BY ORDER OF THE COMMANDER
3RD WING

AIR FORCE INSTRUCTION 21-101

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Supplement

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Maintenance

AIRCRAFT AND EQUIPMENT MAINTENANCE MANAGEMENT

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This supplement implements and extends the guidance of Air Force Instruction 21-101, Aircraft and Equipment Maintenance Management, 21 May 2015. This supplement further expands on instruction and procedure set forth by the AFI 21-101_PACAFSUP in order to effectively accomplish local mission requirements. It applies to all units assigned under the 3rd Wing, and all personnel performing or supporting maintenance on aircraft or equipment controlled by the 3rd Wing. This instruction will apply to the Air Force Reserve Command (AFRC), but only when assigned duties are in support of 3rd Wing aircraft and equipment. This supplement does not apply to Civil Air Patrol (CAP). Submit requests for waivers through the chain of command to the publication Office of Primary Responsibility (OPR) for non-tiered compliance items. The authorities to waive wing/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, 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, or alternately, to the Publication OPR for non-tiered compliance items. This instruction cannot be supplemented or further extended. Refer recommended changes and questions about this publication to the office of primary responsibility (OPR) using the AF Form 847, Recommendation for Change of Publication. Route the AF Form 847 through the appropriate chain of command. Ensure all records created as a result of processes prescribed in this publication are maintained in accordance with Air Force Manual (AFMAN) 33-363, Management of Records, and disposed of in accordance with Air Force Records Information

Management System (AFRIMS) Records Disposition Schedule (RDS). See Attachment 1 for a Glossary of References and Supporting Information. The use of the name or mark of any specific manufacturer, commercial product, commodity, or service in this publication does not imply endorsement by the Air Force.

This publication requires the collection and or maintenance of information protected by the Privacy Act (PA) of 1974. The authority to collect and or maintain the records prescribed in this publication is 10 U.S.C. 8013, Secretary of the Air Force; Air Force Instruction 21-101, Aircraft and Equipment Maintenance Management; Air Force Instruction 36-2232, Maintenance Training, and E.O. 9397 (SSN). Privacy Act System of Records Notice "F021 AF IL A – Core Automated Maintenance System (CAMS)" applies.

SUMMARY OF CHANGES

This publication has been substantially revised and must be completely reviewed in its entirety. Abbreviations, acronyms, and references used throughout this supplement were updated to correlate with the newly revised AFI 21-101. The update also provides better alignment and complies with guidance set forth in the recent revisions of AFI21-101_PACAFSUP (PACAF).

1.3.3.1. **(Added)** For aircraft and on-aircraft parts or systems, the owning AMXS will be the primary coordinator for all engineering requests. For off-aircraft parts or systems, MXS will be the primary coordinator.

1.3.3.1.1. **(Added)** Production will be the technical focal point for all engineering dispositions, will maintain access to the respective factory system, and initiate submit requests in accordance with factory templates. Squadron Supervision must approve all drafts prior to forwarding to Quality Assurance (QA).

1.3.3.1.2. **(Added)** QA will review unit-approved drafts from the respective factory system and forward to MXG for approval. If approved, QA will mark drafts "Approved" in the respective factory system.

1.13.3. **(Added)** In accordance with AFI 48-127, Occupational Noise and Hearing Conservation Program, personnel working in or entering designated "hazardous noise areas" will wear Hearing Protection Devices (HPD). When noise sources are operating, personnel will wear their HPD regardless of exposure time. There is significant potential for hazardous noise exposure while on the flight line from aerospace ground equipment, operating aircraft and power tools. Therefore, the flight line is a designated hazardous noise area. The following policy is established to clarify requirements for hearing protection while on the flight line:

1.13.3.1. **(Added)** No hearing protection is required when driving on the flight line in a fully enclosed vehicle unless the vehicle has been identified as a hazardous noise producer at the operator's position.

1.13.3.2. **(Added)** When working outside on the flight line and noise sources are operating, approved hearing protection is required. This includes either approved ear plugs, other fitted plugs, or approved ear muffs (an official listing can be obtained from Bioenvironmental). Hearing protection devices must be approved by Bioenvironmental Engineering. Refer to your Work center Bioenvironmental Engineering survey for required Noise Reduction Ratings (NRR).

1.13.3.3. **(Added)** When working within 100 feet of running aircraft or 30 feet of a running APU, dual hearing protection will be worn. Dual hearing protection will be worn for workers who are within 300 feet of an aircraft that is landing or taking off. Dual hearing protection consists of a combination of both plugs and muffs, or plugs and an approved communication headset.

1.13.3.4. **(Added)** When working within 30 feet of running Aerospace Ground Equipment that requires dual hearing, approved PPE must be worn. Hearing protection devices must be approved by Bioenvironmental Engineering. Refer to your Work center Bioenvironmental Engineering survey for required Noise Reduction Ratings (NRR).

1.13.3.5. **(Added)** Questions concerning flight line hearing protection requirements should be directed to Bioenvironmental Engineering.

1.13.4. **(Added)** Government vehicles will be the only mode of transportation to transport government assets such as, tools, equipment, parts, consumables, shop stock, bench stock, supplies, hazardous materials and hazardous waste.

1.13.5. **(Added)** All personnel will wear protective foot coverings (booties) when walking on any external surface of F-22 aircraft. Operational risk management must be used whenever wearing booties may not provide enough traction for the individual to work safely.

1.15.1. **(Added)** Only government issued properly marked electronic and communication devices will be authorized in the maintenance complex. Bargaining civilian employees will continue to follow pre-existing arrangements outlined in SF-CA-09-0039, dated 26 March 2009

2.4.1.1. **(Added)** Each squadron with Radio Frequency (RF) emitting equipment will appoint a Radiation Safety Officer (RSO). The RSO will:

2.4.1.1.1. **(Added)** Ensure all personnel working on or with RF-emitting equipment are properly trained in RF safety practice. The training will occur initially, when procedures change, and then annually as refresher training and will be documented.

2.4.1.1.2. **(Added)** Act as a point of contact for all RF safety matters and assist in incident investigations.

2.4.53.3.1. **(Added)** Reference Attachment 12, this supplement, FCF/OCF Decision Matrix for determining FCF/OCF requirements.

2.4.55.5. **(Added)** The 3rd Wing Avionics Manager (WAM) is assigned to 3 MXG/QA. The WAM is appointed as program manager for: Aircraft Structural Integrity Program (ASIP), Identification Friend or Foe (IFF), Radar Warning Receiver (RWR)/Radar Threat Warning (RTHW) and SERENE BYTE/PACER WARE. Additionally, the WAM is the alternate Electronic Warfare Officer (EWO) and chairs the Avionics working group meetings.

2.5.1. **(Added)** Approve all non-maintenance use of aircraft maintenance facilities under their control.

2.9.20. **(Added)** Schedule an appointment for any individuals who commit a technical data or detected safety violations (TDV/DSV) with their supervisory chain to see the MXG/CC, CD, or designee.

3.10.1.22.1. **(Added)** This includes personnel injuries involving 2W1 personnel.

4.6. (Added) **The Armament Flight for the MXG is assigned to the Munitions Squadron (MUNS).** Armament will respond to flight line for certain types of unscheduled maintenance, such as guns, Universal Ammunition Loading System (UALS), Bomb Rack Unit (BRU) and pylons.

4.6.1.9. **(Added)** Ensure ammunition clearing procedures outlined in Attachment 13, this supplement, are adhered to.

4.6.3.1.1. **(Added)** Accountability. AMU weapons sections will identify, by letter, a Point of Contact (POC) within their respective sections responsible for the accountability of SPRAM items. This individual will be responsible for performing a semiannual inventory in conjunction with the Armament Flight SPRAM Custodian. This will be an inventory of all assigned equipment and ensure the equipment is properly loaded into Maintenance Information System (MIS).

4.8.2.2.1. **(Added)** Wash racks are maintained by AMU Support Flights. The AMU OIC/Chief/Superintendent will appoint a Wash Rack Facility Manager.

4.8.2.12. **(Added)** Coordinate with MXS/AGE Flight to ensure all equipment to be painted in the Aircraft Structural Maintenance Shop will be delivered clean and free of all reflective tape and vinyl.

4.8.4.1.1.2. **(Added)** Non-Destructive Inspection (NDI) is required to enter Joint Oil Analysis Program (JOAP) data into IMIS to ensure Propulsion Flight has up to date JOAP data to perform engine trend analysis.

4.8.4.7.1. **(Added)** MOC will notify all applicable agencies when and where radiographic operations will be accomplished and when completed. MOC will announce "area/hangar is closed by NDI for x-ray operations until XXXX hours."

4.8.5.7. **(Added)** During F-22 Aircraft Intake Maintenance, Low Observable (LO) Section will use the on-equipment Intake Maintenance checklist in Attachment 30, this supplement.

4.8.5.8. **(Added)** Ensure the 3 AMXS wash aircraft prior to delivery to the LO facility for Signature Assessment System (SAS) audit input.

4.11.3.9. **(Added)** F119 Compass Vector Program: the 3 AMXS/CC will designate a primary and alternate CV Program Monitor for each F-22 aircraft maintenance unit. The 3 MXS/CC will designate a primary and alternate CV Program Monitor for Propulsion Flight.

4.11.3.9.3. **(Added)** Responsibilities: The 3 MXG's goal is to accelerate assigned CV engines at twice the normal flying rate until the engine/modules/accessories are, at a minimum, two years ahead of the top 10% (high time) fleet engines. The CV engines/modules/accessories are then to continue leading the fleet by two years. CV engines/modules/accessories will be maintained in accordance with maintenance instructions and inspection criteria given in appropriate Technical Orders Data (TOD), unless otherwise waived, in writing, by the program committee.

4.11.3.9.3.1. **(Added)** Unit monitors and alternates will be identified to Major Command (MAJCOM) and engine program manager via e-mail/formal message to include name, rank, organization, phone number, and e-mail. CV LTF Program monitors will ensure CV engines/modules/Line Replaceable Units (LRU)/Shop Replaceable Units (SRU) receive priority attention and all maintenance actions are properly documented.

4.11.3.9.3.2. **(Added)** The Deployed Engine Monitor (DEM) will serve as the CV LTF monitor representative. The DEM/CV LTF will be appointed by AMU supervision and briefed on their duties by F119 Engine Managers prior to deployment.

4.11.3.9.3.3. **(Added)** Program and Scheduling technicians will schedule aircraft with installed CV engines to fly at least one sortie for every flying day or twice the scheduled usage rate, whichever is higher.

4.11.3.9.3.4. **(Added)** CV engines should not remain installed in aircraft scheduled for extended downtime. Extended downtime is defined as more than 10 working days. Organizational level CV LTF monitors will make every effort to remove and install CV engine(s) in flying aircraft to support achievement of the required flying rate.

4.11.3.9.3.5. **(Added)** CV engine/module/accessory integrity will be maintained to the maximum extent possible. Any changes in engine/module/accessory configuration must have prior approval of the program committee. All maintenance involving CV LTF engines will be coordinated with the local Pratt & Whitney Office.

4.11.3.9.3.6. **(Added)** Intermediate level monitors will ensure CV LTF program engines and modules inducted into intermediate maintenance are afforded priority for repair accomplishment as conditions dictate.

4.11.3.9.3.7. **(Added)** If an Analytical Condition Inspection (ACI) is scheduled to be performed by a contracted facility, affected CV LTF engine will be shipped directly to that facility instead of through normal supply channels when possible. The CV LTF program committee will provide special disposition instructions in writing as required.

4.11.3.9.3.7.1. **(Added)** Base Engine Manager will ship as directed by the CV LTF program committee, the CV engine/module/accessory to the designated facility for ACI as soon as they have reached the selected inspection interval or as directed.

4.11.3.9.3.7.2. **(Added)** Prior to the shipment of CV engines/modules for assessment and after records update is complete, the unit will provide the following data to Pratt & Whitney/F119 Customer Support Engineering (CSE) Advanced Engines:

4.11.3.9.3.7.2.1. **(Added)** All available CV engine run data.

4.11.3.9.3.7.2.2. **(Added)** Bore scope inspection records (perform inspection prior to shipment).

4.11.3.9.3.7.2.3. **(Added)** Visual receiving inspections records.

4.11.3.9.3.7.2.4. **(Added)** Joint Oil Analysis Program (JOAP) data.

4.11.3.9.3.7.2.5. **(Added)** Automated AFTO Form 95, Significant Historical Data, (duplicate).

4.11.3.9.3.7.2.6. **(Added)** Jet Engine Intermediate Maintenance (JEIM) Work Package Summary (duplicate).

4.11.3.9.3.8. **(Added)** Expeditious handling, to include priority shipment consistent with program objectives, will be given by the assessing facility to return CV engine/ module/accessories to the program as soon as possible. All transfers of program assets require the approval of the CV LTF program committee. Clearly mark "F119 COMPASS VECTOR LEAD-THE-FLEET ASSET" in capital letters on all CV engine/ module/accessory containers and records being removed and shipped for ACI or failure investigation. Also, use the approved project code (Compass Vector Code 532) to expedite shipment of assets. This code was approved formally by HQ/AFMC LGRP on 17 October 2003.

4.11.3.9.4. **(Added)** The Engine Management Section will provide a weekly performance slide. This slide will show the previous week's CV performance in terms of operating time and total accumulated cycles as compared to two times the passive fleet's activity.

4.11.3.9.4.2. **(Added)** The status of assigned CV Engine/Modules/LRUs/SRUs will be reported on a monthly basis to PACAF HQ, the F119 Functional Manager and 577 AESG/YF CV LTF Program Manager. Reports are due by the 7th duty day of each month. These reports will include, but are not limited to:

4.11.3.9.4.2.1. **(Added)** CV engine, module, LRU, and/or SRU serial number.

4.11.3.9.4.2.2. **(Added)** Average Total Accumulated Cycles (TAC) accumulated for the wing.

4.11.3.9.4.2.3. **(Added)** TACs accumulated (Month and Total) for the CV engines, modules, LRUs, and/or SRUs.

4.11.3.9.4.2.4. **(Added)** All maintenance performed on the CV engines, modules, LRUs, and/or SRUs.

4.11.3.9.4.2.5. **(Added)** A brief explanation, if CV LTF engine(s) did not meet program goal of 2X the wing monthly average. CV LTF Committee will determine any additional reporting requirements.

4.11.3.9.4.3. **(Added)** Base Engine Manager will also provide monthly program field activity reports, covering each CV LTF engine/module by serial number. This report is due to the Pratt and Whitney POC by the 15th of each month and covers the previous month's activity. In addition to reporting hours and TACs, all significant maintenance actions will be included along with an explanation of unusual occurrences or corrections of previously reported data. The format for the report is as follows: Engine Serial Number.

4.11.3.9.4.3.2. **(Added)** Time/Cycle History.

4.11.3.9.4.3.2.1. **(Added)** Total operating time (EOT) and delta from last report.

4.11.3.9.4.3.2.2. **(Added)** Total flight time (TFT) and delta from last report.

4.11.3.9.4.3.2.3. **(Added)** Total Accumulated Cycles (TAC) and delta from last report.

4.11.3.9.4.3.2.4. **(Added)** Total Equivalent Redline Time (EQRT) and delta from last report.

4.11.3.9.4.3.3. **(Added)** Provide the total monthly unit fleet average for TAC, TFT, EQRT, and Engine Operating Time (EOT).

4.11.3.9.4.3.4. **(Added)** Data description of maintenance performed to include replacement part numbers and whether the part was new or used. OPR: 3 MXS/PW01.

4.11.3.9.4.3.5. **(Added)** When engines/modules are added to/deleted from the CV LTF program, field units must provide a duplicate copy of the AFTO Form 95 to the CV LTF program committee when requested.

4.11.3.9.4.3.6. **(Added)** Program field activity reports on service evaluations will be issued at the request of the CV LTF program committee. The need and format for the required reporting will be established prior to the start of service evaluations.

4.11.3.9.4.3.7. **(Added)** Distribution of all reports will include all CV LTF program committee members.

6.2.10. **(Added)** The QA Chief is the authority for the interpretation of TOs and regulations in reference to Technical Data. The QA Chief will involve the Unit Chief in the process.

6.6.2.1. **(Added)** QA augmentees require an annual EPE on either a PE or technical inspection.

6.9.5.2.5. **(Added)** Maintain AFTO Form 22/TODCR master continuity binder for the MXG.

6.9.5.2.5.1. **(Added)** Assist in training/On-the-Job Training (OJT) for AFTO Form 22 and TODCRs.

6.9.5.2.5.2. **(Added)** Provide regular TODCR PIM reports and AFTO Form 22 feedback to originators.

6.11.4.3.3. **(Added)** MXG TODO will:

6.11.4.3.3.1. **(Added)** Enter newly published LCL, LJG, LWC, LPS, revisions, and deletions in the weekly flying schedule and distribute to all applicable TODAs.

6.11.4.3.3.2. **(Added)** Monitor and distribute all local TO publications upon request.

6.11.4.3.3.3. **(Added)** Keep AF Forms 673 for approved supplements on file.

6.11.7.3. **(Added)** TODOs/TODAs will maintain continuity Binders and will be formatted in accordance with 3 MXG TODO master continuity binder.

6.11.8.2. **(Added)** The 3 MXG TODO will serve as focal point for all ETIMS and eTools technical issues. Additionally, the 3 MXG TODO will:

6.11.8.2.1. **(Added)** Assist unit TODOs/TODAs with technical problems concerning ETIMS accounts.

6.11.8.2.2. **(Added)** Distribute an updated ETIMS listing to TODA accounts quarterly.

6.11.8.2.3. **(Added)** Perform annual inspections on all TODO/TODA accounts. Inspections will be graded with a satisfactory or an unsatisfactory rating.

6.11.8.2.4.3. **(Added)** Damage such as cracked cases, broken handles or any discrepancy that does not impede computer operation may still be used. All discrepancies will be annotated in the tool accountability system.

6.11.8.2.7. **(Added)** Provide each unit TODO/TODA with the PKI certificates required to operate their master tools.

6.11.8.2.10. **(Added)** Maintain a copy of all TODO/TODA custodian appointment letters and training certificates for the MXG. Appointment letters will include the appointee's security clearances.

6.11.8.3. **(Added)** Squadron TODOs/TODAs will:

6.11.8.3.2. **(Added)** Provide weekly and monthly distribution lists and a quarterly TO listing to the 3 MXG TODO.

6.11.8.3.7. **(Added)** Ensure and track eTools currency in accordance with TO 00-5-1 using the tool accountability system.

6.11.8.3.8. **(Added)** Validate all new TO requirements against the applicable TO index prior to submitting them to the responsible TODO.

6.13.2.4.1. **(Added)** Reference Attachment 24-29, this supplement for FCF/OCF checklists

6.13.3.5.2. **(Added)** Upon approval of both the 3 OG/CC and 3 MXG/CC, an FCF certified aircrew from a non-3rd Wing unit may perform FCFs on 3rd Wing aircraft.

6.13.3.6. **(Added)** Review and stamp all inspected forms on the FCF aircraft.

6.13.3.7. **(Added)** Ensure the FCF checklist is kept with the aircraft forms until an FCF aircrew has accepted the aircraft and all applicable checklist items have been accomplished.

6.13.3.8. **(Added)** Be responsible for all C-12 FCF, OCF, In-Flight Operational Checks, and High Speed Taxi Checks.

6.13.4.4. **(Added)** Limited FCF profiles will be coordinated through and approved by the 3 OG/CC and 3 MXG/CC.

6.15.5. **(Added)** 3 OG/CC approval is required to exceed 100 Knots of Calibrated Air Speed (KCAS) during High Speed Taxi Checks. Departure end cables will be raised for F-22 High Speed Taxi Checks.

7.2.1.1. **(Added)** For Impoundment Checklist see Attachment 22, this supplement.

7.4.5. **(Added)** Before assuming any Impoundment Official duties, assigned personnel will attend the locally developed Impoundment Official training through QA.

7.5.2.1. **(Added)** The Impoundment Official/squadron supervision will coordinate with the 3rd Wing Safety office on maintenance actions required to complete the safety investigation.

7.6.3.6. **(Added)** Ensure 3 WG Form 147, QA Impoundment Record, is used and kept with aircraft/equipment forms.

7.6.8.1. **(Added)** Once approved, the Impoundment Release Authority will clear the forms by entering "Investigation complete, all corrective actions have been reviewed, aircraft or equipment released" referring to original discrepancy in the "corrective action" block, signing the "inspected by" block and initialing over the Red X symbol.

7.8. (Added) Maintenance Incident Reporting Procedures:

7.8.1. **(Added)** Upon notification of an incident, MOC will initiate the appropriate EAC and notify QA.

7.8.2. **(Added)** The owning unit is responsible for providing the initial incident report (QA web page) to QA within 24 hours. All incidents/mishaps require a completed report. The exchange price for parts and labor costs will be used to estimate total costs for the report.

7.8.3. **(Added)** QA will e-mail the summary of incident report to 3 MXG supervision.

8.2.3.1. **(Added)** CTK Custodians will maintain a listing of all applicable warranted tool manufacturers. All broken/removed tools will be assessed for warranty before disposal. All unserviceable warranted tools will be stored separately and inventoried by CTK Custodians. Units will develop a method for tracking unserviceable warranted tool disposition (replaced, repaired, or disposed). Tools that have expired warranties may be disposed of in accordance with standard procedures.

8.2.5.1. **(Added)** On-site turnover of CTKs will be approved by Squadron Maintenance Supervision prior to execution. On-site turnover of CTKs will be performed by the receiving and losing technician. Each will perform a joint inventory at the job site and sign a print out of TCMax or an AF Form 1297, along with their employee number. The joint inventory will be signed off/approved by the AMU Production Superintendent or MXS/MUNS Production Superintendent (for off-equipment work only). The losing technician will deliver the print out of TCMax or AF Form 1297 to the Support Section prior to being released from shift. This procedure will not extend beyond two shifts without approval of the 3 MXG/CC or 3 MXG/CD. EXCEPTION FOR TMDE: When calibration of the hush house is accomplished, a complete inventory of the CTK will be performed at each shift change and validated by the MXS Production Superintendent until calibration is complete.

8.2.6.1. **(Added)** See Paragraph 8.9, this supplement, for 3 MXG lost tool procedures.

8.2.7.1. **(Added)** Only tools properly marked and accounted for in accordance with this guidance will be used on aircraft, aircraft components, and equipment. Tools used and transported within the flight line areas but from agencies outside of the 3 MXG will have an identification marking reflecting which agency the tool belongs to. Each unit has been assigned a prefix for the nine-digit TCMax identifier, and each prefix beginning with EL is listed below. (Fabrication Flight and the 517th Airlift Squadron Life Support Section will be identified by first five characters).

Table 8.1. (Added) The 3D Aircraft Maintenance Squadron.

525 AMU	EL25
90 AMU	EL90, All suffixes after the prefix 9-
F-22 Alert	ELAA, EA-1 thru -25, E-500 thru -699

Table 8.2. (Added) The 703D Aircraft Maintenance Squadron.

962 AMU	EL62, (all suffixes)

Table 8.3. (Added) The 3D Munitions Squadron.

ARMAMENT FLIGHT	ELER
PRODUCTION FLIGHT	
PGM	ELEW0
Trailer Maintenance	ELEW1
Conventional	ELEW2
Line Delivery	ELEW3
MATERIEL FLIGHT	
Inspection	ELEW4
Storage	ELEW5
SYSTEMS FLIGHT	
Mobility	ELEW6

Table 8.4. (Added) 3D Maintenance Squadron.

ACCESSORIES FLIGHT	C50 thru 100, CF1 thru 120, CE50 thru 100
Electrical-Environmental	ELCE
Fuel Shop (Fighters)	ELCF
Fuel Shop (Heavies)	ELCFE
Egress	ELCG
Hydraulics	ELCH
Avionics Section	C1 thru 29, AVS 1 thru 10
Avionics (AIS)	ELCVA
Avionics (Lantern)	ELCVS
AGE FLIGHT	ELEA
FABRICATION FLIGHT	
Main	ELEFS
F-22/LO	ELEFL
NDI	ELEFN
North Shop	ELEFH
Metals Tech	ELEFM
MAINTENANCE FLIGHT	
R&R/Wheel & Tire	ELEM, LC-1 thru -10
Trans Alert	ELET
Crash and Recovery	ELEP, E350 thru 399
PROPULSION FLIGHT	ELCP, All Suffixes
Pratt & Whitney	ELPW
TMDE	ELCD, C30 thru 45, CL1 thru 15, CA1 thru 20
Test Cell	ELCT

Table 8.5. (Added) The 3D Maintenance Operations.

AFREP	ELAF
Quality Assurance	ELQA
MTF	ELMX, SMAT1 thru 4
WSS	ELWS, ALSC-1 thru ALSC-10

Table 8.6. (Added) The 3D Operations Group.

Aircrew Flight Equipment	ELFE

Table 8.7. (Added) The 353D Combat Training Squadron/Det 1.

353 CTS/MA	EL53

Table 8.8. (Added) Additional.

732 AMS	ELAS

8.2.8. **(Added)** Personnel without employee numbers will mark all individually issued equipment with first name initial, last name, organization, and contact phone number.

8.2.9. **(Added)** Squadrons will develop and enforce a method for tracking rags.

8.2.10. **(Added)** Units will develop a method to limit access.

8.2.12.1. **(Added)** Depot field teams, aircraft contractors, and factory representatives must have a tool control program in place for all tools and equipment required to accomplish work on aircraft and/or aircraft components. Tool control procedures will be adhered to in accordance with AFI 21-101 and this supplement.

8.2.14.1. **(Added)** Crash Recovery trailers and Metals Technology welding trailers will be maintained, controlled, and inventoried in the same manner as dispatchable CTKs.

8.3.1.1.1. **(Added)** CTK Custodians will maintain a Master CTK Continuity Binder for each area of responsibility. If a tab is not required, identify the section as not required. Sub-located sections will be identified with use of the DD Form 2861, Cross Reference. Each binder will contain the following tabs, at a minimum:

8.3.1.1.1.1. **(Added)** Tab A. CTK Custodian appointment letter.

8.3.1.1.1.2. **(Added)** Tab B. AFI 21-101 3 WG Sup, Tool and Equipment Management Chapter.

8.3.1.1.1.3. **(Added)** Tab C. Master Tool Room Master Inventory Lists (MIL).

8.3.1.1.1.4. **(Added)** Tab D. Completed 3 WG Form 145, Lost Tool/Object Worksheet. Completed worksheets will be maintained for 1-year.

8.3.1.1.1.5. **(Added)** Tab E. Annual Tool Inspection Log.

8.3.1.1.1.6. **(Added)** Tab F. Locally manufactured tools and/or equipment authorization letters.

8.3.1.1.1.7. **(Added)** Tab G. Spare Tool Inventory List.

8.3.1.1.1.8. **(Added)** Tab H. List of explosion-proof lights by CTK number, type of light, and inspection due dates.

8.3.1.1.1.9. **(Added)** Tab I. Missing/Removed Tool Log (3 WG Form 146) for Precision Measurement Equipment Laboratory (PMEL) items removed and broken and/or damaged/serviceable tools.

8.3.3.1. **(Added)** Clearly mark all flightline dispatchable CTKs with reflective tape. The reflective tape will be visible from all angles.

8.3.3.2. **(Added)** All dispatchable CTKs will have a FOD bag inside or attached to the CTK. FO will be put in FOD bag during maintenance and removed from FOD bag prior to turning into CTK Support Section.

8.3.6.6.1.1. **(Added)** All containers and pouches used for small items will list each item, including the container, on the CTK MIL. Each container will be marked "Pieces + Container" (example: 16 pieces + 2 piece case).

8.3.6.7.1.1.1. **(Added)** A 3 WG Form 146 is required for each dispatchable CTK.

8.3.6.7.1.1.2. **(Added)** AFTO Form 244, Industrial/Support Equipment Record, or other MIS will be used to document broken/damaged/removed items for all Test Equipment (TE) and Support Equipment (SE) requiring an AFTO Form 244. MIS will match the TE and SE AFTO Form 244 documentation. For Red X conditions, the AFTO 244 will be attached to equipment.

8.3.14. **(Added)** CTKs will not be placed on any aircraft exterior surface.

8.5.3.3. **(Added)** Whenever a Tool Bag is used, a complete inventory of the tool bag will be accomplished prior to use and immediately upon task completion. Tools will not be stored or carried in pockets.

8.5.5.7. **(Added)** eTools ITEC account custodians will:

8.5.5.7.1. **(Added)** Work with appropriate agencies to resolve technical issues such as syncing problems or software issues.

8.5.5.7.2. **(Added)** Work with appropriate agencies to resolve hardware issues such as cracked screens, malfunctioning hard drives, or malfunctioning network cards.

8.5.5.7.3. **(Added)** Remove unserviceable eTools from service until the cause for unserviceability is repaired. eTools custodians will notify the applicable TODO when an eTools is removed from service.

8.5.5.8. **(Added)** eTools cabinets set-up throughout the 3 MXG will be as follows:

8.5.5.8.1. **(Added)** All cabinets will have the computer's Electronic identification Designator (EID) displayed on the front of each drawer. The computer name will also be displayed on the front of each drawer.

8.5.5.8.2. **(Added)** All cabinets will have a quick reference indicator (e.g. red/green slider) on the drawers to easily identify serviceable/unserviceable eTools.

8.7.2. **(Added)** Locally manufactured or modified equipment will be identified, maintained, and controlled by the user. The owning function/organization is responsible for maintenance of the equipment and is responsible for obtaining inspection criteria requirements.

8.7.4. **(Added)** Organizations requesting a locally manufactured tool or piece of equipment will:

8.7.4.1. **(Added)** Coordinate with the fabricating work center to ensure the item can be manufactured. All requests for locally manufactured aircraft parts will be routed through supply.

8.7.4.2. **(Added)** Create and schedule a job in IMDS for the fabricating work center.

8.7.4.3. **(Added)** Provide all necessary drawings, specifications, materials, and bits/pieces required by the fabricating work center. Operating/Shop Stock or work order residue may be used.

8.7.4.4. **(Added)** Unless pre-coordinated with the fabricating work center, the requesting agency will maintain all local manufacture paperwork and store all materials until all required items have been received.

8.7.4.5. **(Added)** Provide a properly completed AFTO Form 350 to the fabricating work center.

8.7.4.6. **(Added)** Order all required materials. The fabricating work center may assist in researching proper materials. NOTE: Local manufacture requirements generated within the 3 MXS are exempt from processing through base supply provided they are required to satisfy an internal maintenance requirement.

8.7.4.7. **(Added)** Ensure all locally manufactured equipment used for lifting purposes (load bearing) are load tested and NDI inspected annually. Squadrons will identify personnel with access to tool rooms by appointment letter signed by the Support Flight Chief.

8.9.2.7. **(Added)** If the tool/item is found at a later date, an edited copy of the original 3 WG Form 145 will be sent to QA and the 3rd Wing FOD Manager. The 3rd Wing FOD Manager will maintain a copy of the report for one year.

8.9.3. **(Added)** Any lost individually issued equipment (that is, ear defenders, reflective belts, and so forth) must be reported in accordance with lost tool procedures.

8.9.4. **(Added)** MOC will maintain the lost tool control log and issue control numbers. The log will consist of name of individual who lost the tool/item, unit assigned, equipment/aircraft serial number, CTK number, nomenclature of the lost tool/item, date and time item was lost, specific shop area/flight line (aircraft location). If applicable, the impoundment authority/official name, rank, and telephone number.

8.9.5. **(Added)** The following procedures will be followed for lost tools/items involving an aircraft

Table 8.9. (Added) Lost Tool/Item Involving an Aircraft.

Item Found	**Red X for lost tool/item 781A "Inspected" by**	**Maintenance Supervision reviews/signs 3 WG Form 145**	**QA Review/Signs**	**3 WG Form 145 (Block #8) Signature**
No	Maintenance Supervision	Yes, Block #5	Yes, Block #7	MXG/CC, MXG/CD
Yes	Impound Official	Yes, Block #8	Yes, Block #7	Maintenance Supervision

8.9.6. **(Added)** The following procedures will be followed for lost tools/items not involving aircraft/equipment.

Table 8.10. (Added) Lost Tool/Item Not Involving an Aircraft.

Item Found	Maintenance Supervision reviews/signs 3 WG Form 145	QA Reviews/Signs	3 WG Form 145 (Block #8) Signature
No	Yes, Block #5	Yes, Block #7	MXG/CC, MXG/CD
Yes	Yes, Block #8	Yes, Block #7	Maintenance Supervision

9.3.3.1. **(Added)** Coordinate with the fabricating work center section chief to ensure the item(s) can be manufactured. All local manufactured requests for aircraft parts will be routed through supply.

9.3.3.2. **(Added)** Coordinate all locally manufactured, developed, or modified tools and equipment used on aerospace equipment for approval through the 3 MXG/CC or designated representative.

9.3.3.3. **(Added)** Create and schedule a job in IMDS for the fabricating section.

9.3.3.4. **(Added)** Provide all drawings, specifications, materials, and bits/pieces required by the fabricating section. Operating/shop stock or work order residue, on hand at the fabricating section, may be used for the local manufacture, provided sufficient material is on hand.

9.3.3.5. **(Added)** Requestors will hold all local manufacture paperwork and store all materials received (unless prior arrangements have been agreed upon) until all required items have been received.

9.3.3.6. **(Added)** Provide a maintenance snapshot and a properly filled out AFTO Form 350 tag to the manufacturing section.

9.3.3.7. **(Added)** Fabricating sections will:

9.3.3.8. **(Added)** Assist customers in researching materials necessary for requested items, however, the requestor will order all required materials.

9.3.3.9. **(Added)** Fabricate requests in a timely manner based on mission needs.

9.20.3. **(Added)** Customers requesting a local manufacture will:

11.6.5. **(Added)** In the event MIS is inoperative during Red Ball maintenance actions, the Production Superintendent or Flightline Expediter will:

11.6.5.2. **(Added)** Notify MOC of the Red Ball maintenance discrepancy. The individual notifying MOC of the Red Ball will obtain a valid manual job control number.

11.6.5.3. **(Added)** All maintenance actions performed will be documented in the MIS once the system becomes available.

11.10.1. **(Added)** The Wing Avionics Manager (WAM) will serve as the Aircraft Structural Integrity Program (ASIP) project officer. The WAM will:

11.10.1.1. **(Added)** Coordinate between all applicable agencies responsible for maintaining ASIP equipment to ensure equipment is repaired and reinstalled in aircraft as soon as possible.

11.10.1.2. **(Added)** Review all ASIP correspondence and distribute information to aircraft maintenance units.

11.10.1.3. **(Added)** The F-22 Specialist Flight Chiefs will designate a primary and alternate ASIP monitor and provide the appointment letter to the WAM.

11.10.2.1. **(Added)** The E-3 Specialist Flight Chief (Debrief Section) will designate a primary and alternate ASIP monitor and provide the appointment letter to the WAM.

11.10.4.3.1. **(Added)** All ASIP Monitors will ensure forms have been collected for each flight flown for the month and transmitted to the MDS-specific ASIP Manager.

11.10.9.3. **(Added)** During deployments and/or off-station sorties, the ASIP Monitor will ensure forms are collected for each sortie and either mailed to home station or hand-carried to home station and turned over to the ASIP Monitor for processing

11.10.4.5. **(Added)** The ASIP Monitor will maintain a log showing the date the forms were transmitted, date range of sorties reported, and number of forms submitted.

11.11.1.3.6. **(Added)** All testing data and results will be maintained for a minimum of 1 year.

11.11.2. **(Added)** The WAM will function as the IFF Program Manager.

11.12.2. **(Added)** The WAM will function as the RWR/RTHW Program Manager.

11.12.2.2.2. **(Added)** Testing of aircraft when initially going on alert status satisfies preflight program requirements.

11.12.2.3.1. **(Added)** Test results will be entered and tracked per aircraft in the appropriate MIS.

11.25. (Added) **QA is the overall administrator for the 3rd Wing Hot Refueling program.** The QA Superintendent will designate a hot refuel-qualified inspector to manage the hot refueling program.

11.25.3. **(Added)** Hot Pit refueling will be performed in accordance with LCL-3 WG/TOD F702727144.

11.25.4. **(Added)** A qualified weapons technician will safe “Hot” Gun in accordance with applicable technical order data.

11.25.8.3. **(Added)** Phase 3 is the responsibility of each AMU. After Phase 1 and 2 are complete, initial certification will be performed by a squadron certifier and require the completion of two hot refuels, with the first one as an over-the-shoulder hands-on and the second with no assistance. A maximum of one individual may be initially certified on any pit at a time. Squadron certifiers must be Hot Pit qualified for a minimum of 180-days prior to being qualified as a certifier.

11.25.9.1. **(Added)** The Hot Pit Certifier will complete an AF Form 2426, Training Request and Completion Notification, and provide it to QA and the Squadron Unit Training Manager (UTM). Squadron UTMs will update MIS. Squadron UTMs will enter the start date and journal entry indicating Phase I and Phase II training were completed. Phase III will be signed off by the Certifying Official. The Certifying Official will annotate the "Completion Date" and initial the Trainer Block. This procedure does not include initial certifications.

11.25.11.1. **(Added)** Personnel who commit a Safety or Technical Violation during a Hot Pit operation or fail to maintain proficiency will be de-certified.

11.28.3. **(Added)** Aircraft barrier engagement recovery procedures.

11.28.3.1. **(Added)** Once cleared by Fire Department personnel, technicians will ensure the aircraft is fire safe and chocked. Fire Department personnel will turn control of the aircraft over to the Crash Recovery Team Supervisor for barrier extraction.

11.28.3.2. **(Added)** Alternate extraction procedures are commonly referred to as "slingshotting" the aircraft. Potential for aircraft damage is high when using these methods; therefore, use these procedures only during contingencies when conditions warrant rapid cycling of the arresting system.

11.28.3.3. **(Added)** The crash recovery team will tow the aircraft clear of the barrier, as required.

11.28.3.4. **(Added)** For the purpose of towing the aircraft off the active runway, the crash recovery team will safe, at a minimum, the aircraft landing gear and all live forward- firing ordnances. Immediately upon exiting the active runway, the tow team will stop the aircraft and all remaining safing operations will be completed prior to towing the aircraft to its designated parking spot.

11.35. (Added) **Repeat/Recur and Could Not Duplicate (CND) Discrepancy Procedures.**

11.35.1. **(Added)** The Aircraft Maintenance Unit Debrief Section will document Repeat/Recur conditions in MIS and on the AFTO Form 781A/IMIS Electronic Forms. Manual forms will be clearly marked in bold red print or stamp to indicate Repeat/Recur discrepancies. IMIS Electronic Forms will indicate Repeat/Recur in the discrepancy block.

11.35.2. **(Added)** Repeat/Recur 1: if the discrepancy is a red diagonal, the technician who performed corrective action will sign the "Corrected By" block. For all "Repeat 1" discrepancies, a 7-level technician or higher must sign the "Inspected By" block.

11.35.2. **(Added)** Repeat/Recur 2: if the discrepancy is a red diagonal, the technician who performed the maintenance will sign the "Corrected By" block. For all "Repeat 2" discrepancies, a MSgt or higher must sign the "Inspected By" block.

11.35.3. **(Added)** Repeat/Recur 3: if the discrepancy is a red diagonal, the technician who performed the maintenance will sign the "Corrected By" block. For all "Repeat 3" discrepancies, the AMU OIC/Chief/Superintendent must sign the "Inspected By" block.

11.35.4. **(Added)** CND discrepancies will be cleared by entering "CND Malfunction" in the Corrective Action block. All maintenance actions taken will be listed, including TO references. The individual performing or assisting in the malfunction diagnosis or maintenance will sign the "Corrected By" block. The individual signing the "Inspected By" block must be a 7-level technician or higher.

11.36. (Added) **Aircraft Servicing Documentation.**

11.36.1. **(Added)** AGE Flight will develop a local tracking sheet for servicing carts that will include, at a minimum; aircraft tail number, component serviced, date/time, and employee number (this tracking sheet will stay with the servicing cart). Maintenance personnel will document the tracking sheet after using the servicing cart. AGE Flight will maintain the tracking sheets for 90-days.

11.36.2. **(Added)** Each time servicing carts (hydraulic, Polyalphaolefin (PAO), oil, Liquid Oxygen (LOX), Gaseous Oxygen (GOX), air, coolant, and nitrogen) are used for servicing, the cart number will be documented in the Corrective Action block or by INFO NOTE.

11.37. (Added) **Oil Analysis Program (OAP).**

11.37.1. **(Added)** E-3s will use the AFTO Form 781 and F-22s will use the IMIS Aircraft Status Board to track total oil serviced.

11.37.2. **(Added)** F-22 aircraft maintenance units will submit weekly oil samples to the Oil Analysis Program lab for all assigned oil carts. (N/A for other AMUs)

11.37.2.1. **(Added)** Sampled carts will be delivered to the OAP lab no later than 1600 the first duty day of each week. A DD Form 2026, Oil Analysis Request, will accompany every oil cart sample submitted to the lab. The AFTO Form 244 will have the date oil samples are taken and when sampling is due documented on the form.

11.37.2.2. **(Added)** Oil carts who's samples are not received by OAP lab by the prescribed time will be placed on a code "P" – Do not use, submit sample."

11.37.2.3. **(Added)** AGE Flight will submit an oil sample to the OAP lab for all oil carts they service before releasing the carts.

11.37.2.4. **(Added)** Aircraft oils in bulk containers (55 gallon drums or other) that are to be transferred to oil carts to service aircraft engines will be sampled at initial opening. Contents of bulk containers will not be placed into servicing carts until sample results are received

11.37.2.5. **(Added)** NDI will maintain an OAP Sample Receipt Log which includes the following information: aircraft tail number, time sample taken, time sample delivered, time MOC was notified of OAP status, and name of the individual notified.

11.37.2.6. **(Added)** Aircraft engine shutdown time will be entered in the "Local Time Taken" block on the DD Form 2026 in format – Engine shutdown/Sample taken.

11.38. (Added) **Hangar Doors Program.**

11.38.1. **(Added)** Units must ensure continued operation of hangar doors. Building custodians will perform and document operational checkout of hangar doors and safety features in accordance with AFI 91-203. Notify 773 CES/CEOSB for any problems that occur with the operation of the hangar doors or parts needing repair and/or replacement.

11.38.2. **(Added)** Building Custodians will maintain a hands-on hangar door training plan for each type of aircraft hangar door within their assigned facilities. This plan must include the following subjects: door hazards, emergency procedures, hangar door operations, and cold weather hangar door operating instructions. Additional topics may be added based upon unique door characteristics.

11.38.3. **(Added)** Working with Building Custodians, Maintenance Training Flight will maintain a hangar door awareness training plan and teach annual awareness training for personnel who work in hangars. This training must include the following subjects: door hazards, emergency procedures, hangar door operations, and cold weather hangar door operating instructions. Additional topics may be added based upon unique door characteristics. Hangar Door Awareness Training for aircraft maintenance personnel will be documented in MIS

11.38.4. **(Added)** Cold Weather Hangar Door Procedures. These procedures apply to all 3 MXG-owned hangars/shelters equipped with exposed piping and is designed to prevent freezing of pipes and inadvertent activation of Fire Suppression Foam Systems. Due to heating times of hangar/shelter bays, appropriate measures should be taken to ensure doors are not open longer than specified/required.

11.38.4.1. **(Added)** At 32 degrees to 0 degrees ambient air temperature, the on-duty Production Superintendent will ensure hangar door usage is limited to mission essential operations. Main hangar doors should not be open for longer than the time required to safely tow the aircraft/equipment into/out of the hangar. The hangar door open period should not exceed 45-minutes and will be followed by a 30-minute rewarming period. The door open and rewarming period is the same for individual aircraft shelters.

11.38.4.2. **(Added)** At 0 degrees ambient air temperature and below, the on-duty Production Superintendent will ensure hangar door usage is limited to only mission essential operations. Main hangar doors should not be open for longer than the time required to safely tow the aircraft/equipment into/out of the hangar. The hangar door open period for Hangars 1, 2, 3, 5, 15, 16, 19, 22, 25, Hush House 1 and 2, Building 8549, Building 8691, and Warm Storage should not exceed 15-minutes and will be followed by a 45-minute rewarming period. The hangar door open period for Hangars 8, 14, 20, 21 and Shelters 17, 23, 24, and 26 should not exceed 40-minutes and will be followed by a 60-minute rewarming period.

11.38.4.3. **(Added)** AMXS Production Superintendents will coordinate with Maintenance Squadron Production Superintendents before opening Hangar 2 doors during Cold Weather Operations.

11.39. (Added) **Aircraft Hangaring/Aircraft Towing Procedures**.

11.39.3.1. **(Added)** General Hangar Door Operations can be found in Attachment 18, this supplement.

11.39.3.2. **(Added)** Aircraft Hangar Checklists can be found in Attachment 16 and 17, this supplement.

11.39.2. **(Added)** The Tow Supervisor will complete and sign an Aircraft Hangar Checklist immediately upon completion of aircraft hangaring operations. The F-22 checklist will be displayed in clear view on or near the nose landing gear. The E-3 checklist will be displayed in the aircraft forms in front of the AFTO Forms 781A/or designated location. Snatch cables must be attached to the aircraft main landing gear towing bridles when the nose is not accessible to a tow vehicle, or when the aircraft tow fitting is removed. The Tow Supervisor will ensure the area is clean upon removal of aircraft.

11.39.3.3. **(Added)** Hangar 17 & 23 F-22 Auxiliary Power Unit (APU) Hood exhaust Checklist can be found in Attachment 19 & Attachment 21, this supplement.

11.39.3.4. **(Added)** Hangar 24 & 26 F-22 APU Hood exhaust Checklist can be found in Attachment 20, this supplement.

11.40. (Added) **Aircraft Wash Rack Procedures.**

11.40.1. **(Added)** When outside temperatures are below 33 degrees Fahrenheit, aircraft which have been parked outside will be positioned on the wash rack at least 4-hours prior to the scheduled wash time in order to allow temperature stabilization.

11.40.2. **(Added)** The Wash Rack Facility Manager will provide and store authorized and approved Qualified Product List listed materials needed for cleaning aircraft listed in TO 1-1-691.

11.40.3. **(Added)** The Wash Rack Supervisor will:

11.40.3.1. **(Added)** Supervise operation of the wash rack, training of wash personnel, and ensuring a safety briefing is completed prior to initiating an aircraft wash.

11.40.3.2. **(Added)** Clean the wash rack and equipment after each aircraft wash and inventory and properly store all wash rack equipment.

11.40.3.3. **(Added)** Ensure a qualified 7-level or higher completes an after-wash inspection. The wash supervisor or representative will notify the Production Superintendent and MOC of wash completion. MOC will notify QA and Corrosion Control (if required).

11.40.3.1. **(Added)** Ensure the aircraft is dry prior to towing aircraft from the wash rack. The AMU OIC/Chief/Superintendent can waive this requirement but must take appropriate action to dry aircraft brakes prior to towing aircraft to another hangar. Aircraft will not remain outside until completely dry.

11.41. (Added) **Identification, Movement, and Maintenance of AGE.**

11.41.1. **(Added)** Equipment will be assigned to organizations, as authorized by aircraft allowance standards, by color code and field numbers. Color codes will be as follows:

11.41.1.1. **(Added)** 732nd Air Mobility Squadron (732 AMS) – White (with Air Mobility Command emblem).

11.41.1.2. **(Added)** 525th Aircraft Maintenance Unit (525 AMU) – Gold.

11.41.1.3. **(Added)** 90th Aircraft Maintenance Unit (90 AMU) – Red.

11.41.1.4. **(Added)** 962nd Aircraft Maintenance Unit (962 AMU) – Green.

11.41.1.5. **(Added)** Transient Alert – Orange.

11.41.1.6. **(Added)** RED FLAG – Black.

11.41.2. **(Added)** AGE movement requests will only be accepted from Production Superintendents, Expediters, and/or the Maintenance Operations Center (MOC).

11.41.2.1. **(Added)** AGE will not deliver, move, or pick up hydraulic carts, oil carts, C-1 stands, 20 ton Axle Jacks, Component Jacks, or fuel bowsers without 3 MXS Production Superintendent.

11.41.2.1. **(Added)** AGE Drivers will not prioritize deliveries, movements, or pick up of AGE. AGE Drivers will deliver and pick up equipment in the order requested, unless otherwise notified. AMU Production Superintendents are responsible for prioritizing deliveries, movements, and pick up of all AGE and will notify AGE Drivers of priorities, as required.

11.41.2.2. **(Added)** AGE Drivers will not borrow equipment assigned to other organizations. The Production Superintendent is responsible for coordinating all requests to borrow equipment through the owning organization.

11.41.2.3. **(Added)** Prior to any AGE delivery:

11.41.2.3.1. **(Added)** All hoses, ducts, and cables will be securely stored on or in the equipment, in accordance with design specifications. All dust and rain caps will be properly installed. All hand rails will be installed and secured with pins on all maintenance stands. All equipment will be retracted to stowed position. All doors and compartments will be closed.

11.41.2.3.2. **(Added)** Aircraft servicing logs, kept with AFTO Forms 244, will be correctly annotated.

11.41.2.3.3. **(Added)** All equipment will be moved outside the 10-foot aircraft circle of safety with tow bar situated for easy access; parking brakes will be engaged or wheels will be chocked.

11.41.3.3. **(Added)** AGE Drivers will perform servicing and inspections prior to placement of powered AGE on ready-lines and sub pools.

11.41.3. **(Added)** Organizations requiring temporary use of AGE for other than flightline use will submit justification for their requirements to the 3 MXS Maintenance Officer/Chief Enlisted Manager not later than 7 days prior to the date needed.

11.41.3.1. **(Added)** When an organization has a temporary request approved, AGE will be issued on an AF Form 1297, Temporary Issue Receipt.

11.41.3.2. **(Added)** The using organization is responsible for all fuel/refueling costs while the equipment is in their possession.

11.41.4.5. **(Added)** Users will check AGE for serviceability prior to use. Discrepancies will be documented on AFTO Form 244, Industrial/Support Equipment Record, in accordance with TO 00-20-1.

11.41.4. **(Added)** Bomb Lift Procedures.

11.41.4.1. **(Added)** Bomb lifts will be signed out on AF Form 1297 from the appropriate AGE Team supporting their AMU by qualified operators. Operators will perform a “prior to use” inspection before starting the unit and deliver the forms to the AGE representative. The AGE representative will check the bomb lift forms while the operator is signing them out in the log.

11.41.4.2. **(Added)** Bomb lifts will be returned to the AGE facility at 7-day intervals to ensure serviceability.

11.41.5. **(Added)** Non-powered AGE Procedures.

11.41.5.1. **(Added)** Each AMU will be supplied with hydraulic and oil servicing carts and are responsible for the following:

11.41.5.1.1. **(Added)** Document discrepancies on the AFTO Form 244. If a discrepancy renders the equipment inoperable/unserviceable, the user will immediately report the discrepancy and field number to the AGE Driver for repair or replacement.

11.41.5.1.2. **(Added)** Coordinate the delivery of Non-Powered Aerospace Ground Equipment (NPAGE) to support training requirements.

11.41.6. **(Added)** Fuel Bowsers. AMUs are responsible for the contents and monitoring of fuel bowsers. Foreign substances such as oil, hydraulic fluids, chemicals, hardware, safety wire, or trash will not be placed in fuel bowsers. The AMU is responsible for delivering fuel bowsers to the defueling location and for the disposal of all non-recyclable petroleum products through the Hazardous Waste Facility. AMUs will dispose of all waste/reclaimable petroleum products and will drain bowser sumps to prevent damage to equipment. Any water removed will be drained and disposed of IAW local environmental procedures.

11.41.6.1. **(Added)** Liquid Oxygen (LOX), Gaseous Oxygen (GOX), Sulfur Hexafluoride (SF-6), and Gaseous Nitrogen (GN2) Bottle, Self-Generating Nitrogen Servicing Cart (SGNSC), High Purity (HP)-SGNSC, and Stored Energy System Servicing Carts (SESSC).

11.41.6.3.1. **(Added)** AMUs will monitor and maintain LOX, GOX, SF-6, and GN2 contents (quantity/pressure levels) and are responsible for LOX cart servicing. Users will ensure the AFTO Form 134, Aviator Breathing Oxygen Servicing Trailer Log, is properly annotated and will only deliver carts to Base Cryogenics with properly completed forms.

11.41.6.3.2. **(Added)** AGE Flight is responsible for transporting LOX, GOX, SF-6, and GN2 Carts to and from the Electrical and Environmental Section, Base Cryogenics, and AGE facilities for the purposes of scheduled and unscheduled maintenance.

11.41.6.3.2.1. **(Added)** AGE Flight will monitor and coordinate all LOX, GOX, SF-6, and GN2 Cart scheduled inspections.

11.41.6.3.2.2. **(Added)** LOX Carts requiring purge prior to maintenance must contain 15-gallons or less prior to being purged.

11.41.6.3.2.3. **(Added)** AGE Flight will service LOX Carts after scheduled maintenance, if required, have units serviced at the LOX plant, if required, after scheduled AGE inspections.

11.41.6.3.3. **(Added)** A forms jacket or tube, with AFTO Form 244 and AFTO Form 134, Aviator Breathing Oxygen Servicing Trailer Log (Liquid/Gaseous), will be attached to each unit.

11.41.6.3.4. **(Added)** GOX, SF-6, and/or GN2 bottle requisition, storage, and/or replacement is the responsibility of the user/AMU.

11.41.6.5.6. **(Added)** The AMU is responsible for maintaining the optimum operating levels in Self-Generating Nitrogen Servicing Cart (SGNSC), High Purity (HP)-SGNSC, and Stored Energy System Servicing Cart (SESSC).

11.41.7. **(Added)** AGE Cold Weather Operations.

11.41.7.1. **(Added)** At temperatures of 20 degrees Fahrenheit or below, maximum effort will be made to store all powered AGE not-in-use inside a facility. Hangar-exclusive equipment (electric hydraulic test stands, generators, air conditioners, will be moved outside of hangars only for purposes of relocating the equipment to another hangar, maintenance facility, or for repair pickup.

11.41.7.2. **(Added)** Care must be exercised to prevent unnecessary damage and wear to diesel-powered support equipment. Diesel engines will be started and warmed up, at low Revolutions per Minute (RPM), for at least 5 minutes before a load is applied. If the unit is required after completion of a job, it should be placed in a "no load" condition with the engine at idle and monitored by the using organization until used for other tasks.

11.41.7.3. **(Added)** Heaters will not be operated within 25-feet of aircraft or explosives. At temperatures of 32 degrees Fahrenheit or below, heater engines may remain running with the BURNER OFF and must not be left unattended.

11.41.8. **(Added)** B AGE Towing.

11.41.8.1. **(Added)** AGE tow vehicles are permitted to tow four ground heaters in tandem on the outer pintle hooks in the vicinity of the flightline. AGE tow vehicles are permitted to tow four ground heaters in tandem on the center pintle hooks in areas off the flightline. Outside pintle hooks will not be used off the flightline. No more than two ground heaters may be towed on the pintle hook of other vehicles. Tandem loads will not exceed the load capacity of the tow vehicle. Loads, regardless of the number of the units being towed, will be kept symmetrical. Single units will be towed only on the center pintle hook. When towing two units, AGE Drivers must use outside pintle hooks. When towing more than two units simultaneously, distribute the load as evenly as possible on each of the two outer pintle hooks.

11.41.8.2. **(Added)** Tandem towing of AGE is authorized. The heaviest unit must be placed nearest the tow vehicle. Four-wheeled units will not be towed behind two-wheeled units.

11.41.8.3. **(Added)** AGE will not be towed using the center and outside pintle hooks simultaneously.

11.41.8.4. **(Added)** Total weight of all units being towed will not exceed the maximum capacity of the tow vehicle.

11.41.8.5. **(Added)** Prior to any towing operation, the vehicle operator will:

11.41.8.5.1. **(Added)** Complete a walk-around inspection of the equipment to ensure cables, ducts, doors, panels, and hardware are properly stored, and release the brakes. Ensure equipment is properly disconnected from the aircraft. Check for foreign objects and visible signs of fluid leaks, misuse, or abuse.

11.41.8.5.2. **(Added)** Ensure tow vehicle and AGE equipment pintle hooks are properly closed and safety/cotter pins are installed and retained by friction.

11.41.8.5.3. **(Added)** Document all equipment discrepancies on the AFTO Form 244. NOTE: AGE will not be moved or picked up until above items are completed.

11.41.9. **(Added)** AFTO Form 244 Documentation. A Supervisory Review of AFTO Form 244 will be accomplished by the AGE floor leader or shift supervisor after any scheduled and/or unscheduled maintenance. A supervisor review will consist of reviewing equipment forms and IMDS for accuracy IAW TO 00-20-1 and documenting Part IV of the 244.

11.42. (Added) **Aircraft Deicing**

11.42.1. **(Added)** Deicing season is 15 October through 15 April (inclusive). Deicing operations during this time frame are supported by AGE Flight.

11.42.1.1. **(Added)** AGE Flight will provide a Deicer Truck Driver for 24-hour support, beginning 0001 on Mondays and concluding at 2400 on Fridays. All other personnel required for deicing (spotters and operators) are the responsibility of the requesting organization. AGE Flight will not provide truck drivers on weekends, holidays, or down days. Unless directed by the 3 MXG/CC or 3 MXG/CD, the requesting organization (e.g. AMU or Transient Alert) is responsible for providing the truck driver during these times. AGE Flight will ensure the requesting organization is provided with a fully serviced deicer truck(s) for all weekends, holidays, or down days. Requesting organizations are also responsible for providing deicer truck drivers anytime workload demands exceed AGE Flight personnel availability.

11.42.1.2. **(Added)** The 732 AMS will receive the same support as 3 WG organizations during the deicing season, with the following exceptions: AGE will ensure the 732 AMS is provided with a serviced deicer truck(s) for all weekends, holidays, and down days. Truck(s) will be positioned in Hangar 14 with vehicle keys and AF Form 1800 inside the vehicle. AGE will ensure the window placard reflects the deice fluid mixture and Lowest Outside Air Temperature Capability (LOAT). AGE will also ensure personnel are available and/or on-call to service deicing fluid upon request.

11.42.1.2.1. **(Added)** AGE Flight personnel will perform the daily use inspection Monday-Friday. The 732 AMS will accomplish daily use inspections during weekends, holidays, and down days. 732 AMS will also ensure vehicles are refueled after use.

11.42.1.2.2. **(Added)** Should 732 AMS require support during weekends, holidays, or down days, they will coordinate a Federal Civil Service employee overtime request with the 3 MXS Maintenance Officer or Chief Enlisted Manager prior to any employee performing overtime support. All overtime requests will be paid by the 732 AMS.

11.42.1.2.3. **(Added)** The 732 AMS will store deicer trucks inside a heated facility to prevent cold-soaking and to maximize deicing fluid heater operations.

11.42.1.2.4. **(Added)** The 732 AMS MOC will coordinate with 3 MXG MOC to establish mission priority. 732 AMS MOC will provide the 3 MXG MOC with a daily flying schedule and any other additional deicing requirements that are not reflected on the daily flying schedule.

11.42.2. **(Added)** AGE Flight does not provide personnel support for deicing operations occurring after 15 April and prior to 15 October. All organizations will perform all deicing during this period. AGE Flight will continue to maintain deicer trucks during this period; however, organizations are required to perform basic servicing of assigned trucks during this period.

11.42.3. **(Added)** Deicing Procedures.

11.42.3.1. **(Added)** The Deicing Supervisor will brief deice procedures, safety, and route of travel to the vehicle driver, basket operator, and spotter(s) before initiating deicing operations.

11.42.3.2. **(Added)** Regardless of the direction of vehicle travel deicer drivers will remain in constant communication with the deicing basket operator. The vehicle operator will not reposition the deicer truck unless the truck movement is continuously monitored and directed by deicing basket operator and the ground spotter (chock walker) using headsets, radio, and hand signals.

11.42.2.3. **(Added)** All units conducting deicing operations must track the deicer vehicle registration number, aircraft tail number, and fluid usage anytime AGE Flight does not provide the deicer truck driver This information will be relayed to AGE Flight for maintenance and fluid tracking.

15.2.4. **(Added)** A pre-dock/post-dock meeting is required for SAS Annual Audit, RDX, PMP, CFT, and DFT events.

15.3.1.3.1. **(Added)** AMU PS&D will be notified the same day suspenses are cleared by the authorized work centers. The authorized technician will take a screenshot of the screen being processed, attach it to an email and send to the PS&D office.

15.3.1.3.2. **(Added)** AMU PS&D will validate a component's maintenance interval type and previous operating time NLT the next duty day after installation for parts having an inspection or TCI using a type interval of hours, starts, cycles or rounds.

15.3.3.2.3.1. **(Added)** PS&D will brief the MXG/CC (or equivalent) weekly on unaccomplished TCTOs that are within 180 days of grounding.

15.3.3.2.4.1.1. **(Added)** PS&D will reference the 150-day report received from AFLCMC/WWU, F-22 PSM-OL, while performing monthly TCTO recon.

15.3.3.2.4.3. **(Added)** Mandatory attendees will be PS&D TCTO monitor, AMU PS&D, EMB, AMU Pro Super, FSC, AMU COSO, AGE, AGE, Armament, LO, and Munitions.

15.3.3.3.1.1. **(Added)** Coordinate all Local OTIs with PS&D prior to submission to MXG for approval.

15.3.3.3.2.3.1. **(Added)** TCTO folders will be standardized with the following sections: (1) Completed AF Form 2410 (or local product), (2) Basic TCTO and supplements, 663, (3) 525, (4) AF Form 2001 (if required), and Supply cover letter, (5) Messages, and (6) Notes.

15.3.3.3.2.7.1. **(Added)** The LRS/Supply Flight Service Center TCTO monitor will only release kits/parts with a printed and signed IMDS 122 or email coordination with AMU scheduler/TCTO monitor.

15.3.3.3.2.7.2. **(Added)** AMU Support Section will only release kits/Parts stored in aircraft TNB with a printed and signed IMDS 122 or email coordination with AMU scheduler/TCTO monitor.

15.3.3.3.2.10.2. **(Added)** Upon completion of TCTO affecting aircraft Weight and Balance notify QA W&B Manager

15.3.4.3.3. **(Added)** 3 MXG PS&D will conduct this meeting semi-annually.

15.3.4.3.4. **(Added)** Submit TCI extension requests NLT 30-days prior to the due date. Exception: Submit extensions for aircraft projected to deploy where TCIs will come due during the duration of the deployment plus one month NLT 60 days prior to projected departure. Note: Original Due dates in the MIS will not be changed to reflect the extension due date.

Table 15.1. (Added) F-22/E-3 Sortie Sequence Numbers.

90th Aircraft Maintenance Unit		525th Aircraft Maintenance Unit	
901 - 950	Normal/Adds	501 - 550	Normal/Adds
951 - 999	Deployed/Off Base/TDY	551 - 599	Deployed/Off-Base/TDY
101 - 125	* Demo	126 – 150	* Demo
201 - 250	* Local Exercise	251 - 299	* Local Exercise
601 - 650	* Cross Country	651 - 699	* Cross Country
401 - 425	Exercise Alert	426 - 450	Exercise Alert
451 - 475	NORAD/ANR Alert	451 - 475	NORAD/ANR Alert
301 - 310	FCF/OCF	311 - 320	FCF/OCF
* Demo = F-22 Demonstration Team support * Local Exercise = RED FLAG-Alaska, POLAR FORCE, etc. * Cross Country = To and From home station/off base location (or between off base locations) only NOTE: These examples are not all-inclusive. Final adjudication is up to PS&D and 3 MXG/CD.			

962nd Aircraft Maintenance Unit	
801 - 810	Normal/Adds
811 - 820	Deployed/Off-Base/TDY
821 - 830	* Local Exercise
831 - 840	* Cross Country
841 - 850	NORAD/ANR Alert
851 - 860	OCF/FCF
* Local Exercise = RED FLAG-Alaska, POLAR FORCE, etc. * Cross Country = To and From home station/off base location (or between off base locations) only NOTE: These examples are not all-inclusive. Final adjudication is up to PS&D and 3 MXG/CD.	

15.5.6.3.1. **(Added)** 3rd Wing Scheduling Guidelines.

15.5.6.3.1.1. **(Added)** Cross-country (XC) missions departing from Joint Base Elmendorf-Richardson will use XC line numbers and are listed with scheduled take-off times only. XC missions originating from off-station (returning to Joint Base Elmendorf-Richardson) use XC line numbers and are only listed with estimated land times. Changes to XC departure and/or XC return sorties are not recorded as deviations for Flying Scheduling Effectiveness. They are considered scheduled as flown.

15.5.6.3.1.2. **(Added)** Crew Ready times for all sorties should be called into the Maintenance Operations Center (MOC) and flying squadron's Top 3 no later than 60-minutes prior to scheduled take-off time. Crew Show time for fighters is 40-minutes prior to scheduled take-off time.

15.5.6.3.1.3. **(Added)** The F-22 standard (minimum) turn time is 3.0 hours for normal turns and 1.0 hours for hot pits. Quick Turns (non-hot pit turns less than 3-hours) may be authorized by the 3 MXG/CC or 3 MXG/CD and will be annotated as "Quick Turn" on the weekly schedule in the Remarks section of the daily fly page. Hot pits will be annotated as "Hot Pit" on the weekly schedule in the Remarks section of the daily fly page. The E-3 standard (minimum) turn time is 4.0 hours.

15.5.6.3.3. **(Added)** Reference TO 1-1-691 for JBER specific wash cycle.

15.5.6.3.8.2. **(Added)** All Pen & Ink 2407s must be approved by the 3 OG/CC and 3 MXG/CC or their designated representatives. AFRC-equivalent leadership is authorized to approve Pen & Ink 2407s on UTA weekends.

15.5.6.3.9. **(Added)** The flying window is MDS-specific and defined as the period between the first scheduled take-off and the last scheduled land for a particular MDS. (For example, the F-22 flying window can be between 0900-1600 and the E-3 flying window between 1200-2100.)

15.5.6.3.10. **(Added)** For scheduling quiet hours during daily flying, requests are submitted to 3 OSS/OSOS in accordance with 3WGI 13-203, Airfield and Air Traffic Control Procedures "at least two weeks in advance" of the requested quiet hour period.

15.5.6.3.11. **(Added)** Cross-Country (XC) Procedures. XC sorties are counted in the planned sortie total for that day (example: planned 12T0, 8 are local training and 4 are XC). Record

ROBERT D. DAVIS, Colonel, USAF
Commander

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

AFI 48-127, Occupational Noise and Hearing Conservation Program, 26 Feb 2016

AFI 91-203, Air Force Consolidated Occupational Safety Instruction, 26 Oct 2016

SF-CA-09-0039, dated 26 March 2009

TO 00-5-1, AF Technical Order System, 14 Jun 2016

TO 00-20-1, Aerospace Equipment Maintenance Inspection, Documentation, Policies, and Procedures, 11 Jul 2016

TO 1-1-691, Cleaning and Corrosion Prevention and Control, Aerospace and Non-Aerospace Equipment, 29 May 2014.

Prescribed Forms

3 WG Form 145, Lost Tool/Object Report

3 WG Form 146, Missing/Removed Tool Log

3 WG Form 147, Quality Assurance Impoundment

Adopted Forms

AF Form 673, Air Force Publication/Form Action Request

AF Form 1297, Temporary Issue Receipt

AF Form 2426, Training Request and Completion Notification

AFTO Form 22, Technical Manual (TM) Change Recommendation and Reply

AFTO Form 95, Significant Historical Data

AFTO Form 134, Aviator Breathing Oxygen Servicing Trailer Log

AFTO Form 244, Industrial/Support Equipment Record

AFTO Form 781A, Maintenance Discrepancy and Work Document

DD Form 2026, Oil Analysis Request

DD Form 2861, Cross-Reference

3WG Form 145, Lost Tool/Object Report

3WG Form 146, Missing/Removed Tool Log

3WG Form 147, Quality Assurance Impoundment Record

Abbreviations and Acronyms

ACI—Analytical Condition Inspection

CSE—Customer Support Engineering

CV—Compass Vector

DEM—Deployed Engine Monitor

EQRT—Equivalent Redline Time

GN2—Gaseous Nitrogen

HP—High Purity

HPD—Hearing Protection Devices

ITEC—Information Technology Equipment Custodian

JOAP—Joint Oil Analysis Program

LOAT—Lowest Outside Air Temperature

LTF—Lead-The-Fleet

NRR—Noise Reduction Ratings

PAO—Polyalphaolefin

RDX—Redux

RF—Radio Frequency

RPM—Revolutions Per Minute

SAS—Signature Assessment System

SESSC—Stored Energy System Servicing Carts

SF-6—Sulfur Hexafluoride

TE—Test Equipment

TFT—Total flight time

TOD—Technical Order Data

UALS—Universal Ammunition Loading System

WAM—Wing Avionics Manager

XC—Cross-country

Attachment 11 (Added)

3RD WING 3 DIGIT DEVIATION CODES

Table A11.1. (Added) 3rd Wing 3-Digit Deviation Codes.

CAUSE CODE	NARRATIVE	CATEGORY
ATA	CONFLICTING AIR TRAFFIC	AIR TRAFFIC
EXH	EXERCISE, HHQ	EXERCISE
EXL	EXERCISE, LOCAL	EXERCISE
HQN	HIGHER HEADQUARTERS, NAF	HHQ
HQP	HIGHER HEADQUARTERS, OTHER	HHQ
HQR	HIGHER HEADQUARTERS, AIRSPACE/ RANGE	HHQ
HQT	HIGHER HEADQUARTERS-MAJCOM	HHQ
MTE	EOR-MAINTENANCE RELATED	MAINTENANCE
MTF	AIRCRAFT REQUIRES FCF/OCF	MAINTENANCE
MTI	AIRCRAFT IMPOUNDED	MAINTENANCE
MTM	MUNITIONS SUPPORT	MAINTENANCE
MTN	MAINTENANCE NON-DELIVERY	MAINTENANCE
MTP	PHASE/ISO/PMP (TIME MANAGEMENT)	MAINTENANCE
MTU	UNSCHEDULED MAINTENANCE	MAINTENANCE
OPF	OPS LIFE SUPPORT	OPS
OPM	MISSION CHANGE	OPS
OPN	COMMAND POST NOTIFIED CREW LT	OPS
OPO	OPS OTHER	OPS
OPP	OPS PREFERENCE	OPS
OPR	OPS TRAINING	OPS
OTG	GROUND EMERGENCY	OTHER
OTH	OTHER	OTHER
OTI	INFLT NMC CONDITION (BIRD STRIKE, A/R)	OTHER
OTO	OFF-STATION CAN'T RETURN FOR MISSION	OTHER
OTT	EQUIP TEST/EVAL-OPS TEST AND EVAL	OTHER
SUN	SUPPLY NON-DELIVERY	SUPPLY
SUS	CAUSED BY LATE SUPPLY DELIVERY	SUPPLY
SYB	SYMPATHY DUE TO ABORT	SYMPATHY
SYC	COPE THUNDER SUPPORT	SYMPATHY
SYD	SYMPATHY DUE TO DELAY	SYMPATHY
SYF	RED FLAG SUPPORT	SYMPATHY
SYP	SYMPATHY FOR LATE MAC PACS	SYMPATHY
SYR	SYMPATHY DUE TO TANKER/RECEIVER/MISS EVT	SYMPATHY
SYT	SYMPATHY DUE TO DACT TRAINING	SYMPATHY
UTE	UTE MANAGEMENT	UTILIZATION
WXD	DELAY FOR DEICING	WEATHER
WXH	WEATHER AT HOME STATION	WEATHER
WXR	WEATHER AT RANGE/SITE	WEATHER
WXS	SNOW REMOVAL	WEATHER

Attachment 12 (Added)

3RD WING FCF/OCF DECISION MATRIX

Table A12.1. FCF/OCF Decision Matrix.

	Functional Check Flight	Operational Check Flight
In General	Major maintenance, rebuild, or to ensure airworthiness	Lack confidence in capability in a specific system or significant aircraft downtime
When Required	1. OG/CC or MXG/CC direction 2. When stated in -6 TO	1. OG/CC or MXG/CC direction 2. Unable to validate system through ground checks 3. In-flight operational check required by Dash 1 or Dash 2 4. When required by FARs
Approval Authority	3 OG/CC and 3 MXG/CC (or CD)	3 OG/CC and 3 MXG/CC (or CD)
Flight Crew Requirement	FCF current, qualified, trained and approved IAW applicable instructions	OG/CC discretion based upon reason for OCF
Flight Procedures	Dash 6 (TO -6CF-1)	Dash 1
Flight in conjunction with:		
Ferry flight	No, except with 3 WG/CC waiver IAW TO 1-1-300	No restrictions
Mission or training flight	No, requires 3 WG/CC waiver IAW TO 1-1-300	No, requires 3 OG/CC approval
Initial Checkout Sortie (N/A for C-12s)	No, requires 3 WG/CC waiver IAW TO 1-1-300	N/A
QA Involvement	Mx inspection, forms review, crew brief, and debrief	Mx inspection, forms review, crew brief, and debrief
Aircraft Configuration	Standard FCF configuration	As determined by Mx/Ops
Weather Criteria	3000/3 ± 1 hour airworthiness verified before IMC; checks in VMC	In accordance with 3 WG AFI 11-202 Vol 3; checks in VMC
Minimum WX (Waiver able by 3 OG/CC)	1500/3 ± 1 hour airworthiness verified before IMC; checks in VMC	In accordance with 3 WG AFI 11-202 Vol 3; checks in VMC

Attachment 13 (Added)

AMMUNITION CLEARING

A13.1. The following procedures will be used to develop a local checklist to ensure all agencies are contacted, personnel limitations are met, and safety briefings accomplished. These are only the minimums. All possible authorized procedures must be exhausted to remove live ammunition from systems/components by qualified weapons, munitions personnel, or EOD before being received into the Armament Flight. Components containing live ammunition will be delivered to the north end of Building 17720 with the barrels facing east. The senior fully qualified 20mm gun system clearing person is in charge of this operation and responsible for compliance with all procedures in this instruction and all other applicable Air Force Safety and Security Instructions.

A13.1.1. Location of Operation: if a gun or any part of the gun system containing ammunition is removed from the aircraft, clearing of gun systems and UALS containing live ammunition is strictly limited to Building 17720, north end of the warehouse with the barrels facing east. Talley Avenue will be closed from the south end of Building 16718 to the south entrance to the munitions control parking area.

A13.1.2. Personnel must annotate Date, And Time Ammo Entered Shop.

A13.1.3. Personnel must log the following information:

A13.1.3.1. Equipment.

A13.1.3.1.1. Aircraft Tail Number.

A13.1.3.1.2. Gun Serial Number.

A13.1.3.1.3. Drum/Container Serial Number.

A13.1.3.1.4. UALS Serial Number.

A13.1.3.2. Personnel.

A13.1.3.2.1. Crew Chief.

A13.1.3.2.2. Crew Members.

A13.1.3.2.3. Casuals (that is, QA/Safety).

A13.1.3.3. Type Ammo Involved.

A13.1.4. Personnel must notify the following organizations, annotate the time, and name of person contacted:

A13.1.4.1. MOC -- 552-9321.

A13.1.4.2. Fire Department -- 552-2801.

A13.1.4.3. MUNS Control -- 552-3306.

A13.1.4.4. QA -- 552-7634/0570.

A13.1.5. Emergency Procedures.

A13.1.5.1. The senior person involved in the clearing operation is responsible for all notification and documentation procedures. If a fire is encountered, immediately cease operations, notify MOC, fight fire (if possible), and remove munitions if possible. Evacuate all nonessential personnel a minimum of 2,500-feet for High Explosive Incendiary (HEI) and 300-feet for Target Practice (TP).

A13.1.5.2. Armament Flight personnel will disassemble gun system or Universal Ammunition Loading System (UALS) components as far as necessary to safely remove all live ammunition, in accordance with applicable technical data. If a round or rounds are found to be jammed or stuck in the barrel itself, the barrel will be removed from the gun and given to EOD for disposition. Non-EOD personnel will not attempt to remove any live ammunition that is jammed in a gun barrel under any circumstances.

A13.1.5.3. All personnel involved or observing operations will be briefed on the following:

A13.1.5.3.1. Explosive limits for this operation at the site, required safety equipment: grounding or bonding straps.

A13.1.4. Crew Chief will notify control of a mishap/accident/fire and record the time flames envelope munitions.

A13.1.5. Crew members will fight fire and remove munitions, if possible. Once the fire envelopes munitions the fire will not be fought unless a rescue attempt is in progress. Evacuate all nonessential personnel to 2,500-feet for HEI and 300-feet for TP.

A13.1.6. On-scene commander will ensure evacuation of all nonessential personnel and direct emergency response personnel to the scene.

A13.1.7. Additional guidance:

A13.1.7.1. Personnel Limits: the maximum number of personnel authorized for any clearing operation will not exceed five. Personnel and casual limits must be clearly monitored and posted at each explosive operation location. Personnel limits are only applicable when explosives are present in the operating area.

A13.1.7.2. Clearing operation will be performed by at least two qualified individuals under the direct supervision of a qualified seven level. Total personnel authorized in the explosive clearing operation, including casuals, is five.

A13.1.7.3. Ammunition will not be kept in the Armament Flight building for more than 24--hours under any circumstances.

A13.1.7.4. Personnel not involved in the operations are prohibited from visiting. This does not include official visits by Safety, QA, or management, provided personnel limits are not exceeded.

A13.1.7.5. Safety. Compliance with all safety procedures from applicable technical data and regulations is mandatory. If a conflict exists between the technical data and regulations, technical data takes precedence.

A13.1.7.5.1. Tasks not necessary to the clearing operation are prohibited within the immediate vicinity of the hazard.

A13.1.7.5.2. A minimum of two fire extinguishers suitable for the hazards involved will be available for immediate use.

A13.1.7.5.3. Gun system and UALS components containing live ammunition will be grounded at all times during the clearing operation.

A13.1.7.5.4. Personnel will ground themselves before handling live ammunition and at frequent intervals during the clearing operation.

A13.1.7.5.5. Garments will not be put on or removed while engaged in explosives operations. If garments must be put on or removed, personnel will do so only after leaving the clearing operation and grounding themselves prior to returning.

A13.1.7.5.6. Personnel will ensure components containing live ammunition are handled in accordance with AFMAN 91-201. Striking of live ammunition is strictly prohibited.

A13.1.7.5.7. Personnel engaged in clearing operations will remove all rings, watches, and jewelry before beginning task.

A13.1.7.5.8. In the event of ruptured round or exposed propellant, operations will cease until the round and/or propellant are stored in a safe container. This container should have enough water to cover the round and propellant and it should be marked “Scrap Explosives.” Dispose of spilled propellant in accordance with TO 11A-1-42 and TO 11A-1-60.

A13.1.8. Ammunition will be identified by aircraft tail number and/or the UALS serial number it was removed from. This documentation will be completed on AFTO Form 350 Tag, along with quantity and lot number of ammunition. One tag per container should be filled out and placed with the applicable containers. Containers will be grounded until retrieved by munitions personnel. The quantity of ammunition returned to munitions personnel shall be recorded in the Armament Flight shift turnover log.

A13.1.9. Notify Munitions Control for ammunition containers if needed, while attempting to remove live ammunition from a gun system.

A13.1.10. Armament Flight personnel will coordinate pickup of live ammunition through MOC or Munitions Control immediately upon completion of the operation. Ammunition will not be kept in the Armament Flight for more than 24-hours.

A13.1.11. Jammed guns brought to the Armament Flight will have the barrels pointed to the east, towards the railroad track embankment. This is the area of least hazard in the event of a discharge.

A13.1.12. Upon completion of the clearing operation, and after the ammunition has been removed from the building, notify MOC, Fire Department, Munitions Control, and QA.

Attachment 14 (Added)

REPAIR/MAINTENANCE OF F-22 WING WEAPONS PYLONS (WWP)

A14.1. Pre-PAU/EED Maintenance.

A14.1.1. The following procedures will be used to ensure all agencies are contacted, personnel limitations are met, and safety briefings accomplished.

A14.1.2. Prior to the start of maintenance, removal, or installation of Pyrotechnic Arming Units (PAU)/Electro-Explosive Devices (EED), the following must be accomplished:

A14.1.2.1. The following conditions will be met prior to beginning PAU/EED maintenance removal of a PAU or EED:

A14.1.2.1.1. Ensure 2A:10BC fire extinguishers are available in immediate area.

A14.1.2.1.2. Ensure static ground cord is available and connected to WWP prior to maintenance.

A14.1.2.1.3. Close off all entry points to minimize unnecessary traffic.

A14.1.2.1.4. Post signs on all entry points to indicate an explosive operation is in progress.

A14.1.2.1.5. For actual PAU maintenance refer to the TO 16W6-56-2.

A14.1.3. Brief all personnel on emergency procedures/Specific Safety, notify Munitions Control that a 1.4 explosive operation is in progress, and call the building up to 1.4. Munitions Control will notify the Fire Alarm Control Center (FACC) of the explosives operation.

A14.2. Specific Safety Briefing.

A14.2.1. The PAU/EED contains 0.07 NEW and represents a 1.4C class hazard. The hazard associated with a 1.4 munitions is a moderate fire.

A14.2.2. No cell phones or LMRs will be operated within 10 feet of pylons or PAU; no exceptions.

A14.2.3. No more than three (3) Armament personnel and two (2) casuals are allowed in the immediate area when performing maintenance on PAU/EED.

A14.2.4. Remove all rings, watches, and jewelry before beginning task.

A14.2.5. Personnel will ground themselves prior to handling PAUs and at frequent intervals during operation.

A14.2.6. Garments will not be put on or removed while engaged in PAU/EED Operation. If garments must be put on or removed, personnel will depart immediate area and ground themselves prior to returning.

A14.2.7. In the event of fire/mishap, the individual in charge of operation will:

A14.2.7.1. Fight fire and remove munitions, if possible. Once the fire envelopes munitions the fire will not be fought unless a rescue attempt is in progress.

A14.2.7.2. Direct the immediate evacuation of non-essential personnel to a minimum of 300 feet.

A14.2.7.3. Notify or direct notification to the Fire Department

A14.2.7.4. Notify or direct notification of emergency to Munitions Control and they will run all appropriate checklists.

A14.2.7.5. Dispatch an individual to direct fire fighters upon arrival, provide the time fire enveloped the munitions, and the type of munitions involved.

A14.3. Post PAU/EED Maintenance.

A14.3.1. After completion of the PAU/EED operation:

A14.3.1.1. Notify Munitions Control that explosive operation complete.

A14.3.1.2. Call the building down from 1.4.

A14.3.1.3. Remove signs from all entry points.

A14.3.1.4. Open all entry points.

A14.3.1.5. Perform CTK inspection.

Attachment 15 (Added)

MAINTENANCE AND HANDLING OF EXPLOSIVES LOADED AIRCRAFT

A15.1. Maintenance and Handling of Explosives Loaded Aircraft.

A15.1.1. Aircraft Parking:

A15.1.1.1. Airfield Parking Locations: parking of explosives loaded aircraft on the parking ramps will be done in accordance with the Net Explosives Weight (NEW) chart. This chart will also be used for parking in H-16 Combat Alert Cell (CAC) (Hangar 16) and H-17 Slots 1-8 (Hangar 17). The chart is available on the Wing Safety web site or it can be obtained from the 3rd Wing Weapons Safety or 3 MXG Weapons Standardization offices directly.

A15.1.2. Maintenance Hangars 1, 2, 3, 4, 15, and 25H-1, H-2, H-3, H-4, H-15 and H-25. Aircraft parked in these hangars will have all training missiles isolated. All live missiles, impulse carts, ammunition, and chaff/flares will be downloaded and/or removed. EXCEPTION: 20 mm TP ammo may remain loaded. EXCEPTION: the 3 MXG/CC or 3 MXG/CD may authorize munitions-loaded aircraft to be placed in maintenance hangars under emergency weather or environmental conditions. When this option is exercised, absolutely no maintenance of any kind will be performed on the aircraft.

A15.1.3. Hush House Engine Test Cell. All munitions and stores, live or inert, will be downloaded from aircraft. EXCEPTION: 20 mm TP ammo may remain loaded.

A15.1.4. Hangars 19, 20, 21, 22 (Fuel Barn), and H-19, H-20, H-21 and H-22 Fuel Barn's, Corrosion/Paint Barn. All munitions and stores, live or inert, will be downloaded from the aircraft prior to being placed in these hangars.

A15.1.5. Munitions/Explosives On-Load/Off-Load Areas. Contact 3WG Weapons Safety or Airfield Management for specifics concerning compensatory actions, additional restrictions covering explosive operations, and authorized Net Explosive Weights at each location. Anytime munitions (except inert) are delivered and/or removed on aircraft (fighter or cargo), the controlling unit will notify the 3WG MOC by radio or telephone. The reporting individual must provide the hazard class division and any applicable fire/chemical hazard symbols. Units that upload/download munitions on aircraft will notify MOC of the current status by location on a real time basis. MOC will immediately provide this information to the Fire Alarm Communications Center. Notifications are also required when munitions are removed from sited locations.

A15.2. Launch and Recovery.

A15.2.1. Actions involving munitions during launch and recovery operations are limited to Red ball maintenance, AIM-9 dome cover removal, and the securing of missile gear as applicable.

A15.2.2. All CATM/AIM-9/-120 Missile safing gear (umbilical protective covers, safety handle diaper pins, shorting caps, striker point, and Target Detecting Device (TDD) covers) will be placed in the packing envelope (NSN: 8105-00-190-9824) and stowed in the Side Weapons Bay (SWB) "bird cage." The packing envelope will be marked for the aircraft tail number. AIM/CAP-9 dome covers will be placed in the "bird cage" for the applicable SWB loaded.

A15.2.3. Aircraft Arming. F-22A aircraft may be armed in chocks in accordance with F-22A TOD 1400-series procedures. In situations where single point arming is preferred, aircraft will be armed at designated locations outlined in 3WGI 13-204.

A15.2.4. Aircraft De-arming. F-22A aircraft may be de-armed in chocks upon return to the parking area. NOTE: not applicable to aircraft flying with a "Hot" gun. See Paragraph A15.2.5., this supplement, for "Hot" gun safing requirements. In situations where single point de-arming is preferred, aircraft will be de-armed at designated locations outlined in 3WGI 13-204.

A15.2.5. Aircraft Gun Safing:

A15.2.5.1. Upon return from flight, hot gun safing will be performed in accordance with F-22A TOD 1400-series at EOR. EOR locations outlined in 3WGI 13-204.

A15.2.5.2. "Hot" gun safing procedures may be performed in chocks under the following situations:

A15.2.5.2.1. Aircraft ground aborts prior to flight.

A15.2.5.2.2. Aircraft is removed from alert "ON" status.

A15.2.5.2.3. Aircraft safe for maintenance procedures required to facilitate other Maintenance (FOM).

A15.3. Immediately Prior To Launch (IPL)/Safing Procedures.

A15.3.1. During IPL operations, safety pins and safety devices will be stowed in the appropriate aircraft pin bags. Extreme caution will be taken at all times to prevent ingestion into aircraft engines. If safety pins or devices cannot be removed or positioned with ordinary effort, the aircrew will be informed and the aircraft will be safed.

A15.3.2. Gun systems will only be armed/set up for mission requirements as printed in the weekly flying schedule, AF Form 2407, Weekly/Daily Flying Schedule Coordination, and F-22A TOD 1400-series procedures. Aircraft loaded with forward firing munitions will be positioned in accordance with 3WGI 13-204, AFM 91-201, and F-22A TOD 1400-series TOD. Aircraft will always be positioned in the direction least hazardous to personnel and resources.

A15.3.3. The aircraft will not be approached for safing until the aircrew places both hands in full view to inform the qualified technician and all armament switches are positioned to safe. Ground communication hookup will be established prior to commencing safing actions. If, for any reason, ground communication is inoperable, safing will begin with hand signals and the qualified technician will give the aircrew thumbs up signal upon completion.

A15.3.4. Aircraft will be safed in accordance with F-22A 1400-series TOD procedures.

A15.3.5. When using the intersection of Taxiways D and N, North of Blue ramp, gold and blue spots 1 and 2 must be empty to maintain separation from the IPL/safing operation.

A15.3.6. When using Taxiway D, west of Taxiway D3 at approach end of Runway 34, Blue spots 27 and 28 must be empty to maintain separation from the IPL/safing operation.

A15.3.7. If light carts are required, they will be positioned to maintain at least 10-feet of wing tip clearance.

A15.4. Emergency Procedures.

A15.4.1. WARNING: if loose or broken ammunition is evident during accomplishment of these procedures, notify the aircrew. Notify the Maintenance Operation Center (MOC) and safe aircraft. Direct aircraft to taxi to the authorized jammed gun area. Do not allow aircraft to return to the parking area until loose or broken ammunition and powder are removed.

A15.4.2. NOTE: a runaway gun is defined as a gun that fails to stop rotating when the trigger is released. A jammed gun is defined as a gun that starts to rotate and then stops for no apparent reason and cannot be rotated by hand. All other problems will be defined as a gun malfunction.

A15.4.3. Notification of weapons system malfunction: pilot will notify tower of any known hung or malfunctioned weapons system prior to arrival. In this situation, the Supervisor of Flying (SOF) will direct aircraft to appropriate de-arm area for safing actions. The SOF will notify the MOC, who will initiate emergency procedures.

A15.4.4. Upon notification, the MOC will announce an In-Flight Emergency (IFE) and initiate the appropriate EAC. AMUs will be notified through the MOC and will need to provide weapons personnel to assist EOD in safing and possibly downloading munitions at the recovery location.

A15.4.5. Comply with all requirements/restrictions outlined in 3WGI 13-204.

A15.4.6. Gun/Missile and Forward-firing Ordnance Malfunctions. Comply with all requirements and/or /restrictions outlined in 3WGI 13-204.

A15.4.7. If a condition is discovered at EOR, EOR personnel will declare a ground emergency through the MOC, refer to the applicable EAC, and establish essential cordons. Direct aircraft to appropriate safing areas, as necessary.

A15.4.8. If the response time of EOD is more than 10-minutes after the aircraft lands, or if an unsafe condition exists, direct the aircrew to shut down the aircraft and ground egress.

A15.4.9. Runaway Gun System: if a runaway gun exists, both engines will be shut down immediately. If the weapons technician determines a jammed or runaway gun does not exist, the aircraft gun will be safed for return to the parking ramp.

A15.5. F-22 Hung/Jammed Gun Procedures.

A15.5.1. the following In-flight Gun Malfunction Procedures will be followed when an aircraft is returning with a known or suspected jammed gun system:

A15.5.1.2. The Air Traffic Control Tower will activate the primary crash phone.

A15.5.1.3. The Command Post/MOC will notify the appropriate AMU Weapons Flight, Armament Flight, Quality Assurance, Wing Safety, and the Wing Weapons Manager.

A15.5.1.4. The aircraft will taxi directly to the authorized jammed gun areas outlined in 3 WGI 13-204. The aircraft should be pointed in a direction to avoid populated areas.

A15.5.1.5. A 7-level Weapons Technician from the respective AMU Weapons Flight and an Armament Flight Technician will be dispatched to perform the following Hung Gun/Jammed gun safing procedures.

A15.5.1.6. If gun system cannot be cleared in accordance with 1400-series TOD, technicians will shut down the aircraft.

A15.5.1.7. If live rounds cannot be removed from the barrels, ground the barrels and notify EOD.

A15.5.1.8. Weapons Standardization is responsible for handling/safing non-F-22 aircraft with hung/jammed guns.

A15.6. F-22 Hung Missile/Bomb Procedures.

A15.6.1. The following procedures will be followed when an aircraft is returning with a known or suspected hung missile/bomb.

A15.6.1.1. The Air Traffic Control Tower will activate the primary crash phone.

A15.6.1.2. The Command Post/MOC will notify Explosive Ordnance Disposal (EOD), the appropriate AMU Weapons Flight, Quality Assurance, Wing Safety, and the Wing Weapons Manager.

A15.6.1.3. The aircraft will taxi directly to the primary hung ordnance area outlined in 3WGI 13-204.

A15.6.1.4. A 7-level Weapons Technician from the AMU Weapons Flight and an Armament Flight Specialists will be dispatched to perform the following hung ordnance procedures.

A15.6.1.5. Weapons personnel will ensure the Side Weapons Bay (SWB), Main Weapons Bay (MWB), Electronic Warfare (EW), and EW 28 switches are set to safe in both main wheel wells.

A15.6.1.6. If not already open, the MWB doors for affected bay will be opened manually. Prior to opening the doors (if required), weapons personnel will inspect doors for signs of physical damage. Doors will be opened only enough to determine status of missile/bomb.

A15.6.1.7. Weapons personnel will determine the status of the known or suspected hung missile/bomb.

A15.6.1.8. If weapons personnel determine the missile/bomb is “safe,” they will perform munitions safing procedures in accordance with 1400-series TOD and will proceed to instruct pilot to return to designated parking spot.

A15.6.1.9. If the missile/bomb is determined to be “unsafe,” weapons personnel will instruct the pilot to shut down engines using applicable technical data and egress aircraft. EOD personnel will then direct operations as applicable.

A15.6.1.10. If not already open, the SWB doors for affected bay will be opened manually. Instruct the pilot to shut down engine for the affected SWB. Prior to opening the door, weapons personnel will inspect the doors for signs of physical damage. Doors will be opened only enough to determine status of known or suspected hung AIM-9 missile.

A15.6.1.11. If weapons personnel determine the AIM-9 missile to be “safe,” they will perform munitions safing procedures per 1400-series TOD and proceed to instruct the pilot to return to designated parking spot.

A15.6.1.12. If the AIM-9 missile is determined to be "unsafe," weapons personnel will instruct the pilot to shut down the remaining engine using applicable technical data and egress aircraft. EOD personnel will direct further operations, as applicable.

A15.7. F-22 Hung Chaff/Flare Counter Measures Procedures.

A15.7.1. The following procedures will be followed when an aircraft is identified to have hung chaff and/or flare during aircraft recovery procedures.

A15.7.2. If possible, the pilot will be instructed to attempt to close IRCM door(s). Recovery personnel will position EW and EW 28 switches to safe.

A15.7.3. The Production Superintendent/Flightline Expediter will contact the MOC with specific information upon discovery of hung chaff and/or flare.

A15.7.4. MOC will notify EOD, the appropriate AMU Weapons Flight, Quality Assurance, Wing Safety, and the Wing Weapons Manager.

A15.7.5. The aircraft will taxi directly to the primary hung ordnance area outlined in 3WGI 13-204.

A15.7.6. EOD and a 7-level Weapons Technician from the AMU Weapons Flight will be dispatched to perform hung ordnance procedures.

A15.7.7. Weapons personnel will establish communication with pilot upon arrival at the aircraft.

A15.7.8. Weapons personnel will ensure required equipment is on-hand for use during aircraft engine shutdown. Weapons personnel will direct the pilot to open the IRCM door then ensure SWB, MWB, EW, and EW 28V switches are set to SAFE in both main wheel wells prior to shutting down. Proceed to direct pilot to shut down both engines.

A15.7.9. EOD personnel will then direct operations as applicable.

A15.8. Impounding Aircraft for Weapons Malfunctions. Aircraft identified with inadvertent stores releases, or jammed/runaway gun systems will be impounded immediately following appropriate safing actions. Access to the aircraft and its weapons systems will be controlled in accordance with AFI 21-101 until the cause of the malfunction can be identified.

A15.9. F-22 Combat Alert Cell Operations.

A15.9.1. Aircraft placed in an ALERT posture at the Combat Alert Cell will adhere to the following ALERT procedures in accordance with F-22 TOD, 3WG OPORD 3310-09, and LCL3WG/1F22A-002.

A15.9.2. Aircraft Arming. Aircraft will be armed in chalks in accordance with 1400-series TOD.

A15.9.3. Aircraft De-Arming:

A15.9.3.1. Aircraft will be de-armed in chalks in accordance with 1400-series TOD.

A15.9.3.2. "Hot" gun safing procedures may be performed in chocks under the following situations:

A15.9.3.2.1. Aircraft ground aborts prior to flight.

A15.9.3.2.2. Aircraft is removed from alert status.

A15.9.3.2.3. Aircraft safe for maintenance procedures required to Facilitate Other Maintenance.

A15.10. F-22 Non-Standard Unloading Procedures.

A15.10.1. Approval authority for the utilization of F-22 nonstandard unloading procedures has been delegated to the Wing Weapons Manager. Reference: TOD 1400-series Non-Standard Unloading Procedures.

A15.10.2. AMUs will direct requests for approval to the Wing Weapons Manager.

A15.10.3. Weapons Standardization will also be notified prior to any use of these procedures.

A15.10.4. Weapons Standardization personnel are authorized to train these procedures during Weapons Load Training.

A15.11. F-22 Captive Aim-9 Umbilical Block. Due to potential damage to equipment, captive AIM-9 umbilical blocks will not be connected to the LAU-141 umbilical block retainer.

Attachment 16 (Added)

F-22 HANGAR CHECKLIST

Figure A16.1. F-22 Hangar Checklist.

F-22 HANGAR ENTRY/REMOVAL CHECKLIST		
Aircraft Tail #	Date:	
1. Hangar Entry Procedures:		Initials
NOTE: Perform steps 1a thru 1f prior to moving aircraft into hangar.		
a. Tow team supervisor will brief route of travel and obstacles. During winter ops the tow team supervisor will assess the towing route for snow/ice and ensure it is clear and sanded/deiced if necessary.		
b. Check aircraft forms to ensure aircraft is properly configured for hangar entry and/or removal.		
NOTE: All 20mm HEI ammunition will be downloaded prior to hangar entry (except into Hangars 16 or 17). All 20mm TP ammunition will be downloaded prior to aircraft entry into fuel cell, corrosion control facilities or PE phase input.		
a. Ensure munitions/impulse carts and chaff/flare are downloaded or safed, as applicable. (Weapons 7-Level)		
b. Install all -21 equipment.		
c. Ensure ALL hangar doors are opened to accommodate aircraft wingspan.		
d. FOR AIRCRAFT ENTERING FUEL BARN/CORROSION FACILITY/HANGAR 2 and LO MAINTENANCE HANGAR. (Steps I & II must be completed by Pro Super or Expediter)		
I. Aircraft must be at least 500-pounds below the maximum internal fuel load when towed into Hangar 2, the Corrosion Facility, or the LO Hangar. (PRINT NAME / RANK / EMPLOYEE NUMBER) _____		
II. When towing for fuel maintenance, check with fuel barn for what fuel load is required for maintenance and operational checks. (PRINT NAME / RANK / EMPLOYEE NUMBER) _____		

A. Position, chock, ground aircraft, and place drip pans under aircraft.		
B. FOR AIRCRAFT ENTERING FUEL BARN		
I. Disconnect aircraft battery in the left forward avionics bay for fuel barn maintenance.		
II. Tow bar will remain attached to the aircraft while in fuel barn with NLG Torque link disconnected.		
A. Install “REMOVE BEFORE FLIGHT” streamers & pads on horizontal stabs.		
B. Ensure fuel bowser & soak-up pads are available or installed as necessary & fire extinguisher positioned.		
C. Display appropriate warning signs.		
D. This checklist will be prominently displayed on or near the NLG in clear view.		
ENTRY TOW TEAM SUPERVISOR:	(PRINT NAME/RANK/EMP #):	
	SIGNATURE:	
NOT ALL INCLUSIVE NOR A SUBSTITUTE FOR TECHNICAL DATA		

Attachment 17 (Added)

E-3 HANGAR CHECKLIST

Figure A17.1. E-3 Hangar Checklist.

E-3 HANGAR ENTRY/REMOVAL CHECKLIST		
Aircraft Tail #	Date:	
1. Hangar Entry Procedures:		Initials
a. Tow Team Supervisor will brief route of travel and obstacles. (During winter operations, the tow team supervisor will assess the towing route for snow and ice and ensure it is clear and sanded/deiced if necessary.		
b. Check aircraft forms/fuel load to ensure aircraft is properly configured for hangar entry/jacking if required/removal.		
c. During winter operations, ensure heaters are turned off whenever hangar doors open.		
d. Ensure all hangar doors are fully opened to accommodate aircraft wingspan and height of tail.		
e. Ensure hangar floor is free of foreign objects and all equipment is clear of aircraft path.		
f. Place drip pans under engines.		
g. After completion of tow, ensure tow bar and tow vehicle remain readily available for emergency aircraft extraction.		
TOW TEAM SUPERVISOR:	(PRINT NAME/RANK/EMP #)	
	SIGNATURE:	
2. Removal of Aircraft from Hangar:		Initials
a. Tow Team Supervisor will brief route of travel and obstacles. (During winter ops the tow team supervisor will assess the towing route for snow and ice and ensure it is clear and sanded/deiced if necessary).		
b. During winter operations, ensure heaters are turned off whenever hangar doors open.		
c. Ensure ALL hangar doors are fully opened to accommodate aircraft wingspan and height of tail.		
d. Empty, clean, and return drip pans to proper storage location if aircraft will not be hangered within 10-hours.		
e. Clean up any spills from aircraft (fuel, oil, hydraulic fluid).		
TOW TEAM SUPERVISOR:	(PRINT NAME/RANK/EMP #)	
	SIGNATURE:	
NOT ALL INCLUSIVE NOR A SUBSTITUTE FOR TECHNICAL DATA		

Attachment 18 (Added)

GENERAL HANGAR DOOR OPERATION CHECKLIST

Figure A18.1. General Hangar Door Operation Checklist.

GENERAL HANGAR DOOR OPERATION CHECKLIST	
1. Opening:	
a. Verify that inside and outside clear zone is free of personnel and equipment.	
b. Follow the correct cold weather operating procedures if applicable.	
c. Ensure door tracks are clear of all obstacles if applicable.	
d. Close and secure personnel doors prior to operating hangar doors, if applicable.	
2. Closing:	
a. Verify that inside and outside clear zone is free of personnel and equipment.	
b. Follow the correct cold weather operating procedures, if applicable.	
c. Ensure door tracks are clear of all obstacles, if applicable.	
d. Close and secure personnel doors prior to operating hangar doors, if applicable.	
NOTE:	
I. Horizontal sliding doors must be open a minimum of 10 feet.	
II. Vertical doors must be fully open fully closed.	
Facility Manager:	
The POC for this facility is:	
WARNING: DO NOT OPERATE HANAGAR DOORS UNLESS YOU HAVE RECEIVED HANDS ON TRAINING FROM THE FACILITY MANAGER FOR THIS HANGAR	

Attachment 19 (Added)

HANGAR 17 APU HOOD EXHAUST CHECKLIST

Figure A19.1. Hangar 17 APU Hood Exhaust Checklist.

HANGAR 17 APU HOOD EXHAUST OPERATION CHECKLIST	
Date:	
NOTE: Operate APU exhaust hood/fan during any APU operation	Initials
1. Extension of the APU Exhaust Hood:	
a. Ensure all obstructions are clear of APU exhaust hood prior to extension.	
NOTE: Red light above forward aircraft door will illuminate.	
b. Press and hold the green button on the APU exhaust hood operation panel to extend the APU exhaust hood.	
NOTE: APU exhaust fan switch is located next to the slot access door.	
c. Once the APU exhaust hood is fully extended, turn on APU exhaust fan. Allow one minute for supply air fan to reach appropriate speed.	
NOTE: Red light above APU exhaust fan switch does not indicate exhaust fan is operating	
d. Verify the exhaust fan is running.	
e. Start the APU IAW TOD.	
2. During APU Operation:	
WARNING: if the CO sensor reaches 25 parts per million, a yellow light will illuminate. Immediately shut down the APU and open the forward and aft aircraft doors.	
a. Verify the CO sensor reads less than 25 parts per million.	
b. Verify airflow through the exhaust vent (using the gauge to the left of the hood operation panel) is between 10,000 and 15,000 ACFM. Immediately shutdown the APU if airflow is outside this range.	
CAUTION: Ensure the APU exhaust hood is fully retracted prior to aircraft tow/taxi.	
3. Retraction of the APU Exhaust Hood:	
a. Shut down the APU IAW TOD.	
b. Shut off the APU exhaust fan	

c. Ensure all obstructions are clear of the APU exhaust hood prior to retraction	
NOTE: the red light above forward aircraft door will illuminate anytime the APU exhaust hood is not fully retracted.	
d. Press and hold the black button on APU exhaust hood operation panel until exhaust hood is fully retracted.	
4. Emergency Retraction: in the event of APU exhaust hood failure, pull the manual unlock harness attached to the APU exhaust hood using a long pole from the ground.	
NOT ALL INCLUSIVE NOR A SUBSTITUTE FOR TECHNICAL DATA	

Attachment 20 (Added)

HANGAR 24 AND HANGAR 26 F-22 APU HOOD EXHAUST CHECKLIST

Figure A20.1. Hangar 24 and 26 F-22 APU Hood Exhaust Checklist.

HANGAR 24 and 26 APU HOOD EXHAUST OPERATION CHECKLIST	
Date:	Initials
1. Lowering the APU Exhaust Duct:	
a. Ensure all obstructions are clear of the APU exhaust hood prior to lowering.	
b. Ensure power switches on APU exhaust duct operation panel are set to on.	
NOTE: the red APU exhaust down light and green APU exhaust door damper light above operation panel will illuminate and the airflow intake fan will start.	
c. Press and hold the lower button on APU exhaust duct operation panel until the exhaust duct is fully lowered.	
d. Verify the airflow intake fan (located on the north side of the west wall, at the top) is running.	
e. Start the APU IAW TOD.	
2. During APU Operation:	
Warning: if the CO sensor reaches 25 parts per million, a yellow light above APU exhaust duct will illuminate. Immediately shut down APU and open forward and aft bay doors.	
a. Verify the CO sensor located on the southeast corner of the bay reads less than 25 parts per million.	
3. Raising the APU Exhaust Duct:	
Caution: ensure the APU exhaust duct is fully retracted prior to aircraft tow/taxi.	
a. Shut down the APU IAW TOD.	
b. Ensure all obstructions are clear of the APU exhaust duct prior to raising.	
NOTE: a red light above the APU exhaust duct operation panel will illuminate anytime the APU exhaust duct is not fully raised.	
4. Emergency Raising:	
a. In case of APU exhaust duct failure, use a 6-foot ladder to reach the APU exhaust motor located in the middle of the south wall of each bay. Rotate the hand crank until the APU exhaust duct is in the appropriate position.	

CAUTION: do not operate the APU exhaust duct from operation panel after manual raising operations.	
NOTE: contact the 525 AMU facility manager when emergency procedures have been initiated.	
NOT ALL INCLUSIVE NOR A SUBSTITUTE FOR TECHNICAL DATA	

Attachment 21 (Added)

HANGAR 23 APU HOOD EXHAUST OPERATION CHECKLIST

Figure A21.1. Hangar 23 APU Hood Exhaust Operation Checklist.

HANGAR 23 APU HOOD EXHAUST OPERATION CHECKLIST	
Date:	
NOTE: Operate APU exhaust hood/fan during any APU operation	Initials
1. Extension of the APU Exhaust Hood:	
a. Ensure all obstructions are clear of the APU exhaust hood prior to extension.	
NOTE: the APU exhaust fan switch is located next to the APU hood control panel	
b. Turn on APU exhaust fan.	
c. Press and hold DOWN button on APU exhaust hood operation panel until the hood is fully extended. Visually verify the extend/retract actuator is fully extended. A red beacon above front door will illuminate.	
d. Visually verify the exhaust fan ready light (GREEN) is illuminated.	
NOTE: a green ready light illuminates approximately 90 seconds after APU is switched on.	
CAUTION: failure to ensure proper fan operation could result in damage to aircraft.	
e. Start APU TOD.	
2. During APU Operation:	
WARNING: if a red light on the left wall adjacent to the exhaust fan switch begins to strobe or horn sounds, IMEDIATELY shut down the APU. Failure to do so could result in damage to aircraft.	
a. If a RED light on right wall adjacent to CO monitor begins to strobe, verify the CO sensor reading is below 35 PPM. If the reading is above 35 PPM, continue to monitor and open the forward and aft hangar doors. If PPM is above 50 PPM, shut down the APU IAW TOD and exit the building.	
CAUTION: ensure the APU exhaust hood is fully retracted prior to aircraft tow/taxi.	
3. Retraction of the APU Exhaust Hood:	
a. Verify the APU is shut down.	
b. Turn off the APU exhaust fan.	

c. Ensure all obstructions are clear of the APU exhaust hood prior to retraction.	
d. Press and hold the UP button on the APU exhaust hood operation panel until the hood is fully retracted. The hood is fully retracted when no chrome is showing on the extend/retract actuator and the red beacon above front door extinguishes.	
4. Hood Fails To Retract:	
a. In case of APU exhaust hood failure, please contact 90 AMU Facility Manager at 551-9087.	
NOT ALL INCLUSIVE NOR A SUBSTITUTE FOR TECHNICAL DATA	

Attachment 22 (Added)

IMPOUNDMENT CHECKLIST

Figure A22.1. Impoundment Checklist.

	IMPOUNDMENT CHECKLIST	YES	NO
1.	Review AFI 21-101, AFI 21-101 Pacific Air Force Supplement, AFI 21-101 3rd Wing Supplement, and any other applicable regulations/instructions.		
2.	Have impounded aircraft, engines, and equipment been isolated using cones, ropes, and placards (large airframe aircraft use cones and placards)?		
3.	Has access been limited to only authorized personnel?		
4.	Have all historical records and forms been obtained? (not applicable to 3X failure and lost tool impoundments)		
5.	Has wing flight, ground or weapons safety been notified for mishaps that meet AFI 91-204?		
6.	Have the aircrew, crew chiefs, EOR de-arm crew, witness, etc., been debriefed?		
7.	Have the appropriate specialists and supervisors been selected to develop an inspection and troubleshooting plan?		
8.	Are oxygen, fuel, oil, or hydraulic samples required?		
9.	Has all munitions items been removed prior to performing impounding maintenance?		
10.	Do the aircraft active forms include the AFTO 781A write-ups for impoundment, including a separate CAMS/GO-81 JCN for aircraft impounded?		
11.	Has the 3 MXG/CC been briefed on all actions or findings either daily or more frequently as required?		
12.	Has the “released for maintenance” block on the AFTO Form 781A been signed authorizing impound maintenance?		
13.	Once the malfunction that caused the impoundment has been corrected, has the “impound official review” block been signed off and the red dash symbol been initialed?		
14.	Has applicable AMU/Squadron supervision reviewed impoundment documentation prior to QA review?		
15.	Has QA reviewed and signed off the aircraft forms?		

Attachment 23 (Added)

F-22 ACCEPTANCE CHECKLIST

Figure A23.1. F-22 Acceptance Checklist.

F-22 ACCEPTANCE CHECKLIST	
Aircraft Tail #	Date of Inspection:
Responsible Activity or Individual and Required Action (as applicable)	EMP #
1. AMU:	
a. Notify MOF, PS&D, and QA of aircraft arrival.	
2. PS&D:	
a. Ensure all Time Changes, TCTOs, and Special Inspections due are entered in IMDS.	
b. Review and return all de-centralized records to appropriate work-centers.	
c. Perform document review, verify FCF sorties and hours flow prior to release.	
d. Perform AFTO Form 95 verification.	
e. Perform jacket file creation/verification.	
f. In cooperation with IMIS administrator; verify aircraft loaded into IMIS, and ensure the IMDS interface is operating.	
g. Perform Hardware/Software comparison and correct all discrepancies.	
3. Debrief:	
a. Debrief the pilot and ensure AMU Production Superintendent is aware of discrepancies.	
4. EMB:	
a. Ensure engines and components are loaded in IMIS.	
b. Ensure any time changes, TCTOs, OTIs or local inspections that are due are completed.	
5. Team Chief/DCC:	
a. Review previous flight discrepancies	
b. Establish fuel card	
c. Maintain an information file of all discovered discrepancies.	
d. Coordinate with NDI to establish JOAP records.	
e. Verify all maintenance is documented in IMIS.	

6. DCC:	
a. Perform BPO inspection.	
b. Perform -21 equipment inventory.	
c. Perform aircraft document review.	
d. Verify SPRAM assets delivered (diverters, tanks).	
e. Verify camera pod and glare shields are delivered.	
f. Enter acceptance inspection template into IMIS.	
7. Weapons:	
a. Perform weapons AME and NIE equipment inventory.	
b. Functional check gun system with 10 dummy rounds.	
c. Perform COLT checks.	
d. Perform operational/detent check on applicable loaded AME.	
8. Specialists:	
a. Perform KOV S/N verification and KMID registration.	
b. Aircraft Hardware/Software configuration management review.	
c. Verify CNI battery and A/C battery date of manufacturer “Born On” dates.	
9. Structures:	
a. Perform Structures Outer Mold Line Inspection.	
b. Pilot and Crew Chief names.	
10. Life Support:	
a. Unpack/inspect/repack survival kit/personal parachute.	
b. Ensure all life support inspections are loaded within 5 days.	
11. Egress:	
a. Remove/deliver survival kit to AFE.	
b. Remove canopy (as applicable).	
c. Remove seat (as applicable).	
d. Complete CAD/PAD verification (as applicable).	
e. Install seat (as applicable).	
f. Install canopy (as applicable).	
g. Install survival kit (location appropriate).	
h. Perform egress final.	

i. Verify IMDS/IMIS configuration.	
12. Squadron Maintenance Supervision	
a. Review all discrepancies annotated on acceptance inspection feedback checklist prior to submission to QA PIM.	
13. QA:	
a. Establish a point of contact for discrepancy and deficiency reporting (PIM).	
b. Retain Acceptance Inspection Feedback Checklist for filing and submit PQDR.	
c. Perform Weight and Balance and/or CG files verification	
NOT ALL INCLUSIVE NOR A SUBSTITUTE FOR TECHNICAL DATA	

Attachment 24 (Added)

C-12 FCF CHECKLIST

Figure A24.1 C-12 FCF Checklist.

3MXG C-12 COR FCF BRIEFING CHECKLIST			
This checklist is designed to aid in the preparation and accomplishment of the FCF process. Checklist 1 is to be filled out and signed during the FCF briefing. The aircrew checklist (-6 CL) will be filed with the applicable aircraft records history.			
TAIL NUMBER	PILOT	FLIGHT ENGINEER N/A	JCN
DATE:		REASON FOR FCF:	

		DATE	INITIALS
COR	1. COR advised of pending FCF		
	2. Weight and balance checked		
	3. FCF entered into 781As		
	4. FCF entered into COR programs		
	5. Approved/Required letters on-hand		
	6. Data entered on OCF/FCF log		
	7. Pre-flight QVI accomplished and signed off		
	8. Forms reviewed, stamped, and signed off		
	9. Pilot/Aircrew is briefed on the following: a. Purpose of FCF b. FCF-related maintenance or discrepancies c. Document requirements for FCF pilot		
QA	1. Notified 3 MXG/CC (or designated representative)		
CREW	1. Notified 3 OG/CC (or designated representative)	_____	_____
	2. Received aircrew checklist	_____	_____
	3. Checked weather requirements	_____	_____

	4. Reserved range space	_____	_____
CREW	5. Have read and understand (as applicable): a. AFI 21-101 b. AFI 21-101/AMCSUP 1 c. AFI 21-101/3 WG SUP d. TO 1-1-300 e. 1C-12(F)(J)-6CL-1 F	_____	_____
	6. FCF profile determined (Full / Limited). If limited, highlight applicable items in the checklist.	_____	_____
PILOT CERTIFICATION: I certify that I have been briefed on the items initialed above, checked NOTAMS, weather, and confirmed airspace has been reserved. FCF Pilot Signature and Date:_____ BRIEFER CERTIFICATION: I certify that I have conducted the briefing in accordance with AFI 21-101, AFI 21-101/AMC SUP 1, and AFI 21-101/3 WG SUP procedures. COR Briefer's Signature and Date:_____			

Figure A24.2. C-12 FCF Checklist (Checklist 2).

3 MXG C-12 COR FCF DEBRIEFING CHECKLIST		
This checklist is designed to aid in the preparation and accomplishment of the FCF process. Checklist 2 is to be checked off by COR during the debriefing to ensure all required items are accomplished. The aircrew checklist (-6CL) will be filed with the applicable aircraft records history (in accordance with AFI 21-101, AFI 21-101/AMC SUP 1, and AFI 21-101/3 WG SUP).		
		Initials
PILOT	1. All discrepancies found during FCF are documented in aircraft forms (as applicable).	_____
	2. FCF aircrew checklist (-6 CL) are appropriately checked and the checklist is signed.	_____
QAR	1. Date and time of next FCF briefing and take-off have been scheduled (as applicable).	_____
	2. FCF checklist is returned from the aircrew.	_____
	3. FCF log is completed.	_____
COR SUPPLEMENTARY CHECKLIST		
This checklist is to assist in items to be accomplished after an FCF is complete.		
PILOT	1. Print CAMS Screen 174 for the FCF.	
	2. File all documents under Tab H of the FCF/OCF Program Book.	

Attachment 25 (Added)

C-12 OCF CHECKLIST

Figure A25.1. C-12 OCF Checklist.

3 MXG C-12 COR OCF BRIEFING CHECKLIST			
This checklist is designed to aid in the preparation and accomplishment of the OCF process, and is stored in the FCF/OCF book upon completion. Checklist 2 is to be checked off during the debriefing to ensure all required items are accomplished.			
TAIL NUMBER	**PILOT**	**FLIGHT ENGINEER** **N/A**	**JCN** **N/A**
FLIGHT DATE:		**REASON FOR OCF:**	
OCF AUTHORIZING AUTHORITY(SQUADRON COMMANDER):			

		DATE	INITIALS
COR	1. C-12 COR section advised of pending OCF.		
	2. OCF entered in CAMS and 781As.		
	3. OCF entered in COR Programs.		
	4. Data entered into OCF/FCF log.		
	5. Pre-flight QVI accomplished (as applicable).		
	6. Forms reviewed by COF.		
	7. Applicable approval letters on-hand.		
	8. Pilot/Aircrew briefed on: a. Purpose of OCF b. Maintenance performed c. Documentation requirements of OCF pilot		
CREW	9. Checked weather requirements.		
	10. OCF profile determined.		

PILOT CERTIFICATION: I certify that I have been briefed on the items initialed above, checked NOTAMS, weather, and confirmed airspace has been reserved.
FCF Pilot Signature and Date:_____
BRIEFER CERTIFICATION: I certify that I have conducted the briefing in accordance with
AFI 21-101, AFI 21-101/AMC SUP 1, and AFI 21-101/3 WG SUP procedures.
COR Briefer's Signature and Date:_____

Figure A25.2. C-12 OCF Checklist (Checklist 2).

3 MXG C-12 COR OCF DEBRIEFING CHECKLIST		
These checklists are designed to aid in the preparation and accomplishment of the OCF process, and are stored in the FCF/OCF book upon completion. Checklist 1 is to be filled out and signed during the OCF briefing. Checklist 2 is to be checked off during the debriefing to ensure all required items are accomplished.		
PILOT	1. Pilot has properly signed off the OCF in the aircraft forms as "Released" or "Not Released."	____
	2. All discrepancies found during OCF are documented in aircraft forms (as applicable).	____
QAR	3. Date and time of next OCF briefing and take-off have been scheduled (as applicable).	____
	4. OCF Log completed.	____

Figure A25.3. C-12 OCF Checklist (Checklist 3).

COR SUPPLEMENTARY CHECKLIST	
This checklist is to assist in items to be accomplished after an OCF is complete.	
[redacted]	
PILOT	1. Sign off CAMS, complete COR programs, and print CAMS Screen 174.
	2. File all documents under Tab G of the OCF/FCF Program Book.

Attachment 26 (Added)

F-22 FCF QUALITY ASSURANCE BRIEFING CHECKLIST

Figure A26.1. F-22 FCF Quality Assurance Briefing Checklist.

3 MXG F-22 QUALITY ASSURANCE FCF BRIEFING CHECKLIST					
This checklist is designed to aid in the preparation and accomplishment of the FCF process. Checklist 1 is to be filled out and signed during the FCF briefing. The aircrew checklist (-6 CL) will be filed with the applicable aircraft records history.					
TAIL NUMBER	**PILOT**	**DATE**	**LCN**		
HQ CAT:	**LAST FLY:**	**REASON:**	**2407:**		
			DATE	**INITIALS**	
QA	1. QA advised of pending FCF		_____	_____	
	2. Ensure FCF and reason are entered into MIS		_____	_____	
	3. BPO/Pre-Flight QVI accomplished/signed off		_____	_____	
	4. Complete FCF log entry and enter in QA database		_____	_____	
	5. Forms reviewed and signed off through last flight		_____	_____	
	6. Schedule an FCF briefing w/applicable squadron		_____	_____	
	7. Review weight and balance documents (Form F)		_____	_____	
	8. Pilot is briefed on the following: a. Purpose of FCF b. FCF-related maintenance or discrepancies c. Document requirements for FCF pilot		_____	_____	
	9. Notified 3 MXG/CC (or designated representative)				
CREW	1. Notified 3 OG/CC (or designated representative)		_____	_____	
	2. Received aircrew checklist (1F-22A-6CL-1)		_____	_____	
	3. Checked weather requirements		_____	_____	
	4. FCF profile determined (Full / Limited). If limited, highlight applicable items in the checklist.		_____	_____	

PILOT CERTIFICATION: I certify that I have been briefed on the items initialed above, checked NOTAMS, weather, and confirmed airspace has been reserved.
FCF Pilot Signature and Date:_____
BRIEFER CERTIFICATION: I certify that I have conducted the briefing in accordance with AFI 21-101, AFI 21-101/AMC SUP 1, and AFI 21-101/3 WG SUP procedures.
QA Briefer's Signature and Date:___ _____

Figure A26.2. F-22 FCF Quality Assurance Briefing. Post Flight Checklist.

POST FLIGHT		
PILOT		
1. Pilot has properly signed-off FCF in IMIS as "released" or "not released."		
2. All discrepancies found during FCF are documented during maintenance debrief.	_____	_____
3. -6 CL completed by pilot and given to QA representative.	_____	_____
QA		
1. Complete FCF log entry and input into QA database.	_____	_____
2. Forward FCF Checklist to Plans & Scheduling (3 MXG).	_____	_____

Attachment 27 (Added)

F-22 FCF PRE-MISSION CHECKLIST

Figure A27.1. F-22 FCF Pre-Mission Checklist.

AMU WILL:		**Emp #**
1	THE PRODUCTION SUPERINTENDENT WILL NOTIFY QA AND THE OPERATIONS SQUADRON COMMANDER AS SOON AS IT BECOMES EVIDENT THAT AN FCF IS REQUIRED.	_____
2	GENERATE AN FCF TEMPLATE AND PLACE IT IN MIS. ENTER THE FCF DISCREPENCY. ALL DISCREPANCIES WILL BE ENTERED ON A RED DASH.	_____
3	PERFORM REQUIRED PRE-FLIGHT OPERATIONAL CHECKS.	_____
4	THE PRODUCTION SUPERINTENDENT WILL ENSURE AIRCRAFT SCHEDULED FOR FCF IS CONFIGURED CLEAN.	_____
5	AMU SUPERVISION WILL PERFORM A FORMS REVIEW. NOTIFY QA THAT FORMS ARE READY FOR REVIEW NLT ONE DAY PRIOR TO SCHEDULED TAKE OFF TIME.	_____
6	AMU SUPERVISION WILL NOTIFY QA WHEN THE AIRCRAFT IS READY FOR QVI.	_____
FCFs are check flights conducted for other than contractual conformance and/or to ensure aircraft is airworthy. In accordance with TO 1C-17A-6, Chapter 2, Part B and TO 1-1300, Paragraph 4.1.3.		

Attachment 28 (Added)

F-22 OCF QUALITY ASSURANCE BRIEFING CHECKLIST

Figure A28.1. F-22 OCF Quality Assurance Briefing Checklist.

3 MXG F-22 QUALITY ASSURANCE OCF BRIEFING CHECKLIST				
This checklist is designed to aid in the preparation and accomplishment of the FCF process. Checklist 1 is to be filled out and signed during the FCF briefing. The aircrew checklist (-6 CL) will be filed with the applicable aircraft records history.				
TAIL NUMBER	**PILOT**	**DATE**	**LCN**	
HQ CAT:	**LAST FLY:**	**REASON:**	**2407:**	
			DATE	**INITIALS**
QA	1. QA advised of pending OCF		_____	_____
	2. Ensure OCF and reason are entered into MIS		_____	_____
	3. BPO/Pre-Flight QVI accomplished/signed off		_____	_____
	4. Complete OCF log entry and enter in QA database		_____	_____
	5. Forms reviewed and signed off through last flight		_____	_____
	6. Schedule an OCF briefing w/applicable squadron		_____	_____
	7. Review weight and balance documents (Form F)		_____	_____
	8. Pilot is briefed on the following: a. Purpose of OCF b. OCF-related maintenance or discrepancies c. Document requirements for OCF pilot		_____	_____
	9. Notified 3 MXG/CC (or designated representative)			
CREW	1. Notified 3 OG/CC (or designated representative)		_____	_____
	2. Received aircrew checklist (1F-22A-6CL-1)		_____	_____
	3. Checked weather requirements		_____	_____
	4. OCF profile determined (Full / Limited). If limited, highlight applicable items in the checklist.		_____	_____

PILOT CERTIFICATION: I certify that I have been briefed on the items initialed above, checked NOTAMS, weather, and confirmed airspace has been reserved.
OCF Pilot Signature and Date:_____
BRIEFER CERTIFICATION: I certify that I have conducted the briefing in accordance with AFI 21-101, AFI 21-101/AMC SUP 1, and AFI 21-101/3 WG SUP procedures.
QA Briefer's Signature and Date:_____

Figure A28.2. F-22 OCF Quality Assurance Briefing Post Flight Checklist.

POST FLIGHT		
PILOT	[redacted]	
1. Pilot has properly signed-off OCF in IMIS as "released" or "not released."		
2. All discrepancies found during OCF are documented during maintenance debrief.		
3. -6 CL completed by pilot and given to QA representative.		_____
QA	[redacted]	
1. Complete OCF log entry and input into QA database.		
2. Forward OCF Checklist to Plans & Scheduling.		

Attachment 29 (Added)

F-22 OCF PRE-MISSION CHECKLIST

Figure A29.1. F-22 OCF Pre-Mission Checklist.

AMU WILL:		**Emp #**
1	THE PRODUCTION SUPERINTENDENT WILL NOTIFY QA AND THE OPERATIONS SQUADRON COMMANDER AS SOON AS IT BECOMES EVIDENT THAT AN OCF IS REQUIRED.	_____
2	GENERATE AN OCF TEMPLATE AND PLACE IT IN MIS. ENTER THE OCF DISCREPENCY. ALL DISCREPANCIES WILL BE ENTERED ON A RED DASH.	_____
3	PERFORM REQUIRED PRE-FLIGHT OPERATIONAL CHECKS.	_____
4	THE PRODUCTION SUPERINTENDENT WILL ENSURE AIRCRAFT SCHEDULED FOR OCF IS CONFIGURED CLEAN.	_____
5	AMU SUPERVISION WILL PERFORM A FORMS REVIEW. NOTIFY QA THAT FORMS ARE READY FOR REVIEW NLT ONE DAY PRIOR TO SCHEDULED TAKE OFF TIME.	_____
6	AMU SUPERVISION WILL NOTIFY QA WHEN THE AIRCRAFT IS READY FOR QVI.	_____
OCF missions are flown to check the operations of selected systems or equipment that requires flight verification. In accordance with TO 1C-17A-6, Chapter 2, Part B and TO 1-1300, Paragraph 4.1.3.		

Attachment 30 (Added)

AIRCRAFT STRUCTURAL MAINTENANCE INTAKE CHECKLIST FOR ON-EQUIPMENT MAINTENANCE

Figure A30.1. Aircraft Structural Maintenance Intake Checklist for On-Equipment Maintenance.

LOW OBSERVABLE AIRCRAFT STRUCTURAL MAINTENANCE
INTAKE MAINTENANCE CHECKLIST

PURPOSE: To assist Low Observable technicians performing aircraft intake maintenance in accordance with AFI 21-101, PACAF SUP, and 3 WG SUP. COMPLIANCE IS MANDATORY.

PROCEDURES: A two-person concept for intake repair or intake rivet replacement is required. One person will monitor and account for all tools and hardware placed into the intake; inventories are documented using page two of this checklist. The second person will accomplish the maintenance task. A FOD bag is required to secure debris. During intake repair or intake rivet replacement, the Intake Maintenance Checklist will be taped in plain sight. All tools and hardware will be documented on this form prior to being placed in the intake. The Low Observable Section will maintain completed checklists for one year.

AIRCRAFT TAIL NUMBER:	**DATE:**
INTAKE/INLET NUMBER:	**POSITION:**
CTK NUMBER:	**JOB CONTROL NUMBER:**

Enter a thorough description of the intake discrepancy (include type and location):

_____
_____
_____
_____
_____
_____
_____

	Initials	Emp #
1. Enter/upgrade Red X in aircraft forms for the maintenance discrepancy.	_____	_____
2. Enter Red X in aircraft forms for engine plugs, barrier paper, and tape.	_____	_____
3. Enter Red X in aircraft forms for post-maintenance F.O./Tool check.	_____	_____
4. Clear Red X in aircraft forms after repair completion.	_____	_____
5. Clear Red X in aircraft forms for engine plugs, barrier paper, and tape.	_____	_____
6. Clear Red X in aircraft forms for FO/tool check.		

	______	______
7. Supervisor review of this document and aircraft forms.	______	______
8. Copy sent to QA.		

All items (tools, consumables, bench stock, etc.) taken into aircraft intake must be placed on this inventory. Two-person concept applies during this process. Technician #1 will accomplish inventory and Technician #2 will accomplish maintenance. Attach additional inventories as required until repair completion and file all inventories with completed checklist.

Technician #1: Name: __________________Emp #: ________ Date: ________ Shift: ________

Technician #2: Name: __________________Emp #: ________ Date: ________ Shift: ________

Inventory: ____

Technician #1: Name: __________________Emp #: ________ Date: ________ Shift: ________

Technician #2: Name: __________________Emp #: ________ Date: ________ Shift: ________

Inventory: ____

Technician #1: Name: __________________Emp #: ________ Date: ________ Shift: ________

Technician #2: Name: __________________Emp #: ________ Date: ________ Shift: ________

Inventory: ____

Technician #1: Name: __________________Emp #: ________ Date: ________ Shift: ________

Technician #2: Name: __________________Emp #: ________ Date: ________ Shift: ________

Inventory: ____

Technician #1: Name: __________________Emp #: ________ Date: ________ Shift: ________

Technician #2: Name: _____Emp #: _____ Date: _____ Shift: _____
Inventory: _____ _____ _____ _____ _____

Attachment 31 (Added)

ACES II VISUAL INPECTION WORKSHEET

Figure 31.1. ACES II Visual Inspection Worksheet.

ACES II PRE-INSTALLATION INSPECTION

ACFT: AF	**JCN**	**DATE**
SEAT S/N: 22S		
SEAT REMOVED FOR:		

PERFORM THE FOLLOWING INSPECTIONS/CHECKS. REFER TO T.O. 13A5-70-1

ACCOMPLISH ON INCOMING	**MAN#/INIT**
1. Perform Incoming 5.11 Inspection **5 LEVEL VISUAL INSPECTION** (Para 5.11)	
2. Review A/C Jacket File/IMIS/IMDS for T/C Items and DDs	
3. If Removed for Time Changes Load Time Change Jobs in IMDS	
4. Recovery Chute Information: **S/N:**_____ **Repack Date:**_____	
5. Survival Kit Information: **S/N:**_____ **Repack Date:**_____	
6. Touch Up Paint and Replace Decals (As Needed)	
ACCOMPLISH ON OUTGOING	**MAN#/INIT**
7. Perform Outgoing 5.11 Inspection **5 LEVEL VISUAL INSPECTION** (Para 5.11)	
8. Perform Outgoing 5.11 Inspection **7 LEVEL VISUAL INSPECTION** (Para 5.11)	
9. Vacuum/Blow out and Inspect under seat pan lid, blast shield, mortar disconnect assembly, E-Sensor, drogue extraction chute, and around recovery sequencer. **Note: pay particular attention to corners, cracks, and under brackets.**	
10. Anti G-Hose Pull Test: **7LvL Out**: LBS_____ Man#_____	
IPIs	**MAN#/INIT**
11. In-Shop IPI of Headrest Panel (if applicable) (**Signature**) _____	
12. In-Shop IPI of Thermal Batteries Panel (**Signature**) _____	
13. In-Shop IPI of Blast Shield Panel (**Signature**) _____	
14. In-Shop IPI of STAPAC Cover (**Signature**) _____	

LIST DISCREPANCIES AND ITEMS REMOVED

Discovered By Man #	**DISCREPANCIES**	**Corrected By Man # Initials**
	Thermal Battery Panel Removed	
	Blast Shield Removed	
	Survival Kit Removed	
	Gyro Cover Removed	
Discovered		**Corrected By Man**

By Man #	DISCREPANCIES	# Initials

Attachment 32 (Added)

ACES II 36-MONTH INSPECTION PACKAGE

Figure 32.1. ACES II 36-Month Inspection Package.

ACES II 36 MONTH INSPECTION PACKAGE

Aircraft Tail #AF_____ Seat P/N: J109600-_____ Seat S/N: 22S_____
JCN:_____ Start Date:_____ End Date:_____

PART 1 - Visual Inspections		
Item	*Inspected By - Man# / Initials*	*Date*
5 Level Incoming Inspection		
5 Level Outgoing Inspection		
7 Level Outgoing Inspection		

PART 2 - Disassemble and Reassemble (If applicable)			
Item	*Removed By - Man# / Init*	*Installed By - Man# / Init*	*Date*
Recovery Parachute			
Survival Kit			
Thermal Batteries			
STAPAC Assembly			
EPS Clevis Pin, Washer, Cotter Pin			
SSS Bellcrank & Cover			
Environmental Sensor			
Seat Rollers - Go/No-Go Insp			
O2 Bottle			
Inertia Reel Initiator			
Mortar Assembly			
Drogue Mortar Cart			
Drogue Parachute			
L/H Drogue Severance Cutter			
R/H Drogue Severance Cutter			
Harness Release Cart			

PART 3 - Clean and Inspect			
Item	*Inspected By - Man# / Initials*	*Date C/W*	
Seat Structure Cleanliness			
Paint/Touch-up Seat			
R2 Seat Decal/Torque Stripe			
Lube Seat Rollers			
Seat CAD/PAD	5-lvl:	7-lvl:	
Cockpit CAD/PAD	5-lvl:	7-lvl:	

PART 4 - Items Requiring Replacement			
Item	*Removed By - Man# / Init*	*Installed By - Man# / Init*	*Date*
Firing Control Handle			
Inertia Reel Straps			
Environmental Sensor Hoses			
Lap Belts			
Backrest Pad			
Seat Bottom Cushion			

ACES II 36 MONTH INSPECTION PACKAGE

PART 5 - Functional Checks, Pull Checks, and Required Inspections			
Item	*LBS*	*Inspected By - Man# / Init*	*Date*
Sequence Start Switch (5.13)	N/A		
Emergency Manual Parachute Handle Test (Table 5-4)			
Firing Control Handle NDI (Non-Anodized Handles Only) (5.12 step 4)	N/A		
Firing Control Rotation Check (5.47.6)			
Firing Control Friction Check (5.47.6)			
Firing Control Safety Lever - Up Pos.(5.45.6)			
Firing Control Safety Lever - Down Pos. (5.45.6)			
STAPAC Inspection (5.19.5 steps a-c)	N/A		
Arm Restraint Assembly (5.66.7)	N/A		
Leg Restraint Assembly (5.75.6)	N/A		
Oxygen Ring Pull Check (5.35.6)			
Drogue Chute Repack - if due before next 36 month			
Anti G-Hose Pull Test:	7LvL Out: Lbs:_____ Man#_____		

PART 6 - Outgoing Visual Inspection		
Item	*Inspected By - Man# / Initials*	*Date*
VACUUM, BLOW OUT AND INSPECT SEAT FOR F.O. *NOTE: PAY PARTICULAR ATTENTION TO CORNERS, CRACKS AND UNDER BRACKETS.*		

PART 7 - QA Assessment		
Item	*Inspected By - Man# / Initials*	*Date*
QA Seat Assessment		

PART 8 - IPIs		
Item	*Inspected By - Man# / Initials*	*Date*
Headrest Pad		
STAPAC Cover		
Thermal Battery Cover		
Blast Shield		

PART 9 - Egress Scheduling		
Item	*7 Lvl Review - Man# / Initials*	*Date*
Jacket File Review		
Time Changes and Paperwork		
IMDS/IMIS Status (Run #380)		

ACES II 36 MONTH INSPECTION PACKAGE

PART 10 - Discrepancies		
Discovered By	*Discrepancy*	*Corrected By*
	Thermal Battery Cover Removed	
	BlastShield Removed	
	STAPAC Cover Removed	

ACES II 36 MONTH INSPECTION PACKAGE

PART 10 - Discrepancies Continued		
Discovered By	*Discrepancy*	*Corrected By*