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EDWARDS AIR FORCE BASE

EDWARDS AIR FORCE BASE
INSTRUCTION 21-126

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Maintenance

TEMPORARY 2 (T-2)
MODIFICATION PROGRAM

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This Edwards Air Force Base Instruction (EDWARDSAFBI) implements AFMCI 21-126 TEMPORARY 2 (T-2) MODIFICATION OF AEROSPACE VEHICLES. It identifies specific coordination and approval requirements, provides specific procedures to be used throughout the T-2 Modification process and prescribes specific forms to be used at the 412 Test Wing (TW). References to modifications, "Mod or Mods" apply to T-2 Modifications, to include design baseline changes and modification notes unless otherwise specified. This Instruction applies to all affected work centers under the 412 TW and all organizations performing work on Edwards AFB, on assigned and possessed aircraft or equipment. Assigns duties and responsibilities to 412 TW organizations when Configuration Control Board (CCB), Modification Engineering Authority (MEA), and Airworthiness assessment authority for T-2 modifications have been delegated (For some modifications airworthiness may be maintained by an outside organization). The Instrumentation Squadron will maintain copies of all letters delegating T-2 Modification CCB, MEA, and Airworthiness authority. This instruction does not require tiers at or below the Wing level. Waiver authority for this instruction is the 412th TW Commander. This publication may be supplemented or further implemented/extended. Refer recommended changes and questions about this publication to the OPR listed above using the AF Form 847, *Recommendation for Change of Publication*; route AF Forms 847 from the field through the appropriate chain of command. Ensure that all records created as a result of processes described in this publication are maintained in accordance with Air Force Instruction (AFI) 33-322, *Records Management and Information Governance Program*, and disposed of in accordance with Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS). This

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SUMMARY OF CHANGES

This document has been substantially revised and must be completely reviewed. Major changes include the new independent airworthiness requirements, forms, and updates to existing forms per AFTCI 62-602.

Chapter 1

PROGRAM OVERVIEW

1.1. Overview. Maintenance support of modified aircraft and/or equipment can be severely hampered if proper coordination, approval and documentation are not acquired for each modification. It is essential that the policies and procedures of this instruction be well understood by all personnel including contractors who support the EAFB T-2 Modification Program.

Chapter 2

ROLES AND RESPONSIBILITIES

2.1. Configuration Control Board Delegation. The 412 MXG/CC or 412 MXG/CD will chair the T-2 Modification CCB for 412 TW. The 812 Airborne Instrumentation Test Squadron (AITS) will serve as 412 TW MEA. The 412 OG/CC will sign Modification Flight Manual (MFM) before distribution and use.

2.1.1. The 412th Maintenance Group Commander (412 MXG/CC) may delegate T-2 Modification CCB authority to other organizations by letter.

2.1.2. The 812 AITS may delegate MEA to other organizations by letter.

2.1.3. The 412th Operations Group Commander (412 OG/CC) may delegate MFM signature authority to other organizations by letter.

2.2. T-2 Modification Office of Primary Responsibility (OPR). 812 AITS/ENIM is designated as the technical OPR for all T-2 mods where the 412 MXG has CCB authority. The 812 AITS/ENIMP T-2 Modification Documentation Office will coordinate all approvals with the CCB and publish a monthly memorandum documenting CCB approval actions.

2.3. Annual T-2 Modification Review. The CCB will perform a review/revalidation of all modifications annually to verify continued requirements. The local test unit for the aircraft will respond to the CCB request by indicating the status of the requirement.

2.4. Component Safety of Flight Certification. The determination of the necessity for Group B component safe for flight certification is delegated to the MEA.

2.5. T-2 Modification Documentation Office. The 812 AITS/ENIMP T-2 Mod Documentation Office will enter the appropriate modification data into the Integrated Maintenance Data System (IMDS) after the modification has received appropriate approval using one of the procedures defined in paragraphs **3.2**, **3.18**, **3.19**, **3.20**, and **3.24** The T-2 Mod Documentation Office will coordinate on EDWARDSAFB FORM 5048A, *Work Request/Cost Control*, submitted for fabrication support after verifying the EDWARDSAFB FORM 5048A data against the data in IMDS.

2.6. The 412th Maintenance Group Quality Assurance (QA) Division (412 MXG/MXQI).

2.6.1. 412 MXG QA will inspect any assigned, leased or loaned aircraft at Edwards AFB modified by government, contractor, or joint government/contractor modification personnel, aircraft forms and work areas on a continual basis. 412 MXG QA will inspect and annotate:

2.6.1.1. Block 11 and 14-16 of the AFMC Form 272 Physical Configuration Inspection (PCI) Report

2.6.1.2. Block 18 of the EDWARDSAFB FORM 5452, *Modification Note*, and Block 19 of the EDWARDSAFB FORM 5452E, *Expanded Modification Note*.

2.6.1.3. Block 12 of the AFMC Form 273 Final Release for Flight form.

2.6.2. For non-contracted, government installed modifications, any discrepancies found with the modification will be charged against 412 MXIS individuals that accomplished the modification related work or persons in a supervisory capacity, having control of the aircraft and the modification process at the time of the inspection. Note: This person might be an assigned T-2 Modification Dock Chief, the appropriate Maintenance Production Superintendent or the appropriate Special Instrumentation (SI) technician supervisor. Discrepancies discovered that are not associated with the modification will be written up in the production AFTO Form 781A aircraft forms and brought to the attention of the responsible shop.

2.6.3. For contracted modifications, the discrepancy information will be passed on to the Contracting organization's Quality Assurance Office or Contractor Supervision.

2.6.4. Clearing ACFT forms. Upon flight release, 412 MXG QA inspectors will sign the orange-bordered AFTO Form 781A, *Maintenance Discrepancy and Work*, "INSPECTED BY" block for the "NOT RELEASED FOR FLIGHT" Red-X Mod discrepancy and the associated discrepancy in the aircraft IMDS for all government, and integrated contractor and government installed modifications.

2.6.5. Review publishing and distribution of Local Technical Data by Mod Managers:

2.6.5.1. Modifications requiring owning maintenance unit personnel to accomplish any maintenance, inspections, or any other special occurrence tasks to T-2 modifications installed will have local technical data generated and produced by 812 AITS.

2.6.5.1.1. Coordination with affected Aircraft Maintenance Unit (AMU), Instrumentation Operations Engineer (IOE), instrumentation maintenance (MXIO), and T-2 Modification Manager (T2MM) is necessary to determine if local technical data is required. This coordination will define the System Maintenance Concept at the organizational, intermediate and/or depot level.

2.6.5.2. 412 MXG QA will review and validate the proposed procedures for adequacy and intent of coverage. Any recommendations made by 412 MXG QA will be documented and the draft copy returned to the author. The decentralized location of the local technical data will be referenced in the modification package.

2.6.5.3. 412 MXIS will provide technical advisory support in drafting and reviewing of local technical data per EAFB Supplement to AFI 21-101.

2.6.5.4. Locally Prepared Technical Data (LPTD) will be developed when no other procedures exist pertaining to special instrumentation equipment installed, and when procedures are critical or tasks are to be performed by production maintainers.

2.6.5.5. Local Page Supplements (LPS) will be developed when Technical Order (TO) procedures must be supplemented due to the installation of special instrumentation requiring additional steps or information to be provided.

2.6.5.6. Local Work Cards (LWC) will be used when production inspection work cards require supplemental inspection data for mod installations. These installation inspection requirements will be aligned to scheduled production interval requirements.

2.6.5.7. Local Checklists (LCL) will be developed when no other checklist exists for specific routine maintenance that dictates a required sequence to occur, or to ensure verification of correlating tasks.

2.6.5.8. Once T-2 Local Technical Data has been distributed to the using organizations, the using organizations are required to use the data when accomplishing maintenance.

2.7. Air Force Test Center (AFTC) Contract Administration Service (CAS) Quality Assurance Branch (AFTC/PZZB).

2.7.1. CAS QA will perform quality oversight of contractor installed modifications on any assigned, leased, loaned or unassigned aircraft at Edwards AFB when delegated quality assurance functions under FAR 42.302. If a QA delegation is required and does not exist, contact AFTC/PZZ, Administrative Contracting Officer for assistance.

2.7.2. CAS QA will inspect the aircraft modified by contractor personnel, aircraft forms and work areas on a continual basis.

2.7.3. CAS QA will be the final authority to inspect and sign:

2.7.3.1. Block 11 and sign Block 14-16 on the AFMC Form 272 Physical Configuration Inspection (PCI) Report.

2.7.3.2. Block 18 of the EDWARDSAFB FORM 5452, *Modification Note*, and Block 19 on the EDWARDSAFB FORM 5452E, *Expanded Modification Note*.

2.7.3.3. Block 12 of the AFMC Form 273 Final Release for Flight and the AFMC Form 243 Temporary Release for Flight forms.

2.7.3.4. Incremental inspection of the modification installation may be accomplished through inspection and documentation on the EDWARDSAFB FORM 5008 if used, or on the contractors work documents.

2.7.3.5. CAS QA will ensure discrepancies identified during the PCI are documented in the orange-bordered AFTO Form 781A.

2.7.4. Clearing ACFT forms. Upon flight release, CAS QA inspectors will sign the orange-bordered AFTO Form 781A, *Maintenance Discrepancy and Work*, "INSPECTED BY" block for the "NOT RELEASED FOR FLIGHT" Red-X Mod discrepancy. The associated discrepancy in the aircraft IMDS entry will be completed by 412 MXG QA on behalf CAS QA.

2.8. Phase/Periodic Inspections or Maintenance. No modifications or de-modifications will be performed during a phase/periodic inspection or when maintenance occurs unless coordinated between the Mod Dock Chief (or designee), the Maintenance Operations Center (MOC) and the applicable Maintenance Production Superintendent. Modifications or de-modifications may be done on a non-interference basis to preclude phase inspection or production scheduled or unscheduled maintenance delays. Careful coordination on a regular basis will occur between the Mod Dock Chief (or designee) and the appropriate Maintenance Production Superintendent to ensure maintenance actions and modification activities are not in conflict. If T-2 modification inspections are required during aircraft scheduled periodic/phase a representative from 412 MXG/MXI will attend scheduled Maintenance Plans & Scheduling phase pre-dock meeting.

2.9. Time Compliance Technical Orders (TCTO). Plans, Scheduling & Documentation (MXOOS) will be notified of TCTOs that cannot be completed and require a waiver as a result of modifications currently in work or installed. All other TCTOs will be reviewed and discussed during the initial meeting for the TCTO at which time a determination will be made if the TCTO can be worked. All discussion items will be annotated on the AF Form 2410, *Inspection/TCTO Planning Checklist*. MXOOS will ensure the TCTO records reflect the mod number which caused the waiver requirement. The T-2 Mod Documentation Office will advise 412 MXG QA and MXOOS of all de-modifications so that a determination can be made by the applicable equipment specialist to schedule any waived TCTO for compliance or allow the TCTO to be permanently waived as long as this will not present any safety issues.

2.10. Carry-on Equipment and Palletized Cargo. Use of carry-on equipment or palletized cargo to be powered-on in flight will not be considered an aircraft modification unless the aircraft is modified to accommodate this equipment for flight. Final determination for classification as carry-on is the MEA. Reference AFMAN 11-202, Volume 3, Flight Operations, for further determination and guidance. Carry-on equipment or palletized equipment that will be powered-on in flight, although may not be considered an aircraft modification, will require an airworthiness assessment IAW AFTCI 62-602.

2.11. Standard Airborne Instrumentation (SAI). Instrumentation devices added by the modification process will meet the requirements for accuracy, commonality and local supportability as established by the 812 AITS/ENI SAI Policy. Approved devices are listed on the SAI List which is maintained by the Airborne Instrumentation Equipment Configuration Control Board (AICCB). Waivers to the SAI requirement will be reviewed and approved by the AICCB and documented in the modification package.

2.12. De-modification and determination of Core Instrumentation System Equipment (CISE). The organization funding the modification is responsible for funding the de-modification. Equipment added by a modification will be removed after the funding program/project is completed with the exception of CISE. Equipment that will be used to support multiple missions and/or multiple customer flight test requirements (continue to be used after supporting single customer or flight test) is considered CISE. All CISE must be identified and accepted by the AICCB. De-modification of approved CISE is waived and organizational and depot level maintenance funding of CISE is the responsibility of the 812 AITS.

2.13. Hardware & Software Change Actions. Where 412 TW has hardware and software T-2 modification configuration management responsibility, each Flight Test Squadron (FLTS) may develop its own local T-2 Modification hardware and software change action procedure for those changes approved for installation by the system program office (SPO). This local procedure will allow the FLTS to act on behalf of the 412 MXG CCB and 412 TW MEA authority to approve form, fit, and function changes only. The 412 MXG CCB and the 412 TW MEA will concur on these local procedures. Any changes to the local procedures will be coordinated with 412 MXG CCB and 412 TW MEA prior to use. Configuration control will be maintained at all times. The 812 AITS will maintain copies of all such procedures.

2.13.1. The SPO Chief Engineer/Delegated Technical Authority (CE/DTA) is responsible for providing airworthiness assessments for changes they direct and any required Military Type Certificates (MTC) or Military Flight Releases (MFR).

2.13.2. Modifications, software changes, and configuration changes directed by the Mission Design Series (MDS)/Platform office will be reviewed by the AFTC CE/DTA and CCB to eliminate conflicts with existing aircraft modifications. See AFTCI 62-602.

2.13.3. The AFTC CE/DTA is responsible for addressing airworthiness for changes not directed by the SPO.

2.14. Aircraft Modifications for Ground Testing Only. The rigorous requirements identified in this instruction are not intended to be applied to modifications for ground testing only and which are completely removed prior to flight. However such modifications do require approval of the T-2 Mod MEA and will be accomplished in accordance with (IAW) local FLTS procedures that are concurred with by the T-2 Mod MEA and CCB authority. Verification must be made by either analysis or testing, indicating that after removal, no flight critical systems have been affected. No modifications shall be made under this provision for which T.O. repair provisions are insufficient to restore the test article to its pre-modified configuration. The 812 AITS will maintain copies of all such procedures. Configuration control will be maintained at all times.

2.14.1. Aircraft Modifications for Ground Testing in support of maintenance troubleshooting shall be initiated through Engineering Technical Assistance Request (ETAR) process.

2.15. Uncertified External and Internal Stores. The 412 TW Program Manager (PM) will identify non-certified stores during test program planning and notify the T2MM, who will prepare the AFMC Form 244, T-2 Modification Configuration Control Board Directive, and brief the Design Review Board (DRB) for initial approval. The T2MM will then forward a copy of the AFMC Form 244, along with an engineering data package, to the stores compatibility activity (e.g. Air Force Seek Eagle Office, Eglin AFB, FL).

2.15.1. See also AFTCI 62-602 paragraph 4, for modification requirements.

2.16. Contracted Modifications and Lease or Loan Agreements. The 412 TW PM (or Combined Test Force (CTF) Director if no 412 TW PM is assigned) will notify the 812 AITS of all contracted modifications that will involve 412 TW assets. If the modification is to be accomplished under 412 TW CCB authority, the 812 AITS will ensure that a T2MM is appointed for the modification. For contracted modifications on 412 TW assets, the 412 TW PM will ensure AFMCI 21-126, *Temporary 2 (T-2) Modification of Aerospace Vehicles);* AFTCI 62-602, *Airworthiness:* MIL-STD-27733, its associated Data Item Description (DI-MISC-81562), and SAE-AS50881 are included as contractual requirements, as well as the requirement to support inspections by 412 TW personnel. Exceptions to these requirements may be granted by the 412 TW CCB. For modifications contracted by other agencies (System Program Office, laboratories, etc.), the 412 TW PM (or CTF Director) will ensure the agency is informed of these requirements. The 412 TW PM (or CTF Director) will notify the appropriate quality assurance functions related to those aircraft modified by contractor personnel.

2.17. System Program Office (SPO) Approved T-2 Modifications. SPO approved T-2 modifications on 412 TW weapon systems will provide a courtesy brief to the DRB. This will act as notification to CCB and MEA of changes to weapon system configurations.

2.17.1. Request local T-2 modification number through T-2 Modification Office.

2.17.2. A 'wrapper' AFMC Form 244 will be used that contains both the SPO and the local T-2 modification numbers. In block 1 of the AFMC Form 244, N/A will be checked as it is the SPOs responsibility to provide the airworthiness assessment. Block 7 will contain the locally assigned modification number, and block 10 will contain the SPO modification number.

2.17.3. The responsible MDS/Platform office will provide all T-2 modification documentation and any required MTCs or MFRs to the AFTC CE/DTA. A copy of the T-2 mod package will be provided to the T-2 Modification Office. See AFTCI 62-602.

2.17.4. Modifications, software changes, and configuration changes directed by the MDS/Platform office will be reviewed by the AFTC CE/DTA and CCB to eliminate conflicts with existing aircraft modifications. See AFTCI 62-602.

2.17.5. Modification package will not require review by CCB members unless requested by DRB.

2.18. For modifications to non-AFMC aircraft see AFTCI 62-602.

2.19. For modifications to FAA certified aircraft see AFTCI 62-602.

2.20. For modifications to leased aircraft see AFTCI 62-602.

2.21. T-2 Modification Procedures and the Airworthiness Evaluation Process. All modifications will be assessed and classified for airworthiness as either Not AW Related, or AW Related and either non-reportable, or reportable. Reference AFI 62-601 and AFTCI 62-602. The airworthiness forms and process as defined in AFTCI 62-602 are integrated into the T-2 modification process as described in paragraph 3 of this instruction.

2.21.1. See AFTCI 62-602 paragraph 2.1 for the responsibilities of the AFTC Director of Engineering/Delegated Technical Authority (DOE/DTA) concerning airworthiness assessments and T-2 modifications.

2.21.2. See AFTCI 62-602 paragraph 2.2, for the responsibilities of the AFTC CE/DTA concerning airworthiness assessments and T-2 modifications.

2.21.3. See AFTCI 62-602 paragraph 2.3, for the responsibilities of the MEA concerning airworthiness assessments and T-2 modifications.

2.21.4. An AFTC Form 6238, *T-2 Modification Airworthiness Determination and Preliminary Hazards Analysis* will be developed for all T-2 modifications during the preliminary stages of the design of the T-2 modification and will be updated and reviewed during design development and design peer reviews.

2.21.4.1. During the final review of the T-2 modification package, as part of the Physical Configuration Inspection (PCI) and Flight Release approvals, the AFTC Form 6238 will be reviewed, and the CE/DTA will add a paragraph and sign on page three justifying, summarizing, and verifying that all airworthiness artifacts have been reviewed

2.21.5. Modifications to stores or new stores. Stores modifications do not require an AFTC Form 6238. The AFTC Form 6238 for the store will be accomplished in the T-2 modification interface package (the T-2 package that interfaces the store with the aircraft). The AFMC Form 244 block 1 will be checked N/A for airworthiness and does not require the AFTC CE/DTA to sign for the assessment.

2.21.5.1. Engine modifications (normally accomplished as stores mods), the CE/DTA will forward design information (drawings, etc.) and test and analysis data/plans pertinent to the engine modification to the EZFP POC, and request guidance when making the AW decision.

2.21.6. For cybersecurity, the Standard Modification Process will be followed per local cybersecurity policy and process.

Chapter 3

GUIDANCE AND PROCEDURES

3.1. 412TW T-2 Modification Design Review Board (DRB).

3.1.1. DRB Membership. Members of the DRB will include representatives from: At least one test project team member from the CTF with a working knowledge of the aircraft and test (examples: Squadron Assigned Flight Safety Officer (SAFSO), Unit Test Safety Officer (UTSO), Project Safety Lead (PSL), Project Pilot, Project Flight Test Engineer (FTE)), CAS Quality Assurance Branch (AFTC/PZDB), Instrumentation Squadron (MXI/ENI) and 412 MXG QA. The MEA or designated representative will chair the DRB.

3.1.2. Modification Process Selection (**Attachment 2**). Modification process selection is critical to the safe and effective execution of the T-2 modification. T-2 modification processes should be reviewed and understood before being selected. All processes with the exception of the Modification Note process (**paragraph 3.18**) require a briefing at the DRB. What is presented at the DRB is driven by the process selected.

3.1.3. Design Reviews. The DRB reviews designs to understand the scope and risk involved in the modification. The scope and risk will drive the process that is to be used. The DRB Chairman makes the recommendation to the CCB chairman on the process selection. These reviews also serve as notification to those support organizations in attendance.

3.2. The Standard Modification Process (see attachment 3).

3.2.1. Preliminary CCB Approval. The CCB has delegated the preliminary CCB approval authority to the DRB Chairperson. Preliminary CCB approval will constitute approval to proceed with detailed design of the modification and fabrication, but not installation.

3.2.1.1. The T-2 Mod Manager (T2MM) will prepare coordinate and brief the preliminary T-2 Modification to the DRB. As a minimum, this briefing will include:

3.2.1.1.1. AFMC Form 244, *T-2 Modification Configuration Control Board Directive*, signed by the CE/DTA (preliminary airworthiness assessment), CTF Operations Officer and T2MM. The DRB Chairperson will initial and date the AFMC Form 244 if preliminary CCB approval is granted.

3.2.1.1.2. AFTC Form 6238. Must be reviewed by the lead mechanical and electrical engineer (for Preliminary CCB Only) and signed by the MEA and the AFTC CE/DTA.

3.2.1.1.3. EDWARDSAFB FORM 5114, *T-2 Mod Document Checklist*.

3.2.1.1.4. Sufficient information for the DRB to make a T-2 Mod recommendation and process selection.

3.2.1.2. If the modification is determined to have an Airworthiness (AW) Related determination and is classified as non-reportable, follow AFTCI 62-602 for processing the AFTC Form 6239, *T-2 Modification Airworthiness Compliance* and Military Flight Release.

3.2.1.3. If the modification is determined to have an AW Related determination and is classified as reportable, follow AFTCI 62-602 paragraph 3.1.7.

3.2.2. DRB Design Approval. T-2 Modification design reviews will be done at the DRB. Design approval from the DRB is one of the approvals required prior to the start of modification and installation, and is required prior to routing the T-2 documentation package. The modification cannot start until the T-2 modification has been routed, issues resolved, and approved by the CCB chairman.

3.2.2.1. The T2MM will prepare, coordinate and brief the preliminary T-2 Modification to the DRB. As a minimum, this briefing will include:

3.2.2.1.1. AFMC Form 244, *T-2 Modification Configuration Control Board Directive,* signed by the CE/DTA, CTF Operations Officer, Instrumentation Lead, and MEA (with preliminary CCB approval). The DRB Chairperson will date and initial next to a note indicating "DRB Design Approval Completed" in Block 23 of AFMC Form 244 if design approval is granted.

3.2.2.1.2. High level electrical system design, mechanical installations and photos as needed to enable the DRB to adequately address the safety and risk of the design. Designs should be briefed by the lead mechanical and electrical project engineers.

3.2.2.1.3. AFTC Form 6238. Must be peer reviewed at the engineering peer review board, and signed by the MEA and the AFTC CE/DTA. This should be briefed by the lead project engineer.

3.2.2.1.4. EDWARDSAFB FORM 5114, *T-2 Mod Document Checklist*. Checklist must contain all artifacts listed on the AFTC Form 6238.

3.2.2.2. If the modification is classified as Not AW Related, no additional airworthiness steps are required except for the signatures of the AFTC CE/DTA on the AFMC Form 244 (block 22), *T-2 Modification Configuration Control Board Directive,* AFMC Form 273, *Final Flight Release* or the AFMC Form 243, *Temporary Release for Flight,* and the AFMC Form 272, *PCI Report*.

3.2.2.3. If the modification is classified as AW Related, and is fully compliant with all applicable subsections on the AFTC Form 6238, it will be documented per AWB-120 (see below).

3.2.2.3.1. The signatures of the AFTC CE/DTA on the AFMC Form 244, *T-2 Modification Configuration Control Board Directive*, and either the AFMC Form 273, *Final Flight Release,* or the AFMC form 243, *Temporary Release for Flight,* and AFMC Form 272, *PCI Report* are required, in addition to the CE/DTA final assessment, artifact verification/review, and signature on page three of the AFTC Form 6238 prior to releasing the aircraft for flight.

3.2.2.3.2. An MFR is required. Follow AFTCI 62-602 paragraph 3.1.6.5.

3.2.2.4. If the modification is determined to be AW Related and non-compliant to any applicable AW criteria:

3.2.2.4.1. All artifacts identified on the AFTC Form 6239 (column 3) will be included on the 412 MXG Form 5114, *T-2 Modification Package Table of Contents* and included in the T-2 modification package.

3.2.2.4.2. The AFTC CE/DTA will review the T-2 Modification and sign the AFMC Form 244, *T-2 Modification Configuration Control Board Directive* prior to installation.

3.2.2.4.3. If Block 8.7 (Aerial Refueling System) is checked 'yes', follow AWB 320 and send the AFTC Form 6239 to **USAF.ARCA@us.af.mil** for signature. If no signature is required, type 'N/A' in the signature block.

3.2.2.4.4. After installation, analysis, and tests have been completed, the AFTC Form 6239 will be finalized and signed by the PSL, or Unit Test Safety Officer (UTSO) (for the Test Unit Safety Coordination signature block), Operations Group (OG), CE/DTA and AFTC DOE/DTA prior to the issuance of flight releases.

3.2.2.4.4.1. For the *Test Unit Safety Coordination* signature on the AFTC Form 6239, see the CTF Primary UTSO and they will direct you to the assigned PSL, or UTSO for that specific project for signature. It can be signed by either the PSL, or UTSO.

3.2.2.5. If the modification is determined to have an AW Related determination follow AFTCI 62-602 paragraph 3.1.6 if classified as non-reportable or paragraph 3.1.7 if classified as reportable.

3.2.3. Other Design Reviews. The DRB will decide whether a Preliminary Design Review (PDR) and/or a Critical Design Review (CDR) are required, regardless of whether the modification is AFTC contracted or designed in-house. The T2MM will recommend and justify the recommended approach. The T2MM is responsible for ensuring the directed reviews occur.

3.2.4. Modification Package Review and Approval. The completed modification documentation package will be routed through the CCB member organizations for detailed review and coordination in Block 22 of AFMC Form 244 and then to the CCB for final CCB approval prior to the start of installation activity.

3.2.4.1. Modification Packages that include contractor involvement will include AFTC/PZDB in the review and approval process and will be documented in block 22 of the AFMC Form 244.

3.3. Pre-Dock Meeting. The T-2 Modification Documentation Office will conduct a T-2 Mod pre- dock meeting before a modification can begin. Meeting participants will generally include the T2MM, at least one test project team member from the CTF with a working knowledge of the aircraft and test (examples: SAFSO, UTSO, Project Pilot, and Project FTE), the designated Mod Dock Chief (or designee), design engineer(s), 412 MXG QA, CAS QA for contracted modifications, the designated T-2 Modification Installation Section, the CTF SI and Operations support, and the aircraft crew chief. Also, Maintenance Plans & Scheduling and other affected maintenance shops or contractors may be required. The condition of the aircraft inducted for modification will be discussed.

3.3.1. When a modification involves bulkhead penetrations or canopy removals a cabin pressurization check or similar test shall be conducted before the aircraft is accepted into modification. Similar considerations shall be imposed for pitot-static systems and weapons systems.

3.4. Modification Status.

3.4.1. The T-2 Mod Documentation Office will place the appropriate red symbol(s) in IMDS or equivalent to show in fabrication or T-2 modification status for the affected aircraft, engines or stores that are loaded in IMDS or equivalent and continue to update T-2 Mod status.

3.4.2. The Modification Dock Chief (or designee) will place appropriate discrepancies into the orange-bordered AFTO Form 781A when the modification begins. The Mod Dock Chief (or designee) will notify the T-2 Mod Documentation Office who in turn will notify the MOC to place the aircraft in Possession Code BK (Command Programmed Maintenance) identifying it is in T-2 Mod status.

3.4.2.1. All aircraft Modifications will have orange-bordered AFTO Form 781A with separate discrepancies for MXIS and for QA. Weight & Balance will have a separate discrepancy when required.

3.4.2.2. For MXIS, the discrepancy will be "C/W T-2 MOD #_____"

3.4.2.3. For QA, the discrepancy will be "T-2 MOD #_____ not released for flight"

3.4.3. The Modification/De-modification package and the aircraft's orange-bordered AFTO 781A Forms will be the responsibility of the designated Mod Dock Chief and the remaining AFTO 781 series binder documentation will be the responsibility of the aircraft owning maintenance section.

3.4.4. Work performed and documented on the aircraft T-2 Mod orange-bordered AFTO Form 781A will be cleared through the Mod Dock Chief (or designee), who will, on a daily basis, review the aircraft forms and ensure discrepancies are corrected or properly annotated. All modifications on aircraft and any modification related discrepancies will be entered in the orange bordered AFTO 781A Forms.

3.4.5. For any assigned, leased or loaned aircraft at Edwards AFB with a supplemental Handbook. Whenever the supplemental handbook requires update due to changes during the modification process, the T-2 Mod Dock Chief (or designee) will treat the Weight and Balance Supplemental Handbook as a required component. The T-2 Mod Documentation Office will place the appropriate red X symbol in IMDS stating: "Weight and Balance Supplemental Handbook removed for update." The T-2 Mod Dock Chief (or designee) will enter a red X in the respective aircraft's orange bordered AFTO Form 781A documenting the handbook's removal. The red X will be cleared in IMDS and the orange bordered AFTO Form 781A when the handbook is reinstalled on the aircraft.

3.4.6. Once the maintenance shops have entered their time in IMDS, the T-2 Mod Documentation Office, upon receiving completed mod packages from the respective QA inspection organization, will notify the MOC to have aircraft removed from BK status and cleared in IMDS (or its equivalent), annotate the modification on the orange-bordered AFTO Form 95, Significant Historical Data, and forward an updated electronic copy of the AFTO Form 95 to the appropriate Aircraft Maintenance Unit to replace the existing copy in the aircraft forms.

3.5. Maintenance and Cannibalization Actions. Any maintenance or cannibalization actions will be coordinated with the Mod Dock Chief (or designee). The Mod Dock Chief (or designee) will maintain surveillance throughout the modification to ensure that any such action is documented completely and accurately in the aircraft forms and IMDS. In the event that checkout and acceptance of a modification cannot be completed due to cannibalization, the MOC will change the aircraft status to the appropriate status code.

3.6. A Letter of Amendment (LOA) is used:

3.6.1. To revise the documentation after final flight release and documentation closeout.

3.6.2. As an alternative to using multiple Mod Notes or removals to Facilitate Other Maintenance actions or to define multiple configurations after the final flight release.

3.7. Deployments. For modifications required during deployments, the responsible organization will request approval from the CCB and MEA before deployment or as soon as required. The CCB and MEA may designate a temporary modification approval authority. The designated individual will assure all provisions of AFMCI 21-126 and this instruction are followed. In all cases, the AFMC Form 244 and other prescribed forms are used to document modifications. Completed deployment modification documentation packages will be delivered to the T-2 Mod Documentation Office for filing within 30 days after the deployment return date.

3.8. Standards. The requirements of MIL-STD-27733, Modification and Marking Requirements for Test Equipment in Aerospace Vehicles and Related Support Equipment and SAE-AS50881, Wiring, Aerospace Vehicle, will be satisfied for all T-2 Modifications to air vehicles and alternate mission equipment. Alternate standards may be approved on a case-by-case basis, and the compliance to those alternate standards will be documented on the AFTC Form 6238.

3.9. T-2 Modification Documentation Requirements.

3.9.1. T-2 Modification Package Filing. T-2 Mod documentation packages will be filed in the T-2 Mod Documentation Office. The files may also be remotely located. Classified T-2 Mod documentation packages will be filed at the appropriate Detachment or flight test squadron responsible for the aircraft. Contractor equivalent forms may be used in place of the EDWARDSAFB FORMS specified. Contractor forms used for T-2 Mod documentation will contain the necessary information as found on the equivalent Air Force forms.

3.9.2. T-2 Modification Package Content.

3.9.2.1. T-2 Modification Document Checklist. EDWARDSAFB FORM 5114 will be used as a guide for package contents. Coordinating offices may request inclusion of "NO" items or additional items with proper justification.

3.9.2.2. AFTC Form 6238 will be used for the preliminary hazards analysis in addition to assessing airworthiness. When the modification is classified as AW Related, the AFTC Form 6239 will also be included in addition to any Military Flight Releases.

3.9.2.3. Weight and Balance. The T2 Mod Dock Chief (or designee) will ensure that mod-related equipment removals and installations are documented on the EDWARDSAFB FORM 5210, Weight and Balance Data Reporting, and provided to the appropriate Weight and Balance section for updating Charts A & C. The responsible engineer will ensure the EDWARDSAFB FORM 5210 is properly filled out in sections 1-9 & 11-16. The EDWARDSAFB FORM 5210 will be submitted to the W&B Office no later than 2 weeks prior to flight. The T2 Mod Dock Chief (or designee) will also obtain the signature from the appropriate Weight and Balance section technician on applicable mod-related documentation before routing mod packages to the respective QA section for flight release (Ref. EAFB Supplement to AFI 21-101).

3.9.2.4. Removals. EDWARDSAFB FORM 5422, *T-2 Mod Removals*, will be used for inventory and disposition of aircraft and other T-2 Mod equipment removed to facilitate the mod.

3.9.2.5. AFMC Form 3, *Component Safety of Flight Certification*, will be used for component safe for flight determination.

3.9.2.6. EDWARDSAFB FORM 5098, *Electrical Loads/Power Analysis*, will be used to calculate electrical power usage for the electrical loads analysis.

3.9.2.7. Wire List. A wire list will be prepared by the responsible electrical design engineer (ref. MIL-STD-27733).

3.9.2.8. Periodic Inspection and Maintenance Requirements. When supplemental maintenance inspection data is included in any T-2 Mod package they will apply to all required installations, wiring, etc. that were installed by the modification and require inspection. These documents will have sufficient detail to enable technicians to accomplish the required inspections. This will include any special inspections of modification installations.

3.9.2.9. Modification Flight Manual. The following guidance will be used to determine when an MFM is recommended (ref. AFI 11-215, *Flight Manual Program*, as supplemented):

3.9.2.9.1. The modification changes items in the cockpit and/or flight crew station that the crewmember uses or interfaces with during flight.

3.9.2.9.2. The modification changes any aircraft and/or system operating limits.

3.9.2.9.3. The modification changes crew procedures. If there is any question, contact the appropriate unit Flight Operations Officer.

3.9.2.10. Aircraft Modification Worksheets. EDWARDSAFB FORM 5008, *Aircraft Modification Worksheet*, will be used for any 412 TW installed T2 modifications.

3.9.2.11. AFMC Form 1659, *Data List*, will be used to list the T-2 Mod drawings.

3.9.2.12. Photographic Documentation. High quality digital photos or color photographs of the installation will be taken and retained in the modification documentation package in the T-2 Mod Documentation Office. The photographs will be identified for each modification, equipment, other installation locations and any other sufficient information to identify the modified area(s).

3.9.3. Drawing Types. The type of drawings required for a modification documentation package is dependent upon how long the modification is to remain in the aircraft after the final inspection sign off. Block 13 of the AFMC Form 244 will be used as the "flag" for how long the modification will remain in the aircraft. **Attachment 7** to this instruction has the matrix for drawing type requirements for 412 TW designed installed and maintained modifications. Contractor-supplied documentation is not covered in the matrix. The DRB Chairperson has the authority to require drawings instead of sketches when unique circumstances exist. Some examples of unique circumstances are:

3.9.3.1. The modification is to be installed on multiple aircraft.

3.9.3.2. The modification will use an existing drawing.

3.9.3.3. The design has a high potential for re-use.

3.9.4. Redlined and Final Drawings. To accommodate changes after start of installation, drawings and procedures will be updated as required. "Redlined" updates will be incorporated into a "single" copy retained by the Mod Dock Chief (or designee). Both design and installation agency representatives will sign all "redlines." After final flight release approval, the appropriate design agency will update the original drawings and procedures. Final drawings and procedures will be released incorporating all redline changes. The design agency will deliver copies of the final drawings and procedures to the T-2 Mod Documentation Office to be incorporated into all packages after final flight release approval.

3.9.5. Final Documentation Deadline. The suspense for the completion of final documentation requirements (e.g., incorporation of redline changes) is 60 days after completion of the modification. When the package cannot be completed by the deadline, the T2MM will request an extension to the deadline from the DRB in advance of breaking the deadline. The T-2 Mod Documentation Office will notify the DRB when a documentation package has not been completed within 60 days after final mod installation and sign off.

3.9.6. T-2 Modification Documentation Deviations. Deviations to the documentation requirements of this instruction require a DRB briefing, either MEA or DRB Chairperson's approval and documented by Memorandum for Record and included in the DRB Minutes.

3.10. Disturbed Systems. Required maintenance and repairs to the disturbed aircraft systems will be performed by the element and/or section that maintained and repaired the disturbed system before the mod. The designated T-2 Mod installation and/or the appropriate instrumentation operations section will provide support and assist the element section as required. For modifications involving interface with a weapons release or gun systems, a weapons system functional check is required. These checks will be accomplished before any mod work and after mod work completion to verify weapon and/or gun system integrity and operation.

3.11. Electromagnetic Interference and Compatibility (EMIC) Determination.

3.11.1. Method of Determination. All temporary modifications will be checked for electromagnetic compatibility through an EMIC test, a Statement of Compatibility by Similarity or a Determination of Non-Applicability. Disposition of the temporary modification EMIC will be at the discretion of the MEA.

3.11.1.1. For first-time modifications or modifications that are unique to the installed aircraft, an EMIC test will be performed and consist of a test of the T-2 Mod as source and victim through the following:

3.11.1.1.1. Modification as Source. Performance of the preflight procedures on the aircraft by a certified crewmember including starting and running engines with the temporary modification activated to the greatest extent possible. Anomalies will be documented on the aircraft's AFTO Form 781A.

3.11.1.1.2. Modification as Victim. Monitor the temporary modification in real time and review data or other post processing, if applicable, to ensure proper operation and compatibility with aircraft systems. Anomalies will be documented on an orange-bordered AFTO Form 781A.

3.11.1.2. Modifications that have been installed before on identical aircraft may forego the full EMIC test and identify a similar configuration that has been previously EMIC tested with no anomalies. This similarity must be for both the aircraft and the temporary modification. Similarity is defined as:

3.11.1.2.1. Similar aircraft will be limited to identical MDS, to include any installed avionics suites.

3.11.1.2.2. Similar modifications must have identical electrical design and identical component placement.

3.11.1.2.3. The presence of other modifications on either similar aircraft nullifies aircraft similarity unless both aircraft have identical installations of the other modifications. During the installation of temporary modifications that will be compatible by similarity, efforts must be made to install components and wire harnesses in identical locations. If this cannot be accomplished, compatibility must be checked through an EMIC test.

3.11.1.3. Determination of Non-Applicability. Purely mechanical modifications that do not relocate electrical boxes or wiring harnesses may not require EMIC tests.

3.11.2. Documentation of EMIC. The need for an EMIC test or the Statement of Compatibility by Similarity is documented on AFTC Form 6238.

3.11.2.1. For the EMIC test, the statement "An EMIC Test will be performed" must appear.

3.11.2.2. For Compatibility by Similarity, a statement "Compatibility by Similarity to…" followed by the MDS, tail number, and mod number identifying the similar installation must appear.

3.11.3. EMIC Documentation. The requirement for system operation and EMIC tests will be documented in an Acceptance Test Plan (ATP) and be included as part of the mod package. For small installations, the ATP may be included as steps on the EDWARDSAFB FORM 5008. System operation includes standard systems and subsystems when applicable. The design agency, T2MM and respective QA signatures on the AFMC Form 273, Final Release for Flight Certificate, will certify accomplishment of these tests.

3.12. Post Modification Acceptance (PMA). Must be completed during or prior to PCI but before issuance of a flight release to ensure modification meets requirements of AFMC Form 244. The EDWARDSAFB FORM 5008 or the Engineering Documentation Database (EDD) will be used to document these instructions, and will be composed of the following:

3.12.1. Acceptance Test Plan (ATP)

3.12.1.1. Acceptance Testing will include those tests that generate artifacts for hazards identified in the AFTC Form 6238, such as EMI/C test, gear swings, or cockpit pressurization checks. The MEA has final decision regarding suitable artifacts to address hazards.

3.12.2. Configuration change procedures, to include installation and removal instructions for the configurations.

3.13. Physical Configuration Inspection (PCI).

3.13.1. The PCI ensures the installation meets the purpose for which it was intended, changes have not introduced any hazards, limitations are noted, there has been no detrimental effect on safety or emergency procedures and the MFM and checklists are acceptable and distributed to using agencies. The respective QA inspector(s), CTF SAFSO and the Mod Dock Chief (or designee) will coordinate closely during mod installations to ensure items that are not visible or accessible will be inspected before being covered. Any drawings are required to have all changes annotated prior to accomplishment of the PCI (ref. 3.9.4.). Signing the appropriate block of AFMC Form 272, PCI Report, as installed, will indicate approval of the modification.

3.13.1.1. The responsibility of the QA portion of the PCI involves comprehensive inspections of modifications, for the purpose of ensuring that associated work accomplished complies with respective modification package requirements and any general maintenance guidance.

3.13.1.2. Safety of Flight/Safety of Test post-modification inspections will be conducted by the responsible CTF. 412 TW/SEF will ensure that a current list of unit SAFSOs, and their contact information, is maintained, available, and provided to the T-2 Modification Branch. It is expected that CTF SAFSOs will be responsible for coordinating to conduct and sign off on the "Safety" sections of the PCI, Temporary Flight Release (TFR) and/or Final Flight Release (FFR) documentation. The intent for this "Safety" review is to have an asset-qualified and competent tester familiar with the modification ensure the changes do not negatively impact Safety of Flight/Test or put crewmembers at undue risk during normal and abnormal operations (examples: restricting flight controls, obstructing visibility, or interfering with egress/ejection). The intent is not to have the "Safety" inspector inspect wiring, open panels, or trace design schematics. 412 TW/SEF will provide independent oversight to ensure CTF SAFSOs are sufficiently trained and understand their role in conducting PCIs by conducting periodic surveillance inspections on T-2 modification PCIs.

3.13.2. Incremental Inspections (Partial PCI). Individual blocks of a modification may be inspected and recorded on the EDWARDSAFB FORM 5008 and any contractor work documents, when applicable. Based on a review of these records, a re-inspection of the area is not required unless changes were made from the original inspection. The respective QA inspector reserves the option to inspect any portion of the modification at any time.

3.13.3. Incremental Acceptance Testing. Wherever possible, identify opportunities to perform acceptance testing of individual blocks and/or groups of installed blocks. At the conclusion of the modification, a final, comprehensive acceptance test must be performed to ensure the integrated modification works.

3.14. Functional Check Flights (FCF). When it is determined that an FCF will be required to verify the airworthiness of the mod, QA will set up the FCF IAW EAFB Supplement to AFI 21-101, Functional Check Flight. If the mod is sufficiently complex, QA will coordinate with the appropriate modification engineer to brief the aircrew during or before the FCF briefing and the mod package will be available for aircrew review. The portions of the modification to be verified will appear in AFMC Form 243 Block 9. The pilot will complete the flight test and certify on AFMC Form 243 by signing in Block 9. The pilot will also recommend any additional flight limitations, performance changes or inspection requirements in the same block. Once the additional requirements have been completed, the package will be updated by the T2MM and will generate an AFMC Form 273.

3.15. The Mod Dock Chief's (or designee) signature. In the "CORRECTED BY" block and the MXIS owning AMU Supervisor in "INSPECTED BY" block on the orange- bordered AFTO Form 781A Red X entry signifies that the T-2 Mod installation meets the modification's intended purpose and is safe for flight, and the MOD package is ready for routing for flight release.

3.16. Final Flight Release. The Mod Dock Chief (or designee) will coordinate the AFMC Form 273 of the air vehicle, store, etc., for release from modification status. Changes required to a modification after final flight release approval will be accomplished as design baseline changes to the basic modification. Only a SAFSO or asset-qualified and competent tester from the supported test team/CTF will sign the "Safety" sections of the FFR documentation. In the absence of these individuals, a 412 TW/SEF Flight Safety Officer/NCO can conduct the "Safety" sign offs on a case-by-case basis only.

3.16.1. T-2MMs and Mod Dock Chiefs will support 412 MXG QA during the sign off.

3.17. Temporary Flight Release (TFR).

3.17.1. TFR Generation. The Mod Dock Chief (or designee) will notify the respective QA inspection sections and the T2MM when an AFMC Form 273 cannot be issued but the aircraft has been determined to be safe for flight. An AFMC Form 243, TFR can be coordinated through the CCB Chairperson. When an aircraft is authorized for flight on an AFMC Form 243, the T2MM will prepare a TFR certificate for approval. A TFR may be accomplished in conjunction with incremental inspections (i.e., partial PCI) in order to release the test article for mission support when the modification has not been completed in full. Only a SAFSO or asset-qualified and competent tester from the supported test team/CTF will sign the "Safety" sections of the TFR documentation. In the absence of these individuals, a 412 TW/SEF Flight Safety Officer/NCO can conduct the "Safety" sign offs on a case-by-case basis only. The AFMC Form 243 will list the portions of the modification that could not be accomplished and why, and any equipment operation restrictions caused by the incomplete modification. Provide one copy to the T-2 Mod Documentation Office for filing and a second for the AFTO Form 781 binder on the aircraft. The T-2 Mod Documentation Office will notify the MOC. The aircraft is not permitted to fly beyond 180 days unless an extension has been granted by the CCB.

3.17.2. TFR Expirations. When the current AFMC Form 243 expires, a new AFMC Form 243 will be submitted for CCB approval at least 5 working days prior to the expiration date.

3.17.3. T-2MMs and Mod Dock Chiefs will support 412 MXG QA during the sign off.

3.18. The EDWARDSAFB FORM 5452, Modification Note (MN), (Attachment 4) provides. A streamlined method for making small changes to existing modifications. A modification change is considered small when it does not significantly alter the installation or modification and safety is not compromised. Examples of small changes include wire changes at connectors, small additions and component substitution (airworthiness already proven). Whenever installation, removal or re-location of any equipment is accomplished, regardless of weight, submit a completed EDWARDSAFB FORM 5210 to the 412 MXG QA Weight and Balance Office. The change must use approved installation techniques and not affect flight operations. The CE/DTA will approve the MN and a copy will be provided to the T-2 Mod Documentation Office. MNs that meet the criteria below are by default Not AW Related and do not require additional airworthiness documentation. If any of the questions on the back of the EDWARDSAFB FORM 5452, Modification Note, are answered yes, the modification cannot be executed as a MN.

3.18.1. A MN will be:

3.18.1.1. Low risk.

3.18.1.2. Granted with consideration of the competency and experience of the group performing the work.

3.18.1.3. Written to have sufficient detail to show work accomplished.

3.18.1.3.1. Use of engineer checked drawing, sketch or Engineering Change Order (ECO).

3.18.1.3.2. Show required operational checks.

3.18.1.3.3. Identify systems that are disabled.

3.18.2. A MN may:

3.18.2.1. Require a minor change to an existing MFM.

3.18.2.2. Require minor sheet metal or bracket work.

3.18.2.3. Penetrate hydraulic systems if TO re-tests are appropriate and adhered to.

3.18.2.4. Be used for form, fit and function Line Replaceable Unit replacement and operational checks are performed.

3.18.3. A MN will not:

3.18.3.1. Penetrate pressure bulkheads or structural members, though passage through an existing penetration may be acceptable if it does not require a cabin pressurization check.

3.18.3.2. Require stress analysis beyond the “by inspection” analysis of an Aircraft Modification Design section engineer.

3.18.3.3. Affect egress in any way.

3.18.3.4. Penetrate a fuel cell.

3.18.3.5. Require the establishment of an MFM.

3.18.3.6. Create hazards such as those identified on the AFTC Form 6238.

3.18.3.7. Create checklists such as upload and/or download, maintenance preflight or post-flight.

3.18.4. Expanded MNs (EMN). The DRB may approve the use of an expanded mod note, EDWARDSAFB FORM 5452E, in lieu of a full T-2 Mod, if the application of the Expanded MN is more appropriate. An Expanded MN allows for the conditions stated in **paragraph 3.18.3**, and will be briefed at the DRB and must be signed by the AFTC CE/DTA.

3.18.4.1. If the AFTC CE/DTA determines the EMN note to be fully compliant with AW criteria, the AFTC CE/DTA will sign the 412 MXG Form 5452E. The DRB MEA will sign in the MEA block, and then it can be accomplished without any further airworthiness documentation.

3.18.4.2. If the EMN adds new, or changes hazards, on the T-2 modification package the EMN is written against, an AFTC Form 6238is required that addresses just the new hazards associated with the EMN. An AFTC Form 6238 will also be required if the package the EMN is written against does not contain an AFTC Form 6238 (or a 412 MXG Form 5338 on older packages).

3.18.4.3. The AFTC CE/DTA must view and validate the EMN against the AFTC Form 6238 (or 412 MXG Form 5338 on older packages) contained in the mod package the EMN is written against. Whoever is providing the EMN to the AFTC CE/DTA for approval is responsible for providing that info to the AFTC CE/DTA.

3.18.4.4. The AFTC Form 6238 (or 412 MXG Form 5338 on older packages) will also be presented at the DRB when the EMN is briefed.

3.18.4.5. If the AFTC CE/DTA determines the EMN note to be fully compliant with AW criteria, the AFTC CE/DTA will sign the 412 MXG Form 5452E, *Expanded Modification Note* (see attached). The Home Office MEA will sign in the MEA block.

3.18.4.6. If the AFTC CE/DTA determines the EMN note to be non-compliant with any applicable AW criteria, the modification should not be completed as an EMN. Such modifications may be executed at the MEAs discretion and will need to be accompanied by an AFTC Form 6239. A new MFR may be required.

3.18.4.7. An EMN may be used for stores interface modifications only. These modifications should have a SPO approved Airworthiness Plan AWP and MFR and will be included with the EMN documentation.

3.18.5. Modification Notes (Cyber). Modifications that meet the detailed criteria of a MN and do not impact the system authority to operate (ATO) have by default *no effect on the system ATO*. The CE/DTA signature on the MN documents this Level 1 cybersecurity assessment See *Modification Note and Expanded Modification Note Process* (attached). If question 12 on the back of the EDWARDSAFB FORM 5452, *Modification Note* is answered yes, the modification cannot be executed as a MN, but may be able to be executed as an Expanded Modification Note (EMN). In the case of Modification Notes, the EDWARDSAFB FORM 5452 is the only cybersecurity artifact necessary to execute the configuration change.

3.18.6. Expanded Modification Notes (Cyber). Level 1 or Level 2 system changes are allowed under the EMN process, except a Cybersecurity Review Form must be generated, completely signed and presented at DRB. At DRB, the CRF must be signed in Block 2 to indicate the anticipated level of cyber impact, and whether or not a Cybersecurity Peer Review needs to be accomplished. Cybersecurity Peer Review must be signed as accomplished (if applicable), and the Categorization must be signed as accomplished (if applicable), in Block 3 and finally, the final cybersecurity configuration validation must be signed in Block 4 before the use of the expanded modification note will be approved by the DRB.

3.19. Quick Reaction Modifications (QRM) (Attachment 5). The QRM process allows for design, fabrication, installation of components and documentation to proceed in parallel with close coordination between design engineering, fabrication, installation and operations personnel. For cybersecurity, the Quick Reaction Modification process will be followed per local cybersecurity policy and process.

3.19.1. The process is intended for smaller modifications, (e.g., estimated mod dock time is less than 4 weeks) are low risk and the designs cannot be completed and coordinated before the start of the mod.

3.19.2. DRB QRM Recommendation. The T2MM will prepare, coordinate and brief the QRM to the DRB. As a minimum, the presentation will include:

3.19.2.1. AFMC Form 244, *T-2 Modification Configuration Control Board Directive,* signed by the AFTC CE/DTA, CTF Operations Officer, Instrumentation Lead, and MEA.

3.19.2.2. High level electrical system design, mechanical installations and photos as needed to enable the DRB to adequately address the safety and risk of the design. This should be briefed by the lead mechanical and electrical project engineers.

3.19.2.3. Any other design information that is available or known also needs to be presented so the DRB can make an informed decision.

3.19.2.4. AFTC Form 6238. Must be reviewed by the lead mechanical and electrical engineer, and signed by the MEA and the AFTC CE/DTA. This should be briefed by the lead project engineer.

3.19.2.5. EDWARDSAFB FORM 5114, *T-2 Mod Document Checklist*. Must contain all artifacts listed in the AFTC Form 6238.

3.19.2.6. The DRB Chairperson will annotate the QRM recommendation on AFMC Form 244.

3.19.3. The AFTC CE/DTA will review AFMC Form 244, *T-2 Modification Configuration Control Board Directive*, the AFTC Form 6238 (signed by the MEA), and any other modification documentation, including any regulation deviations and alternate process standards, then make the initial airworthiness compliance determination and sign the AFTC Form 6238 . The assessment will also be documented (signed) on the AFMC Form 244, *T-2 Modification Configuration Control Board Directive.* These signed documents will be presented at the DRB in addition to the other documents.

3.19.4. If the modification is classified as Not AW Related, the modification is executed per:

3.19.4.1. The signatures of the AFTC CE/DTA on the AFMC Form 244, *T-2 Modification Configuration Control Board Directive*, and either the AFMC Form 273, *Final Flight Release*, or the AFMC Form 243, *Temporary Release for Flight*, and AFMC Form 272, *PCI Report* are required. The CE/DTA signature on the AFMC Form 244, along with the Block 12 modification description and a "N" in the AW Related box in Block 1 fulfill the Not AW Related documentation requirements of AWB-120, paragraph 7.1. No AFTC Form 6238 is required.

3.19.5. If the modification is classified as AW Related, and is fully compliant with all applicable subsections on the AFTC Form 6238, the modification executed is per:

3.19.5.1. The signatures of the AFTC CE/DTA on the AFMC Form 244, *T-2 Modification Configuration Control Board Directive*, and either the AFMC Form 273, *Final Flight Release*, or the AFMC Form 243, *Temporary Release for Flight*, and AFMC Form 272, *PCI Report* are required, in addition to the CE/DTA final assessment, artifact verification/review, and signature on page three of the AFTC Form 6238 prior to releasing the aircraft for flight.

3.19.5.2. An MFR is required. Follow AFTCI 62-602 paragraph 3.1.6.5.

3.19.6. If the T-2 modification is determined to be AW Related and non-compliant with any applicable AW criteria, it cannot be executed as a QRM.

3.19.7. The QRM approval represents CCB authorization to start immediate fabrication and installation. Design documentation will be coordinated through the Aircraft Modification Design Section before fabrication and installation to the maximum extent possible.

3.19.8. The drawings may be completed in parallel with modification design, fabrication and installation. The QRM package should be routed for final approval, and may contain preliminary documentation, immediately following the completion of the Flight Release. Finalized documentation will be delivered to the T-2 Modification Office and inserted in the package per **paragraph 3.9.5** A QRM does not relieve the project of any documentation requirements.

3.19.9. QRM Walk-Through Approval Process (WAP). The purpose of the QRM WAP is to provide a process where a T2MM can obtain DRB approval for a QRM without attending a DRB meeting. This procedure is intended as an auxiliary process for those unusual occasions where a T-2 Mod must be installed without the opportunity for formal presentation to the DRB.

3.19.9.1. The T2MM will prepare, as a minimum:

3.19.9.1.1. AFMC Form 244, T-2 Modification Configuration Control Board Directive, signed by the AFTC CE/DTA, CTF Operations Officer and the Instrumentation Lead.

3.19.9.1.2. WAP AFMC Form 244. The WAP AFMC Form 244 will have Blocks 24, 25, and 26 crossed out. The acronym "WAP" is added in Block 23 to the left of "QRM Approval Received."

3.19.9.1.3. Any other design information that is available or known also needs to be presented so the DRB can assess the risk of the modification, and to allow an individual DRB member the ability to make an informed decision.

3.19.9.1.4. AFTC Form 6238. Must be reviewed by the lead mechanical and electrical engineering and signed by the MEA and the AFTC CE/DTA.

3.19.9.1.5. EDWARDSAFB FORM 5114, *T-2 Mod Document Checklist*.

3.19.9.2. The T2MM will present the documents listed in **paragraph 3.19.5.1** to each of the CCB members ending with the DRB Chairperson. Each CCB member will annotate the WAP AFMC Form 244 as either "YES" or "NO" in Block 22 and sign based on whether they concur with approving this modification as a walk-through QRM. Comments from CCB members may be written on the back of the form or on an attachment.

3.19.9.3. If the DRB Chairperson recommends walk-through QRM approval, then they will note the recommendation in Block 23 on the final AFMC Form 244. The WAP AFMC Form 244 simply serves to document coordination by the CCB members. The CCB approval, installation, documentation review and coordination from this point proceed in accordance with normal QRM procedures.

3.20. Concurrent Engineering Modifications (CEM) (Attachment 6).

3.20.1. The CEM process is intended for large and/or dynamic modifications where the traditional modification process is not optimal. This process is an acknowledgment these modifications cannot be accomplished efficiently in the conventional manner due to the logistics of completing the engineering design, parts procurement, and fabrication before the aircraft enters into the modification dock. This process is designed to minimize schedule risk while maintaining the safety and performance aspects of the aircraft modification by dividing the work into manageable increments with each increment receiving separate design approval.

3.20.2. Approval Process. The CEM process utilizes the same approval process as QRMs with the following exceptions:

3.20.2.1. The DRB minutes will serve as confirmation of incremental design approval, and the date of the last CEM increment will be noted in Block 23 of AFMC Form 244.

3.20.2.2. The AFMC Form 244, Block 23, will be annotated to indicate the CCB Chairperson approval of the CEM request.

3.20.2.3. The T-2 Mod documentation package review and final CCB coordination must be completed before the final PCI is approved.

3.20.2.4. The DRB is authorized to require or waive implementation of additional steps during use of this process.

3.20.3. Identification of Work. The overall modification will be broken into manageable increments and presented to the DRB.

3.20.4. Incremental Design Approval. The designs for each increment will be reviewed and approved by the DRB before installation on the aircraft. The T2MM will prepare, coordinate and brief the modification to the DRB. As a minimum, this briefing will include:

3.20.4.1. AFMC Form 244, *T-2 Modification Configuration Control Board Directive*, signed by the AFTC CE/DTA, CTF Operations Officer, Instrumentation Lead, and MEA (preliminary CCB approval).

3.20.4.2. High level electrical system design, mechanical installations and photos as needed to enable the DRB to adequately address the safety and risk of the design. This should be briefed by the lead mechanical and electrical project engineers.

3.20.4.3. AFTC Form 6238. Must be peer reviewed at the engineering peer review board for each increment and signed by the MEA and the AFTC CE/DTA. This should be briefed by the lead project engineer.

3.20.4.4. EDWARDSAFB FORM 5114, *T-2 Mod Document Checklist*. Must include all artifacts identified in the AFTC Form 6238.

3.20.5. If the modification is classified as Not AW Related, the modification is executed per this instruction.

3.20.5.1. The signatures of the AFTC CE/DTA on the AFMC Form 244, *T-2 Modification Configuration Control Board Directive,* and either the AFMC Form 273, *Final Flight Release*, or the AFMC Form 243, *Temporary Release for Flight,* and AFMC Form 272, *PCI Report* are required. The CE/DTA signature on the AFMC Form 244, along with the Block 12 modification description and a "N" in the AW Related box in Block 1 fulfill the Not AW Related documentation requirements of AWB-120, paragraph 7.1. No AFTC Form 6238 is required.

3.20.5.2. Any changes to the AW Relatedness will be re-briefed to the DRB for re-assessment during the incremental design approvals. If at any time the AW Relatedness assessment changes, the process/documentationassociated with that assessment level will be followed.

3.20.6. If the modification is classified as AW Related, and is fully compliant with all applicable subsections on the AFTC Form 6238:

3.20.6.1. The signatures of the AFTC CE/DTA on the AFMC Form 244, *T-2 Modification Configuration Control Board Directive,* and either the AFMC Form 273, *Final Flight Release*, or the AFMC form 243, *Temporary Release for Flight,* and AFMC Form 272, *PCI Report* are required, in addition to the CE/DTA final assessment, artifact verification/review, and signature on page three of the AFTC Form 6238 prior to releasing the aircraft for flight.

3.20.6.2. Any changes to the AFTC 6238 compliances will be re-briefed to the DRB for re-assessment during the incremental design approvals. If at any time the AFTC 6238 compliances change, the process/documentation associated with those changes will be followed or the AFMC Form 243, *Temporary Release for Flight,* and the AFMC Form 272, *PCI Report* are required.

3.20.6.3. An MFR is required. Follow AFTCI 62-602 paragraph 3.1.6.5.

3.20.7. If the modification is determined to be AW Related follow AFTCI 62-602 paragraph 3.1.6 if classified as non-reportable or paragraph 3.1.7 if classified as reportable.

3.20.8. Other Design Reviews. The DRB will decide whether a PDR and/or a CDR are required, regardless of whether the modification is AFTC contracted or designed in-house. The T2MM will recommend and justify the recommended approach. The T2MM is responsible for ensuring the directed reviews occur.

3.20.9. Incremental Pre-Dock Meetings. Pre-dock meetings may be held for each block of work after DRB design approval is received for that increment (reference **paragraph 3.3** for additional information).

3.20.10. Incremental Installation. Installation of a particular increment may only be accomplished after the DRB review and approval for that particular increment and the approval of the incremental documentation package if required by the MEA.

3.20.11. Documentation. A completed modification package covering all increments will be routed through the CCB member organizations for detailed review and coordination in Block 22 of AFMC Form 244, and then to the CCB for final approval before the AFMC Form 273 is signed. "Redline" drawing changes will be completed, and all final documentation changes made in accordance with **paragraph 3.9.5**

3.21. Design Baseline Changes (DBC). Changes to completed modifications will be separate, stand-alone packages that reference the basic modification. Changes to completed modifications must fit with the original modification purpose. For example, addition of measurements to an instrumentation modification is a valid change, but addition of a prototype avionics box to an instrumentation modification is not a valid change and must have a new modification number assigned.

3.22. T-2 Mod Changes not requiring a DBC or MN:

3.22.1. Replacements. Replacement of an unserviceable component with a like item, repair of serviceable components and calibration of instrumentation systems do not require a DBC or MN.

3.22.2. Multiple Configurations. Other changes to T-2 modifications may involve subsystems or components (e.g., instrumentation time code generators, radar beacons, transducers, signal conditioning, and cameras) that are part of the test system, but are independent of systems essential to safe operation. If these subsystems or components must be intermittently installed, removed, connected or disconnected to meet test or test support requirements, then these changes may be made without initiating a DBC, MN, or using an AFMC Form 244, by identifying the various configurations required in the modification documentation package. The package must fully document the installation and removal of the configurations, changes to maintenance and inspection instructions, and weight and balance. Procedures for daily configuration accounting and quality assurance will be documented in the appropriate instrumentation operations book per the operations book process. Configuration installation and removal procedures will be included in the operations book. The CTF engineering will notify Maintenance, the respective QA inspection section and respective Weight & Balance section of any configuration changes.

3.23. De-Modifications.

3.23.1. De-modification of aircraft at the 412 TW will use the same process as that used for modifications except that the estimated "modification" removal date in Block 17 of AFMC Form 244 is not applicable. An EDWARDSAFB FORM 5422 will be used to document the T-2 Mod equipment removals and transfers to the owning organization.

3.23.2. Flexibility. While de-modification documentation packages contain the same elements as a modification documentation package, judgment by the T2MM and coordinating CCB members is needed. An EDWARDSAFB FORM 5114 will be used as a guide. Those blocks indicated as mandatory will be blackened out by the T2MM if not needed. Any drawings that are needed for de-modification that are contained in the installation package need not be reproduced; removal instructions may reference the drawing and installation package containing the drawing. These drawings may be removed from the installation package and provided to the technician performing the de-modification.

3.24. Save List Process. The save list process will be classified as Not AW Related. If the AFTC CE/DTA or MEA believes the de-modification is AW Related, one of the appropriate modification processes will be followed. For Cyber, the save list process will normally be classified as *Level 1, no effect on system ATO*. If at the DRB briefing, the MEA believes the de-modification has an ATO impact beyond Level 1, one of the appropriate modification processes will be followed.

3.24.1. Applicability. This process applies to aircraft that are excessed or transferred to the Aircraft Maintenance and Reutilization Group, museums or other commands who have formally agreed to accept an aircraft that is not fully de-modified and not documented with a formal T-2 Mod package. This process does not apply to:

3.24.1.1. Aircraft that are to be de-modified and retained by the 412 TW.

3.24.1.2. Aircraft going to programmed depot maintenance.

3.24.1.3. Aircraft that are to be transferred to a gaining command who has not provided formal agreement for acceptance of a modified aircraft.

3.24.2. Content. The Save List package must contain the following information before presentation of the package to the CCB Chairperson for approval:

3.24.2.1. The Save List letter acts as the cover sheet and serves to identify the background information required to justify the use of a Save List. The Save List letter must be signed by the AFTC CE/DTA (to include airworthiness assessment on the AFTC Form 6238), the MEA, and the CCB. The Save List letter will include the following:

3.24.2.1.1. MDS.

3.24.2.1.2. Aircraft Serial Number.

3.24.2.1.3. Reference to items to be saved including references to an attached EDWARDSAFB FORM 5210.

3.24.2.1.4. Group "A" components that are desired to be removed.

3.24.2.1.5. Additional concerns that are unique to the particular aircraft or de-modification such as large weight changes require aircraft Weight & Balance check.

3.24.2.1.6. Identification of the organization responsible for removing the T-2 modification equipment.

3.24.2.1.7. A point of contact for questions regarding the Save List.

3.24.2.2. An EDWARDSAFB FORM 5210 will be included as an attachment. These forms will identify every item that has been identified for removal.

3.24.2.3. The message or letter that specifies the disposition of the aircraft upon its departure from Edwards AFB will be included in the Save List package.

3.24.2.4. If the aircraft is transferring to another command for continued use, then a message or other formal correspondence is required that states the gaining command will accept the aircraft from Edwards AFB in a particular configuration. This correspondence must be signed by the gaining command or be directly attributable to an appropriate level of authority within the gaining command. The specified configuration can be general such as "XXX command will accept the aircraft in any configuration" or it may be specific such as "XXX command will accept the aircraft with all the Group B components removed."

3.24.3. Removals. After authorization by the CCB Chairperson, the actual removal of components, as directed in the Save List letter, can be started. This work will be documented on an orange-bordered AFTO Form 781A and all affected Circuit Breakers will be collared; if list of removals will exceed 10 items, use of EDWARDSAFB FORM 5008 can be used as an alternative to document removals. Items removed from the aircraft will be identified and their disposition recorded on an EDWARDSAFB FORM 5422. These documents will be considered as a part of the Save List package and will be incorporated into the package before completion.

3.24.4. Electrical & Structural Safety. It is incumbent on the T2MM or the individual who has taken the lead for employment of this process, to ensure appropriate electrical and structural safety precautions are considered. For electrical safety, this may be accomplished by including an electrical engineer or an operations engineer in the equipment removal process. For structural safety, this may be accomplished by including a mechanical engineer in the equipment removal process.

3.24.5. Safety of Flight Equipment. Permanent removal of equipment that will affect safety of flight is prohibited if the aircraft will be departing the 412 TW by flight. If the aircraft is departing Edwards AFB via truck or similar mode, or if the aircraft will be remaining and going to the Edwards AFB Museum, specified safety of flight components may be removed if required. If there is a concern regarding a component and its relationship to safety of flight, then Flight Safety (412 TW/SEF) will be requested to review the impact on flight safety before its removal.

3.24.6. Deactivation. Wiring associated with T-2 modification equipment that was removed must be deactivated before flight. This may include opening and collaring circuit breakers, opening the master power switch, or any other means that effectively deactivates the wiring.

3.24.7. Coordination with Gaining Activity. If an aircraft that is departing by flight and has components that are desirable for retention, then the removal of those components can be coordinated at the gaining activity. The removal of components at a gaining activity is coordinated through the MOC and is not covered by this procedure.

3.24.8. MFM. Since affected T-2 Mod equipment is deactivated, it is not necessary to update the MFM for Group B components prior to flight, unless the gaining command has specifically required the MFM be updated. Group "A" components will be handled by the CCB on an individual basis.

3.24.9. Scheduling Work. Once the Save List package is approved, work will be scheduled through the T-2 Mod Documentation Office via a pre-dock meeting.

3.24.10. Final Configuration Verification. Final configuration verification will be performed by QA and documented on the orange-bordered AFTO Form 781A.

3.25. Store Modifications. Airworthiness assessments and cybersecurity assessments for modification of stores will occur on the T-2 mod package that installs/interfaces the store with the aircraft. Block 1 on the AFMC Form 244 will be checked N/A for store modifications. The AFTC CE/DTA will continue to sign the AFMC Form 244, flight releases, and the PCI.

3.25.1. Engine modifications. Normally accomplished as stores mods:

3.25.1.1. For all new engine modifications, the CE/DTA will forward design information (drawings, analysis etc.) to the engine Type, Model, Series (TMS) CE/DTA and follow AWB 330.

3.25.1.2. The TMS CE/DTA will assess whether the engine modification impacts the air system in which the engine is installed. The engine should be assessed per propulsion system type certification process AWB 330. The artifact is a Propulsion Airworthiness Plan (P-AWP).

3.25.1.3. An EMN may be used to interface the engine modification stores package to the air system for airworthiness assessments up to, and including, AW Related, non-reportable. See paragraph 3.7.1.4. The P-AWP will be included in the EMN. An AFTC Form 6238 is not required to be included in the EMN when a P-AWP has been generated. A CRF will be used to document Level 1 or Level 2 configuration changes if assessed at EAFB. SPO cybersecurity assessments/documentation may be included in the EMN package in lieu of a CRF if provided and clearly state the assessed ATO impact.

3.25.1.4. If the engine modification is being included and documented as part of an air system modification package (not as a standalone stores package), both the AFTC Form 6238 (and AFTC Form 6239 depending on the assessment) and the P-AWP will be included in that package.

3.26. Hardware and Software Change Actions. CTFs that have approved policies in place for Hardware and Software Change actions will continue to use that process. CTFs that don't have approved policies in place will use the T-2 mod process as described here.

3.26.1. The SPM CE/DTA is responsible for providing airworthiness assessments and cybersecurity ATO impact assessments for changes they direct.

3.26.2. The AFTC CE/DTA is responsible for addressing airworthiness for changes not directed by the SPM. Local cybersecurity assessments must also be included for changes not directed by SPM.

3.27. SPM approved packages. T-2 Modifications that have been approved by the SPM will be briefed to the DRB as a courtesy, and a wrapper AFMC Form 244 will be used that contains both the SPM and the local T-2 modification numbers. In block 1 of the AFMC Form 244, N/A will be checked as it is the SPMs responsibility to provide the airworthiness assessment. SPM cybersecurity assessments and documentation will also be provided and briefed at DRB. The documentation will become part of the wrapper modification package.

3.27.1. Wrapper AFTC Form 6239. For SPM airworthiness assessments with Airworthiness Hazard Index (AWHI) of less than 17, a wrapper AFTC Form 6239 will be prepared and routed. All applicable subsections from the AWP will be checked with the specific paragraph

number included in column 1. All other columns will refer to the SPM AWP for information. The "Information Only" box will be checked at the top of the signature block, and the AFTC Form 6239 will be routed.

3.28. Shared Airworthiness Assessment. While this is not a desirable situation, it will happen when the SPM conducts an airworthiness assessment on components, or parts of a T-2 modification, but not the entire modification.

3.28.1. When the SPM conducts an airworthiness assessment that does not cover the entire T-2 modification, the integrating organization (responsible T-2 modification organization with MEA and AFTC CE/DTA responsibilities) will conduct a system level airworthiness assessment that will include all levels of the installation, and the airworthiness assessment of the SPM. If a cybersecurity assessment is not included as part of the SPM modification package, the integrating organization will provide this assessment in the form of a CRF and brief it to DRB during the courtesy briefing.

3.28.2. The T-2 MEA and AFTC CE/DTA will review the SPM airworthiness assessment to ensure it is adequate and determine if there are any integration issues that need to be addressed by the SPM or the integrating organization.

3.28.3. The system level airworthiness assessment cannot have a lower-level assessment than any of the partial assessments.

3.28.4. If the SPM partial assessment is determined to be fully compliant with AW criteria, and the integrating T-2 modification is also fully compliant, the AFTC Form 6238 is completed and will reference any sections addressed by the SPM airworthiness assessment.

3.28.4.1. The SPM assessment will be included in the T-2 modification package.

3.28.5. If the partial SPM airworthiness assessment is determined to be noncompliant to any applicable AW criteria, the system level airworthiness assessment can be no lower than, AW Related, non-reportable.

3.28.5.1. The AFTC Form 6238 and the AFTC Form 6239 will be completed and signed locally and will reference the SPM airworthiness assessment.

3.28.5.2. The SPM will be responsible for providing the MFR that covers the airworthiness relatedness and reportability assessment.

3.28.5.3. The SPM assessment will be included in the T-2 modification package.

3.29. T-2 Mod Package Review and Archiving. The T-2 Mod package will be reviewed by the CCB member organizations. The revised modification documentation package will be sent to the T-2 Mod Documentation Office for retention. The original modification documentation package will be retained as the master copy on file in the T-2 Mod Documentation Office (a digital copy will also be created and maintained) and a duplicate package may be signed out as required by agencies having authorized need for such a package.

MATTHEW W. HIGER
Brigadier General, USAF
Commander

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

AFI 21-101_AFMC SUP_EDWARDSAFBSUP, *Aircraft and Equipment Maintenance Management,* 3 January 2022

AFI 33-322, *Records Management and Information Governance Program,* 27 July 2022

AFMAN 11-202V3, *Flight Operations,* 10 January 2022

AFTCI 62-602, *Airworthiness,* 31 August 2020

AWB-120A, *Airworthiness Relatedness and Reportability Determination,* 12 July 2021

AWB-320A, *Aerial Refueling,* 31 July 2018

DAFI 62-601, *Airworthiness,* 9 June 2022

Prescribed Forms

EDWARDSAFB5008, *Aircraft Modification Worksheet*

EDWARDSAFB5048, *Work Request/Cost Control*

EDWARDSAFB5098, *Electrical Loads/Power Analysis*

EDWARDSAFB5114, *T-2 Modification Package Table of Contents*

EDWARDSAFB5422, *T-2 Modification Removals*

EDWARDSAFB5452, *Modification Note*

EDWARDSAFB5453, *Expanded Modification Note*

Abbreviations and Acronyms

AICBB—Airborne Instrumentation Equipment Configuration Control Board

AITS—Aircraft Instrumentation Test Squadron

AFTC—Air Force Test Center

AMU—Aircraft Maintenance Unit

ATP—Acceptance Test Plan

AW—Airworthiness

AWP—Airworthiness Plan

CAS—Contract Administration Service

CCB—Configuration Control Board

CDR—Critical Design Review

CE/DTA—Chief Engineer/Delegated Technical Authority

CEM—Concurrent Engineering Modification

CISE—Core Instrumentation System Equipment

CTF—Combined Test Force

DBC—Design Baseline Change

DOE/DTA—Director of Engineering/Delegated Technical Authority

DRB—Design Review Board

EAFB—Edwards Air Force Base

EDD—Engineering Documentation Database

EMIC—Electro-magnetic Interference and Compatibility

EMN—Expanded Mod Note

ECO—Engineering Change Order

FCF—Functional Check Flight

FFR—Final Flight Release

FLTS—Flight Test Squadron

FTE—Flight Test Engineer

IAW—In accordance with

IMDS—Integrated Maintenance Data System

IOE—Instrumentation Operation Engineer

LOA—Letter of Amendment

LCL—Local Check List

LPS—Local Page Supplement

LPTD—Locally Prepared Technical Data

LWC—Local Work Card

MDS—Mission Design Series

MEA—Modification Engineering Authority

MFR—Military Flight Release

MN—Modification Note

MOC—Maintenance Operations Center

MTC—Military Type Certificate

OPR—Office of Primary Responsibility

PCI—Physical Configuration Inspection

PDR—Preliminary Design Review

PM—Program Manager

PMA—Post Modification Acceptance

PSL—Project Safety Lead

QA—Quality Assurance

QRM—Quick Reaction Modification

SAFSO—Squadron Assigned Flight Safety Officer

SAI—Standard Airborne Instrumentation

SI—Special Instrumentation

SPM—System Program Manager

SPO—System Program Office

TFR—Temporary Flight Release

TCTO—Time Compliance Technical Order

TO—Technical Order

UTSO—Unit Test Safety Officer

WAP—Walk-Through Approval Process

Terms

Group A—The items to be installed as part of a modification to support, secure, interconnect, or accommodate the Group B components. In general, anything that cannot be readily removed, provides support, or provisions for equipment installation is considered Group A. Examples of Group A items are: electrical wiring, power junction boxes, brackets, oxygen lines, signal wiring, interconnect cabling, waveguide, racks, beams, longerons, skins, spars, stringers, intercostals, plates, seats, mounts, trays/slides, fairings, lighting, and other structural support equipment for Group B items.

Group B—The equipment installed as part of a modification, which is readily removable. Examples of Group B items: computers, printers, controllers, digital recorders, digital formatters, avionics encoders, antennas, radomes, and, in general, "black boxes."

Mod Dock Chief—This is a responsibility and not necessarily a position. The Mod Dock Chief coordinates and oversees on-aircraft work during modifications, much as a crew chief would during maintenance actions.

MFM—Modification Flight Manual. Manuals/checklists for modified aircraft that are deployed approved and locally reproduced outside the formal TO system by AFMC units. These manuals/checklists provide short term operating instructions/information for a small number of aircraft, which have been modified for engineering/flight test. Only additive data or procedures required to cover the differences created by the modification need be included. The manual is incomplete without the basic flight manual. The MFM was formerly called the Partial Flight Manual (PFM).

Pre-dock—Meeting scheduled with appropriate members to schedule mod activity, and to verify availability of necessary documentation, parts, materials, etc.

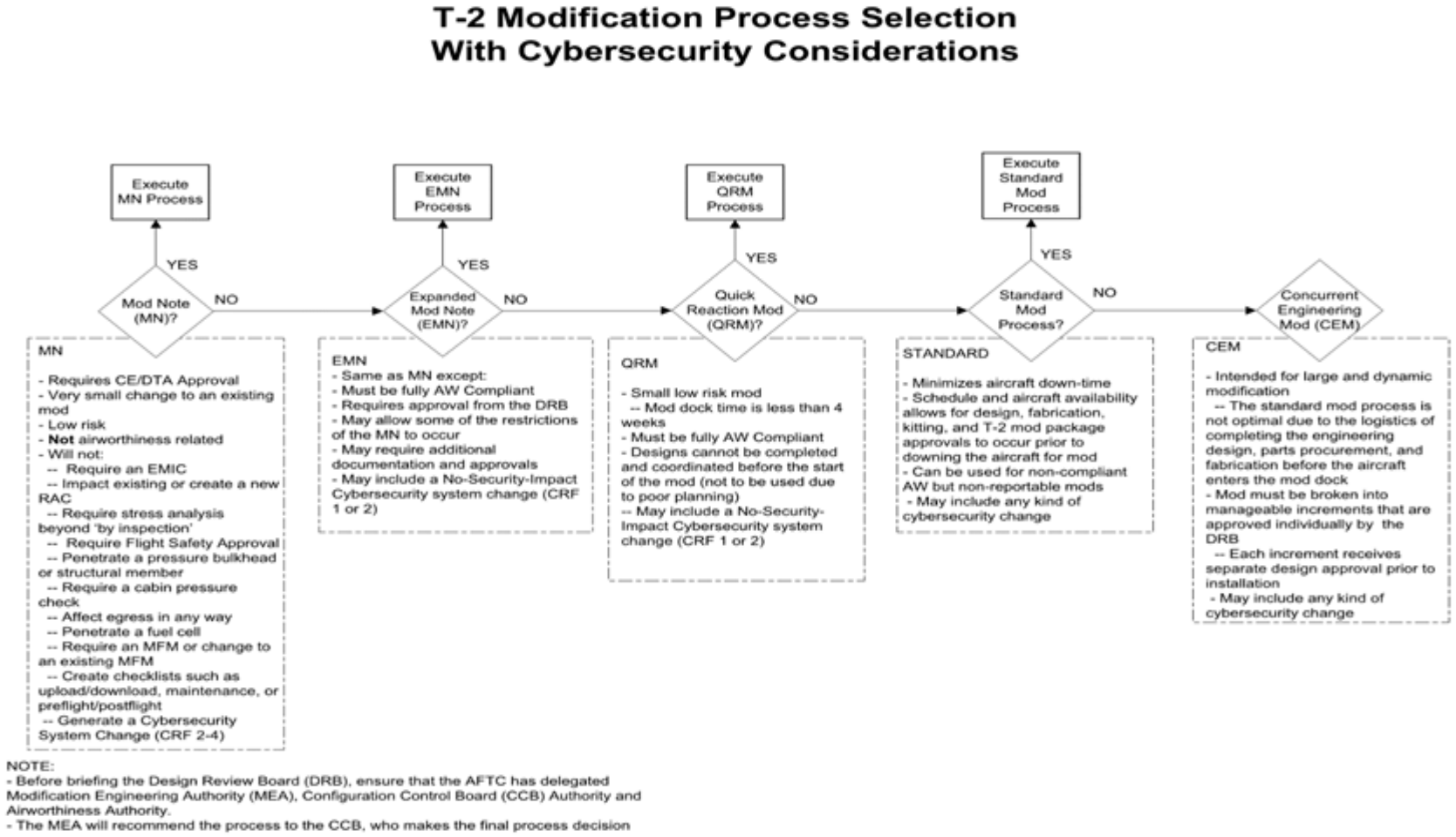
T2MM—T-2 Mod Manager. Plans, directs, controls, and reports assigned aircraft modification efforts.

Wire List—A list of the wire numbers used in the modification. As a minimum, list the beginning and end numbers and any unused numbers between. Use of a book-form drawing (wiring list) is permitted but will not substitute for connection or interconnection diagrams.

Attachment 2

T2 MODIFICATION PROCESS SELECTION WITH CYBERSECURITY CONSIDERATIONS

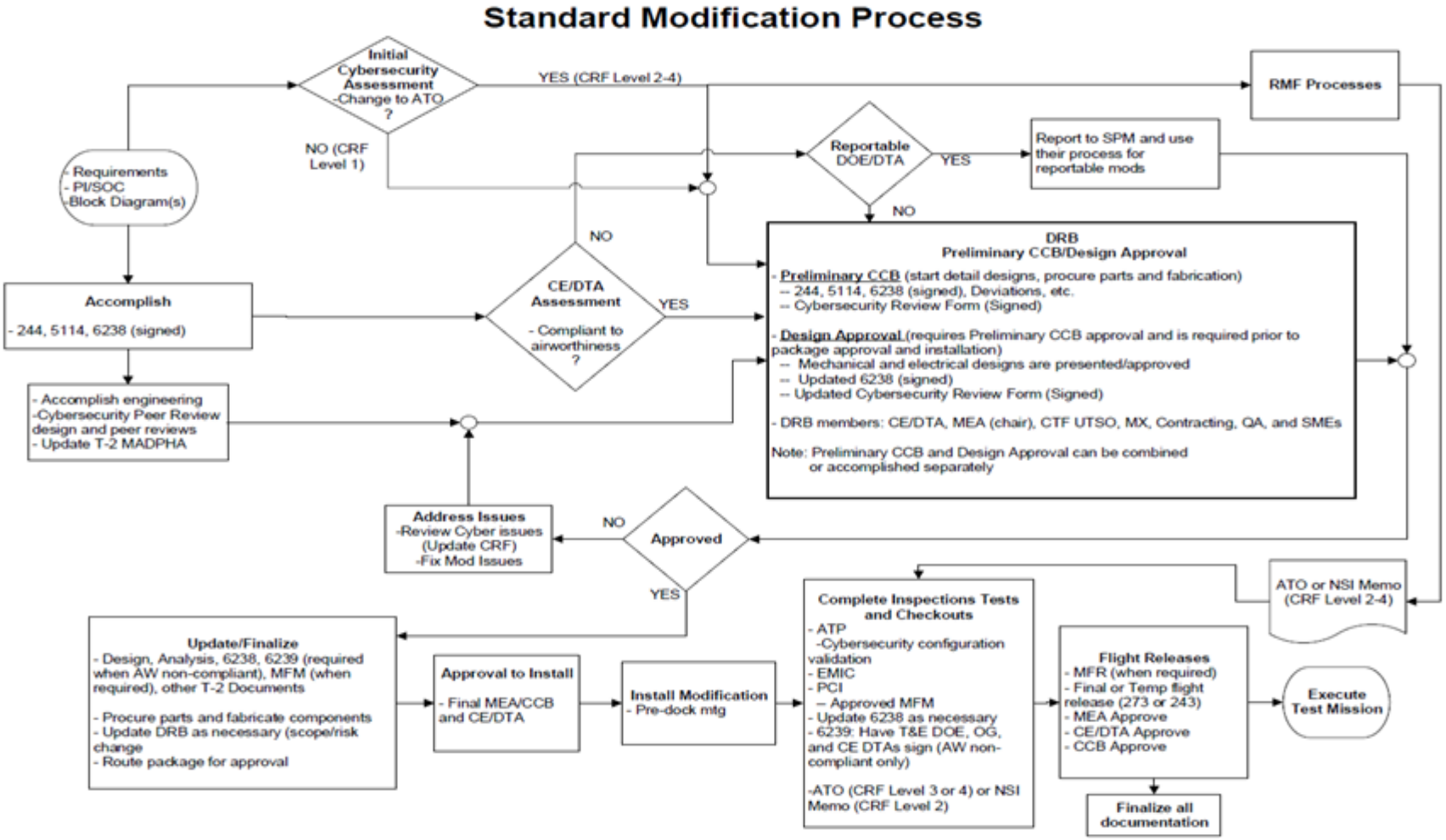
Figure A2.1. T2 Modification Process Selection with Cybersecurity Considerations.



Attachment 3

STANDARD MODIFICATION PROCESS

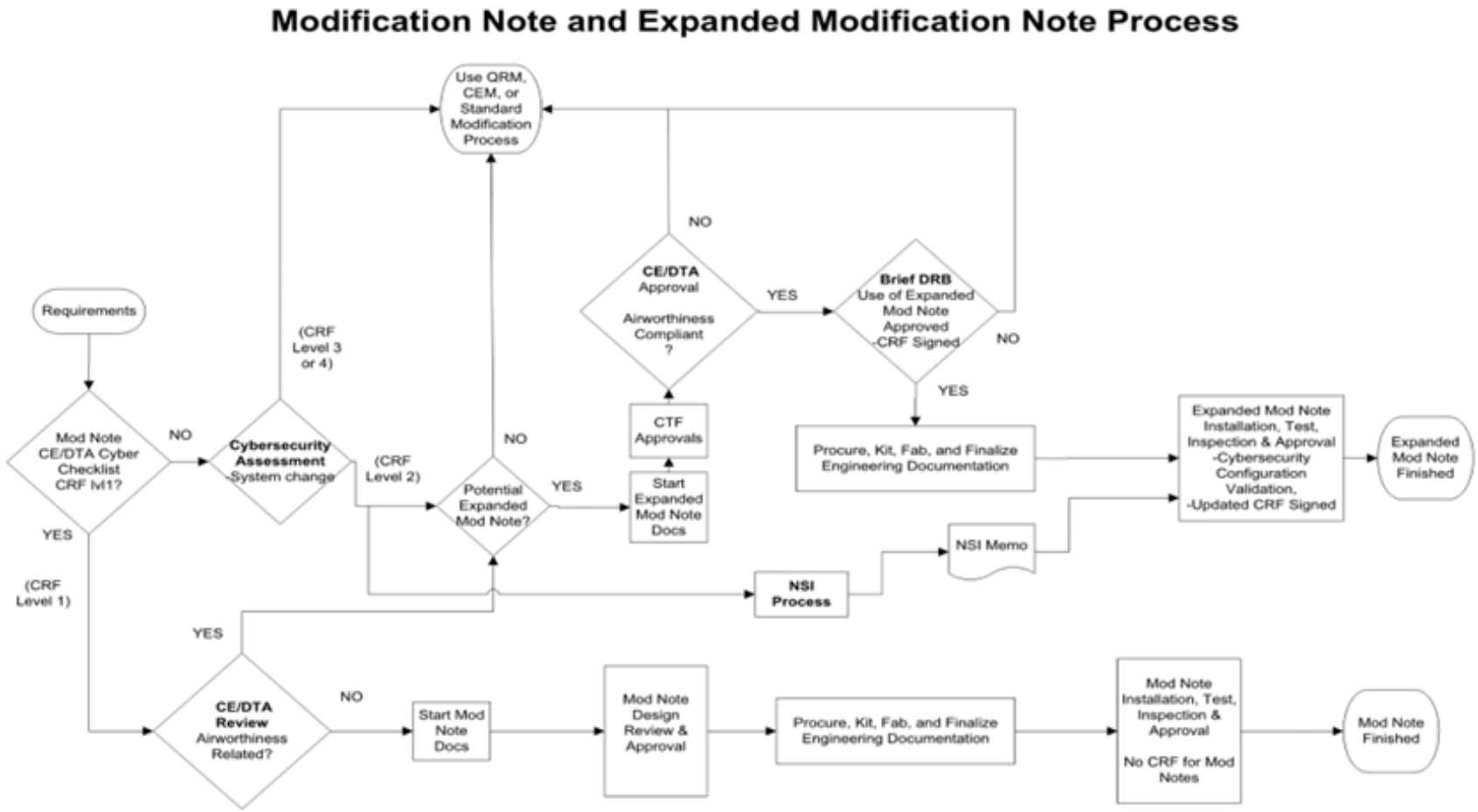
Figure A3.1. Standard Modification Process.



Attachment 4

MODIFICATION NOTE ANFD EXPANDED MODIFICATION NOTE PROCESS

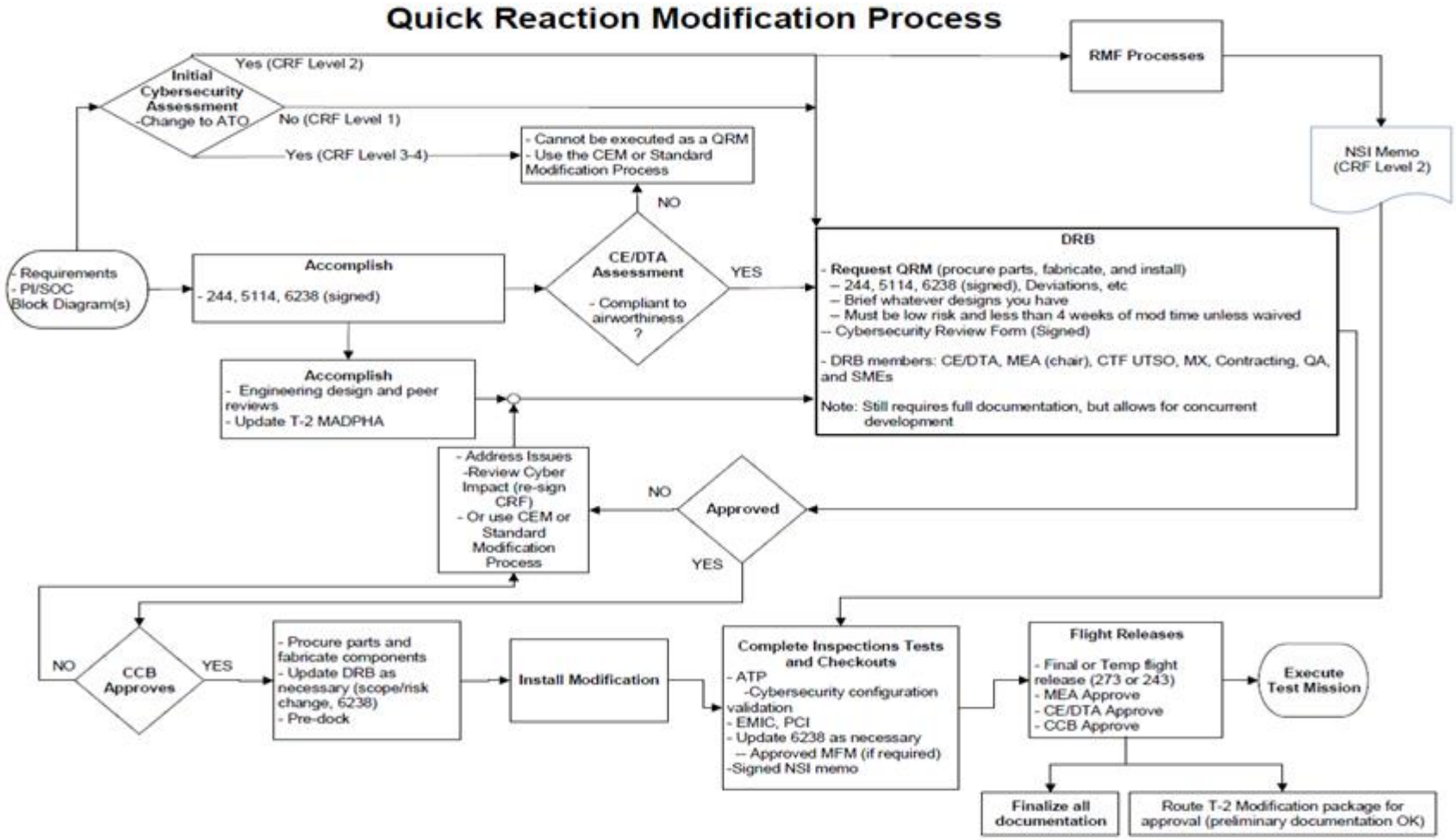
Figure A4.1. Modification Note anfd Expanded Modification Note Process.



Attachment 5

QUICK REACTION MODIFICATION PROCESS

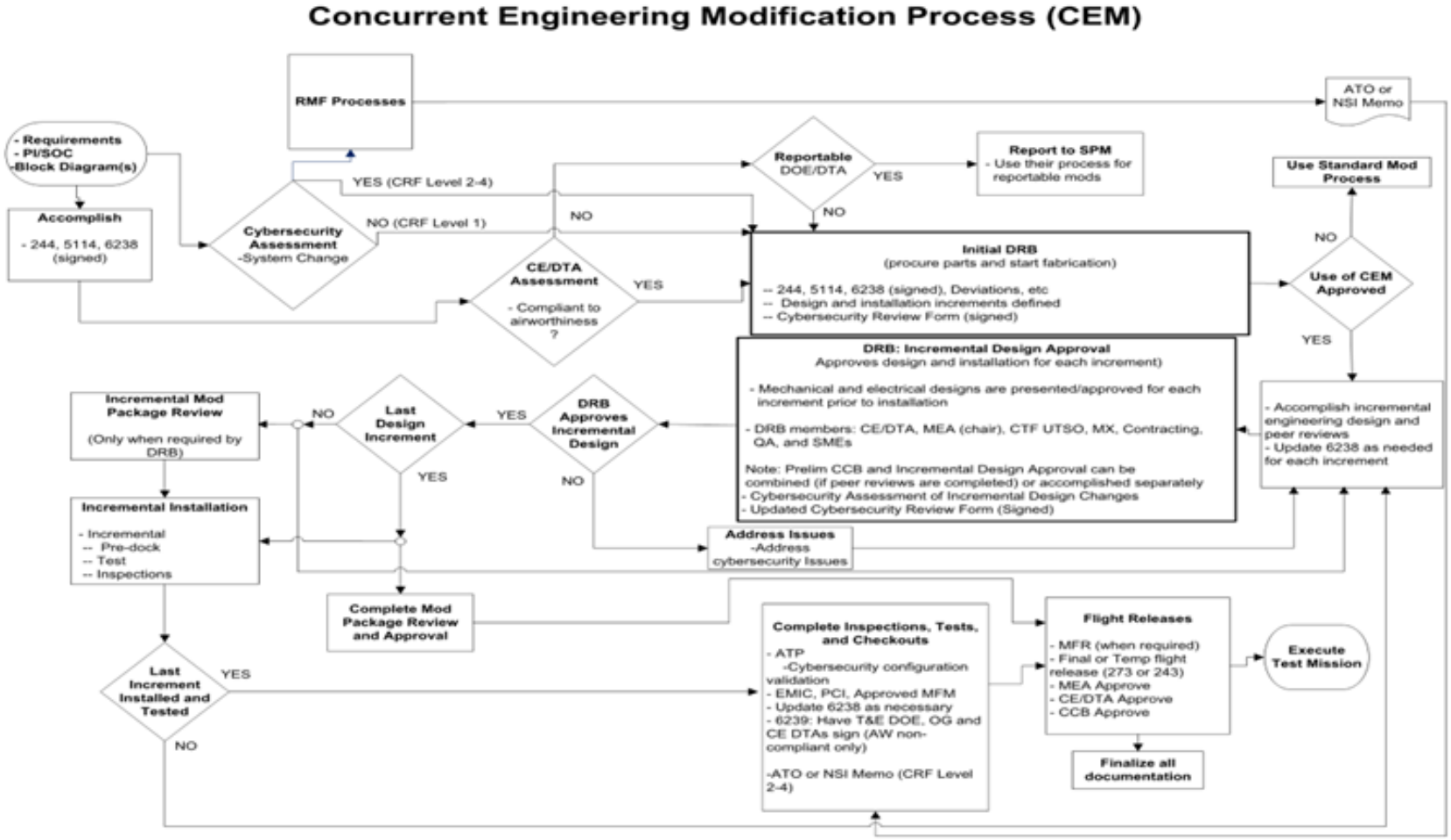
Figure A5.1. Quick Reaction Modification Process.



Attachment 6

CONCURRENT ENGINEERING MODIFICATION PROCESS (CEM)

Figure A6.1. Concurrent Engineering Modification Process (CEM).



Attachment 7

DRAWING TYPE REQUIREMENTS

Table A7.1. Drawing Type Requirements.

The following matrix lists the drawing requirement for EAFB designed, installed and maintained modifications. Sketches and drawings are defined below the table.

DRAWING	TIME MODIFICATION IS INSTALLED	
	0–180 Days	181 Days or More
Electrical Installation & Group A	Sketch	Drawing
Electrical Group B	Sketch	Drawing
Mechanical Installation & Group A	Sketch	Drawing
Mechanical Group B	Sketch	Drawing
Schematic	Sketch	Drawing
PCB Artwork	Sketch	Drawing

Sketch: A sketch is an informal representation such as hand drawn diagrams, annotated photos or rough CAD drawings, which only requires engineering and engineering checks signatures. It must include the minimum information needed to manufacture and/or install the parts. Sketches are only expected to conform to general drafting practices regarding drawing number and part number assignment and drawing titles. Sketch format does not need to meet ANSI specifications. Sketches do not need redlines incorporated and can be released and archived as-is providing that they have engineer and engineer checker signatures.

Drawing: A drawing is usually created using CAD tools/software, and requires engineering, engineering check and drafting approvals. They are expected to conform to general drafting practices, and may include photo images embedded in a drawing format. However, the Drafting Working Group within the Aircraft Modification Design Section will provide guidance on interpretation and the extent of conformance.