DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE MATERIEL COMMAND
WRIGHT-PATTERSON AIR FORCE BASE OHIO

DAFI21-101_AFMCSUP_AFMCGM2023-01
27 June 2023

MEMORANDUM FOR AFTC/AFSC/FLDCOMs

FROM: HQ AFMC/A4/10
4375 Chidlaw Road
Wright-Patterson AFB OH 45433-5006

SUBJECT: Air Force Materiel Command (AFMC) Guidance Memorandum (GM) to AFI 21-101_AFMCSUP, *Aircraft and Equipment Maintenance Management*.

By order of the Commander, Air Force Materiel Command, this AFMC Guidance Memorandum immediately changes AFI 21-101_AFMCSUP, dated 10 November 2020. Compliance with this Memorandum is mandatory. To the extent its directions are inconsistent with other AFMC publications, the information herein prevails, in accordance with DAFI 90-160, *Publications and Forms Management*. 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 Management System.

This GM incorporates DAFI21-101_AFMCSUP_AFMCGM 2022-01, dated 5 July 2022, that implemented the reorganization and transfer of United States Space Force responsibility to publish MAJCOM level supplemental guidance to DAFI 21-101, *Aircraft and Equipment Maintenance Management*, to AFMC as the identified servicing MAJCOM. Additionally, this GM added a requirement under Maintenance Group Commander responsibilities to establish local procedures for application intervals of HydroSkip on F-16 transparencies and it incorporates two recommendations for change of publication. The use of an asterisk (*) identifies new guidance added to prior GM.

Our POC is Mr. Art Buck, HQ AFMC/A4MM, at DSN 674-3014 or arthur.buck.2@us.af.mil.

This Memorandum becomes void after one year has elapsed from the date of this Memorandum, or upon publication of an Interim Change or rewrite of DAFI21-101_AFMCSUP, whichever is earlier.

C. M. VON HOFFMAN, Major General, USAF
Director of Logistics, Civil Engineering,
Force Protection and Nuclear Integration

Attachment:
Guidance Changes

DAFI21-101_AFMCSUP_AFMCGM2023-01 (27 June 2023)
Attachment
Guidance Changes

(Replace)(AFMC) DAFI 21-101, *Aircraft and Equipment Maintenance Management*, is supplemented as follows: This supplement identifies specific processes and procedures that are unique to AFMC and implements reorganization direction establishing AFMC as servicing MAJCOM for United States Space Force (USSF). It provides DAFI 21-101 MAJCOM supplemental guidance in an USSF Addendum to this supplement that applies to the USSF units/personnel and those with USSF contractual obligation, when associated with AFMC where AFMC is the servicing MAJCOM.

This supplement applies to Air Force Materiel Command organizations and personnel that develop, test, and maintain aerospace platforms and associated equipment. Supplement applicability: Air Force Test Center (AFTC) Test Wing organizations (96 TW and 412 TW) and the USAF Aircraft Battle Damage Repair Office Air Force Sustainment Center (AFSC) (AFSC/LGPM). AFSC Air Logistics Complexes (ALCs) do not follow AFI 21-101 or this AFMC Supplement, for Depot Maintenance Management guidance see AFMCI 21-100, *Depot Maintenance Management*. This publication applies to Air Force Reserve Command (AFRC) units when assigned or associated with AFMC where AFMC is lead. This publication does not apply to the Air National Guard. Numerous assigned missions within AFMC are not organized under the standard Wing Organization concept for Aircraft Maintenance Management IAW AFI 38-101, *Manpower and Organization*. Non-Standard Organizations (NSOs) require deviations (applicability, variance, and/or differences in organizational placement of responsibilities/processes) from DAFI 21-101 and this supplement. DEV – Deviation to provide/scope applicability for NSO logistics/maintenance in an addendum(s) to the MAJCOM supplement is approved by AF/A4L IAW DAFI21-101. Therefore, NSOs will follow the addendum(s) only, not the parent AFI nor this AFMC Supplement; **Exception:** USSF NSO(s) will follow the USSF addendum to this supplement and the parent DAFI, but not the AFMC Supplement. The respective Addendum(s) will scope NSO requirements in meeting the intent of the AFI and this AFMC Supplement based on the respective organizational mission(s). The following organizations are identified as NSOs (In the event of a conflict with identification of NSOs in this guidance, AFI21-101_AFMCSUP_Addendum A, *Non Standard Organization (NSO) Logistics Maintenance Management* or AFI 21-101_AFMCSUP_Addendum C, *Air Force Research Laboratory (AFRL) Logistics Maintenance Management*, will take precedence): Air Force Life Cycle Management Center (AFLCMC) units: 66th Air Base Group (ABG), 88th Air Base Wing (ABW), Cryptologic and Cyber Systems Division (HNC) (specifically the Technical Application Products and Space COMSEC Maintenance mission areas), 645 Aeronautical Systems Group (AESG), Armament Sustainment Division (ASD) EBWMT Missile and EBWWE Weapons Engineering Laboratories (Labs), EBWWG Gunsmith Shop (GSS) specifically the geographically separated maintenance function in support of Small Arms/Light Weapons (SA/LW) located at Joint Base Lackland San Antonio, Munitions Sustainment Division (MSD) Laboratory (EBH), and Global Ammunitions Control Point (GACP) Afloat Preposition Fleet (APF) Flight/Cell (EBHMA); AFTC units: Arnold Engineering and Development Complex (AEDC), 704th Test Group (TG) and Plant 42, and Specialized Management Office (SMO); and AFSC units: 72nd ABW, 72nd Logistics Readiness Squadron (LRS)/LGRMW, 75 ABW, 649 MUNS, 78 ABW, 78 LRS/LGRW. Throughout this supplement, the civilian equivalent (unless no civilian may hold the position) may be applied to any reference to a military rank, grade or position. All references to aircraft and equipment maintenance in AFI21-101 include support equipment, test equipment, special projects equipment, etc. The authorities to waive wing/unit

level requirements in this publication are identified with a Tier ("T-2, T-3") number following the compliance statement. See DAFMAN 90-161, *Publishing Processes and Procedures*, 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; if not-tiered, send through chain of command to publication OPR. Submit recommendations for change or improvement to this instruction on AF Form 847, *Recommendation for Change of Publication*, in accordance with DAFI 90-161. For questions on interpreting this instruction, first contact your Quality Assurance Office/activity. Send questions to the OPR at AFMC/A4M Workflow (AFMC.A4M.Workflow@us.af.mil), 4375 Chidlaw Rd, Bldg 262 Room C117 WPAFB OH 45433-5006. Sustainment Operating Instructions (SOIs) are F-35 joint program instructions provided by the Joint Program Office. They are developed with Service/Partner participation and provide source documentation for Air Force policies/instructions specific to the F-35 where legacy instructions may not be adequate for the given topic. AFMC units may use SOI source documentation/information that is relevant and complements AFI21-101 and AFMC Sup. SOIs requiring a deviation from AFI21-101 and AFI21-101_AFMCSUP requires the unit to submit a waiver. SOIs may be accessed at the following web site: https://cs.eis.af.mil/f35/sustainment/Logistics%20Support%20Products%20Library/Forms/AllItems.aspx. Air Force Research Laboratory applicability is also identified as a NSO, in the event of a conflict with identification of NSO in this guidance, AFI21-101_AFMCSUP_Addendum C, *Air Force Research Laboratory (AFRL) Logistics Maintenance Management*, will take precedence. This publication must be supplemented by the implementing activities. Ensure all records created as a result of processes prescribed in this publication are maintained IAW Air Force Instruction 33-322, *Records Management and Information Governance Program*, and disposed of IAW 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 AFMC.

References throughout to "Air Force Instruction (AFI) 63-140" are hereby changed to read "Department of the Air Force Instruction (DAFI) 63-140".

***(Add)** 2.4.59. F-16 (only) Establish local procedures for application intervals of HydroSkip on F-16 transparencies (not to include LUNA transparencies, if installed).

(Change) 11.10.1. **(AFMC)** The following are the interim roles and responsibilities until AFMC supplement to DAFI 63-140 is published by HQ AFMC/A4/10/A4-EN.

(Change) 11.10.1.1. **(Added-AFMC)** AFMC ASIP OPR will coordinate with other command ASIP OPR (as necessary), unit ASIP Program Manager, and Program Office (PO) ASIP Manager to resolve Individual Aircraft Tracking (IAT) data submission problems, aircraft hardware/software discrepancies, and programmatic issues that affect valid data capture rates.

(Add) 11.10.1.2. Maintenance Group Commander will:

(Add) 11.10.1.2.1. Appoint an officer, NCO, or civilian as the MXG ASIP Program Manager. **(T-2)**

(Add) 11.10.1.2.2. Ensure effective measures are in place to capture and report ASIP aircraft usage data (Individual Aircraft Tracking and/or Loads Environment Spectrum Survey) to achieve the required data capture/validity rate.

(Add) 11.10.1.3. MXG ASIP program manager will :

(Add) 11.10.1.3.1. Develop MXG ASIP Program Manager, AMU ASIP monitors, and Debrief section responsibilities and training program (as applicable).

(Add) 11.10.1.3.2. MXG ASIP program manager will track and submit to AFMC/A4M (AFMC.A4M.Workflow@us.af.mil) a quarterly IAT status report IAW Attachment X for all assigned manned/unmanned, home station/deployed aircraft, by MDS. **(T-2)**

(Add) 11.10.1.3.2.1. Unit quarterly IAT reports will be submitted to the AFMC ASIP OPR (AFMC.A4M.Workflow@us.af.mil) NLT the fifth duty day of the quarter (Jan, Apr, Jul, & Oct).

(Add) 11.10.1.3.2.2. Unit quarterly IAT reports will include amplifying remarks to explain IAT valid data submission rates below 90%, and listed by month in the remarks section of the template, see **Table 11.3.**

(Add) 11.10.1.3.3. Units possessing manned or unmanned weapon systems that do not have an approved IAT system will contact the AFMC ASIP OPR (AFMC.A4M.Workflow@us.af.mil) for reporting guidance.

(Add) 11.10.1.3.4. MXG ASIP program manager will coordinate with the MAJCOM ASIP OPR and MDS ASIP Manager to obtain guidance and resolution when ASIP usage data collection and submission issues are encountered.

(Add) 11.10.1.3.5. MXG ASIP program manager will coordinate with the MAJCOM ASIP OPR and PO ASIP Manager to obtain feedback on data capture rates and to implement corrective actions as needed to achieve the required rates.

(Add) 11.10.1.3.6. MXG ASIP program manager will provide oversite and ensure units are complying with planning and collection of ASIP collection plans and data IAW **para 11.10.1.4.1** and **11.10.2.1** of this instruction.

(Add) 11.10.1.4. AMU ASIP monitors will:

(Add) 11.10.1.4.1. Develop and publish procedures to collect and submit ASIP aircraft usage data at home station and deployed locations. **(T-3)**

(Add) 11.10.1.4.2. Ensure of collection of IAT ASIP data at the unit level, IAW **para 11.10.2.1** of this instruction.

(Add) 11.10.1.4.3. When valid ASIP submission rates fall below 90%, devise plan in coordination with the MXG ASIP program manager to improve valid capture rates.

(Change) 11.10.2. **(AFMC)** Operational Requirements.

(Add) 11.10.2.1. AMUs/Mx Units will collect, track, and submit IAT data (no later than the end of the next duty day) IAW specific aircraft technical orders and/or ASIP Master Plans. **(T-2)**

(Add) Table 11.3. , **AFMC Individual Aircraft Tracking (IAT) Status Reporting Template.**

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BASE	UNIT	MDS(s)	Reporting Quarter
Sample Base	96 MXG	F-XX	Jan –Mar 2022

ITEM	VALUE
Number of Recorder or DTC Downloads Required	225
Number of Recorder or DTC Downloads Submitted	72
Recorder Submission Rate	32%
Number of Sorties Flown	635
Number of Forms Submitted	550
Percent Captured	88.60%

COMMENTS

The objective is to submit 100% of required collected data. Search in progress for missing forms.

Download hard drive corrupt all files lost, new hard drive on order EDD 30 Oct 2014.

Monthly break down (AFTO Form 239)			
Jan sorties flown:			
Jan downloads required:		Downloads submitted:	
Jan forms submitted:			
Feb sorties flown:			
Feb downloads required:		Downloads submitted:	
Feb forms submitted:			
Mar sorties flown:			
Mar downloads required:		Downloads submitted:	
Mar forms submitted:			**0**

***(Replace)** 11.14.1. **(AFMC)** See AFMC Sup **para 11.14.3** through **11.14.4.2** for Hangar Queen Management Program

(Add) 11.38.3.4.1.1. See **paragraph 11.38.6** and subparagraphs.

(Add) 11.38.6. Oil Analysis Program (OAP) Responsibilities and Requirements.

(Add) 11.38.6.1. MAJCOM A4M Responsibilities. **(T-2)**

(Add) 11.38.6.1.1. Appoints a qualified SNCO to manage Command OAP and serve as a point of contact for OAP activities. **(T-2)**

(Add) 11.38.6.2. MXG/CC Responsibilities. **(T-2)**

(Add) 11.38.6.2.1. Appoints a Wing OAP Manager and alternate. **(T-2)**

(Add) 11.38.6.2.2. Ensures the NDI/OAP facility is on a priority repair list with base Civil Engineer. **(T-2)**

(Add) 11.38.6.2.3. Ensures base Civil Engineer maintains an alternate power source of sufficient voltage capacity at the OAP lab to be used in times of power outage. This will allow the OAP process to continue without delay. **(T-2)**

(Add) 11.38.6.2.4. Ensures the NDI/OAP facility has a Class A telephone and a direct line to MOC to expedite the reporting of abnormal wear-metal trends. **(T-2)**

(Add) 11.38.6.3. Wing OAP Manager Responsibilities. **(T-2)**

(Add) 11.38.6.3.1. Manages the OAP IAW T.O. 33-1-37-1, *Joint Oil Analysis Program Manual*, and other applicable directives. **(T-2)**

(Add) 11.38.6.3.2. Develops procedures to establish policy and requirements for the wing OAP. Include a standardized method to ensure the total oil serviced since last OAP sample can be tracked and accurately entered on the DD Form 2026, *Oil Analysis Request*. **(T-2)**

(Add) 11.38.6.3.3. Ensures all organizations requiring OAP support appoint an OAP Manager and alternate using an appointment letter. **(T-2)**

(Add) 11.38.6.3.4. Provide consolidated quarterly OAP data report to the MXG/CC, the Squadron Operations Officer/Maintenance Superintendent, Propulsion Flight Chief, all organization OAP Managers, and the NDI Section Chief. **(T-2)** As a minimum, the following information will be included in the quarterly report:

(Add) 11.38.6.3.4.1. Number of OAP samples processed. **(T-2)**

(Add) 11.38.6.3.4.2. Number and percentage of DD Form 2026 errors. **Note:** Count each DD Form 2026 that has any errors as one error, then divide the number of discrepant DD Form 2026s by the total number of OAP samples processed for the error percentage. **(T-2)**

(Add) 11.38.6.3.4.3. Number of OAP laboratory maintenance recommendations. **(T-2)**

(Add) 11.38.6.3.4.4. Average OAP sample response time. **Note:** Enter sample response time to the nearest tenth of an hour and do not include the time when the OAP lab is not manned. **(T-2)**

(Add) 11.38.6.3.4.5. Number and percentage of OAP samples that exceeded required sample response times. Obtain the percentage by dividing the number of OAP samples exceeding required sample response time by the total OAP samples processed. **(T-2)**

(Add) 11.38.6.3.4.6. Number and percentage of aircraft engines not sampled as required by

applicable technical order. Accomplish this by dividing the number of aircraft engines not sampled as required by the total OAP samples processed. **(T-2)**

(Add) 11.38.6.3.4.6.1. Number of OAP lab maintenance recommendations confirmed by physical finding of abnormal wear or potential for catastrophic failure "hits". **(T-2)**

(Add) 11.38.6.3.4.6.2. For Scanning Electron Microscope/Energy Dispersive X-ray equipped bases: Number of Magnetic Chip Detector (MCD) analyzed.

(Add) 11.38.6.3.4.6.3. For SEM/EDX equipped bases: Number and percentage of Level 1, 2, and 3 warnings by material type. **(T-2)**

(Add) 11.38.6.3.4.6.4. For SEM/EDX equipped bases: Number of unserviceable MCDs found. **(T-2)**

(Add) 11.38.6.3.4.6.5. For SEM/EDX equipped bases: Number and percentage of CAF Form 22, *Technical Manual (TM) Change Recommendation and Reply*, errors. **Note:** Count each CAF Form 22 that has any errors as one error, and then divide the number of discrepant CAF Form 22s by the total number of MCDs analyzed for the error percentage. **(T-2)**

(Add) 11.38.6.3.4.6.6. For SEM/EDX equipped bases: Average SEM/EDX analysis response time. **Note:** This is the time from when the MCD is pulled to the time results are reported to the MOC. Enter the response time to the nearest tenth of an hour and do not include the time when the OAP lab is not manned. **(T-2)**

(Add) 11.38.6.3.4.6.7. For SEM/EDX equipped bases: Number and percentage of MCDs that exceeded required delivery time. Obtain the percentage by dividing the number of MCDs exceeding required delivery time by the total number of MCDs processed. **(T-2)**

(Add) 11.38.6.4. Operations Officer/Maintenance Superintendent Responsibilities. **(T-2)**

(Add) 11.38.6.4.1. Ensures all assigned aircraft are sampled IAW the applicable aircraft T.O. **(T-2)**

(Add) 11.38.6.4.2. Ensures OAP samples are delivered to the OAP lab with a DD Form 2026 filled out IAW T.O. 33-1-37-1. **(T-2)**

(Add) 11.38.6.4.2.1. In the DD Form 2026 "hours/miles since overhaul block, for engines with engine monitoring systems (EMS) use engine operating time unless the specific technical order directs otherwise (e.g., F110 engine use EMS inflight time). Reconcile NDI/OAP lab and aircraft records using downloaded EMS data accordingly. For engines without EMS, use engine flying hours. **(T-2)**

(Add) 11.38.6.4.3. Ensures flightline personnel verify with the OAP lab that the information entered in the Oil Analysis Record matches during scheduled aircraft records checks. Verify, as a minimum, engine operating hours, time since oil change, oil serviced since last records check/OAP sample, engine serial number(s) and aircraft serial number. **Note:** MXG/CC or equivalent may waive verification of OAP records against aircraft records when aircraft are deployed and the scheduled aircraft records check is due. **(T-2)**

(Add) 11.38.6.4.4. Identifies AMU OAP Managers and alternates by appointment letter. Forward a copy to the Wing OAP Manager and the OAP laboratory. The letter will include grade, name, duty phone, AFSC, organization and office symbol. OAP manager will be a NCO

and will serve as the primary liaison between their AMU and the OAP lab for all OAP issues. Ensures assigned OAP Managers or alternates attend all OAP meetings involving their AMU. **(T-2)**

(Add) 11.38.6.4.5. Ensures all aircraft engines under special OAP codes IAW T.O. 33-1-37 are not flown until results of the OAP sample(s) are known. Ensure no aircraft engines are operated until the following DD Form 2026 discrepancies are corrected and verified with the OAP lab: equipment and/or end item serial number error, hours (EOT or EFH) since overhaul error, oil change error, and oil added since last sample error. These items are essential to oil analysis trending and require removal of that engine from service until the discrepancy is corrected. **(T-2)**

(Add) 11.38.6.4.6. Ensures DD Form 2026 with equipment and/or end item serial number error, hours since overhaul error and oil added since last sample error are corrected immediately. **(T-2)**

(Add) 11.38.6.4.7. Ensures all maintenance actions affecting oil-wetted engine components are provided to the OAP lab using the remarks section of the DD Form 2026 or a suitable local form. **(T-2)**

(Add) 11.3.6.5. Propulsion Flight Chief Responsibilities. **Note:** When no Propulsion Flight exists or the Propulsion Flight performs no maintenance on the affected oil-wetted system, the MXG/CC or designated representative or equivalent assumes these responsibilities. **(T-2)**

(Add) 11.38.6.5.1. Ensures accurate and timely deficiency reports are submitted through the unit PIM to the applicable ALC engine program offices on all engines requiring tear down or overhaul due to an OAP laboratory maintenance recommendation and on all oil-wetted component failures. **(T-2)**

(Add) 11.38.6.5.2. Ensures a copy of the Oil Analysis Record is provided to the applicable repair facility for each engine undergoing scheduled maintenance or overhaul. **(T-2)**

(Add) 11.38.6.5.3. Makes the final decision regarding all OAP engine maintenance action recommendations. **(T-2)**

(Add) 11.38.6.5.4. Ensures all Propulsion Flight maintenance actions which affect oil- wetted engine components are provided to the OAP lab. This will be done by using the remarks section of the DD Form 2026 submitted with the OAP sample. **(T-2)**

(Add) 11.38.6.5.5. Appoints OAP Managers and provides the names by appointment letter to the Wing OAP Manager and the OAP lab. Include grade, name, duty phone, organization, AFSC and office symbol. **(T-2)**

(Add) 11.38.6.5.6. Ensures assigned OAP Managers or alternates attend all OAP meetings. **(T-2)**

(Add) 11.38.6.6. MOC Responsibilities. **(T-2)**

(Add) 11.38.6.6.1. Maintains an OAP status on each assigned aircraft showing all lab recommendation codes next to the aircraft serial number. Prior to commencing the flying day, verify status of aircraft or engines on special surveillance. **(T-2)**

(Add) 11.38.6.6.2. Relays to the OAP lab information regarding engine changes on- and off-station as they occur but no later than 0800 the next duty day. **(T-2)**

(Add) 11.38.6.6.3. Notifies the OAP lab when the cross country/deployed aircraft return.

(Add) 11.38.6.6.4. Initiates follow-up action when the oil analysis record from cross country/deployed aircraft is not returned to the OAP lab. **(T-2)**

(Add) 11.38.6.7. NDI/OAP lab NCOIC Responsibilities.

(Add) 11.38.6.7.1. Ensures the scheduled aircraft records check is documented on the affected engine's Oil Analysis Record with the date the check was accomplished and OAP lab person's initials. **(T-2)**

(Add) 11.38.6.7.2. Ensures a copy of the Oil Analysis Record or a suitable automated form is provided to the propulsion flight for each engine undergoing scheduled maintenance or overhaul at depot, JEIM or CRF. **(T-2)**

(Add) 11.38.6.7.3. Immediately notifies MOC and the propulsion flight chief when an installed engine is restricted from operation or is placed on special sampling. **(T-2)**

(Add) 11.38.6.7.4. Ensures analysis results on all installed engines are provided to MOC after analysis of the OAP sample is complete. **(T-2)**

(Add) 11.38.6.7.5. Immediately notifies test cell and the propulsion flight chief when abnormal OAP results are discovered on test cell engines. **(T-2)**

(Add) 11.38.6.7.6. Ensures DD Form 2026s with equipment and/or end item serial number error, hours since overhaul error and oil added since last sample error are corrected immediately. **(T-2)**

(Add) 11.38.6.7.7. Tracks aircraft OAP sample response times for all assigned aircraft to ensure response time compliance. **(T-2)**

(Add) 11.38.6.7.8. Maintains a current appointment letter of all customer OAP managers. **(T-2)**

(Add) 11.38.6.8. OAP Sample Response Time Requirements for Routine OAP Samples. **Note:** The OAP sample response time begins at the time the OAP sample is taken and ends at the time the oil analysis results are reported to the MOC. **(T-2)**

(Add) 11.38.6.8.1. 2 1/2 hours for one and two engine aircraft. Deliver the sample to the OAP lab within 75 minutes of engine shutdown. MXG/CC may adjust the 2 1/2 hour rule as needed to accommodate flying windows. When the OAP lab is not manned, they shall provide results to the MOC NLT 2 hours after the beginning of the next shift. **Note:** OAP response time does not apply to aircraft that are geographically separated from the supporting OAP lab; however, aircraft will not fly beyond the applicable -6 T.O. sampling interval. **(T-2)**

(Add) 11.38.6.8.2. Five hours for all other aircraft. When the OAP Lab is not manned, they shall provide results to the MOC NLT 2 hours after the beginning of the next shift. **Note:** OAP response time does not apply to aircraft that are geographically separated from the supporting OAP lab; however, aircraft will not fly beyond the applicable -6 T.O. sampling interval. **(T-2)**

(Add) 11.38.6.8.3. Four hours for engine ground/trim and test cell runs. **(T-2)**

(Add) 11.38.6.8.4. Immediately processes/analyzes special "Red Cap" samples after drawing the sample. The OAP lab will assign priority to "Red Caps" over routine samples and expedite results to MOC. **(T-2)**

(Add) 11.38.6.9. OAP Requirements for Cross-Country Flights/Deployments. **(T-2).**

(Add) 11.38.6.9.1. Flightline personnel place an Oil Analysis Record in the aircraft AFTO Form

781-series forms jacket prior to departure. **(T-2)**

(Add) 11.38.6.9.2. The OAP lab personnel ensure the Oil Analysis Record contains at least the last 10 analyses. The flightline expediter or pro super notifies the OAP lab in advance for cross-country documents. **(T-2)**

(Add) 11.38.6.9.3. Flightline personnel sign for the Oil Analysis Record at the OAP lab and return it to the lab the day the aircraft returns to home station. **(T-2)**

(Add) 11.38.6.9.4. The OAP lab notifies MOC if the Oil Analysis Record is not returned. **(T-2)**

(Add) 11.38.6.9.5. The OAP lab reviews the returned Oil Analysis Record for adverse trends and takes necessary action. **(T-2)**

(Add) 11.38.6.9.6. AMUs will follow the OAP procedures in this supplement at the deployment sites. **(T-2)**

(Add) 11.38.6.9.7. Deployed OAP personnel shall have telephone or radio communication with MOC and the AMU to expedite reporting of abnormal OAP trends. **(T-2)**

(Add) 11.38.6.10. OAP Requirements for Transient Aircraft. **(T-2)**

(Add) 11.38.6.10.1. Transient maintenance personnel sample aircraft as required by this section and applicable -6 technical order. **(T-2)**

(Add) 11.38.6.10.2. Transient maintenance personnel draw the OAP sample and make a Red Dash entry on the AFTO Form 781A, *Maintenance Discrepancy and Work Document* indicating, "Engine oil analysis results due". **(T-2)**

(Add) 11.38.6.10.3. When OAP capability exists at a transient location and an OAP sample is required, the OAP sample results will be known prior to aircraft departure. **(T-2)**

(Add) 11.38.6.10.4. Transient bases without OAP capability shall take required OAP samples and ensure samples are given to aircrew for processing at next base. **(T-2)**

(Add) 11.38.6.10.5. If OAP sample results are not provided before aircraft departure, the results shall be forwarded via FAX, e-mail or most expeditious manner by the local MOC or transient maintenance to the aircraft's next destination (either MOC, TA, or base operations). **(T-2)**

(Add) 11.42. Condition Based Maintenance Plus (CBM+). CBM+ is the application and integration of appropriate processes, technologies, and knowledge-based capabilities to improve the reliability and maintenance effectiveness of USAF systems and components. CBM+ is maintenance performed based on evidence of need provided by RCM analysis and other enabling processes and technologies. The CBM+ Process has four distinct phases, including Component Selection, Enhanced Reliability Centered Maintenance (eRCM), Sensor-Based Algorithms, and CBM+ Deployment.

(Add) 11.42.1. Predictive Maintenance Alert Loop (PMAL). A six-step collaborative process that allows stakeholders to receive and act upon the results of eRCM analyses and/or sensor-based algorithms/modules. PMAL transforms eRCM forecasts and sensor-based algorithm alerts into Mx and supply chain actions and is a critical component in the integration of a successful USAF Predictive Mx culture.

(Add) 11.42.2. Governance. A CBM+ Team is assigned per weapon system and includes

representatives from AFLCMC/RO; Program Office; the MAJCOM, including direct CBM+ support, Weapon System Managers/Weapon System Teams (WSMs/WSTs) and field unit contacts; and AFSC supply chain management. For platforms managing many main operating bases, a field representative may also serve as an optional member of the CBM+ Team to provide feedback on the execution of Mx. The CBM+ Team oversees the execution of the PMAL. The CBM+ Team meets on an as-needed basis to discuss the most recently published forecast, the locations of affected aircraft, and the availability of supply to make informed, collaborative decisions and recommendations.

(Add) 11.42.3. Plan and Schedule Maintenance. Refer to the respective MAJCOM guidance on how and when to schedule maintenance for assigned locations. When supply is limited or aircraft are deployed or preparing for mission deployment, the MAJCOM may prioritize Mx requirements or coordination with applicable supporting organizations.

(Add) 11.42.3.1. Access the CBM+ Forecast via the Predictive Analytics and Decision Assistant tool at: https://cbmplus.cce.af.mil/. Units must access the CBM+ Forecast on the 15th of each month (or the next duty day if the 15th falls on a weekend or holiday) in order to forecast the maintenance schedule priority. Communicate any inconsistencies to the MAJCOM WST/managers. **(T-2) Note:** Individual CBM+ component threshold hours will change over time.

(Add) 11.42.3.1.1. Units can contact the AFMC/A4M CBM+ manager at: AFMC.A4M.Workflow@us.af.mil to obtain information/sponsorship to gain access to the CBM+ Forecast via the Predictive Analytics and Decision Assistant tool.

(Add) 11.42.3.2. Work Unit Codes/Logistics Control Numbers (components) selected for CBM+ are tracked by individual aircraft tail numbers to predict the component's remaining life to failure. The intent of CBM+ is to drive unscheduled maintenance into scheduled maintenance, thereby optimizing the limited maintenance resources and improving aircraft availability.

(Add) 11.42.3.3. CBM+ Access. If available, maintenance units will utilize the CBM+ Forecast applicable for assigned MDS(s) to view, schedule maintenance, order parts, complete replacement actions, and record the maintenance actions for each aircraft.

(Add) 11.42.3.4. The scheduling priority is based on the CBM+ threshold with the highest priority for aircraft with components over the threshold, followed by the aircraft with components forecasted for removal within the next 30, 60, 90, 120, 150, 180-day intervals.

(Add) 11.42.3.5. Each CBM+ component forecasted for removal should be scheduled in conjunction with the closest scheduled maintenance event where the CBM+ maintenance action can take place. **Example:** Units may determine, through the local scheduling process, that an aircraft with a component forecasted for removal that is within the 30-day to 180-day threshold is already scheduled down and may elect to complete the CBM+ maintenance action ahead of an aircraft that has a component that is over the threshold. This is a local decision and meets the objective of CBM+ by employing opportunistic maintenance to prevent an anticipated part failure.

(Add) 11.42.3.5.1. Consult maintenance tasks SMEs for the typical time duration the maintenance action takes in order to appropriately schedule the task as required.

(Add) 11.42.3.5.2. Parts loaded into the MIS that are CBM+ items will be loaded to fully track

component history and life usage. Automated History Events will be enabled for parts loaded with CBM+ Work Unit Codes/Logistics Control Numbers and the Maintenance Type Interval will be established as "H" (for hours) based on the end item's operating time.

(Add) 11.42.3.6. Units should align the CBM+ forecasted maintenance with other planned/scheduled events and order the part(s) to ensure the DIFM 14-day policy is not violated.

(Add) 11.42.3.6.1. Units are to use project code 063 and urgency justification AU/BU when ordering the CBM+ WUC/LCN part.

(Add) 11.42.3.6.2. Units should not pull parts from the MRSP to fill CBM+ parts orders.

(Add) 11.42.3.7. Units are encouraged to utilize profile job standards for each CBM+ WUC/LCN to standardize maintenance entries.

***(Add) 12.6. (AFMC) Maintenance Personnel Requirements**. Air Force Sustainment Center (AFSC) Instruction 62-100, *Military Repair Station Program*, has been superseded by AFSCI 62-603, *Military Repair Station Program*.

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

Abbreviations and Acronyms

CBM+—Condition-Based Maintenance Plus

eRCM—Enhanced Reliability Centered Maintenance

IAT—Individual Aircraft Tracking

MCD—Magnetic Chip Detector

NSOs—Non-Standard Organizations

PMAL—Predictive Maintenance Alert Loop

SBA—Sensor-Based Algorithms

SEM/EDX—Scanning Electron Microscope/Energy Dispersive X-ray

SOIs—Sustainment Operating Instructions

WSMs/WSTs—Weapon System Managers/Weapon System Teams

Administrative Change to AFI 21-101 AFMC SUP, *Aircraft and Equipment Maintenance Management*

OPR: HQ AFMC/A4MM

References throughout to “Air Force Instruction (AFI) 21-101” are hereby changed to read “Department of the Air Force Instruction (DAFI) 21-101”, where applicable referencing to DAFI21-101_DAFGM2021-01dated 1 October 2021, until AFI 21-101 AFMC SUP is fully revised. 30 November 2021.

Reference in Table 11.1. (AFMC) Mandatory Special Certification Roster and Prerequisites, Item 5 Installed Engine Run Certifying Officials, MAJCOM/ANG Prerequisites, is hereby changed from “2A373/7/8” to read “2A373/5/7/8”. 30 November 2021.

BY ORDER OF THE
SECRETARY OF THE AIR FORCE



AIR FORCE INSTRUCTION 21-101

16 JANUARY 2020

AIR FORCE MATERIEL COMMAND
Supplement

10 NOVEMBER 2020

Maintenance

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MAINTENANCE MANAGEMENT

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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** 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.

(AFMC) This publication implements AFI21-101. It supplements specific processes and procedures that are unique to AFMC. This supplement applies to Air Force Materiel Command organizations and personnel that develop, test, and maintain aerospace platforms and associated equipment. Supplement applicability: Air Force Test Center (AFTC) Test Wing organizations (96 TW and 412 TW) and the USAF Aircraft Battle Damage Repair Office Air Force Sustainment Center (AFSC) (AFSC/LGPM). AFSC Air Logistics Complexes (ALCs) do not follow AFI 21-101 or this AFMC Supplement, for Depot Maintenance Management guidance see AFMCI 21-100, *Depot Maintenance Management.* This publication applies to Air Force Reserve Command (AFRC) units when assigned or associated with AFMC where AFMC is lead. This publication does not apply to the Air National Guard. Numerous assigned missions within AFMC are not organized under the standard Wing Organization concept IAW AFI 38-101, *Manpower and Organization*. AFMC Non-Standard Organizations (NSO) require deviations (applicability, variance, and/or differences in organizational placement of responsibilities/processes) from AFI21-101 and this supplement. DEV – Deviation to provide/scope applicability for NSO logistics/maintenance in an addendum(s) to the MAJCOM supplement is approved by AF/A4L IAW AFI21-101. Therefore, NSOs will follow the addendum(s) only, not the parent AFI nor this AFMC Supplement. The respective Addendum(s) will scope NSO requirements in meeting the intent of the AFI and this AFMC Supplement based on the respective organizational mission(s). The following organizations are identified as NSOs (In the event of a conflict with identification of NSOs in this guidance, AFI21-101_AFMCSUP_Addendum A *Non Standard Organization (NSO) Logistics Maintenance Management* or AFI 21-101_AFMCSUP_Addendum C *Air Force Research Laboratory (AFRL) Logistics Maintenance Management* will take precedence): Air

Force Life Cycle Management Center (AFLCMC) units: 66th Air Base Group (ABG), 88th Air Base Wing (ABW), Cryptologic and Cyber Systems Division (HNC) (specifically the Technical Application Products and Space COMSEC Maintenance mission areas), 645 Aeronautical Systems Group (AESG), Armament Sustainment Division (ASD) EBWMT Missile and EBWWE Weapons Engineering Laboratories (Labs), EBWWG Gunsmith Shop (GSS) specifically the geographically separated maintenance function in support of Small Arms/Light Weapons (SA/LW) located at Joint Base Lackland San Antonio, Munitions Sustainment Division (MSD) Laboratory (EBH), and Global Ammunitions Control Point (GACP) Afloat Preposition Fleet (APF) Flight/Cell (EBHMA); AFTC units: Arnold Engineering and Development Complex (AEDC), 704th Test Group (TG) and Plant 42, and Specialized Management Office (SMO); and AFSC units: 72nd ABW, 72nd Logistics Readiness Squadron (LRS)/LGRMW, 75 ABW, 649 MUNS, 78 ABW, 78 LRS/LGRW. Throughout this supplement, the civilian equivalent (unless no civilian may hold the position) may be applied to any reference to a military rank, grade or position. All references to aircraft and equipment maintenance in AFI21-101 include support equipment, test equipment, special projects equipment, etc. The authorities to waive wing/unit level requirements in this publication are identified with a Tier ("T-2, T-3") number following the compliance statement. See Department of the Air Force Instruction (DAFI) 33-360, *Publications and Forms Management*, 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; if not-tiered, send through chain of command to publication OPR. Submit recommendations for change or improvement to this instruction on Air Force (AF) Form 847, Recommendation for Change of Publication in accordance with DAFI 33-360. For questions on interpreting this instruction, first contact your Quality Assurance (QA) Office/activity. Send questions to the Office of Primary Responsibility (OPR) at AFMC/A4M Workflow (**AFMC.A4M.Workflow@us.af.mil**), 4375 Chidlaw Rd, Bldg 262 Room C117 WPAFB OH 45433-5006. Sustainment Operating Instructions (SOIs) are F-35 joint program instructions provided by the Joint Program Office (JPO). They are developed with Service/Partner participation and provide source documentation for Air Force policies/instructions specific to the F-35 where legacy instructions may not be adequate for the given topic. AFMC units may use SOI source documentation/information that is relevant and complements AFI21-101 and AFMC Sup. SOIs requiring a deviation from AFI21-101 and AFMC Sup requires the unit to submit a waiver. SOIs may be accessed at the following web site: **https://cs.eis.af.mil/f35/sustainment/Logistics%20Support%20Products%20Library/Forms/AllIte** ms.aspx. Air Force Research Laboratory (AFRL) Applicability. AFRL is also identified as a NSO, in the event of a conflict with identification of NSO in this guidance, AFI21-101_AFMC_SUP_Addendum C, *Air Force Research Laboratory (AFRL) Logistics Maintenance Management* will take precedence. This publication must be supplemented by the implementing activities. Ensure all records created as a result of processes prescribed in this publication are maintained IAW Air Force Instruction 33-322, *Records Management and Information Governance Program*, and disposed of IAW 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 AFMC.

SUMMARY OF CHANGES

This corrective action revises the following paragraphs: 10.3.1.; 10.3.3.3.3.; 10.11.1.; 10.11.2.1.1.; 10.12.; 10.13.1.; 10.13.1.1., 10.13.6.1 and 11.8.3.15. Additionally, this corrective action deletes para 6.10.1.3.3.1.

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.

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(AFMC) This supplement has been substantially revised and must be completely reviewed in its entirety. It incorporates approved changes submitted through AF Form 847 and the AFMC policy guidance from HQ AFMC/A4M Policy Risk Assessment Effort policy changes A.) Delete the MAJCOM mandatory Quality Assurance (QA) Routine Inspections. B.) Modify to remove flight chief will coordination work beyond Aerospace Ground Equipment (AGE) capability. C.) Remove; Individuals authorized to operate trim box will perform at least one trim utilizing the trim box every 180 days. D.) Remove Command Key Task List (KTL) in favor of using Lead Command KTL. E.) Add required Command guidance to standardized AF Repair Enhancement Program (AFREP). F.) Designate GACP Afloat Preposition Fleet (APF) Cell as a Non Standard Organization (NSO). Additionally, changed policy guidance for Foreign Object Damage (FOD) and Dropped Object Program (DOP) reporting procedures, and designates AF Test Center Specialized Management Office (AFTC/SMO) a NSO. Additional changes were within the Flying Crew Chief Program responsibilities from aircraft commander to Flying Crew Chief, annual CDDAR equipment inventory procedures, establishment of Aircraft Battle Damage Evaluator and training program, Commercial Derivative Aircraft guidance, maintaining serial number inventory accountability for all Communications Security (COMSEC)/Controlled Cryptographic Item (CCI), Maintenance Operations will develop a training plan for individuals assigned to QA that will inspect MXO functions and ensuring fire detection and foam suppression training is included in unit facility manager/occupant training briefings, Maintenance Plans, Scheduling and Documentation (PS&D) guidance and added scheduling option for the use of Rapid Crew Swaps, and deletes the requirement to send the annual AGE inventory to HQ AFMC/A4MM.

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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.*

1.2. (AFMC) [DEV] Organization. Completed a High Performing Organization pilot program for DoD and is authorized the following deviations to continue taking advantage of the efficiencies achieved during that program:

1.2.1. **(Added-AFMC)** [DEV] The 412th Maintenance Squadron, Component Repair Flight (412 MXS/MXMA), consolidates Avionics, Armament Flight, and the Electro-Environmental, Battery Shop and Egress functions of the Accessory Flight in addition to Tow Targets sections.

1.2.2. **(Added-AFMC)** [DEV] The 412 MXS, Maintenance Flight (MXMX), consolidates the functions of the Maintenance Support Flight (MXMT) and the pneudraulic and fuels functions of the Accessories Flight (MXMC).

1.2.3. **(Added-AFMC)** [DEV] The 412 MXS, Munitions Flight (MXMW) is responsible for the Armament (MXMR) function for Bomber aircraft only due to the geographic location/separation at Edwards AFB, South Base.

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:

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

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.

1.3.4. 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**.

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).

1.7.1.2. **(AFMC)** 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/HNC-PS).

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.

1.11.1. Modifications to Munitions. All proposed modifications to aircraft-carried munitions include AFI 63-101/20-101 and SEEK EAGLE certification IAW AFI 63-101/20-101and 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*.

1.12. 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**. 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.

1.15. 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.

1.15.2.1. **(Added-AFMC)** Cell Phones/Cameras in Industrial Areas. Cell phones/cameras are prohibited when directed by safety/classified/special access requirements or TOs. Note these areas will be clearly marked with signs so it is obvious to all that it is an electronic device/cell phone restricted area. **(T-2).**

1.15.2.2. **(Added-AFMC)** Use of a privately owned cell phone or communication devices are authorized in the industrial/production areas except while performing hands-on maintenance activities. Employees will remove themselves from any maintenance activity, aircraft, or high traffic areas prior to using a communication device. **(T-2).**

1.15.2.3. **(Added-AFMC)** Use of portable music/video players, electronic games or other personal electronic hearing impairing devices are authorized in industrial production areas except where audio warning cues are used. Prohibited items do not include, stereos and other sizable devices**.**

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, *Materiel 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	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. 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.
3	Primary mission aircraft, engines, air launched missiles and related AGE, munitions and munitions equipment, and equipment undergoing scheduled or unscheduled maintenance, if not performed or repaired will prevent or delay mission accomplishment. Transient air vehicles not otherwise listed. Administrative aircraft within 8 hours of scheduled flight or on alert status with standby crews. Time change requirements for nuclear weapons. Repair cycle assets to satisfy a Mission Impaired Capability Awaiting Parts (MICAP) condition. Spares not available in supply. Critical end items and spares not available in supply. Routine maintenance of aircrew or missile-training simulator, or other training devices or related AGE or sites and aircraft or equipment used for maintenance training. Avionics shop electronic AGE and automated test stations.
4	Routine or extensive repair of primary air mission and related AGE and repair cycle assets. Administrative aircraft undergoing scheduled or unscheduled maintenance. Routine maintenance of AGE, not otherwise listed above. War Reserve Materiel (WRM) items due maintenance or inspection.

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

1.17. 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. **(AFMC)** Performance-based activities (AFMC/A1MR) are coordinated/collaborated with the appropriate HQ AFMC/A4/10 MAJCOM Functional Manager (MFM)/Functional Area Manager (FAM).

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. (AFMC) General. The civilian equivalent (unless no civilian may hold the position) may be applied to any reference to a military rank, grade or position.

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)**.

2.2.2. **(AFMC)** [DEV] Daily “Wing Standup” meeting may be delegated to the MXG/CC or OG/CC. At a minimum, the WG/CC will chair this meeting once a week. **(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** **(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.

2.2.4.3. **(AFMC)** Due to the non-standard nature of the test mission, the use of the MxCAP2 model is not conducive in projecting annual flying capabilities. Use of local tools is authorized.

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

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

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 material 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** **(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**.

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** **(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:

2.4.1. 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** **(T-1)**.

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

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

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** 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**

2.4.12. Review the weekly, monthly, quarterly, annual flying or test schedules IAW **Chapter 5** and **Chapter 14** **(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** 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** 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** **(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)**.

2.4.30. 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** **(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** **(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** **(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** **(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** **(T-1)**.

2.4.40. Ensure management of the Weight and Balance (W&B) program IAW **Chapter 6** **(T-1)**.

2.4.40. **(AFMC)** MXG/CC is the W&B authority, the W&B authority is not required to be W&B certified, if they are not performing weight and balance tasks IAW 1-1B-50, *Aircraft Weight and Balance.*

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

2.4.43. Develop a MXG Impoundment Program and ensure compliance with the procedures IAW **Chapter 7** **(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** (if equipped). **(T-1)**.

2.4.45. **(AFMC)** [DEV] The 412th Electronic Warfare Group (412 EWG) will appoint a Radar Warning Receiver/Radar Threat Warning managers for the 412 TW. **(T-2).**

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

2.4.47. Establish written guidance on individual responsibilities and specific procedures for Cannibalization (CANN) actions IAW **Chapter 11** **(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)**.

2.4.48. 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**, 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.

2.4.49.1. **(Added-AFMC)** When issuing or renewing a TA contract, owning/requiring activity will use the Standardized TA Services Performance Work Statement. POC is 763 ESS/PKB. **(T-2).**

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

2.4.51. Ensure unit FCC program(s) are established IAW **Chapter 11**, 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**. **(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** **(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** **(T-1)**.

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**, 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)**.

2.7.3. 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**.

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**. The message will include:

2.7.7. **(AFMC)** When TTML minimum load crew certification numbers are not met for 30 consecutive days, updates and projected resolution date will be sent to HQ AFMC/A4/10/A4MW every 30 days until TTML minimums are met. **(T-2).**

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)**.

2.7.10. 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.

2.7.15.1. 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)**.

2.7.16.1. 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. **(AFMC)** 9405 report accuracy will be verified on the HAF Armament SharePoint site no later than the 5th of each month. **(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.

2.7.22.2. **(Added-AFMC)** 9405 report will include all suspension equipment currently with T-2 modifications, to include original modification date, modification number and anticipated de-modification date, see AFI 63-101/20-101 *Integrated Life Cycle Management*, Chapter 9 Modification Management. **(T-2).**

2.7.22.3. **(Added-AFMC)** Provide a monthly Weapons Loading/Armament Systems activity summary to HQ AFMC/A4/10/A4MW no later than the 5th . Summary will include Tests/Projects conducted in the previous 30 days, forecasted Tests/Projects in the next 30 days, requests for guidance, and any other significant events. **(T-2).** Tests/Projects includes, but is not limited to, work related to munitions, aircraft modifications, support equipment, testers, aircraft systems, and tech data development.

2.7.23. Utilize and involve assigned AFETS and/or contractors in weapons and armament related issues and meetings IAW **Chapter 11** **(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, expediters, 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.

2.7.29. **(Added-AFMC)** Ensure all Test Technical Data requirements for the use of contractor source data, Preliminary Technical Orders (PTO), and local Technical Data are in

compliance with TO 00-5-1 and AFTCI 63-101_20-101, *Technical Order Writing Procedures*. Technical Data Requirements coordination will be forwarded to HQ AFMC A4/10/A4MW, AFMC Armament Org Box at **HQAFMC.A410A4MW.HQAFMCArmament@us.af.mil** and AFLCMC/EBHMA, Weapons Standard Data Package Org Box at **AFLCMC.EBHMA.StdDataPkgs@us.af.mil** within 5 duty days of receipt/completion. **(T-2).**

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 (**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)**.

2.8.13. 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-ETOOL-1, and **Chapter 8** **(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** **(T-3)**.

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

2.9.4. Monitor and recommend updates to local IPI requirements and recommendations to QA IAW **Chapter 6** **(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** **(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)**.

2.9.9.2. **(AFMC)** See deviation at **paragraph 2.2.4.3**

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)**.

2.9.12. Ensure squadron ASIP responsibilities are accomplished IAW **Chapter 11** 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** **(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**.

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**, 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** **(T-1)**.

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:

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

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** **(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)**.

2.10.10. **(AFMC)** Paper records (e.g., AFTO244s), scanned copies of paper records, and other electronic records (other than those in the MIS) will be filed in the file plan per the records disposition schedule (RDS). **(T-2).**

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)**.

2.10.16. 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)**.

2.10.18. **(AFMC)** Develops and implements a corrective/preventive action process. (e.g., AF CPI Practical Problem Solving Method (PPSM), 5 Whys, etc.).

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** **(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**.

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)**.

2.12.5. 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)**.

2.12.5.2. 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)**.

2.12.7. 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** **(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)**.

2.12.15. 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** **(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)**.

2.12.17. 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)**.

2.12.22. 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)**.

2.12.23.1.1. **(Added-AFMC)** Most, but not all, specifications for chemicals have a Qualified Products List (QPL). The QPL/Qualified Product Database (QPD) for military specifications can be found at **https://quicksearch.dla.mil**. The QPL for SAE/AMS specifications can be found at: **https://www.eauditnet.com**.

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)**.

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**, 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** **(T-1)**.

3.2.9. **(Added-AFMC)** Supervision will ensure all personnel who are dispatched for any task requiring landing gear handle movement are authorized and qualified to perform landing gear handle movement and are listed on the SCR, by aircraft type and personnel duties; gear retraction supervisor, 7-level team supervisor, gear handle operator (B-1, B-2, B-52, 135 Series, C-17, C-5, 747, CV-22). **(T-2).**

3.2.9.1. **(Added-AFMC)** Specific duties of the gear retraction supervisor are as follows:

3.2.9.1.1. **(Added-AFMC)** During aircraft and equipment maintenance, gear retraction supervisor will ensure no movement of the gear handle from the full down position without 7-level or civilian equivalent authorization and verification that the handle needs to be moved for the task being performed. **(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.

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

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** **(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)**.

3.5.1. **(AFMC)** Make the final determination on aircraft status after reviewing aircraft forms and MIS applicable to specific MDS (e.g. Autonomic Logistics Information System (ALIS), Integrated Maintenance Data System (IMDS), Integrated Maintenance Information System (IMIS), etc.)

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** **(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 Expediters manage, control and direct resources to accomplish maintenance. Flightline Expediters or equivalent will:

3.6.1. Remain on the flightline when maintenance personnel are performing flightline maintenance and launching/recovering aircraft. **(T-1)**. Flightline Expediters 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)**.

3.6.2. 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)**.

3.6.4.1. 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** **(T-1)**.

3.6.6. Ensure aircraft OAP sampling is completed IAW **Chapter 11** 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:

3.7.1. 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. **(AFMC)** Foreign Object (FO)/FOD reporting will be included in debriefing 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.
Note: 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

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

Table 3.3. Deviation Cause Codes

CODE	DEVIATION REASON
ATx	Air Traffic
GAA	Ground Abort, before engine start, maintenance
GAB	Ground Abort, after engine start, before taxi, maintenance
GAC	Ground Abort, after taxi, maintenance
HQT	Higher Headquarters
HQN	Higher Headquarters, NAF
HQP	Higher Headquarters, other

MTx	Maintenance
OPx	Operations
SUx	Supply
SYx	Sympathy
WXx	Weather
OTx	Other
Xxx	MAJCOM/local use
Note: 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** 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**, 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)**.

3.9.3. 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)**.

3.9.5.1. **(AFMC)** [e.g.] Molecular Sieve Oxygen Generating System (MSOGS).

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 Expediters, 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. (AFMC) Weapons Section. Weapons Section responsibilities for contract organizations will be determined by the contracting office through the multi-functional team (MFT) process. See AFI 63-138.

3.10.1. Weapons Section NCOIC/Chief. In addition to the common section NCOIC responsibilities in **Chapter 2**, the Weapons Section NCOIC/Chief will:

3.10.1. **(AFMC)** Civilian equivalent will be synonymous with Weapons section NCOIC.

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.

3.10.1.9. 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** **(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** 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)**.

3.10.1.23. **(AFMC)** Will report weapons release reliability, gun fire-out rates, hung munitions, inadvertent releases, gun malfunctions, and armament-related dropped objects daily using the 9405 report on the HAF Armament SharePoint site. **(T-2).**

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)**.

3.10.1.24. **(AFMC)** For AME/NIE/WRM, armament testers and support equipment, units will provide daily updates using the 9405 report on the HAF Armament SharePoint site. **(T-2).**

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-AFMC)** Maintain current copy of task assignment listing (TAL) for assigned aircraft. Ensure individuals review TAL and applicable -16/-33 series TOs prior to reporting for initial and recurring weapons load training. **(T-2).**

3.10.1.28. **(Added-AFMC)** Establish a SPRAM account to track encoder/decoders and power supplies (as applicable, if not tracked by Armament Systems Flight). **(T-2).**

3.10.1.29. **(Added-AFMC)** Establish a SPRAM account to track ruggedized nuclear remote interface units (as applicable, if not tracked by Armament Systems Flight). **(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 Expediters. 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)**.

3.10.2.4. 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-AFMC)** Retain copies of completed AF Form 2430s (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.

3.10.2.6.2. 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** (if applicable). **(T-1)**.

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

3.10.2.15. **(Added-AFMC)** Ensure AME and SPRAM accountability and control requirements are met IAW AFI 21-103. **(T-2).**

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** 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**, 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** **(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** (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** **(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** (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 (T-1)**.

3.12. AMU Decentralized Materiel Support (DMS). In addition to the responsibilities in **Chapter 9** 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)**.

3.13. (Added-AFMC) Global Hawk (GH) In-Flight Maintenance Procedures and Documentation.

3.13.1. **(Added-AFMC)** GH Remotely Piloted Vehicle (RPV) Documentation. GH RPV reporting will use standard Air Force landing status codes. Mission Crew Element (MCE) and Launch and Recovery Element (LRE) status will be reported separately from aircraft status (i.e., Aircraft Code 1, MCE Code 1, LRE Code 1). Aircraft, MCE and LRE will retain separate 781 forms binders. Mission capable status will also be tracked separately. Discrepancies discovered during flight will not be documented on the AF Form 781As or entered into IMDS for any asset directly involved with the mission while the aircraft is airborne. Units will develop a manual debrief data sheet which is maintained and controlled by the debrief section by mission number. This debrief data sheet will be used to annotate in-flight maintenance and pilot reported discrepancies. Continuation sheets will be annotated as #2, #3, etc., of XX pages. Once the mission ends and the post-mission debrief is completed, the 781 forms, IMDS and mission capable status will be annotated. **(T-2).**

3.13.2. **(Added-AFMC)** GH RPV Ground Station In-flight Maintenance procedures. The pilot in control of the system during the mission will always be the final authority as to what, when and for how long maintenance actions will be performed during flight. UAS Ground Station In-flight Maintenance is intended to provide repair of maintenance discrepancies while allowing the mission to continue. Discrepancies discovered during flight will not be documented on the AF Form 781As or entered into IMDS until after the mission is ended. Upon notification from the pilot, maintenance technicians will be dispatched to the MCE/LRE. Maintainers will respond with the debrief data sheet, provided by the debrief section. The pilot will document the discrepancy and provide written release for maintenance on the debrief data sheet. Maintenance will not be performed until the pilot releases the MCE/LRE for maintenance. The maintainer will return the debrief data sheet (with maintenance actions annotated) to the debrief section for inclusion into the final mission debrief. If additional maintenance actions are responded to during the same mission, the same debrief data sheet will be used. Use continuation sheets as required. **(T-2).**

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**. 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**, 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).

4.1. (AFMC) [DEV] General. The 412 MXS is organized into seven flights versus nine.

4.1.1. **(Added-AFMC)** [DEV] The 412 MXS/MXMA, Component Repair Flight, consolidates Avionics Flight, Armament Flight, and the Electro- Environmental, Battery Shop and Egress functions of the Accessory Flight in addition to the Tow Targets Section.

4.1.2. **(Added-AFMC)** [DEV] The 412 MXS/MXMX, Maintenance Flight, consolidates the functions of the Maintenance Flight and the pneudraulic and fuels functions of the Accessories Flight.

4.1.3. **(Added-AFMC)** [DEV] The 412 MXS/MXMW, Munitions Flight is responsible for the Armament (MXMR) function for Bomber aircraft only due to the geographic location/separation at Edwards AFB, South Base.

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**, 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**, 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:

4.3.1. 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. (AFMC) [DEV] Accessories Flight. The 412 MXS does not have an accessories flight. The below responsibilities will be accomplished by the appropriate flight listed in section 4.1. **(T-2).**

4.4.1. Accessories Flight CC/Chief Responsibilities. In addition to the common responsibilities in **Chapter 2**, 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)**.

4.4.3.1. 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)**.

4.4.3.1.2.1.1. **(Added-AFMC)** Egress augmentees may be utilized as part of an egress maintenance team to perform on-equipment maintenance, such as ejection seat and canopy removals or installations and egress final inspections. Do not use augmentees to perform egress off-equipment maintenance actions. **(T-2). Note:** Ejection seats undergoing periodic maintenance are exempt from the demand-response concept once explosive components have been removed.

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. **(AFMC)** Egress facilities will have limited access to ensure system integrity. **(T-2).**

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.

4.4.3.1.4.1. **(AFMC)** Only egress section personnel will be authorized unescorted entrance to the egress licensed explosive location. **(T-2).**

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)**.

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

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

4.4.3.2.6. **(AFMC)** Classification training of Egress personnel will meet mandatory training requirements contained in AFI 36-2650, AFI 91-202, this AFI, and the CFETP. **(T-2).**

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)**.

4.4.3.2.6.1.1. **(Added-AFMC)** Civil service and contractor egress maintenance personnel who possess, as a minimum, one year of experience within the last three years performing egress intermediate- and organizational-level maintenance, repair, inspections, etc., may be considered for a waiver of classification training requirements. Waiver requests will be submitted to the applicable 2A6X3 MAJCOM functional manager for review then forwarded to the 2A6X3 Career Field Manager for final approval/disapproval. If waiver is disapproved, individuals must complete classification training. **(T-2).**

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.

4.4.3.2.6.2.1.1. **(Added-AFMC)** Personnel are certified to perform egress systems maintenance by demonstrating adequate proficiency to a designated certifying official in the egress systems work center. Certification pass/fail criteria will be established by the egress work center supervisor. **(T-2).** Document certification in accordance with AFI 36-2650. Retrain any individual who fails the practical evaluation until the individual demonstrates adequate proficiency or withdraw the individual from training. If egress personnel are withdrawn from training, retrain in accordance with AFI 36-2650.

4.4.3.2.6.2.1.2. **(Added-AFMC)** Initial Certification of Non-Egress who augment egress technicians or perform Quality Assurance Evaluations of Egress Systems: Non-egress personnel must successfully complete an AETC egress technician course for the specific aircraft to be maintained. **(T-2)**. **Exception:** AFE personnel do not have to complete the technician course unless they are to be employed as egress augmentees.

4.4.3.2.6.2.1.3. **(Added-AFMC)** After completing the AETC technician course, non-egress personnel will be initially certified in accordance with **paragraph 4.4.3.2.6**. Non-egress personnel will also be recertified in accordance with **paragraph 4.4.3.2.6.4.2.2 (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)**.

4.4.3.2.6.4.2.1. **(Added-AFMC)** The purpose of recertification is to ensure personnel still maintain the required knowledge and skills to safely maintain and/or inspect egress systems.

4.4.3.2.6.4.2.2. **(Added-AFMC)** Recertify non-egress personnel at least every 180 days. **(T-2).**

4.4.3.2.6.4.2.3. **(Added-AFMC)** COR/QAE personnel exclusively performing contract surveillance do not have to be recertified. If these personnel are performing egress maintenance, they must be recertified. **(T-2).**

4.4.3.2.6.4.2.4. **(Added-AFMC)** Recertification procedures are identical to initial certification procedures and will be accomplished in accordance with **paragraph 4.4.3.2.6 (T-2).** Document recertification in accordance with AFI

36-2650.

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

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. **(AFMC)** Newly assigned uncertified egress personnel who have completed Classification Training may assist in performing egress systems maintenance. These personnel will never clear (sign off) AFTO Form 781-series entries, MIS or condition tags. **(T-2)**

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)**.

4.4.4.1.3. **(AFMC)** Within the MOA/MOU, local units with approval from MXG/CC (or equivalent) will designate which squadron(s) is responsible for management of external fuel tanks and conformal fuel tanks. **(T-2).**

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)**.

4.4.4.1.4.1.1. **(Added-AFMC)** Establish notification procedures to inform the base fire department when open fuel tank maintenance is in progress and when maintenance is complete. **(T-2).**

4.4.4.2. In addition to the common responsibilities outlined in **Chapter 2**, 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.

4.4.4.2.7. **(Added-AFMC)** Monthly review IMDS to schedule external fuel tanks for inspection or TCTOs. **(T-3).**

4.4.4.2.8. **(Added-AFMC)** Coordinate with AMXS or equivalents to schedule aircraft with non-grounding fuel leaks through the fuel systems repair facility to prevent further deterioration. **(T-3).**

4.4.4.3. **(Added-AFMC)** Nestable Fuel Tank Build Up (NFTBU) Team Members and Training. The fuel systems section NCOIC identifies 2A6X4 personnel as NFTBU cadre members and establishes a training program. **(T-2).** The NFTBU team will be augmented

by non-2A6X4 personnel in the wing during build up operations. **(T-3).** NFTBU Cadre team members will:

4.4.4.3.1. **(Added-AFMC)** Attend initial NFTBU training at an Air Education and Training Command (AETC) Training Detachment (TD). **(T-2).**

4.4.4.3.2. **(Added-AFMC)** Conduct annual refresher NFTBU training for all fuel systems section personnel tasked for any UTC and document completed training in the MIS. **(T-2).**

4.4.4.3.3. **(Added-AFMC)** Reviews UTC MISCAP statement as it applies to the unit's tasking and ensures availability of trained fuel systems personnel and serviceable equipment/tools to support requirements. **(T-2).** (Units are no longer required to maintain ready-trained augmentees. Commanders must provide NFTBU augmentees to fill UTC requirements at the time of tasking). **(T-2).**

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)**.

4.4.5.1.2. **(AFMC)** [DEV] AMUs will inspect refueling drogues, booms, and refueling receptacle systems for 412 TW aircraft.

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)**.

4.5. 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. (AFMC) Aerospace Ground Equipment (AGE) Flight. The AGE Flight may be organized in any manner, deemed necessary by the MXS commander or equivalent, to best support and execute local aircraft sortie generation and aircraft maintenance.

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)**.

4.5.1.3. **(AFMC)** Electronic form equivalents may be used.

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.

4.5.1.6. 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-AFMC)** Manage AGE readyline to provide serviceable equipment to users.

4.5.2. AGE Flight Chief Responsibilities. In addition to the applicable Flight CC/Chief responsibilities in **Chapter 2**, 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** **(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)**.

4.5.2.10. 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)**.

4.5.2.10.2. **(Added-AFMC)** AGE Pro Super will coordinate with Fabrication Pro Super for work beyond the AGE work center capability. **(T-3).**

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**, the AGE Production Support Section NCOIC/Chief will:

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** **(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** 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)**.

4.5.4.5.3. **(Added-AFMC)** In coordination with PS&D, ensure all inspections, TCTOs, time changes, maintenance and repair actions are scheduled and performed. **(T-2).**

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. (AFMC) [DEV] Armament Flight. Within the 412 MXS, Armament flight duties are performed in the Component Repair Flight for fighter and trainer aircraft. Armament functions for bomber aircraft are aligned under the Munitions Flight due to geographic location and system complexity. These flights will provide oversight to all responsibilities and duties called out for these sections in AFI 21-101.

4.6.1. Armament Flight Chief Responsibilities. In addition to common Flight CC/Chief responsibilities outlined in **Chapter 2**, 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**, 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.

4.6.3. 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**, 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:

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

4.6.4.2. Ensure maintenance materiel management support is managed IAW **Chapter 9** **(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. (AFMC) [DEV] Avionics Flight. Within the 412 MXS, the Component Repair Flight will perform this function and will provide oversight to all responsibilities and duties called out for these sections in AFI 21-101. There are no additional mission support requirements for AFMC.

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.

4.7.1. **(AFMC)** , see **paragraph 4.7**. [DEV] Avionics Flight.

4.7.2. Avionics Flight CC/Chief Responsibilities. In addition to the applicable Flight CC/Chief responsibilities listed in **Chapter 2**, 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)**.

4.8. 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**, 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)**.

4.8.2. 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**, 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**, 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)**.

4.8.2.6. 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)**.

4.8.3.1.1. 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**, 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** **(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/afrims/afrims/rims.cfm. (T-1)**.

4.8.4.10. Ensure all NDI technicians are certified IAW TO 33B-1-1. **(T-1)**.

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** (ASM Section) will be applicable to this section based on flight configuration. In addition to applicable Section NCOIC/Chief responsibilities in **Chapter 2**, 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. (AFMC) [DEV] Maintenance Flight. Within the 412 MXS, the Maintenance Flight will include Hydraulic and Aircraft Fuels System Sections and will provide oversight to all responsibilities and duties called out for these sections in AFI 21-101.

4.9.1. The Maintenance Flight CC/Chief will comply with the common Flight CC/Chief responsibilities in **Chapter 2** 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)**.

4.9.2.1. **(AFMC)** [DEV] The 412 MXS Component Repair Flight/AIS will remove, install, and repair towed-targets and airborne reel pods.

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**, 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)**.

4.9.5. 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**, 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, T*ransient 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** **(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.

4.9.5.13. 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.

4.10. (AFMC) [DEV] Munitions Flight. The 412 MXS/MXMW, Munitions Flight is also responsible for the Armament function for Bomber aircraft due to the geographic location/separation at Edwards AFB, South Base.

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. (AFMC) [DEV] Propulsion Flight. In addition to the normal propulsion flight responsibilities, the 412 MXS Propulsion Flight Business Unit will perform duties and responsibilities of Engine Management (EM) Section listed in **Chapter 5** and **Chapter 14**.

4.11.1. In addition to the applicable Flight CC/Chief responsibilities in **Chapter 2**, 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)**.

4.11.1.2. 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** **(T-1)**.

4.11.1.6. Develop guidelines to comply with AF and wing OAP requirements IAW 33-series TOs and **Chapter 11** **(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** 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.

4.11.1.9.1. **(AFMC)** Edward's brick and mortar facility does not fall under the WR-ALC Support Equipment PGM and therefore WASP tracking is not required for the facility.

4.11.1.10. Ensure an uninstalled engine run qualification and certification program is established IAW **Chapter 11** **(T-1)**.

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

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** **(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)**.

4.11.1.17. **(Added-AFMC)** [DEV] The 412 MXS Propulsion Flight Chief is responsible for management of the Engine Blade Blending Training and Certification Program and will ensure all related responsibilities contained in AFI 21-101 are adhered to.

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**, the Support Section NCOIC/Chief will:

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**, the JEIM Section NCOIC/Chief will:

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)**.

4.11.3.7. **(AFMC)** Ensure MICAPs are processed in Integrated Logistics Systems-Supply; ensure all pertinent data is included.

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**, the NSS and ETS Section NCOIC/Chief will:

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).

4.11.6. 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**, the Small Gas Turbine Engine Section NCOIC/Chief will ensure personnel are qualified to operate small gas turbine engines and test stands. **(T-1)**.

4.11.7. 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:

4.11.7.1. 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.

4.11.9. 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**, 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)**.

4.11.9.1. **(AFMC)** [DEV] QEC kits removed to facilitate other engine maintenance, but will be reinstalled on the original engine and remain with that engine during shipment are required only to be tagged by an AFTO 350 or similar method when removed, and no inventory action is required.

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. **(AFMC)** [DEV] QEC kits removed to facilitate other engine maintenance, to include teardown, but will remain with the original engine require no inventory to be accomplished.

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.

4.12.1. In addition to applicable Flight CC/Chief responsibilities in **Chapter 2**, 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** **(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 Owning 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.

5.1. (AFMC) [DEV] General. Within the 412 MXG, the 412 MXS Propulsion Flight Business Unit will perform duties and responsibilities of Engine Management (EM) Section listed in AFI 21-101.

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. (AFMC) Maintenance Operations. Maintenance Operations Superintendent position can be filled by civilian equivalent.

5.2.1. Maintenance Operations Officer-in-Charge/Superintendent (OIC/SUPT). In addition to the applicable Flight CC/SUPT responsibilities in **Chapter 2**, 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)**.

5.2.1.5.1. **(AFMC)** Include the AFMC AVDO (AFMC/A4M) and the AFMC Aerospace Vehicle Fleet Manager (AFMC/A3F) in coordination for all proposed

assignment/possession changes. This is regardless of the scale of the aerospace vehicle and regardless of the MIS or Accountable Property System of Record (APSR) being used. **(T-2).**

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).**

5.2.1.6.2. **(AFMC)** See deviation at **paragraph 2.2.4.3** [DEV]**.**

5.2.1.6.3. **(Added-AFMC)** Ensure data is valid and submitted to meet MAJCOM reporting suspense requirements. Before submission, reconciliation and coordination with squadron and group leadership is required to ensure comments fully explain causes of the data. Comments should focus on mission requirements, improving equipment performance, identifying emerging support problems, and projecting current trends. Also, when operational requirements are not achieved, determine and explain the root causes behind it. **(T-2).**

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**, 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)**.

5.2.1.13. **(AFMC)** Ensure processes and procedures are in place and personnel are designated to support accomplishment of Flying Hour Program tracking and reconciling IAW intent of AFI 21-103, *Equipment Inventory, Status and Utilization Reporting* **(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)**.

5.2.1.14.2. **(AFMC)** [DEV] Not required if local familiarization course does not exist for civilian personnel previously qualified.

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)**.

5.2.2.1.2. 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)**.

5.2.2.1.14. 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)**.

5.2.2.1.16. 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.

5.2.2.1.16.2. 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** and UNCLASSIFIED messages must be sent to NIPR: **afsc.lgpm.abdrtso@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**. UNCLASSIFIED data can sent to: JCAT (**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)**.

5.2.2.1.17.1.1. 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** **(T-1)**.

5.2.2.1.19. **(AFMC)** Ensure aircraft boards are visibly marked to show Hangar Queen Status, date of last flight, ETIC, expected fly date and identify the Hangar Queen Manager. **(T-2).**

5.2.2.1.20. Notify Flightline Expediters of OAP code "C" and "E" conditions. **(T-1)**.

5.2.2.1.20. **(AFMC)** Notify Flightline Expediters of all OAP code conditions through MOC.

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)**. An observation room is permitted.

5.2.2.1.21.1.1. Doors to the MOC and the observation room will be either mechanically or electrically locked to control access. **(T-1)**.

5.2.2.1.21.2. Isolate MOC electrical power circuits and provide a standby power source and emergency lighting. **(T-1)**.

5.2.2.1.21.2.1. 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** **(T-1)**.

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

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. **(AFMC)** [DEV] Engine Management. Within the 412 MXG, the 412 MXS Propulsion Flight Business Unit will perform duties and responsibilities of Engine Management (EM) Section listed in AFI 21-101.

5.2.3.1. Specific EM responsibilities are detailed AFMAN 20-116, AFPAM 63-129, TO 00-25-254-1, -2 and **Chapter 14**.

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**.

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. **(AFMC)** Maintenance Management Analysis (MMA). The senior 2R0 or civilian equivalent member is the unit functional manager and monitors and controls analysis resources for the unit. All issues relating to MIS database management, and training should be directed to the unit functional manager first. The unit functional manager will elevate issues beyond the unit control to the wing's analysis functional manager. **(T-2).** This includes allocations of AETC and AFMC/SSG formal school quotas.

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. 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. **(AFMC)** Instructions are noted in **Attachment 8**.

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)**.

5.2.5.1.8.1.2. **(AFMC)** See deviation at **paragraph 2.2.4.3**

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)**.

5.2.5.2. In addition to the applicable Section NCOIC/Chief responsibilities outlined in **Chapter 2**, 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)**.

5.2.5.2.4. **(Added-AFMC)** IMDS-CDB/G081 Users Group. Establish an IMDS-CDB/G081 Users Group to identify user problems, provide on the spot training to correct user documentation problems, and to discuss other issues relating to operation of the system. MMA will conduct meetings in conjunction with the monthly DIT meeting. **(T-2).** An agenda (pre-meeting) and meeting minutes (post-meeting) will be published and sent to all work centers. The use of electronic means (telecon, Defense Collaboration Services (DCS), etc.) for the meeting is authorized.

5.2.5.2.5. **(Added-AFMC)** Set priorities and resolve conflicts on all automated maintenance systems priorities.

5.2.5.2.6. **(Added-AFMC)** Coordinate with wing plans personnel to develop planning data and inputs.

5.2.5.2.7. **(Added-AFMC)** Ensure timely submission of data to meet MAJCOM reporting suspense's and validity of data submissions. **(T-2).** Work with the senior maintainers on all comments written to explain the meaning of the data presented.

5.2.5.2.8. **(Added-AFMC)** Ensure database managers (DBMs) can be reached during off duty hours to support processing requirements for IMDS-CDB. **(T-3)**.

5.2.5.2.9. **(Added-AFMC)** MMA Team Concept. MMA teams identify problem areas for additional study using MIS data gathering, research, and investigation. Deficiency Analysis/QA assists by providing in-depth technical expertise. The MMA team will present MXG leadership with completed studies focusing on the cause and effect of problem areas, and include recommendations for course(s) of action as appropriate. **(T-2).**

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. **(AFMC)** The command functional manager at HQ AFMC/A4MM (**AFMC.A4MM@us.af.mil**) is responsible for all issues related to MIS. They will provide technical advice to units on problems beyond their expertise.

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. **(AFMC)** No further guidance required. All requirements listed meet MAJCOM requirements.

5.2.5.3.4. At a minimum, the MMA MIS/Host DBM will ensure:

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)**.

5.2.5.3.4.12.2. 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 (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. **(AFMC)** DIT meetings will be held 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-AFMC)** Do not limit scope of DIT to JDD. **(T-2).**

5.2.5.3.6.5.3.5. **(Added-AFMC)** Provide feedback to users via users' meetings, periodic memorandums, letters, etc. **(T-2).**

5.2.5.3.6.5.3.6. **(Added-AFMC)** When the operational requirements are not

achieved, MMA will perform an investigation to determine the cause. **(T-2)**. As a minimum the following areas will be considered:

5.2.5.3.6.5.3.6.1. **(Added-AFMC)** Are operational requirements realistically based on availability of equipment? **(T-2).**

5.2.5.3.6.5.3.6.2. **(Added-AFMC)** What are the causes for flying schedule deviations (cancellations, aborts, additions or early/ late takeoffs)? **(T-2).**

5.2.5.3.6.5.3.6.3. **(Added-AFMC)** Are specific aircraft, equipment, systems, or subsystems contributing to a disproportionate share of deviations/turbulence? **(T-2).**

5.2.5.3.6.5.3.6.4. **(Added-AFMC)** Is specific equipment failing to perform as scheduled? Does this equipment require more or less maintenance than others? **(T-2).**

5.2.5.3.6.5.3.6.5. **(Added-AFMC)** Are there enough people to meet mission needs? Are certain work centers documenting significant overtime or show consistently high utilization rates? **(T-2).**

5.2.5.3.6.5.3.6.6. **(Added-AFMC)** Is there a good balance of skills within AFSCs and between the units? **(T-2).**

5.2.5.3.6.5.3.6.7. **(Added-AFMC)** Do higher rates for repeat/recur discrepancies indicate training/experience shortfalls? **(T-2).**

5.2.5.3.6.5.3.6.8. **(Added-AFMC)** Is there sufficient time to schedule and work maintenance problems? **(T-2).**

5.2.5.3.6.5.3.6.9. **(Added-AFMC)** Are trends significant? Are the trends short term (6 months or less) or long term? Where will the unit likely be in 6-12 months? **(T-2).**

5.2.5.3.6.5.3.6.10. **(Added-AFMC)** Are there seasonal or cyclical variations? Are current variations outliers? **(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)**.

5.2.5.4. **(Added-AFMC)** Analytical Process. The analytical process consists of identifying contributory factors, manipulating raw data into meaningful formats, computing management indicators, performing statistical measurements, and creating accurate, complete, and easy to understand presentations.

5.2.5.4.1. **(Added-AFMC)** Management Contributions to the Analytical Process. Maintenance managers have a significant impact on the usefulness of the MMA to the unit. Managers should constantly review how information is being organized and presented.

5.2.5.4.2. **(Added-AFMC)** Analytical Studies. MMA will provide results of investigations, analyses, or studies to work centers. **(T-2).** The most effective study is one that goes beyond superficial conclusions. It helps solve a problem relative to mission performance. Specific studies are provided to the requester, and a file copy is retained for future reference. Disseminate the study by electronic means or include it in a monthly maintenance summary. The study should state assumptions up front, and should be summarized to state how the significance is measured.

5.2.5.4.3. **(Added-AFMC)** Maintenance Analysis Referrals. A referral is a procedure used to identify, investigate, and propose corrective action for management problems. These are highly effective tools to make agencies aware of common problems.

5.2.5.4.4. **(Added-AFMC)** Dedicated AMU Analysis (where applicable). The AMU analysis function is intended to provide dedicated analytical support for the AMU. The MMA section NCOIC may dedicate an analyst to each AMU. The dedicated AMU analyst works for the MMA section NCOIC. Accomplishing AMU tasks are the dedicated analyst's primary responsibility. The MMA section NCOIC is responsible for the overall effectiveness of the AMU analysis program. As a minimum, the AMU analyst will: **(T-2).**

5.2.5.4.4.1. **(Added-AFMC)** Review maintenance debriefing data to track in-flight discrepancies and deviations on each aircraft. Review aircraft status inputs from the MOC for WUC accuracy. Closely monitor fix time on Code 3 discrepancies and report results to AMU supervision daily. Brief problem aircraft and systems to AMU supervision daily. **(T-2).**

5.2.5.4.4.2. **(Added-AFMC)** Brief comparative AMU data weekly and monthly as required by the MXG/CC. **(T-2).**

5.2.5.4.4.3. **(Added-AFMC)** Validate CANN documentation in IMDS-CDB at least weekly, with AMU supply and inform AMU supervision of its accuracy. If errors exist, a more frequent validation may be required. Advise AMU supervision of recurring problems. **(T-2).**

5.2.5.4.4.4. **(Added-AFMC)** Monitor the UTE rate for the AMU. **(T-2).**

5.2.5.4.4.5. **(Added-AFMC)** Analyze programmed and actual attrition factors. **(T-2).**

5.2.5.4.4.6. **(Added-AFMC)** Attend AMU scheduling/production meetings at least once per week. **(T-2).**

5.2.5.4.4.7. **(Added-AFMC)** Present Maintenance Analysis. Present data by using summaries, charts, graphs, tabular displays, and narratives. These data presentations should show the relationships among various factors. Data presentations should be displayed or presented in time to be useful in plans or reports. A printed monthly maintenance summary, tailored to the needs of the unit,

is an excellent method of presenting data. **(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:

5.3.1. 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. (AFMC) Programs and Resources (P&R). Developmental testing is conducted throughout the acquisition and sustainment processes to assist engineering design and development, and verify that critical technical parameters have been achieved. Developmental Test & Evaluation (DT&E) supports the development and demonstration of new materiel solutions or operational capabilities as early as possible in the acquisition life cycle. After full- rate production or fielding, DT&E supports the sustainment and modernization of systems. To support integrated testing, as many test activities as practical are conducted in operationally relevant environments without compromising engineering integrity, safety, or security. Developmental testing leads to and supports a certification that the system is ready for dedicated operational testing IAW DoDI 5000.02, Enclosure 6, and AFMAN 63-119, Certification of System Readiness for Dedicated Operational Testing. P&R will:

5.4.1. Develop, maintain, and coordinate all applicable AFI-directed programs and plans affecting maintenance. **(T-1)**.

5.4.1.1. **(Added-AFMC)** Coordinate with the Maintenance Group (MXG)/Squadron SUPTs to manage Test and Evaluation (T&E) resource requirements for MXG.

5.4.1.2. **(Added-AFMC)** MXOPL Logistics Programs.

5.4.1.2.1. **(Added-AFMC)** Programs. The Life Cycle Logistics Management Specialist (LCLMS) support DT&E, and Operational Test and Evaluation (OT&E) activities IAW DoDI 5000.02 and DoDD 5000.01. Provide continued emphasis and awareness by early involvement in DT&E and OT&E activities. The Life Cycle Logistics (LCL) will establish standards and procedures for accomplishment of DT&E and OT&E logistics functions. Ensure compliance with statutory directives; Air Force environmental management, safety, security instructions; and TOs. Develop and provide training and tools to improve the DT&E and OT&E process within the Acquisition Community. Will assist in development of logistics support test plans, data analysis plans, and technical reports. The LCL will assist local management in test execution during DT&E and OT&E program involvement as defined IAW AFI 99-103. The LCLMS is the Logistics Subject Matter Expert (SME) and focal point for Engineering and Program Management personnel during all DT&E and OT&E activities. They will plan, direct, and manage the development and acquisition of logistics support plans for System Program Offices at the Group level. **(T-2).** The process of Integrated Product Support (IPS) Elements for testing, evaluating and, supporting a weapon system from cradle to grave is defined in the Defense Acquisition Guidebook. LCLMS' will determine whether logistics support and system readiness objectives are met. LCLMS' apply the use of the 12 IPS Elements (AFI 63-101/20-101) during DT&E, OT&E and Sustainment. Programs conduct DT&E throughout the systems life cycle, from program initiation through system sustainment, to reduce design and programmatic risks and provide assessments. DT&E can occur as either contractor testing, government testing or a mix of both.

5.4.1.2.2. **(Added-AFMC)** LCLMSs provide complete, logistics planning and support to a broad system, program, or functional area of assignment.

5.4.1.2.2.1. **(Added-AFMC)** Lead logistics planning efforts and secure support for ground and/or flight testing of a broad system, program or functional area through the efforts of self and other team members.

5.4.1.2.2.2. **(Added-AFMC)** Direct and coordinate the efforts of Test Wing (TW), MXG managers and other team members in developing capability estimates and logistics support planning for assigned area of responsibility.

5.4.1.2.2.3. **(Added-AFMC)** Lead and balance test requirements for the various programs within the assigned area against existing or available support capabilities and capacities.

5.4.1.2.2.4. **(Added-AFMC)** Prepare and present maintenance briefing material to inform and advise the MXG staff, visitors and higher authorities on logistics support capabilities and status of programs and projects.

5.4.1.2.2.5. **(Added-AFMC)** Develop cross-coordination staffing and the preparation of correspondence for the MXG on matters involving multiple maintenance functional elements; plans for modernization; develop and submit

budgetary estimates through resource or manpower managers.

5.4.1.2.3. **(Added-AFMC)** Represent the MXG at initial test and evaluation planning meetings, in development of test and evaluation master plans, program management plans, program test plans, program introduction (PI) documents, integrated logistics support plans, and logistics support plans.

5.4.1.2.3.1. **(Added-AFMC)** Perform Program Analyst and Project Manager duties for programs unique to the maintenance complex; such as maintenance back shop and jet engine development or sustainment work.

5.4.1.2.3.2. **(Added-AFMC)** Manage collaboration and attain assistance from qualified specialists or SMEs to develop and implement logistics plans for a variety of projects.

5.4.1.2.3.3. **(Added-AFMC)** Organize and delegate work within the team, provide guidance and training to assigned specialists, reviews work, and provides input to performance evaluations.

5.4.1.2.4. **(Added-AFMC)** Develop and implement plans for logistics support of the TW mission.

5.4.1.2.4.1. **(Added-AFMC)** Review planning documents for assigned area and develop detailed support plans including estimates of manpower requirements by skill, career field and special training requirements; funding requirements; facility management and formulation or review of plans and specifications for facilities modification or for new facility requirements.

5.4.1.2.4.2. **(Added-AFMC)** Prepares and reviews services and support agreements between the AFTC, TW, MXG, contractors, NASA, AFMC and other MAJCOMS, Air Force, other services, and other DOD agencies. Ensures all support agreements requiring MAJCOM involvement are properly routed into the MAJCOM for needed reviews, coordinations, signatures, etc. Ensures any support agreements involving aerospace vehicle transfers or possessions are submitted to AFMC/A4M and AFMC/A3F for review.

5.4.1.2.4.3. **(Added-AFMC)** Review and participate in negotiation of host-tenant and interagency support agreements.

5.4.1.2.4.4. **(Added-AFMC)** Perform functional area chief duties for MXG service contracts, including the development of statements of work, performance work statements, and other contractual documents; serve as liaison with the AFTC Contracting Office.

5.4.1.2.4.5. **(Added-AFMC)** Perform a variety of special assignments to include conducting special one-time and feasibility studies to determine support capability, assess new requirements and develop more effective ways to do business.

5.4.1.2.5. **(Added-AFMC)** Manage equipment, support equipment and, material requirements to support assigned programs.

5.4.1.2.5.1. **(Added-AFMC)** Manage deployment of MXG resources (aircraft, manpower, equipment, spare parts, etc.) to meet test requirements or

war/contingency taskings; loan of government property as Government Furnished Equipment, transportation plans, OPSEC/COMSEC plans, reception of other forces deploying to Edwards AFB to meet test requirements or war/contingency taskings. Conduct studies and analysis in support of bed down activities for new test programs and manage commitment of logistics resources for support of assigned programs/projects and logistics test plans.

5.4.1.2.5.2. **(Added-AFMC)** Manage acquisition logistics support for production weapons systems and for systems in pre-production phases by conducting continual follow-up on changes in test schedules, acquisition of materials and support equipment, availability of funds, status of maintenance manpower, training, and support capabilities, adjusts logistics resources as required to ensure test milestones can be achieved.

5.4.1.2.5.3. **(Added-AFMC)** Formulate innovative solutions to diverse logistics problems encountered with unique test assets.

5.4.1.3. **(Added-AFMC)** MXOPO Organizational Design and Improvement.

5.4.1.3.1. **(Added-AFMC)** Develop workforce resource requirement inputs for T&E activities associated with assigned MXG Research, Development, Test and Evaluation programs IAW AFI 38-101, AFI 99-103, AFI 99-109, DoDD 3200.11, DoDD 5000.1, DoDD 7000.14R, DoDD 5010.42, and DoDI 5010.43.

5.4.1.3.1.1. **(Added-AFMC)** Serve as the MXG and its sub-organizations' focal point for MXG manpower requirements determination for planning and resourcing current, future or potential T&E programs. Perform studies to assess requirements, disconnects, offsets, initiatives, workload and/or adjustments related to military, civilian, or overhire authorizations. Develop decision level data using appropriate resourcing tools, past practices, standards or functional or SME technical estimates. Develops project inputs for statement of capabilities (SOC), Program Objective Memorandum (POM), manpower estimate report, briefs or strawman Unit Manning Document (UMD) to support T&E requirement programing and coordinate efforts with external organizations.

5.4.1.3.1.2. **(Added-AFMC)** Serve as the MXG and its subordinate units' action officer for organization change requests (OCR). Provide recommendations to meet capability and capacity requirements based on current and/or future mission objectives. Develop, manage, and coordinate supporting document with external organizations, and track progression IAW AFI 38-101.

5.4.1.3.1.3. **(Added-AFMC)** Develop decision level data for organizational or process solutions to resolve complex T&E mission capacity and capability issues. Support strategic planning with alternate course of actions (COA), and/or recommendations on maintenance capabilities and resources needed to meet T&E mission requirements effectively and efficiently.

5.4.1.3.1.4. **(Added-AFMC)** Develop management tools as required to aid leadership in making data driven decisions related to mission, resource priorities, and strategic action plans. Tools include support for, but not limited to data gathering, metrics reporting, requirements forecasting, LT&E data management,

resource availability, and Major Graded Area focus areas IAW AFI 99-103, AFI 1-2 and AFI 90-201.

5.4.1.3.2. **(Added-AFMC)** Serve as the MXG commander's focal point for AF CPI to provide visible leadership and promote AF CPI culture of innovation and teamwork. Trained and or certified Green Belt (GB) and Black Belt (BB) practitioners will provide employment of AF CPI methodologies to fulfill AFI 1-2: Commander's Responsibilities and AFI 90-201: The Air Force Inspection System requirements to correct unit deficiencies using root cause analysis IAW AFI 38 Series.

5.4.1.3.2.1. **(Added-AFMC)** GB and BB practitioner will use AF CPI policy guidance, related efficiency methodologies, processes, procedures, tools, and training curriculums to implement and manage CPI throughout the MXG and its sub-organizations.

5.4.1.3.2.2. **(Added-AFMC)** Establish AF CPI program governance via the MXG Corporate Board and implement strategic alignment across the MXG. Develop mission, vision, goals, objectives, and action items and track progression toward meeting goals.

5.4.2. Act as the resource advisor to the MXG/CC. **(T-2)**.

5.4.2. **(AFMC)** [DEV] Within the 412 TW, 412 MXG/CC is not required to appoint a Programs and Resource Advisor. This responsibility will be managed by personnel assigned to the 412 TW.

5.4.3. Coordinate with the MXG/Squadron SUPTs to manage manpower authorizations for the MXG. **(T-2)**.

5.4.3. **(AFMC)** MXOPM Manpower.

5.4.3.1. **(Added-AFMC)** Act as the MXG and sub organization Commander's and supervisor's manpower adviser for personnel staffing actions, strategic human capital planning, workforce management programs, policies, accountability, reporting requirements, and issue resolution.

5.4.3.2. **(Added-AFMC)** Assist commanders and/or supervisors in management of their civilian and military manpower authorizations to support T&E manpower requirements identified in AFI 99-103, AFI 99-109, Program SOCs, and DoDD 3200.11 IAW AFI 38-101, and AFPD 36-1.

5.4.3.3. **(Added-AFMC)** Manage position control numbers and request for personal actions (RPA) staffing actions from "cradle to grave" in support of T&E. Validate requester data and request required information when documentation is incomplete. Coordinate with wing, Center and AFPC agencies as necessary to ensure effective actions. Manage RPA fill action hiring certifications issues and close out actions. Provide periodic status updates.

5.4.3.4. **(Added-AFMC)** Develop COAs to resolve complex management issues and applies critical thinking to resolve organizational staffing challenges.

5.4.3.5. **(Added-AFMC)** Provide reporting metrics, periodic reports, and tools as directed by MXG leadership to assist in the determination of organizational priorities in

the areas of training, staffing, recruitment, and workforce shortfalls and/or surpluses to enable data-driven decisions.

5.4.3.6. **(Added-AFMC)** Develop and manage metrics and reports to higher echelons as requested. Metrics include, but are not limited to; data calls, taskers, and/or guidance from higher headquarters, manpower and occupational demographics, staffing levels, activities necessary to manage POM plus up or reduction actions, reasonable accommodations, medical retirements, training, classifications, capacity, and capability etc. Chair periodic meetings as required. Meetings will include leadership and other personnel necessary to review metrics, address and correct staffing concerns and establish staffing priorities.

5.4.3.7. **(Added-AFMC)** Ensure authorized and assigned personnel are adequate to support the unit mission and tasking plans. Coordinate with wing or Air Logistics Center manpower office representatives for assistance in preparing requests to MAJCOM for UMD adjustments.

5.4.3.8. **(Added-AFMC)** Maintain current Unit Personnel Manpower Roster. Work with MXG Chief, Enlisted Advisor, WAM and unit superintendents to allocate projected gains appropriate billets. Maintain record of approved actions and verify that personnel data subsystems are updated.

5.4.3.9. **(Added-AFMC)** Distribute projected gain/loss lists and maintenance manpower requests to appropriate work centers and establish suspense for updates. Ensure approved actions have been received for update and submit consolidated updates to the appropriate program or system.

5.4.3.10. **(Added-AFMC)** Develop inputs for mass realignment request. Provide research, and validation of UMD. Request Table 30 updates when new Office Symbol Code and/or Personnel Accounting Symbol code is received. Build and submit spreadsheet for mass realignment to AFPC.

5.4.3.11. **(Added-AFMC)** Focal point for T&E reimbursable workforce requirements. Review SOCs for MAJCOM, Special Program Office and/or higher echelon directed workload. Forwards inputs to TW Manpower, Financial Management, and Civilian Employment Cost Management Committee for TW review, validation, coordination, and approval. Monitor overhires and notify units of pending expiration and coordinates revalidation of SOC requirements and funding availability as required. Advises management of available options and coordinates with AFPC to ensure RPA action submitted to extend and/or convert appointment.

5.4.4. Serve as the focal point within the MXG for management of 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)**.

5.4.4.2. **(Added-AFMC)** MXOL – Logistics Site Support.

5.4.4.2.1. **(Added-AFMC)** Serve as MXG/CC facility advisor for management of T&E facility support to include renovations and major facility modifications IAW AFI 32-1001.

5.4.4.2.1.1. **(Added-AFMC)** Assign Site Support Specialist as necessary to support these functions.

5.4.4.2.1.1.1. **(Added-AFMC)** Manage planned addition, revision, or alteration to any facilities specialized utility system - such systems are facility access control security systems, complex mission critical computer room cooling systems non-real property installed equipment (NRPIE), specialized aircraft electrical systems NRPIE, specialized aircraft specific cooling and activation systems i.e. polyalphaolefin (PAO), avionics, and hydraulics unique NRPIE test support systems.

5.4.4.2.1.1.2. **(Added-AFMC)** Develop and coordinate commercial contracts IAW AFI 64-102.

5.4.4.2.1.1.3. **(Added-AFMC)** Focal point for functional, technical, and Contract Officer Representative matters pertaining to performance-based activities IAW DoDI 5000.72.

5.4.4.2.1.1.4. **(Added-AFMC)** Prepare project statements of work, manage contract budget, and service contracts - such as custodial, trash removal, shop towel, coverall, and industrial gases., cable TV, NRPIE camera systems, elevator services, and NRPIE maintenance and any facility-related awarded unfunded requirements IAW AFI 64-102.

5.4.4.2.1.1.5. **(Added-AFMC)** Develop and manage program specific Letters of Technical Direction (LOTD) in support of mission critical NRPIE such as access control, computer room air conditioning, and aircraft unique hangar aircraft support equipment.

5.4.4.2.1.1.6. **(Added-AFMC)** Manage preparation of real-time program requirement Rough-Order-Magnitude (ROM) cost estimates and initial government estimates (IGE) for modification or renovation of logistics and T&E facilities for support of current and future test requirements IAW UFC 3-740-05.

5.4.4.2.1.1.7. **(Added-AFMC)** Responsible for the installation, inspection, and maintenance of aircraft Sun Shades IAW **Chapter 15**, Aircraft Sun Shade Sustainment.

5.4.4.2.1.1.8. **(Added-AFMC)** Perform building inspection, maintenance, and repair on real property (RP), and NRPIE (AED, fire, safety, security, etc.).

5.4.4.2.1.1.9. **(Added-AFMC)** Develop and prioritize maintenance facility work orders.

5.4.4.2.1.1.10. **(Added-AFMC)** Ensure identified deficiencies and corrective actions are completed. Activities include but are not limited to repair, modification, and facility maintenance.

5.4.4.2.1.1.11. **(Added-AFMC)** Develop MXG Emergency Management and Continuity of Operations Plan and coordinate training and exercise requirements across the MXG.

5.4.4.2.1.1.12. **(Added-AFMC)** Perform facility drills to include fire drills and man down exercises.

5.4.4.3. **(Added-AFMC)** Act as the facility resource planning advisor to the MXG/CC IAW AFI 32-7062.

5.4.4.3.1. **(Added-AFMC)** Develop and manage 10-year facility plan specifying maintenance, upgrade, and replacement projections for T&E logistics facilities, and coordinate plan with Civil Engineer (CE).

5.4.4.3.2. **(Added-AFMC)** Develop TW long range requirements for base site plan.

5.4.4.3.3. **(Added-AFMC)** Provide plan updates; review, and coordinate with CE annually.

5.4.4.3.4. **(Added-AFMC)** Develop and conduct comprehensive plans and studies to prevent and correct problems and ensure TW capacity for current and future test programs.

5.4.4.3.5. **(Added-AFMC)** Manage preparation of long term and potential program requirement Rough-Order-Magnitude (ROM) cost estimates and IGE for modification or renovation of logistics and T&E facilities for support of current and future test requirements IAW UFC 3-740-05.

5.4.4.3.6. **(Added-AFMC)** Develop and manage space planning and allocation database for test program support.

5.4.4.3.7. **(Added-AFMC)** Focal point for Military Construction Projects to support TW activities.

5.4.4.3.8. **(Added-AFMC)** Process T&E program resource allocation requests through TW functional areas.

5.4.4.3.9. **(Added-AFMC)** Provide management input to the facility board working group to ensure proper prioritization of logistics resource allocation.

5.4.4.3.10. **(Added-AFMC)** Develop and manage TW logistics facility integrated project list with CE.

5.4.4.3.11. **(Added-AFMC)** Manage MXG energy conservation plan.

5.4.4.4. **(Added-AFMC)** Partner with appropriate agencies to procure services and resources for maintenance, repairs, and modifications of facilities supporting logistics and T&E programs.

5.4.4.4.1. **(Added-AFMC)** Schedule and chair facility construction and upgrade project meetings for T&E programs.

5.4.4.4.2. **(Added-AFMC)** Develop and manage facility design and prepare cost estimates for T&E programs.

5.4.4.4.3. **(Added-AFMC)** Maintain the TW T&E programs space activity database.

5.4.4.4.4. **(Added-AFMC)** Manage project meetings for new construction and modification of existing facilities per program requirements.

5.4.4.4.5. **(Added-AFMC)** Plan, program, budget, and monitor projects IAW the Planning Programming Budgeting and Execution process for MAJCOM T&E resources.

5.4.4.4.6. **(Added-AFMC)** Plan T&E resource investment and modernization efforts for test program support.

5.4.4.5. **(Added-AFMC)** Assist with coordination of site surveys for deployment locations and maintain copies of the Expeditionary Site Plan Part I for deployment locations IAW AFI 10-404, Base Support and Expeditionary Site Planning.

5.4.4.5.1. **(Added-AFMC)** Focal point for MXG and Operations Group (OG) Combined Test Force (CTF) site planning.

5.4.4.5.2. **(Added-AFMC)** Provide Test Program Support IAW AFI 99-103 and AFI 99-103 AFMC Sup.

5.4.4.5.3. **(Added-AFMC)** Review program introduction and test concept documents for test program needs and provide program support.

5.4.4.5.4. **(Added-AFMC)** Prepare Cost and Resource Estimates. Assess MXG capacity and capability to support including identification of constraints and concerns.

5.4.4.5.5. **(Added-AFMC)** Focal point for MXG final SOC inputs for test program support.

5.4.4.5.6. **(Added-AFMC)** Manage infrastructure for T&E facilities and resources for system life cycle activities.

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)**.

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

6.2.4. In coordination with PS&D, comply with TCTO Program requirements IAW **Chapter 14**, 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** **(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.

6.2.9. 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)**.

6.3. QA Superintendent (QA SUPT) Responsibilities. In addition to the applicable Flight CC/SUPT duties in **Chapter 2** 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.

6.3.2. 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. **(AFMC)** Units will develop a local tracker to ensure publications are reviewed for currency and accuracy every two years per HAF direction. Units are also required to maintain currency/review procedures for publications outlined in DAFI 33-360. **(T-2).**

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

6.3.8. Oversee and implement the GP Impoundment Procedures IAW **Chapter 7** **(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)**.

6.3.11. 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** **(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** **(T-1)**.

6.3.19. Maintain DOP program oversight IAW **Chapter 11** **(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.

6.3.23. **(Added-AFMC)** As the selecting/hiring official for QA inspectors, ensure the individual is a qualified subject matter expert (SME) in the functional area (i.e., avionics, AGE, aircraft maintenance, fabrication, munitions, etc.) and meets position requirements. **(T-2).**

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**. 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.

6.4.6. 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)**.

6.4.7. 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** **(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**). **(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)**.

6.4.14. 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** **(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-AFMC)** Training must cover the evaluation and inspections of functional area(s) (e.g., Avionics, AGE, PMEL, Munitions, etc.) or programs (e.g., weight and balance, FCF) and be documented in the individuals applicable 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)**.

6.6.3.2.1.1. 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** 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** and document requirements in their supplement to this AFI. **(T-2)**.

6.6.6. **(AFMC)** QA personnel who conduct engine run evaluations are not required to maintain the engine run proficiency requirements outlined in **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)**.

6.6.10. 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.

6.7. 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.

6.7.1.1. 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** **(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.

6.7.2.7.1. **(AFMC)** Units will use Lead Command KTLs for the specific MDS assigned. The Center/Wing/Group may add additional tasks to the KTL. Lead Command KTLs can be found at the following link: AFMC KTL Hyperlink. **(T-2).**

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)**.

6.7.2.8. 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-AFMC)** MAJCOM recommended QA routine inspections. Refer to the following link and review the current Lead Command RILs for additional focus recommendations to tailor unit E&I plan as needed**:** **https://cs2.eis.af.mil/sites/22196/Maintenance/Forms/AllItems.aspx?RootFolder=%2Fsites%2F22196%2FMaintenance%2FCombat%20Test%20Wings%20%2896%20MXG%5F412%20MXG%29&FolderCTID=0x012000E36775CB69E86948B13D7299825F11FF&View=%7BD42D7329%2DFBE8%2D4105%2DBC05%2DF7FC47ED1A45%7D**.

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)**.

6.7.3.3.1.1. **(Added-AFMC)** Consider historical PEs, QVIs, and other inspections data (especially any items having a pass rate of less than 80 percent); not mission capable (NMC) causes; aborts and trends; in-flight emergencies (IFE) and trends; high component or system failure rates; repeat/recurring/CND discrepancies trends; Deficiency Report (DR)/ Service Report (SR) trends; suspected training deficiencies; technical data violations (TDVs), detected safety violations (DSVs), and tasks outlined in aircraft -6 TOs.

6.7.3.3.2. Tailor the plan for each squadron, flight and section. **(T-1)**.

6.7.3.3.2.1. **(Added-AFMC)** Identify the assessment type (i.e., task, specific item, procedure or process) and minimum number (determined by a documented methodology (e.g., ANSI- Z1.4) or rationale used in the program administration section of the E&I Plan) of Personnel Evaluations (PE), Quality Verification Inspections (QVI), and Routine Inspection List (RIL) and assessment areas to be conducted monthly. **(T-2).**

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.

6.7.4.1.2. 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.

6.7.5. 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:

6.7.5.1. 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)**.

6.7.6.1.3.1. **(Added-AFMC)** Ensure personnel performing maintenance on aircraft/equipment receive a PE every 24 months. For failed PE, conduct a follow-up evaluation on the same task within 30 days (extensions may be given by exception). **(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.

6.7.6.1.6. 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.

6.7.9.7. 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**.

6.7.11. Monthly Summary. QA shall publish and distribute the monthly summary to the MXG/CC or equivalent and inspected organizations. **(T-1)**.

6.7.11.1. 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.

6.7.11.4.12.2.1. **(Added-AFMC)** Establish and document procedures to follow-up highlighted trends and/or root causes to closure. **(T-2).**

6.7.11.4.12.2.2. **(Added-AFMC)** Ensures the work center develops and implements a corrective and preventive action process. (e.g., AF CPI Practical Problem Solving Method (PPSM), 5 Whys, etc.). **(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)**.

6.7.12.3. **(Added-AFMC)** MSEP Summary. The MSEP summary shall be distributed to HQ AFMC/A4MM. **(T-2).**

6.7.13. **(Added-AFMC)** HQ AFMC/A4MM Command QA Functional Manager stall:

6.7.13.1. **(Added-AFMC)** Oversee the AFMC MSEP, and serve as POC for AFMC QA functions.

6.7.13.2. **(Added-AFMC)** Ensure development and review of Commanders Inspection Program Self-Assessment Checklists (SACs) IAW AFI 90-201 AFMC Sup.

6.7.13.3. **(Added-AFMC)** Review results of HQ AFMC/IG inspections and unit MSEP reports for needed policy actions.

6.7.13.4. **(Added-AFMC)** Host and chair the Quality Assurance Working Group (QAWG).

6.7.13.5. **(Added-AFMC)** QAWG members include unit QA Chiefs/reps. Additionally, HQ AFMC/IG, HQ AFMC MFMs/SME, COR and designated union representatives may attend as required.

6.7.13.6. **(Added-AFMC)** QAWG will conduct a technical interchange meeting every 2 years in person (funding permitting) and participate in teleconferences at least bi-monthly. **(T-2).**

6.7.13.7. **(Added-AFMC)** Manage MAJCOM responsibilities for LEAP database and perform as LEAP Functional Administrator duties as stated in **paragraph 6.8**

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://amclg.csd.disa.mil/mi/LEAPQA/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)**.

6.8.3.6. Build and manage the E&I Plan (if used) in LEAP and ensure it incorporates all MAJCOM specific requirements. **(T-1)**.

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**, 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)**.

6.9.4.4. **(Added-AFMC)** In addition to accomplishing duties and responsibilities listed in **paragraph 6.9.5**, The PIM will:

6.9.4.4.1. **(Added-AFMC)** Evaluate the overall unit configuration management program by reviewing technical, managerial, and documentation aspects of the program. Report any deficiencies to appropriate local manager or as directed in TO 00-5-15, Air Force Time Compliance Technical Order Process, and AFMC instructions. Immediate action, urgent action, and safety TCTOs require particular attention and emphasis. **(T-2).**

6.9.4.4.2. **(Added-AFMC)** Monitor and document initial compliance on TCTOs and determine depth and frequency of inspection coverage. Coverage is directly related to the complexity of the TCTO as well as to how critical the system or the component is to be modified. **(T-2).**

6.9.4.4.3. **(Added-AFMC)** Support verification, validation and TCTO kit proofing, OTIs and command-directed modifications. **(T-2).**

6.9.4.4.4. **(Added-AFMC)** Along with the TCTO monitor, attend all TCTO planning and reconciliation meetings. **(T-2).**

6.9.4.4.5. **(Added-AFMC)** Ensure all test aircraft that do not meet TCTO applicability criteria due to installed modifications are identified and tracked in a comprehensive database system. This non-applicability list will reference the waiver of compliance signed by the MXG/CC. **(T-2).**

6.9.4.4.6. **(Added-AFMC)** Coordinate with the MOF PS&D and the combined flight test (CFT) modification manager (when necessary), the PIM will ensure all aircraft that are de-modified have a conformity check (de-mod reconciliation) complied with to ensure aircraft TCTOs are reinstated (As applicable). **(T-2).**

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 (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** **(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-ETOOL-1-WA-1. Additional user support available through the Air Force Technical Order Functional Support Team, **af.etimstofst@us.af.mil** or DSN 872-9300.

6.10.8. Control the electronic data configuration on applicable eTools IAW **Chapter 8** **(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.

6.12. 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)**.

6.12.2.3.1.1. **(Added-AFMC)** Information file will also include: **(T-2).**

6.12.2.3.1.1.1. **(Added-AFMC)** Mission profile for each type of assigned aircraft, consisting of checks to be accomplished, presented in consecutive order. **(T-2).**

6.12.2.3.1.1.2. **(Added-AFMC)** TO 1-1-300, Acceptance/Functional Check Flight And Maintenance Operational Checks. **(T-2).**

6.12.2.3.1.1.3. **(Added-AFMC)** List of authorized FCF crew members signed by the OG/CC. **(T-2).**

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)**.

6.12.2.6.1. **(Added-AFMC)** Review the log monthly for trends indicating problems requiring further analysis or corrective actions. Identify deficient areas and forward to the MXW/CC and OG/CC for required review or action. **(T-2).**

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.

6.12.6.1. **(Added-AFMC)** While performing an FCF away from home station, the applicable requirements for FCFs of the transient/host base must be followed. The transient/host base QA office must be contacted and should be the focal point for all FCF requirements. **(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)**.

6.15.1.1. **(AFMC)** [DEV] Weight and balance handbook storage and physical location will be determined by MXG/CC or equivalent for test/mission unique aircraft.

6.15.2. QA will manage W&B on commercial derivative aircraft IAW **Chapter 6** **(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)**.

6.16. (Added-AFMC) Chafing Awareness Program. This program is mandatory for fighter aircraft units and other MDS IAW applicable MDS technical data. QA must monitor and track instances of wire, harness and metal line/tube chafing. A randomly selected 10 percent of assigned aircraft are inspected when notification is received of a potential chafing problem involving like model, lot number or block of aircraft. **(T-2).**

6.16.1. **(Added-AFMC)** The Chief Inspector shall recommend initiating an OTI if the sampled aircraft indicates a chafing problem or the detected chafing is an operational safety hazard. The MXG/CC will be the final approval authority on the scope of the OTI. **(T-2).**

6.16.2. **(Added-AFMC)** QA will utilize a database for the purpose of tracking wire and harness chafing problems identified through OTIs and maintenance cross-tell reports. Consult the database before expending man-hours performing inspections. **(T-2).**

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.

7.1.1. **(Added-AFMC)** Coordinate with the Wing Safety Office to determine reporting requirement, when property damage to aircraft, equipment, commodities, or resources exceeds the Class D threshold $25,000 or more but less than $60,000.

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)**.

7.2.1.1. **(AFMC)** Unit QA will ensure development of a local operating instruction for local procedures and development of a local impoundment checklists (see **Attachment 9** for sample Impoundment checklist) for use, notification, release officials, specific forms entries, appointment and responsibilities of impoundment investigating officials, special handling or tagging of parts from impounded items sent through the repair cycle and conducting impoundment investigations across organizations. **(T-2).**

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)**.

7.2.2.2. **(Added-AFMC)** The MXG/CC or CD will appoint an individual in writing as the designated Impoundment release authority at deployed location(s) under their control. The owning MXG/CC, MXG/CD, or equivalent, is the impoundment release authority for aircraft transiting to enroute locations. **(T-2).**

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.

7.2.4.1. **(Added-AFMC)** Impoundment reports will be kept for a period of one year from the date of incident. Ensure incidents are documented in the applicable component/subcomponent historical records as applicable **(T-2).**

7.2.5. **(Added-AFMC)** Impoundments may be transferred from an aerospace vehicle and/or an equipment item to a sub-component once the sub-component is removed (engine, gun system, etc. determined to be causal for asset impoundment and is removed from the aircraft).

7.2.6. **(Added-AFMC)** Units will ensure procedures are developed to safeguard/secure possible investigative evidence such as data records (e.g. crash survivable flight data recorder, seat data recorder, Cockpit voice recorder) per AFI 91-204 upon aircraft impoundment for potential safety related incidents. **(T-2).**

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. (AFMC) Impoundment Official Responsibilities. MSgt or Equivalent.

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 AFPD 10-9. **(T-1)**.

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. **(AFMC)** Unit QA will ensure development of a local operating instruction to include, procedures for off-station aircraft impoundment while transient, home station notification, release officials, forms entries, appointment and responsibilities of impoundment investigating officials, special handling or tagging of parts from impounded items sent through the repair cycle and conducting impoundment investigations across organizations. **(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)**.

7.7.2.4. 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)**.

7.7.4.1. 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**) 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**) 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).

8.1. (AFMC) Tool and Equipment Management. Small unique units designated as NSOs will follow guidance in AFI 21-101 AFMC Sup Addendum A or Addendum C for AFRL.

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. (AFMC) Guidelines for Program Management. Units will use the Blanket Purchasing Agreement **(**BPA) for acquiring tools. **https://org.eis.afmc.af.mil/sites/HQAFMCA4/A4M/Hand_Tools/ (T-2).**

8.2.1. Standardized procedures for security, control, and accountability of tools and equipment. **(T-1)**.

8.2.1.1. Chits are not authorized.

8.2.1.2. **(Added-AFMC)** Include standardized procedures for clecos. **(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)**.

8.2.3. Procedures for warranted tool management. **(T-1)**.

8.2.3. **(AFMC)** Warranty/Quality Tool Program. The purpose of the warranty/quality tool program is to ensure high quality; industrial-strength warranted tools are available for use in aircraft and equipment activities. Warranty tools will be purchased using the BPA or through local contracts with a warranty tool vendor. Units desiring to establish a warranty tool program must coordinate their program through both the supply and contracting squadrons. Detailed management procedures are contained in AFI 23-101. **(T-2)** The following general guidelines apply:

8.2.3.1. Procedures to tag/segregate unserviceable warranty tools. **(T-1)**.

8.2.3.2. **(Added-AFMC)** Procedures for etching/de-etching of tools. Ensure method does not void warranty. **(T-2).**

8.2.3.3. **(Added-AFMC)** Office responsible for maintaining replacement tools (if applicable) and number of tools stocked. **(T-2).**

8.2.4. Procedures for control and management of replacement, expendable and consumable hand tools, HAZMATs, and other items contained in CTKs. **(T-1)**.

8.2.5. 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)**.

8.2.6. Procedures for lost or missing tools. **(T-1)**.

8.2.6.1. **(Added-AFMC)** Procedures for aircraft that have already taxied or are flying when tools, equipment, TOs, or any object is lost and was used on the aircraft. **(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. **(AFMC)** At a minimum, these markings will identify the individual. **(T-2).**

8.2.9. Procedures to ensure positive accountability and control of rags. **(T-1)**.

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.

8.2.9.1.1. **(AFMC)** Procedures if paper product is used, identify if and when they will be controlled. **(T-2).**

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-AFMC)** Procedures for long term tool kit (CTK) storage. **(T-2).**

8.2.18. **(Added-AFMC)** Procedures for control of equipment issued/dispatched to work areas. **(T-2).**

8.2.19. **(Added-AFMC)** Procedures for control of shop machine accessories/attachments. **(T-2).**

8.2.20. **(Added-AFMC)** Procedures for control of tooling included in TCTO/Mod Kits. **(T-2).**

8.2.21. **(Added-AFMC)** Procedures for loaned tools to include issue, tracking, duration, and verification. **(T-2).**

8.2.22. **(Added-AFMC)** Procedures for training personnel on tool control and accountability measures. **(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.

8.3.2. 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)**.

8.3.2.2. **(Added-AFMC)** Consider deployment tasking's, TDYs, and special test project requirements when making CTK determinations. Ensure user input is considered when determining quantity, content and layout of tool kits. **(T-2).**

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)**.

8.3.3.1. **(Added-AFMC)** If a tool is to be permanently removed from a CTK/TK ensure any previously assigned World Wide Identification (WWID) markings are de-etched (reference warranty procedures if applicable). **(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 place 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. **(AFMC)** Tools will be described on the MIL to accurately depict the actual size or type to ensure positive tool control, i.e. screwdriver, common, 6 inches; socket, 3/8 drive X 5/8. **(T-2).** CTK custodian or designated representative must review and sign the MIL. A copy of the MIL will also remain in each CTK/equipment kit at all times for inventory purposes. **(T-2).**

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)**.

8.3.6.3. 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.

8.3.6.5.1. 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)**.

8.3.6.5.2. **(Added-AFMC)** If not using the MIL or TCMax® to document missing/removed tools then use AFMC Form 61, *Missing/Removed Tools and Equipment*, to annotate missing/removed tools. **(T-2).**

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 TCMax® 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)**.

8.3.6.7.1.1. 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.

8.3.7. 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-AFMC)** Tool Replacement Procedures. A stock of spare tools is authorized to replace broken, worn, or missing tools to prevent unnecessary work delays. Spare and consumable tools are highly pilferable and pose an increased fraud, waste, and abuse potential. **(T-2)** MXG/CC (MXW/CC or equivalent functional authority for maintenance) will establish strict controls to include the following:

8.3.13.1. **(Added-AFMC)** Inventory and document all replacement Spare tools quarterly. **(T-2).**

8.3.13.2. **(Added-AFMC)** Replacement spare tools will not be issued until the receipt of the unserviceable tool or AFMC Form 310 has been received. **(T-2).**

8.3.13.3. **(Added-AFMC)** Replacement spare tools must be marked with the CTK WWID prior to issue. **(T-2).**

8.3.13.4. **(Added-AFMC)** If previously issued serviceable spare tools are to be used as replacement tools, completely de-etch any prior assigned markings before placing in spare tools storage. **(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:

8.4.1. 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 TCMax® 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 TCMax®. 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 TCMax® 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. **(AFMC)** If an automated system is not available, units may use AFMC Form 62, *CTK Inventory and Control Log*, to sign in and out CTKs/TKs and use AFMC Form 61 to document Missing/Removed tools.

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. **(AFMC)** If an automated system is not available, units may use AFMC Form 62 or computer generated equivalent to document separate shift inventories.

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)**.

8.5.3.3. 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** **(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**

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**, 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)**.

8.6.2.2. 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** **(T-1)**.

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** 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)**.

8.7.3.1.1.2.1. 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.

8.7.3.1.2. 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)**.

8.8.2.2.1. 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)**.

8.9.2.3.3. **(Added-AFMC)** Initiate AFMC Form 310, Lost/Found Item Report, if the item is not found within two hours of start of search. Maintain reports in QA section for two years. **(T-2).**

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)**.

8.9.2.6.3. If applicable, ensure the TCMax® is documented IAW **Paragraph 8.3.6.7 (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.

9.2. 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:

9.11.1. Identify serviceable shelf-life items/locations with a colored and/or highlighted label that clearly states the items expiration date. **(T-2)**.

9.11.2. 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)**.

9.14. 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** **(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)**.

9.17.3. **(Added-AFMC)** Efforts should be made to purchase items in-lieu of local manufacture if practical when the item has been specifically designed and manufactured for the intended use/purpose.

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**.

9.18.7.3.1. **(Added-AFMC)** Base maintenance organizations must properly dispose of consumable items through DLADS/DRMS. Items will be segregated by DEMIL

code and demilitarized by generating unit as required, prior to being turned into DLADS/DRMS. Reference DoDM4160.28-V2, paragraph 3.1, Table 1 for DEMIL code definitions/requirements. **Note:** DEMIL code A are the only assets that do not have a DEMIL requirement, but are still required to be transferred to DLADS/DRMS and will not be thrown in the trash.

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 expediter 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** 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.

9.27. (Added-AFMC) Repair Network Enhancement Program (RNEP)(formerly IREP). MXG/CC is the OPR for the RNEP program. RNEP provides maintenance group senior leadership a forum to evaluate current aircraft weapons systems resource and support status, highlight specific problem areas, focus on local repair initiatives to include the AFREP processes, and discuss ways to improve the overall repair cycle process. **(T-2).**

9.27.1. **(Added-AFMC)** RNEP Meeting. The meeting will be held at least quarterly; chaired by the MXG/CC. LRS CC/CL and MSG/CC will attend RNEP for awareness of materiel management issues affecting aircraft maintenance and mission generation. Recommended participants (as required) include the following: LRS, FSC, representatives from maintenance units, O&M resource advisors, maintenance analysis, AFREP (if applicable), QA, Aircrew Flight Equipment, and others as determined by the MXG/CC. The responsible asset manager should be the focal point to lead the discussion of the key data about a specific part. MXG/CC will conduct a DIFM status review and determine RNEP meeting content based on local requirements. **(T-2).**

9.27.1.1. **(Added-AFMC)** Subject Matter Review. One of the objectives of the RNEP meeting is to increase overall base self-sufficiency for repair and reduce the overall cost of operations. Topics discussed vary based on local requirements, but should include key elements of asset management and costs associated with each of the maintenance stock fund divisions. The number of items reviewed in each topic is determined locally. **(T-3).** Units can determine the specific format/visual aids used for presentation and may include the following information:

9.27.1.1.1. **(Added-AFMC)** Asset Profile/Top Projected MICAP Situations. An asset profile is an in-depth review of an asset identified as critical to mission accomplishment or that causes frequent MICAP situations. Data in an asset profile may include number authorized and on-hand, number repaired and not repaired, number of MICAPs, MICAP cause codes, average repair cycle days, average AWP days, monthly demand, item cost, and financial value of assets in the repair cycle. The overall health of the assets should include reasons for MICAP situations and solutions to resolve them. **(T-3).**

9.27.1.1.2. **(Added-AFMC)** Test Station Equipment Profile. Test station in-commission time is critical to efficient repair cycle output. TMDE and other shop deficiencies may have a negative effect on the base repair cycle process. The wing should focus on actions which maximize test station capability. **(T-3).**

9.27.1.1.3. **(Added-AFMC)** Wing Self-Sufficiency Initiatives. Initiatives include discussion of new wing, group and squadron AFREP initiatives and other local self-sufficiency repairs. Discussions must include how initiatives are crossfed to appropriate depot, Lead Command and all other like-MDS bases. Discuss product improvement initiatives and maintenance related to Airmen Power by Innovation (API). **(T-3).**

9.27.1.1.4. **(Added-AFMC)** High Cost Maintenance. Unit funded TCTOs/modifications, high cost work centers, SPRAM back orders, financial value of parts in the repair cycle, etc. **(T-3).**

9.27.1.1.5. **(Added-AFMC)** Top CANN Items. Items with significant CANN histories. Review information which includes the number of times items were CANNed in the last 30 days, average CANN occurrences over the last 6 months, projected get well date, and the time required to CANN the item. **(T-3).**

9.27.1.1.6. **(Added-AFMC)** Unit Aircraft Engine Status Review. A status review summary should include number in work, projected production date, and supply drivers for work stoppage. **(T-3).**

9.27.1.1.7. **(Added-AFMC)** Repair Cycle Bottlenecks. Review any area, which impedes the repair cycle process, such as frozen supply, records, supply, rejects, test station backlogs, personnel deficiencies, manpower shortages etc. Review high-time due in from maintenance (DIFM). **(T-3).**

9.27.1.1.8. **(Added-AFMC)** AWP Summary. Analyze due-outs causes and back order priorities to determine if supply action is required to correct any deficiencies/problems. **(T-3).**

9.27.1.1.9. **(Added-AFMC)** Repair Cycle Throughput. Throughput is the average time it takes to move individual items through the repair cycle. Review/compare the 12-month average versus the current month repair cycle time (RCT) to determine if progress is being made. 2LM reparable items must be processed without delay as established in AFI 23-101. Non-2LM repairable items must be processed within 4 days for serviceable assets and 10 days for unserviceable assets. **(T-3).**

9.27.1.1.10. **(Added-AFMC)** Part Store Issue Effectiveness. Percentage of aircraft parts issued from the flightline part store vs. the main warehouse. Disregard this element when LRS does not segregate aircraft components into a separate warehouse. **(T-3).**

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.

10.1.2. 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.

10.2. 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.

10.2.2. 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.

10.3.1. **(AFMC)** Weapons Standardization (WS). When multiple LSCs (not to exceed one per MDS) are assigned, a lead LSC will be identified to perform semi-annual evaluations and

ensure standardization of loading. Applicable procedures in this section will be adopted for use by test and evaluation load crews assigned to geographically separated units. **(T-2).**

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)**.

10.3.3. WS Superintendent (SUPT) Responsibilities. The WS SUPT is responsible to the WWM, and performs Section NCOIC/Chief duties outlined in **Paragraph 3.10**. 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)**.

10.7.2.1. **(AFMC)** [DEV] If a permanent load trainer for example Armament Systems Trainer and/or GITA) is assigned, the MXG/CC, with WWM coordination, will determine which GITA/TAA systems and subsystems will be fully configured and operational to support weapons load training and document IAW **Chapter 11** **(T-2).**

10.7.2.2. In addition, WS will develop a schedule for periodic maintenance to weapons system components. **(T-1)**.

10.7.2.3. **(Added-AFMC)** [DEV] 412TW is authorized the following exceptions:

10.7.2.3.1. **(Added-AFMC)** [DEV] When using the F-16 Block 15 GITA for weapons load crew training:

10.7.2.3.1.1. **(Added-AFMC)** [DEV] Block 50 pylons physically installed on a Block 15 aircraft remain unconnected due to the different connector alignment.

10.7.2.3.1.2. **(Added-AFMC)** [DEV] 1760 capable munitions cannot hook up electrically to the pylon because the connectors are of different design and are not compatible.

10.7.2.3.1.3. **(Added-AFMC)** [DEV] Weapons load training requirements for F-16A, AM, C/D, CG and CJ configurations are completed using the appropriate MDS flight manual to obtain load configurations. The 1F-16C-33-1-2, 1-F-16AM-33-1-2 and all applicable C/AM loading checklists are used for load crew training.

10.7.2.3.2. **(Added-AFMC)** [DEV] When using BRU-61, serial number 2 and 3 for weapons load crew training on F-22 aircraft:

10.7.2.3.2.1. **(Added-AFMC)** [DEV] BRU-61, serial number 2 contains four inert GBU-39s and is different from a standard BRU in that it does not have internal compressors or orifices and contains one additional JMMI cable. The shell and external hardware is the same as a standard BRU capable of facilitating weapons load training.

10.7.2.3.2.2. **(Added-AFMC)** [DEV] BRU-61, serial number 3 is an empty rack and is different from a standard BRU in that it does not have internal electronics, compressors or orifices. The shell and external hardware is the same as a standard BRU capable of facilitating weapons load training.

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)**.

10.8.4.2.10. **(Added-AFMC)** TICMS/munitions accountability procedures. **(T-2)**.

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** 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. **(AFMC)** [DEV] Civilian load crews will follow WWM-established weapons load time goals.

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. (AFMC) [DEV] Munitions Load Time Standard. The WWM or WS Supt shall determine and set load time standards for items that are not listed in **Tables 10.1**, **10.2** or **10.3** Within the 412 MXG. The Wing Weapons Manager will establish time goal for civilians. **(T-3).**

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)**.

10.17.3. 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
QUALIFICATIONS	**A-10**	**F-15**	**F-16**	**F-22**	**F-35**	**REMARKS**
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.

MUNITIONS FAMILY GROUP	B-1	B-2	B-52 INT	B-52 EXT	REMARKS
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
QUALIFICATIONS	**B-1**	**B-2**	**B-52-I**	**B-52-E**	**REMARKS**
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	

QUALIFICATIONS				REMARKS
25MM/30MM			X	
CHAFF/FLARES			X	

Notes:

1. Add 15 minutes for each additional store or M299.
2. Add 10 minutes if functional check is to be accomplished as part of the load evaluation.

Chapter 11

ADDITIONAL MAINTENANCE REQUIRMENTS 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**. 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.

11.3.1. 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 then the MXG/CC (or equivalent) must request a waiver from the MAJCOM. **(T-2)**.

11.3.5. MAJCOMs may add additional mandatory critical tasks or inspections they deem necessary.

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. **(AFMC)** AFMC Form 64, *Request for Placement on Special Certification Roster*, may be used in lieu of AF Form 2426.

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.

	A	**B**
ITEM	**Mandatory SCR Item Titles**	**MAJCOM/ANG Prerequisites**
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 **Chapter 7** of this instruction) (Note 2)	Refer to MAJCOM Supplement
28	Impoundment Authority (refer to **Chapter 7** 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 **Chapter 8** 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. (AFMC) Mandatory Special Certification Roster and Prerequisites.

	A	**B**
ITEM	**Mandatory SCR Item Titles**	**MAJCOM/ANG Prerequisites**
1	All Systems "Red-X" (no egress, welding, munitions, fuel cell (in-tank work)) (Note 1)	MSgt or higher (or civilian equivalent).
2	Exceptional Release (ER) (Note 1)	
3	"Red-X" Downgrade (Note 1)	
4	All Systems In Process Inspection (no egress, welding, munitions, fuel cell in-tank work) (Note 1)	
5	Installed Engine Run Certifying Officials (Note 1)	MSgt or higher (or civilian equivalent), or a fully qualified/certified contractor or AFETS/CETS representative and possess one of the following AFSCs: 2A671, 2A571/2/4, and 2A373/7/8. One year minimum engine-run experience on applicable MDS. MXG/CC may waive qualified TSgts.
6	Aircraft Inlet/Intake/Exhaust Certifying Officials (Note 1)	Qualified/certified 7 or 9- 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.
7	Flexible Borescope Certifying Officials (Note 1)	
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)	SSgt or higher, minimum 7-skill level or civilian equivalent (includes MXG/CC-appointed exceptional SrA

	(Note 2)	per **paragraph 11.3.3.**).
10	IPI by PAFSC and Mission Design Series (For multiple Mission Design Series, list separately) (Note 2)	
11	"Red-X" and/or In Process Inspection - Limited (Note 2)	5-skill level personnel certified on limited tasks as determined by the unit (Note 1); 5-level Certified Weapons Load Crew Chiefs on loading tasks 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, 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))	Refer to AFI 20-110, Chapter 2.
14	Installed Engine Run by Mission Design Series (Note 2)	SrA or higher, minimum 5-skill level (or civilian equivalent), with at least 6 consecutive months experience on MDS for which engine run training is required. (Experience must have occurred immediately prior to course enrollment). The MXG/CC may waive the weapons system experience. MXG/CCs may waive qualified 5-skill level A1C for critical manpower shortages. The time on weapon system may also be waived by MXG/CC.
15	Engine Blade Blending	Minimum 5-skill level 2A3X3/7/8, 2A5X1/2/4, and 2A6X1 or civilian equivalent. (Note 2).
16	QA hot pit certifying officials and QA hot pit certifier augmentees (squadron certifying officials) (Note 1)	Fully qualified/certified TSgt or higher 2AX7X AFSC (or civilian equivalent) with a minimum of one year hot pit experience on the applicable TMS. MXG/CC may waive time requirement.
17	Hot Refueling PAD Supervisor/"A" Member (Note 2)	Minimum 5-skill level, 2AX5X (or civilian equivalent), with a minimum of 1 year flightline 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, 2A3X3/7/8, 2A5X1/2/4, and 2A6X1 (or civilian equivalent).
23	Engine Flexible Borescope Inspections (Note 2)	Minimum 5-skill level 2A3X3/7/8, 2A5X1/2/4, and 2A6X1 (or civilian equivalent).
24	Chief Servicing Supervisor (Heavy Aircraft/Commercial Derivative Aircraft) (Note 2)	Minimum 5-skill level with 1 year weapons system experience.
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.
26	W&B Certified/Clear Red X (refer to TO 1-1B-50) (Note 2)	7-Skill level (or civilian equivalent), with a minimum of 1 year time on

		weapon system. For units that maintain multiple weapon systems, as long as the technician is certified on one airframe they do not require an additional year of experience for every subsequent airframe W&B certification. Time requirement may be waived by MXG/CC.
27	Impoundment Official (refer to **Chapter 7** of this instruction) (Note 2)	
28	Impoundment Authority (refer to **Chapter 7** of this AFI) (Note 1)	
29	CANN Authority (Note 1)	
30	Auxiliary Power Unit (APU) Operation (In Cockpit) (Note 2)	SrA or higher, minimum 5-skill level (or civilian equivalent), with at least 6 consecutive months experience on MDS for which APU Operation training is required. The MXG/CC may waive the weapons system experience if member proficiency/performance supports this action and may waive qualified 5-skill level A1C to fill critical manpower shortages. MXG/CCs may also institute more stringent requirements as necessary (e.g. must be engine run qualified).
31	Calibration Limitation Approval (refer to TO 00-20-14) (Notes 2 and 3)	SSgt or higher, minimum 7-skill level (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, minimum 7-skill level AFSC 2A871X or 2AX7X (or civilian equivalent).
34	Weapons Task Qualification Crew (WTQC) (Note 2)	Lead will be SSgt or higher, minimum 7-skill level 2AX7X (or civilian equivalent); other crew member minimum 5-skill level 2AX5X (or civilian equivalent).
35	NSS and T-9/T-10/T-11/T-12/T-20 sound suppressor Fire Control Panel (Note 2)	SrA or higher, (or civilian equivalent) with AFSC 2A6X1 must have a

		minimum 6 months experience.
36	Aircraft Rapid/Hot Defueling Supervisor (Note 2)	Minimum 5-skill level, 1 year of flightline experience, with 6 months weapon system experience.
37	Clear Red X when a lost item/tool cannot be located (refer to **Chapter 8** of this instruction) (Note 1)	Operations Officer/MX SUPT or above.
38	Aircraft APU Run Certifying Officials (In Cockpit) (Note 1)	7-skill level (or civilian equivalent), or a fully qualified/certified contractor or AFETS/CETS representative. MXG/CCs may also waive qualified 5-skill level SSgts.
39	T-38 Flight Control /System Rig Certifier	Minimum 7-skill level or civilian equivalent, 12 months experience adjusting system rigging. Certifies specialized MX rig teams to accomplish flight control, canopy, landing gear, door and other systems rigging. (Note 1)
40	T-38 Flight Control/System Rig Team Member	Minimum 7-skill level or civilian equivalent, 12 months experience performing system rigging. Performs flight control, canopy, landing gear, door and other system rigging as team member when directed. Member may be CUT trainee (Note 1)
Note: For tankers, airlift, bomber and passenger aircraft include the following items 41-47 on SCR.		
41	Landing Gear Retraction Supervisor	(Supervisor) SSgt or higher or civilian equivalent, minimum 7-skill level.
42	Landing Gear Retraction Member	(Gear handle operator) minimum 5-skill level, and 1 year flightline experience.
43	Jacking Supervisor	Minimum 7-skill level or civilian equivalent, 6 months system experience.
44	Jacking Manifold Operator	Minimum 5-skill level or civilian equivalent, 6 months system experience.

45	Integral Jacking Member (C-17)	Minimum 6 months C-17 experience (Note 2)
46	Integral Jacking Supervisor (C-17)	Minimum SSgt (or civilian equivalent), 6 months minimum C-17 system experience (Note 2)
47	Integral Jacking Certifying Official (C- 17)	Minimum 7-skill level or civilian equivalent, with minimum 1 year C-17 experience
Note: 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.		

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**.

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)**.

11.4.3. 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.

11.5.1.3. **(AFMC)** Send request to HQ AFMC/A4M at **AFMC.A4M.workflow@us.af.mil**.

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.

11.7.1. Procedures at a minimum will identify how resources, including personnel, supplies, and equipment will be made available to support transient aircraft recovery.

11.7.2. If required, establish multiple command MOUs/MOAs/collaboration necessary to achieve efficient aircraft recovery and MIS documentation.

11.7.3. **(Added-AFMC)** The MXG/CC is responsible for deploying MRTs and equipment to recover aircraft at remote locations, as directed by this instruction. Units will develop checklists. Unit resources, including personnel, supplies, and equipment, will be made available to support en route aircraft recoveries. **(T-2).** The MXG/CC will:

11.7.3.1. **(Added-AFMC)** Ensure adequate equipment resources, as authorized by applicable AS, are available to perform remote aircraft recoveries. **(T-2).**

11.7.3.2. **(Added-AFMC)** Ensure enough individuals are qualified to perform and complete all anticipated tasks, including MIS documentation, IPIs, and Red X sign-offs. Consider the experience level of the individuals you select when the need is identified to troubleshoot repeat/recurring discrepancies, especially those that caused in-flight emergencies or involve safety of flight. The MXG/CC has the authority to grant approval for a single person to sign off their own work when only one individual deploys on an MRT IAW TO 00-20-1. **(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** **(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)**.

11.8.3.5.1. 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)**.

11.8.3.6.2. 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.

11.8.3.8. Control all work order residue used on or around aircraft, uninstalled engines, and AGE. **(T-1)**.

11.8.3.8.1. **(Added-AFMC)** Establish and tailor rivet replacement procedures for local operation of assigned weapons systems. Include the procedures as part of the FOD orientation/familiarization for personnel working in these areas. Include work order residue control procedures for all maintenance performed in and around intake areas. **(T-2).**

11.8.3.8.2. **(Added-AFMC)** Aircraft Structural Maintenance shops and Low Observable Aircraft Structural Maintenance shops will develop LCL for intake repairs IAW **Chapter 6** and TO 00-5-1. All parts and pieces installed and removed from the aircraft will be documented and verified by a 7-level. The checklist will be completed on the job site and turned into QA, or equivalent, within 24 hours of repair completion. Aircraft Structural Maintenance and Low Observable Aircraft Structural Maintenance

technicians are not required to meet the training requirements of **paragraph 11.16** **(T-2).**

11.8.3.9. Rags will be controlled and accounted for IAW **Chapter 8** **(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.

11.8.3.11. 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-AFMC)** When transient/deployed aircraft incur FOD, the host unit will conduct the investigation and notify the owning organization using command-reporting procedures. **(T-2).**

11.8.3.11.4. **(Added-AFMC)** The owning organization is responsible for FOD incidents and investigations on transient aircraft/engines when one of the following conditions apply:

11.8.3.11.4.1. **(Added-AFMC)** When the owning organization's maintainers are deployed with the aircraft and the FOD is a direct result of transient/deployed unit negligence. **(T-2).**

11.8.3.11.4.2. **(Added-AFMC)** FOD discovered by transient alert or by contractor personnel during acceptance inspections will be charged to the base from which the aircraft last departed if a FOD inspection was not accomplished/documented and there were no intermediate stops. (**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** 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** **(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 Expediters 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.*

11.8.3.19.4. **(Added-AFMC)** Leave inspection and load tolerance tags attached. (T-2).

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)**.

11.8.4.1.1. 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)**.

11.8.4.2.7. **(Added-AFMC)** Develop and implement a FOD awareness and prevention training program. **(T-2).** At a minimum, the training program must address the following:

11.8.4.2.7.1. **(Added-AFMC)** Standardized training documentation requirements. **(T-2).**

11.8.4.2.7.2. **(Added-AFMC)** FOD awareness and prevention practices. **(T-2).**

11.8.4.2.7.3. **(Added-AFMC)** Initial FOD training. Ensure newcomers are trained on work center specific FOD awareness and prevention practices prior to starting work in their assigned work area. **(T-2).**

11.8.4.2.7.4. **(Added-AFMC)** Annual FOD training. Ensure personnel receive annual FOD awareness and prevention training. **(T-2).**

11.8.4.2.7.5. **(Added-AFMC)** Ensure all maintenance, operations, base support, and contractor personnel who work in, around, or drive through maintenance and/or operational areas are trained on FOD prevention. **(T-2).**

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)**.

11.8.5. 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)**.

11.8.6.1.2. **(Added-AFMC)** MOC will immediately notify Airfield Management when cut or damaged tires are discovered after taxiing or aircraft tows. **(T-2).**

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. **(AFMC)** Damage beyond blend repair, where hardware may be suspect for cause, and/or further unserviceable damage exists beyond the 1st stage fan will be considered reportable FOD. FOD found on the 1st stage fan which can be blended IAW with applicable tech-data may be considered non-reportable. **(T-2).**

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. **(AFMC)** HQ AFMC/A4M Propulsion Functional Manager shall assist in resolving questionable FOD issues.

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**.

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. **(AFMC)** Wing FOD monitor shall provide initial FOD reports via the HQ AFMC/A4M Propulsion Management SharePoint Site as soon as the damage is known, but NLT 24 hours after occurrence.

11.8.6.7.2.1. **(Added-AFMC)** FOD standard for fighter/rescue/bomber aircraft (F-15, HH60, B-1) is 1.0 and airlift/tanker aircraft (C-17, C-130, KC-135) is 3.0. **(T-2)**

11.8.6.7.2.2. **(Added-AFMC)** MDS specific flying hours source data is defined

as the flying hours flown as identified in the Maintenance Information System (MIS). **(T-2)**

11.8.6.7.2.3. **(Added-AFMC)** Units will conduct monthly FOD Prevention Committee Meetings, whenever the unit exceed the MAJCOM standard. Meetings will continue until the unit completes three consecutive months without exceeding the standard. The FOD meeting may be combined with other meetings. **(T-2)**

11.8.6.7.2.4. **(Added-AFMC)** Wing FOD monitor shall submit FOD calculations monthly for each MDS using the HQ AFMC/A4M Propulsion Management SharePoint site: **https://usaf.dps.mil/teams/22355/Lists/FOD%20Rate/Test%20Wing.aspx**, no later than the 15th of the month following the reporting month.

11.8.6.7.2.5. **(Added-AFMC)** Wing FOD monitor shall provide a final report the HQ AFMC/A4M Propulsion Management SharePoint site: **https://usaf.dps.mil/teams/22355/Lists/ALC%20FOD%20Incident%20Report/Standard%20View.aspx** upon completion of the FOD investigation. **(T-2)**

11.8.6.7.2.6. **(Added-AFMC)** If the FOD incident is deemed a mishap IAW AFI 91-204, the Wing FOD monitor will still report the FOD incident then work in tandem with the Wing SE office to properly report the mishap. **(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.

11.8.7. FOD Prevention Committee Meeting. This meeting is mandatory for units that exceed the MAJCOM-established standard. **(T-1)**.

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)**.

11.8.7.1.2. **(Added-AFMC)** Additionally, the following will be considered for minimum attendance at the FOD Prevention Committee Meeting: Center FOD Monitor, the designated Union representative, Center or Wing Maintenance Training, Flight test representative, Contracting (As applicable), Center tool control manager, and the ABW/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).

11.8.7.2.14. **(Added-AFMC)** In addition to the agenda items, the minutes will include as a minimum a list of attendees and absentees. Attendees list will identify the wing FOD monitor and provide functional address symbol and duty phone number for all personnel. Meeting minutes will be made available to FOD committee members. **(T-2).**

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.

11.9.1.2. 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. **(AFMC)** Wing DOP monitor shall provide an initial dropped object report via the HQ AFMC/A4M Propulsion Management SharePoint site: **https://usaf.dps.mil/teams/22355/Lists/24%20hr%20Notification/Allitemsg.aspx** within 24 hours of occurrence. Moreover, the final dropped object report will be uploaded to **https://usaf.dps.mil/teams/22355/Lists/FOD%20Incident%20Report/Standard%20View.aspx** after occurrence. In addition, if it involves casualties, property damage, or if adverse publicity is likely, provide data to command post for reporting IAW AFMAN 10-206. The base/wing safety office shall be notified of all dropped objects within 24 hours of occurrence. (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)**.

11.10. 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.

11.10.1. **(AFMC)** For roles and responsibilities see AFI 63-140 paragraph 4.3.

11.10.1.1. **(Added-AFMC)** The POC for AFMC is AFMC/A4MM.

11.10.2. Ensure operational units continuously meet authorized reporting requirements established by Program Offices.

11.10.2. **(AFMC)** For operational requirements see AFI 63-140 paragraph 4.4.

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.

11.11. 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. **(AFMC)** For IFF program see **paragraph 11.41**

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. **(AFMC)** B-1s, B-2s, F-22s, and F-35s have on-board diagnostic and internal testing capabilities.

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. **(AFMC)** MXG/CC will determine non-contingency system functional check requirements.

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)**.

11.12.3. 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** (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**). **(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)**.

11.14. 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.

11.14.1. **(AFMC)** See AFMC Sup **paragraph 11.14.5** through **11.14.7.2** for 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.

11.14.3. **(AFMC)** AF Test Center aircraft undergoing Temporary Modifications or De-Modifications for the purpose of Operational or Developmental testing are exempt from Hangar Queen Reporting for the duration of the modification efforts as long as the reason for not flying is based solely on the Temporary Modification efforts.

11.14.3.1. **(Added-AFMC)** When an aircraft becomes a Category 1 Hangar Queen, establish a maintenance recovery plan. Brief aircraft maintenance and supply status to the SQ/CC weekly to the MXG/CC and WG/CC. Category 1 aircraft are managed locally. **(T-2).**

11.14.3.2. **(Added-AFMC)** When an aircraft becomes a Category 2 Hangar Queen, assign a SNCO or officer (or civilian equivalent) to manage the Hangar Queen. The MXG/CC or designated representative must approve any further CANNs, transfer, and diversion actions from the Hangar Queen aircraft. Brief aircraft maintenance and supply status at the daily wing standup meeting. Units will report aircraft tail number(s) to MAJCOM. POC is HQ AFMC/A4MM. **(T-2).** Category II aircraft are managed locally.

11.14.3.2.1. **(Added-AFMC)** The minimum information required to report is **(T-2)**:

11.14.3.2.1.1. **(Added-AFMC)** Hangar Queen Management POC.

11.14.3.2.2. **(Added-AFMC)** Aircraft MDS and Tail #.

11.14.3.2.3. **(Added-AFMC)** Unit of Assignment/Possession.

11.14.3.2.4. **(Added-AFMC)** Date last flown.

11.14.3.2.5. **(Added-AFMC)** Reason for Hangar Queen status.

11.14.3.2.6. **(Added-AFMC)** Document number for parts on order for reason of Hangar Queen status with estimated delivery dates.

11.14.3.2.7. **(Added-AFMC)** Estimated next fly day.

11.14.3.2.8. **(Added-AFMC)** Identify if MAJCOM/WST Lead Command assistance is required.

11.14.3.3. **(Added-AFMC)** When an aircraft becomes a Category 3 Hangar Queen, units will report aircraft tail number(s) to MAJCOM and continue Category 2 Hangar Queen actions. Units will send an updated report to MAJCOM at least monthly. **(T-2).**

11.14.3.3.1. **(Added-AFMC)** MXG/CC will determine the need for an FCF/OCF (if not otherwise required by the aircraft specific TO). **(T-2).**

11.14.3.3.2. **(Added-AFMC)** QA will perform a final review of all aircraft forms initiated since the last flight prior to the first flight. **(T-2).**

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.

11.15. 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.

11.15.1. 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. **(AFMC)** Units will use the applicable MIS to document records management. **(T-2).**

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.

11.15.5. 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.

11.16. 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-AFMC)** This program is applicable to B-1, B-2, F-15, F-16, F-22, F-35, RPA, and propeller-driven aircraft/helicopters. (**Exception:** reciprocating engines.). **(T-2).**

11.16.1.2. **(Added-AFMC)** Units will have an installed and uninstalled aircraft/engine intake/inlet/exhaust training program. **(T-2).**

11.16.2. Units will track these programs on the SCR when implemented. **(T-1)**.

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)**.

11.17.1.4.2. 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.

11.17.1.4.3. **(Added-AFMC)** The MTs will review approved engine run certification procedures annually for accuracy. **(T-2).**

11.17.1.4.4. **(Added-AFMC)** Units will develop local procedures clearly depicting authorized run locations. **(T-2).**

11.17.2. Certifying Officials. Certifying official certification requirements are listed in **Table 11.1**.

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** **(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. **(AFMC)** Provided certified individuals remain proficient IAW **paragraph 11.17.8** while transitioning to gaining unit, no additional training is necessary beyond the initial evaluation. **(T-2).**

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. **(AFMC)** To maintain proficiency, maintenance personnel authorized to operate engine(s) will perform at least one engine run on each aircraft engine type or weapons system they are certified to operate, in order to maintain currency and remain qualified, every 90 days. **(T-2).**

11.17.8.1. Units will track run proficiency requirements in the MIS. **(T-1)**.

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** **(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. **(AFMC)** Two-part testing does not apply to F-22 APU operators using the PMA from the ground. **(T-2).**

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.

11.17.11.1.1. **(Added-AFMC)** Any personnel performing F-22 APU operation from the cockpit will be engine run qualified and listed on the SCR. **(T-2).**

11.17.11.1.2. **(Added-AFMC)** When another person is in the cockpit, personnel performing F-22 APU operations using the PMA from the ground will be engine run qualified and listed on the SCR. **(T-2).**

11.17.11.1.3. **(Added-AFMC)** Personnel performing F-22 APU operations using the PMA from the ground when nobody is in the cockpit do not need to be listed on the SCR. **(T-2).**

11.17.12. Proficiency. MAJCOMs will determine proficiency requirements for maintenance personnel authorized to operate APUs.

11.17.12. **(AFMC)** To maintain proficiency, maintenance personnel authorized to operate APU/GTC will perform at least one APU/GTC run every 180 days if applicable to the MDS. (**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** **(T-1)**.

11.17.14.1. **(AFMC)** Certified contractor personnel may be authorized to run uninstalled engines and/or small gas turbine engines when designated in writing by the respective MXG/CC/CL or equivalent. **(T-2).**

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** **(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, ETSs, 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. **(AFMC)** All uninstalled engine/small gas turbine engine run certified individuals and certifiers will run at least one engine every 180 days. When not feasible to run every 180 days, individuals will complete part I and part II tests to maintain proficiency. **(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 (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 (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)**.

11.17.15.4.1. **(Added-AFMC)** Certification will be tracked on SCR. **(T-2).**

11.17.16. **(Added-AFMC)** Special Test Projects. Some AFMC units will participate in special testing of uninstalled engines and/or small gas turbine engines that do not fall within the scope of the normal certification processes outlined in this chapter. **(T-2).** Under these circumstances, the affected unit will apply the following guidelines to ensure test project engines are operated to the safest extent possible:

11.17.16.1. **(Added-AFMC)** Ensure engine operations on test projects that do not have approved Air Force technical procedures have written operating procedures including emergency procedures approved by the MXG/CC/CL or equivalent and appropriate safety agencies. **(T-2).**

11.17.16.2. **(Added-AFMC)** When engine operating procedures do not exist in Air Force TOs, test project plans will specify use of commercial engine operating manuals (if they exist) and require a contractor or USAF test engineer for the duration of engine testing. **(T-2).**

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** **(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. **(AFMC)** [DEV] Within the 412th TW, Responsibility and management for the Engine Blade Blending Training and Certification process will be completed by the Propulsion Flight. This process includes the Propulsion Flight due to the multiple different engine models. All responsibilities contained in AFI 21-101 will be adhered to by Propulsion Flight leadership.

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)**.

11.18.3.4. **(Added-AFMC)** Initial engine blade blending certification. **(T-2).**

11.18.4. Certification Criteria. Certifying officials will be selected IAW criteria established in **Table 11.1** **(T-1)**.

11.18.4.1. **(Added-AFMC)** Certification Criteria. Certifying officials will be selected IAW criteria established in AFMC **Table 11.1** of this instruction. Units will limit the number of certifiers to a minimum to ensure standardized training and certification. Certifying officials will maintain proficiency in the same manner as other technicians; certifying officials will recertify each other. **Note:** If applicable, assigned AFETS/CETS should be used to certify other certifying officials. **(T-2).**

11.18.4.2. **(Added-AFMC)** Certified individuals who PCS to the same MDS and engine TMSM, and are still current on their proficiency, may by-pass formal training course. These individuals will be re-certified by a certifier prior to being added to the SCR. Carry over date of original class completion from previous documentation (certificate, training record, MIS printout). **(T-2).**

11.18.4.3. **(Added-AFMC)** Upon completion of the formal training, individuals are task evaluated by the certifying official (an individual other than the instructor who administered the course), and placed on the SCR. **(T-2).**

11.18.5. **(Added-AFMC)** Proficiency Requirements. As a minimum, B-1, B-2, F-15, F-16, F-22, F-35 and U-2 personnel must perform one blend repair every 180 days to maintain proficiency. Work centers may use trainer engine blades to perform blade blend proficiency. Work center supervisors ensure personnel who do not meet this requirement are decertified. (**T-2).**

11.18.6. **(Added-AFMC)** Annual Recertification. Recertification is accomplished by having the technician demonstrate they can perform the task(s). A QA PE may be used to satisfy this requirement if the QA evaluator is a certifying official. **(T-2).**

11.18.7. **(Added-AFMC)** Blade blending procedures for installed/uninstalled engines/modules:

11.18.7.1. **(Added-AFMC)** Notify the Wing/Center FOD Monitor prior to blade blending anytime FOD is identified, other than for minor sand nicks or scratches (i.e. blending with emery cloth). **(T-2).**

11.18.7.2. **(Added-AFMC)** Fill out Blade Blending/FOD Damage worksheet or applicable form with the following information; engine serial number, stage number, number of blades blended, depth of damage before and after blend, area of damage and employee number/stamp number of maintenance personnel. **(T-2).**

11.18.7.3. **(Added-AFMC)** Notify EM section and forward Blade Blending/FOD Damage worksheet or applicable form to EM section for filing. The EM section will transcribe information provided in the Blade Blending/FOD Damage worksheet into the applicable engine/module records (i.e., AFTO IMT 95; if applicable) and CEMS, IAW TO 00-20-1. **(T-2).**

11.18.7.3.1. **(Added-AFMC)** The EM section will also document CEMS IAW 00-25-254-1/2. **(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.

11.19.1.1. 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.

11.19.2.1.1. **(Added-AFMC)** MT, Propulsion Flight, or TD will develop and manage training. MXG/CC will select maintenance instructors or TD instructors to provide training, (AFETS/CETS may be used as alternate instructors). As a minimum, courses will include care and handling of the equipment, all borescope/ port locations to include all inspection requirements and procedures, all applicable technical data, fault isolation/damage assessment/defect size determination, and performance of an actual engine borescope. **(T-2).**

11.19.2.1.2. **(Added-AFMC)** Course material/instruction will include high interest borescope inspections (e.g., blade tip curl HS3 inspection on the F100-series engine). **(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. **(AFMC)** MT, Propulsion Flight, or TD will ensure engine flexible borescope proficiency and annual recertification requirements are established by course code.

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. **(AFMC)** Personnel who utilize borescope equipment to inspect or perform maintenance on jet engine modules that are not installed on the final engine do not require recurring borescope training. Final borescope inspection of the completed engine must be performed by a certified technician who has completed this recurring requirement. **(T-2).**

11.19.2.3.1. **(Added-AFMC)** Personnel who utilize borescope equipment to inspect or perform maintenance on jet engine modules not installed on aircraft are required to complete initial borescope training for assigned TMS. **(T-2).**

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-AFMC)** Certified individuals who PCS to the same MDS and engine TMSM may by-pass the formal training course. These individuals must be re-certified by a certifier prior to being added to the SCR. Carry over the date of original class completion from previous documentation (certificate, training record, MIS printout). **NOTE:** If applicable, assigned AFETS/CETS should be used to certify other certifying officials. **(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. **(AFMC)** HQ AFMC/A4MM manages the AFMC FCC program.

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** 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)**.

11.20.5.7.3.1. 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)**.

11.20.5.7.7.1. 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)**.

11.20.5.7.13. 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)**.

11.20.5.7.13.1. 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** 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:

11.20.6.2.1. 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**).

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)**.

11.20.9.1.1. 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. **(AFMC)** AFMC has zero Emergency War Order (EWO)/OPLAN 8010 responsibilities requiring flash blindness protective devices.

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)**.

11.22. 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**). With exception of the core 2A6X4 personnel, augmentees may come from any group or squadron within the wing. MAJCOMs, as applicable, will:

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. (AFMC) Protective Aircraft Shelters (PAS). Units that possess PAS will coordinate aircraft maintenance operations guidance in a PAS environment with HQ AFMC/A4M (**AFMC.A4M.workflow@us.af.mil**).

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.

11.24.1. **(AFMC)** AFMC does not have a peacetime or wartime requirement for combat sortie generation. For mission necessity, see **paragraph A8.1.10.4** Rapid Crew Swap (RCS).

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-lCL-l, *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.

11.25.1. 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. **(AFMC)** AFMC will follow the guidance in this instruction. Additional MAJCOM requirements are listed in **paragraph 11.25.1.1.9.1** and **11.25.1.1.10**. **(T-2).**

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**.

11.25.1.1.9.1. **(AFMC)** Send copy to AFMC/A4M Workflow (**AFMC.A4M.Workflow@us.af.mil**).

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. **(AFMC)** Send copy to AFMC/A4M Workflow (**AFMC.A4M.Workflow@us.af.mil**).

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)**.

11.25.2. 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** 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)**.

11.25.6.1.2. 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)**.

11.25.8.5. QA hot pit certifying officials and QA hot pit certifier augmentees (squadron certifying officials) will train, evaluate, and certify unit personnel. **(T-1)**.

11.25.8.5.1. 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 2F0X1 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. 2F0X1 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 (2F0X1) 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. **(AFMC)** Training, certification, and recertification requirements for hot refuel team members are outlined in **Table 11.2** Personnel are decertified if they miss any semiannual proficiency requirements or annual special requirements. Personnel can also be decertified by any hot/aircraft to- aircraft refueling supervisor, squadron/immediate supervisor, or QA any time one of these individuals sees an unsafe act or demonstrated lack of proficiency on the part of any hot and/or aircraft-to-aircraft refueling team member. **(T-2)**

Table 11.2. (Added-AFMC) Hot/Aircraft-to-Aircraft Refueling Training/Certification Requirements. (T-2).

Position	Required Training	Proficiency Requirements	Special Requirements
QA/Squadron Hot Refueling Certifiers	I, II, III	1 Hot Refuel Semi-Annually	One time PE by hot refueling certified QA evaluator; thereafter, annual recertification by another hot refueling certifier or

			hot refueling certified QA evaluator
Pad Supervisor	I, II, III	1 Multiple Hot Refuel Semi-Annually	Annual recertification by hot refueling certifier
Refuel Member	I, II, III	1 Hot Refuel Semi-Annually	Annual recertification by hot refueling certifier
Fuels Specialist (2F0X1)	I, II, III	1 Hot Refuel Annually	Annual recertification by Fuels 7-level Supervisor
Decertified Certifier	Repeat II, III		Recertification must be started within 90 days or Phase I will also be completed. Recertification by another hot refueling certifier or hot refueling certified QA evaluator Decertified (Other than certifier) Repeat II, III Recertification
Decertified (Other than	Repeat II, III		Recertification must be

certifier)			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. Owning 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. **(AFMC)** AFMC does not have routine or contingency requirements for aircraft rapid/hot defueling.

11.26.1.1. Rapid defueling operations are considered hot defueling operations whenever the provider/source aircraft has an engine running.

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.

11.27.2. 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**.

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)**.

11.28.2. 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. **(AFMC)** HQ AFMC/A4MM is the MAJCOM CDDAR OPR.

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)**.

11.28.2.4.3. Ensure wings with GSU/auxiliary fields outline support requirements in their publication. **(T-1)**.

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)**.

11.28.2.5.3. Ensure as a minimum, units with a CDDAR requirement possess sufficient equipment to accomplish a recovery of the assigned MDS aircraft. **(T-1)**.

11.28.2.5.4. Establish an IFE response capability. **(T-1)**.

11.28.2.5.5. Participate in CDDAR training exercises. **(T-1)**.

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)**.

11.28.2.6. 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)**.

11.29. 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. **(AFMC)** AFSC/LGPM is the USAF ABDR Program Office, they will: **(T-2)**

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.

11.29.1.3.1. **(AFMC)** AFSC/LGPM is the command focal point.

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** and UNCLASSIFIED messages must be sent to NIPR: **afsc.lgpm.abdrtso@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)**.

11.29.1.5.4. **(AFMC)** Field level MTFs will maintain instructors by using train the trainer. In the event a MTF has no trained instructors contact the ABDR Program Office. **(T-3)**.

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.abdrtso@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)**.

11.30.1.5. 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)**.

11.30.1.8. 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.

11.31.2. 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** **(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, A*vionics 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**, **Chapter 5**, and **Chapter 10**.

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** **(T-2)**.

11.34.1.9. Serve as the MXG Radar Warning Receiver/Radar Threat Warning program manager IAW **Paragraph 11.12** **(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 reparable.

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**, *ntegrated 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** **(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**dentification, 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/csiviewer/**. 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** 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** **(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** **(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.

11.38.3.5. 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.

11.38.4.2.1. 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 OAPrelated 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 enginespecific 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).**

11.39. 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)**.

11.39.3. 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.

11.39.3.1. 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.

11.39.7.5. 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.

11.39.7.7. 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.

11.39.7.10. Redistribute ETS resources between major activities when mission changes dictate such realignment. All redistribution efforts will be coordinated with losing and gaining organizations.

11.39.7.11. 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:

11.39.8.1. 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.

11.39.8.13. 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).

11.39.8.16. Establish, maintain and manage MAJCOM ETS TDY and training budget to include planning and execution of funds.

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 activates and provide stakeholders a written account of maintenance activities by the end of each month. **(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-AFMC) Identification Friend or Foe (IFF) Program.

11.41.1. **(Added-AFMC)** Units will ensure fully operational IFF Mode V systems by performing checks on all aircraft departing the Continental United States (CONUS) to overseas locations. **(T-2).**

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 AFPD 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.

13.2. 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.

13.4.1.1. **(Added-AFMC)** Centralized Rotable Pool (CRP) requirements for items managed in the propulsion network will be determined using the Propulsion Requirements System process outlined in AFI 63-101/20-101. **(T-2).**

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** 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.

14.1.1.1. **(AFMC)** See deviation **paragraph 2.2.4.3**

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.

14.1.2.1.1. **(AFMC)** Refer to **paragraph 14.1.6.5.1 (T-2).**

14.1.2.1.2. Publish MAJCOM procedures for verification of configuration items.

14.1.2.1.2. **(AFMC)** Refer to **paragraph 14.1.6.5 (T-2).**

14.1.2.1.3. Determine whether to ship removed engines to depot or induct into CRF repair.

14.1.2.1.3. **(AFMC)** Refer to **paragraph 14.4 (T-2).**

14.1.2.1.4. Determine routing and approval for AF Form 2407.

14.1.2.1.4. **(AFMC)** Refer to **paragraph 14.5.6.3.8 (T-2).**

14.1.3. PS&D will:

14.1.3. **(AFMC)** Maintenance schedulers are centralized (physically) in the MO PS&D section.

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)**.

14.1.5.1. **(AFMC)** Coordinate all assignment/possession planning through the AFMC AVDO, (AFMC/A4M) and the AFMC Aerospace Vehicle Fleet Manager (AFMC/A3F). Coordinate all assignment/possession changes also through the AFMC Aerospace Vehicle Fleet Manager (AFMC/A3F). **(T-2).**

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)**.

14.1.6.3. **(AFMC)** In addition to the coordination with internal agencies including AMXS and OS operations schedulers, coordinate with applicable outside agencies directly involved in the aircraft flying requirements (i.e. engineers/test customers, other government agencies, sympathy organizations), as needed with the execution of flying scheduling processes and procedures.

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)**.

14.1.6.5. **(AFMC)** Individual work centers accomplishing TCIs are responsible for changing configuration information in MIS. The performing work center supervisor and PS&D must conduct supervisory reviews of configuration change, TCTO, SI and TCI events using MIS on-line capabilities. Unless otherwise specified in local procedures, schedulers must process IMDS screen 128 for all removal, installation, TCI, SI and TCTO compliance updates for any items installed on the aircraft. **(T-2).** EM must process IMDS screen 128 for engines and engine components. In addition:

14.1.6.5.1. **(Added-AFMC)** Attend TCTO planning meetings when aircraft or equipment are affected and initiate/maintain folders for applicable TCTOs. TCTO folders will be standardized IAW TO 00-5-15, Air Force Time Compliance Technical Order (TCTO). Process as a minimum, and may be augmented with additional information provided in MOF PS&D guidance. AMU PS&D will attend the monthly TCTO review meeting hosted by MOF PS&D. **(T-2).**

14.1.6.5.2. **(Added-AFMC)** Manually update MIS products as changes occur IAW procedures established by MOF PS&D. **(T-2).**

14.1.6.5.3. **(Added-AFMC)** Correct TCI and SI program discrepancies identified by the MOF PS&D time change monitor as soon as possible. Provide MOF PS&D with MIS products or other documentation of the corrections. **(T-2).**

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. **(AFMC)** Local procedures are authorized for compliance of any established AF policy unless specified in supplemental guidance for this paragraph.

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 AFPD 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

14.2.2.3.15. **(Added-AFMC)** Temporary modification packages.

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. **(AFMC)** Test units can standardize MIS/on-line products as required for respective test aircraft management.

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)**.

14.2.3.2.1. **(AFMC)** Modular engine flying hours and manual cycles are verified with the EM section during document reviews. **(T-2).**

14.2.3.2.1.1. **(Added-AFMC)** If the aircraft has been away from home station and it has been more than 30 days since the last document review, check the documents within 7 days after return. **(T-2).**

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)**.

14.2.3.2.3. **(AFMC)** PS&D will conduct document reviews and validations at least every 14 days on CANN aircraft. The documents are also reviewed before and upon completion of other major programs such as Programmed Depot Maintenance (PDM), analytical condition inspections, and special tests. The AFTO Forms 781F, Aerospace

Vehicle Flight Report and Maintenance Document, will also be reviewed for accuracy. **(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. **(AFMC)** The AMXS will develop local procedures to review aircraft forms and MIS automated products as part of document reviews and/or validations. This process will include a review by the aircraft section/flight commander or NCOIC, then the AMU PS&D. This process will allow each level of supervision to review and maintain continuity of the process. **(T-2).**

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)**.

14.2.5. 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.

14.2.5.1.3. 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** **(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)**.

14.2.8. **(Added-AFMC)** Status Reporting. Accomplish status reporting IAW AFI 21-103. Aircraft transfer Possession Purpose Code (PPC) "BT" may only be used within the following guidelines. These guidelines also apply for permanent aircraft transfers via PDM/modification or contract repair facility. **NOTE:** If the gaining organization utilizes the aircraft prior to the transfer inspection, use of "BT" status will not be authorized. **(T-2).**

14.2.8.1. **(Added-AFMC)** Intra-command (within AFMC) transferring aircraft may be possessed in this code no longer than 2 workdays for the losing organization (to prepare the aircraft) and no longer than 2 workdays for the gaining organization (to accept the aircraft). This code allows the organization time to prepare and complete pre-transfer inspections and actions in a non-possessed status. HQ AFMC/A4M must approve any extension. **(T-2).**

14.2.8.2. **(Added-AFMC)** Inter-command (into or out of AFMC) transferring aircraft may be possessed in this code no longer than 2 workdays for both accepting and preparing the aircraft. This code allows the organization time to prepare and complete pre-transfer inspections and actions in a non-possessed status. Any extension must be approved by HQ AFMC/A4M. **(T-2).**

14.2.8.3. **(Added-AFMC)** Aircraft going to programmed depot maintenance (PDM)/modification may be possessed in this code for no longer than 2 workdays to prepare the aircraft. Aircraft returning from PDM/modification, contract field team or depot field team maintenance units may use this PPC no longer than 2 workdays after return of the aircraft. PPC "BT" is not authorized for the sole purpose of accomplishing scheduled maintenance such as TCTO, time change items and special inspections before or after PDM/modification input. HQ AFMC/A4M must approve any extension. **(T-2).**

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. **(AFMC)** Local procedures are authorized for compliance of any established AF policy unless specified in supplemental guidance for this paragraph.

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** 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)**.

14.3.2.6. **(Added-AFMC)** If ACM responsibilities are delegated to other work centers, MOF PS&D will develop a formal agreement between AFMC and the delegated work center to assign responsibilities and guidelines for updating/correcting the IMDS database (e.g., check suspense validation records in IMDS and coordinate to ensure the appropriate work center processes their suspense's daily). **(T-2).**

14.3.2.6.1. **(Added-AFMC)** When assigning these responsibilities, consideration must be given to the agency performing removal and replacement actions for the configured item, (i.e., the egress shop has the responsibility for CAD/PAD items, while flightline avionics has the responsibility for tracked LRUs, etc.). **(T-2).**

14.3.2.6.2. **(Added-AFMC)** Additionally, this guidance establishes procedures to ensure configuration data is maintained during routine maintenance actions. **(T-2).**

14.3.2.6.3. **(Added-AFMC)** All TO 00-25-107, Maintenance Assistance, requests must be certified at the appropriate center level and coordinated through HQ AFMC/A4MM. **(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. **(AFMC)** Command-directed temporary (T-1 and T-2) modifications are temporary, and there is no corresponding change to approved weapon system technical data. The approved modification instruction is the authority for both modification and maintenance as long as the modification is installed. Follow additional AFMC guidance in AFI 63-101/20-101 AFMC Sup, Integrated Life Cycle Management. **(T-2).**

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. **(AFMC)** MOF PS&D or equivalent has the overall responsibility on depot level TCTO management. MOF PS&D will coordinate with System Program Managers, Lead Commands, and AFMC/A4MM. **(T-2).**

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)**.

14.3.3.1.1.1. **(Added-AFMC)** AGE-related TCTOs will be managed by the AGE scheduler (if assigned). **(T-2).**

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)**.

14.3.3.2.5.2. 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)**.

14.3.3.2.8.3. **(Added-AFMC)** Until proper disposition is determined, MOF PS&D will record and maintain TCTO kits received for aircraft in waivered status for applicable TCTOs. Consult with TCTO single managers and test program managers for proper disposition of kitted TCTOs IAW TO 00-5-15. If unable to attain disposition of received kitted TCTOs, contact AFMC/A4MM for guidance. **(T-2).**

14.3.3.2.9. **(Added-AFMC)** MOF PS&D will manage the status reporting for command-directed assessments, modifications, and modification rescissions that require de-compliance work, as well as organizational, intermediate, and depot TCTOs. Command-directed modifications will be identified by a title, command data code, and rescission date. **(T-2).**

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)**.

14.3.3.3.2. 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)**.

14.3.3.3.2.3.2. 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)**.

14.3.3.3.2.8.1. 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.

14.3.3.3.2.16. **(Added-AFMC)** The owning scheduling agencies will ensure all automated reports are verified and corrected IAW TO 00-20-2. **(T-2).**

14.3.3.3.2.17. **(Added-AFMC)** Each month, MOF PS&D, EM section, and TCTO managing agencies receive a copy of the TCTO reconciliation listing and must annotate this listing with TCTO requirements. **(T-2).**

14.3.3.3.2.18. **(Added-AFMC)** MOF PS&D monitors completion of commodity

TCTOs and coordinates with performing work centers to ensure compliance within specified time limits. AMU PS&D establishes schedules for completion of installed commodity TCTOs with companion aircraft TCTOs. AMU PS&D schedules aircraft TCTOs or on-equipment munitions type TCTOs. The EM section schedules non-installed engine-related TCTOs and coordinates with AMU PS&D on installed engine related TCTOs. The munitions flight scheduler manages TCTOs for all air-launched surface attack guided missiles and associated support equipment, munitions, nuclear ordnance controlled material (NOCM) items, guidance kits, air intercept/aerial guided missiles and air intercept/aerial rockets. **(T-2).**

14.3.3.3.2.19. **(Added-AFMC)** TCTO Waiver Procedures. Commanders of AFMC organizations may request to temporarily waive compliance with routine, immediate and urgent action TCTOs (Organizational, Intermediate and Depot Level) only when TCTOs are applicable to components of a system or subsystem that are deactivated or removed from the aircraft because of RDT&E missions or compliance of the TCTO would adversely affect the test mission. Procedures are outlined in AFI 21-101, Aircraft and Equipment Maintenance Management. **(T-2).**

14.3.3.3.2.19.1. **(Added-AFMC)** Owning organization will initiate the waiver request for Organizational, Intermediate, and Depot Level TCTOs. **(T-2).**

14.3.3.3.2.19.2. **(Added-AFMC)** The request will include the affected TCTO number, T-2 modification number and specifically why the modification interferes with accomplishing the TCTO. **(T-2).**

14.3.3.3.2.19.3. **(Added-AFMC)** The owning organization will contact the TCTO single manager to ensure that noncompliance will not result in a safety of flight condition, and to see if there are any safeguards that should be taken until the TCTO can be complied with. Include the single manager's name and phone number on the waiver request. **(T-2).**

14.3.3.3.2.19.4. **(Added-AFMC)** Owning organization will coordinate the waiver request with the MXG/CC/CL or equivalent. **(T-2).**

14.3.3.3.2.19.5. **(Added-AFMC)** Once the request has been signed, forward a copy of the signed request to the TCTO monitor, command aircraft manager, and the TCTO single manager. Wing TCTO monitor will retain a record copy. **(T-2).**

14.3.3.3.2.20. **(Added-AFMC)** Noncompliance will be recorded on the AFTO Form 95, Significant Historical Data, and appropriate Maintenance Information System, as applicable IAW TO 00-20-1 and TO 00-5-15. The entry will indicate the reason and estimated date of compliance. **(T-2).**

14.3.3.3.2.20.1. **(Added-AFMC)** Conduct an annual review and validate all waived TCTOs using the original MXG/CC/CL or equivalent approved date or last review date. **(T-2).**

14.3.3.3.2.20.2. **(Added-AFMC)** Send a list of waived TCTOs to HQ AFMC/A4MM no later than the first workday of January and July or when a

significant change to a TCTO or waiver has occurred. **(T-2).**

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)**.

14.3.4.1.1. **(AFMC)** Schedulers will monitor -6 and associated TOs to ensure time change/inspection frequencies align and support the maintenance concept of the weapon system. Scheduled maintenance requirements that do not align with the established maintenance concept and affect aircraft availability will be identified and forwarded to the Product Improvement Working Group (PIWG) for consideration and/or resolution. **(T-2).**

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)**.

14.3.4.2.4.2.1. 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)**.

14.3.4.3.4.2. 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)**.

14.3.4.3.6.3.3. **(Added-AFMC)** Agencies requesting changes or updates to the need date of any cartridge actuated device/propellant actuated device (CAD/PAD) item must coordinate with AMU PS&D, MOF PS&D, and MASO in sufficient time to preclude emergency issue requests. Agencies requesting a change shall provide justification if need dates are changed by more than 30 days. No justification is necessary if changes are within 30 days, regardless of the quarter, or if the change is driven by OO-ALC. Issue requests for unforecasted or improperly forecasted items (except for replacement of inadvertently fired items or items found to be unserviceable) will be supported by a letter of justification signed by the MXG/CC/CL or designated representative. **(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. **(AFMC)** Prepare AFTO Form 223, Time Change Requirements Forecast for TO 00-20-9 and applicable -6 TO requirements. Forward AFTO Form 223 to the MOF PS&D section. MOF PS&D will review all AMU AFTO Form 223 and will forward a combined list of requirements to the appropriate supply agency. AMU PS&D is responsible for forecasting only those selected items specifically identified in TO 00-20-9, and the aircraft -6 TO. **(T-2).**

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)**.

14.3.5.3. Conduct an initial meeting upon arrival of a DFT to validate maintenance support requirements are in place. **(T-2)**.

14.3.5.3. **(AFMC)** Conduct an initial meeting upon arrival of a Depot Pre-Induction Inspection team (DPII). **(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)**.

14.3.6.1.1.3. **(Added-AFMC)** MOF PS&D personnel will:

14.3.6.1.1.3.1. **(Added-AFMC)** Ensure a minimum of 6 months of engine operating time are remaining on time change items (TCI) such as modules/compressors/turbines/gearboxes and other major components at time of transfer or according to established MOA. **(T-2).**

14.3.6.1.1.3.2. **(Added-AFMC)** Ensure all engines have a comprehensive borescope inspection accomplished unless a borescope was accomplished within the last 10 aircraft flying hours. **(T-2).**

14.3.6.1.1.3.3. **(Added-AFMC)** Verify TCIs have a minimum of 60 days or 50 hours remaining at time of transfer. **(T-2).**

14.3.6.1.1.3.4. **(Added-AFMC)** Verify all SI have at least 25 percent of the usable time remaining at time of transfer. **(T-2).**

14.3.6.1.1.3.5. **(Added-AFMC)** Include two copies of the IMDS pilot reported discrepancy (PRD) report (NFS1SO screen 179) for the previous 90-day period in the aircraft records file. **(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)**.

14.3.6.3.1. **(Added-AFMC)** MOF/AMU PS&D will generate two copies of the following products listed below and forward one copy of each to the gaining unit not later than (NLT) 30 days before the aircraft is scheduled to be transferred. Annotate changes in red on the remaining copy and include it with the aircraft record jacket file at time of transfer. **(T-2).**

14.3.6.3.1.1. **(Added-AFMC)** Automated records check (ARC). **(T-2).**

14.3.6.3.1.2. **(Added-AFMC)** Transfer of equipment (TRE) for aircraft and engine(s). **(T-2).**

14.3.6.3.1.3. **(Added-AFMC)** Significant history data (SHD) for aircraft and engine(s) CFT, W/B/T, and EFT. **(T-2).**

14.3.6.3.1.4. **(Added-AFMC)** AFTO Form 427, Aircraft Integral Fuel Tank Repair Historical Record, or AFTO Form 428, B-1B Aircraft Integral Fuel Tank Repair History Record. **(T-2).**

14.3.6.4. **(Added-AFMC)** During AGE Transfers. In addition to the inspection requirements in TO 00-20-1 and TO 35-1-4, QA may perform an assessment on each AGE item. The inspection includes a complete records check. When the capability exists, ensure all discrepancies are corrected prior to equipment transfer. Annotate in the equipment forms any discrepancy not corrected due to lack of parts. **(T-2).**

14.3.6.5. **(Added-AFMC)** Foreign country, other US Government agency, contractor owned, and/or sister service aircraft that will be flown/maintained by AFMC units will require a transfer inspection (reference T.O. 00-20-1 and 00-35D-54 Chapter 8). **(T-2).**

14.3.6.5.1. **(Added-AFMC)** Foreign country, other U.S. Government agencies, contractor-owned, and/or sister service loaner aircraft require a signed MOA, IAW AFI 16-402 and its AFMC Supplement, and AFI 21-103 and its AFMC Supplement. Also ensure the agreement contains the inspection requirements listed in **paragraph 14.3.6.1.1** – **paragraph 14.3.6.2.1**. Include any additional requirements the loaning organization affirms needed. **(T-2).**

14.3.6.6. **(Added-AFMC)** Loaner aircraft from another USAF unit require a signed MOA, IAW AFI 16-402 and its AFMC Supplement, and AFI 21-103 and its AFMC Supplement. Also ensure the agreement contains, the inspection requirements listed in **paragraph 14.3.6.1.1** – **paragraph 14.3.6.2.1** **(T-2).**

14.3.6.7. **(Added-AFMC)** In conjunction with MMA DBM, MOF PS&D personnel will process the aircraft transfer file from REMIS IAW AFCSM 21-576V2, Generic Configuration Status Accounting System (GCSAS), Software User Manual. **NOTE:** DBMs must process NFS6A0, screen 47 and 942, upon receipt of approved file from

REMIS. This must be accomplished prior to processing IMDS-CDB program NFS3W0 (actual configuration). **(T-2).**

14.3.6.8. **(Added-AFMC)** MOF PS&D personnel will request approved configuration tables for B-1, B-2, F-15 and F-16 units and actual configuration tables for all other MDSs using IMDS screen 334 (IMDS-CDB units only). **(T-2).**

14.3.6.9. **(Added-AFMC)** Ensure maintenance performs a complete aircraft Dash 21 series TO equipment inventory IAW AFI 21-103. **(T-2).**

14.3.6.10. **(Added-AFMC)** Complete an egress system CAD/PAD inspection on newly assigned aircraft and upon those returning from depot/PDM where the egress system has been work on by depot personnel. Inspection will include 100% MIS (IMDS/G081) verification, and all visible and disturbed systems. **(T-2).**

14.3.6.11. **(Added-AFMC)** An ADR must be completed prior to first flight after inspection. AMU PS&D or equivalent will make appropriate entries in the MIS aircraft automated history for all aircraft transfers detailing the date, current operating time, location, unit, and a general synopsis of worked performed or reason for transfer. **(T-2).**

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. (AFMC) [DEV] Engine Management (EM). The 412 MXS Propulsion Flight Business Unit will perform duties and responsibilities of Engine Management (EM) Section listed in AFI 21-101

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. **(AFMC)** Ensure engine SIs are loaded in IMDS or G081 to ensure availability of information to all maintenance activities. Units are authorized to use a separate AFTO Form 781K for each engine to document and monitor SIs and TCTOs. **(T-2).**

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**. **(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. **(AFMC)** [DEV] Within the 412 MXG, Engine Management will provide data to PS&D for incorporation of engine-installed items for the monthly TCI meeting chaired by PS&D.

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)**.

14.4.1.2.14. **(AFMC)** Perform and document annual reviews of both paper (if applicable/maintained) and automated engine records IAW TO 00-20-1. (Paper history can be maintained in conjunction with automated history). **(T-2).** In addition to TO 00-20-1 requirements, the following historical entries in MIS are required for serially tracked engines, modules, components and major assemblies:

14.4.1.2.14.1. **(Added-AFMC)** Engine removal. Conduct a detailed records review to ensure utilization was properly recorded against the engine and sub-components. A removal narrative is required for all removal actions, except for HOW MAL codes 866, 879, and 800. Use the correct Automated History Event indicator when processing MIS transactions to ensure removal times are posted to automated AFTO IMT 95. Ensure utilization is updated in the MIS before processing the engine removal. **(T-2).**

14.4.1.2.14.2. **(Added-AFMC)** SIs, occurrences, and all borescope inspections. Include total time (EOT, TACs, CCYs, etc.), findings (no defect noted, discrepancies noted, etc.) and other pertinent information. **(T-2).**

14.4.1.2.14.3. **(Added-AFMC)** Engine test cell rejects IAW TO 00-25-254-1. Include total time (EOT, TACs, CCYs, etc.), the reason for reject, any specific test cell data and a summary of work performed at the test cell. **(T-2).**

14.4.1.2.14.4. **(Added-AFMC)** FSE or modifications. Include total time (EOT, TACs, CCYs, etc.), a brief summary of modifications to include part number and serial number of modified items, and other pertinent information. **(T-2).**

14.4.1.2.14.5. **(Added-AFMC)** Shipping engine, module (uninstalled), and major assemblies (uninstalled). Include the reason for shipment, the destination, and other pertinent information.

14.4.1.2.14.6. **(Added-AFMC)** Receiving/acceptance inspections, transfers and shipment of engines to designated repair facilities for engine, module (uninstalled), and major assemblies (uninstalled). Include received or departing from unit, discrepancies, and other pertinent information. **(T-2).**

14.4.1.2.14.7. **(Added-AFMC)** Data corrections. Include corrections to erroneous entries and other pertinent information. **(T-2).**

14.4.1.2.14.8. **(Added-AFMC)** Work completed on engine, module (uninstalled), and major assemblies (uninstalled). Include total time (EOT, TACs, CCYs, etc.) and a brief maintenance summary to include major assemblies replaced, test cell run, engine preservation, annual engine records reviews and other pertinent information (e.g., FOD). **(T-2).**

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)**.

14.4.1.2.17. 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)**.

14.4.1.2.22.3. **(Added-AFMC)** Coordinate with the propulsion flight to ensure a copy of the latest work folder accompanies permanent and transferred engines. **(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:

14.4.1.3.1. 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)**.

14.4.1.3.5. 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)**.

14.4.1.3.6.2. **(Added-AFMC)** Maintain original copies of historical records at home station unless directed to transfer the engine to a gaining SRAN. **(T-2).**

14.4.1.3.6.3. **(Added-AFMC)** Perform engine manager duties for shipment and receipt of all assigned modules, related equipment, and shipping devices. **(T-2).**

14.4.1.3.7. Perform engine manager duties for shipment and receipt of all assigned engines. **(T-1)**.

14.4.1.3.8. 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)**.

14.4.1.3.13.5. **(Added-AFMC)** Use the MAJCOM's command code the aircraft is assigned to when processing engine installation in CEMS. Refer to TO 00-25-254-1 for guidance. **(T-2).**

14.4.1.3.13.6. **(Added-AFMC)** Develop a memorandum of agreement (MOA) IAW AFI 25-201, Support Agreements Procedures, with SRANs at pre-positioned sites to manage engines, and manage tenant spare engines. **(T-2).**

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. **(AFMC)** Refer to **Attachment 8**.

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.

14.5.1.1. **(AFMC)** Due to the non-standard nature of the test mission, typical daily, weekly, and monthly scheduling plans are not conducive to test mission requirements. Refer to **Attachment 8** for any additional maintenance and FHP planning cycle procedures. **(T-2).**

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)**.

14.5.1.4. **(AFMC)** See deviation at **paragraph 2.2.4.3**

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. **(AFMC)** See **Attachment 8** for additional information on planning for test unit scheduling.

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)**.

14.5.1.5.5. **(Added-AFMC)** The principal area of concern is the overall flying/ground test schedule. For mission accomplishment and improved efficiency, the following must be considered: maximize crew training on all flights, plan alternate missions when possible, ensure configurations and fuel loads are accurate, and establish launch and recovery patterns, and utilize historical attrition data. **(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.

14.5.2.1. 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)**.

14.5.2.1. **(AFMC)** See deviation at **paragraph 2.2.4.3**.

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)**.

14.5.2.3.1. **(AFMC)** Refer to **Attachment 8** **(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).

14.5.2.4.2. 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.

14.5.2.4.3. 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.

14.5.2.4.4. Inspection dock capability. **(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)**.

14.5.2.5. **(AFMC)** Final assessments of maintenance capabilities to support the operations "first look" projections will be sent to AFMC/A4/10, for awareness. If there are unresolved conflicts between operations and maintenance also send the assessment to AFMC/A3/6 and include any actions requested of MAJCOM **(T-2).**

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. **(AFMC)** Refer to **Attachment 8** for Annual Maintenance Planning Cycle procedures.

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)**.

14.5.3.2.2. 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:

14.5.3.3.1. 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)**.

14.5.3.3.7. **(AFMC)** Refer to **Attachment 8** for test organization limitations and planning factors.

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.

14.5.4.1. **(AFMC)** Refer to **Attachment 8** for Test Wing scheduling planning factors. **(T-2).**

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)**.

14.5.4.4.3.3. 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)**.

14.5.4.5.3. **(AFMC)** Refer to **Attachment 8** for annual flying plan additional requirements. **(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. **(AFMC)** Refer to **Attachment 8** for test scheduling flexibility. **(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. **(AFMC)** Refer to **Attachment 8** for maintenance scheduling effectiveness guidance. **(T-2).**

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)**.

14.5.5.2.13. **(AFMC)** Refer to **Attachment 8** for test operational needs and maintenance requirements for monthly scheduling.

14.5.5.2.14. **(Added-AFMC)** The monthly maintenance plan may be published separately or as an annex to the last weekly schedule of the preceding month. If published separately, distribute the plan NLT five calendar days before the beginning of the month. **(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. **(AFMC)** Refer to **Attachment 8** for Test Wing weekly scheduling guidance.

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)**.

14.5.6.2.12. **(AFMC)** Refer to **Attachment 8** for additional maintenance debrief considerations for sorties considered “flown as scheduled”.

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:

14.5.6.3.1. 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.

14.5.6.3.2. **(AFMC)** Refer to **Attachment 8** for test mission spare aircraft requirements. **(T-2)**

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. **(AFMC)** See **Attachment 8** for changes to the weekly schedule and Pen-and-Ink processes.

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. **(AFMC)** Refer to **Attachment 8** for specific AF 2407 requirements in test organizations. **(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)**.

14.5.6.3.9.2. **(AFMC)** Refer to **Attachment 8** under Changes to the Weekly Schedule. **(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. **(AFMC)** PS&D distributes the schedule to each appropriate activity and work center 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.

14.6. 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)**.

14.7. (Added-AFMC) Depot Pre-Induction Inspection (DPII). DPIIs are designed to determine the aircraft condition lead-time before induction to depot maintenance. Depot teams use the aircraft condition knowledge to establish a supportable Bill of Work (BOW) process for specific repair actions, parts, tools, and equipment; i.e., generating what needs to be done, with what, and ensuring it will be there when planned. DPIIs are synchronized with the HSC, Phase, or ISO prior to depot input on MDS directed by program office. DPII can be a physical inspection or a pre-induction analysis of records. The determination on who will accomplish the DPII (Depot Team, Contract Team, or Field Unit) will be negotiated during the Fleet Scheduling Conferences. At that time the Depot schedules are established with arrival dates of the aircraft at the respective Air Logistic Complexes. As part of the conference the DPII will be "scheduled" ~9 months prior to induction to Programmed Depot Maintenance (PDM). The MAJCOM/Unit Representative will declare their intent to accomplish "Organizationally" or request DFT/CFT support for the DPII. If none of these options are feasible at a particular time, any aircraft not receiving a DPII would still be inducted into PDM. **(T-2).**

14.7.1. **(Added-AFMC)** If a depot or contract team is accomplishing the PII, the PS&D Section Chief or designated representative will:

14.7.1.1. **(Added-AFMC)** Be provided a visit agenda by the DPII team lead. **(T-2).**

14.7.1.2. **(Added-AFMC)** Coordinate with PII team lead to present situational awareness in/out-brief to the MXG as required. **(T-2).**

14.7.1.3. **(Added-AFMC)** Coordinate/request tail number data pull queries from applicable MIS. **(T-2).**

14.7.1.4. **(Added-AFMC)** Act as liaison and refer DPII team to maintenance units for equipment support as required. (T-2).

14.7.1.5. **(Added-AFMC)** Maintain a file copy of the DPII report from DPII Team Lead. **(T-2).**

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.

15.5.4. 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. Owning 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)**.

15.6.2. 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**, 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)**.

15.7. 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)**.

15.7.1.2. 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.

15.7.1.6. 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)**.

15.7.1.8.1. 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 **Chapter 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, F*ire 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.

15.9. 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. Owning 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. Owning 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. Owning 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. Owning 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)**. Owning 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. Owning 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)**.

Chapter 16 (Added-AFMC)

412TH LOGISTICS TEST SQUADRON

16.1. (AFMC) Purpose: This Chapter outlines general Logistics Test and Evaluation (LT&E) activities. Provides continued emphasis and awareness of LT&E activities and the necessity for early LT&E involvement in Developmental Testing. Establishes standards and procedures for accomplishment of LT&E. Ensures compliance with statutory directives; Air Force environmental management, safety, security instructions; and TOs. Develops and provides training and tools to improve the LT&E process within the acquisition community. Assists in developing logistics test plans, data analysis plans, and technical reports. Assists local management in test execution during LT&E program involvement. Acts as a focal point with Engineering and Program Management for LT&E activities. Technical and Safety reviews independent of test program are required IAW AFI 99-103, Capabilities-Based Test and Evaluation. Plans, directs, and manages the development and acquisition of technical data in support of System Groups. Manages the Operating Locations' Central Technical Order Control Units. Provides staff assistance in the development and implementation of Technical Order Development policies and procedures.

16.2. (AFMC) Logistics Test and Evaluation. The test methodology, criteria, and tools for evaluating and analyzing the product support elements as they apply to a system under test. The objective is to influence system design as early as possible in the acquisition cycle, and verify that the logistics support being developed is capable of meeting peacetime and wartime employment objectives.

16.3. (AFMC) Test Support Manager. Responsibilities include, but are not limited to:.

16.3.1. **(AFMC)** Identify opportunities for LT&E, initiate the test process, and assign management responsibilities.

16.3.2. **(AFMC)** Manage the LT&E plan and report writing process.

16.3.3. **(AFMC)** Manage the creation, modification, and usage of data collection tools.

16.3.4. **(AFMC)** Manage test data software development, installation and training.

16.3.5. **(AFMC)** Identifies test support needed in training, facilities, special equipment, funding, and other logistics areas as required.

16.3.6. **(AFMC)** Provide long range and intermediate logistical planning and support for tests and programs.

16.3.7. **(AFMC)** Work with program engineers, test designers, developmental engineers, and program managers regarding plans for the test and evaluation workload.

16.4. (AFMC) Technical Order Development. Plan, direct and manage the development and acquisition of technical data in support of system group requirements.

16.5. (AFMC) Technical Order Control Unit Manager. Responsibilities include, but are not limited to:.

16.5.1. **(AFMC)** Assist Systems Technical Order Manager in development of technical manual contractual requirements.

16.5.2. **(AFMC)** Assist in establishing and supporting technical order control units.

16.5.3. **(AFMC)** Schedule/witness technical order certification/verification events.

16.5.4. **(AFMC)** Participates in contractor quality assurance (QA) processes.

16.5.5. **(AFMC)** Schedules/attends guidance conferences.

16.5.6. **(AFMC)** Chairs technical interchange meetings.

16.5.7. **(AFMC)** Supervises/performs in-process reviews.

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Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

(Added-AFMC) AFMAN 65-601V1, Budget Guidance and Technical Procedures, 26 Nov 2019

(Added-AFMC) AFTCI 63-101_20-101, Technical Order Writing Procedures, 2 Nov 2018

(Added-AFMC) DAFI 33-360, Publication and Forms Management, 1 Dec 2015

PUBLIC LAW 99-661, Sec 2638, National Defense Authorization Act for Fiscal Year 1987, 14 Nov 1986

PUBLIC LAW 108-136, Sec 802, Quality Control in Procurement of Aviation Critical Safety

Items and Related Services, 24 Nov 2003

FAA Order 8110.101A, Type Certification Procedures for Military Commercial

Derivative Aircraft, 25 Feb 2015

FAR Part 1.602-2(d), Part 42, Contract Administration and Audit Services, 16 Nov 2017

FAR Subpart 37.2, Advisory and Assistance Services, 16 May 2016

FAR, Subpart 45.3, Authorizing the Use and Rental of Government Property, 2 Apr 2012

Title 14 Code of Federal Regulation, Aeronautics and Space, 3 Jan 2019

Title 29 Code of Federal Regulation 1910.1200(f), Occupational Safety and Health Standards, Toxic and Hazardous Substances, 26 Mar 2012

DoDI 3002.02, Personnel Recovery and 406 MHZ Search and Rescue (SAR) Emergency

Beacons in the Department of Defense, 25 Apr 2016

DoDD 3150.02, DoD Nuclear Weapons Surety Program, 24 Apr 2013

DoD 7000.14-R, DoD Financial Management Regulation, Vol 12, Chapter 7, Financial liability for Government Property Lost, Damaged, Destroyed or Stolen, Mar 2019

DoDD 8100.02, Use of Commercial Wireless Devices, Services, and Technologies in the

Department of Defense (DoD) Global Information Grid (GIG), 14 Apr 2004

DoDI 8500.01, Cybersecurity, 14 Mar 2014

DoDM 5200.01 – V3, DoD Information Security Program; Protection of Classified Information, 24 Feb 2012

DoD 8570, Information Assurance Workforce Improvement Program, 19 Dec 2005

Engineering Technical Letter 02-15, Fire Protection Engineering Criteria - New

Aircraft Facilities, 3 Dec 2002

Engineering Technical Letter 04-2, Standard Airfield Pavement Marking Schemes, 19 Jul 2004

Unified Facilities Criteria 3-260-01, Airfield and Heliport Planning and Design, 4 Feb 2019

Unified Facilities Criteria 3-301-01, Structural Engineering, 1 Jun 2013

Unified Facilities Criteria 3-310-04, Seismic Design, 1 Jun 2013

Unified Facilities Criteria 3-501-01, Electrical Engineering, 6 Oct 2015

Unified Facilities Criteria 3-520-01, Interior Electrical Systems, 6 Oct 2015

Unified Facilities Criteria 3-530-01, Interior and Exterior Lighting Systems and Controls, 1 Apr 2015

Unified Facilities Criteria 3-535-01, Visual Air Navigation Facilities, 11 Apr 2017

Unified Facilities Criteria 3-550-01, Exterior Electrical Power Distribution, 1 Sep

2016

Unified Facilities Criteria 3-600-01, Fire Protection Engineering for Facilities, 8 Aug 2016

Unified Facilities Criteria 4-010-01, DoD Minimum Antiterrorism Standards for Buildings, 12 Dec 2018

Unified Facilities Guide Specifications 32-17-23, Pavement Markings, 26 Aug 2016

Unified Facilities Guide Specifications 3-580-01, Telecommunications Interior

Infrastructure Planning and Design, 1 Jun 2016

JP 1-02, Department of Defense Dictionary of Military and Associated Terms, 15 Feb 2016

NIST SP 800-53A Revision 4, Assessing Security and Privacy Controls in Federal

Information Systems and Organizations: Building Effective Security Assessment Plans, 18 Dec 2014

ODM 4140.01, DoD Supply Chain Materiel Management V1-V10, 10 Feb 2014

AFH 36-2618, The Enlisted Force Structure, 16 Oct 2018

(Added-AFMC) AFI 10-601, Operational Capability Requirements Development, 6 Nov 2013

(Added-AFMC) AFI 38-101, Manpower and Organization, 29 Aug 2019

(Added-AFMC) AFI 99-103 AFMC SUP, Capabilities-Based Test and Evaluation, 19 Jun 2020

(Added-AFMC) AFI 99-103, Capabilities-Based Test and Evaluation, 18 Nov 2019

AFPD 10-9, Lead Command Designation and Responsibilities for Weapon Systems, 8 Mar 2007

AFPD 21-1, Maintenance of Military Materiel, 1 Aug 2018

AFPD 24-2, Preparation and Movement of Air Force Materiel, 27 Apr 2013

AFPD 90-8, Environment, Safety, Occupational Health Management and Risk Management, 14 Mar 2017

AFECD, The Air Force Enlisted Classification Directory, 31 Oct

2018 AFSCI 62-100, Military Repair Station Program, 26 Jan 2018

AFGM 2018-17-02, Air Force Enterprise Information Technology Management, 31 May 2018

AFI 1-1, Air Force Standards, 7 Aug 2012

AFI 10-201, Force Readiness Reporting, 3 Mar 2016

AFI 10-401, Air Force Operations Planning and Execution, 7 Dec 2006

AFI 10-403, Deployment Planning and Execution, 20 Sep 2012

AFI 10-404, Base Support and Expeditionary (BAS&E) Site Planning, 27 Aug 2015

AFI 10-703, Electronic Warfare Integrated Reprogramming, 4 Jun 2014

AFI 10-2501, Air Force Emergency Management Program, 19 Apr 2016

AFI 11-202 V3, General Flight Rules, 10 Aug 2016

AFI 11-212, Munitions Requirements for Aircrew Training, 23 Aug 2013

AFI 11-218, Aircraft Operations and Movement on the Ground, 28 Oct 2011

AFI 11-235, Specialized Refueling Operations, 8 Apr 2015 AFI 11 401, Aviation Management, 20 Dec 2010

AFI 13-201, Airspace Management, 21 Aug 2012

AFI 13-213, Airfield Driving, 4 Feb 2020

AFI 16-402, Aerospace Vehicle Programming, Assignment, Distribution, Accounting, and Termination, 27 Sep 2019

AFI 16-1404, Air Force Information Security Program, 29 May 2015

AFI 17-130, Cybersecurity Program Management, 19 Mar 2018

AFI 17-210, Radio Management, 26 May 2016

AFI 17-220, Spectrum Management, 16 Mar 2017

AFI 20-106 IP, Management of Aviation Critical Safety Items, 25 Jan 2006

AFI 20-110, Nuclear Weapons-Related Materiel Management, 4 Jun 2018

AFI 20-117, Repair Network Management, 22 Aug 2018

AFI 21-103, Equipment Inventory, Status, and Utilization Reporting, 21 Jan 2020

AFMAN 21-113, Air Force Metrology and Calibration (AFMETCAL) Program Management, 6 Jan 2020

AFI 21-131, Joint Oil Analysis Program, 26 Mar 2014

AFI 21-203, Nuclear Accountability, 12 May 2016

AFI 23-101, Air Force Materiel Management, 12 Dec 2016

AFI 23-111, Management of Government Property in Possession of the Air Force, 19 Nov 2018

AFI 23-204, Organizational Fuel Tanks, 24 Jul 2012

AFI 24-302, Vehicle Management, 26 Jun 2012

AFI 24-602V2, Preparation and Movement of Air Force Cargo, 13 Jul 2017

AFI 25-101, Air Force War Reserve Materiel (WRM) Guidance and Procedures, 14 Jan 2015

AFI 25-201, Intra-Service, Intra-Agency, and Inter-Agency Support Agreements Procedures, 18 Oct 2013

AFI 31-101, Integrated Defense (FOUO), 5 Jul 2017

AFI 32-1020, Planning and Programming Built Infrastructure Projects, 18 Dec 2019

AFI 32-1021, Planning and Programming Military Construction (MILCON) Projects, 25 Feb 2016

AFI 32-1062, Electric Systems, Power Plants and Generators, 15 Jan 2015

AFI 32-1065, Grounding Systems, 14 Jun 2017

AFI 32 7001, Environmental Management, 23 Aug 2019

AFI 32-9005, Real Property Accountability and Reporting, 16 Apr 2019

AFI 33-322, Records Management and Information Governance Program, 23 Mar 2020

AFI 33-360, Publication and Forms Management, 1 Dec 2015

AFI 34-101, Air Force Morale, Welfare, and Recreation (MWR) Programs and Use Eligibility, 16 Apr 2019

AFI 36-128, Pay Settings and Allowances, 17 May 2019

AFI 36-202, Civilian Mobility, 19 Apr 2019

AFI 36-2101, Classifying Military Personnel (Officer and Enlisted), 25 Jun 2013

AFI 36-2650, Maintenance Training, 2 May 2019

AFI 36-2651, Air Force Training Program, 3 Jan 2019

AFI 36-3017, Assignment Incentive Pay and Special Duty Assignment Pay, 20 Sep 2018

AFI 36-3802, Force Support Readiness Programs, 9 Jan 2019

AFI 36-704, Discipline and Adverse Action of Civilian Employees, 3 Jul 2018

AFI 38-101, Air Force Organization, 31 Jan 2017

AFI 48-109, Electromagnetic Field Radiation Occupational & Environmental Health Program, 1 Aug 14

AFI 48-127, Occupational Noise and Hearing Conservation Program, 26 Feb 2016

AFI 48-137, Respiratory Protection Program, 12 Sep 2018

AFI 62-601, USAF Airworthiness, 11 Jun 2010

AFI 63-101/20-101, Integrated Life Cycle Management, 30 Jun 2020

AFI 63-104, The SEEK EAGLE Program, 21 Jan 2005

AFI 63-125, Nuclear Certification Program, 24 Jul 2017

AFI 63-138, Acquisition of Services, 11 May 2017

AFI 63-140, Aircraft Structural Integrity Program, 7 Apr 2014

AFI 65-601V1, Budget Guidance and Procedures, 24 Oct 2018

AFI 65-601V2, Budget Management for Operations, 14 Jul 2017
AFI 84-103, U.S. Air Force Heritage Program, 22 May 2015
AFI 90-802, Risk Management, 1 Apr 2019
AFI 90-821, Hazard Communication (HAZCOM) Program, 13 May 2019
AFI 90-1001, Planning Total Force Associations (TFAs), 9 Jan 2017
AFI 91 101, Air Force Nuclear Weapons Surety Program, 15 Aug 2014
AFI 91-103, Air Force Nuclear Safety Design Certification Program, 20 Sep 2017
AFI 91-104, Nuclear Surety Tamper Control and Detection Programs, 10 Jul 2017
AFI 91-107, Design, Evaluation, Troubleshooting, and Maintenance Criteria for Nuclear Weapon Systems, 20 Jul 2017
AFI 91-202, The US Air Force Mishap Prevention Program, 25 Jun 2015
AFI 91-204, Safety Investigation and Hazard Reporting, 27 Apr 2018
AFI 91-205, Non-Nuclear Munitions Safety Board, 23 May 2018
AFCSM 21-556 V2, Intro to IMDS CDB, 1 Aug 2019
AFCSM 21-558, Comprehensive Engine Management System, 1 Jun 2019
AFCSM 21-564 V2, Status and Inventory Reporting Software User Manual, 25 Feb 2019
AFCSM 21-574 V2, Automated Debriefing, 25 Feb 2019
AFPAM 90-803, Risk Management Guidelines and Tools, 11 Feb 2013
AFMAN 10-206, Operational Reporting, 10 Jun 2018
AFMAN 10-207, Command Posts, 11 Apr 2018
AFMAN 10-409-O, Support to Adaptive Planning, 19 Apr 2016
AFMAN 10-2503, Operations in a Chemical, Biological, Radiological, Nuclear, and High-Yield Explosive (CBRNE) Environment, 14 May 2019
AFMAN 16-1405, Air Force Personnel Security Program, 1 Aug 2018
AFMAN 17-1203, Information Technology (IT) Asset Management (ITAM), 18 May 2018
AFMAN 17-1301, Computer Security (COMPUSEC), 10 Feb 2017
AFMAN 17-1302-O, Communications Security (COMSEC) Operations, 3 Feb 2017
AFMAN 20-116, Propulsion Life Cycle Management for Aerial Vehicles, 28 Aug 2017
AFMAN 21-111, Advanced Maintenance and Munitions Operations School, 9 Mar 2019
AFMAN 21-200, Munitions and Missile Maintenance Management, 9 Aug 2018
AFMAN 21-201, Munitions Management, 26 Mar 2019
AFMAN 21-204, Nuclear Weapons Maintenance, 13Aug 2019

AFMAN 23-122, Materiel Management Procedures, 14 Dec 2016

AFMAN 24-204, Preparing Hazardous Materials for Military Air Shipments, 13 Jul 2017

AFMAN 32-1040, Civil Engineering Airfield Infrastructure Systems, 23 Aug 2019

AFMAN 32-1084, Standard Facility Requirements, 15 Jan 2020

AFMAN 33-363 Management of Records, 1 Mar 2008

AFMAN 32-7002, Environmental Compliance and Pollution Prevention, 4 Feb 2020

AFMAN 36-2664, Personnel Assessment Program, 16 May 2019

AFMAN 48-125, Personnel Ionizing Radiation Dosimetry, 9 Jan 2019

AFMAN 91-201, Explosives Safety Standards, 21 Mar 2017

AFMAN 91-203, Air Force Occupational Safety, Fire, and Health Standards, 11 Dec 2018

AFMAN 91-221, Weapons Safety Investigations and Reports, 21 Aug 2015

AFMAN 91-223, Aviation Safety Investigations and Reports, 14 Sep 2018

AFH 23-123V1, Materiel Management Reference Information, 29 Sep 2017

AFH 23-123V2PT2, Integrated Logistics System-Supply (ILS-S), Standard Base Supply System Operations, 18 Dec 2017

AFH 23-123V3, Air Force Equipment Management, 29 Sep 2017

AFTTP 3-4, Airman's Manual, 11 Jan 2019

AFTTP 3-4.21V1, Aircraft Maintenance, 26 Nov 2018

MIL-STD-1760E, DoD Interface Standard, Aircraft/Store Electrical Interconnection System, 24 Oct 2007

MIL-STD-3007, Department of Defense Standard Practice for Unified Facilities Criteria, 13 Dec 2006

MIL-HDBK-516C, DoD Handbook, Airworthiness Certification Criteria, 12 Dec 2014

TO 00-5-1, AF Technical Order System, 15 Feb 2019

TO 00-20-5-1-3, Instructions for Jet Engine Parts Tracking of OC-ALC/LPA Managed Engines, 1 Mar 2007

TO 00-5-15, Air Force Time Compliance Technical Order Process, 29 Sep 2017

TO 00-5-16, Computer Program Identification Number (CPIN) Management, 1 Apr 2019

TO 00-20-1, Aerospace Equipment Maintenance Inspection, Documentation, Policies, and Procedures, 6 Sep 2019

TO 00-20-2, Maintenance Data Documentation, 5 Sep 2019

TO 00-20-3, Maintenance Processing of Reparable Property and the Repair Cycle Asset Control System, 10 Jul 2017

TO 00-20-9, Forecasting Replacement Requirements for Selected Calendar and Hourly Time Change Items, 15 Jan 2014

TO 00-25-4, Depot Maintenance of Aerospace Vehicles and Training Equipment, 15 Jan 2018

TO 00-20-14, AF Metrology and Calibration Program, 30 Sep 2017

TO 00-25-107, Maintenance Assistance, 1 Oct 2015

TO 00-25-113, Conservation and Segregation of Critical Alloy and Precious Metal Bearing Parts and Scrap, 15 Sep 2013

TO 00-25-172, Ground Servicing of Aircraft and Static Grounding/Bonding, 9 Aug 2013

TO 00-25-172CL-4, Checklist -- Aircraft Fuel Servicing with R-9, R-11 and Commercial Fuel Servicing Trucks and with Fuels Operational Readiness Capability Equipment (FORCE), 16 Mar 2018

TO 00-25-195, AF Technical Order System Source, Maintenance and Recoverability Coding of Air Force Weapons Systems, and Equipment, 1 Oct 2012

TO 00-25-240, Uniform Repair/Replacement Criteria for USAF Support Equipment (SE), 1 Aug 2003

TO 00-25-252, Intermediate Maintenance and Depot Level Maintenance Instructions-

Aeronautical Welding, 1 Oct 2016

TO 00-25-254-1, Comprehensive Engine Management System (CEMS) (D042) Engine Status, Configuration, and TCTO Reporting Procedures, 15 Aug 2018

TO 00-33A-1001, General Cyberspace Support Activities Management Procedures and Practice Requirements, 2 Jul 2018

TO 00-35D-54, USAF Deficiency Reporting, Investigation and Resolution, 1 Sep 2015

TO 00-80C-1, Crash, Damaged, Disabled Aircraft Recovery Manual, 20 Mar 2015

TO 00-85-20, Engine Shipping Instructions, 1 Feb 2018

TO 00-105E-9, Aerospace Emergency Rescue and Mishap Response Information, 16 Apr 2018

TO 00-110A-1 Guidelines for Identification and Handling of Aircraft and Material Contaminated with Radioactive Debris, 15 Aug 2015

TO 1-1-3, Inspection and Repair of Aircraft Integral Tanks and Fuel Cells, 1 Feb 2019

TO 1-1-8, Application and Removal of Organic Coatings, Aerospace and Non-Aerospace Equipment, 12 Jan 2010

TO 1-1B-50, Basic Technical Order for USAF Aircraft Weight and Balance, 1 Aug 2015

TO 1-1H-39, Aircraft Battle Damage Repair General Technical Manual, 1 Dec 2018

TO 1-1-300, Maintenance Operational Checks and Check Flights, 15 Mar 2012

TO 1-1-691, Cleaning and Corrosion Prevention and Control, Aerospace and Non-

Aerospace Equipment, 29 Sep 2018

TO 1-1-700, Corrosion Prevention and Control for Ground Communication, Electronics and

Meteorological (C-E-M) Equipment and its Protective Shelters, Vans, and Radomes, 31 Jan 2017

TO 2-1-18, Aircraft Engine Operating Limits and Factors, 1 May 2018

TO 2J-1-18, Preparation for Shipment and Storage of Gas Turbine Engines, 15 Oct 2018

TO 4W-1-61, Maintenance and Overhaul Instruction - All Types Aircraft Wheels, 20 Aug 2018

TO 11A-1-33, Handling and Maintenance of Explosives-Loaded Aircraft, 25 Feb 2019

TO 11A-1-10, Air Force Munitions Surveillance Program and Serviceability Procedures, 21 Jul 2014

TO 11A-1-60, General Instructions Inspection of Reusable Munitions Containers and

Scrap Material Generated from Items Exposed to or Containing Explosives, 15 May 2014

TO 11A-1-63, Munitions Assembly Procedures—Inspection and Assembly of Conventional Munitions, 28 Aug 2018

TO 11C15-1-3, Chemical Warfare Decontamination Detection and Disposal of Decontamination Agents, 28 Feb 04

TO 11D1-3-8-1, Decontamination Apparatus, Power Driven, Portable Type A/E32U-

8, (Engineered Air), 15 May 2013

TO 11N-3150-8-1, USAF DIAMONDS Policy and Procedures, 31 May 2013

TO 31R2-1-251, General Instructions Transmission of False Distress Signals on

Emergency Frequencies, 11 Sept 05

TO 15X-1-102, General Care and Cleaning of Oxygen Gauges and Oxygen Device Related Test Equipment, 22 Jul 2017

TO 31S5-4-ETOOL-1, eTool Set Up and Management, 18 Jan 2019

TO 32-1-101, Use and Care of Hand Tools and Measuring Tools, 26 Apr 2017

TO 33-1-37-1, Joint Oil Analysis Program Laboratory Manual, Volume I, 15 Sep 2014

TO 33-1-37-2, Joint Oil Analysis Program Laboratory Manual, Volume II, 01 Jun 2015

TO 33-1-37-3, Joint Oil Analysis Program Laboratory Manual, Volume III, 30 Apr 2018

TO 33-1-37-4, Joint Analysis Program Manual, Volume IV, 30 Aug 2013

TO 33-1-38, Cybersecurity for Automatic Test Systems and Automatic Test Equipment in FSC, 28 Apr 2018

TO 33B-1-1, Nondestructive Inspection Methods Basic Theory, 15 Oct 2016

TO 33B-1-2, Nondestructive Inspection General Procedures and Process Controls, 1 Mar 2018

TO 33K-1-100-2-CD-1, TMDE Calibration Interval Technical Order and Work Unit

Code Reference Guide, 30 Nov 2018

TO 34-1-3, Machinery and Shop Equipment, 21 Dec 2017

TO 35-1-3, Corrosion Prevention and Control, Cleaning, Painting, and Marking of USAF Support Equipment, 20 Dec 2018

TO 35-1-4, Processing and Inspection of Support Equipment for Storage and Shipment, 8 Jun 2013

TO 35-1-24, Air Force Economic Repair/Replacement Criteria for Selected Warner Robins Logistics Complex (ALC) Managed Support Equipment (SE), 27 Oct 2017

TO 35D-1-2, Technical Manual –Munitions Materiel Handling Equipment Miscellaneous and Locally Manufactured (Munitions Related), 7 Sep 2018

TO 35D-2-2, Munitions Materiel Handling Equipment Miscellaneous and Locally Manufactured Armament Related, 7 Sep 2018

TO 37A9-3-11-lCL-l, Checklist, Operational and Organizational Maintenance Hot Refueling and Hot Integrated Combat Turn-Around Procedures, Aircraft Fuel Servicing Unit Type GRU 17/E Pantograph PACAF Type IV Hydrant Servicing, 15 Apr 2017

TO 42B1-1-18, General Procedures, Handling of H-70 (Hydrazine–Water Fuel), 18 Nov 2014
TO 44B-1-15, General Instructions - Jet Engine Anti-friction Bearing Handling, Removal, Cleaning, Inspecting, and Installation at Jet Engine Base Maintenance Facilities, 28 Jul 2018

TO 42E1-1-1, Aviation Hose and Tube Manual, 1 Jul 2013

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

AF IMT 2408, Generation Maintenance Plan

AF IMT 2409, Generation Sequence Action Schedule

Adopted Forms

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

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

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

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

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

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

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

DBM—Database Manager

DCA—Design Control Activity

DCC—Dedicated Crew Chief

DCMA—Defense Contract Management Agency

DDR—Daily Demand Rate

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

FAR—Federal Acquisition Regulation

FCC—Flying Crew Chief

FCF—Functional Check Flight

FHP—Flying Hour Program

FO—Foreign Object

FOA—Field Operating Unit

FOD—Foreign Object Damage

FOM—Facilitate Other Maintenance

FOUO—For Official Use Only

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

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

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

MAJCOM—Major Command

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

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.

OFP—Operations Flight Program

OG—Operations Group

G/CC—Operations Group Commander

OI—Operating Instruction

OIC—Officer in Charge

OJT—On-the-Job Training

OPLAN—Operational Plan

OPR—Office of Primary Responsibility

ORE—Operational Readiness Exercises

OS—Operational Squadron

OSS—Operations Support Squadron

OSS&E—Operational Safety Suitability and Effectiveness

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

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

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

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

SUPT—Superintendent (Enlisted Duties)

TA—Transient Alert

TAA—Training Aid Aircraft

TAC—Total Accumulated Cycles

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

TTML—Test/Training Munitions List

TTP—Tactics, Techniques & Procedures

UCML—Unit Committed Munitions List

UCR—Unsatisfactory Condition Report

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

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 TCMax®)

WWM—Wing Weapons Manager

WX—Weather

WUC—Work Unit Code

Terms

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

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 AFPD 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).

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.

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.

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.

(Added-AFMC) Ready Line—Designated parking area for AGE that is ready for use. Prior to parking AGE on the ready line a service inspection shall be performed and annotated in Part II of the AFTO Form 244. Ready lines are established by the AGE Flight Chief (or equivalent) as needed, in coordination with OSS's Airfield Operations Flight. The terms READY LINE and SUB-POOL are not synonymous. See SUB-POOL for definition.

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.

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.

(Added-AFMC) Sub-Pool—Designated, temporary holding area used as a pick-up/drop-off point for AGE. AGE is not required to be fully serviced when parked in a sub-pool. Additionally, a current service inspection is not required to be signed off in Part II of the AFTO Form 244. GP/CC may require an operator inspection to be annotated in Part II of the AFTO Form 244 prior to placement in a sub-pool. AGE Flight is responsible for monitoring sub-pools at least once per standard length shift (each work center that co-utilizes sub-pools is responsible for monitoring their own equipment). Sub-pools are established by the AGE Flight Chief (or equivalent) as needed, in coordination with OSS's Airfield Operations Flight. The terms SUB-POOL and READY LINE are not synonymous. See READY LINE for definition.

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.

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.

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.

(Added-AFMC) Temporary Modifications—Temporary modifications change the configuration of an item to enable short-term operational mission accomplishment, or to conduct T&E of new and modified equipment. Temporary modification proposals are validated, reviewed, approved as described in AFI 10-601, Operational Capability Requirements Development, and AFI 63-101/20-101. Refer to AFMAN 65-601, Vol. 1, Budget Guidance and Technical Procedures, for AF policy on funding. There are two kinds of temporary modifications: Temporary-1 (T-1) and Temporary-2 (T-2).

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.

Attachment 2

AIRCRAFT COMMANDER FEEDBACK ON FCC

Figure A2.1. Aircraft Commander Feedback on FCC.

MEMORANDUM FOR <Unit Designation/Office Symbol> *Date*

<Street>

<Base, State, and Zip Code>

FROM: <Aircraft Commander>

<Street>

<Base, State, and Zip Code>

SUBJECT: Aircraft Commander Feedback of the Flying Crew Chief (FCC) Was the FCC knowledgeable of the aircraft and the systems?

a - Extremely knowledgeable c - Lacks knowledge b - Sufficient knowledge d - Not observed

Did the FCC know the status of PMC and NMC discrepancies?

a - Always c - Rarely

b - Most of the time d - Never

Did the FCC perform duties willingly and enthusiastically?

a - Always c - Never b - Sometimes d - Not Observed

What type of working relationship did the FCC have with the aircrew?

a - Outstanding c - Fair

b - Good d - Poor

Rate the overall maintenance support provided by the FCC:

a - Outstanding c - Fair

b - Good d - Poor

This FCC was:

a - An asset to the FCC program c - Just getting by b - A hard worker, but needs more experience d - Detriment to the FCC program Remarks:

POC is <FCC Program Manager's Name, office symbol, duty phone number>.<signed> Aircraft Commander

Note*:* Please fold and return to the squadron FCC Program Manager upon return to home station.

Attachment 3

QUARTERLY FCC REPORT FORMAT

Figure A3.1. Quarterly FCC Report Format

MEMORANDUM FOR MAJCOM/A4L *Date*

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 *Date*

FROM: <Unit designation/Office Symbol>

<Street>

<Base and Zip Code>

SUBJECT:<state fiscal year (FY20)> Annual 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 5

FCC SDAP REQUEST

Figure A5.1. FCC SDAP Request

MEMORANDUM FOR MAJCOM/A4L or DOM *Date*

FROM: <Unit Designation/Office Symbol>

<Street>

<Base and Zip Code>

SUBJECT: Flying Crew Chief (FCC) SDAP Positions <Increase/Decrease> Request

In accordance with <unit designations> requests <increase or decrease> of <state quantity of positions>.

Provide brief justification; include comments about force structure changes, additional mission requirements. 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 *Date*

FROM:<Unit Designation/Office Symbol> <Street> <Base and Zip Code>

SUBJECT: <Foreign Object Report>. FOD program report number (unit, year, and month, followed by sequence number -- example, 301FW-060501).

Type of report: Initial/Formal Update/Final FOD Report Date and Time of Incident:

Unit and Base of Incident:

Origin of Sortie:

When discovered (Preflight, Postflight, In-Coming, 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-AFMC)

TEST WING MAINTENANCE AND FLYING SCHEDULING PROCEDURES

A8.1. (AFMC) General Responsibility and Policy.

A8.1.1. **(AFMC)** Goals and Objectives. The goal of this attachment is to provide the most effective guidance for unit planning and execution of operations flying and maintenance scheduling activities in support of the AFMC flying hour program. The principal area of concern is the overall flying/ground test schedule execution balanced against the health of the fleet. For mission accomplishment and improved efficiency, the following must be considered: maximize crew training on all flights, plan alternate missions when possible, ensure configurations and fuel loads are accurate, and establish launch and recovery patterns, and utilize historical attrition data. The objectives of this guidance are to:

A8.1.1.1. **(AFMC)** Provide methods for units to develop and improve their flying and maintenance scheduling programs.

A8.1.1.2. **(AFMC)** Provide audit methods so that units may analyze their effectiveness.

A8.1.1.3. **(AFMC)** Provide methods for local commanders, and the MAJCOM, to assess effectiveness of unit performance in schedule planning and execution.

A8.1.2. **(AFMC)** Guidance. These instructions provide procedures and audit methods for units to develop their flying and maintenance scheduling program and analyze their effectiveness. It is intended to be a local tool for operations and maintenance activities to use in support of their programs. Reviewing flying and maintenance schedule deviations, and the reasons for those deviations, allows wing commanders (WG/CC) and their staffs/subordinates to evaluate unit flying program and scheduling procedures for efficiencies and effectiveness. Higher Headquarters (HHQ) management attention is directed to those areas beyond a unit's control.

A8.1.3. **(AFMC)** Applicability. This publication is applicable to all AFMC Centers and activities listed in the PURPOSE section, possessing, flying or supporting aircraft, to include contractor maintained operations.

A8.1.4. **(AFMC)** Standardization. Wings will develop a maintenance and operations coordinated supplement to this instruction standardizing attrition rate, spare factors, maximum aircraft commitment rate, and scheduling practices for the wing and each assigned mission design series (MDS). This local supplement will be reviewed and updated annually. Minimum topics should include quiet hour policies, cross country takeoffs and returns, minimum turn times, crew ready times, etc. Supplements will include local schedule input and publishing deadlines along with any wing unique requirements. (**T-2).**

A8.1.5. **(AFMC)** Reporting Requirements. Flying scheduling deviation recording and reporting is required for all AFTC and AFLCMC possessed aircraft while status, inventory, and utilization reporting is required for all AFMC units and activities possessing or supporting AFMC possessed aircraft to include those possessed for the AFMC mission by contractors.

A8.1.5.1. **(AFMC)** Reporting procedures are contained in **Chapter 2**. Operations, maintenance, test agencies, and others share in the responsibility for monitoring and controlling deviations. Schedule deviations altering the planned use of resources generally

have a domino effect that upsets future and near-term events. Every effort must be made to reduce or eliminate deviations.

A8.1.5.2. **(AFMC)** Units will use approved MIS reporting procedures. This includes contractor-maintained, AFMC assigned and possessed aircraft. In the event that the contractor is not obligated to utilize the MIS, the MXG commander or equivalent is responsible to ensure all reporting procedures are complied with. **(T-2).**

A8.1.6. **(AFMC)** First Look. The maintenance planning cycle ensures proper and effective use of maintenance resources. Maintenance schedulers use both maintenance and operational long-range planning to assess maintenance's ability to support the wing flying program, Programmed Depot Maintenance (PDM) schedules, Time Compliance Technical Order programs, scheduled inspections and exercises. PS&D, or equivalent, will coordinate with AMUs in performing the long range planning function and use local products and MIS products such as time distribution index (TDI), planning requirements (PRA), and workable TCTO report (WTR), and modification schedules to determine long range maintenance requirements. PS&D will forecast and monitor requirements for the planned fiscal year. Maintenance requirements are included in long-range plans to project aircraft availability.

A8.1.6.1. **(AFMC)** Every year, no later than (NLT) 15 March, MOF PS&D will request Maintenance Management Analysis (MMA) accomplish airframe, personnel, and facility capabilities for each AMU based on historical data to start the First Look requirements. The capabilities are due back to MOF PS&D NLT the last workday of March.

A8.1.6.2. **(AFMC)** MOF PS&D will provide copies of the capability study to each Operations Squadron (OS) operations scheduling and maintenance supervision. AMU PS&D will refine the initial MMA airframe capability by applying projected maintenance requirements to the historical data. AMU PS&D will provide first look maintenance capability projections in a monthly format to OS operations officer, AMU OIC/ NCOIC, AMXS/CC/MOO, and MOF PS&D by 15 May. Projections include known operational and test requirements, an assessment of maintenance's ability to support the monthly contract requirements, and an overall assessment of the unit's maintenance capability to meet the annual flying hour program. **(T-2).**

A8.1.6.3. **(AFMC)** MOF PS&D will gather the AMXS and OS coordinated operational capability and forward them to OSS Operations Flight scheduling section for consolidation into a comprehensive package that includes a breakdown of the following items by OS/AMU: **(T-2).**

A8.1.6.3.1. **(AFMC)** Sorties contracted/scheduled per day. Compute the number of sorties (hours) required per operations and maintenance (O&M) day to meet the operational and test requirement using the formula: Number of sorties (hours) required divided by number of O&M days in a given month. Sorties (hours) per day will be computed by month for each operational squadron/AMU.

A8.1.6.3.2. **(AFMC)** Monthly scheduled sorties. Compute monthly scheduled sortie requirements using the formula: (Number of sorties or hours required) divided by (1 minus the attrition factor). Example: 1,000 sorties or hours required divided by (1 minus 0.15) equals 1,177 sorties or hours to schedule. Remember to round any part up to the next whole sortie or hour.

A8.1.6.3.3. **(AFMC)** Inspection dock capabilities. Compute the number of Phases/ISO inspections to be accomplished in order to meet operational and test requirements for each AMU, by month, for the entire fiscal year. Compute dock capability using the formula (number of O&M days) divided by (number of phase days) times (inspection cycle). Inspection dock capabilities is provided at the wing level and provided by the squadron performing inspections.

A8.1.6.3.4. **(AFMC)** Sortie UTE Rates. Compute UTE rates by month for the entire fiscal year for contracted (required) sorties and scheduled sorties using formula: (number of sorties per month) divided by (number of PAI aircraft).

A8.1.6.4. **(AFMC)** Once compiled, the annual maintenance plan will be presented to the OG and MXG CCs (or equivalents) before being presented to the WG/CC for final approval. MOF PS&D will review the comprehensive package submitted to OSS Operations Flight scheduling section and provide feedback to AMU PS&D and MXG/CC if required. Final assessments of maintenance capabilities to support the operations ―first look‖ projections are sent to AFMC/A4/10. **(T-2).**

A8.1.6.4.1. **(AFMC)** Final assessments of maintenance capabilities to support the operations "first look" projections will be sent to AFMC A4 NLT 30 June.

A8.1.7. **(AFMC)** Flying Hour Allocation/Annual Maintenance Planning Cycle.

A8.1.7.1. **(AFMC)** Flying Hour Allocation. Using funding guidance from the Financial Management organization in the chain of command, PS&D and OS/OSS scheduling provide affected work centers the following planning factors NLT 20 August each year, or within 10 working days after receipt of the flying hour allocations:

A8.1.7.1.1. **(AFMC)** Updated capabilities computed by MMA, provided by PS&D.

A8.1.7.1.2. **(AFMC)** Required flying hours and estimated sorties and missions, provided by OSS, in monthly increments.

A8.1.7.1.3. **(AFMC)** Flying days in each month, provided by OSS.

A8.1.7.1.4. **(AFMC)** Aircraft and aircrew alert requirements, provided by OSS.

A8.1.7.1.5. **(AFMC)** Known and projected TDY and special mission requirements, provided by OSS.

A8.1.7.1.6. **(AFMC)** PDM schedule, provided by PS&D.

A8.1.7.1.7. **(AFMC)** Configuration and munitions requirements, provided by OSS.

A8.1.7.1.8. **(AFMC)** Special mission and test requirements.

A8.1.7.2. **(AFMC)** NLT 1 September, or within 10 working days after receipt of the planning factors, AMU and AMXS maintenance supervision provides PS&D, SQ/CCs, and OSS operations scheduling the following planning factors:

A8.1.7.2.1. **(AFMC)** Estimated number of aircraft available by month, taking into consideration aircraft required for training.

A8.1.7.2.2. **(AFMC)** A projected airframe capability statement.

A8.1.7.2.3. **(AFMC)** Forecasted personnel capability, taking into consideration required annual training for maintenance personnel. (Not applicable to contract maintenance organizations).

A8.1.7.2.4. **(AFMC)** The number of supportable sorties for each month.

A8.1.7.2.5. **(AFMC)** An estimated monthly attrition factor provided by MMA. This factor combines operations weather and materiel (maintenance and supply) factors. Maintenance is responsible for adding the attrition factor to operational requirements. AMUs supporting multiple flying squadrons will not utilize a joint, or combined, attrition rate.

A8.1.7.2.6. **(AFMC)** A recommended block scheduling pattern.

A8.1.7.2.7. **(AFMC)** A statement of limitations.

A8.1.7.3. **(AFMC)** The OSS Operations Flight commander consolidates unit inputs into a final package and coordinates a combined OG and MXG CC concurrence meeting before final approval from the WG/CC. MOF PS&D will review the package and provide feedback to AMU PS&D and MXG/CC, if required. The final approved package constitutes the wing annual FHP. A copy of the approved annual plan and changes thereafter will be forwarded to MOF PS&D and the Analysis section. Units will submit the annual FHP (contract) to AFMC/A3F and AFMC/A4M around the 15th of September for awareness. **(T-2).**

A8.1.7.4. **(AFMC)** The annual plan will show the number of flying hours projected to fly by aircraft MDS. AFTC flying hours will be subdivided into planned test/test support (Program Element Code (PEC) 65807F), test pilot school (PEC 65807F), and an all other category (i.e. proficiency, maintenance, ferry, etc. (by applicable PEC)). **(T-2).**

A8.1.7.5. **(AFMC)** Maintenance requirements are included in long-range plans to project aircraft availability. Develop long-range maintenance plans in as much detail as possible. All maintenance requirements will be consolidated into a single long-range plan using AF Form 2401, Equipment Utilization and Maintenance Schedule, or computer generated form. As a minimum, the long-range plan shows the current month and the next 2 months known maintenance requirements. As a minimum, include the next due date for all calendar inspections, calendar time change items, TCTOs in workable status, PDM schedules, and at least the next 3 aircraft ISO/PE/Phase inspections. Other maintenance requirements such as engine changes, hourly requirements, acceptance/transfer inspections, training and cannibalization aircraft will be posted as they become known or planned. Add Alternate Mission Equipment (AME) inspections to the long-range 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).**

A8.1.7.6. **(AFMC)** Maintenance planning includes predictable maintenance factors based on historical data and other staff inputs (e.g., flow times for maintenance, turnaround times, and parts replacement schedules). **(T-2).**

A8.1.7.7. **(AFMC)** Include all known operational events (e.g., exercises, deployments, and development tests) during maintenance planning to determine the maintenance capability to meet operational needs. **(T-2).**

A8.1.7.8. **(AFMC)** The Test Wing scheduling office will use the following priority as a guide to determine which objectives to support if a lack of resources prevents meeting requirements such as: alert commitments, HHQ directed missions, training, and test and test support missions.

A8.1.8. **(AFMC)** Quarterly Scheduling. The quarterly plan applies to Test Wing training missions and all known test missions.

A8.1.8.1. **(AFMC)** Quarterly planning starts with the operational requirements for the flying hours, UTE rate, and airframe availability, alert and other related scheduling data. The OS operations officer provides these requirements to maintenance supervision and PS&D NLT 25 days before the beginning of the quarter. Maintenance supervision and the OS operations officer discuss these requirements at the scheduling meeting before the quarter being planned.

A8.1.8.1.1. **(AFMC)** The Test Wing scheduling office will use the following priority as a guide to determine which objectives to support if a lack of resources prevents meeting requirements such as: alert commitments, HHQ directed missions, training, and test and test support missions.

A8.1.8.2. **(AFMC)** The unit's rolling 3-month maintenance plan briefed each month meets the intent of the quarterly scheduling process. The meeting may be held in conjunction with the weekly or as a separate scheduling meeting. The plan will be posted so it may be viewed by both maintenance and operations.

A8.1.9. **(AFMC)** Monthly Scheduling. Due to the nature of the test mission, publishing the monthly flying schedule according to AFI 21-101 may not be conducive to mission requirements; however, a tentative monthly plan will be created for planning purposes. Every effort will be made to create a realistic monthly plan to accurately plan resource utilization. **(T-2).**

A8.1.9.1. **(AFMC)** The monthly scheduling meeting may be held in conjunction with the weekly scheduling meeting or as a separate scheduling meeting, NLT the third week of the month prior.

A8.1.9.2. **(AFMC)** Included in the monthly flying and maintenance plan are:

A8.1.9.2.1. **(AFMC)** Follow guidelines in **Chapter 14** with the following exceptions:

A8.1.9.2.1.1. **(AFMC)** Only known operational and test requirements are reported (not detailed utilization).

A8.1.9.2.1.2. **(AFMC)** Known ground test/mount requirements are included.

A8.1.9.3. **(AFMC)** Post the monthly flying and maintenance plan NLT 1200 Friday of the third week. All agencies will submit their monthly schedule inputs to PS&D for consolidation and coordination.

A8.1.9.4. **(AFMC)** QA scheduled inspections listed by type and quantities are included in the monthly flying and maintenance plan unless published separately by QA. **(T-2).**

A8.1.10. **(AFMC)** Weekly Scheduling. Refer to details within this attachment along with **paragraph 14.5.5** for any additional guidance.

A8.1.10.1. **(AFMC)** Also included in the weekly flying and maintenance schedule will be:

A8.1.10.1.1. **(AFMC)** Sortie sequence numbers, aircraft tail numbers (primary and spares), scheduled take-off and landing times, aircraft or equipment scheduled use times, configurations, fuel loads and special equipment requirements. **(T-2).**

A8.1.10.1.2. **(AFMC)** 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, documents review, deferred discrepancies, modifications and hours remaining to phase. **(T-2).**

A8.1.10.1.3. **(AFMC)** Spare aircraft requirements are based on projected test mission needs. The following factors are used to determine spares and are not hard limits but guidelines, and as such, it is up to the AMU to actually schedule what it can support:

A8.1.10.1.3.1. **(AFMC)** The spare requirement may be adjusted to compensate for multiple configurations and test or school syllabus constraints. **(T-2).**

A8.1.10.1.3.2. **(AFMC)** Additional spares are authorized to support HHQ taskings and special missions (if required by the tasking). **(T-2).**

A8.1.10.2. **(AFMC)** AF Form 2407, Approval Authority. All AF Form 2407 changes that add aircraft, sorties, or increase the flying window require both OG and MXG commander (or designated group level representative) approval. MXG/CD or equivalent will approve changes to the final schedule and coordinated through affected AMXS Operations Officer/MX SUPT, AMU OIC/SUPT, MXS Operations Officer/MX SUPT, operations group representative, maintenance group, and wing staff agencies. (e.g., MOC, PS&D, Analysis, etc.) using an AF Form 2407. MOC will coordinate higher headquarters directed taskings that require immediate execution. **(T-2).**

A8.1.10.2.1. **(AFMC)** Changes to the Weekly Schedule. Pen-and-Ink. The pen-and-ink AF Form 2407, Weekly/Daily Flying Schedule Coordination is not intended to be used as a tool to extend the scheduling process by another day. Pen-and-ink changes made to next week's schedule are authorized, provided they are submitted to the PS&D by 1600 hours Friday or at the daily maintenance scheduling/production meeting, whichever occurs first (**Exception:** NLT 2 hours after the last landing during printed wing night flying weeks). They are non-reportable and become part of the printed weekly flying schedule. An AF Form 2407 is required stating the changes are pen-and-ink. **Note:** The intent of the pen-and-ink AF Form 2407 is not to create complete revisions of the previously Wing/CC approved schedule. **(T-2).**

A8.1.10.2.2. **(AFMC)** AFMC units are authorized to use the Center Scheduling Enterprise (CSE) in recording and coordinating changes to the weekly schedule in place of AF Form 2407. Electronic coordination is acceptable provided receipt is acknowledged and the sender enters the name of the person notified, along with date/time of notification, and logged-in accordance with requirements on the AF Form 2407. **(T-2).**

A8.1.10.3. **(AFMC)** The MXG/CC/CL, OG/CC, and/or director(s) will approve the proposed weekly flying schedule and forward to the WG/CC for final approval. Once the

weekly schedule is reviewed and signed by the OG/CC, MXG/CC and WG/CC it becomes the final planning guide for both operations and maintenance and the basis for deviation reporting. The schedule will be followed as printed or as amended by coordinated changes. MOF PS&D will publish the final weekly flying schedule. **(T-2).**

A8.1.10.4. **(AFMC)** Rapid Crew Swap (RCS). To meet mission requirements, MXG/CC may authorize the use of RCSs for fighter/attack aircraft. Local Checklists (LCLs) will be developed in coordination with applicable MDS specific -6 TO or maintenance manual, that standardizes specific procedures when performing RCS tasks. RCSs involves turnaround of an aircraft incorporating partial or full crew change between two separate sorties after engine shutdown. The returning aircrew must brief the departing aircrew at the aircraft. The difference between RCS and the policy for continuation sorties is RCSs allow minor servicing (i.e. fuel, hydraulics, oil/sampling) to be performed between sorties. If at any time the aircraft is returned to maintenance for anything other than minor servicing, the RCS is terminated. RCS sorties will be published in the weekly flying schedule; deviations will apply to each sortie.

A8.1.10.5. **(AFMC)** MOF PS&D will record maintenance scheduling deviations and forward the computations to MOF maintenance analysis weekly for publication in the monthly maintenance summary. **(T-2).**

A8.1.11. **(AFMC)** Daily Scheduling Process. Daily Scheduling Process. Daily scheduling must be approved by the MXG/CC. If utilized, units must effectively plan and execute operations and maintenance schedules. Each day, no later than 1600 local time, the OG and MXG CCs or their designated group representative will review and publish the daily flying and maintenance schedule, agree on revisions, and coordinate with other agencies to confirm the next day's activities. Use AF IMT 2407 or authorized automated system in coordinating the final schedule through the affected production superintendent, AMU OIC/SUPT, AMXS Maintenance Supervision (MS), MXS MS, operations group representative, maintenance group, and wing staff agencies. (i.e. MOC/ROC, PS&D, Analysis, etc.). Deviations will be recorded based on this final daily flying schedule. Additional scheduling reporting procedures are located in **paragraph 2.3** and **5.1** of this Attachment. **(T-2).**

A8.1.11.1. **(AFMC)** The finalized daily flying schedule will include, at a minimum, the following details: **(T-2).**

A8.1.11.1.1. **(AFMC)** Aircraft tail numbers.

A8.1.11.1.2. **(AFMC)** Aircraft takeoff and landing times.

A8.1.11.1.3. **(AFMC)** Configuration requirements.

A8.1.11.1.4. **(AFMC)** Munitions requirements.

A8.1.11.1.5. **(AFMC)** Fuel loads.

A8.1.11.1.6. **(AFMC)** Special or peculiar test support requirements.

A8.1.11.1.7. **(AFMC)** Special or peculiar mission support requirements.

A8.1.11.1.8. **(AFMC)** Off station sorties.

A8.1.11.1.9. **(AFMC)** On equipment training requirements.

A8.1.11.1.10. **(AFMC)** Other special requirements (i.e. ground test/mount).

A8.1.11.2. **(AFMC)** Maintenance Debrief will load all Functional Check Flights (FCF)/Operational Check Flight (OCF), Ferry and cross country returns as "flown as scheduled" in the MIS. (**T-2).**

A8.2. (AFMC) Total Scheduling Effectiveness

A8.2.1. **(AFMC)** Purpose. This section defines flying schedule deviations and provides formulas for computing Total Scheduling Effectiveness (TSE). A cornerstone of successful flying scheduling and execution is an understanding of how the schedule is executed versus how it was planned to be executed. These differences in scheduled versus actual events, are only recorded in the execution phase of the scheduling process and are called deviations. Deviation data must be recorded so that follow-up analysis can identify appropriate corrective actions, if any. Deviation data recording and analysis is the beginning of the process that will, in the end, improve unit's flying operations. The unit is responsible for documenting deviations to the flying schedule and determining the cause for each deviation. Deviations must be coordinated with the appropriate agency before being assigned to a specific category. Schedule deviations that result from a sequence of events will be assigned a primary cause. A determination of the primary cause will be made by the parties involved to arrive at a unit position. The Operations representative and the AMU/AMXS MS will monitor deviations to ensure they meet the criteria in this publication. When conflicts arise, leadership of involved units will resolve them at the lowest level. All deviations will be recorded as described in this publication. Although every attempt will be made to properly schedule and reduce deviations, this metric must be viewed in conjunction with additional mission execution metrics to allow a more comprehensive assessment of maintenance effectiveness. Add narrative to read: Although every attempt will be made to properly schedule and reduce deviations, this metric must be viewed in conjunction with additional mission execution metrics to allow a more comprehensive assessment of maintenance effectiveness. The previous week's deviations will be briefed by the responsible organizations at the Weekly Wing Scheduling Meeting. **(T-2).**

A8.2.2. **(AFMC)** Requirements. Total scheduling effectiveness computation and deviation recording are required for all AFMC assigned aircraft. Reporting procedures are contained in **paragraph 2.5**

A8.2.3. **(AFMC)** Deviations.

A8.2.3.1. **(AFMC)** Deviations apply to the respective Test Wing's final/approved weekly or daily (if utilized) flying schedule. Any change to the approved daily flying schedule after 1600 the day prior will be recorded as a deviation. Multiple deviations will not be recorded against a single line entry except for (a) additions that air abort, (b) additions that cancel or ground abort, (c) added sorties that take-off late, and (d) late take-offs that air abort; however, all deviations will be recorded. The AFTO Form 781, ARMS Aircrew/Mission Flight Data Document is the official source document for takeoff and landing data. For all deviations, the person recording the deviations in the MIS will provide a detailed explanation in the remarks section and a Job Control Number/Event ID in IMDS screen 350, if applicable. Schedule deviations fall into one of the following categories:

A8.2.3.2. **(AFMC)** Ground Deviations. Ground deviations are events occurring before aircraft takeoff or scheduled ground test. All ground deviations are recorded and used in

total scheduling effectiveness calculations unless otherwise noted. FCF and OCF whose primary purpose is to perform maintenance checks and sorties originating off-station without home-unit support will be considered "flown as scheduled" without recording deviations with the exception of aborts. Specific ground deviations are:

A8.2.3.2.1. **(AFMC)** Addition (AD). An aircraft or event (including both sortie and ground test) added to the approved flying schedule. Will be recorded against the agency (OP, MX, HQ, Test Agency, etc.) requesting the additional sortie or aircraft. (**T-2).**

A8.2.3.2.2. **(AFMC)** Cancellation (CX). Cancellation (CX). A sortie or ground-test event that is removed from the printed schedule for any reason before crew show. Cancellations occur when it is determined the originally scheduled mission cannot be met. For training sorties, if the sortie can launch and recover during the squadron's flying window and perform its original mission with the original crew, a cancellation is not recorded. If any sortie does not launch within the late takeoff criteria, a late takeoff is recorded. Any cancellations will be recorded against the agency (OP, MX, HQ, Test Agency, etc.) that is responsible for the cancellation. **(T-2).**

A8.2.3.2.3. **(AFMC)** Early Takeoff (ET). An early takeoff is a scheduled sortie launching more than 30 minutes prior to the published takeoff time.

A8.2.3.2.4. **(AFMC)** Ground Abort (GA). A ground abort is an event, after crew show, which prevents a ―crew ready aircraft against the responsible agency or condition that caused the abort. Ground aborts are categorized as maintenance (GAA/GAB/GAC), operations, higher headquarters, weather, sympathy, project, other, etc.

A8.2.3.2.5. **(AFMC)** Late Takeoff (LT). A late takeoff occurs when a scheduled sortie becomes airborne more than 30 minutes after the scheduled takeoff time. If a LT is driven by a late land, the deviation for the LT will be charged against the responsible agency for the late land.

A8.2.3.2.6. **(AFMC)** Spare (SP). A spare is a designated aircraft on the printed schedule to be used in case a scheduled aircraft cannot fly its scheduled sortie. Spares can include aircraft that have canceled, aborted, flown earlier or an aircraft released after FCF/OCF. The aircraft production supervisor will manage scheduling and use of spare aircraft. Do not count printed spares flown in scheduled lines as deviations when computing TSE. Spare aircraft requirements are based on projected test mission needs. The following factors are used to determine spares and are not hard limits but guidelines, and as such, it is up to the AMU to actually schedule what it can support.

A8.2.3.2.6.1. **(AFMC)** The spare requirements may be canceled (when deviations are not used for computing TSE) if test requirements are accomplished/met.

A8.2.3.2.6.2. **(AFMC)** Additional spares are authorized to support HHQ taskings and special missions (if required by tasking).

A8.2.3.2.7. **(AFMC)** Interchange/Tail Number Swap (TS). Interchanges are changes to the printed flying schedule involving aircraft tail numbers printed on the flying schedule. Interchanges may be used to prevent reconfigurations and unnecessary expenditures of man-hours, or to replace a printed tail number with another tail number

on the signed scheduled. Interchanges between aircraft on the flying schedule, including FCF/OCF and cross country returns that have flown, will not be recorded as deviations. Interchanges include the following:

A8.2.3.2.7.1. **(AFMC)** Changing aircraft in printed line numbers with printed spare aircraft.

A8.2.3.2.7.2. **(AFMC)** Changing aircraft in printed line numbers to different printed line numbers (tail number swap).

A8.2.3.2.7.3. **(AFMC)** Interchanges may be made up to any time prior to aircraft takeoff. The MOC must be notified of all interchanges for proper coordination with affected work centers. Record all interchanges in the MIS. Do not count Interchanges/Tail Number Swaps as deviations when computing TSE.

A8.2.3.3. **(AFMC)** Air Deviations. Air deviations are events occurring after takeoff. They are recorded in the MIS, but are not included in total scheduling effectiveness calculations. Air deviations fall into the following categories:

A8.2.3.3.1. **(AFMC)** Air Abort (AA). An aircraft/sortie that cannot complete its primary or alternate mission for any reason. Air aborts are considered a sortie flown when reporting total sorties flown. Air aborts will be recorded against the agency or condition that caused the aborted mission. An air abort will not be recorded when malfunctions occur during the "Before Takeoff Checklist" portion of helicopter sorties. Air aborts caused by specific test mission will not be counted in abort rate computations. **Note:** Effective sortie decisions will be made by operations.

A8.2.3.3.2. **(AFMC)** Air Abort, IFE (AI). An air aborted aircraft/sortie with a situation resulting in an in-flight emergency declared by the aircrew.

A8.2.3.3.3. **(AFMC)** IFE (FE). An aircraft/sortie with a situation resulting in an in-flight emergency declared by the aircrew after the mission is accomplished.

A8.2.3.3.4. **(AFMC)** Late Landing (LL). An aircraft/sortie landing more than 15 minutes after the scheduled landing time. If the sortie originated on time, record any subsequent late takeoff or cancellation against the agency that caused the late landing. Late landings are included in TSE calculations. **Note:** LTs do not justify LLs.

A8.2.3.3.5. **(AFMC)** 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 TSE.

Table A8.1. (AFMC) Common Total Scheduling Effectiveness (TSE) Deviation Determination Matrix.

Event	Is the deviation		Remarks
	Recorded in IMDS/MIS?	Calculated in TSE?	

Pen-and-Ink changes to the schedule are made on an AF Form 2407 (IAW Chapter 14)	No	No	Pen-and-Ink changes are not deviations and are considered part of the printed schedule. See Chapter 14
Take-off or landing time is changed after approved Pen-and-Ink submissions via AF Form 2407	Yes	Yes	See paragraphs in Chapter 14. Calculation in TSE is determined by late and early criteria
Aircraft configuration is changed after approved Pen-and-Ink submissions via AF Form 2407	Yes	No	Changes will be tracked to prevent reoccurrence and get a true picture of the total scheduling turmoil.
A sortie is added to the flying schedule (excluding OCFs/FCFs, XC return)	Yes	Yes	
A sortie is added for an OCF/FCF/OCF/FCF "Chase"	No	No	These are considered flown as scheduled.
A sortie is canceled	Yes	Yes	Once the decision is made to cancel the sortie, it is a cancel. If a decision is made after the cancel to go ahead and fly the sortie, it becomes an added line.
A sortie is determined to be non-effective	No	No	Not a deviation. The determination is made by operations and has no bearing on TSE.
A take-off is determined to be late	Yes	Yes	
A take-off is determined to be early	Yes	Yes	
A landing is determined to be early	Yes	No	
A landing is determined to be late	Yes	Yes	A late landing may result in a late take-off on a subsequent sortie.

During a surge, more sorties are flown than were printed and the statement "Sortie Surge" is NOT printed in the remarks section of the affected day's flying schedule	Yes	Yes	Sorties printed in the weekly schedule will be flown as printed. Additional sorties not printed will be considered added lines.
During a surge, more sorties are flown than were printed and the weekly schedule contains "Sortie Surge" in the remarks section of the affected day	No	No	During planned and printed surges and combat sortie generations, additional lines are considered flown as scheduled.
During a surge, an aircraft turn sortie takes off early or late	No	No	Units should track late take-offs of turn sorties locally during surges to prevent reoccurrence. Late take-offs are recorded for surge first go sorties.
Maintenance is performed during a stop in a continuation sortie and the mission continues	Yes	Yes	An "add" is recorded for the subsequent sortie. Be sure the added line is designated as a continuation sortie to prevent further deviations for other scheduled stops.
A sortie is added to the schedule for weather attrition	Yes	No	
A sortie is added to the schedule for weather attrition when planned weather attrition has been meet	Yes	No	See A8.2.6.1
A sortie is canceled at any time due to weather	Yes	Yes	Prior to crew show it is a cancel, after crew show, it is a weather abort.
A spare aircraft printed on the flying schedule is used in a printed line.	Yes	No	

An aircraft in the printed schedule is swapped with an aircraft in another printed line.	Yes	No	
An aircraft not printed in the flying schedule is used in a printed line. (excluding aircraft already flown that day such as OCF/FCF, X-Country returns)	Yes	Yes	One deviation is recorded for the added aircraft. The result is the same as adding an aircraft as a spare, then tail swapping it into a printed line.
An aircraft not on the printed flying schedule is added as a spare.	No	Yes	Counts as a TSE deviation even if the aircraft does not fly. This has to be manually done by MMA because there is no required IMDS/MIS transaction that captures this.
An aircraft not printed in the flying schedule that has flown that day is flown/used in a printed line	Yes	No	Examples include previously flown FCF/OCF aircraft as well as cross country returns.
A ground abort is replaced with a another aircraft/spare on the printed schedule	Yes	No	Both the ground abort and spare action will be recorded in IMDS/MIS. If the replacement aircraft takes-off on time, no deviation is recorded.
A printed aircraft ground aborts and is replaced with an aircraft **NOT** on the printed schedule and the second aircraft also ground aborts and the original aircraft is fixed, takes off late, and flies the sortie.	Yes	Yes	The original aircraft is recorded as a ground abort and late take-off. The second aircraft is recorded as an “add” and a ground abort. Ground aborts in themselves are not deviations calculated in the TSE rate, but are calculated in the ground abort rate.

A8.2.4. **(AFMC)** Deviation Causes. Deviations will be assigned a primary cause. The WG/CC will resolve questions concerning assigning deviations between maintenance and operations. The OS/CC, AMXS/CC, and LRS/CC will resolve questions concerning deviations involving supply and POL. Deviations will be assigned one of the following causes: (**T-2).**

A8.2.4.1. **(AFMC)** Maintenance (MT). Deviations resulting from aircraft discrepancies, unscheduled maintenance, or for actions taken for maintenance consideration. **Note:** Maintenance-related ground aborts will use one of the ―GAx cause codes (See **paragraph 5.2.4**).

A8.2.4.2. **(AFMC)** Operations (OP). Deviations resulting from operations/aircrew actions, mission changes causing an early/late takeoff, or cancellation including substitution/aircrew illness, 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, and passengers.

A8.2.4.3. **(AFMC)** Project/Test Agency (PJ). Deviations to flight that result from rescheduling, reconfiguration, test item 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).

A8.2.4.4. **(AFMC)** Supply (SU). Deviations resulting from a Partially Mission Capable Supply (PMCS) or Not Mission Capable Supply (NMCS) condition or for late Supply or Petroleum Oil Lubricant (POL) delivery. Contract Logistics Support (CLS) items are included. In accordance with local MOAs/operating instructions. **Note:** The actual time required for installation and ops check will be considered. Maintenance has up to the end of the original parts plus estimated time in commission (ETIC), deviations after the ETIC has expired are charged against maintenance.

A8.2.4.5. **(AFMC)** Higher Headquarters (HHQ). Deviations resulting from a 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 off-base mission is replaced by a spare refer to **paragraphs 2.3.2.6** and **2.3.2.7** for unit options.

A8.2.4.6. **(AFMC)** Weather (WX). Deviations for aircraft which takeoff early, late, abort, or are added or canceled due to weather conditions. For example, if an aircraft taxied to the end of runway and the wing commander cancels all flying due to weather, the aircraft is a weather abort. Sorties/Aircraft cancelled prior to crew show are weather cancels.

A8.2.4.7. **(AFMC)** Sympathy (SY). Deviations occurring when an event 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. Events, which are to replace sympathy aborts or cancellations on the same day, will be recorded as sympathy additions. Events 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, Airborne Warning and Control System (AWACS) support, Minimum Interval Take Off (MITO) causing takeoff delay or cancellation, or for another unit's or command's support should be coded as sympathy deviations. **Note:** Deviations

caused by aircraft/missions earlier scheduled lines will be assigned to the cause of the earlier deviation, not sympathy (SY).

A8.2.4.8. **(AFMC)** Air Traffic Control (AT). Deviations resulting from air traffic control problems (for example, flight clearance delays, tower communication failure, conflicting air traffic, runway change, or runway closure).

A8.2.4.9. **(AFMC)** Contractor Support (CS). A deviation resulting from a test or system contractor not being able to support the mission in accordance with the requirements of the contract.

A8.2.4.10. **(AFMC)** Range Availability (RN). A deviation resulting from the Range not being available.

A8.2.4.11. **(AFMC)** Other (OT). Deviations resulting from unusual circumstances not covered by other causes listed. OT may include:

A8.2.4.11.1. **(AFMC)** Unusual circumstances (e.g.., bird strikes, damage during air refueling, unscheduled exercises) may use this code.

A8.2.4.11.2. **(AFMC)** Equipment, non-AFMC. Deviations caused by National Airborne Operations Center NAOC) or Air Intelligence Agency (AIA), and other non-AFMC support and equipment.

A8.2.4.11.3. **(AFMC)** When an aircraft is off station and cannot return for its scheduled sortie/mission, a deviation will be recorded for the reasons the aircraft was unable to return. The reasons will be specific (maintenance, operations, weather, etc.). A printed spare aircraft may be used for any sorties scheduled for the aircraft that did not return.

A8.2.4.11.4. **(AFMC)** Ferry Sorties. Ferry sortie requirement too late for inclusion in the flying schedule will be documented as a new line for the day and "flown as scheduled".

A8.2.4.11.5. **(AFMC)** Hot Spare Aircraft. Properly configured aerospace vehicle that is listed on the flying schedule as a spare with a specific takeoff time and not utilized. If not used will be recorded as a cancel other.

A8.2.4.11.6. **(AFMC)** Airborne Instrumentation.

A8.2.4.11.7. **(AFMC)** Laboratories.

A8.2.4.12. **(AFMC)** Exercise, Higher Headquarters (EXH). Deviations resulting from higher headquarters directed exercises, including alarm/force protection conditions. Deviations in this category will not be included in TSE calculations.

A8.2.4.13. **(AFMC)** Exercise, Local (EXL). Deviations resulting from wing/unit directed exercises, including alarm/force protection conditions. Deviations in this category will not be included in TSE calculations.

A8.2.4.14. **(AFMC)** Special Instrumentation (SI). Deviations that directly result from issues with SI support.

A8.2.5. **(AFMC)** Rules for Reporting Schedule Deviations. The unit is responsible for documenting deviations to the weekly flying schedule and determining the cause for each

deviation. Deviations must be coordinated with the appropriate agency before being assigned to a specific category. The operations representative and AMU/AMXS MS will monitor deviations to make sure they meet the criteria in this instruction. When disparities exist, they will be referred to the OG and MXG CCs or designated representative for resolution. Schedule deviations that result from a sequence of events will be assigned a primary cause. A determination of the primary cause will be decided upon by all parties involved to arrive at a unit position.

A8.2.6. **(AFMC)** Scheduling Exceptions.

A8.2.6.1. **(AFMC)** Adverse Weather. Units/flying squadron(s) may add sorties to the flying schedule to make up for weather losses. Sorties will only be added to the schedule when the planned weather attrition for the month has been exceeded for that month. The number of sorties added will not exceed the difference between the planned weather attrition and actual weather losses. Weather attrition will be computed by the MMA Section. (Example: Planned weather attrition for the month equals 30 sorties. On the 20th of the month 40 sorties are lost. Ten non-chargeable sorties may be added. The maintenance schedule and the ability of maintenance to support the additional requirements must be carefully considered before adding sorties.

A8.2.6.2. **(AFMC)** Unscheduled Tasking. When a unit is tasked with an unscheduled higher headquarters tasking or self-initiated tasking (mobility exercises or weather evacuations), or other services tasking which significantly impacts the flying schedule, the printed schedule may be revised or deleted from the MIS by AMU PS&D and replaced with a new schedule without recording deviations. For weather evacuations, the schedule will be cancelled in the MIS, not deleted, so the data is available for historical attrition. (**T-2). Note: Local unscheduled tasking will not be used solely to recoup sortie losses.**

A8.2.6.2.1. **(AFMC)** If the schedule is revised or canceled and reprinted, the following procedures will be used: **(T-2).**

A8.2.6.2.1.1. **(AFMC)** Follow normal deviation reporting procedures once the revised/reprinted schedule is finalized. The revised schedule will be finalized a minimum of 2 hours before the first scheduled launch.

A8.2.6.2.1.2. **(AFMC)** Once the tasking terminates, the original schedule may be used or it may be revised or reprinted for the tasking period, as required. Normal deviation reporting is to be used once the revised or reprinted schedule is finalized.

A8.2.6.2.1.3. **(AFMC)** Normal deviation reporting procedures will be followed after a takeoff time is established to a tasking by higher headquarters or other services.

A8.2.7. **(AFMC)** Utilization Reporting. All aircraft flying hours are required to be reported in REMIS in accordance with AFI 21-103. This requirement is not waived for contractor-maintained aircraft.

A8.2.8. **(AFMC)** Scheduling Effectiveness Computation

A8.2.8.1. **(AFMC)** TSE Rate. Similar to the Flying Schedule Effectiveness for the CAF, TSE is a leading indicator and is a measure of how well the unit planned and executed the weekly flying and ground test event schedule. TSE is derived by comparing each day's

deviations to the flying and ground test schedule. Deviations that decrease the TSE from 100 percent include: scheduled sorties/ground test events not accomplished because of maintenance, supply, operations, weather, HHQ, air traffic control, sympathy, or other reasons; scheduled events that actually start more than 30 minutes prior to scheduled start time; scheduled events that begin more than 30 minutes after their scheduled start time and events that are added to the schedule. Disruptions to the flying or ground test schedule, or constant configuration changes to test assets can cause turmoil on the flightline, send a ripple effect throughout other agencies, and adversely impact scheduled maintenance actions.

Table A8.2. (AFMC) Test Scheduling Effectiveness Computation.

TSE (%) = Total Ground and Sortie Events Scheduled – Total Deviations x 100 / Total Ground and Sortie Events Scheduled

A8.2.9. **(AFMC)** Maintenance Deviation Rate (MX Dev). Although all deviations to the test schedule are counted in the TSE calculation, the Maintenance Deviation Rate represents deviations to the flying/ground test schedule that are, for the most part, are within the maintenance community's control. All maintenance late take offs, ground aborts, cancellations, and maintenance additions are counted towards the rate. Although all deviations from the published schedule can cause turmoil on the flightline, maintenance supervision should focus on eliminating or minimizing schedule deviations due to maintenance.

Table A8.3. (AFMC) Maintenance Deviation Rate Computation.

Maint Dev Rate (%) = Total Maintenance Deviations x 100 / Total Ground and Sortie Events Scheduled

A8.3. (AFMC) Maintenance Scheduling Effectiveness (MSE).

A8.3.1. **(AFMC)** Purpose. This chapter provides a means to measure maintenance management effectiveness, reflected by how well the maintenance schedule is carried out. Maintenance efforts should be directed toward the timely accomplishment of all scheduled maintenance actions. The AFMC Maintenance Scheduling Effectiveness (MSE) goal is 95%.

A8.3.2. **(AFMC)** Computations.

A8.3.2.1. **(AFMC)** Scheduled maintenance events and respective weighted factor points in **Table 3.1** are used to compute the MSE rate. Credit is received for actions completed on, or prior to, the scheduled date as printed in the weekly schedule. The MIS database and the published schedule will be used to determine whether or not the maintenance actions were completed on-time. **Exception:** Phase/PE and ISO inspection, and all maintenance requiring more than 24 work hours to complete will be measured against the scheduled start time/date.

A8.3.2.2. **(AFMC)** The MXG/CC may select additional areas (such as AGE, AIS, AME, etc.) for local scheduling effectiveness tracking. The unit will establish standards for these programs and develop a computation table in the format of **Table 3.1**. This data will not be included in aircraft maintenance scheduling effectiveness when reported to higher headquarters.

A8.3.2.3. **(AFMC)** MOF PS&D will record maintenance scheduling deviations and forward the computations to MOF maintenance analysis weekly for publications in the monthly maintenance summary. **(T-2).**

A8.3.2.4. **(AFMC)** When a unit is tasked with a test acceleration, quick reaction test, unscheduled tasking, unannounced exercise/real world contingency, or higher headquarters exercise that significantly impacts the printed weekly maintenance schedule, the plan may be revised or reprinted without incurring deviations. Normal deviation reporting procedures will be followed once the revised or reprinted plan is finalized. The unaccomplished portion of the maintenance schedule that was revised will not be included in the scheduling effectiveness formula. **(T-2).**

A8.3.2.5. **(AFMC)** Establish local written procedures to ensure coordination of changed/cancelled/added scheduled maintenance.

A8.3.2.6. **(AFMC)** Maintenance Scheduling Deviation Categories.

A8.3.2.6.1. **(AFMC)** Maintenance (MT). Actions canceled or not completed as a result of adding aircraft to the flying schedule, mismanagement, or a lack of manpower or equipment.

A8.3.2.6.2. **(AFMC)** Higher headquarters (HHQ). Actions canceled or not completed as a result of higher headquarters tasking from outside of the wing.

A8.3.2.6.3. **(AFMC)** Weather (WX). Actions canceled or not completed as a result of weather conditions.

A8.3.2.6.4. **(AFMC)** Supply (SU). Actions canceled or not completed as a result of verified parts back order condition.

A8.3.2.6.5. **(AFMC)** Other (OT). Actions canceled or not completed as a result of impounded aircraft (after the weekly schedule is published), major maintenance where technical data restrictions do not allow the scheduled maintenance, or aircraft is off-base and unable to return.

Table A8.4. (AFMC) Maintenance Scheduling Effectiveness Computation.

SCHEDULED EVENT	A WEIGHTED POINTS	B NUMBER OF EVENTS	C POSSIBLE POINTS (A x B)	D COMPLETED SCHEDULED	E POINTS EARNED (A x D)
Periodic/Isochronal/ Phase Inspections	5				
Home Station Checks/ Hourly Post Flights	5				
Engine Changes	5				
Time Changes	4				
TCTOs	4				

Corrosion Control/ Paint	4				
Special Inspections	3				
Document Reviews	2				
Delayed Discrepancies	3				
Total Points Possible:_____ Total Points Earned:_____ Total O&M Points Possible: _____ Total O&M Points Earned:					

A8.4. (AFMC) TDY/Deployed Sorties

A8.4.1. **(AFMC)** Purpose. This chapter establishes rules and procedures used in planning, executing, evaluating, and reporting of unit flying and maintenance schedules at deployed/TDY locations where unit maintenance is provided. Sorties flown at deployed/TDY locations where no parent unit maintenance is provided are considered off-station sorties. If parent unit support is deployed, this is considered the same as home station support and normal deviation reporting applies. Limited launch support is not considered parent unit maintenance.

A8.4.2. **(AFMC)** General. Normal deviation reporting applies to deployed operations except as noted in this chapter. Data from deployed operations will be transmitted or forwarded back to home station.

A8.4.3. **(AFMC)** Scheduling. In addition to the procedures established at home station for scheduling and reporting, deployed units will use the following procedures when developing a flying schedule and reporting deviations: Separate block(s) of sortie sequence numbers will be assigned for deployment/TDY location(s). **(T-2).**

A8.4.3.1. **(AFMC)** Additions and cancellations at deployed/TDY locations, which are required to accomplish specific test and aircrew training requirements and make optimum use of available range time, are considered flown as scheduled. This does not relieve operations and maintenance from developing a viable and realistic flying schedule at the deployed location. The primary purpose of this flexibility is to allow the unit to make up non-effective sorties to ensure accomplishment of the training plan. Procedures for changing the flying schedule in **Chapter 2** apply to deployment/TDY location flying and maintenance schedules. Additions and cancellations caused by ineffective planning are recorded.

A8.4.3.2. **(AFMC)** Sorties scheduled at other than home station are not required to be input into the home station's operations scheduling system to be counted as scheduled sorties. Once tail numbers are plugged in at the daily meeting; this becomes the firm schedule‖ and deviations are reported from that point on.

A8.4.4. **(AFMC)** Deployed/TDY Daily Activity Report. Required information for deployed/TDY AFMC units will be transmitted to home station IAW applicable unit deployment/TDY plans. **(T-2).**

A8.4.5. **(AFMC)** Off-Station Sorties. Off-station sorties are sorties flown from other than home station where parent unit maintenance is not provided (e.g., cross-country sorties). **Note:** If the off-station aircraft can fly its scheduled mission from its location, no deviation is recorded.

A8.5. (AFMC) Scheduling Reporting Procedures

A8.5.1. **(AFMC)** Purpose. This chapter provides instructions on flying scheduling reporting procedures. The flying schedule must be loaded into the MIS to track scheduling and deviation data. Once loaded, the mission schedule or proposed maintenance plan background programs will provide base-level retrieval of flying and maintenance schedule information, and will complete higher headquarters reporting of aircraft utilization.

A8.5.2. **(AFMC)** Responsibilities.

A8.5.2.1. **(AFMC)** The MXG/CC will ensure procedures are established to verify the accuracy of all scheduling and deviation data. **(T-2).**

A8.5.2.2. **(AFMC)** The OG and MXG CCs or their designated group representative will publish the flying schedule IAW **Chapter 2** on AF Forms 2400 series or computer generated forms. Units will load changes to the flying schedule into the MIS by 1600L one workday prior to date of execution. **(T-2).**

A8.5.2.3. **(AFMC)** The MOC will review the previous day's activity reports to ensure accurate deviation accounting and reporting. The MOC will record additions, cancellations before crew show, interchanges, and the use of spare aircraft as deviations occur. The debrief section will record, late and early takeoffs and landing aborts, and in-flight emergency incidents during the automated debriefing process. The MOC will coordinate with the squadron/AMU on all changes and deviations to the flying schedule to assist in determining correct debriefing status codes. The MOC will provide sortie sequence numbers and sortie numbers to the squadron/AMU for all additions and cross-country sorties. Sortie numbers assigned to a specific tail number must be in sequential order (for example sortie number 101 must be used on a specific tail number before sortie number 102). Unique sortie sequence numbers will be developed for deployed sorties. **(T-2).**

A8.5.2.4. **(AFMC)** Cause Code. Enter one of the following codes to indicate the reason for a deviation or the agency, which caused a deviation.

Table A8.5. (AFMC) Code Function.

ATx . . . . . Air Traffic
EXH . . . . . .Exercise, HHQ
EXL . . . . . .Exercise, Local
GAA . . . . . Ground Abort, before engine start, maintenance
GAB . . . . . .Ground Abort, after engine start, before taxi, maintenance
GAC . . . . . .Ground Abort, after taxi, maintenance
GAT. . . . . Ground Abort, test induced

HQT . . . . . .Higher Headquarters, MAJCOM (non-exercise)
HQN . . . . . Higher Headquarters, NAF (non-exercise)
HQP . . . . . .Higher Headquarters, other (non-exercise)
MTx . . . . . .Maintenance
OPx . . . . . Operations
SIx . . . . . .Special Instrumentation
SUx . . . . . .Supply
SYx . . . . . .Sympathy
RNx. . . . . Range
WXx . . . . . Weather
OTx . . . . . .Other
PJx……...Project/Test Agency
CSx. . . . . Contractor Support

A8.6. (AFMC) Attrition and Spare Factors.

A8.6.1. **(AFMC)** Attrition. 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 ensure mission goals are met. Operations and maintenance personnel must ensure the contract includes flexibility to accept attrition requirements during acquisition planning. Units may make a conscious decision, with MXG/CC approval, to use different attrition factors from statistical attrition rates calculated by MMA.

A8.6.1.1. **(AFMC)** Attrition sorties are not substitutes for capability shortfalls, they are additive to the contract to ensure mission goals are met. The monthly flying and maintenance plan will clearly identify attrition sorties for management purposes. If attrition is less or more than planned, adjustments to the weekly flying and maintenance schedule will be made to prevent over-extending maintenance or exceeding the unit's contract. A sortie lost will normally be flown in the same month the loss occurred. If at the end of a quarter combined losses exceed attrition figures, the OG and MXG CCs will negotiate a resolution to the shortfall.

A8.6.1.2. **(AFMC)** The factors used to compute attrition will be MXx, OPx, SUx, WXx, ATx, SYx, OTx, EXH, EXL, and HQx sortie losses. Attrition factors are used to compensate for non-unit controlled factors. Spares are used to compensate for unit controlled factors. Attrition and spare factors will be computed for and applied to each flying squadron/AMU. Monthly statistical attrition anomalies should be identified, documented and factored out of attrition calculations if necessary. MMA will compute attrition factors monthly for each OS/AMU and provide the results to MOF PS&D for dissemination to the OS and AMU PS&D schedulers. During the annual first look, MMA will provide attrition factors by month for the entire next fiscal year. **(T-2). Note:** Attrition

and spare factors need not be developed for test and evaluation (CB) possession identifier coded aircraft.

A8.6.2. **(AFMC)** Attrition Factor Application.

A8.6.2.1. **(AFMC)** Attrition computation is based on at least 5 years of unit historical data from previous flying months. For example, when computing attrition for Jan 12, use historical data for Jan 11, Jan 10, Jan 09, Jan 08, Jan 07, etc. Use as much historical data as required ensuring seasonal variations are considered to determine a basis for attrition. When computing attrition, use the total sorties lost in a particular category. Do not use the difference between the sorties lost and those sorties added to make up for the losses. The formula for computing the attrition factor is Historical Sorties Lost divided by Historical Sorties Scheduled.

Table A8.6. (AFMC) Attrition Computation Example.

Sortie Losses:	
MX Sortie Losses .02	
OP Sortie Losses	.01
SU Sortie Losses	.01
OT Sortie Losses	.01
AT Sortie Losses	.01
EXH Sortie Losses	.01
EXL Sortie Losses	.01
HQ Sortie Losses	.01
Sortie loss attrition factor:	0.09
WX Sortie Losses:	.03
Total Attrition factor:	.12
Overall attrition factor is:	.12 or 12 %

Table A8.7. (AFMC) Sample Application of Total Attrition Factor.

Sorties Required 1,000
Subtract attrition factor from 1 (1-.12)=0.88
Divide 1,000 by 0.88
Required sorties to schedule 1,136.36 , round up to 1,137.
Based on historical attrition of 12%, the unit can expect to lose 137 sorties to meet the

required 1,000 sorties.

A8.6.3. **(AFMC)** Spares. 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. **Note:** During Planned Sortie Surges the MXG/CC determines the amount of spares that will be committed. However, leadership must consider health of the fleet when authorizing scheduled spares above 40 percent. **Note:** Units should be cognizant of their historical break rates and spare constraints when scheduling surges. Spares can be quickly used during surges and once spares are exhausted the capability to meet surge goals is severely limited.

A8.6.3.1. **(AFMC)** MMA computes annual spare aircraft requirements by month, using historical aircraft first sortie logistics losses and provides this information to the MO PS&D for use in computing spare aircraft requirements. Spare computation is based on 5 years of unit historical data from previous 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 a minimum of 5 years historical data to ensure seasonal variations are included to determine a basis. The formula for computing spare factors is Historical First Sortie Deletions/Cancellation divided by historical first sorties scheduled.

A8.6.3.2. **(AFMC)** 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 8 aircraft are committed to the schedule and there are 14 total sorties scheduled, the first 8 sortie line numbers (i.e., 101-108) should reflect all 8 committed aircraft tail numbers before they are re-scheduled (turned) against the last 6 (i.e., 109-114). This would be reflected as an 8 x 6 and will not be reflected as a 6 x 8 because of scheduled take-off times. Additionally lines are listed in sequential order with take-off times that reflect this order. 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.

Table A8.8. (AFMC) 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%
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 x .18 = 2.16 Spares Required is 3	

A8.6.3.3. **(AFMC)** The computed spare requirement may be adjusted to compensate for multiple configurations and syllabus constraints. When additional spares are added for multiple configurations, units will not exceed one spare per configuration.

A8.6.3.4. **(AFMC)** Additional spares are authorized to support higher headquarters taskings and special missions (if required by the tasking).

A8.6.3.5. **(AFMC)** At least one spare aircraft is authorized per MDS for each flying day.

A8.6.3.6. **(AFMC)** Unmanned Aerial Systems training missions are authorized an additional spare to support increased aircrew training requirements due to crew size ratio.

Attachment 9 (Added-AFMC)

SAMPLE AIRCRAFT AND EQUIPMENT IMPOUNDMENT CHECKLIST.

Table A9.1. (AFMC) Sample Aircraft and Equipment Impoundment Checklist.

	Impoundment Actions	Status
1	Impoundment authority directs impoundment and assigns an impoundment official.	
2	Enter a Red X in the applicable forms and MIS indicating the reason for impoundment and the name of individual assigned as impoundment official.	
3	Notify the MOC of impoundment decision.	
4	Select a team of highly qualified technicians to determine cause of problem that led to the impoundment.	
5	Control access to impounded aircraft or equipment and determine if an entry control point (ECP) is required. If ECP is established, use an access control log.	
6	Determine necessary controls required for aircraft and equipment records.	
7	Review aircraft or equipment forms and MIS for historical data related to the malfunction causing impoundment.	
8	Ensure maintenance is limited until the cause of impoundment is determined.	
9	Ensure parts removed are carefully controlled.	
10	Once the cause of the malfunction has been determined and corrected, determine if an OCF or FCF is necessary or required.	
11	Ensure QA is intimately involved in the impoundment process and has reviewed all actions taken to correct the malfunction.	
12	QA determines the need for cross-tell based on the potential effect to other aircraft and equipment.	
13	Brief release authority on findings and corrective actions, and request release from impoundment.	
14	Impoundment release authority clears or directs the impoundment be cleared in the applicable aircraft or equipment forms.	