance and training for JML management of off-equipment JSTs when PS&D authorizes OWCs to maintain it. **(T-3)**.

14.3.4.2.2. For units using G081, Lead Commands must maintain master inspection and time change requirements.

14.3.4.2.3. Once Master Job Standard Numbers are fielded for a weapon system, local PS&D will review TO 00-20-2 for Master Job Standard Numbers procedures. **(T-1)**.

14.3.4.2.4. PS&D will load, change and delete JSTs in the MIS as soon as possible after receipt of any -6 TOs, or other TO, TCI or inspection change and will promptly notify all affected PS&D sections for action. **(T-1)**. PS&D will:

14.3.4.2.4.1. Load separate JSTs for all aircraft/systems -6 TOs special/scheduled inspections with frequencies greater than 30 days or 50 hours in the MIS. **(T-1)**.

14.3.4.2.4.1.1. Load PE, PH, engine changes and other event type inspections (such as, hard landing) as a JST in the MIS as they occur. **(T-1)**.

14.3.4.2.4.1.2. Provide training for maintaining JSTs as necessary. **(T-2)**.

14.3.4.2.4.2. Perform a semi-annual review of the JML and all JSTs for accuracy and currency to include off-equipment and decentralized activities. **(T-1)**.

14.3.4.2.4.2. **(AFRC)** Perform review of all JSTs in coordination with owning work centers and QA semi-annually, or when source data changes **(T-2)** Update MIS as required **(T-2)**.

14.3.4.2.4.2.1. Review matrix/chart depicting the total number of SIs and TCI requirements to be loaded in the MIS for each assigned aircraft/system. **(T-1)**.

14.3.4.2.4.2.2. Reconcile TCI and SI JSTs with the aircraft/systems -6 TOs and applicable commodity TOs and document the semi-annual review on AF Form 2411. **(T-1)**.

14.3.4.2.4.2.3. Units may create JSTs in the MIS to automate required documentation of repetitive or complex tasks (such as engine change, tire change, phase inspection, flight control maintenance).

14.3.4.2.4.3. Monitor the inspection and time change subsystems in the MIS. **(T-1)**.

14.3.4.2.4.3.1. Perform a monthly review of all inspections, SIs and TCI JSTs for each assigned aircraft. **(T-1)**.

14.3.4.2.4.3.2. Look for missing and/or excess inspections and TCIs loaded to the aircraft and ensure the accuracy of all due dates/times for TCIs and verify the Date of Manufacture (DOM) and Date of Installation (DOI). **(T-1)**.

14.3.4.2.4.3.2.1. TCIs will be loaded in the MIS with a part number and serial number. **(T-1)**.

14.3.4.2.4.3.3. Document the review and ensure corrections are made to the MIS. **(T-2)**.

14.3.4.2.4.3.4. Maintain the report on file with corrective actions until the next review. **(T-2)**. The use of automated verification tools is encouraged provided MIS data is the source for verification.

14.3.4.3. PS&D will manage the assigned weapon systems TCI program. **(T-1)**. PS&D Personnel will:

14.3.4.3.1. At least annually, meet with Egress and Aircrew Flight Equipment activities to verify each aircraft's egress data. **(T-1)**. **Note:** MAJCOM/Units may direct more frequent verification of Egress and Aircrew Flight Equipment as required to maintain system integrity.

14.3.4.3.1.1. Document all verification of aircraft's egress data on the AF Form 2411 maintained in the aircraft jacket file. **(T-1)**.

14.3.4.3.2. 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 -6 TO, AFMAN 21-201 or identified as Federal Supply Group 13 and Materiel Management Code AQ Items. **(T-1)**.



- 14.3.4.3.2.1. TCIs will be loaded in the MIS with a part number and serial number. **(T-1)**.
- 14.3.4.3.3. 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 -6 TO and applicable commodity TOs. **(T-1)**.
- 14.3.4.3.3.1. Load only the DOI or DOM JST that comes due first, in the MIS against a specific part or serial number. **(T-1)**.
- 14.3.4.3.3.2. As a minimum, when the DOI and DOM frequencies are identical, maintain the JST for the DOM. **(T-1)**. (N/A for G081 units).
- 14.3.4.3.3.3. Ensure component background information is provided by Egress to include a list of all components having multiple part numbers with a different service life. **(T-1)**.
- 14.3.4.3.3.3.1. Forecasting of CAD/PAD items for long-term CAD/PAD spare requirements will be accomplished by Ogden Air Logistics Complex through use of the Requirements Determination Module to extract installation and due dates from REMIS. **(T-1)**.
- 14.3.4.3.3.3.2. When CAD/PAD items or forecast requirements are not visible within the maintenance data system (for example, Contract Logistics Support managed components), units will forecast for TCIs IAW TO 00-20-9 and AFMAN 21-201. **(T-1)**.
- 14.3.4.3.3.3.3. Validate and consolidate TCI forecasts for items listed in TO 00-20-9, commodity TOs, and aircraft specific -6 TOs. **(T-1)**.
- 14.3.4.3.3.3.4. Submit consolidated forecasts to the appropriate Lead Command representative with an info copy to munitions operations. **(T-2)**.
- 14.3.4.3.3.3.5. Forward any quarterly updated forecasts to munitions operations. **(T-2)**.
- 14.3.4.3.4. Initiate, validate, and submit TCI extension requests to the Air Force Sustainment Center item manager with an info copy to munitions operations. **(T-1)**.
- 14.3.4.3.4.1. Ensure a copy of approved extension are placed in the affected aircraft's forms and removed when no longer required. **(T-1)**.
- 14.3.4.3.4.1. **(AFRC)** Original Due dates in the MIS will not be changed to reflect the extension date **(T-2)**
- 14.3.4.3.4.2. Maintain and monitor a suspense copy of the extension request and follow up prior to the grounding date of the TCI. **(T-1)**.
- 14.3.4.3.4.3. Refer to TO 00-20-1 and 00-20-9 for additional guidance on TCI extensions and maintain a copy of the Air Force Sustainment Center/System Program Director approved message until the item is replaced. **(T-1)**.
- 14.3.4.3.4.4. EM will generate engine TCI extension requests and coordinate through the Command Engine Manager to the appropriate Engine Program Office in AFLCMC. **(T-1)**.

14.3.4.3.5. Perform monthly reconciliation of all TCIs with LRS. **(T-2)**.

14.3.4.3.5.1. The reconciliation will consist of 100 percent validation of existing due-outs. **(T-2)**.

14.3.4.3.5.2. Inform FSC of any "mark for" changes or items no longer required. **(T-2)**.

14.3.4.3.6. Monitor and requisition TCI requirements based on projected equipment utilization. **(T-1)**.

14.3.4.3.6.1. Order parts using MIS or coordinate with LRS/DMS to order parts using AF Form 2005, unless otherwise specified in -11, -14 and -6 TOs. **(T-1)**.

14.3.4.3.6.2. TCIs are considered due for replacement at the HPO, PH, PE, HSC or ISO inspection nearest to the replacement due date IAW TO 00-20-1. **(T-1)**. **Note:** Life sustaining or CAD/PAD TCIs cannot exceed replacement interval in applicable -6 and commodity TOs without an approved extension/waiver from the Program Office/appropriate item manager.

14.3.4.3.6.3. Notify the Munitions Flight of the need to order munitions items IAW TO 00-20-9 and AFMAN 21-201. **(T-1)**.

14.3.4.3.6.3.1. Serviceable CAD/PAD TCIs components will not be turned into munitions operations until the remaining service life reaches 9-months or less. **(T-1)**. Serviceable CAD/PAD TCIs components with less than 9-months service life remaining will not be reissued. **(T-1)**.

14.3.4.3.6.3.2. Maintenance plans must reflect replacement dates to coincide within the 9-month parameter. **(T-2)**.

14.3.4.3.6.4. Order non-CAD/PAD or engine TCIs IAW AFI 23-101. **(T-1)**.

14.3.4.3.7. Schedule the time change in the MIS and incorporate it in the monthly/weekly/ quarterly maintenance schedule. **(T-2)**.

14.3.4.3.8. Review the data (DOM, DOI, LOT number, JST, and Due Date) entered by the performing work center. Ensure the suspense validation is updated in the MIS when the time change is completed (Suspense validation N/A for G081). **(T-1)**.

14.3.4.3.9. Coordinate management of respective TCIs with applicable maintenance and operation work centers. **(T-1)**.

14.3.4.3.10. Schedule drogue chute TCIs, except chute harnesses, for replacement during the drogue chute repack before the expiration of the component service or shelf life. **(T-2)**.

14.3.4.3.10.1. These components will not be over flown without an approved extension from the appropriate item manager. **(T-2)**.

14.3.4.3.10.1.1. A copy of approved extensions must be maintained in the affected aircraft's forms and removed when no longer required. **(T-1)**.

14.3.4.3.11. Prepare TCI forecasts IAW TO 00-20-9. **(T-1)**.

14.3.4.3.11.1. Provide squadron Operations Officers/MX SUPTs a forecast for

non-munitions items for their supply section. **(T-2)**.

14.3.4.3.12. To facilitate quarterly requisitioning, P&S will submit the quarterly validated time-change AFTO Form 223, Spreadsheet, or IMDS/G081 generated forecast to the Munitions Accountable System Officer. **(T-1)**. This must be submitted between 45 and 60 calendar days Continental United States (CONUS) or between 90 and 120 calendar days Outside Continental United States (OCONUS) before the next calendar year quarter IAW **Table 7.3**, OCONUS and CONUS Time Change Requisitioning Schedule IAW AFMAN 21-201. **(T-2)**. If aircraft is scheduled to be in depot when time change will be required home station P&S will coordinate with depot P&S to facilitate requisition of required assets by the depot munitions function IAW AFMAN 21-201 **Table 7.3**. time frames. **(T-1)**.

14.3.4.3.12.1. Validate current requirements against the annual forecast and make corrections based on aircraft utilization. **(T-2)**.

14.3.5. Major Maintenance Work Processing. PS&D will:

14.3.5.1. Coordinate on all TO 00-25-107 requests for AFI 21-103 reporting. **(T-2)**.

14.3.5.1.1. 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.

14.3.5.1.2. PS&D will make the appropriate PIC changes in the MIS when the 00-25-107 request has been submitted and/or received. **(T-1)**.

14.3.5.1.3. Depot-level assistance provided by contractor support will be accomplished IAW contract specifications. **(T-1)**.

14.3.5.2. Develop procedures in conjunction with QA for routing all major maintenance requests to ensure all affected parties are informed. **(T-2)**.

14.3.5.2. **(AFRC)** Ensuring affected parties are informed of a major maintenance request is the responsibility of the work center who initiates the 107 in conjunction with QA **(T-2)**

14.3.5.3. Conduct an initial meeting upon arrival of a DFT to validate maintenance support requirements are in place. **(T-2)**.

14.3.5.3.1. The meeting will be documented on an AF Form 2410, or locally-developed product. **(T-2)**.

14.3.5.3.2. PS&D will initiate/accomplish all PIC changes in the MIS. **(T-1)**.

14.3.5.3.3. Once work is completed, PS&D will ensure appropriate PIC are changed and a completed copy of the work package is placed in the aircraft jacket file. **(T-1)**.

14.3.5.3.3.1. PS&D will document significant historical data on the appropriate AFTO Form 95 IAW 00-20 series TOs. **(T-1)**.

14.3.6. Transfer Inspections.

14.3.6.1. Units will perform gaining/losing transfer inspections IAW TO 00-20-1, MAJCOM guidance and this instruction. **(T-1)**.

14.3.6.1.1. In conjunction with QA, develop a local JST for both gaining and losing aircraft and equipment transfer. **(T-2)**.

14.3.6.1.1.1. This JST must meet all TO 00-20-1, 2J-1-18, *Preparation for Shipment and Storage of Gas Turbine Engines*, applicable aircraft -6 and -21 TOs, as well as AFI 21-103 and MAJCOM specific transfer requirements. **(T-2)**.

14.3.6.1.1.2. Include all historical records (example, NDI records, Egress records, W&B records, OAP records, strut records) and other applicable items. **(T-2)**.

14.3.6.1.2. Losing PS&D ensures all actions are completed in the MIS prior to permanently transferring an aircraft to another unit. **(T-2)**.

14.3.6.1.3. Losing PS&D conducts a transfer pre-dock meeting one duty day prior to start of the aircraft transfer. **(T-2)**.

14.3.6.1.4. All items to be accomplished during the transfer inspection will be documented on an AF Form 2410, or locally-developed product, and scheduled in the MIS. **(T-2)**.

14.3.6.2. Losing PS&D will complete a total verification of all TCIs installed on the transferring aircraft. **(T-2)**.

14.3.6.2.1. Verify the correct computation of all due dates/hour/cycles based on DOM, DOI, installed times, or equivalent factors. **(T-2)**.

14.3.6.2.2. For IMDS units only:

14.3.6.2.2.1. Ensure the IMDS-REMIS synchronization programs are processed and errors are corrected prior to transfer. **(T-2)**.

14.3.6.2.2.2. Ensure an up-to-date Transfer of Equipment report and an AFTO Form 95 with current engine trend and performance data are placed in the aircraft jacket file. **(T-2)**.

14.3.6.2.2.3. Ensure a backup copy is maintained until receipt is verified by the gaining unit. **(T-2)**.

14.3.6.3. Losing PS&D will ensure an ADR is performed and conduct a transfer post dock meeting to ensure all required actions have been completed, all forms are current/accurate, and the MXG/CC (or equivalent) has certified each aircraft ready to transfer aircraft IAW TO 00-20-1, AFI 16-402 and AFI 21-103. **(T-1)**.

14.3.7. Acceptance Inspections. Units perform acceptance inspections IAW TO 00-20-1, MAJCOM guidance and this instruction.

#### **14.4. ENGINE MANAGEMENT (EM).**

14.4.1. Engine Management (EM). EM manages unit efforts to maintain adequate engine support for mission requirements. EM monitors engine removals and replacements, component tracking, engine TCTOs and TCIs, engine records in the MIS and CEMS and performs engine manager duties.

14.4.1.1. The MXG/CC will:

14.4.1.1.1. Ensure EM is the wing focal point for both the ET&D, Engine Health Management (EHM+) and Condition Based Maintenance Plus (CBM+) program when applicable. **(T-1)**.

14.4.1.1.2. Appoint a qualified 2A6X1, minimum 7-skill level, (or civilian equivalent) technician to manage the EHM+ and CBM+ program IAW AFMAN 20-116 for EHM products managed by AFLCMC/LP. If EHM data is not managed by AFLCMC/LP, ensure Contractor Logistics Support (CLS) provided EHM products are managed according to respective contract. **(T-1)**.

14.4.1.2. EM will:

14.4.1.2.1. Manage the MIS and CEMS by referencing applicable information in this instruction, AFI 23-101, TO 00-25-254-1, TO 00-20-5-1-3, *Instructions for Jet Engine Parts Tracking of OC-ALC/LPA Managed Engines*. **(T-1)**. Reference AFCSM 21-558, *Comprehensive Engine Management System* and applicable aircraft -6 TOs.

14.4.1.2.2. Coordinate with Propulsion Flight CC/SUPT and organization leadership to support WRE requirements. **(T-2)**.

14.4.1.2.3. Ensure plans, schedules, and maintenance actions are documented on assigned engines. **(T-1)**.

14.4.1.2.4. Provide TCI information (cycles remaining, EOT) on serially-controlled items to the Propulsion Flight and AMXS/AMU for engine and engine component CANN actions. **(T-1)**.

14.4.1.2.5. Ensure all engine SIs are loaded in MIS against the engine, not against the aircraft. **(T-1)**.

14.4.1.2.6. Ensure all engine/module inspections/TCIs tracked by EOT, Calculated Cycles (CCY), Total Accumulated Cycles (TAC), are loaded/tracked in the MIS and CEMS databases. **(T-1)**.

14.4.1.2.7. Ensure serial numbers erroneously input into CEMS are followed by a Possessor Change (6D) Transaction Condition Code (TCC). **(T-1)**.

14.4.1.2.7.1. After the TCC has successfully processed, notify the CEMS Program Management Office help desk stipulating the serial number was erroneously input and shall be deleted from CEMS, [cems.pmo.helpdesk@us.af.mil](mailto:cems.pmo.helpdesk@us.af.mil). **(T-1)**.

14.4.1.2.7.2. Create a JCN for engine, module or component data plate changes, modifications, re-identifications and new etchings and document changes in CEMS automated history. **(T-1)**.

14.4.1.2.7.3. A matrix by engine type shall be developed to depict specific inspection and TCI quantities for each TMS. Inspections tracked by flight hours must be loaded in the MIS. **(T-1)**.

14.4.1.2.8. Items that are assigned with the same TMS, WUC, Part Number, but are not applicable to the TCTO will be loaded in "22" status (refer to TO 00-20-2). **(T-1)**. This ensures accurate accountability that all equipment has been verified as being affected or not applicable to TCTO.

14.4.1.2.8.1. Comply with TCTO duties and responsibilities for engine items IAW this **Chapter**. **(T-1)**.

14.4.1.2.9. Manage TCTOs on all assigned engines and engine components, installed and uninstalled, as well as, manage TCTOs for support equipment to include engine trailers. **(T-1)**.

14.4.1.2.10. Accomplish quarterly TCTO status reviews and reconciliations IAW TO 00-25-254-1. **(T-1)**.

14.4.1.2.11. Maintain records on TCTO kits and status for all engines installed on aircraft sent to depot. **(T-2)**.

14.4.1.2.12. Manage time changes on all engines and engine components. **(T-1)**.

14.4.1.2.12.1. EM will forecast parts requests and ensure 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/CRF induction (see sections 14.2. and 14.3. of this instruction). **(T-1)**.

14.4.1.2.13. Reconcile all TCIs during the monthly TCI meeting with PS&D and LRS. **(T-2)**.

14.4.1.2.13.1. Reconciliation will consist of 100 percent validation of existing due-outs and a complete physical inventory of all issued TCIs. **(T-1)**.

14.4.1.2.13.2. Inform FSC of any “mark for” changes or items no longer required. **(T-2)**.

14.4.1.2.14. Maintain and update historical documents for all assigned engines, modules, and major assemblies that are not managed by a Performance Based Logistics or contractually by a Contract Logistics Support contract. **(T-1)**.

14.4.1.2.15. Check life-limited components forecast for additional component changes, TCTOs and SIs on all removed engines. **(T-1)**.

14.4.1.2.16. Coordinate with the propulsion Flight CC/SUPT to develop a detailed 6-month engine and module TCI removal forecast and publish the forecast in the monthly flying and maintenance schedule. **(T-2)**.

14.4.1.2.16.1. This 6-month forecast must be accomplished monthly using CEMS product E373/MIS products and the projected unscheduled removals based on the Unscheduled Removal Rate. **(T-2)**.

14.4.1.2.16.2. Removal rate formula (total number of unscheduled removals divided by flying hours, multiplied by 1000). Provide a copy of the forecast to maintenance leaders, PS&D, AMU and the MAJCOM engine manager. **(T-2)**.

14.4.1.2.16.2. **(AFRC)** Provide a copy of the forecast to HQ AFRC/A4MS ([afrc.a4ms@us.af.mil](mailto:afrc.a4ms@us.af.mil)).

14.4.1.2.17. Publish scheduled engine changes in the weekly and monthly maintenance schedule. **(T-2)**.

14.4.1.2.18. Verify engine total time versus aircraft total time, flying hours and manual cycles with PS&D during aircraft document reviews. **(T-1)**.

14.4.1.2.19. Maintain the portion of the JML for engine inspections and time changes. **(T-1)**.

14.4.1.2.19.1. Maintain (load, delete, and change) and conduct a semi-annual review of the JML for engine inspections and time changes listed in the aircraft -6 TO. **(T-2)**.

14.4.1.2.20. Establish a CEMS and MIS contingency plan for when either or both systems are down for more than 48 hours. **(T-1)**.

14.4.1.2.20.1. The plan will include procedures for retaining data in date-time order for input when MIS/CEMS operation resumes. **(T-1)**. The plan will also address both home station and deployed procedures. **(T-1)**.

14.4.1.2.21. Develop local engine tracking procedures and documentation methods to be used at deployed locations. **(T-1)**.

14.4.1.2.21.1. 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. **(T-1)**.

14.4.1.2.21.2. Procedures will ensure units take immediate action to correct all reporting errors between the base MIS and CEMS using the engine manager's data list. **(T-1)**.

14.4.1.2.22. Accomplish UEM duties IAW, AFI 23-101, AFPAM 63-129, TOs 00-25-254-1, 00-20-5-1-3, AFCSM 21-558, applicable aircraft -6 TOs and this instruction. **(T-1)**.

14.4.1.2.22.1. Act as liaison to the SRAN engine manager when part of a tenant unit is supported by the host base engine manager. **(T-1)**.

14.4.1.2.22.2. Provide the primary SRAN engine manager all quarterly reporting information required for submission to higher headquarters. **(T-2)**.

14.4.1.3. SRAN Engine Manager. The MXG/CC (or equivalent), will appoint a SRAN engine manager (if a host), or a UEM (if a tenant) to accomplish the duties IAW TO 00-25-254-1 and this instruction. **(T-1)**. The SRAN engine manager will:

14.4.1.3. **(AFRC)** Forward unit SRAN/Unit engine manager contact information to the Command Engine Manager (CEM) in HQ AFRC/A4MS ([afrc.a4ms@us.af.mil](mailto:afrc.a4ms@us.af.mil)) **(T-2)**.

14.4.1.3.1. Be selected from AFSC 2A or 2R, minimum 7-skill level (or civilian equivalent). **(T-1)**.

14.4.1.3.1.1. The assistant will be a minimum 5-skill level from the same AFSCs or civilian equivalent. **(T-2)**.

14.4.1.3.1.2. Both individuals will be aligned under EM. **(T-1)**.

14.4.1.3.2. Advise CMS or MXS/CC and MXG/CC (or equivalent), on administration of the base EM Program, engine maintenance concepts, principles, policies, procedures and techniques. **(T-1)**.

14.4.1.3.3. Act as the single point of contact between the unit, MAJCOM and MMA for EM questions. **(T-2)**.

14.4.1.3.4. Establish written procedures to support EM responsibilities IAW TO 00-25-254-1 and this instruction. **(T-1)**. Unit procedures must:

14.4.1.3.4.1. Specify responsibilities of affected work centers for accurate and timely MIS/CEMS reporting of TCTO, SI, TCI, and other documentation requirements (such as, borescope inspections, blade blending, CANN actions). **(T-1)**.

14.4.1.3.4.2. Ensure engine, module, and component data is reported to EM no later than close of business the first duty day after the event (for example, part removal, installation, time update, TCTO status change). **(T-1)**.

14.4.1.3.4.3. Address tenant, transportation, maintenance, aircraft distribution, supply, and support personnel requirements and be coordinated with the MAJCOM EM prior to publication. **(T-2)**.

14.4.1.3.4.3. **(AFRC)** Send written procedures to HQ AFRC/A4MS ([afrc.a4ms@us.af.mil](mailto:afrc.a4ms@us.af.mil)) for coordination.

14.4.1.3.5. Request Initialization Decks (I-Deck) for engines and major modules (cores, High Pressure Turbine (HPT), Low Pressure Turbine (LPT), fans), to include embedded parts, part number, serial number, EOT, inspections, active TCTOs and TCIs, from CEMS Central Database (CDB) and ensure data in the MIS matches the CEMS CDB. **(T-1)**.

14.4.1.3.6. Ensure deployed engine monitors are identified and trained to perform duties while deployed. **(T-1)**.

14.4.1.3.6.1. 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. **(T-2)**.

14.4.1.3.7. Perform engine manager duties for shipment and receipt of all assigned engines. **(T-1)**.

14.4.1.3.7. **(AFRC)** Prior coordination with the CEM is required for movement of engines **(T-2)**. HQ AFRC/A4MS ([afrc.a4ms@us.af.mil](mailto:afrc.a4ms@us.af.mil)) will issue a control number for all unit engine movements. This control number must be entered by the unit as part of the CEMS transaction initiating the turn-in and re-supply actions allowing discussion of the current unit status, replacement options, and required actions **(T-2)**. The following information is required when requesting an engine control number **(T-2)**:

14.4.1.3.7.1. **(Added-AFRC)** Engine Type.

14.4.1.3.7.2. **(Added-AFRC)** Unit.

14.4.1.3.7.3. **(Added-AFRC)** Engine Serial Number.

14.4.1.3.7.4. **(Added-AFRC)** How MAL Code.

14.4.1.3.7.5. **(Added-AFRC)** Reasons for Removal.



- 14.4.1.3.7.6. **(Added-AFRC)** QDR yes/no and details (QDR number, when received by unit).
- 14.4.1.3.7.7. **(Added-AFRC)** FOD yes/no. If yes, annotate FOD control number.
- 14.4.1.3.7.8. **(Added-AFRC)** Unit point of contact.
- 14.4.1.3.8. Perform periodic quality audits to monitor accuracy and timeliness of reporting. **(T-1)**.
- 14.4.1.3.9. Perform annual EM training for all affected personnel (back shop, test cell, flightline, aircraft maintenance scheduler) who report engine status or are responsible for engine documentation and scheduling IAW AFCSM 21-558, TOs 00-25-254-1 and 00-20-1/-2. **(T-1)**.
- 14.4.1.3.10. Maintain a jacket file of engine shipping documents and receipts. **(T-1)**.
  - 14.4.1.3.10.1. Obtain MAJCOM EM approval prior to returning engines to CRF/depot. **(T-2)**.
- 14.4.1.3.11. Perform duties and requirements for engine shipments IAW TOs 00-25-254-1, 00-85-20, 2J-1-18, and 2-1-18. **(T-1)**.
  - 14.4.1.3.11.1. 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. **(T-2)**. Notify MAJCOM EM and the owning SRAN EM if this time frame cannot be met.
- 14.4.1.3.12. The work folder will transfer with the engine. **(T-1)**.
  - 14.4.1.3.12.1. A copy will be maintained by the losing organization until verification of receipt by gaining unit. **(T-1)**.
  - 14.4.1.3.12.2. Gaining units will maintain the work folders and ship the documents with the engine to depot when appropriate. **(T-1)**.
    - 14.4.1.3.12.2.1. Gaining units will retrieve a copy of the previous EAWP from the Data Repository Center or equivalent data in the applicable MIS upon receipt of the engine. **(T-1)**.
    - 14.4.1.3.12.2.2. EAWP users are required to send completed EAWP files to the Data Repository Center or MIS equivalent within 3 duty days of EAWP close-out. **(T-1)**.
- 14.4.1.3.13. The SRAN EM will report the following in CEMS:
  - 14.4.1.3.13.1. Receipt transactions for engines as of the date and time engines are delivered from the transportation hold area and accepted at the JEIM facility. **(T-1)**.
  - 14.4.1.3.13.2. Shipment transactions with the “as of” date and time the engine(s) physically leave the base. **(T-1)**.
    - 14.4.1.3.13.2.1. Once engine is received at gaining unit, ensure trailer and adapter are transferred in MIS. **(T-1)**.
  - 14.4.1.3.13.3. All engine and tracked item removals, installations, and engine

status changes. **(T-1)**.

14.4.1.3.13.4. 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 TO 00-25-254-1. **(T-1)**.

14.4.1.3.14. Verify all update transactions (such as, times, TCTO, part removal and installations) are input before reporting an engine removal or installation. **(T-2)**.

#### **14.5. Maintenance and FHP Planning Cycle.**

14.5.1. Responsibilities. MAJCOMs will develop procedures to ensure the intent of the maintenance and FHP planning cycle is met. The objective of the planning cycle is to execute the wing FHP consistent with operational requirements and maintenance capabilities. The maintenance and FHP planning cycle begins with the annual allocation of flying hours. Maintenance and operations schedulers propose an annual flying plan that balances both operational requirements and maintenance capabilities. Units should commit the fewest number of aircraft possible to meet programmed Utilization (UTE) rate standards and goals.

14.5.1.1. If applicable, MAJCOMs will 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 maintenance and FHP planning cycle is met.

14.5.1.2. AMC units tasked by the 618th Air and Space Operations Center will adhere to Commander, Air Force Forces (COMAFFOR) Apportionment and Allocation Process (CAAP) policies and procedures.

14.5.1.3. The annual plan, detailed by month, will evaluate the capability of maintenance to support the annual FHP. **(T-1)**.

14.5.1.4. When developing the annual plan, units will utilize the MDS specific MxCAP2 model, or equivalent, if available. **(T-1)**.

14.5.1.5. Maintenance PS&D. PS&D builds, coordinates, publishes and distributes an integrated aircraft/system annual and quarterly plan & monthly and weekly schedule to support maintenance and operational requirements.

14.5.1.5.1. Plans will be developed, coordinated and consolidated jointly by the OSS's Current Operations Flight Scheduling, and PS&D. **(T-1)**.

14.5.1.5.2. The printed wing plan will include an assessment of the wing's ability to execute the FHP and will be coordinated with the OG/CC and MXG/CC before being approved by the WG/CC. **(T-1)**.

14.5.1.5.3. Plans and schedules may be published via electronic means (such as, web pages, SharePoint®, or e-mail) provided operations security is not compromised.

14.5.1.5.4. Normal daily operations and training schedules are For Official Use Only (FOUO) and shall not be restricted to classified systems. **(T-2)**.

14.5.2. 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, NLT 15 March, PS&D will coordinate with MMA, AMXS and MXS work centers to provide PS&D with historical attrition and projected manning production. **(T-2)**. This assessment will take into account personnel, facilities, and airfield infrastructure for each aircraft maintenance organization.

14.5.2. **(AFRC)** First Look requirements apply to A-10, B-52, F-16, HC-130, and HH-60 units only **(T-2)**.

14.5.2.1. In wings operating aircraft supported by the MxCAP2 model, PS&D will coordinate with the AMXS Operations Officer/MX SUPT to establish local requirements, responsibilities and procedures for utilizing the MxCAP2 model to develop, sustain or reflow FHP/contingency requirements. **(T-2)**.

14.5.2.2. The assessment will be provided to PS&D NLT the last workday of March. **(T-2)**. **Note:** AMC units tasked by the 618th Air and Space Operations Center will adhere to the CAAP policies and procedures.

14.5.2.3. PS&D will provide copies of the capability assessment to each OS scheduling section and maintenance supervision. **(T-1)**.

14.5.2.3.1. The assessment will provide first look maintenance capability projections in a monthly format IAW MAJCOM guidance. **(T-2)**.

14.5.2.3.2. The assessment will include operational requirements taking into consideration historical data that determines the average number of aircrew not available per month (DNIF, PME attendance, Leave, TDY, deployments), an assessment of maintenance ability to support the monthly requirement and an overall assessment of the unit's maintenance capability to meet the annual FHP (N/A for AMC units). **(T-2)**.

14.5.2.4. OS and maintenance responses are sent to PS&D and OSS's Current Operations Flight Scheduling and will be consolidated into a comprehensive package that includes a breakdown of the following items by OS:

14.5.2.4.1. Sortie UTE Rates (N/A to AMC units). **(T-2)**. Compute UTE rates by month for the entire FY for contracted (required) sorties and scheduled sorties using the formula: (number of sorties per month) divided by (number of Primary Aerospace Vehicle (Aircraft) Inventory (PAI) aircraft).

14.5.2.4.1. **(AFRC)** Information is provided by the Operations Support Squadron **(T-2)**.

14.5.2.4.2. Sorties contracted/scheduled per day (N/A to AMC units). **(T-2)**. Compute the number of sorties required per operations and maintenance (O&M) day to meet the operational requirement using the following formula: (Number of Sorties Required) divided by (Number of O&M days in a Given Month). Sorties per day need to be computed by month for the entire FY.

14.5.2.4.2. **(AFRC)** Information is provided by the Operations Support Squadron **(T-2)**.

14.5.2.4.3. Monthly scheduled sorties (N/A to AMC units). **(T-2)**. Compute monthly scheduled sortie requirements using the following formula: (Number of Sorties or Hours Required) divided by (1 Minus the Attrition Factor). For example, (1,000 sorties or hours required) divided by (1 minus 0.15) equals 1,177 sorties or hours to schedule. Round any part to the next whole sortie or hour.

14.5.2.4.3. **(AFRC)** Information is provided by the Operations Support Squadron **(T-2)**.

14.5.2.4.4. Inspection dock capability. **(T-2)**.

14.5.2.4.4. **(AFRC)** Information is provided by the Maintenance Squadron Maintenance Flight **(T-2)**.

14.5.2.4.4.1. Compute the number of PH/ISO inspections to be accomplished for each maintenance unit, by month, for the entire FY in order to meet operational requirements.

14.5.2.4.4.2. Compute dock capability using the following formula: (Number of O&M Days) divided by (Number of PH/ISO Days) multiplied by (Inspection Cycle) = Inspection Dock Capability. Inspection dock capability is provided at the wing level and provided by the squadron performing inspections.

14.5.2.5. Once compiled, first look packages will be presented to the OG and MXG/CCs before being presented to the WG/CC. **(T-1)**.

### 14.5.3. Annual Maintenance Planning Cycle.

14.5.3.1. MAJCOMs will develop procedures to ensure the objectives of the annual maintenance planning cycle are met.

14.5.3.1.1. At a minimum, MAJCOM procedures will produce an annual flying and maintenance plan that allocates sorties and hours into quarters, is approved by the WG/CC, and published prior to the beginning of the FY.

14.5.3.1.1. **(AFRC)** Once the Wing/CC approves the plan, the OG/CC and MXG/CC will provide a coordinated final flying hour program message to HQ AFRC/A3D ([HQAfrc.A3D.Workflow.1@us.af.mil](mailto:HQAfrc.A3D.Workflow.1@us.af.mil)) and HQ AFRC/A4M ([afrc.a4m@us.af.mil](mailto:afrc.a4m@us.af.mil)) **(T-2)**.

14.5.3.1.2. Due to the unpredictable nature of most future AMC mission requirements, units tasked by 618th Air and Space Operations Center will prepare flying and maintenance plans with focus on supporting local operational training requirements based on historical data as well as all known future maintenance and operational requirements.

14.5.3.2. Flying Hour Allocation. Using the MAJCOM Baseline Allocation message, PS&D, the OS, and OSS's Operations Scheduling will 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:

14.5.3.2.1. PS&D will provide updated capabilities which are computed by MMA and the PDM schedule. **(T-2)**.

14.5.3.2.1.1. **(Added-AFRC)** For A-10, B-52, F-16, HH-60, and HC-130 units, MMA will validate the capability studies that were completed during “First Look” **(T-2)**.

14.5.3.2.1.2. **(Added-AFRC)** For C-5, C-17, C-130H/J, WC-130J, C-40, and KC-135 units, MMA will initiate capability studies NLT 1 Jun **(T-2)**.

14.5.3.2.2. OSS will provide the:

14.5.3.2.2.1. Required flying hours and estimated sorties and missions in monthly increments. **(T-2)**.

14.5.3.2.2.2. Flying days in each month. **(T-2)**.

14.5.3.2.2.3. Aircraft and aircrew alert requirements. **(T-2)**.

14.5.3.2.2.4. Known and projected TDYs and special mission requirements. **(T-2)**.

14.5.3.2.2.5. Configuration and munitions requirements. **(T-2)**.

14.5.3.3. NLT 1 September, or within 10 working days after receipt of the planning factors, maintenance supervision will provide PS&D, SQ/CCs, and OSS’s Operations Scheduling the following planning factors:

14.5.3.3. **(AFRC)** Once all of the planning factors have been compiled and formulated, PS&D and OSS will chair an annual planning meeting with all required agencies **(T-2)**.

14.5.3.3.1. Estimated number of aircraft available by month, taking into consideration aircraft required for training. **(T-2)**.

14.5.3.3.2. A projected airframe capability statement. **(T-2)**.

14.5.3.3.3. Forecasted personnel capability, taking into consideration required training for maintenance personnel. **(T-2)**. (N/A to contract maintenance organizations).

14.5.3.3.4. The number of supportable sorties for each month. **(T-2)**.

14.5.3.3.5. An estimated monthly attrition factor provided by MMA. **(T-2)**.

14.5.3.3.5.1. The factor combines operations, weather and materiel (maintenance and supply) factors.

14.5.3.3.5.2. Maintenance is responsible for adding the attrition factor to operational requirements.

14.5.3.3.6. A recommended block scheduling pattern. **(T-2)**.

14.5.3.3.7. A statement of limitations. **(T-2)**.

14.5.4. Quarterly Maintenance and FHP Planning. Quarterly planning starts with the operational requirement for flying hours, UTE rate, airframe availability, alert and other related scheduling data.

14.5.4.1. MAJCOMs will develop procedures to ensure the objectives of the Quarterly Planning cycle are met.

14.5.4.2. The OS Operations Officer will provide these requirements to maintenance supervision and PS&D NLT 25 days before the beginning of the quarter. **(T-2)**.

14.5.4.3. Maintenance supervision and the OS Operations Officer will discuss these requirements at the scheduling meeting before the quarter being planned. **(T-2)**.

14.5.4.4. Schedulers will ensure quarterly plans are as detailed and accurate as possible. **(T-2)**.

14.5.4.4.1. Plans should include known special missions, PDM schedules, HHQ commitments and lateral command support requirements.

14.5.4.4.2. All maintenance requirements will be consolidated into a single, quarterly plan using AF Form 2401, Equipment Utilization and Maintenance Schedule, or computer-generated form. **(T-1)**.

14.5.4.4.2.1. Specific locally-developed codes will be used to identify inspections, SI, TCI, and TCTO on the AF Form 2401. **(T-2)**.

14.5.4.4.3. As a minimum, the quarterly plan will show the next 3 months planned sorties and known maintenance requirements. **(T-1)**.

14.5.4.4.3.1. Known maintenance requirements include all maintenance events that impact aircraft availability and require management attention to ensure proper Time Distributed Index flow.

14.5.4.4.3.2. Consolidate as many scheduled maintenance events as practical, to reduce individual aircraft downtime, increase Aircraft availability, and minimize the number of times per month an aircraft is removed from the schedule due to scheduled maintenance requirements.

14.5.4.4.3.2.1. The intent is to reduce the number of times per month an aircraft is removed from the schedule for scheduled maintenance, thus increasing aircraft availability.

14.5.4.4.3.2.2. Unit/Wing/MAJCOM requests to change the frequency of -6 TO requirements to increase bundling opportunities will be submitted through the applicable Lead Command for consideration and/or resolution. **(T-2)**.

14.5.4.4.3.2.2. **(AFRC)** Submit through HQ AFRC/A4MA ([afrc.a4ma@us.af.mil](mailto:afrc.a4ma@us.af.mil)) **(T-2)**.

14.5.4.4.3.3. To prevent operational utilization for that day(s) flying schedule, the quarterly plans will include, at a minimum, calendar inspections that hold an aircraft down, calendar TCIs, TCTOs in workable status, PDM schedules, training aircraft, cannibalization aircraft and aircraft ISO/PE/PH inspections. **(T-2)**.

14.5.4.4.3.4. 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. **(T-2)**.

14.5.4.4.3.5. 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. **(T-2)**.

14.5.4.4.4. Revise weekly schedule and monthly plan to meet the quarterly plan objectives while staying within the maintenance capability. **(T-2)**.

14.5.4.4.5. Use the following priority to determine which objectives to support if a lack of resources prevents meeting requirements:

14.5.4.4.5.1. Alert commitments. **(T-2)**.

14.5.4.4.5.2. HHQ directed missions. **(T-2)**.

14.5.4.4.5.3. Training. **(T-2)**.

14.5.4.5. The OG/CC and MXG/CC (or equivalent) chair a quarterly meeting NLT 14 days before the next quarter.

14.5.4.5.1. OSS's Current Operations Flight Scheduling will compile, coordinate and brief the unit's quarterly plan and include operational requirements, support capability and any difficulties expected. **(T-2)**.

14.5.4.5.2. Once an approved quarterly plan is established, OSS's Current Operations Flight, Scheduling will forward a copy to the OS, AMXS, OG/CC and MXG/CC along with all scheduling agencies. **(T-2)**.

14.5.4.5.3. The plan will be posted so it may be viewed by both maintenance and operations. **(T-2)**.

14.5.5. Monthly Maintenance and FHP Planning.

14.5.5.1. Wings will develop procedures to ensure the objectives of the monthly planning cycle are met. **(T-2)**.

14.5.5.1.1. Include predictable maintenance factors based on historical data along with other inputs, such as flow times for maintenance, turnaround times and parts replacement schedules.

14.5.5.1.2. MAJCOMs will develop maintenance scheduling effectiveness guidance in their supplements to this AFI. **(T-2)**.

14.5.5.1.2. **(AFRC)** See [Attachment 10](#) for MSE requirements.

14.5.5.2. The monthly flying and maintenance plan schedule refines the quarterly plan by combining all aspects of aircraft utilization and will include:

14.5.5.2.1. 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. **(T-2)**.

14.5.5.2.1.1. Do not assign attrition sorties to a specific aircrew/mission for the monthly planning process. **(T-2)**.

14.5.5.2.2. Monthly maintenance requirements (as required). **(T-2)**.

14.5.5.2.3. Transient work schedule, if applicable. **(T-2)**.

14.5.5.2.4. Scheduled inspections, TCTOs, engine changes, time changes, DDs, contract or depot maintenance, washes, corrosion control, training aircraft and all other known maintenance requirements. **(T-2)**.

- 14.5.5.2.5. SE scheduled inspections, contract or depot maintenance, TCTOs, time changes, DDs, washes and corrosion control. **(T-2)**.
  - 14.5.5.2.6. Avionics and other off-equipment maintenance scheduled inspections, TCTOs, assembly or repair operations. **(T-2)**.
  - 14.5.5.2.7. Engine/module 6-month removal forecast and in-shop inspection requirements. **(T-2)**.
  - 14.5.5.2.8. Munitions, photo, ECM and other mission loading or configuration requirements, including ammunition changes. **(T-2)**.
  - 14.5.5.2.9. Total ordnance requirements for aircraft support. **(T-2)**.
  - 14.5.5.2.10. Tanks, Racks, Adapters and Pylons and WRM scheduled inspections, TCTOs, assembly or repair operations. **(T-2)**.
  - 14.5.5.2.11. Monthly training schedules, if not published separately. **(T-2)**.
  - 14.5.5.2.12. Detailed support requirements (such as, Petroleum, Oil, and Lubricants servicing, supply, food service, fire department, security, civil engineer, and airfield operations requirements). **(T-2)**.
  - 14.5.5.2.13. All known operational events (such as, exercises, deployments, surges) to determine maintenance capability to meet operational needs. **(T-2)**.
- 14.5.5.3. Monthly planning cycle requirements.
- 14.5.5.3.1. NLT the first weekly scheduling meeting of the month, the OS Operations Officer will provide maintenance supervision and PS&D with the estimated operational needs for the following month in as much detail as possible. **(T-2)**.
    - 14.5.5.3.1.1. To optimize aircraft and munitions support, CMS, EMS, MUNS, MXS, AMXS, and OS will ensure the number of aircraft, and/or munitions configurations, are minimized and standardized. **(T-2)**.
    - 14.5.5.3.1.2. Include known takeoff times, landing times and flying hour windows. **(T-2)**. **Note:** Landing times are not required if the unit has an established and constant average sortie duration.
  - 14.5.5.3.2. The OS Operations Officer and maintenance supervision will review their applicable portion of the monthly maintenance plan and weekly schedule prior to submission to PS&D. **(T-2)**.
  - 14.5.5.3.3. NLT the second weekly scheduling meeting of the month, AMXS maintenance supervision will notify the OS Operations Officer whether requirements can be met or limitations exist and collectively make necessary adjustments to the proposed schedule to satisfy maintenance and operational requirements. **(T-2)**.
  - 14.5.5.3.4. MXG/CC and OG/CC will formalize the next month's flying and maintenance plan prior to presenting it to the WG/CC for approval NLT the third scheduling meeting of the preceding month. **(T-2)**.
- 14.5.5.4. WG/CC's monthly scheduling meeting.



- 14.5.5.4.1. OS scheduling will outline past accomplishments, status of flying goals, problems encountered and detailed needs for the next month. **(T-2)**.
- 14.5.5.4.2. PS&D will outline projected maintenance capability and aircraft/equipment availability. **(T-2)**.
- 14.5.5.4.3. If conflicts arise between operational requirements and maintenance capability, present alternatives and limitations, the MXG/CC (or equivalent), OG/CC and WG/CC will decide what portion of the mission to support and to what degree. **(T-2)**.
- 14.5.5.5. When the WG/CC approves/signs the proposed monthly flying plan, PS&D will include it as a portion of the monthly flying and maintenance plan. **(T-2)**. Monthly plans may be published electronically provided local security requirements are met.
- 14.5.6. Weekly Scheduling. The weekly schedule is the final refinement to the monthly plan and results in the weekly flying and maintenance schedule.
- 14.5.6.1. Wings will develop procedures to ensure the objectives of the weekly scheduling process are met. **(T-2)**.
- 14.5.6.1.1. PS&D will review matrix/chart depicting the total number of SI and TCI requirements to be loaded in the MIS for each assigned aircraft/system and verify against the MIS totals weekly. **(T-1)**. Overdue and uncorrected discrepancies will be briefed weekly during a daily production/scheduling meeting chaired by the MXG/CD (or equivalent). **(T-2)**.
- 14.5.6.2. NLT 2 workdays before the weekly scheduling meeting, the OS Operations Officer will provide maintenance supervision the following information (as required for missile units):
- 14.5.6.2.1. Aircraft takeoff and landing times. **(T-2)**.
  - 14.5.6.2.2. Configuration requirements. **(T-2)**.
  - 14.5.6.2.3. Munitions requirements. **(T-2)**.
  - 14.5.6.2.4. Fuel loads. **(T-2)**.
  - 14.5.6.2.5. Special or peculiar mission support requirements. **(T-2)**.
  - 14.5.6.2.6. Alert requirements. **(T-2)**.
  - 14.5.6.2.7. Exercise vulnerability. **(T-2)**.
  - 14.5.6.2.8. Deployments. **(T-2)**.
  - 14.5.6.2.9. Off-base sorties. **(T-2)**.
  - 14.5.6.2.10. On-equipment training requirements. **(T-2)**.
  - 14.5.6.2.11. Other special requirements. **(T-2)**.
  - 14.5.6.2.12. All mission unique requirements are annotated by OS Operations Officers on the weekly and daily flying schedule. **(T-2)**.
- 14.5.6.3. Home and deployed units will publish a weekly schedule. **(T-1)**. Include the following in the weekly flying and maintenance schedule:

14.5.6.3. (AFRC) Job Control Numbers and flying schedule will be loaded in IMDS/G081 by 1600L on Fridays (T-2). **Exception:** On UTA weekends, the flying schedule and maintenance job control numbers may be loaded by 1600L Sunday. G081 units use screen 9074 to load the flying schedule.

14.5.6.3.1. Sortie sequence numbers, aircraft tail numbers (primary and spares), scheduled takeoff and landing times, aircraft or equipment scheduled use times, configurations, fuel loads, and special equipment requirements. (T-2). Units that fly a published and constant average sortie duration need not publish land times.

14.5.6.3.2. Spare aircraft requirements. (T-2). Spare requirements are printed by day for each maintenance unit. Generate only the absolute minimum of spare aircraft.

14.5.6.3.3. 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. (T-2).

14.5.6.3.4. Required pre-inspection and other maintenance/scheduling meetings. (T-2).

14.5.6.3.5. Wash rack use. (T-2).

14.5.6.3.6. On-equipment training requirements. (T-2).

14.5.6.3.7. AGE inspections or maintenance schedule by type and ID number. (T-2).

14.5.6.3.8. MAJCOMs will develop standardized procedures to record and coordinate changes to the weekly schedule using an AF Form 2407 or electronic equivalent. Include minimum approval levels for approving changes to the weekly schedule.

14.5.6.3.8. (AFRC) See [Attachment 12](#) for AF Form 2407 procedures and approval authority.

14.5.6.3.9. Any change to the printed schedule will require an AF Form 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. (T-2).

14.5.6.3.9.1. Changes made during the daily scheduling meeting also require an AF Form 2407. (T-2).

14.5.6.3.9.2. The agency requesting the change initiates the AF Form 2407 and coordinates it IAW MAJCOM procedures. (T-2).

14.5.6.4. The OS Operations Officer and Maintenance Supervision will review and coordinate on the proposed weekly flying and maintenance schedule with OS, AMXS, MXS, CMS, and EMS prior to presenting it to the OG/CC and MXG/CC (or equivalent). (T-1).

14.5.6.5. The approved schedule will be submitted to PS&D for compilation and a complete copy provided to the WG/CC. (T-3).

14.5.6.6. At the weekly scheduling meeting wings will evaluate the past week's accomplishments (to include flying and MSE) and negotiate/approve refinements to the coming week's schedule. **(T-2)**.

14.5.6.6.1. The AF Form 2402, *Weekly Equipment Utilization and Maintenance Schedule*, or locally developed product, will be used to summarize the upcoming week's schedule. **(T-2)**.

14.5.6.6.2. The AF Form 2403, *Weekly Aircraft Utilization/Maintenance Schedule*, or locally-developed equivalent product that contains all requirements and creates a finite depiction of aircraft utilization and maintenance. **(T-2)**.

14.5.6.7. Once the weekly schedule is reviewed and signed by the OG/CC, MXG/CC (or equivalent), and WG/CC it becomes the final planning guide for both operations and maintenance and the basis for deviation reporting. **(T-1)**.

14.5.6.7.1. The schedule will be followed as printed or as amended by coordinated changes. **(T-1)**.

14.5.6.7.2. Coordinated changes do not negate reporting deviations IAW MAJCOM guidance.

14.5.6.8. PS&D will distribute the schedule to each appropriate activity and work center NLT time determined in MAJCOM supplements to this AFI. **(T-2)**.

14.5.6.8. **(AFRC)** PS&D will distribute the published weekly schedule to required organizations NLT 1200 Friday preceding the effective week **(T-2)**.

14.5.6.8.1. Weekly schedules may be published electronically provided local security requirements are met.

14.5.7. **(Added-AFRC)** All published schedule signatures must be wet or electronic not typed **(T-2)**.

## **14.6. Contingency and Expeditionary Responsibilities.**

14.6.1. Responsibilities of Contingency/Expeditionary (Cont/Exp) units, for example, maintaining non-assigned aircraft. **Note:** This does not include AMC-established enroute stations.

14.6.1.1. Most planning and scheduling is the responsibility of units with assigned aircraft and is provided through reachback support to home stations. Contingency units have fewer responsibilities as described below. Commanders of expeditionary units will ensure the intent of the guidance is met, when the dynamic nature of a Cont/Exp organization make strict adherence impossible. **(T-1)**.

14.6.1.2. Cont/Exp PS&D will conduct the following programs as outlined below:

14.6.1.2.1. ADR, pre- and post-dock meetings, acceptance inspections (from DFT/CFTs) and the major work program. **(T-1)**.

14.6.1.2.1.1. Cont/Exp PS&D will use the procedures developed by the aircraft-owning organizations. **(T-1)**.

14.6.1.2.1.2. If aircraft from multiple bases/units are supported, procedures do not

have to be standardized.

14.6.1.3. Ensure discrepancies noted by the aircraft-owning PS&D for the Aircraft Configuration Management, TCI and SI programs are corrected. **(T-1)**. Cont/Exp PS&D will not develop programs independent of the aircraft owning organization. **(T-1)**.

14.6.1.4. Develop local coordination procedures for contingency aircraft affected by Immediate and Urgent Action (I/UA) TCTOs. **(T-1)**.

14.6.1.5. When notified by the aircraft-owning organization of an I/UA TCTO, the Cont/Exp PS&D will host a TCTO meeting. **(T-1)**.

14.6.1.5.1. The purpose of the meeting is to determine if the Cont/Exp unit has the maintenance capability to perform the TCTO.

14.6.1.5.1.1. Invite AMU, QA and affected work centers. Cont/Exp will notify the Expeditionary Maintenance Group Commander (EMXG/CC) of the unit's capability to perform the TCTO. **(T-1)**.

14.6.1.5.1.2. Develop and implement local tracking methodology to track TCTO completion. **(T-1)**.

14.6.1.5.1.3. Update MIS when the aircraft-owning Cont/Exp PS&D loads the requisite JST/JCNS. **(T-1)**.

14.6.1.5.1.4. If the Cont/Exp unit does not have the maintenance capability to perform the TCTO, Cont/Exp PS&D will notify the owning organization of that inability. **(T-1)**.

14.6.1.5.2. Cont/Exp PS&D will only maintain aircraft I/UA TCTO files while active. **(T-1)**.

14.6.1.5.2.1. Once TCTOs are completed and loaded in MIS, records will be sent to home station for filing. **(T-1)**.

14.6.1.5.2.2. A TCTO meeting is not necessary for Routine Action aircraft TCTOs.

14.6.1.5.3. A full TCTO program IAW this **Chapter** is required for AGE and other special equipment which is assigned to the contingency unit. **(T-1)**. This is intended to cover equipment that does not rotate with aviation packages.

14.6.1.5.4. Monthly and weekly maintenance planning. Cont/Exp PS&D will produce maintenance plans detailing all known maintenance requirements for the upcoming month/week. **(T-1)**.

14.6.1.5.4.1. This plan will detail by tail number, due date, JST and a description of the scheduled maintenance required for the time period. **(T-1)**.

14.6.1.5.4.1.1. Use of the AF Form 2401 is not required.

14.6.1.5.4.1.2. The list will be published 2-days prior to the covered time period, coordinated through maintenance supervision, and approved by the EMXG/CC. **(T-3)**.

14.6.1.5.4.2. The weekly schedule will additionally identify those actions which will be deferred. **(T-1)**.

14.6.1.5.4.2.1. It will specifically identify if the action is deferred for mission requirements or due to a lack of capability. **(T-1)**.

14.6.1.5.4.2.2. Actions which are not identified as “pre-deferred” are expected to be accomplished during the upcoming week.

14.6.1.5.4.3. MSE will not be calculated for Cont/Exp units. **(T-2)**. It is anticipated that Cont/Exp units require a great deal of flexibility to meet mission requirements.

14.6.1.6. Cont/Exp organizations are not responsible for Aircraft Generation Planning, Transfer Inspections, Flying/Maintenance Planning Cycle, First Look, Annual/Quarterly Mx Planning, AVDO and 2R1 functional management responsibilities.

14.6.1.7. Cont/Exp PS&D will develop procedures with home station AVDOs to communicate and ensure AVDO responsibilities are performed. **(T-1)**.

## Chapter 15

### AIRCRAFT SUN SHADE SUSTAINMENT

**15.1. Purpose:** This **Chapter** outlines overall management responsibilities for aircraft sun shades, crew shelters and portable/inflatable shelters. Additionally, it provides guidance and a standardized approach to procure and sustain these equipment items.

**15.2. Scope:** Applies to all AF units possessing or procuring these equipment items to support logistics operations and flight line or maintenance areas. This includes conventional force logistics units; nuclear and nuclear support units; cyber and space; special operations; wholesale-level procurement, sustainment, and maintenance; aerial port squadrons; logistics readiness squadrons; research, test, and development units. It does not include medical logistics, civil engineering logistics, security forces units and communications units.

15.2.1. Aircraft sun shades and other shelter types as defined below and addressed in this **Chapter** are considered equipment items for accountability purposes and will be tracked/accounted for on appropriate documents on a CA/CRL and managed IAW AFMAN 23-122. **(T-1)**.

15.2.1.1. These assets are not listed on unit authorized equipment tables of allowance because they are not required support equipment for weapons systems. These assets are the responsibility of the owning organization.

15.2.1.2. Commanders will ensure all other applicable organizations with appropriate subject matter expertise are involved in the procurement, installation, repair, sustainment, and replacement of these assets. **(T-1)**.

15.2.1.3. Aircraft sun shades are not considered as temporary or relocatable facilities associated with Military Construction (MILCON) projects. Procedures for temporary or relocatable facilities associated with MILCON projects are contained in AFI 32-1021, *Planning and Programming Military Construction (MILCON) Projects*. Relocatable buildings are designed to be readily erected, disassembled, stored, moved, and reused to meet a short-term requirement for facilities due to either transitory peak requirements or urgent requirements pending approval, such as construction of facilities via normal military construction programs. According to AFI 32-1021, **Chapter 6**, Relocatable and Temporary Facilities, the terms temporary and relocatable are interchangeable. Furthermore, AFI 32-1021 provides guidance on satisfying interim facility requirements using relocatable or temporary facilities. Aircraft sun shades are not incident or interim to a MILCON project, nor are they in place to meet a temporary requirement; therefore the terms temporary or relocatable as used in AFI 32-1021 do not apply to aircraft sunshades.

15.2.1.4. Aircraft sun shades are not intended to replace aircraft maintenance hangars and as such there is no requirement associated with aircraft specifications or square footage allowances contained in AFMAN 32-1084.

### 15.3. Definitions.

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

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

15.3.3. Portable/Inflatable shelters: A structure constructed using layers of membrane connected together using pressurized air to produce a structure which covers limited areas (such as, cargo aircraft engine, open fuel tanks) of an aircraft or equipment.

15.3.4. Allied support: Utilities (electrical, water, air, communications) provided up to a stub at each aircraft sun shade. Utilities are real property assets. Installation of new utility services carries a work classification of Construction. See [Paragraph 15.11](#)

#### 15.4. Headquarters Air Force.

15.4.1. AF/A4L will:

15.4.1.1. Develop, articulate, and clarify all AF aircraft sun shade policies.

15.4.2. The Directorate of Civil Engineers (AF/A4C) will:

15.4.2.1. Provide input for development and clarification of aircraft sun shade policies.

15.4.2.2. Determine appropriate A4C agencies responsible for procurement consultation to the field.

15.4.2.3. Develop allied support guidance in relation to aircraft sun shades.

#### 15.5. MAJCOM A4s will:

15.5.1. Provide input to AF/A4L on AF aircraft sun shade policies.

15.5.2. Review all plans for procurement, installation and sustainment of aircraft sun shades for initial procurement with assistance from MAJCOM/A3, A4, Safety, AF Installation and Mission Support Center (AFIMSC) or Primary Subordinate Unit (PSU) Air Force Civil Engineer Center (AFCEC) as outlined in Paragraphs [15.7.1.11](#) and [15.8](#).

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

15.5.3.1. **(Added-AFRC)** To procure new/replacement aircraft sunshades, organizations must meet one of the requirements in paragraphs [15.3.3.1.1](#) or [15.3.3.1.2](#) The climatic data that was used to validate these requirements was retrieved using the Operational Climatic Data Summary (OCDS-II) web site: <https://proxy.afccc.af.mil/OCDS-II/> (T-2).

15.5.3.1.1. **(Added-AFRC)** The base must experience a 10-year average Wet Bulb Globe Temperature (WBGT) of > 82° F for a minimum of two months out of the year. See [Table 15.1](#) for WBGT data (T-2).

15.5.3.1.2. **(Added-AFRC)** The base must experience a 10-year average of 19 inches or more of snow annually. See [Table 15.2](#) for snowfall data (T-2).

**Table 15.2. (Added-AFRC) Snowfall 10-Year Annual Average Inches**

Snowfall 10-Year Annual Average Inches (2008-2018)	
Duke Field, FL	0.1
Patrick AFB, FL	0
Davis-Monthan AFB, AZ	0
Whiteman AFB, MO	19.2
Homestead AFB, FL	0
Carswell AFB, TX	2.8

**Table 15.1. (Added-AFRC) Average Maximum Wet Bulb Globe Temperature**

Average Maximum Wet Bulb Globe Temperature (WBGT) 10-Year Average (2008-2018)				
BASE	JUNE Average Max WBGT	JULY Average Max WBGT	AUGUST Average Max WBGT	SEPTEMBER Average Max WBGT
Duke Field, FL	85	87	87	83
Patrick AFB, FL	85	87	88	85
Davis-Monthan AFB, AZ	73	78	83	83
Whiteman AFB, MO	83	87	87	78
Homestead AFB, FL	87	87	88	87
Carswell AFB, TX	87	90	92	85

15.5.4. Review and coordinate all plans with MAJCOM/A3, A4, Safety, AFIMSC or PSU AFCEC and the proper civilian airport authorities (when applicable) prior to approving the procurement or installation of aircraft sun shades.

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

15.5.6. Provide field operating and sustaining organizations direction on the specific types and sizes of aircraft sun shades to use for each application.

## 15.6. Owing Organization.

15.6.1. The owning organization is the group level or equivalent organization responsible for the planning, funding, procurement, installation, maintenance, and lifetime sustainment of the



aircraft sun shade including any installed utilities (lighting, obstructions in front of lighting, electrical, communications included in the project scope as defined in Paragraphs [15.3.4](#) and [15.8.8](#). (T-1).

15.6.1.1. Owning organizations may install aircraft sun shades, upon MAJCOM/A4 approval, to provide protection from the sun or other weather events such as: rain, sleet, snow. (T-1).

15.6.1.1. (AFRC) Obtain AFRC/A4 approval of Statement of Work (SOW) or Performance Work Statement (PWS) packages using the electronic AF Form 1768, Staff Summary Sheet, (e-SSS). Send the completed e-SSS with SOW or PWS and any supporting documents (outlined in [paragraph 2.5.1.5](#)) to the “AFRC/A4M Maintenance” Workflow e-mail box ([afrc.a4m@us.af.mil](mailto:afrc.a4m@us.af.mil)). The completed e-SSS will be coordinated (including sub-organization coordination) and signed by the following base agencies prior to AFRC/A4 approval (T-2):

15.6.1.1.1. (Added-AFRC) Base Air Field Management

15.6.1.1.2. (Added-AFRC) Host and Tenant (as applicable) SE

15.6.1.1.3. (Added-AFRC) Host and Tenant (as applicable) MSG/CC

15.6.1.1.4. (Added-AFRC) Host and Tenant (as applicable) MXG/CC

15.6.2. Owning organizations are responsible for the aircraft sun shade grounding system beginning at the single point service ground. Owning organizations shall test the aircraft sun shade grounding system IAW AFI 32-1065, *Grounding Systems*. (T-1). **Note:** These responsibilities can be contracted as outlined in [Paragraph 15.8.8](#)

15.6.2.1. Owning organizations will ensure that Base Civil Engineer accepts the Lightning Protection Systems prior to accepting the facility, ensuring the lightning protection system is compliant and that the facility is immediately usable IAW AFI 32-1065. (T-1).

15.6.3. The owning organization is responsible for maintaining and storing manufacturer design drawings and specifications, and providing ready access to installation agencies as necessary. (T-1).

15.6.4. For each procurement, and each aircraft sun shade related contracting effort (such as inspection and sustainment contracts) referenced in [Paragraph 15.10.3](#) of this publication, the owning organization will provide and appoint a Contracting Officer Representative (COR) who reports to the contracting officer on all aspects of implementation of the contract. (T-1).

15.6.4.1. For these same procurements and contracting actions, the owning organization will, in agreement with the local Civil Engineering organization request a Civil Engineering representative to advise on technical requirements of the procurement. (T-1).

15.6.4.2. The CE advisor will assist the COR in:

15.6.4.2.1. Enforcing established engineering standards or inspection criteria as defined and incorporated in the procurement/sustainment contract in order to address safety and integrity of the structure. (T-1).

15.6.4.2.2. Providing quality oversight authority for any technical/serviceability inspections performed on the structure by the contractor. (T-1).

15.6.5. (Added-AFRC) Owing Organization CC will:

15.6.5.1. (Added-AFRC) Consider the standardized ACC Aircraft Sunshade Procurement Statement of Work (SOW) for use when procuring new or upgrading/replacing existing sunshades (T-2). Submit any requests for further guidance or direction to the “AFRC/A4M Maintenance” Workflow e-mail box ([afrc.a4m@us.af.mil](mailto:afrc.a4m@us.af.mil)).

15.6.5.2. (Added-AFRC) Consider the standardized ACC Aircraft Sunshade Sustainment Performance Work Statement (PWS) when sustaining existing sunshades if organic support is unavailable (T-2). Submit any requests for further guidance or direction to the “AFRC/A4M Maintenance” Workflow e-mail box ([afrc.a4m@us.af.mil](mailto:afrc.a4m@us.af.mil)).

15.7. New Procurements.

15.7.1. The owning organization will:

15.7.1.1. Develop plans for purchase, installation, acceptance and sustainment then submit information to the MAJCOM/A4 for plan approval. (T-2). If the owning organization intends to request allied support, the owning organization shall include these costs in the forecast. If allied support is required, submit an AF Form 332, *Base Civil Engineer Work Request*, or service/work request to Civil Engineering Customer Service prior to solicitations, purchases, or procurements. (T-2).

15.7.1.1. (AFRC) Submit plans for approval IAW procedures in [paragraph 2.4.1.1](#).

15.7.1.2. Refer to AFI 65-601, Volume 1, *Budget Guidance and Procedures*, and AFI 65-601, Volume 2, *Budget Management for Operations* to determine correct appropriation for procurement and installation of aircraft sun shades or crew shelters described in this publication. Plan and fund current equipment sustainment IAW [Paragraph 15.10](#) (T-1).

15.7.1.3. Use strategic sourcing, if available, for standardization and to leverage buying power from an enterprise perspective. (T-1).

15.7.1.4. Ensure all facets of aircraft sun shade sustainment are considered; all applicable installation functional areas (CE community planner, Airfield Management, Comm, Safety, Medical) are involved in the siting and selection process, and is approved by the installation’s facility board prior to solicitation and procurement. (T-1).

15.7.1.4.1. If expertise is not available in the owning organization, contact the appropriate MAJCOM representative for further guidance. All new sun shades will be compliant with current applicable structural, environmental and safety standards. (T-1). Ensure compliance with criteria and design as outlined in [Paragraph 15.8](#)

15.7.1.5. Submit planning materials to include drawings, dimensions, cost estimates and statements of work, as well as ramp work striping and support equipment requirements to their applicable MAJCOM/A4. (T-2). **Note:** This must be completed as early as possible in the planning phase to facilitate a smooth execution phase.

15.7.1.5. (AFRC) Submit information to the “AFRC/A4M Maintenance” Workflow e-mail box ([afrc.a4m@us.af.mil](mailto:afrc.a4m@us.af.mil)).

15.7.1.6. Ensure use of reflective markings on corner structural supports regardless of lighting used. (T-2).

15.7.1.7. Ensure use of retro reflective beads for all apron, taxiway and taxilane markings near aircraft sun shades. **(T-1)**. Reference Engineering Technical Letter 04-2, *Standard Airfield Pavement Marking Schemes* and Unified Facilities Guide Specifications 32-17-23, *Pavement Markings* and AFMAN 32-1040, *Civil Engineering Airfield Infrastructure Systems*.

15.7.1.8. Perform an evaluation of all proposed sun shade installation plans to ensure requirements in Unified Facilities Criteria (UFC) 3-260-01, *Airfield and Heliport Planning and Design* are met. If waivers are required, those waivers must be approved prior to contract award of the sun shade. **(T-1)**.

15.7.1.8. **(AFRC)** If any airfield waivers are required, submit approved waivers to the “AFRC/A4M Maintenance” Workflow e-mail box ([afrc.a4m@us.af.mil](mailto:afrc.a4m@us.af.mil)).

15.7.1.8.1. Ensure waiver authorities do not undermine contract requirements or federal regulations (example Federal Acquisition Regulation, Department of Defense Federal Acquisition Regulation Supplement). **(T-0)**.

15.7.1.9. Ensure aircraft sun shades that penetrate an airfield imaginary surface defined in UFC 3-260-01 have obstruction lights installed IAW UFC 3-535-01, *Visual Air Navigation Facilities*, and conform to requirements contained in AFMAN 32-1040. **(T-1)**.

15.7.1.10. Ensure compliance with fuel servicing safety requirements in accordance with TO 00-25-172. **(T-1)**.

15.7.1.11. Address the following items and those in **Paragraph 15.8** and below as a minimum in installation plans submitted to applicable MAJCOM/A4 for approval. **(T-1)**.

15.7.1.11.1. Aircraft sun shade protection characteristics such as hail size, snow, ice and water accumulation (weight and/or inches, consider water runoff, ice mitigation), maximum winds (sustained and gusts), aircraft tie down and lightning/grounding protection determined in conjunction with proper local authorities or AFIMSC/PSU AFCEC. **(T-1)**.

15.7.1.11.2. Ensure Sun shades are designed in accordance with UFC 3-301-01, *Structural Engineering*, and UFC 3-310-04, *Seismic Design*. **(T-1)**. **Note:** Consider jet blast potential in aircraft sun shade design and siting.

15.7.1.11.3. Number of spots to be covered. Consider ramp space capacity for both peacetime and contingency requirements (reception and bed down). **(T-1)**.

15.7.1.11.4. Number of parking spaces lost due to aircraft sun shade placement. Consider ramp requirements, future mission changes, and impact on overall aircraft parking plan. **(T-1)**.

15.7.1.11.5. Design life expectancy and warranty information. **(T-1)**.

15.7.1.11.6. Expected costs including procurement, installation, and projected annual sustainment costs, to include inspection services. Ensure adequate resources are established to maintain aircraft sun shade serviceability and mission accomplishment. **(T-1)**.

15.7.1.11.7. Sustainment methodology (owning organization supported, manufacturer supported, supplemental contractor). Ensure minimum requirements outlined in [Paragraph 15.10.3](#) are addressed. (T-1).

15.7.1.11.7.1. Ensures the sustainment tail is covered and doesn't need to survive only on end of year fall out. (T-1).

15.7.1.11.8. Foreign Object Damage (FOD) mitigation and prevention. (T-1).

15.7.1.11.9. Planned storage of Aerospace Ground Equipment (AGE) and other related support equipment in aircraft sun shades within the maintenance area. (T-1).

15.7.1.11.10. Provisions for electrical power units or powered AGE placement and protection from equipment exhaust and aircraft jet blast while operating in/near aircraft sun shades. (T-1).

15.7.1.11.11. Environmental impacts and mitigation plans. Ensure the host Environmental Planning Function reviews proposals for installation of aircraft sun shades and associated utilities as early in the planning process as possible. The Environmental Planning Function is responsible for determining the level of environmental impact analysis required. Environmental impact analysis must be completed prior to contract award or implementation. (T-0).

15.7.1.11.12. Conduct and include a Risk Management (RM) assessment IAW AFPD 90-8, *Environment, Safety, and Occupational Health Management and Risk Management*, and AFI 90-802, to determine potential impact to personnel, environmental, safety, occupational health and airfield operations before procurement and installation activities begin. (T-1).

15.7.1.11.13. Mitigate any issues affecting control tower visibility or security to include security lighting and illumination and any issues affecting navigational aids. (T-1).

15.7.1.11.14. Mitigate obstructions to airspace and file FAA Form 7460-1, *Notice of Proposed Construction or Alteration*, with the FAA for new construction. (T-0).

15.7.1.11.15. Communications requirements. If communication (Local Area Network (LAN), wireless communications) is placed in aircraft sun shades, provide explanation of how communications will be procured, installed and sustained. Include in procurement, installation, and sustainment cost estimates. (T-2).

15.7.1.11.16. Mitigate any limitations on emergency and maintenance vehicle access to aircraft. (T-1).

15.7.1.11.17. Fall protection for personnel working above 4' off the ground IAW AFMAN 91-203. (T-1).

## **15.8. Design Criteria/Standards of New or Replacement Aircraft Sun Shades.**

15.8.1. Type of material used. Select materials as appropriate for location, type of aircraft sun shade, and the mission being served. The aircraft sun shade and side material shall be fabric, reinforced aramid fiber, carbon fiber, galvanized steel or shop/factory painted steel. (T-2).

15.8.1.1. The frame material will be galvanized steel or other suitable newly designed building material with strength and durability characteristics that replicate or exceed that of galvanized steel. **(T-2)**.

15.8.1.2. Current aircraft sun shades that don't meet these requirements of current design standardization are authorized for use until time of replacement. If repairs become significant or not cost effective, owning organizations shall consider replacement to the new standard or removal of the aircraft sun shade. **(T-2)**.

15.8.1.3. To minimize diversity of types of aircraft sun shades across the enterprise and to establish better efficiencies in procurement and long-term sustainment, use strategic sourcing, if available. If strategic sourcing is not available, seek additional guidance from MAJCOM A4 on aircraft sun shade standardization. **(T-2)**.

15.8.2. Aircraft sun shade height and width. Aircraft sun shades must meet minimum clearance requirements for interior aircraft movement, as well as, entrances and exit points including taxi lanes or taxiways in close proximity to the exterior of the structure. Refer to UFC 3-260-01, **Chapters 6 and 8** for these dimensions. **(T-1)**.

15.8.2.1. Consider AGE transport and maintenance/emergency vehicle height requirements. Also, consider exhaust blast from jet engines and auxiliary power units, and future mission changes that may impact aircraft sun shade height and width requirements.

15.8.3. Wing tip and tail height clearances will meet the requirements outlined in AFMAN 91-203 and UFC 03- 260-01. **(T-1)**.

15.8.4. Bird nesting/roosting mitigation. Ensure no bird roosting or nesting locations are present, all holes in support structure and beneath roof must be covered or screened. **(T-1)**.

15.8.4.1. The metal structure should minimize potential nesting sites for birds.

15.8.4.2. Anti-perching devices shall be installed to deter birds from perching on or under the structure. **(T-1)**.

15.8.5. Airfield waivers. The owning organization will make every effort to prevent submission of new airfield waivers. **(T-1)**.

15.8.6. Ensure Terminal Instrument Procedures personnel evaluate plans for potential impacts on aircraft approach/departure procedures. **(T-1)**.

15.8.7. Lighting requirements. If lighting is placed in or on the aircraft sun shades, provide explanation of how electricity will be provided to and within the aircraft sun shade. Ensure lighting provides sufficient illumination for security, but does not interfere with flightline visual references. The procurement of lighting, installation, maintenance and sustainment shall be included in aircraft sun shade cost estimates. **(T-1)**.

15.8.7.1. Lighting designs and fixture specifications shall be IAW UFC 3-530-01, *Interior and Exterior Lighting Systems and Control*. **(T-1)**.

15.8.7.2. Light mounts shall be designed to handle wind loads on the light fixtures without damaging the lights and without compromising the structural integrity of the aircraft sun shade. **(T-1)**.

15.8.8. Electrical requirements. If electrical power is to be placed in aircraft sunshades, provide explanation of how electricity will be provided to and within the aircraft sun shade. Procurement, installation, maintenance and sustainment of electrical requirements on the load side of the power supply point/stub shall be included in aircraft sun shade cost estimates. **(T-1)**.

15.8.8.1. Electrical power system design shall be in accordance with AFI 32-1062, *Electric Systems, Power Plants and Generators*, AFI 32-1065. **(T-1)**. Reference UFC 3-501-01, *Electrical Engineering*, UFC 3-520-01, *Interior Electrical Systems*, UFC 3-530-01, and UFC 3-550-01, *Exterior Electrical Power Distribution*, UFC 3-600-01, *Fire Protection Engineering for Facilities*, and Engineering Technical Letter 02-15, *Fire Protection Engineering Criteria - New Aircraft Facilities*.

15.8.9. The cost of running power (such as, lighting and electrical) from prime or temporary power sources to the sunshades shall be included in the cost estimate and will be borne by the owning unit. **(T-1)**.

15.8.10. In no case will the loss of parking spots resulting from the purchase or installation of aircraft sun shades be a primary factor used to propose or construct additional aircraft parking spots or upgrade existing pavements to support aircraft. Procedures on construction of additional parking spots or pavement upgrades will be IAW AFI 32-1020, *Planning and Programming Built Infrastructure Projects* and AFI 32-1021.

15.8.10.1. Whenever possible, aircraft sun shades will be installed on existing pavement without driving a requirement to expand or upgrade the underlying features. When the addition of pavement is necessary to make the sunshade complete and usable, the cost of the structure must be included with the cost to installation of the pavement for a total sun shade construction project cost. **(T-1)**.

15.8.11. Aircraft sun shades are airfield fixed-structure obstructions and will meet MIL-STD-3007, *Department of Defense Standard Practice for Unified Facilities Criteria and Unified Facilities Guide Specifications* and AF criteria included in referenced UFCs and AFIs, as well as, local and national fire, safety, and electrical standards and codes as applicable. **(T-1)**.

15.8.12. Consider location specific design requirements (snow load, maximum wind ratings). In addition to the requirements in UFC 3-301-01, for adjacent sunshades which share bracing frames, each fourth frame shall provide twice the required lateral bracing strength. **(T-1)**.

15.8.12.1. Particular attention shall be focused on the design of lateral bracing for wind and jet blast loads, fatigue strength of steel lateral bracing members, and the design and location of anchor bolts near joints in runway aprons. **(T-1)**.

15.8.13. Aircraft sun shades must meet ventilation and exhaust air requirements referenced in the International Mechanical Code. **(T-0)**. **Note:** Achieve minimum exhaust and/or ventilation air requirements utilizing either mechanical or natural systems.

15.8.14. **(Added-AFRC)** Water requirements. If water is to be placed in aircraft sunshades, provide explanation of how water will be provided to and within the aircraft sunshade to include adequate drainage controls to limit ground puddles. Procurement, installation, maintenance and sustainment of water requirements on the service side of the supply point/stub shall be included in aircraft sunshade cost estimates/request for approval **(T-2)**.

### 15.9. Current Aircraft Sun Shades.

15.9.1. To replace currently installed aircraft sun shades, select materials as appropriate for location, type of aircraft sun shade, and the mission being served. The aircraft sun shade and side material shall be fabric, reinforced aramid fiber, carbon fiber, galvanized steel or shop/factory painted steel. **(T-2)**.

15.9.1.1. The frame material will be galvanized steel or other suitable newly designed building material with strength and durability characteristics that replicate or exceed that of galvanized steel. **(T-2)**.

15.9.1.2. Current aircraft sun shades that don't meet these requirements of current design standardization are authorized for use until time of replacement. **(T-2)**.

15.9.1.3. If repairs become significant or not cost effective, owning organizations shall consider replacement to the new standard or removal of the aircraft sun shade. **(T-2)**.

15.9.1.4. To minimize diversity of types of aircraft sun shades across the enterprise and to establish better efficiencies in procurement and long-term sustainment, use strategic sourcing, if available. **(T-1)**.

15.9.1.5. If strategic sourcing is not available, seek guidance from higher headquarters on aircraft sun shade standardization. **(T-1)**.

15.9.2. Owing organizations will sustain aircraft sun shades and other shelter types described in this publication IAW AFI 65-601, to ensure no degradation of safety to personnel or mission accomplishment occurs. **(T-1)**.

15.9.3. Owing organizations will conduct a risk management assessment IAW AFI 90-802 in conjunction with proper local authorities on current aircraft sun shades for FOD mitigation, markings, bird roosting mitigation, sustainability, safety, structural integrity, wind-load capacity, snow-load capacity, and ability to withstand hail. **(T-1)**.

15.9.3.1. The owning organization is responsible for repairing any deficient areas identified during the risk management assessment. **(T-1)**.

15.9.4. There is no requirement to upgrade current aircraft sun shades to meet the full requirements outlined in Paragraphs **15.7.1** through **15.7.1.11.16** and **15.8.1** through **15.8.13** except where codes apply and are mandatory. However, any replacement or significant repair of current aircraft sun shades will meet requirements as outlined in Paragraphs **15.7.1** through **15.7.1.11.16** and **15.8.1** through **15.8.13** **(T-1)**.

15.9.5. Alterations can significantly impact loading on the structure. Conduct a structural analysis certified by a licensed professional engineer or government structural engineer to ensure the alterations do not compromise the structural integrity of the sunshade structure. Sun shades will not be altered to have more than two total walls or bay(s).

**15.10. Sustainment and Accountability.** Owing organization Group Commander or equivalent will:

15.10.1. Appoint a local aircraft sun shade manager and establish an aircraft sun shade user and operations plan. Ensure assets are tracked as equipment items on the appropriate documents on the CA/CRL IAW AFMAN 23-122.

15.10.2. Ensure appropriate authorities (Maintenance Group (MXG), Contracting, Comm, CE, Safety) at the installation level accept installation of aircraft sun shades and allied support IAW manufacturer specifications, contract specifications, and AFIs. **(T-1)**.

15.10.3. Develop an organically supported or contractor supported replacement/sustainment plan that will be included in the 10-year facility plan IAW this AFI. **(T-1)**. **Note:** This statement does not limit the plan from exceeding the minimum 10-year requirement.

15.10.3.1. Sustainment plan at a minimum will address the following as appropriate:

15.10.3.1.1. Certification and acceptance of installation as needed. **(T-1)**.

15.10.3.1.2. Routine maintenance/sustainment and inspection criteria/services which meets manufacturer or qualified engineering authority (such as, personnel officially trained to inspect or provide technical guidance on that specific Sunshade) guidance as needed and appropriate. **(T-1)**.

15.10.3.1.3. Periodic and recurring in-depth inspections with prescribed interval/frequency and items to be inspected to determine structural integrity as appropriately defined for each type of structure by the manufacturer or qualified engineering authority as needed and appropriate. **(T-2)**.

15.10.3.1.4. Non-routine maintenance/sustainment and inspection services as needed and appropriate. **(T-2)**.

15.10.4. Ensure development of local policy that establishes PE criteria as recommended by original manufacturer (interval not to exceed 6 months) approved by a qualified engineering authority for aircraft sun shades and document on AFTO Form 244, or equivalent. **(T-1)**.

15.10.4.1. Inspection actions to include upcoming and completed inspections will be tracked in the MIS. **(T-2)**.

15.10.4.2. As a minimum, the owning organization will ensure inspection of:

15.10.4.2.1. Structural Supports for signs of corrosion, excessive movement, cracking or damage; lateral bracing for signs of corrosion, loosening, cracking, missing hardware, or fatigue damage, particularly at the connections; structural anchorage for signs of loosening and cracking around anchorage points on apron. **(T-1)**.

15.10.4.2.2. Foreign Object, cleanliness and serviceability of installed safety markings. **(T-1)**.

15.10.4.2.3. Lighting (if installed) for security and serviceability. **(T-1)**.

15.10.4.2.4. Electrical system equipment, including electrical panels, receptacles, lighting systems, solar panels and conduit (if installed) for security and serviceability. **(T-1)**.

15.10.5. Any discrepancy identified during routine, non-routine maintenance or other visual inspection will be documented on the AFTO Form 244 or equivalent; appropriate condition symbol will be used IAW TO 00-20-1. **(T-1)**.

15.10.5.1. Additionally, all discrepancies will be annotated in the MIS. **(T-1)**.



15.10.5.2. If a discrepancy is discovered which could affect safety or structural integrity this information will immediately be directed to the owning organization group commander or equivalent. **(T-1)**.

15.10.5.3. The owning organization group commander or equivalent with advisement from the qualified engineering authority and safety personnel will make a determination/decision on whether the sun shade is in an acceptable condition to continue performing its intended purpose or whether the sun shade shall be removed from service and all assets and personnel vacated from the sun shade until repair is completed. **(T-1)**.

15.10.6. Establish an emergency evacuation plan to protect both personnel and equipment from inclement/severe weather that may compromise the integrity of the aircraft sun shade roof or support structure. **(T-1)**.

15.10.6.1. During inclement/severe weather situations including but not limited to high winds, thunderstorms, lightning, hail, tornadoes, hurricanes or other adverse weather warning situation, personnel will be evacuated from the aircraft sun shade, not to the aircraft sun shade. **(T-1)**.

15.10.6.1.1. The aircraft sun shade is not intended to be used as a protective shelter in these situations.

#### **15.11. Allied Support (Electricity, Water, Communications, Lighting).**

15.11.1. If elected, electrical power shall be provided to a connection point at the aircraft sun shade in accordance with UFC 3-550-01, *Exterior Electrical Power Distribution* and will be installed and maintained by Civil Engineering as real property IAW AFI 32-9005, *Real Property Accountability and Reporting*. **(T-1)**.

15.11.1.1. Allied support funding requirements will be prioritized along with other facility and infrastructure requirements through the Facilities Board process or applicable installation facility project prioritization process. **(T-1)**.

15.11.2. If elected, water lines can be installed to a stub at the aircraft sun shade site and will be installed and maintained by Civil Engineering as real property IAW AFI 32-9005. **(T-1)**. Water stubs and/or connections must be appropriately protected from frost/freeze and other environmental conditions. **(T-1)**.

15.11.2.1. These stubs and/or connections must be prominently marked to prevent hazards and accidents. **(T-1)**.

15.11.2.2. Allied support funding requirements will be prioritized along with other facility and infrastructure requirements through the facilities board process or applicable installation facility project prioritization process. **(T-1)**.

15.11.3. If elected, communications shall be provided to the aircraft sun shade in accordance with UFC 3-580-01, *Telecommunications Interior Infrastructure Planning and Design*, and will be installed and maintained by qualified communications personnel. **(T-1)**.

15.11.3.1. Allied support funding requirements for the communication real property elements of a project (example, conduit, manholes, duct banks) will be prioritized along with other facility and infrastructure requirements through the facilities board process or applicable installation facility project prioritization process. **(T-1)**.

15.11.4. Lighting installation will be considered during procurement and/or sustainment phases and will be purchased and maintained by the owning organization from the light to the power stub. **(T-1)**.

15.11.4.1. If lighting is to be included in an aircraft sun shade, the owning organization shall include this in the procurement, installation, and sustainment plan. **(T-1)**.

15.11.4.2. Owing organizations shall use criteria and consultation as outlined in Paragraphs **15.7** through **15.9** Energy efficient lighting will be considered where allowable. **(T-1)**.

15.11.5. Power receptacles will be considered during the procurement and/or sustainment phases and will be purchased and maintained by the owning organization from the power receptacles to the power stub. **(T-1)**.

15.11.5.1. If power is to be included, the owning organization shall include this in the procurement, installation, and sustainment plan. **(T-1)**. Owing organizations shall use criteria and consultation as outlined in Paragraphs **15.7** through **15.9** **(T-1)**.

## **15.12. Crew Shelters and Portable/Inflatable Shelters.**

15.12.1. Owing organizations will address the following items as a minimum in installation plans submitted to applicable MAJCOM/A4 for approval:

15.12.1.1. Annual procurement and sustainment costs, including allied support infrastructure costs. See **Paragraph 15.11** for allied support procedures. **(T-1)**.

15.12.1.2. Ensure shelter meets all standards and codes as applicable. Crew shelters and inflatable or fabric structures must comply with the minimum Antiterrorism Standard requirements of UFC 4-010-01, *DoD Minimum Antiterrorism Standards for Buildings*. **(T-0)**.

15.12.1.3. Ensure a FOD mitigation plan is implemented. **(T-1)**.

15.12.1.4. Warranty information. **(T-1)**.

15.12.1.5. Wing tip and tail height clearances will meet the requirements outlined in AFMAN 91-203 and UFC 03-260-01. **(T-0)**.

15.12.1.6. Appoint a shelter manager and establish a shelter user and operations plan. Ensure assets are tracked as equipment items on the appropriate documents on the CA/CRL IAW AFMAN 23-122. **(T-1)**.

15.12.2. Crew shelters will be configured to minimum ventilation standards referenced in the International Mechanical Code when occupied. **(T-0)**.

15.12.3. **(Added-AFRC)** Units are not authorized to procure new or upgrade existing crew shelters. Units will remove existing crew shelters when determined to be beyond useful life **(T-2)**.

RICHARD W. SCOBEE, Lt Gen, USAF

Commander

**Attachment 1****GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

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### ***Prescribed Forms***

AF Form 596, *Quick Engine Change Kit Inventory*

AF Form 861, *Base/Transient Job Control Number Register*

AF Form 864, *Daily Requirement and Dispatch Record*

AF Form 2001, *Notification of TCTO Kit Requirements*

AF Form 2400, *Functional Check Flight Log*

AF Form 2401, *Equipment Utilization and Maintenance Schedule*

AF Form 2402, *Weekly Equipment Utilization and Maintenance Schedule*

AF Form 2403, *Weekly Aircraft Utilization/Maintenance Schedule*

AF Form 2407, *Weekly/Daily Flying Schedule Coordination*

AF Form 2410, *Inspection/TCTO Planning Checklist*

AF Form 2411, *Inspection Document*

AF Form 2419, *Routing and Review of Quality Control Reports*

AF Form 2426, *Training Request and Completion*

AF Form 2430, *Specialist Dispatch Control Log*

AF Form 2434, *Munitions Configuration and Expenditure Document*

**(Added-AFRC)** AFRC Form 163, *Aircraft Wash Supervisor'/Employees' Certification*

**(Added-AFRC)** AFRC Form 164, *Aircraft Wash Cleanliness Inspection Checklist*

**(Added-AFRC)** AFRC Form 165, *Aircraft After Wash Corrosion Inspection Checklist*

**(Added-AFRC)** AFRC Form 174, *Lost Tool/Object Report*

**(Added-AFRC)** AFRC Form 175, *Broken/Missing/Removed Tools and Equipment*

**(Added-AFRC)** AFRC Form 176, *Request for Placement on Special Certification Roster*

**(Added-AFRC)** AFRC Form 177, *Consolidation Tool Kit Inventory and Control Log*

AF IMT 2408, *Generation Maintenance Plan*

**(Added-AFRC)** AFRC Form 303, *Operational and Maintenance Scheduling Report*

**(Added-AFRC)** AFRC Form 22, *SEM/EDX Debris Analysis Form*

**(Added-AFRC)** AFRC Form 42, *Foreign Object Damage (FOD) Mishap Investigation Report*

AF IMT 2409, *Generation Sequence Action Schedule*

### ***Adopted Forms***

**(Added-AFRC)** AF Form 399, *Air Force Publication/Form Status Request*

AF Form 55, *Employee Safety and Health Record*

AF Form 332, *Base Civil Engineer Work Request*

AF Form 504, *Weapons Custody Transfer Document*

AF Form 623, *Individual Training Record*

**(Added-AFRC)** AF Form 673, *Air Force Publication/For/Action Request*

AF Form 726, *Transient Aircraft Service Record*  
AF Form 797, *Job Qualification Standard Continuation*  
AF Form 847, *Recommendation for Change of Publication*  
AF Form 1067, *Modification Proposal*  
AF Form 1098, *Special Tasks Certification and Recurring Training*  
AF Form 1297, *Temporary Issue Receipt*  
AF Form 1492, *Warning Tag*  
AF Form 2005, *Issue/Turn-In Request*  
AF Form 2096, *Classification/On the Job Training Action*  
AF Form 3580, *USAF Museum Aerospace Vehicle Static Display Egress and Safety Certificate*  
AFTO Form 20, *Caution and Inspection Record*  
AFTO Form 66, *TMDE Bar Codes (Polyester Film)*  
AFTO Form 82, *TCTO Verification Certificate*  
AFTO Form 95, *Significant Historical Data*  
AFTO Form 97, *Aerospace Vehicle Battle Damage Incident Debrief/Assessment/Repair Record*  
AFTO Form 97B, *Aircraft Battle Damage Evaluator Checklist*  
AFTO Form 103, *Aircraft/Missile Condition Data*  
AFTO Form 242, *Nondestructive Inspection Data*  
AFTO Form 244, *Industrial/Support Equipment Record*  
AFTO Form 252, *Technical Order Publications Change Request*  
AFTO Form 345, *Aerospace Vehicle Transfer Inspection Checklist and Certification*  
AFTO Form 349, *Maintenance Data Collection Record*  
AFTO Form 375, *Selected Support Equipment Repair Cost Estimate*  
AFTO Form 492, *Maintenance Warning Tag*  
AFTO Form 781, *Arms Aircrew/Mission Flight Data Document*  
AFTO Form 781A, *Maintenance Discrepancy and Work Document*  
AFTO Form 781C, *Avionics Configuration and Load Status Document*  
AFTO Form 781H, *Aerospace Vehicle Flight Status and Maintenance*  
AFTO Form 781J, *Aerospace Vehicle - Engine Flight Document*  
AFTO Form 781K, *Aerospace Vehicle Inspection, Engine Data, Calendar Inspection and Delayed Discrepancy Document*  
DD Form 250, *Material Inspection and Receiving Report*  
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 2861, *Cross-Reference*

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

***Abbreviations and Acronyms***

**ABDR**—Aircraft Battle Damage Repair

**AC**—Aircraft Commander

**ACC**—Air Combat Command

**ACFT**—Aircraft

**ACR**—Authorization Change Requests

**AD**—Airworthiness Directives

**(Added-AFRC) ADCON**—Administrative Control

**ADR**—Aircraft Document Review

**AETC**—Air Education and Training Command

**AFCSM**—Air Force Computer Systems Manual

**AFETS**—Air Force Engineering and Technical Service

**AFI**—Air Force Instruction

**AFLCMC**—Air Force Life Cycle Management Center

**AFMAN**—Air Force Manual

**AFMC**—Air Force Materiel Command

**AFPAM**—Air Force Pamphlet

**AFPD**—Air Force Policy Directive

**AFR**—Air Force Reserve Command

**AFREP**—Air Force Repair and Enhancement Program

**AFRIMS**—Air Force Records Information Management System

**AFSC**—Air Force Specialty Code

**AFSCI**—Air Force Sustainment Center Instruction

**AFSOC**—Air Force Special Operations Command

**AFTO**—Air Force Technical Order

**AGE**—Aerospace Ground Equipment

**AGM**—Air-to-Ground Missile

**(Added-AFRC) AGR**—Active Guard Reserve

**AIRCAT**—Automated Inspection, Repair, Corrosion, and Aircraft Tracking

**ALC**—Air Logistics Complex  
**ALIS**—Autonomic Logistics Information System  
**AMC**—Air Mobility Command  
**AME**—Alternate Mission Equipment  
**AMU**—Aircraft Maintenance Unit  
**AMS**—Air Mobility Squadron  
**AMXS**—Aircraft Maintenance Squadron  
**ANG**—Air National Guard  
**APU**—Auxiliary Power Unit  
**AQL**—Acceptable Quality Level  
**ARC**—Air Reserve Component  
**(Added-AFRC) ART**—Air Reserve Technician  
**AS**—Allowance Standard  
**ASC**—Aircraft Service Changes  
**ASIP**—Aircraft Structural Integrity Program  
**ASM**—Aircraft Structural Maintenance  
**AVDO**—Aerospace Vehicle Distribution Office  
**AWM**—Awaiting Maintenance  
**AWP**—Awaiting Parts  
**BCS**—Bench Check Serviceable  
**BSL**—Basic Systems Listing  
**BSP**—Base Support Plan  
**CA**—Cannibalization Authority  
**CAAP**—COMAFFOR Apportionment and Allocation Process  
**CA/CRL**—Custodian Authorization/Custody Receipt Listing  
**CAD/PAD**—Cartridge Actuated Device/Propellant Actuated Device  
**(Added-AFRC) CAF**—Combat Air Forces  
**CAI**—Critical Application Items  
**CANN**—Cannibalization  
**CAT I**—Category I  
**CAT II**—Category II  
**CB**—Customer Bulletins



**CBM+**—Condition-Based Maintenance Plus  
**CBRNE**—Chemical, Biological, Radiological, Nuclear and high-yield Explosive  
**CBU**—Cluster Bomb Unit  
**(Added-AFRC) CCIP**—Commanders Inspection Program  
**CCY**—Calculated Cycles  
**CD**—Deputy Commander (MXG/CD)  
**CDA**—Commercial Derivative Aircraft  
**CDB**—Central Database  
**CDDAR**—Crashed, Damaged or Disabled Aircraft Recovery  
**CE**—Civil Engineer  
**CEMS**—Comprehensive Engine Management System  
**CETS**—Contractor Engineering and Technical Services  
**CFETP**—Career Field Education and Training Plan  
**CFT**—Contract Field Team  
**CM**—Configuration Management  
**CMS**—Component Maintenance Squadron  
**CND**—Can Not Duplicate  
**COMAFFOR**—Commander, Air Force Forces  
**Cont/Exp**—Contingency/Expeditionary  
**COMSEC**—Communications Security  
**CONUS**—Continental United States  
**CPINS**—Computer Program Identification Numbering System  
**CRF**—Centralized Repair Facility  
**CSI**—Critical Safety Items  
**CTK**—Composite Tool Kit  
**CCW**—Counter Chemical Warfare  
**(Added-AFRC) DACT**—Dissimilar Air Combat Tactics  
**DBM**—Database Manager  
**DCA**—Design Control Activity  
**DCC**—Dedicated Crew Chief  
**DCMA**—Defense Contract Management Agency  
**DDR**—Daily Demand Rate

(Added-AFRC) **DT&E**—Development Testing and Evaluation  
**EV**—Deviation  
**DFT**—Depot Field Team  
**DIAMONDS**—Defense Integration and Management of Nuclear Data Services  
**DIFM**—Due-in From Maintenance  
**DISA**—Defense Information System Agency  
**DIT**—Data Integrity Team  
**DLA**—Defense Logistics Agency  
**DMS**—Decentralized Materiel Support  
**D23**—Repair Cycle Asset Management Listing  
**DOC**—Designed Operational Capability  
**DoD**—Department of Defense  
**DoDI**—Department of Defense Instruction  
**DoDD**—Department of Defense Directive  
**DOI**—Date of Installation  
**DOM**—Date of Manufacture / Director of Maintenance  
**DOP**—Dropped Object Prevention / Director of Propulsion  
**DR**—Deficiency Report  
**DLADS**—Defense Logistics Agency Disposition Service  
**DRU**—Direct Report Unit  
**DSV**—Detected Safety Violations  
**eTools**—Electronic Tools  
**E&E**—Electrical & Environmental  
**EAWP**—Engine Automated Work Package  
**ECM**—Electronic Countermeasures  
**ED**—Incapacitated  
**EHM+**—Engine Health Management  
**EHR**—Event History Recorder  
**E&I**—Evaluation and Inspection  
**EID**—Event Identification Description / Equipment Identification Designator  
**EM**—Engine Management/Emergency Management  
**EMS**—Equipment Maintenance Squadron

**EMXG/CC**—Expeditionary Maintenance Group Commander  
**ENMCS**—Engine Not Mission Capable for Supply  
**EOD**—Explosive Ordnance Disposal  
**EOR**—End of Runway  
**EOT**—Engine Operating Time  
**EPE**—Evaluator Proficiency Evaluation  
**ER**—Exceptional Release  
**ERRC**—Expendability, Recoverability, Reparability Code  
**ES**—Equipment Specialist  
**ESOH**—Environment Safety and Occupational Health  
**ESOHMS**—Environment, Safety, and Occupational Health Management System  
**ESP**—Expeditionary Site Plan  
**ESS**—Environmental Stress Screening  
**ETIC**—Estimated Time in Commission  
**ETIMS**—Enhanced Technical Information Management System  
**ET&D**—Engine Trending and Diagnostics  
**ETS**—Engineering and Technical Services/Engine Test Stand  
**EW**—Electronic Warfare  
**EWS**—Electronic Warfare System  
**EX**—Exercises/Contingencies  
**FAA**—Federal Aviation Administration  
**(Added-AFRC) FAB**—Field Assistance Branch  
**FAR**—Federal Acquisition Regulation  
**FCC**—Flying Crew Chief  
**FCF**—Functional Check Flight  
**(Added-AFRC) FGC**—Force Generation Center  
**(Added-AFRC) FGC BW**—Force Generation Center Battle Watch  
**FHP**—Flying Hour Program  
**FO**—Foreign Object  
**FOA**—Field Operating Unit  
**FOD**—Foreign Object Damage  
**FOM**—Facilitate Other Maintenance

**FOUO**—For Official Use Only  
**(Added-AFRC) FSE**—Flying Schedule Effectiveness  
**FSL**—Full Systems Listing  
**FSR**—Field Service Representatives  
**FY**—Fiscal Year  
**GBU**—Guided Bomb Unit  
**GEOLOC**—Geographical Location  
**GITA**—Ground Instructional Trainer Aircraft  
**GOX**—Gaseous Oxygen  
**GP**—Group  
**GSU**—Geographically Separated Units  
**HAF**—Headquarters, US Air Force  
**HAZMAT**—Hazardous Material  
**HC/D**—Hazard Class Division  
**HF**—High Frequency  
**HHQ**—Higher Headquarters  
**HPO**—Hourly Post-flight  
**HPT**—High Pressure Turbine  
**HQ**—Headquarters  
**HSC**—Home Station Check  
**IAW**—In Accordance With  
**(Added-AFRC) ICT**—Integrated Combat Turn  
**ID**—Identification / Integrated Defense  
**I—Deck**—Initialization Deck  
**IETM**—Interactive Electronic Technical Manuals  
**IFCS**—Instrument and Flight Control Systems  
**IFE**—In-Flight Emergency  
**IFR**—In Flight Refueling  
**ILS-S**—Integrated Logistics Systems-Supply  
**IMDS**—Integrated Maintenance Data System  
**IMIS**—Integrated Maintenance Information System  
**(Added-AFRC) IOT&E**—Initial Operational Testing and Evaluation

**IP**—Instructor Pilot

**IPCOT**—In-Place Consecutive Overseas Tour

**IPI**—In-Process Inspection

**ISO**—Isochronal Inspection

**I/UA**—Immediate and Urgent Action

**ISU/DOR**—Issue/Due-Out Release

**JCN**—Job Control Number

**JDD**—Job Data Documentation

**JDRS**—Joint Deficiency Reporting System

**JEDMICS**—Joint Engineering Data management Information and Control System

**JEIM**—Jet Engine Intermediate Maintenance

**JML**—Job Standard Master Listing

**JOAP**—Joint Oil Analysis Program

**JST**—Job Standard

**KTL**—Key Task List

**LAN**—Local Area Network

**LCN**—Logistics Control Number

**LEAP**—Logistics Evaluation Assurance Program

**LM**—Limited-use Munition

**LME**—Locally Manufactured Equipment

**LMR**—Land Mobile Radio

**LO**—Low Observable

**LOX**—Liquid Oxygen

**LPT**—Low Pressure Turbine

**LRS**—Logistics Readiness Squadron

**LRU**—Line Replaceable Unit

**LSC**—Load Standardization Crew

**LV**—Emergency Leave

**(Added-AFRC) MAF**—Mobility Air Forces

**MAJCOM**—Major Command

**(Added-AFRC) MAR**—Maintenance Assistance Request

**MC**—Mission Capable

**MDF**—Mission Data File  
**MDS**—Mission Design Series  
**MEL**—Minimum Equipment Level  
**MESL**—Minimum Essential Subsystems List  
**MFG**—Munitions Family Group  
**MFM**—MAJCOM Functional Manager  
**MGN**—Mission Generation Networks  
**MI**—Management Inspection  
**MICAP**—Mission Impaired Capability Awaiting Parts  
**MIL**—Master Inventory List  
**MILSPEC**—Military Specification  
**MIL-STD**—Military Standard  
**MIS**—Maintenance Information Systems  
**MMA**—Maintenance Management Analysis  
**MMHE**—Munitions Materiel Handling Equipment  
**MOA**—Memorandum of Agreement  
**MOC**—Maintenance Operations Center  
**MOU**—Memorandum of Understanding  
**MPS**—Military Personnel Section  
**MRPL**—Minimum Required Proficiency Load  
**MRSP**—Mobility Readiness Spares Package  
**MSA**—Munitions Storage Area  
**MSE**—Maintenance Scheduling Effectiveness  
**MSEP**—Maintenance Standardization & Evaluation Program  
**MSG**—Mission Support Group  
**MT**—Maintenance Training  
(Added-AFRC) **MT**—Maintenance (for deviation codes only)  
**MSM**—DS Maintenance Scheduling Module  
**MUNS**—Munitions Squadron  
**MX**—Maintenance  
**MxCAP2**—Maintenance Capability and Capacity (model)  
**MXG**—Maintenance Group

**MXG/CC**—Maintenance Group Commander  
**MXG/CD**—Maintenance Group Deputy Commander  
**MXO**—Maintenance Operations  
**MXS**—Maintenance Squadron  
**MX SUPT**—Maintenance Superintendent  
**NAF**—Numbered Air Force  
**NATO**—North Atlantic Treaty Organization  
**NCE**—Nuclear Certified Equipment  
**NCOIC**—Non-Commissioned Officer in Charge  
**NDI**—Nondestructive Inspection  
**NIE**—Normally Installed Equipment  
**NLT**—Not Later Than  
**NMC**—Non Mission Capable  
**NPA**—Non-Powered AGE  
**NORAD**—North American Aerospace Defense Command  
**NRTS**—Not Repairable This Station  
**NSN**—National Stock Number  
**NSS**—Noise Suppression System  
**NWRM**—Nuclear Weapons-Related Materiel  
**O&M**—Operations and Maintenance  
**OAP**—Oil Analysis Program  
**OBIGGS**—On-Board Inert Gas Generating Systems  
**OBOGS**—On-Board Oxygen Generating Systems  
**OCF**—Operational Check Flight  
**OCONUS**—Outside Continental U.S.  
**OFF**—Operations Flight Program  
**OG**—Operations Group  
**G/CC**—Operations Group Commander  
**OI**—Operating Instruction  
**OIC**—Officer in Charge  
**OJT**—On-the-Job Training  
**(Added-AFRC) OPDIR**—Operational Direction

**OPLAN**—Operational Plan

**OPR**—Office of Primary Responsibility

**(Added-AFRC) OPREP**—Operations Report

**(Added-AFRC) Ops**—Operations Squadron

**ORE**—Operational Readiness Exercises

**OS**—Operational Squadron

**OSS**—Operations Support Squadron

**OSS&E**—Operational Safety Suitability and Effectiveness

**(Added-AFRC) OT&E**—Operational Testing and Evaluation

**OTI**—One Time Inspection

**OWC**—Owning Work Center

**P&R**—Programs and Resources

**PAA**—Primary Aerospace Vehicle (Aircraft) Authorized

**PACAF**—Pacific Air Forces

**PAFSC**—Primary AFSC

**PAI**—Primary Aerospace Vehicle (Aircraft) Inventory

**PAS**—Protective Aircraft Shelter / Personnel Assignment Symbol (Code)

**PBR**—Percent of Base Repair

**PCS**—Permanent Change of Station

**PDM**—Programmed Depot Maintenance

**PE**—Personnel Evaluation/Periodic Inspection

**PED**—Portable Electronic Device

**PH**—Phase

**PIC**—Purpose Identifier Code / Pilot In Charge

**(Added-AFRC) PII**—Personally Identifiable Information

**PIM**—Product Improvement Manager

**PIP**—Product Improvement Program

**PM**—Primary Munition/Program Manager

**PMA**—Portable Maintenance Aids

**PMC**—Partially Mission Capable

**PME**—Precision Measurement Equipment

**PMEL**—Precision Measurement Equipment Laboratory



**PMO**—Program Management Office  
**PO**—Program Office  
**POC**—Point of Contact  
**PPE**—Personal Protective Equipment  
**PRP**—Personnel Reliability Program  
**PRS**—Performance Requirements Statement  
**PS&D**—Plans, Scheduling, and Documentation  
**PWS**—Performance Work Statement  
**QA**—Quality Assurance  
**QASP**—Quality Assurance Surveillance Plan  
**QE**—Quarterly Evaluation  
**QEC**—Quick Engine Change  
**QRL**—Quick Reference List  
**QVI**—Quality Verification Inspections  
**RAMPOD**—Reliability, Availability, Maintainability for Pods  
**(Added-AFRC) RAS**—Reserve Airlift Support  
**RC**—Recommended Change  
**RegAF**—Regular Air Force  
**REMIS**—Reliability and Maintainability Information System  
**RIL**—Routine Inspection List  
**RN**—Repair Network  
**RNM**—Repair Network Manager  
**RPA**—Remotely Piloted Aircraft  
**SB**—Service Bulletins  
**SCR**—Special Certification Roster  
**SDAP**—Special Duty Assignment Pay  
**SE**—Support Equipment  
**SEI**—Special Experience Identifier  
**SI**—Special Inspection  
**SIPRNET**—Secret Internet Protocol Router Network  
**(Added-AFRC) SLMG**—Senior Leader Mission Generation  
**SM**—Support Munitions

**SME**—Subject Matter Expert  
**SMR**—Source of Maintenance and Recoverability  
**SNCO**—Senior Non-Commissioned Officer  
**SOW**—Statement of Work  
**SPRAM**—Special Purpose Recoverables Authorized Maintenance  
**SQ**—Squadron  
**SQ/CC**—Squadron Commander  
**SRAN**—Stock Record Account Number  
**SRU**—Shop Replaceable Unit  
**(Added-AFRC) SSEA**—System Safety Engineering Analysis  
**(Added-AFRC) SSN**—Social Security Number  
**(Added-AFRC) SSS**—Staff Summary Sheet  
**SUPT**—Superintendent (Enlisted Duties)  
**TA**—Transient Alert  
**TAA**—Training Aid Aircraft  
**TAC**—Total Accumulated Cycles  
**(Added-AFRC) TAR**—Technical Assistance Request  
**(Added-AFRC) TAS**—Task Assignment List  
**TBA**—Training Business Area  
**TCC**—Transaction Condition Code  
**TCI**—Time Change Item  
**TCTO**—Time Compliance Technical Order  
**TD**—Training Detachment  
**TDV**—Technical Data Violation  
**TDY**—Temporary Duty  
**TFI**—Total Force Integration  
**TMDE**—Test Measurement and Diagnostic Equipment  
**TMS**—Type Model Series  
**TNB**—Tail Number Bin  
**TO**—Technical Order  
**TODA**—Technical Order Distribution Account  
**TODO**—Technical Order Distribution Office

**(Added-AFRC) TPC**—Training Proficiency Center  
**(Added-AFRC) TR**—Traditional Reservist  
**TTML**—Test/Training Munitions List  
**TTP**—Tactics, Techniques & Procedures  
**UCML**—Unit Committed Munitions List  
**UCR**—Unsatisfactory Condition Report  
**(Added-AFRC) UE**—Unit Equipped  
**UEM**—Unit Engine Manager  
**UFC**—Unified Facilities Criteria  
**UHF**—Ultra High Frequency  
**UII**—Unique Item Identifier  
**UMD**—Unit Manpower Document  
**UPMR**—Unit Personnel Management Roster  
**USAF**—United States Air Force  
**USAFE**—United States Air Forces in Europe  
**(Added-AFRC) UTA**—Unit Training Assembly  
**(Added-AFRC) UTA**—Unit Type-Code Availability  
**UTC**—Unit Type Code  
**UTE**—Utilization (rate)  
**UTM**—Unit Training Manager  
**VHF**—Very High Frequency  
**W&B**—Weight and Balance  
**WASP**—Web Applications Software Product  
**WCE**—Work Center Event  
**WG**—Wing  
**WG/CC**—Wing Commander  
**WG/CV**—Vice Wing Commander  
**WJQS**—Work Center Job Qualification Standard  
**WLCMT**—Weapons Load Crew Management Tool  
**WLCTP**—Weapons Load Crew Training Program  
**WLT**—Weapons Load Training  
**WRE**—War Readiness Engine

**WRM**—War Reserve Materiel

**WS**—Weapons Standardization

**WSM**—Weapon System Manager

**TQC**—Weapons Task Qualification Crew

**WTQM**—Weapons Task Qualification Training Manager

**WWID**—Worldwide Identification (code for TCMa<sup>®</sup>)

**WWM**—Wing Weapons Manager

**WX**—Weather

**WUC**—Work Unit Code

### *Terms*

**(Added-AFRC) Administrative Control (ADCON)**—Direction or exercise of authority over subordinate or other organizations in respect to administration and support, including organization of Service forces, control of resources and equipment, personnel management, unit logistics, individual and unit training, readiness, mobilization, demobilization, discipline, and other matters not included in the operational missions of the subordinate or other organizations. (Joint Publication 1-02).

**Aircraft and Equipment Impoundment**—Isolation of an aircraft or equipment due to an unknown malfunction or condition making it unsafe for use or flight.

**Aircraft Purpose Identifier Codes (PIC)**—specified in AFI 21-103, PIC are applied to assigned aerospace vehicles to facilitate standardization of reporting. Examples of PIC are: CC=Combat, BQ=major maintenance awaiting AFMC decision or action; DJ=awaiting depot level maintenance work. Refer to AFI 21-103 for a listing of all specific PIC.

**Air Reserve Component**—The Air National Guard and Air Force Reserve together form the ARC.

**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, -21 equipment.

**Automated Inspection, Repair, Corrosion, and Aircraft Tracking (AIRCAT)**—is the

**(Added-AFRC) Combat Air Forces (CAF)**—Air Force Forces that are directly engaged in combat operations. Examples include fighters; bombers; command and control; combat search and rescue; and intelligence, surveillance, and reconnaissance aircraft (ISR).

**(Added-AFRC) EA Mission (Formerly VIP Mission)**—A category of operational mission that includes Special Airlift Missions (SAM), Commander Support Missions (CSM), Distinguished Visitor Guard (DVG) missions and Distinguished Visitor (DV) missions to include Presidential Airlift Missions tasked through the White House Military Office (WHMO), and DV missions tasked through CVAM, Theater Air Mobility Divisions (AMD) and the Joint Operational Support Airlift Center (JOSAC). Training missions are not included.

**Individual Aircraft Tracking Program (IATP) of record for the C—130** as mandated by the USAF Aircraft Structural Integrity Program (ASIP). This effort includes development and maintenance of an extensive Oracle database and a wide variety of both client, server and web-based applications to provide data entry, reporting, and analysis.

**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.

**Centralized Repair Facility**—A facility that performs repairs for a specified region or bases.

**Certified Load Crew Member**—A load crew member trained and certified by position according to [Chapter 10](#) of this instruction.

**Classified Processing Area (CPA)**—Areas identified by the unit which have had an Emission Security assessment and have been approved by the by the wing Information Assurance office to be utilized to discuss or process classified information IAW AFI 16-1404.

**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.

**Commercial Derivative Aircraft (CDA)**—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®), 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, external tests and measurements using portable equipment. The goal of CBM+ is to perform maintenance only when internal and/or external sensors indicate the need instead of performing maintenance

on a periodic basis. **Consumable Items**—Also known as “Consumption” or “Expendable” Items designated XB3. Items which are consumed in use or which lose their original identity during periods of use by incorporation into or attachments upon another assembly. Issued on an as required basis and consist of such supplies as maintenance parts or office supplies.

**Contracting Officer Representative (COR)**—A COR is an individual designated in accordance with Department of Defense Federal Acquisition Regulation Supplement subsection 201.602-2 and authorized in writing by the contracting officer to perform specific technical or administrative functions.

**Crashed, Damaged or Disabled Aircraft Recovery (CDDAR)**—The ability to move damaged or disabled aircraft using specialized equipment.

**Critical Application Item (CAI)**—An item that is essential to weapon system performance or operation, or the preservation of life or safety of operating personnel, as determined by the military services. The subset of CAI whose failure could have catastrophic or critical safety consequences is called CSIs. Refer to [Attachment 7](#).

**Critical Safety Item (CSI)**—A part, assembly, installation equipment, launch equipment, recovery equipment, or support equipment for an aircraft or aviation weapons system that contains a characteristic any failure, malfunction, or absence of which could cause a catastrophic or critical failure resulting in the loss or serious damage to the aircraft or weapons system, an unacceptable risk of personal injury or loss of life, or an uncommanded engine shutdown that jeopardizes safety. Damage is considered serious or substantial when sufficient to cause a 'Class A' mishap. The determining factor in CSIs is the consequence of failure, not the probability that the failure or consequence may occur. For the purpose of this instruction "Critical Safety Item", "Flight Safety Critical Aircraft Part", "Flight Safety Part", "Safety of Flight Item", and similar terms are synonymous.

**Cross-tell**—Cross-tells are used to highlight trends, benchmarks or safety conditions relating to maintenance equipment, personnel, training or processes. A cross-tell is initiated to assist other maintenance or logistics personnel with similar equipment to do their jobs more safely and/or efficiently. Typically a cross-tell 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 e-mail 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 cross-tells will provide relevant background information and history and can include such information as NSNs, part numbers, specific location of problem areas.

**Customer Wait Time**—Customer Wait Time 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. Customer Wait Time 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.

**Demand Response Team**—Two-member team where one person reads technical order steps and the other person performs the task and responds when each step is completed.

**Depot Level Maintenance**—Provides the capability to maintain materiel coded for organizational, intermediate and depot levels of maintenance. Includes maintenance requiring the overhaul, upgrading, or rebuilding of parts, assemblies, or subassemblies, and the testing and reclamation of equipment as necessary IAW AFD 21-1

**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 10](#) of this instruction.

**Expendability, Recoverability, Reparability, Category (ERRC)**—Used to categorize Air Force inventory into various management groupings. The grouping determine the type of management used throughout the logistics cycle, designates the process to be used in computing requirements and are used in the correction and reporting of asset and usage data. (such as, XB3, XF3, XD2, NF2, NF4).

**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 and FK denotes units utilizing ILS-S or manual records supply point within a munitions’ operations unit for conventional munitions.

**Functional Checklist**—locally developed checklists used to identify the steps required to react to specific events. 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.

**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.

**Inadvertent Release**—Uncommanded launch or release of a store or ordnance, or launch or release of a store or ordnance other than those selected when a launch or release command was generated (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 with every item having an assigned location (example, flashlights, ladders).

**(Added-AFRC) Integrated Combat Turn (ICT)**—Rapid re-arming, refueling, inspecting, and servicing through simultaneous operations during combat turning of the aircraft approved by SSEA.

**Integrated Logistics System—Supply (ILS-S)**—is the overarching term used to describe the system(s) used by base retail materiel management operations. ILS-S is comprised of the Enterprise Solution—Supply. In many cases the term ILS-S is used to identify system related functions and/or references.

**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.

**In Process Inspection (IPI)**—Inspection performed during the assembly or reassembly of systems, subsystems, or components with applicable technical orders. An IPI is accomplished and documented by an authorized IPI inspector other than the technician performing the specific step of a task that requires the IPI.

**“Knock It Off”**—“Knock it Off” empowers all Airman regardless of rank to terminate an operation or situation which they perceive is unsafe or too dangerous. “Knock it Off” includes using a recognizable “audible” (capable of being heard) from anyone in an effort to prevent a potential mishap.

**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).

**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 Cyber Discipline**—A focus on daily cyber hygiene activities which requires continuous attention in order to mitigate daily threats by creating a culture of cyber awareness, discipline, and strict compliance.

**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 Network**—The MGN supports all Organizational-level, on-equipment and off-equipment maintenance and is optimized at the Wing-level across the USAF. MGN consists of the cumulative effort required to generate, and sustain sortie and mission production to meet assigned mission requirements.

**Minimum Required Proficiency Load (MRPL)**—Recurring loading of munitions for which a person is certified.

**(Added-AFRC) Mobility Air Forces (MAF)**—Air Force Forces that provide airlift, air refueling, special air mission, and aeromedical evacuation.

**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)**—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-Consumable Item**—Also referred to as a “non-expendable” or “equipment” item. Durable items that are capable of continuing or repetitive use by an individual or organization.

**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. Items deleted from bench stock that are less than a full Unit of Issue (UI) are not considered operating stock but may be retained as work order residue.

**(Added-AFRC) Operational Direction (OPDIR)**—The authority to designate objectives, assign tasks, and provide the direction necessary to accomplish the mission or operation and ensure unity of effort. Authority for operational direction of one component member over members of another component is obtained by agreements between unit commanders (most often between Title 10 and Title 32 commanders) whereby these component commanders, in an associate organizational

structure, issue orders to their subordinates to follow the operational direction of specified/designated senior members of the other component for the purpose of accomplishing their associated mission. **Note:** “Operational Direction” is not a formally recognized command authority along the lines of OPCON or TACON.

**Operational Safety, Suitability & Effectiveness (OSS&E)**—OSS&E is an outcome of properly applied systems engineering principles, processes, and practices. Well-integrated configuration management and control, deficiency reporting and response, reliability, maintainability, integrity, and other engineering practices ensure that base-lined engineering characteristics of systems and end items are not allowed to degrade as a result of maintenance, repairs, parts substitutions, and similar activities. The PM is responsible for the assurance OSS&E throughout the life cycle of each configuration of each component of each system.

**Organizational Level Maintenance**—Maintenance consisting of those on-equipment tasks normally performed using the resources of an operating command at an operating location.

**PACER WARE**—is the unclassified term for an actual change or notification of a deficiency to an Electronic Warfare system.

**Personnel Protective Equipment (PPE)**—Equipment required to do a job or task in a safe manner.

**Plan**—A forecasted scheme of sequenced and timed events for accomplishing broad objectives. The plan is the product of annual, quarterly, and monthly planning of scalable operations and maintenance activities necessary to achieve long term mission requirements.

**Preload**—A complete munition and suspension equipment package ready for loading.

**Primary Aerospace Vehicle Authorization (PAA)**—The number of aircraft authorized to a unit for performance of its operational mission. The primary authorization forms the basis for the allocation of operating resources to include manpower, support equipment, and flying-hour funds.

**Primary Aerospace Vehicle Inventory (PAI)**—The aircraft assigned to meet the primary aircraft authorization. Includes PMAI, PTAI, PDAI and POAI.

**Production Superintendent (Pro Super)**—Senior NCO responsible for squadron maintenance production. Directs the maintenance repair effort.

**Program Manager (PM)**—The designated individual with responsibility for and authority to accomplish program objectives for development, production, and sustainment to meet the user's operational needs. The PM shall be accountable for credible cost, schedule, and performance reporting to the Milestone Decision Authority.

**Programmed Depot Maintenance (PDM)**—Maintenance activities requiring skills, equipment, or facilities not normally possessed by operating locations.

**Project Funds Management Records**—a record maintained in the material accounting system to provide for control over that portion of each responsibility center manager operating budget programmed for purchase of expense materials from the Defense Business Operations Funds stock activity fund. It is used to record available expense authority, current month and fiscal year-to-date sales, sales returns, and due-outs for both supplies and expense equipment.

**Quality Assurance (QA)**—Office or individual who monitors maintenance (organic or contractor) on a daily basis.

**Quarterly Evaluation (QE)**—Recurring calendar task evaluations required by munitions and weapons personnel.

**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).

**Recoverability Code**—A one position code assigned to end items and support items to indicate the recoverability intention and the level of maintenance authorized disposition action on unserviceable support items; and for reparable items, it is used to indicate the lowest maintenance level responsible for repair, disposition or condemnation of the item.

**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.

**Repair Recommendation**—An idea or proposal to repair an item that is not currently repaired or is beyond the capability of the work center. An AFREP initiative is generated when an asset has a demand level of "greater than three" per calendar year. All new AFREP initiatives will be staffed through the applicable organizations.

**Repairable**—Unserviceable items that can be economically repaired and restored to a serviceable condition.

**Repeat Discrepancy**—A repeat discrepancy is a pilot reported discrepancy (PRD) occurring on the same system or subsystem on the first sortie or sortie attempt after that PRD has been signed off.

**(Added-AFRC) Reserve Airlift Support (RAS)**—A program which AFRC Force Generation Center (FGC) schedules aircraft and crews to support AFRC priority or short-notice organic airlift requirements. **Note:** MAF flying units are normally scheduled to provide RAS support at the quarterly AAPC but may be tasked after the conference to support unfilled priority requirements. Refer to AFRCI 11-201 for more details on RAS.

**Retrograde**—Returning assets (reparable assets) from the field to their source of repair.

**Schedule**—Planned events that result in final review and agreement of how to execute a proposed plan of sequenced and timed events. Results in a binding commitment captured in writing and approved by signature between operations and maintenance to complete activities required to accomplish agreed upon objectives. Refers to the execution phase of weekly and daily operations and maintenance activities.

**SEEK EAGLE**—The Air Force certification program for determining safe carriage, employment and jettison limits, safe escape, and ballistics accuracy, when applicable, for all stores in specified loading configurations on USAF aircraft.

**SERENE BYTE**—is the unclassified term for an exercise change or deficiency notification to an Electronic Warfare system.

**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.

**Source Code**—Codes assigned to end items and support items to indicate the manner of acquiring items for the maintenance, repair, or overhaul of end items.

**Source, Maintenance, Recoverability (SMR) Code**—A code assigned to parts and assemblies that provides maintenance activities with repair level responsibilities, support method and disposition instructions. The SMR codes are also input into the supply and maintenance automated data system. The uniform SMR code is composed of three parts, consisting of a two position source code, a two position maintenance code, and one position recoverability code.

**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 (example, launch kits, recovery kits, cartridge cleaning kits, oxygen servicing kits).

**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.

**Supply Reports**—There are many examples of “Supply Reports” used to record supply transactions. The Daily Document Register (D04) provides a means for organizations to review all document numbers processed during the day by the SBSS. The Project Funds Management Records and Organization Cost Center Record Update and Reconciliation (D11) show the current status and internal balance of the Project Funds Management Record by supplies and equipment. The Repair Cycle Asset Management Listing (D23) 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.

**Sub-Pool**—A parking area designated by the Airfield Operations Flight that provides authorized pooling of serviceable AGE to enhance close proximity support to using organizations.

**(Added-AFRC) System Safety Engineering Analysis (SSEA)**—The SSEA program evaluates new operations that are currently prohibited due to the perceived risks (e.g., aircraft hot refueling, concurrent servicing operations, concurrent servicing operations supporting combat sortie generation and wet wing/rapid defueling operations). Based upon the successful demonstration and evaluation, approval may be granted to use the operation/procedures. Refer to AFI 91-202 for more about SSEA.

**Tactical/Theater Airborne Reconnaissance System (TARS)**—is a sensor package offers improved timeliness, reduced support costs, and improved operational capability over film systems. Once fielded, this system will provide the tactical commander with an organic system capable of responding in Near Real-Time (NRT) (in time) to battlefield requirements.

**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**—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.

**(Added-AFRC) Task Assignment List (TAL)**—Locally developed weapons loading procedural steps from -16/-33 series TOs, by weapons load crew position, used to train each crew member during a loading operation. TALs do not replace TO procedures, but are used to standardize procedures and facilitate the training of unit load crews. TALs supplement published procedures, e.g. B-2 rotary launcher conventional munitions, and B-52H Conventional Air Launched Cruise Missile pylon and Conventional Stores Rotary Launcher loading/unloading is accomplished procedurally parallel to the -16 procedures.

**Technical Administrative Function**—Function responsible for ordering and posting instructions, processing all orders, enlisted performance ratings, and general administrative tasks for the section.

**Technical Data**—Information (regardless of the form or method of the recording) of a scientific or technical nature, including computer software documentation. As applied in this publication, it includes information required for the design, development, production, manufacture, assembly, operation, training, testing, repair, maintenance, or modification of defense articles.

**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.

**Unique Item Identifier (UII)**—The set of data elements marked on items that are globally unique, unambiguous, and robust enough to ensure data information quality throughout life, and to support multi-faceted business applications and users.

**Unit Committed Munitions List (UCML)/Test/Training Munitions List (TTML)**—The UCML/TTML is a list of primary munitions (PM), support munitions (SM), and limited-use munitions (LM) necessary to meet unit operational and training requirements.

**Unmanned Aerial Vehicle (UAV)**—An unmanned aircraft that is either remotely piloted (such as, Predator) or programmed (such as, Global Hawk).

**Urgency Justification Code**—Two-digit code used to reflect the impact and type of need. The Urgency of Need Designator fills the first position of the Urgency Justification Code. Use of Urgency of Need Designator 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.

**War Readiness Engine (WRE) Levels**—The quantity of net serviceable engines required to support the Air Force war tasking and to sustain operational units' war efforts until pipelines are filled and repair capabilities are available. These engines are to be available to support a weapon system from the start of the war until re-supply (via base, intermediate, CRF or depot repair) is established.

**War Reserve Materiel (WRM)**—Consists of enterprise managed, dynamically positioned equipment and consumables that contribute to initial operations and provide initial support cross the full range of military operations. It enhances Agile Combat Support capability to reduce the time required to achieve an operational capability and/or produce an operational effect.

**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.

**(Added-AFRC) White Area**—Shielded and sealed area that houses flight control systems mechanisms within the A-10 cockpit.

## Attachment 2

## AIRCRAFT COMMANDER FEEDBACK ON FCC

Figure A2.1. Aircraft Commander Feedback on FCC.

MEMORANDUM FOR	<Unit Designation/Office Symbol>	<i>Date</i>
<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		
<b>Note:</b> Please fold and return to the squadron FCC Program Manager upon return to home station.		

**Attachment 3**  
**QUARTERLY FCC REPORT FORMAT**

**Figure A3.1. Quarterly FCC Report Format**

MEMORANDUM FOR MAJCOM/A4L	<i>Date</i>
FROM: <Unit Designation/Office Symbol>	
<Street>	
<Base and Zip Code>	
SUBJECT: <State fiscal quarter (FY20/1)> Quarterly Flying Crew Chief Report (RCS: AF/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 4**  
**ANNUAL FCC REPORT**

**Figure A4.1. Annual FCC Report**

MEMORANDUM FOR MAJCOM/A4L or DOM	<i>Date</i>
<p>FROM: &lt;Unit designation/Office Symbol&gt;</p> <p style="padding-left: 40px;">&lt;Street&gt;</p> <p style="padding-left: 40px;">&lt;Base and Zip Code&gt;</p> <p>SUBJECT:&lt;state fiscal year (FY20)&gt; Annual Flying Crew Chief Report RCS: AF/A4L(Q&amp;A)0011) In accordance with AFI 21-101&lt;unit designations&gt; report is submitted.</p> <p>Number of C-coded FCC positions on the Unit Manpower Document entitled to be filled. Include approved changes (losses/increases):</p> <p>Number of people filling C-coded positions:</p> <p>Number of qualifying missions flown per quarter by C-coded crew chiefs. Include the number of TO directed missions:</p> <p>Number of qualifying missions flown by personnel without C-coded prefix. Include TO directed missions flown by non c-coded prefix personnel:</p> <p>Number of all missions away from home station that required FCCs:</p> <p>Total number of days TDY for all C-coded crew chiefs on qualifying missions:</p> <p>Total number of days TDY for all non C-coded crew chiefs on qualifying missions:</p> <p>Unit and MAJCOM remarks and overall program assessment. Include remarks to justify vacant positions: FCC Program Manager is &lt;rank, name&gt;, office symbol, DSN number.</p> <p>&lt;Sign&gt;</p> <p>Commander, &lt;Unit Designation&gt;</p>	

**Attachment 5**  
**FCC SDAP REQUEST**

**Figure A5.1. FCC SDAP Request**

MEMORANDUM FOR MAJCOM/A4L or DOM	<i>Date</i>
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. FCC Program Manager is <rank, name>, office symbol, DSN number.	
<Sign>	
Commander, <Unit Designation>	

## Attachment 6

## FOREIGN OBJECT DAMAGE (FOD) REPORT

Figure A6.1. Foreign Object Damage (FOD) Report

MEMORANDUM FOR	<i>Date</i>
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, ETS)	
Owning Unit, Base and MAJCOM	
MDS and Tail Number (N/A for ETS incidents) Engine Type, Model, Series (TMS):	
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 7

### CRITICAL APPLICATION ITEMS & CRITICAL SAFETY ITEMS

**A7.1. CRITICAL APPLICATION ITEMS (CAIs).** For the purpose of this instruction, it is an item that is essential to weapon system performance or operation, or the operating personnel as determined by AFI 20-106IP, *Management of Aviation Critical Safety Items*.

A7.1.1. Includes flight safety items, life support, critical safety items (CSI), and nuclear hardened items. For systems including radar, avionics, munitions, contact the PO for the system to obtain the CAI designation.

A7.1.2. The management of CAIs (contains unique repair and manufacturing qualifications; material and manufacturing process requirements; and extensive testing requirements after repair) is a complex process. These specified procedures rest with the program manager.

A7.1.3. Other than TO and PO approved repairs, Electronic Warfare (EW) Systems are Critical Application Items and prohibited from consideration under the AFREP program. Performing repairs on EW system components may render the entire EW system degraded. Environmental Stress Screening (ESS) of repaired EW components is mandatory. Many EW components cannot be repaired due to electrical characteristics that are not visible or evident without special test facilities and procedures, none of which are available to field personnel or unqualified contractors.

**A7.2. CRITICAL SAFETY ITEMS (CSIs).** For the purpose of this instruction, CSIs are items whose failure may cause loss of life, permanent physical disability or major injury, loss of a system, or significant damage to equipment.

A7.2.1. Special attention is placed on CSIs due to potential catastrophic or critical consequences of failure; Public Law 108-136, sec 802, *Quality Control in Procurement of Aviation Critical Safety Items and Related Services*, was enacted to address aviation CSIs. The public law addresses three concerns:

A7.2.1.1. The Design Control Activity (DCA) is responsible for processes related to identification and management of CSIs used in procurement, modification, repair, and overhaul of aviation systems. The DCA is defined as the systems command of a military Service responsible for the airworthiness certification of the system in which a CSI is used.

A7.2.1.2. For contracts involving CSIs, DoD is restricted to DCA approved sources.

A7.2.1.3. The law requires that CSI deliveries and services meet the technical and quality requirements established by the DCA.

A7.2.2. ODM 4140.01, *DoD Supply Chain Materiel Management Procedures*, establishes procedures for the management of aviation CSIs. AFI 20-106IP, *Management of Aviation Critical Safety Items*, addresses requirements for identification, acquisition, quality assurance, management, repair, and disposition of aviation CSIs.

**Attachment 8 (Added-AFRC)****HEALTH OF FLEET MANAGEMENT AND MANDATORY ALGORITHMS FOR  
MONTHLY MAINTENANCE SUMMARY PART II**

**A8.1. (AFRC) Health of Fleet Management:** MMA converts raw data into information (HHQ reports, special studies, and maintenance analysis referrals) used to evaluate the effectiveness and efficiency of a unit's maintenance effort. While some of these products are devised and used only at the unit level, others are monitored at higher headquarters.

A8.1.1. **(AFRC)** Compare rates to those of other units Air Force-wide with the same type aircraft and fleet size. Comparing present performance to past performance and current trends to past trends may also reveal insights into the relative health of a unit.

A8.1.2. **(AFRC)** The Monthly Maintenance Summary identifies key metrics, provides a brief description of each metric with the desired trend, and presents root cause analysis when a unit's performance is not meeting the desired trend.

A8.1.3. **(AFRC)** The following are mandatory algorithms for the Part II. Each unit is encouraged to expand their report and tailor it to best meet their unit's needs. Maintenance metrics will be trended out over a 12-month period. **Note:** Tailor your Part II to be consistent, easy flowing and of maximum use for your unit.

A8.1.3.1. **(AFRC)** HOURS SCHEDULED (Flying Hours) vs HOURS FLOWN.

A8.1.3.2. **(AFRC)** H.S. SORTIES SCHEDULED (Home Station) vs H.S. SORTIES FLOWN (Home Station).

A8.1.3.3. **(AFRC)** TOTAL SCHEDULED vs TOTAL SORTIES FLOWN.

A8.1.3.4. **(AFRC)** MANHOUR UTILIZATION:  $(\text{Manhours expended} / \text{Manhours assigned}) \times 100$ .

A8.1.3.5. **(AFRC)** DATA INTEGRITY:  $(\text{Total number of errors not corrected} / \text{Total number of jobs checked}) \times 100$ .

A8.1.3.6. **(AFRC)** AVERAGE POSSESSED AIRCRAFT:  $\text{Total Hours Possessed [by MDS]} / (24 \text{ hours} \times \text{Number of days in month})$ .

A8.1.3.7. **(AFRC)** FMC RATE (Fully Mission Capable):  $(\text{Fully Mission Capable Hours} / \text{Possessed Hours}) \times 100$ .

A8.1.3.8. **(AFRC)** MC RATE (Mission Capable):  $((\text{Fully Mission Capable Hours} + \text{Partially Mission Capable Hours}) / \text{Possessed Hours}) \times 100$ .

A8.1.3.9. **(AFRC)** PMCM RATE (Partial Mission Capable Maintenance):  $(\text{Partially Mission Capable Maintenance Hours} / \text{Possessed Hours}) \times 100$ .

A8.1.3.10. **(AFRC)** PMCS RATE (Partial Mission Capable Supply):  $(\text{Partially Mission Capable Supply Hours} / \text{Possessed Hours}) \times 100$ .

A8.1.3.11. **(AFRC)** PMCB RATE (Partial Mission Capable Both):  $(\text{Partially Mission Capable Both Hours} / \text{Possessed Hours}) \times 100$ .

A8.1.3.12. (AFRC) NMCM RATE (Not Mission Capable Maintenance): (Non-Mission Capable Maintenance Hours / Possessed Hours) x 100.

A8.1.3.13. (AFRC) NMCS RATE (Not Mission Capable Supply): (Non-Mission Capable Supply Hours / Possessed Hours) x 100.

A8.1.3.14. (AFRC) NMCM RATE (Not Mission Capable Both): (Non-Mission Capable Both Hours / Possessed Hours) x 100.

A8.1.3.15. (AFRC) TNMCM RATE (Total Not Mission Capable Maintenance): ((NMCMMS Hours + NMCMU Hours + NMCBS Hours + NMCBU Hours) / Possessed Hours) x 100.

A8.1.3.16. (AFRC) TNMCS RATE (TOTAL Not Mission Capable Supply): ((NMCS Hours + NMCBS Hours + NMCBU Hours) / Possessed Hours) x 100.

A8.1.3.17. (AFRC) TOP 5 NMC DRIVERS:

A8.1.3.17.1. (AFRC) TNMCM: Enter 5-digit Work Unit Codes and include scheduled and unscheduled status hours.

A8.1.3.17.2. (AFRC) TNMCS: Enter 5-digit Work Unit Codes and include scheduled and unscheduled status hours.

A8.1.3.18. (AFRC) BREAK RATE: (Number of code 3 landings / Total Sorties Flown) x 100.

A8.1.3.19. (AFRC) FIX RATE: (Code 3 landings fixed in 12 hours / Number of code 3 landings) x 100.

A8.1.3.20. (AFRC) CANNIBALIZATION (CANN) RATE: (Number of cans / Total sorties flown) x 100. **Note:** Include CANNs for off aircraft engines as well. Display cannibalization totals by system by month in a matrix over twelve month period.

A8.1.3.21. (AFRC) COULD NOT DUPLICATE (CND) RATE: (Total CND actions / Total debrief discrepancies [PRDs]) x 100. **Note:** Action taken code of "H", and how mal codes of "672", "799", "812", and "948". Review Action taken of "X" with how mal code of "799", and the inclusion of "CND" in the corrective action narrative for possible inclusion into the CND totals.

A8.1.3.22. (AFRC) REPEAT RATE: (Total repeats / Total debrief discrepancies [PRDs]) x 100. **Note:** A repeat discrepancy occurs when the same malfunction occurs in a system/subsystem on the next sortie/sortie attempt.

A8.1.3.23. (AFRC) RECUR RATE: (Total recurs / Total debrief discrepancies [PRDs]) x 100. **Note:** A recurring discrepancy occurs when the same system/subsystem malfunction occurs on the 2nd thru 4th sortie/sortie attempt.

A8.1.3.24. (AFRC) REPEAT/RECUR RATE: ((Total repeats + total recurs) / Total debrief discrepancies [PRDs]) x 100.

A8.1.3.25. (AFRC) AIR ABORT RATE: (Total air aborts / Total sorties flown) x 100. **Note:** An air abort occurs upon termination of flight due to a malfunction that occurred after takeoff and prior to completing its primary or alternate mission.

A8.1.3.26. **(AFRC) GROUND ABORT RATE:**  $(\text{Total ground aborts} / (\text{Total sorties flown} + \text{Total ground aborts})) \times 100$ . **Note:** A ground abort occurs after crew show that prevents a “crew ready” aircraft from becoming airborne in time to complete the scheduled mission.

A8.1.3.27. **(AFRC) TOTAL ABORT RATE:**  $((\text{Total ground aborts} + \text{Total air aborts}) / (\text{Total sorties flown} + \text{Total ground aborts})) \times 100$ .

A8.1.3.28. **(AFRC) IN FLIGHT EMERGENCY (IFE) RATE:**  $(\text{Total IFEs} / \text{Total sorties flown}) \times 100$ . **Note:** An IFE occurs when an aircraft encounters a dangerous situation or emergency while airborne, declared by the aircrew, which requires immediate landing.

A8.1.3.29. **(AFRC) FLYING SCHEDULING EFFECTIVENESS RATE:**  $((\text{Sorties scheduled} - \text{deviations}) / \text{Sorties scheduled}) \times 100$ . **Note:** Sorties scheduled must be on the Weekly Flying Schedule.

A8.1.3.30. **(AFRC) DEPARTURE RELIABILITY (4AF / 22AF Units):**  $(\text{On time departures} / \text{Total departures}) \times 100$ .

A8.1.3.31. **(AFRC) AWAITING MAINTENANCE RATE:**  $(\text{Total (Snapshot) AWM Discrepancies} / \text{Average Aircraft Possessed})$ .

A8.1.3.32. **(AFRC) AWAITING PARTS RATE:**  $(\text{Total (Snapshot) AWP Discrepancies} / \text{Average Aircraft Possessed})$ .

A8.1.3.33. **(AFRC) SYSTEM CAPABILITY:**  $(\text{Sorties with cap codes of 0, 1, 2, 8} / \text{Sorties with cap codes of 0, 1, 2, 3, 4, 8}) \times 100$ . **Note:** Indicates the amount of time a selected system performs without having a failure. Failure is defined in TO 00-20-2, appendix L.

A8.1.3.34. **(AFRC) SYSTEM RELIABILITY:**  $(\text{Sorties with cap codes of 1} / \text{Sorties with cap codes of 0, 1, 2, 3, 4, 8}) \times 100$ . **Note:** Indicates the amount of time a selected system performs without having a malfunction.

A8.1.3.35. **(AFRC) AVERAGE FLOW DAYS:** Total number of flow days / Total number of ISO or phase inspection completed. **Note:** Measures average amount of time (in days) computing the difference from the date aircraft entered ISO/phase to the day ISO/phase is completed/signed-off.

A8.1.3.36. **(AFRC) AVERAGE FLY TO FLY DAYS:** Total number of fly to fly days / Total number of ISO or phase inspection completed. **Note:** Measures average number of days from last flight before ISO/Phase to the first flight after ISO/Phase.

A8.1.3.37. **(AFRC) AVERAGE FLOW DAYS (HSC or HPO):** Total number of flow days / Total number of HSC or HPO inspection completed. **Note:** Measures average amount of time (in days) computing the difference from the date aircraft entered HSC/HPO to the day HSC/HPO is completed/signed-off.

A8.1.3.38. **(AFRC) BASE REPAIR CAPABILITY:**  $(\text{Total units repaired} / (\text{Total units repaired} + \text{Total NRTS})) \times 100$ .

A8.1.3.39. **(AFRC) BASE SELF SUFFICIENCY:**  $(\text{Total units repaired} / (\text{Total units repaired} + \text{Total NRTS 2, 3, 5, 6})) \times 100$ .

A8.1.3.40. (AFRC) Base Repair Capability/Self Sufficiency: Measurement used to determine how well a unit is returning base generated repairable items, authorized for base level repair, to a serviceable condition at base level, and how well they are repairing those items (Reference TO 00-20-3, *Maintenance Processing of Repairable Property and the Repair Cycle Asset Control System*, Chapter 6).



### Attachment 9 (Added-AFRC)

#### MAINTENANCE CAPABILITIES FORMULAS

**A9.1. (AFRC) Airframe Capability Computations:** In the computations, analyze for maximum capability.

A9.1.1. (AFRC) Initial Sortie Capability: Possessed Aircraft – Maintenance Factors x MC Rate x O&M days per year.

A9.1.2. (AFRC) First Turn Aircraft Available: Possessed Aircraft – Maintenance Factors.

A9.1.3. (AFRC) First Turn Sortie Capability: First Turn Aircraft Available x MC Rate x O&M days.

A9.1.4. (AFRC) Sortie Capability: Initial Sortie Capability + First Turn Capability.

A9.1.5. (AFRC) Projected Sortie Losses: Sortie Capability x Attrition Rate.

A9.1.6. (AFRC) Maximum Sortie Capability: Sortie Capability – Projected Sortie Losses.

A9.1.7. (AFRC) Maximum Flying Hour Capability: Maximum Sortie Capability x Average Sortie. **Note:** (Maximum Sortie Capability/Possessed Aircraft) ÷ Maximum Sortie UTE Rate =12.

**A9.2. (AFRC) Facility Capability Computations:** To determine the dock requirements, use the following formulas.

A9.2.1. (AFRC) Number of Inspections Required: Flying Hours Scheduled ÷ Inspections Cycle.

A9.2.2. (AFRC) Dock Days Required: Number of inspections required x Average dock days per inspection work days per month.

A9.2.3. (AFRC) Number of Docks Required: Dock days required ÷ Work days per month.

**A9.3. (AFRC) Determining Flying Hours:** To determine flying hours and/or sortie capability:

A9.3.1. (AFRC) Number of Inspections per Dock: WDM ÷ Average dock days.

A9.3.2. (AFRC) Number of Inspections per Month: Number of inspections per dock x Number of docks available.

A9.3.3. (AFRC) Dock Flying Hour Capability: Number of inspections per month x Inspection cycle.

A9.3.4. (AFRC) Dock Sortie Capability: Dock flying hour capability ÷ Average sortie length.

**A9.4. (AFRC) Personal Capability Computations:** Goal is to figure out how many sorties/flying hours your unit can support. Suggest using only the personnel in a 102 status direct labor.

A9.4.1. (AFRC) Flying Hours Non-Supportable: Flying hour requirement – Work center flying hour capability.

A9.4.2. (AFRC) Total Man-Hours Required: Flying hours required x Manhour per flying hour factor.

A9.4.3. (AFRC) Number of Personnel Required: Total manhours required  $\div$  Available manhours for 1 person in WDM (workdays per month).

A9.4.4. (AFRC) Number of HPOs per Crew per month: WDM  $\div$  HPO days.

A9.4.5. (AFRC) Number of HPOs per Month: Number of HPOs per crew per month x Number of HPO crews available.

A9.4.6. (AFRC) Number of HPOs per PE Cycle: HPO inspections cycle  $\div$  PE inspections cycle.

A9.4.7. (AFRC) Manhour per Flying Hour Factor: JDD direct manhours expended  $\div$  Flying hours flown.

A9.4.8. (AFRC) Aircraft Work Ratio: Manhours by SRD  $\div$  Total aircraft manhours.

A9.4.9. (AFRC) Supportable Flying Hours: Available manhours  $\div$  Manhours per flying hour factor.

A9.4.10. (AFRC) Supportable Sorties: Supportable flying hours  $\div$  Average sortie duration.

### Attachment 10 (Added-AFRC)

#### MAINTENANCE SCHEDULING EFFECTIVENESS (MSE)

##### A10.1. (AFRC) Maintenance Schedule Effectiveness Goal:

A10.1.1. (AFRC) AFRC goal for MSE is 95 percent. (T-2).

##### A10.2. (AFRC) Computations:

A10.2.1. (AFRC) Compute the aircraft MSE using scheduled maintenance events in the printed weekly schedule. The MIS will be used to determine whether or not the maintenance actions were completed on time. For credit, maintenance must be completed on the date that it is scheduled in the published flying and maintenance plan. Items scheduled over multiple days must be completed in the MIS by the last date indicated in the published plan. (T-2).

A10.2.2. (AFRC) Units may revise or reprint their schedule without incurring deviations if they receive unscheduled tasking or unannounced exercise/real world contingency. Normal deviation reporting procedures will be followed once the revised or reprinted plan is finalized. (T-2).

**Table A10.1. (Added-AFRC) MSE Deviations and Functions:**

Deviation	Function
Maintenance (MT)	Actions cancelled because aircraft is added to the flying schedule, lack of manpower or equipment, or as a result of mismanagement.
Operations (OP)	Actions cancelled or not completed on time for operational reasons or as a result of adding aircraft to the flying and maintenance schedule to meet operational requirements. This also includes maintenance events not completed due to Operations Group actions. For example, Aircrew Flight Equipment Section not completing scheduled maintenance as published in the flying schedule or maintenance plan.
Higher Headquarters (HHQ)	Actions cancelled or not completed as a result of higher headquarters tasking from outside Wing.
Weather (WX)	Actions cancelled or not completed as a result of weather conditions.
Supply (SU)	Deviations that result from verified parts back order condition.
Other (OT)	Aircraft impounded after publication of the weekly schedule, unscheduled major maintenance where the maintenance action cannot be accomplished because of technical order restrictions, aircraft off base and unable to return or as a result of Productivity/Utilization Goal Days.
<b>Exception:</b> Any scheduled maintenance for an aircraft that is possessed by depot/PDM/Contract Field Team (CFT), that is not complied with because the aircraft is not released for possession as scheduled to the owning unit does not count toward MSE computations.	

A10.2.3. (AFRC) Formula: Overall Maintenance Scheduling Effectiveness Rate = Total Points earned Divide by Total Points Possible x 100. (T-2).

**Table A10.2. (Added-AFRC) Maintenance Scheduling Effectiveness Computation:**

Scheduled Event	A	B	C	D	E
	Weighted	Number of	Possible	Completed	Points Earned

	Points	Events	Points (AXB)	Scheduled	(AXD)
Home Station Checks/Hourly Post Flights/ISO	5				
Engine Changes	5				
Time Changes	5				
TCTOs	5				
Corrosion Control/Paint	4				
Transfer/Acceptance Inspection	4				
Training Aircraft	3				
Static/IR/Alert Prep	3				
Special Inspections	4				
Delayed Discrepancies	3				
Document Reviews	3				
Total Points Possible: Total O&M Points Possible: Total Points Earned: Total O&M Points Earned:					

**Attachment 11 (Added-AFRC)**

**ATTRITION AND SPARES FACTORS**

**A11.1. (AFRC) Attrition (CAF Only):** Attrition factors represent historical percentage of scheduled sorties lost to causes outside unit control. Maintenance and operations schedulers add attrition sorties to monthly contracts to mitigate scheduling turbulence and ensure that unit’s mission goals are met. Make scheduling adjustments to facilitate increases or decreases in anticipated attrition **(T-2)**. If at the end of a quarter combined losses exceed attrition figures, the OG and MXG/CCs will negotiate a resolution to the shortfall **(T-2)**.

A11.1.1. **(AFRC)** The factors used to compute attrition will be MXx, OPx, SUx, WXx, ATx, SYx, OTx, EXH, EXL, and HQx cancels **(T-2)**. MMA will compute attrition factors monthly for each MDS and provide the results to PS&D and OSS’s Current Operations **(T-2)**. During the annual Proposed FHP, MMA will provide attrition factors by month for the entire upcoming fiscal year **(T-2)**.

**A11.2. (AFRC) Attrition Factor Application:**

A11.2.1. **(AFRC)** Attrition computation is based on unit historical data from previous similar flying months. For example, when computing attrition for Jan 06, use historical data for Jan 05, Jan 04, Jan 03, Jan 02, Jan 01, etc. The formula for computing the attrition factor is Historical Sorties Lost divided by Historical Sorties Scheduled **(T-2)**.

**Table A11.1. (Added-AFRC) Attrition Computation Example.**

Cancels:	
MX Cancels:	.02
OP Cancels:	.01
SU Cancels:	.01
OT Cancels:	.01
AT Cancels:	.01
SY Cancels:	.01
EXH Cancels:	.00
EXL Cancels:	.01
HQ Cancels:	.01
Cancels Attrition Factor:	.09
WX Cancels:	.03
Total Attrition Factor:	.12
Overall Attrition Factor .12 or 12%	

A11.2.2. **(AFRC)** Sample Application of Total Attrition Factor:

**Table A11.2. (Added-AFRC) Sample Application of Total Attrition Factor.**

Sorties Required	1000
------------------	------

Subtract Attrition Factor from 1	$(1-.12) = .88$
Divide	$1000/.88$

A11.2.3. (AFRC) Required sorties to schedule 1,136.36, round up to 1137. Based on historical attrition of 12%, the unit can expect to lose 137 sorties to meet the required 1000 sorties.

**A11.3. (AFRC) Spares (CAF):** The spare requirements will not exceed 20 percent (30 percent for training units owning TF coded aircraft) of aircraft committed to the flying schedule, rounded up to the next whole aircraft (T-2). **Note:** During planned sortie surges the MXG/CC determines the amount of spares that will be committed.

A11.3.1. (AFRC) MMA computes annual spare aircraft requirements by month, using historical aircraft first sortie logistics losses and provides the information to the PS&D for use in computing spare aircraft requirements (T-2). Spare computation is based on unit historical data from previous similar flying months. For example, when computing spares for Jan 06, use historical data for Jan 05, Jan 04, Jan 03, Jan 02, Jan 01, etc. Use as much historical data as required ensuring seasonal variations are considered to determine a basis (T-2). The formula for computing spare factors is Historical First Sortie Deletions/Cancellation divided by historical first sorties scheduled (T-2).

A11.3.1.1. (AFRC) A first sortie is defined as a sortie flown by an aircraft that has not previously flown for the day (0001-2400 flying period). For example, if eight aircraft are committed to the schedule and there are 14 total sorties scheduled, the first eight sortie line numbers (i.e. 101-108) should reflect all eight committed aircraft tail numbers before they are re-scheduled (turned) against the last six (i.e. 109-114). This would be reflected as an “8 x 6” and should not be reflected as a “6 x 8” because of scheduled take-off times.

A11.3.1.1.1. (AFRC) Operations may define first sorties or turns by mission profile, take-off times, but for the purposes of this instruction the sortie turn pattern is defined against initial aircraft flown and scheduled turns of the same or a portion of the same aircraft (T-2).

**Table A11.3. (Added-AFRC) Sample Application of Spare Factors.**

1st Sortie Maintenance Cancellations	.10
1st Sortie Supply Cancellations	.03
1st Sortie Ground Aborts	.05
Spare Factor	.18 or 18%

**Table A11.4. (Added-AFRC) Sample Figure of First Sorties.**

A sample figure of 12 first sorties is used in the following computation:  Spare aircraft required equals 1st sorties scheduled times the spare factor and rounded up to the next whole number. $12 \times .18 = 2.16$ . Spares required is 3
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**A11.4. (AFRC) Spares (MAF):** Spare aircraft should not exceed 20 percent (T-2). For units with more than 10 aircraft assigned, 30 percent allowed with the commander’s approval (T-2).



**Attachment 12 (Added-AFRC)**  
**AF FORM 2407 PROCEDURES**

**A12.1. (AFRC)** The agency requesting the change will initiate/coordinate an AF Form 2407, or electronic equivalent. **(T-2)**. The AF Form 2407 will clearly state the required change and the specific reason for each change. **(T-2)**. Changes must be coordinated with the following agencies at a minimum: AMXS/MXS Maintenance Supervision, OG/CC and MXG/CC, or their designated representative, Munitions Control (if applicable), MOC, PS&D, MMA, Fuels Management Flight, and DMS (or equivalent) **(T-2)**.

A12.1.1. **(AFRC)** Configuration. Configuration changes made to the printed flying schedule must be coordinated via AF Form 2407 or electronic equivalent **(T-2)**.

**A12.2. (AFRC)** After coordination, a copy of the AF Form 2407 is filed in the MOC and disposed of IAW the Air Force Records Information Management System (AFRIMS) **(T-2)**. The MOC will ensure MMA receives all AF Form 2407s for deviation accounting **(T-2)**.

**A12.3. (AFRC) Pen and Ink Changes.** Pen and ink changes to next week's schedule, and coordinated by 1600 hours Friday are authorized, are non-reportable, and become part of the printed weekly flying schedule **(T-2)**. An AF Form 2407 or electronic equivalent is required and must be titled "Pen and Ink" **(T-2)**.

A12.3.1. **(AFRC)** During a scheduled UTA weekend, units are allowed to accomplish pen and ink changes by 1600 hours on Saturday **(T-2)**.

**A12.4. (AFRC) AF Form 2407 Approval Authority.** Any AF Form 2407 to include pen and ink changes that add sorties or increase the flying window must be approved by both the OG and MXG Commander, or their designated representative **(T-2)**. All other AF Form 2407 changes will be approved by the affected Squadron Commander, or their designated representative **(T-2)**. Electronic signature and electronic coordination is acceptable. For electronic coordination, all agencies must be listed and receipt confirmed by e-filing the receipts in an organizational email box. (An organizational email box will allow shared access and prevent individual email file creation) **(T-2)**. The agency coordinating the change will maintain receipt confirmations **(T-2)**.



## Attachment 13 (Added-AFRC)

### DEVIATIONS FROM THE FLYING SCHEDULE

**A13.1. (AFRC) Purpose.** This attachment defines flying schedule deviations and provides formulas for computing FSE. FSE is a tool to identify those processes within the wing's control that can be improved to help drive down turbulence for both the operator and maintainer.

**A13.2. (AFRC) Requirements.** Flying scheduling effectiveness computation and deviation recording are required for all assigned aircraft (**T-2**). Reporting procedures are contained in this attachment.

**A13.3. (AFRC) Flying Scheduling Effectiveness (FSE) Deviations.** A deviation is defined as departure from the weekly printed flying schedule. Multiple deviations will not be recorded against a single line entry (**T-2**). See [Attachment 8](#) for computing rates for FSE.

**A13.3.1. (AFRC) Additions (Add).** An addition is defined as a sortie or aircraft flown that was not on the printed schedule. Once an added sortie or aircraft is scheduled, it is not subject to any other deviations (**T-2**). **Note:** FCF and OCF whose primary purpose is to perform maintenance checks are not addition deviations but will be coordinated using AF Form 2407 (**T-2**). FCF and OCF sorties will be recorded "flown as scheduled" (**T-2**).

**A13.3.1.1. (AFRC) Higher Headquarters Addition (HQx Add)** are additions resulting from a HHQ's tasking, to include NAF, MAJCOM, or gaining command directed additions.

**A13.3.1.2. (AFRC) Maintenance Addition (MTx Add)** are additions resulting in the generation of an aircraft to recover another aircraft off-station (i.e. MRT) with an unscheduled maintenance discrepancy.

**A13.3.1.3. (AFRC) Operations Addition (OPx Add)** are additions resulting from operations/aircrew actions, including aircrew training, mission changes, and/or any other operations specific requirements.

**A13.3.1.4. (AFRC) Weather Additions (WXx Add)** are additional sorties added to the flying schedule to make up for weather losses. Sorties will be added to the schedule when the planned weather attrition for the month, prorated daily, has been exceeded for that month (**T-2**). The number of sorties added will not exceed the difference between the planned weather attrition and actual weather losses (**T-2**). **Example:** Planned weather attrition for the month equals 30 sorties. On the 10th O&M day of the month (of 20), a unit's weather losses are already 30 sorties. The unit may add 15 sorties (weather adds). The maintenance schedule and the ability of maintenance to support the additional requirements must be carefully considered before adding sorties (**T-2**). Weather adds even within planned prorated attrition limits, are recorded as schedule deviations (**T-2**). Under no circumstances will the number of sorties added for weather exceed the number of expected weather losses for the month (**T-2**).

**A13.3.1.5. (AFRC) Other Additions (OTx Add)** are additions to flying schedule for any reason other than stated in [paragraph A13.3.1.1](#) through [paragraph A13.3.1.4](#).

**A13.3.2. (AFRC) Cancellation (CX).** A cancellation is defined as an aircraft or sortie removed from the printed flying schedule for any reason prior crew show.

A13.3.2.1. (AFRC) Air Traffic Control Cancellation (ATC CX) are cancellations resulting from air traffic control problems (e.g., flight clearance delays, tower communication failure, or runway closure.).

A13.3.2.2. (AFRC) Higher Headquarters Cancellations (HQ CX) are cancellations resulting from a HHQ's tasking, to include NAF, AFRC, or gaining command.

A13.3.2.3. (AFRC) Maintenance Cancellations (MT CX) are cancellations resulting from aircraft discrepancies, unscheduled maintenance, and/or any other maintenance consideration(s) prior to crew show at the aircraft.

A13.3.2.4. (AFRC) Operations Cancellations (OP CX) are cancellations resulting from operations/aircrew actions, including crew illness or substitutions, mission changes, and/or any other operations specific requirements.

A13.3.2.5. (AFRC) Supply Cancellations (SU CX) are cancellations resulting from a Partially Mission Capable Supply (PMCS), Not Mission Capable Supply (NMCS) condition, late supply or Petroleum Oil Lubricant (POL) delivery.

A13.3.2.6. (AFRC) Sympathy Cancellations (SY CX) are cancellations resulting when subsequent aircraft are cancelled, due to a cancellation or abort of another aircraft in a flight of two or more.

A13.3.2.7. (AFRC) Weather Cancel (WX CX) are cancellations caused by adverse weather conditions.

A13.3.2.8. (AFRC) Other Cancellations (OT CX) are cancellations to flying schedule for any reason other than stated in [paragraph A13.3.2.1](#) through [paragraph A13.3.2.7](#).

A13.3.3. (AFRC) Early Take-Off (ET) deviations results from any sortie/launch on the weekly flying schedule that takes off more than 30 minutes before the scheduled take-off time. **Exception:** Do not record early take-off deviations for hot pit or engine running crew change turn sorties; do not include Early Land in the FSE Deviations. (T-2).

A13.3.3.1. (AFRC) Air Traffic Control Early Take-Off (ATC Early) results from air traffic control problems (for example, expected flight clearance delays, expected tower communication problems, or forecasted runway closure).

A13.3.3.2. (AFRC) Higher Headquarters Early Take-Off (HQ Early) results from a HHQ's tasking, to include NAF, MAJCOM, or gaining command.

A13.3.3.3. (AFRC) Operations Early Take-Off (OP Early) results from operations/aircrew actions including substitution, mission changes, and/or any other operations specific requirements.

A13.3.3.4. (AFRC) Weather Early Take-Off (WX Early) results from an early take-off due to adverse weather conditions forecasted.

A13.3.3.5. (AFRC) Other Early Take-Off (OT Early) results from an early take-off for any reason other than stated in [paragraph A13.3.3.1](#) through [paragraph A13.3.3.4](#).

A13.3.4. (AFRC) Late Take-Off is defined as any sortie/launch on the weekly flying schedule that takes off more than 15 minutes after the scheduled take-off time. If the printed

tail number is a ground abort and replaced with a scheduled spare that takes off late, only record the late take-off against FSE (T-2).

A13.3.4.1. (AFRC) Air Traffic Control Late Take-Off (ATC Late) results from air traffic control problems (for example, flight clearance delays, tower communication problems, or runway closure).

A13.3.4.2. (AFRC) Higher Headquarters Late Take-Off (HQ Late) results from a HHQ tasking to include NAF, major command, or gaining command.

A13.3.4.3. (AFRC) Maintenance Late Take-Off (MT Late) results from aircraft discrepancies, unscheduled maintenance, and/or any other maintenance consideration.

A13.3.4.4. (AFRC) Operations Late Take-Off (OP Late) results from operations/aircrew actions including substitution, mission changes, and/or any other operations specific requirements.

A13.3.4.5. (AFRC) Supply Late Take-Off (SU Late) results from a Partially Mission Capable Supply (PMCS), Not Mission Capable Supply (NMCS) condition, late supply or Petroleum Oil Lubricant (POL) delivery.

A13.3.4.6. (AFRC) Sympathy Late Take-Off (SY Late) results when the subsequent aircraft is late due to the cancellation, abort, or late take-off of the other aircraft in a flight of two or more aircraft.

A13.3.4.7. (AFRC) Weather Late Take-Off (WX Late) are the result of adverse weather conditions.

A13.3.4.8. (AFRC) Other Late Take-Off (OT Late) are the result of late take-offs for any reason other than stated in [paragraph A13.3.4.1](#) through [paragraph A13.3.4.7](#).

A13.3.5. (AFRC) Spare (SP). A spare is a designated aircraft on the printed schedule to be used in case a scheduled primary aircraft cannot fly its scheduled sortie. Spare aircraft can also include aircraft that are scheduled to fly in sorties later in the day, have aborted from an earlier sortie, have flown earlier or released after FCF/OCF. Do not count printed spares flown in scheduled lines as deviations when computing FSE (T-2).

A13.3.6. (AFRC) Tail Number Swaps (TS). Tail number swaps are changes to the printed flying schedule involving aircraft tail numbers printed on that day's schedule. Tail number swaps may be made up to crew show time. Tail number swaps made after crew show are recorded as spare (T-2). The MOC must be notified of all tail number swaps and record all tail number swaps in IMDS/MIS (T-2). Do not count Tail number swaps as deviations when computing FSE (T-2). Below are specific examples of tail number swaps:

A13.3.6.1. (AFRC) Changing aircraft in printed line numbers with printed spare aircraft.

A13.3.6.2. (AFRC) Changing aircraft in printed line numbers to different printed line numbers.

A13.3.6.3. (AFRC) Changing aircraft in printed line numbers to any previously flown aircraft. For example, tail number swaps are allowed for aircraft after release from OCF/FCF or XC return aircraft.

**A13.4. (AFRC) Air Deviations.** Air deviations are events occurring after take-off. They are recorded but are not included in FSE calculations (**T-2**). Ground deviations take precedence over air deviations when only one deviation can be loaded in IMDS (**T-2**). Air deviations fall into the following categories:

A13.4.1. **(AFRC) Air Abort (AA).** An air abort is an aircraft/sortie that cannot complete its mission for any reason. Air aborts are considered a sortie flown against the flying hour program when reporting total sorties flown, but may not be considered a successful sortie based on mission effectiveness. (**T-2**). Air aborts will be coded to the agency or condition that caused the aborted mission (**T-2**).

A13.4.2. **(AFRC) Air Abort, IFE (AI).** An air aborted aircraft/sortie with a situation resulting in an in-flight emergency declared by the aircrew.

A13.4.3. **(AFRC) Early Landing (EL).** An early landing is an aircraft/sortie landing more than 30 minutes before the scheduled landing time. Early Landing deviations are not used when computing FSE.

A13.4.4. **(AFRC) IFE (FE).** An aircraft/sortie with a situation resulting in an in-flight emergency declared by the aircrew after the mission is accomplished.

A13.4.5. **(AFRC) Late Landing (LL).** A late landing is an aircraft/sortie landing more than 15 minutes after the scheduled landing time. If the sortie originated on time, record any subsequent late take-off or cancellation against the agency that caused the late landing (**T-2**). If the extended sortie did not originate on time, record any subsequent sortie deviation against the agency that caused the original delay (**T-2**). Late landings are not included in FSE calculations.

**A13.5. (AFRC) Ground Aborts.** A ground abort by itself is not a deviation from the flying schedule, but may cause a deviation such as lost sortie or late take-off. A ground abort is an event after crew show time preventing a crew ready aircraft from becoming airborne. Ground aborts will be recorded to the responsible agency or condition that caused the aircraft to abort (**T-2**). Ground aborts are categorized as GAA, GAB, GAC, operations, HHQ, weather, sympathy, other, etc. For maintenance ground aborts, use GAA, GAB, or GAC. For example, if an aircraft ground aborts and the sortie is not replaced by a spare, the lost sortie is a deviation towards FSE. Ground aborts on FCFs or OCFs will be recorded in MIS, but not used when computing FSE.

A13.5.1. **(AFRC)** If a ground aborted aircraft is replaced by a spare, and the spare can meet the mission requirements, the original aircraft will be coded as a spare ground abort (**T-2**). **Note:** This is not used in computing FSE.

A13.5.2. **(AFRC)** If the original aborted aircraft is launched on the original scheduled mission, but exceeds the 15-minute late take-off criteria, the sortie will be recorded as a late take-off (**T-2**).

A13.5.3. **(AFRC)** If the aircraft lands, takes fuel via the hot pits, incurs an NMC condition after completion of hot pit refueling (receptacle disconnected) and can no longer continue, a ground abort is recorded.

A13.5.4. **(AFRC)** If an aircraft ground aborts and is replaced by a spare and the spare ground aborts causing the sortie not to be flown, both ground aborts will be counted in the overall

ground abort rate, the lost sortie will be considered cancelled and included as the deviation in FSE. The first ground abort would not be used in computing FSE.

**A13.6. (AFRC) Deviation Causes.** Deviations will be assigned a primary cause (**T-2**). The operations officer and the maintenance officer or their designate will monitor deviations to ensure they meet the criteria in this instruction (**T-2**). When conflicts arise, leadership at the agencies will resolve them at the lowest level (**T-2**). Deviations will be assigned one of the following causes:

A13.6.1. (**AFRC**) Maintenance (MT) deviations resulting from aircraft discrepancies, unscheduled maintenance, or for actions taken for maintenance consideration.

A13.6.2. (**AFRC**) Operations (OP) deviations resulting from operations/aircrew actions, mission changes causing an early/late take-off, or cancellation including substitution/aircrew illness (including short notice aircrew physical/mental disqualification), and over-stressing the aircraft. OP are also deviations resulting from unit controlled operations factors including those caused by mission/load planning, life support, intelligence, base operations, range scheduling, and passengers.

A13.6.3. (**AFRC**) Supply (SU) deviations resulting from a Partially Mission Capable Supply or Not Mission Capable Supply condition or for late Supply or POL delivery.

A13.6.4. (**AFRC**) Higher Headquarters (HHQ) deviations resulting from higher headquarters tasking, including closing of low level routes/ranges or external customer driven mission change. When an aircraft that was scheduled for a higher headquarters directed alert or off-base mission is replaced by a spare, the originally scheduled aircraft may fly the sorties of the departed aircraft for the remainder of the week without recording FSE deviations.

A13.6.5. (**AFRC**) Weather (WX) deviations resulting from weather conditions such as sorties canceled because of severe weather conditions. For example, if an aircraft taxied to the end of runway and the wing commander cancels all flying due to weather, the deviation is a weather abort. Sorties/Aircraft cancelled prior to crew show are weather cancels.

A13.6.6. (**AFRC**) Sympathy (SY) deviations occur when a flight of two or more aircraft, under the command of a flight leader or instructor pilot are canceled, aborted, or late due to a cancellation, abort, or delay of one of the aircraft in the flight or a supporting flight. Flights engaged in Dissimilar Air Combat Tactics (DACT) training that are delayed by the other flight will record the delay as sympathy. Sorties, which are to replace sympathy aborts or cancellations on the same day, will be recorded as sympathy additions. Sorties lost caused by the aircraft's scheduled mated tanker/receiver/mission event will be recorded as sympathy. Examples of mission events are: loss of release times, tanker support, Minimum Interval Take-Off causing take-off delay or cancellation, deviations caused by another unit's or command's support should be coded as SY deviations.

A13.6.7. (**AFRC**) Air Traffic Control (AT) are deviations resulting from air traffic control problems (for example flight clearance delays, tower communication failure, conflicting air traffic, runway change, or runway closure).

A13.6.8. (**AFRC**) Other (OT) deviations resulting from unusual circumstances not covered by other causes listed. OT may include:

A13.6.8.1. (**AFRC**) Malfunctions, failures, or necessary adjustments to equipment undergoing tests or evaluations associated with Operational Testing and Evaluation

(OT&E), Development Testing and Evaluation (DT&E), or Initial Operational Testing and Evaluation (IOT&E).

A13.6.8.2. **(AFRC)** Unusual circumstances such as bird strikes, damage during air refueling, and unscheduled alert swap out.

A13.6.9. **(AFRC)** Equipment, non-AFRC, are deviations caused by National Airborne Operations Center or Air Intelligence Agency or Air Force Material Command equipment, and other non-AFRC support and equipment.

A13.6.10. **(AFRC)** Exercise, Higher Headquarters (XEH) deviations result from higher headquarters directed exercises, including alarm/force protection conditions.

A13.6.11. **(AFRC)** Exercise, Local (XEL) deviations result from wing/unit directed exercises, including alarm/force protection conditions.

### **A13.7. (Added-AFRC) Scheduling Options to Maximize Sortie Production.**

A13.7.1. **(Added-AFRC)** Rapid Crew Swap (RCS). Units may schedule a RCS sortie to optimize use of fighter/attack aircraft. A RCS is an aircrew change at the aircraft and between two separate sorties. For the duration of the RCS, engine(s) must be shut down and minor servicing can be performed per MDS specific RCS TO. **(T-2). Note:** Minimum ground time should be scheduled between sorties.

A13.7.1.1. **(Added-AFRC)** Ops must retain control of the aircraft for the entire duration of the RCS. **(T-2).** If any maintenance is performed other than minor servicing, MXG shall assume control of the aircraft and the RCS sortie is terminated. **(T-2).**

A13.7.1.2. **(Added-AFRC)** RCS sorties shall be published in the weekly flying schedule; deviations apply to each sortie. **(T-2).**

A13.7.2. **(Added-AFRC)** Engine Running Crew Change (ERCC). ERCC is not applicable to AFRC fighter and attack aircraft units. Units may use an ERCC sortie to optimize aircraft use. An ERCC is an aircrew change at the aircraft and between two sorties. The crew change can be partial or full. The crew of the first sortie must brief the crew of the second sortie at the aircraft. **(T-2).** For the duration of the ERCC, a minimum of one engine is running and minor servicing may be performed per MDS specific TO. **(T-2) Note:** Minimum ground time should be scheduled between sorties.

A13.7.2.1. **(Added-AFRC)** Ops must retain control of the aircraft for the duration of an ERCC. If any maintenance is performed other than minor servicing, MXG shall assume control of the aircraft **(T-2)**, however, another aircraft can be tail swapped as the ERCC sortie. The swapped aircraft must be the same MDS, and the crew must be the same crew scheduled for the ERCC sortie. **(T-2) Note:** Examples of aircraft that can be used to swap as the ERCC sortie: two aircraft are scheduled to land at approximately the same time, either aircraft could be used as the ERCC sortie, or another aircraft on the published flying schedule; or previously flown aircraft but not on the flying schedule, example, aircraft that completed an FCF/OCF or was an add to the flying schedule.

A13.7.2.2. **(Added-AFRC)** ERCC sorties shall be published in the flying schedule; deviations apply to each sortie. **(T-2)**

**Attachment 14 (Added-AFRC)**

**DROPPED OBJECT PROGRAM (DOP) REPORTING FORMAT**

**A14.1. (AFRC)** Use the following format when reporting dropped objects.

**Table A14.1. (Added-AFRC) Dropped Object Report Format.**

<p>MEMORANDUM FOR</p> <p>FROM: &lt;Unit Designation/Office Symbol&gt; &lt;Street&gt; &lt;Base and Zip Code&gt;</p> <p>SUBJECT: &lt;Dropped Object Report&gt; DOP program report number (unit, year, and month, followed by sequence number -- example, 301FW-060501).</p> <ol style="list-style-type: none"> <li>1. DOP program report number (unit, year, and month, followed by sequence number example, 301FW-060501).</li> <li>2. MDS.</li> <li>3. Type mission and mission profile.</li> <li>4. Aircraft tail number.</li> <li>5. Owning organization and base.</li> <li>6. Origin of sortie.</li> <li>7. Date of incident and discovery location (if different than origin of sortie).</li> <li>8. Geographical location of object, if known.</li> <li>9. Item, noun, and description (use information from the applicable aircraft -4 series TOs).</li> <li>10. TO, figure, and index.</li> <li>11. Part number.</li> <li>12. Correct WUC (full five-digit) or reference designator.</li> <li>13. Last PH, PE, PDM, HSC, or ISO inspection.</li> <li>14. Last maintenance performed in the area and date.</li> <li>15. Investigation findings (cause).</li> <li>16. Costs in dollars to repair or replace dropped object and any collateral aircraft damage as appropriate and cost in man-hours to repair.</li> <li>17. Actions to prevent recurrence.</li> <li>18. DR Control Number (if submitted).</li> <li>19. Unit POC information.</li> <li>20. Other pertinent information.</li> </ol> <p>&lt;Sign&gt;</p> <p>DOP Monitor, &lt;Unit Designation&gt;</p>
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## Attachment 15 (Added-AFRC)

## MANDATORY SPECIAL CERTIFICATION ROSTER (SCR) AND PREREQUISITES

Table A15.1. (Added-AFRC) SCR for C-5, C-17, C-40, C-130, KC-46, KC-135 and WC-130.

	<b>A</b>	<b>B</b>
<b>ITEM</b>	<b>Mandatory SCR Item Titles</b>	<b>MAJCOM/ANG Prerequisites</b>
1	All Systems "Red-X" (Except: egress, welding, munitions, fuel cell in-tank work) (Note 1)	MSgt (or civilian equivalent).
2	Exceptional Release (ER) (Note 1)	MSgt (or civilian equivalent).
3	"Red-X" Downgrade (Note 1)	MSgt (or civilian equivalent).
4	All Systems In Progress Inspection (Except: egress, welding, munitions, fuel cell in-tank work, NDI) (Note 1)	MSgt (or civilian equivalent).
5	Installed Engine Run Certifying Officials (Note 1)	MSgt (or civilian equivalent), or a fully qualified/certified contractor, AFETS, or CETS representative. One year engine-run experience on applicable MDS (not applicable at short tour locations). MXG/CC may waive the time on MDS requirement. MXG/CC may waive qualified TSgts.
6	Aircraft Inlet/Intake/Exhaust Certifying Officials (Note 1)	Program N/A to AMC.
7	Flexible Borescope Certifying Officials (Note 1)	Task qualified/certified. 7 skill level (or civilian equivalent), or a fully qualified/certified contractor, AFETS, or CETS representative. One year minimum experience on applicable MDS/TMS (not applicable to short tour locations). MXG/CC may waive the time on MDS requirement.
8	Engine Blade Blending Certifying Officials (Note 1)	Task qualified/certified. 7 skill level (or civilian equivalent), or a fully qualified/certified contractor, AFETS, or CETS representative. One year minimum experience on applicable MDS/TMS (not applicable to short tour locations). MXG/CC may waive the time on MDS requirement.
9	"Red-X" by Primary AFSC (PAFSC) and Mission Design Series (For multiple Mission Design Series, list separately) (Note 2)	SSgt or higher with 7-skill level (or civilian equivalent). (includes MXG/CC appointed exceptional SrA)



10	In Process Inspection by PAFSC and Mission Design Series (For multiple Mission Design Series, list separately) (Note 2)	SSgt or higher with 7-skill level (or civilian equivalent). (includes MXG/CC appointed exceptional SrA)
11	“Red-X” and/or In Process inspection - Limited (Note 2)	5-skill level personnel certified on limited tasks determined by the unit. 5-level Certified Weapons Load Crew Chiefs on loading task only.
12	“Red-X” and/or In Process Inspection - Cross Utilization Training (For multiple MDSs, list separately), for tasks outside PAFSC (Note 2)	SSgt or higher with 7-skill level (or civilian equivalent). Use for personnel certified on tasks in other AFSCs through CUT training.
13	NWRM packaging (Notes 4 and 5)	7-skill level (or civilian equivalent). 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 Mission Design Series (Note 2)	SSgt or higher with 5-skill level (or civilian equivalent) and 6 consecutive months experience on MDS for which engine run training is required. (Experience must have occurred immediately prior to course enrollment). MXG/CC may waive the time on MDS requirement. MXG/CCs may waive qualified 5-skill level SrA for critical manpower shortages.
15	Engine Blade Blending (Note 2)	5-skill level (or civilian equivalent).
16	QA hot pit certifying officials and QA hot pit certifier augmentees (squadron certifying officials) (Note 1)	Maintenance member with AFSC 2AXXX
17	Hot Refueling PAD Supervisor/"A" Member (Note 2)	5-skill level (or civilian equivalent) in an aircraft maintenance AFSC. Hot refueling supervisor "A" member qualified.
18	Hot Refueling Team Member (“B” or “D” member) (Note 2)	Task qualified. Possess a flightline maintenance AFSC. 1 year of flightline maintenance experience.
19	Aircraft to Aircraft Refueling Supervisor (Note 2)	Task qualified
20	Uninstalled Engine Operations (Test Stand and ETS) Run by TMS (Note 2)	SSgt or higher with 7-skill level (or civilian equivalent) and 6 months current experience on each applicable TMS, unless previously qualified.

		If previously qualified on a different TMS, the 6-month experience requirement may also be waived. MXG/CC may waive 5-skill level SrA with minimum of 6 months' time on applicable TMS.
21	Uninstalled Engine Run Certifying Officials by TMS (Note 1)	Task qualified/certified. TSgt (or civilian equivalent), contractor, AFETS, or CETS personnel with 300 days engine run experience on the applicable TMS. MXG/CC may waive qualified SSgts.
22	Aircraft Inlet/Intake/Exhaust Inspection/Certification (Note 2)	Program N/A to AMC
23	Engine Flexible Borescope Inspections (Note 2)	5-skill level (or civilian equivalent).
24	Chief Servicing Supervisor (Heavy Aircraft/Commercial Derivative Aircraft) (Note 2)	7-skill level. 1 year MDS experience. MXG/CC may wave time requirement in short tour/en route locations.
25	Concurrent Servicing Supervisor (Fighter Aircraft) (Note 2)	See Attachment 16
26	W&B Certified/Clear Red X (refer to T.O. 1-1B-50) (Note 2)	7-skill level (or civilian equivalent) with 300 days on MDS. MXG/CC may waive time requirement.
27	Impoundment Official (refer to <b>Chapter 7</b> ) (Note 2)	No MAJCOM Prerequisites
28	Impoundment Authority (refer to <b>Chapter 7</b> ) (Note 1)	No MAJCOM Prerequisites
29	CANN Authority (Note 1)	No MAJCOM Prerequisites
30	Auxiliary Power Unit (APU) Operation (In Cockpit) (Note 2)	3-skill level (or civilian equivalent) in maintenance AFSC.
31	Calibration Limitation Approval (refer to T.O. 00-20-14) (Notes 2 and 3)	7-skill level (or civilian equivalent). SSgt, or Active Duty SrA, or civilian equivalent.
32	CDDAR Team Chief (Note 1)	MSgt (or civilian equivalent). MXG/CC may waive grade requirement.
33	Weapons Task Qualification Manager (WTQM) (Note 1)	TSgt or higher with 7-skill level (or civilian equivalent) with AFSC 2A871X or 2AX7X.
34	Weapons Task Qualification Crew (WTQC) (Note 2)	Lead WTQC Member: SSgt with 7-skill level 2AX7X (or civilian equivalent).

		Other Crew Member: 5-skill level 2AX5X (or civilian equivalent).
35	NSS and T-9/T-10/T-11 /T-12/T-20 sound suppressor Fire Control Panel (Note 2)	SSgt or higher (or civilian equivalent) with 6 months experience. (includes MXG/CC appointed exceptional SrA)
36	Aircraft Rapid/Hot Defueling Supervisor (Note 2)	5-skill level (or civilian equivalent) with 300 days flight-line experience and 6 months MDS experience.
37	Clear Red-X when a lost item/tool cannot be located (refer to <b>Chapter 8</b> ) (Note 1)	Operations Officer/MX SUPT
38	Aircraft APU Run Certifying Officials (In Cockpit) (Note 1)	7-skill level (or civilian equivalent), or a fully qualified/certified contractor, AFETS, or CETS representative. MXG/CCs may waive a qualified 5-skill level SSgt.
39	Jacking Supervisor (Note 2)	7-skill level (or civilian equivalent) with 180 days MDS experience.
40	Landing Gear Retraction Supervisor (Note 2)	
41	Jacking Manifold Operator (Note 2)	5-skill level (or civilian equivalent) with 180 days MDS experience.
42	Night Vision Goggle (NVG) Ground Operations Trainer/Certifier (marshalling and driving) (Note 2)	CRW/MASOP (Only if UTC requirement).
43	Special Purpose Vehicle Operator (Crane Vehicle) (Note 2)	SSgt or higher with 5-skill level (or civilian equivalent). (includes MXG/CC appointed exceptional SrA)
44	Integral Jacking Supervisor (C-17 only) (Note 2)	SSgt or higher (or civilian equivalent) with 180 days C-17 experience.
45	Tow Team Supervisor Certifying Officials (Note 1)	TSgt or higher with 7-skill level (or civilian equivalent) and one year Tow Team Supervisor experience on applicable MDS. MXG/CC may waive qualified SSgts. For short tour locations, the MXG/CC may waive qualified SSgts or higher with 6 months Tow Team Supervisor experience on applicable MDS.

46	Tow Team Supervisor (Note 2)	SSgt or higher with 5-skill level (or civilian equivalent) and 6 months experience as tow vehicle and tow brake operator on applicable MDS. (includes MXG/CC appointed exceptional SrA) MXG/CC may waive time on MDS requirement. MXG/CC may waive tow vehicle qualification.
<p><b>Notes:</b></p> <p>1----Approved by MXG/CC or equivalent</p> <p>2----Approved by Operations Officer/MX SUPT or equivalents</p> <p>3----Operations Officer/MX SUPT may delegate approval authority to the AMU OIC/Chief or Flight CC/Chief.</p> <p>4----Munitions inspectors who are trained and certified may annotate serviceability tags for munitions items (TO 11A-1-10).</p> <p>5---Appointed by the Unit Commander (or equivalent) of units possessing NWRM.</p>		

**Table A15.2. (Added-AFRC) SCR for A-10, F-16, F-35, HH-60, and HC-130.**

	<b>A</b>	<b>B</b>
<b>ITEM</b>	<b>Mandatory SCR Item Titles</b>	<b>MAJCOM/ANG Prerequisites</b>
1	All Systems "Red-X" (Except: egress, welding, munitions, fuel cell in-tank work) (Note 1)	MSgt (or civilian equivalent).
2	Exceptional Release (ER) (Note 1)	
3	"Red-X" Downgrade (Note 1)	
4	All Systems In Progress Inspection (Except: egress, welding, munitions, fuel cell in-tank work, NDI) (Note 1)	
5	Installed Engine Run Certifying Officials (Note 1)	MSgt (or civilian equivalent), or a fully qualified/certified contractor, AFETS, or CETS representative and possess one of the following AFSCs: 2A671, 2A571/2/4, and 2A373/5/7/8. One year engine-run experience on applicable MDS (not applicable at short tour locations). MXG/CC may waive the time on MDS requirement. MXG/CC may waive qualified TSgts.
6	Aircraft Inlet/Intake/Exhaust Certifying Officials (Note 1)	Task qualified/certified. 7 skill level (or civilian equivalent), or a fully qualified/certified contractor, AFETS, or CETS representative and possess one of the following AFSCs: 2A6X1, 2A5X1/2/4, 2A3X3/7/8. One year minimum experience on applicable MDS/TMS (not
7	Flexible Borescope Certifying Officials (Note 1)	
8	Engine Blade Blending Certifying Officials (Note 1)	

		applicable to short tour locations). MXG/CC may waive the time on MDS requirement.
9	“Red-X” by Primary AFSC (PAFSC) and Mission Design Series (For multiple Mission Design Series, list separately) (Note 2)	SSgt or higher (or civilian equivalent) with minimum 7 skill level. (includes MXG/CC appointed exceptional SrA)
10	In Process Inspection by PAFSC and Mission Design Series (For multiple Mission Design Series, list separately) (Note 2)	
11	“Red-X” and/or In Process inspection - Limited	5-skill level personnel certified on limited tasks determined by the unit (Note 1). 5-level Certified Weapons Load Crew Chiefs on loading task only (Note 2).
12	“Red-X” and/or In Process Inspection - Cross Utilization Training (For multiple MDSs, list separately), for tasks outside PAFSC (Note 2)	SSgt or higher (or civilian equivalent) with minimum 7-skill level (or civilian equivalent). Use for personnel certified on tasks in other AFSCs through CUT training.
13	NWRM packaging (Notes 4 and 5)	7-skill level (or civilian equivalent). 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 Mission Design Series (Note 2)	SSgt or higher with minimum 5-skill level (or civilian equivalent) and 6 consecutive months experience on MDS for which engine run training is required. (Experience must have occurred immediately prior to course enrollment). MXG/CC may waive the time on MDS requirement. MXG/CCs may waive qualified 5-skill level SrA.
15	Engine Blade Blending (Note 2)	5-skill level (or civilian equivalent) with 2A3X3/7/8, 2A5X1/2/4, and 2A6X1 AFSC.
16	QA hot pit certifying officials and QA hot pit certifier augmentees (squadron certifying officials) (Note 1)	Qualified/certified 7 skill level (or civilian equivalent), or a fully qualified/certified contractor, AFETS or CETS representative; 300 days experience on applicable MDS.
17	Hot Refueling PAD Supervisor/"A" Member (Note 2)	5-skill level (or civilian equivalent) with 2AX5X AFSC and 300 days flight-line maintenance experience.
18	Hot Refueling Team Member (“B” or “D” member) (Note 2)	Flightline maintenance AFSC, with a Minimum of 1 year flightline maintenance experience.

19	Aircraft to Aircraft Refueling Supervisor (Note 2)	Minimum 5-skill level with a minimum of 1 year weapon system experience.
20	Uninstalled Engine Operations (Test Stand and ETS) Run by TMS (Note 2)	SSgt or higher 7-skill level 2A6X1 (or civilian equivalent) with a minimum of 6 months current experience on each applicable TMS, unless previously qualified (N/A to short tour assignments). If previously qualified on a different TMS, the 6-month experience requirement may also be waived. MXG/CC may waive 5-skill level SrA with minimum of 6 months' time on applicable TMS.
21	Uninstalled Engine Run Certifying Officials by TMS (Note 1)	Fully qualified/certified TSgt or higher 2A671 AFSC, civilian equivalent, contractor, or AFETS/CETS personnel with a minimum of one year engine run experience on the applicable TMS. (One year run experience not applicable to short tour assignments). The MXG/CC may waive qualified SSgts and may authorize MT uninstalled engine run instructors as certifying officials.
22	Aircraft Inlet/Intake/Exhaust Inspection/Certification (Note 2)	Minimum 5-skill level, 2A3X3/5/7/8, 2A5X1/2/4, and 2A6X1 (or civilian equivalent). MAJCOMs will determine and document AFSC and skill level requirements for 5th Generation aircraft.
23	Engine Flexible Borescope Inspections (Note 2)	Minimum 5-skill level 2A3X3/8, 2A5X1/2/4, 2A3X7, and 2A6X1 (or civilian equivalent). (Note 2). MAJCOMs will determine and document AFSC and skill level requirements for 5th Generation aircraft.
24	Chief Servicing Supervisor (Heavy Aircraft/Commercial Derivative Aircraft) (Note 2)	See Attachment 15.
25	Concurrent Servicing Supervisor (Fighter Aircraft) (Note 2)	For A-10, F-15, F-16, F-22A aircraft, minimum 7-skill level with a minimum of 1 year weapons system experience. Time requirement may be waived by MXG/CC in short tour locations.
26	W&B Certified/Clear Red X (refer to T.O. 1-1B-50) (Note 2)	7-skill level (or civilian equivalent), with a minimum of 1 year time on weapon system. Time requirement may be waived by MXG/CC.
27	Impoundment Official (refer to <b>Chapter 7</b> ) (Note 2)	(Note 1)

28	Impoundment Authority (refer to <b>Chapter 7</b> ) (Note 1)	No MAJCOM Prerequisites
29	CANN Authority (Note 1)	No MAJCOM Prerequisites
30	Auxiliary Power Unit (APU) Operation (In Cockpit) (Note 2)	3-skill level (or civilian equivalent) in maintenance AFSC.
31	Calibration Limitation Approval (refer to T.O. 00-20-14) (Notes 2 and 3)	7-skill level (or civilian equivalent). SSgt (or civilian equivalent).
32	CDDAR Team Chief (Note 1)	MSgt or higher (or civilian equivalent). MXG/CC may waive grade requirement.
33	Weapons Task Qualification Manager (WTQM) (Note 1)	TSgt or higher (or civilian equivalent) with 7-skill level AFSC 2A871X or 2AX7X.
34	Weapons Task Qualification Crew (WTQC) (Note 2)	Lead WTQC Member: SSgt with 7-skill level 2AX7X (or civilian equivalent). Other Crew Member: 5-skill level 2AX5X (or civilian equivalent).
35	NSS and T-9/T-10/T-11 /T-12/T-20 sound suppressor Fire Control Panel (Note 2)	SSgt or higher (or civilian equivalent) with AFSC 2A6X1 with 6 months experience. (includes MXG/CC appointed exceptional SrA)
36	Aircraft Rapid/Hot Defueling Supervisor (Note 2)	5-skill level (or civilian equivalent) with one year flight-line experience and 6 months MDS experience.
37	Clear Red-X when a lost item/tool cannot be located (refer to <b>Chapter 8</b> ) (Note 1)	Operations Officer/MX SUPT
38	Aircraft APU Run Certifying Officials (In Cockpit) (Note 1)	7-skill level (or civilian equivalent), or a fully qualified/certified contractor, AFETS, or CETS representative. MXG/CCs may waive qualified 5-skill level SSgts.
39	Jacking Supervisor (Note 2)	7-skill level (or civilian equivalent). 6 months MDS experience.
40	Landing Gear Retraction Supervisor (Note 2)	7-skill level (or civilian equivalent). 6 months MDS experience.
41	Jacking Manifold Operator (Note 2)	5-skill level (or civilian equivalent). 6 months MDS experience.
42	White Area Maintenance (A-10) (Note 2)	Minimum 5 Skill Level (or civilian equivalent)

<p><b>Notes:</b></p> <p>1---Approved by MXG/CC or equivalent</p> <p>2---Approved by Operations Officer/MX SUPT or equivalents</p> <p>3---Operations Officer/MX SUPT may delegate approval authority to the AMU OIC/Chief or Flight CC/Chief.</p> <p>4---Munitions inspectors who are trained and certified may annotate serviceability tags for munitions items (TO 11A-1-10).</p> <p>5---Appointed by the Unit Commander (or equivalent) of units possessing NWRM.</p>
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**Table A15.3. (Added-AFRC) SCR for B-52.**

	<b>A</b>	<b>B</b>
<b>ITEM</b>	<b>Mandatory SCR Item Titles</b>	<b>MAJCOM/ANG Prerequisites</b>
1	All Systems "Red-X" (Except: egress, welding, munitions, fuel cell in-tank work) (Note 1)	MSgt (or civilian equivalent).
2	Exceptional Release (ER) (Note 1)	
3	"Red-X" Downgrade (Note 1)	
4	All Systems In Progress Inspection (Except: egress, welding, munitions, fuel cell in-tank work, NDI) (Note 1)	
5	Installed Engine Run Certifying Officials (Note 1)	MSgt (or civilian equivalent), or a fully qualified/certified contractor, AFETS, or CETS representative. One year engine-run experience on applicable MDS (not applicable at short tour locations). MXG/CC may waive the time on MDS requirement. MXG/CC may waive qualified TSgts.
6	N/A to B-52	
7	Flexible Borescope Certifying Officials (Note 1)	Task qualified/certified. 7 skill level (or civilian equivalent), or a fully qualified/certified contractor, AFETS, or CETS representative. One year minimum experience on applicable MDS/TMS (not applicable to short tour locations). MXG/CC may waive the time on MDS requirement.
8	Engine Blade Blending Certifying Officials (Note 1)	
9	"Red-X" by Primary AFSC (PAFSC) and Mission Design Series (For multiple Mission Design Series, list separately) (Note 2)	SSgt or higher with 7-skill level (or civilian equivalent). (includes MXG/CC appointed exceptional SrA)



10	In Process Inspection by PAFSC and Mission Design Series (For multiple Mission Design Series, list separately) (Note 2)	SSgt or higher with 7-skill level (or civilian equivalent). (includes MXG/CC appointed exceptional SrA)
11	“Red-X” and/or In Process inspection - Limited (Note 2)	5-skill level personnel certified on limited tasks determined by the unit. 5-level Certified Weapons Load Crew Chiefs on loading task only.
12	“Red-X” and/or In Process Inspection - Cross Utilization Training (For multiple MDSs, list separately), for tasks outside PAFSC (Note 2)	SSgt or higher with 7-skill level (or civilian equivalent). Use for personnel certified on tasks in other AFSCs through CUT training.
13	NWRM packaging (Notes 4 and 5)	7-skill level (or civilian equivalent). 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 Mission Design Series (Note 2)	SSgt or higher with 5-skill level (or civilian equivalent) and 6 consecutive months experience on MDS for which engine run training is required. (Experience must have occurred immediately prior to course enrollment). MXG/CC may waive the time on MDS requirement. MXG/CCs may waive qualified 5-skill level SrA for critical manpower shortages.
15	Engine Blade Blending (Note 2)	5-skill level (or civilian equivalent).
16-19	N/A to B-52	
20	Uninstalled Engine Operations (Test Stand and ETS) Run by TMS (Note 2)	SSgt or higher with 7-skill level (or civilian equivalent) and 6 months current experience on each applicable TMS, unless previously qualified. If previously qualified on a different TMS, the 6-month experience requirement may also be waived. MXG/CC may waive 5-skill level SrA with minimum of 6 months’ time on applicable TMS.
21	Uninstalled Engine Run Certifying Officials by TMS (Note 1)	Task qualified/certified. TSgt (or civilian equivalent), contractor, AFETS, or CETS personnel with 300 days engine run experience on the applicable TMS. MXG/CC may waive qualified SSgts.
22	N/A to B-52	

23	Engine Flexible Borescope Inspections (Note 2)	5-skill level (or civilian equivalent).
24-25	N/A to B-52	
26	W&B Certified/Clear Red X (refer to T.O. 1-1B-50) (Note 2)	7-skill level (or civilian equivalent) with 300 days on MDS. MXG/CC may waive time requirement.
27	Impoundment Official (refer to <b>Chapter 7</b> )(Note 2)	No MAJCOM Prerequisites
28	Impoundment Authority (refer to <b>Chapter 7</b> ) (Note 1)	
29	CANN Authority (Note 1)	
30	Auxiliary Power Unit (APU) Operation (In Cockpit) (Note 2)	3-skill level (or civilian equivalent) in maintenance AFSC.
31	Calibration Limitation Approval (refer to T.O. 00-20-14) (Notes 2 and 3)	7-skill level (or civilian equivalent). SSgt, or Active Duty SrA, or civilian equivalent.
32	CDDAR Team Chief (Note 1)	MSgt (or civilian equivalent). MXG/CC may waive grade requirement.
33	Weapons Task Qualification Manager (WTQM) (Note 1)	TSgt or higher with 7-skill level (or civilian equivalent) with AFSC 2A871X or 2AX7X.
34	Weapons Task Qualification Crew (WTQC) (Note 2)	Lead WTQC Member: SSgt with 7-skill level 2AX7X (or civilian equivalent). Other Crew Member: 5-skill level 2AX5X (or civilian equivalent).
35	NSS and T-9/T-10/T-11 /T-12/T-20 sound suppressor Fire Control Panel (Note 2)	SSgt or higher (or civilian equivalent) with 6 months experience. (includes MXG/CC appointed exceptional SrA)
36	Aircraft Rapid/Hot Defueling Supervisor (Note 2)	5-skill level (or civilian equivalent) with 300 days flight-line experience and 6 months MDS experience.
37	Clear Red-X when a lost item/tool cannot be located (refer to <b>Chapter 8</b> ) (Note 1)	Operations Officer/MX SUPT
38	N/A to B-52	
39	Jacking Supervisor (Note 2)	7-skill level (or civilian equivalent) with 180 days MDS experience.

40	Landing Gear Retraction Supervisor (Note 2)	
41	Jacking Manifold Operator (Note 2)	5-skill level (or civilian equivalent) with 180 days MDS experience.
42	Night Vision Goggle (NVG) Ground Operations Trainer/Certifier (marshalling and driving) (Note 2)	CRW/MASOP (Only if UTC requirement).
43	Special Purpose Vehicle Operator (Crane Vehicle) (Note 2)	SSgt or higher with 5-skill level (or civilian equivalent). (includes MXG/CC appointed exceptional SrA)
44	Tow Team Supervisor (Note 2)	SSgt or higher with 5-skill level (or civilian equivalent) and 6 months experience as tow vehicle and tow brake operator on applicable MDS. (includes MXG/CC appointed exceptional SrA) MXG/CC may waive time on MDS requirement. MXG/CC may waive tow vehicle qualification.

**Notes:**

1---Approved by MXG/CC or equivalent

2---Approved by Operations Officer/MX SUPT or equivalents

3---Operations Officer/MX SUPT may delegate approval authority to the AMU OIC/Chief or Flight CC/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.

## Attachment 16 (Added-AFRC)

## EXTENDED WORKDAY RISK ASSESSMENT

A16.1. (AFRC) As a minimum, [Table A16.1](#) must be used to guide the risk assessment.

Table A16.1. (Added-AFRC) Extended Workday Risk Assessment.

<b>Health and Stress Category Risk Factors</b>	<b>LOW RISK</b>	<b>MODERATE RISK</b>	<b>HIGH RISK</b>
<b>Perceived Health</b> Hydration, Nutrition, Illness, Injury	Minor	Elevated	Serious
<b>Perceived Personal and Family Stress</b> Finance, Relationship, Family Health	Minor	Elevated	Serious
<b>Fatigue Category Risk Factors</b>	<b>LOW RISK</b>	<b>MODERATE RISK</b>	<b>HIGH RISK</b>
<b>16+ hr. Work/Duty days in the past week</b>	2	3	≥ 4
<b>Combined Sleep in past 72 hrs.</b>	> 18 hrs.	15-18 hrs.	< 15 hrs.
<b>Awake in past 36 hrs.</b>	< 23 hrs.	23-28 hrs.	> 28 hrs.
<b>Sleep Quality</b>	Excellent	Fair	Poor
<b>Net Time Zone Crossings in last duty day (jet lag)</b>	≤ 5	> 5	
<b>Risk Assessment</b> Potential for high risk of failure if: -- member's perceived health is serious -- member met two factors of a HIGH RISK level -- member met three factors of a MODERATE RISK level			
Note: Assessment findings must be reported to the unit MXG/CC with ADCON authority for review.			