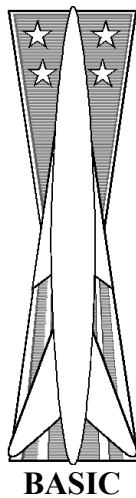
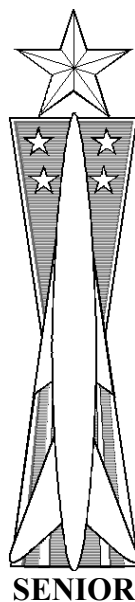
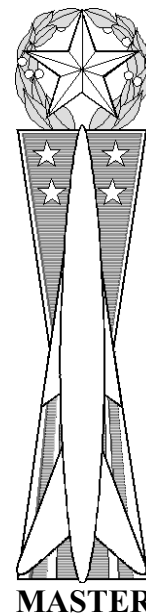


**AFSC 2M0X1**  
**MISSILE AND SPACE SYSTEMS**  
**ELECTRONICS**



**CAREER FIELD**  
**EDUCATION AND TRAINING PLAN**  
**(CFETP)**

**MISSILE AND SPACE SYSTEMS ELECTRONICS SPECIALTY**

**AFSC 2M0X1**  
**CAREER FIELD EDUCATION TRAINING PLAN**

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**THIS DOCUMENT SUPERSEDES CFETP 2M0X1 DATED 31 OCTOBER 2000**

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**MISSILE AND SPACE SYSTEMS ELECTRONICS SPECIALTY  
AFSC 2M0X1  
CAREER FIELD EDUCATION TRAINING PLAN**

**PREFACE**

1. A highly trained, motivated enlisted workforce is the Air Force's key resource in meeting challenges of the future. If the Air Force is to meet present and future challenges, it's essential the workforce be effectively and efficiently trained to perform duties within each skill level of the Air Force Specialty (AFS). The Career Field Education Training Plan (CFETP) for the Missile and Space Systems Electronics specialty provides the framework and guidance necessary for planning, developing, managing, and conducting a career field training program. The plan documents a “training roadmap” for the career field. This roadmap is used to identify mandatory and optional skill level training an individual should receive during their career in the Missile and Space Systems Electronics Specialty.
  
2. The CFETP consists of two parts that are used to plan, manage, and control training within the 2M0X1 career field.
  - 2.1. Part I provides information necessary for overall management of training in the career field. **Section A** explains how everyone will use the plan; **Section B** identifies career progression information, duties and responsibilities, training strategies, and career field flowcharts; **Section C** associates each skill level with specialty qualifications (knowledge, training, education, experience, and other); **Section D** identifies training resource constraints. Some examples: funds, manpower, equipment and facilities.
  
  - 2.2. Part II includes the following: **Section A** identifies the Specialty Training Standard (STS)/Course Training Standard (CTS) and includes duties, tasks, technical references to support training, Air Education and Training Command (AETC) training conducted, wartime course/core task and correspondence course requirements; **Section B** identifies the Course Objective list; **Section C** identifies available OJT support materials. Qualification training packages identified in this section have been developed to support both upgrade and qualification training. These packages are available through the AF Pubs webpage, <http://afpubs.hq.af.mil/>; **Section D** contains a training course index supervisors can use to determine resources available to support both mandatory and optional training. **Section E** can be used to identify Major Command (MAJCOM) unique training requirements. At unit level, supervisors and trainers use Part II to identify, plan, and conduct training commensurate with the overall goals of this plan.
  
3. Use of this CFETP will ensure each individual in the Missile and Space Systems Electronics specialty will receive effective and efficient training at the appropriate point in his/her career. This plan will enable the Air Force to train today's workforce for tomorrow's mission.

## Abbreviations/Terms Explained

**Advanced Training** - A formal course that provides individuals who are already fully qualified in their Air Force Specialty (AFS) with additional skills/knowledge to enhance their expertise in the career field. Training is for selected career airmen at the advanced level of an AFS.

**Career Development Course (CDC)** - A formal written course that provides personnel with additional knowledge necessary to advance to the next higher skill level.

**Career Field Education Training Plan (CFETP)** - A multipurpose document that encapsulates the entire spectrum of training for a career field or specialty. It outlines a logical growth plan that includes training resources and is designed to make career field training identifiable, eliminate duplication, and is budget defensible.

**Continuation Training** - Additional qualification training, exceeding the minimum upgrade training requirements, with emphasis on present or future duty assignments.

**Core Task** - Tasks the AFCFM identify as minimum qualification requirements within an AFSC, regardless of duty position. Core tasks may be specified for a particular skill level or in general across the AFSC. Guidance for using core tasks can be found in the applicable CFETP narrative.

**Critical Task** - Tasks identified by the MAJCOM functional manager or local unit supervisors as additional qualification requirements within a specialty or duty position for assigned personnel.

**Cruise missile (CM)** - Personnel in AFSC 2M0XX and 2M0X1B associated with Air Launched Cruise missile (ALCM), Advanced Cruise missile (ACM) and Conventional Air Launched Cruise missile (CALCM) programs. These personnel are normally associated with Air Combat Command, but may be assigned in Air Force Material Command positions.

**Electronics Laboratory (ELAB)** - Consists of personnel in AFSC 2M0X1 performing maintenance on operational ground equipment, support equipment, aerospace vehicular equipment and automated test equipment maintenance at ICBM units.

**Electro-Mechanical Team (EMT)** - A maintenance team consisting of 2M0X1 personnel who dispatch to remote launch facilities (LFs) and missile alert facilities (MAFs) to perform maintenance on the assigned ICBM weapon system.

**Field Technical Training (Type 4)** - Special or regular on-site training conducted by a field training detachment (FTD) or by a mobile training team (MTT).

**Initial Skills Training (Type 3)** - A formal resident course which results in award of the 3-skill level.

**Intercontinental Ballistic Missile (ICBM)** - Personnel in AFSC 2M0XX associated with Minuteman III and Peacekeeper weapon systems. These personnel are normally associated with Air Force Space Command, but may be assigned in Air Force Material Command positions.

**Occupational Survey Report (OSR)** - A detailed report showing the results of an occupational survey of tasks performed within a particular AFS.

**On-the-Job Training (OJT)** - A method used to certify personnel in both upgrade (skill level award) and qualification (duty position certification) training. OJT is hands-on, over-the-shoulder training conducted at the duty station.

**Qualification Training (QT)** - Actual hands-on task performance-based training designed to qualify an airman in a specific duty position or specific task. This training occurs both during and after the upgrade training process and is designed to provide performance skills training required to do the job.

**Research and Development (R&D)** - Personnel in AFSC 2M0XX associated with research, development, acquisition, and support of missiles, spacelift, lasers, weapons, drones, etc. These personnel are normally associated with Air Force Material Command.

**Resource Constraints** - Resource deficiencies, such as money, facilities, time, manpower, and equipment that preclude training from being delivered.

**Spacelift** - Personnel in AFSC 2M0XX associated with national space programs supporting the launch and recovery of space assets. These personnel are normally associated with Air Force Space Command.

**Specialty Training Standard (STS)** - Part II, Section A of the CFETP which identifies the training standard required to achieve a skill level(s) within an enlisted AFS. It standardizes and controls the quality of individual training.

**Standard** - A fixed quantity, quality, or level of performance that an individual is expected to demonstrate.

**Upgrade Training (UGT)** - Mandatory training which leads to the award of a higher skill level.

**Verification and Checkout Equipment (VACE)** - Consists of personnel in AFSC 2M0X1 performing automated test equipment maintenance at Cruise missile units.

**PART I**  
**Section A - GENERAL INFORMATION**

1. **Purpose of the CFETP.** This CFETP provides information that career field functional managers, training managers, commanders, supervisors, trainers, and the technical training center use to plan, develop, manage and conduct an effective and efficient career field training program. The plan outlines training individuals must receive to develop and progress throughout their career. This plan identifies initial skills, upgrade, qualification, advanced, and continuation training. This plan does not address Professional Military Education (PME) or ancillary training. The CFETP has several purposes:

1.1. Serves as a management tool to plan, develop, manage, and conduct a career field training program. It is also used to ensure that established training is provided at the appropriate point in an individual's career.

1.2. Identifies task and knowledge requirements for each skill level in the specialty and recommends training throughout each phase of an individual's career.

1.3 Lists training courses available in the specialty, identifies sources of training, and provides the training medium.

1.4. Identifies major resource constraints that impact implementation of the desired career field training program.

2. **Use of the CFETP.** The CFETP will be approved and maintained by the Air Force Career Field Manager (AFCFM). The MAJCOM 2M0XX Functional Managers and AETC will review the CFETP annually to ensure currency and accuracy and forward recommended changes to the AFCFM. MAJCOMs must make sure additional training isn't developed that can be satisfied by existing courses. This plan will be used at all levels to ensure a comprehensive and cohesive training program is available and instituted for each individual in the career ladder.

2.1. AETC training personnel will develop/revise formal resident and exportable training based upon requirements established by the users and documented in part II of the CFETP. They will also develop procurement and acquisition strategies for obtaining resources needed to provide the identified training. In addition, the AETC training manager will prepare a camera ready CFETP and send to SAF/AAIPD for publication. The training manager is also responsible for updates and publication of all changes. A Utilization and Training Workshop (U&TW) will be conducted as needed and hosted by the training manager. The AFCFM will chair the U&TW.

2.2. The MAJCOM functional managers will ensure their training programs complement the CFETP mandatory initial skills and UGT requirements. OJT, resident training, contract training, or exportable courseware/courses can satisfy identified requirements. MAJCOM-developed training must be identified for inclusion in this plan and must not duplicate available training.

2.3. Each individual will complete the mandatory training requirements specified in this plan. Unit level training managers and supervisors will manage and control progression through the career field by ensuring that each individual completes the mandatory training requirements for upgrade specified in this plan as supplemented by their MAJCOM. The list of courses in Part II, Sec. C, will be used, as a reference to determine training required.

## **PART I**

### **Section B - CAREER PROGRESSION AND INFORMATION**

1. **Purpose.** This section provides information career field functional managers, training managers, commanders, supervisors, trainers, and the technical training center use to plan career field progression in the Missile and Space Systems Electronics specialty. This plan describes the functions and responsibilities of AFSC 2M0X1, skill progression, training decisions, and outlines Community College of the Air Force educational opportunities.

#### **2. Specialty Descriptions:**

2.1. Missile and Space Systems Electronics Apprentice and Journeyman (2M031A/31B/51).

2.1.1. Specialty Summary. Monitors, operates, and directs/controls the operation of consoles, fault display panels, and checkout equipment. Maintains and directs/controls maintenance on missiles, boosters, and payload systems. Operates, calibrates, maintains, and directs/controls these actions on related test, monitoring, and checkout equipment. Performs malfunction analysis. Repairs, maintains, modifies, inspects, services and directs/controls these actions on missiles, boosters, and payload systems, subsystems, and ground operating equipment to component level. Performs and directs/controls field level maintenance on electronic test, launch control, checkout, and related ground support equipment. Assembles, disassembles, and directs/controls these actions on missiles, boosters, and payloads. Assembles, calibrates, operates, troubleshoots, and tests specialized R&D systems and electronic support equipment. Performs on- and off-equipment maintenance on strategic bomber-launched missiles, missile subsystems, missile integration systems, and related test, support, and handling equipment. Monitors, analyzes, and compiles system performance data.

2.1.2. Duties and Responsibilities.

2.1.2.1. *Monitors, operates, and directs/controls operation of consoles, fault display panels, and checkout equipment.* Monitors status of missiles, boosters, payloads, subsystems and related support equipment. Operates or directs/controls the operation of checkout and test equipment to determine system integrity.

2.1.2.2. *Performs missile maintenance and directs/controls spacelift booster and payload maintenance and launch processing.* Operates, calibrates, inspects, and maintains or directs/controls these actions on aerospace vehicle equipment, operational ground equipment, spacelift boosters, and payloads. Performs and directs/controls maintenance on guidance and control systems. Repairs, maintains, modifies, inspects, services or directs/controls these actions



on missiles, boosters, and payloads and subsystems to component level. Assists in data analysis of operational and test launches.

2.1.2.3. *Assists in malfunction analysis of missile, booster, and payload systems, subsystems, and related test and operating equipment.* Determines systems status. Operates or directs/controls the operation of test and checkout equipment to isolate malfunctions.

2.1.2.4. *Performs or directs/controls maintenance on electronic equipment, and coordinates launch processing and maintenance activities. Assembles, disassembles, or directs/controls these actions for missiles, boosters, and payloads.* Maintains, inspects, replaces, repairs, stores, or directs/controls these actions for individual components. Maintains inspection and maintenance records. Uses or directs/controls the use of manual and automatic checkout and test equipment to check integrated missile, booster, and payload systems, subsystems, and related electronic equipment. Coordinates procedures on operating systems such as electrical, guidance and control, and security equipment. Maintains technical orders, and publication files.

2.1.2.5. *Assesses quality of personnel and equipment.* Inspects personnel performance, equipment, and management functions for compliance with technical data and governing directives. Submits reports to management on all quality assessment findings.

2.1.2.6. *Conducts maintenance and operations training.* Conducts training of personnel prior to being task certified. Conducts recurring training to assure task proficiency.

2.1.2.7. *Performs duty as an NCO code controller.* Selects and produces ICBM code material utilizing computerized coding equipment. Safeguards, assigns, issues, and recovers critical code material. Maintains equipment and keeps records for control and accountability of ICBM codes and coded devices. Performs duty as a member of a two-person code controller team.

2.1.2.8. *Performs Laboratory R&D activities.* Assembles, calibrates, operates, installs, tests, and troubleshoots specialized R&D systems such as: lasers, energetic materials, solid and liquid propulsion, composites, optical, satellite, space structures and power, telescope pointing and tracking, and high power microwave. Operates and maintains support equipment such as: data acquisition, fiber optics, instrumentation, vacuum systems, wind tunnel, test stands and controls systems. Supports scientists and engineers during experiment setup and execution. Collects R&D test data.

2.1.2.9. *Inspects, services, isolates faults, disassembles, replaces components and wiring, modifies, repairs airframe and surface, reassembles, and checks out cruise missiles.* Inspects missiles upon receipt, download from aircraft, repair, and prior to ready storage. Performs defueling and refueling. Isolates faults to component level. Replaces missile components including turbofan engines, guidance and control subsystems, and wiring harnesses. Repairs missile airframes and control surfaces. Performs missile end-to-end checkout and diagnostic testing. Tests and repairs missile components.

2.1.2.10. *Performs periodic and unscheduled maintenance on aircraft missile integration systems, isolates faults, and makes repairs.* Tests aircraft missile and bomb rotary launchers, aircraft missile pylons, and subcomponents. Replaces subcomponents, cabling, pneumatic systems, and all associated hardware. Repairs subcomponents to circuit card level.

2.1.2.11. *Operates, maintains, and calibrates automatic and manual test equipment.* Maintains electronics systems, test sets, test adapter groups, aircraft missile, launcher, and pylon simulators; missile radar altimeter test assemblies; cooling control units; and related peripheral equipment. Maintains portable aircraft and missile systems test equipment. Operates precision power supplies, voltage-current measuring equipment, radio frequency and pulse generating control and measuring equipment, calibration standards, oscilloscopes, and related equipment.

2.1.2.12. *Compiles, reviews, analyzes, maintains, and disseminates maintenance and historical data for missiles, components, and carrier aircraft missile integration systems.* Tracks system performance to identify adverse trends. Reports analysis findings and total system performance data to higher headquarters. Manages missile system configuration and modification status. Keeps maintenance supervisor apprised of system performance and any developing trends.

## 2.2. Missile and Space Systems Electronics Craftsman (2M071).

2.2.1. Specialty Summary. Supervises the operation of consoles, fault display panels, and checkout equipment to determine system integrity in related aerospace vehicle equipment and operational ground equipment. Directs/controls maintenance on guidance and control systems. Supervises the operation, calibration, modification, inspection, and servicing of related maintenance support equipment, related operational ground equipment, aerospace vehicle equipment, spacelift boosters, payloads, and subsystems. Coordinates maintenance and operations activities among integrated Missile and Space Systems Electronics Journeyman and Apprentices. Interprets and analyzes data relevant to operational and test launches. Directs compliance of technical, procedural, safety, security, and quality assurance standards. Designs R&D systems. Supervises the assembly, calibration, operation, modification, installation, troubleshooting, and testing of specialized R&D systems and electronic support equipment. Performs acquisition and activation functions for related systems. Supervises on- and off-equipment maintenance on strategic bomber-launched missiles, missile subsystems, missile launch systems, and related test, support, and handling equipment. Supervises operation, maintenance, and calibration of automatic and manual test equipment. Supervises maintenance activities.

### 2.2.2. Duties and Responsibilities.

2.2.2.1. *Advises on problems in repairing, modifying, and installing aerospace vehicle equipment, telemetry, and flight termination systems on missiles, spacelift boosters, payloads, and operational ground equipment.* Resolves maintenance, modification, repair, and launch processing problems by interpreting automatic equipment readouts, circuit schematics, and data flow. Analyzes malfunctions of missiles, spacelift boosters, and payload systems, subsystems, and related maintenance support equipment.

2.2.2.2. *Supervises missile, spacelift booster, and payload systems maintenance and launch processing.* Supervises the operation, calibration, inspection, and maintenance of aerospace vehicle equipment, operational ground equipment, spacelift boosters, and payloads. Performs or directs/controls maintenance on guidance and control components, spacelift booster, and electronic launch control and checkout equipment. Coordinates launch processing or maintenance activities. Performs or directs/controls visual inspections, functional checks, faulty component removal and replacement, calibration, and adjustment of electronic systems and subsystems. Supervises the operation, troubleshooting, modification, repair, and testing electronic test and maintenance ground equipment for missiles. Directs/controls the operation of consoles and panels. Analyzes malfunctions of missiles, boosters, and payload systems, subsystems, and related equipment. Supervises the maintenance of technical orders, and publication files.

2.2.2.3. *Assesses quality of personnel and equipment.* Inspects personnel performance, equipment, and management functions for compliance with technical data and governing directives. Submits reports to management on all quality assessment findings.

2.2.2.4. *Conducts maintenance and operations training.* Conducts training of personnel prior to being task certified. Conducts recurring training to assure task proficiency.

2.2.2.5. *Performs launch information analysis.* Diagnoses flight data gathered during operational and test launches. Analyzes flight data to determine cause of anomalies recorded.

2.2.2.6. *Performs duty as a member of a spacelift launch team.* Monitors spacelift booster and payload status and provides inputs to the Air Force launch controller for consideration during countdown activities.

2.2.2.7. *Performs duty as an NCO code controller.* Selects and produces ICBM code material utilizing computerized coding equipment. Safeguards, assigns, issues, and recovers critical code material. Maintains equipment and keeps records for control and accountability of ICBM codes and coded devices. Performs as a member of a two-person code controller team.

2.2.2.8. *Evaluates and performs Laboratory R&D activities.* Designs, assembles, installs, calibrates, inspects, operates, tests, troubleshoots, and modifies specialized R&D systems such as: lasers, energetic materials, solid and liquid propulsion, composites, optical, satellite, space structures and power, telescope pointing and tracking, and high power microwave. Designs, maintains, modifies, and resolves problems associated with support equipment such as: data acquisition, fiber optics, instrumentation, vacuum systems, wind tunnel, test stands and control systems. Supports and advises scientists and engineers during experiment design, setup, and execution. Collects and analyzes R&D test data.

2.2.2.9. *Supervises cruise missile inspection, servicing, fault isolation, disassembly, component and wiring replacement, modification, airframe and control surface repair, reassembly and checkout.* Inspects missiles upon receipt, download from aircraft, repair, and prior to ready storage. Performs defueling and refueling. Isolates faults to component level. Replaces missile components including turbofan engines, guidance and control subsystems, and

wiring harnesses. Repairs missile airframes and control surfaces. Performs missile end-to-end checkout and diagnostic testing using automatic and manual test equipment.

2.2.2.10. *Performs periodic and unscheduled maintenance on carrier aircraft missile integration systems, isolates faults, and makes repairs.* Tests aircraft missile and bomb rotary launchers, aircraft missile pylons, and subcomponents. Replaces subcomponents, cabling, pneumatic systems, and all associated hardware. Test and repairs subcomponents to circuit card level.

2.2.2.11. *Operates, maintains, and calibrates automatic and manual test equipment.* Maintains electronics systems test sets, test adapter groups, aircraft missile, launcher, and pylon simulators; missile radar altimeter test assemblies; cooling control units; and related peripheral equipment. Maintains portable aircraft and missile systems test equipment. Operates precision power supplies, voltage-current measuring equipment, radio frequency and pulse generating control and measuring equipment, calibration standards, oscilloscopes, and related equipment.

2.2.2.12. *Compiles, reviews, analyzes, maintains, and disseminates maintenance and historical data for missiles, components, and carrier aircraft missile integration systems.* Tracks system performance to identify adverse trends. Reports analysis findings and total system performance data to higher headquarters. Manages missile system configuration and modification status. Keeps maintenance supervisor appraised of system performance and any developing trends.

2.2.2.13. *Supervises maintenance functions.* Provides technical expertise to resolve complex system malfunctions. Establishes work methods and performance standards. Ensures required equipment, tools, and supplies are available. Ensures compliance with technical directives. Ensures understanding and compliance with missile, nuclear, and explosives safety.

### 2.3. Missile and Space Systems Superintendent/Chief Enlisted Manager (2M090/00).

2.3.1. Specialty Summary. Superintends maintenance, processing, acquisition, and operation of missiles, spacelift boosters, payloads, and associated subsystems, facilities, support and test equipment. Superintends the activities associated with specialized R&D systems. Superintends maintenance activities engaged in on- and off-equipment maintenance of strategic bomber-launched missiles, aircraft missile and bomb rotary launchers, aircraft stores management systems, and associated test equipment.

#### 2.3.2. Duties and Responsibilities.

2.3.2.1. *Plans and organizes missile, spacelift booster, payload, cruise missile, and R&D maintenance and processing activities. Manages processing activities.* Develops organizational structure to establish lines of authority, and assigns specific responsibilities. Determines materiel and personnel requirements for current and projected commitments. Establishes work procedures for effective personnel use and increased efficiency and accuracy of operation. Analyzes inspection and test reports, and recommends product improvement. Requisitions and accounts for equipment, facilities, special tools, and supplies. Coordinates missile, booster, and

payload maintenance and launch processing activities with base organizations. Manages acquisition and activation activities. Monitors engineers and technicians during R&D experiments for procedural compliance. Superintends ICBM coding operations and activities at missile alert facilities.

*2.3.2.2. Directs missile maintenance, booster and payload launch processing, cruise missile, and R&D activities.* Controls work flow, assigns special projects, and monitors program and special project progress. Monitors unit and individual productivity and work quality. Evaluates unit performance in terms of compliance with policies, directives, technical publications, and hazardous materials operations. Ensures conformance with prescribed efficiency, quality, and training standards. Supervises preparing and maintaining records and reports. Explains maintenance, operations, inspection, test, repair, and launch processing policies, procedures, and technical directives. Advises supervisors of missile and spacelift systems, facilities, and personnel capabilities to meet requirements.

*2.3.2.3. Inspects missile, booster, payload, cruise missile, and R&D maintenance and processing functions.* Inspects and evaluates missile maintenance activities. Inspects and evaluates booster and payload maintenance and processing activities. Interprets efficiency and equipment reliability findings and recommends improvements. Reviews maintenance and processing data to evaluate programs and project requirements and capabilities. Analyzes unit records and reports for correcting or improving recurring malfunctions in missile, booster, and payload systems, subsystems, components, and related equipment. Coordinates inspection findings with other support agencies.

*2.3.2.4. Manages maintenance, operations and R&D training.* Oversees the management and the integration of all training activities. Interprets and determines essential training requirements. Coordinates unit training requirements with all activities. Evaluates unit's training in terms of compliance with policies, directives and technical publications.

*2.3.2.5. Manages maintenance activities to ensure compliance with international treaties.*

**3. Skill/Career Progression.** Quality training and timely progression from the apprentice to the superintendent skill level play an extremely important role in the Air Force's ability to accomplish its mission. Therefore, it's essential everyone involved in the training process do his or her part to plan, develop, manage, conduct, and evaluate an effective and efficient training program. The guidance provided in this part of the CFETP will ensure individuals receive viable training at appropriate points in their career. The following narrative and the AFSC 2M0X1 career field flowcharts identify the training career path and define training required.

3.1. Apprentice (3-skill level) Training. Initial skills training in this specialty consists of tasks and knowledge training provided in the Electronics Principles Course and Missile and Space Systems Electronics Apprentice (ICBM or ALMM) Courses (depending on the 3-skill level shred). Individuals must successfully complete these initial skills training courses to be awarded the 3-skill level.

3.2. Journeyman (5-skill level) Training. Upgrade training to the 5-skill level in the Missile and Space Systems Electronics specialty consists of: (1) all personnel must complete the mandatory requirements identified in AFMAN 36-2108, (2) all personnel must complete the knowledge training provided in the 2M051 CDC, and (3) personnel must obtain qualification on 5-level core tasks identified in Part II, Section A3c, of this plan. After award of the 5-skill level, continuation training, when available, should be utilized based on an individual's particular duty position or other needs. Continuation training is listed in, but not limited to that described in Part II, Section C, of this plan.

3.3. Craftsman (7-skill level) Training. Upgrade training to the 7-skill level in the Missile and Space Systems Electronics specialty consists of: (1) all personnel must complete the mandatory requirements identified in AFMAN 36-2108, (2) all personnel must complete the knowledge training provided in the 2M071 CDC, and (3) personnel must obtain qualification on 7-level core tasks identified in Attachment 1, Common 2M0XX Missile & Space Maintenance Tasks. After award of the 7-skill level, continuation training, when available, should be utilized based on an individual's particular training needs. Continuation training is listed in, but not limited to that described in Part II, Section C, of this plan.

3.4. Superintendent (9-skill level) Training. Upgrade to the 9-skill level as a Missile and Space Systems Superintendent is accomplished at SMSgt sew-on date as long as requirements identified in AFMAN 36-2108 have been met. No additional requirements were identified for upgrade to AFSC 2M090. Continuation training, if available, should be utilized based on an individual's particular needs.

4. **Training Decisions.** The CFETP was developed to encapsulate an entire spectrum of training requirements for the Missile and Space Systems Electronics specialty using a building block approach (simple to complex). Included in the spectrum was the strategy of when, where, and how to meet the training requirements. The strategy must be apparent and affordable to make it easier to comply with and reduce duplication of training. The following paragraphs list the historical training decisions we've made. These paragraphs are not directive in nature. They are listed to provide continuity for future career field management. The paragraphs are in chronological order. Subsequent meetings may have reversed decisions made at earlier meetings.

4.1. 2M0XX U&TW 20 - 30 Sep 93.

4.1.1. Initial skills. The STS was rewritten to include tasks that were previously not identified prior to the AFSC mergers effective October 1993 and April 1994. All initial skills tasks were reviewed to include these functions.

4.1.2. Upgrade training. In addition to Year of Training initiatives, the following decisions were made regarding AFSC 2M0X1:

4.1.2.1. 5 level upgrade - All tech school graduates will be assigned to an operational missile (ICBM or Cruise missile) unit to complete 5-level core task training requirements. Core tasks for upgrade to the 5-skill level will consist of Electro-Mechanical Team (EMT) at ICBM

units and Missile Maintenance Section tasks at Cruise missile units. ELAB and VACE tasks were discussed and a decision was reached to exclude them from the core task listing, placing the focus of five level training on field dispatching (ICBM) or in-shop air vehicle maintenance (cruise missiles). Training in these workcenters builds a foundation for subsequent progression into all other areas of the 2M0X1 career field. All applicable 5-level core task training must be completed prior to reassignment to a unit that does not possess 5-level core task training capability.

4.1.2.2. 7 level upgrade - Core tasks for upgrade to 7-level must be accomplished at an ICBM or Cruise missile unit. Personnel assigned to ICBM units will complete all required core tasks in Electro-mechanical team (EMT) or Electronics Laboratory (ELAB) for the assigned weapon system. Individuals assigned to missile units with multiple weapon systems (including Vandenberg AFB) are required to complete core task training for one of the assigned weapon systems. In this case, local training managers will select the appropriate weapon system to satisfy upgrade requirements. Personnel assigned to Cruise missile units will complete all required core tasks in either Missile Checkout or Verification and Checkout Equipment (VACE).

4.1.2.3. Personnel who were awarded the 5-skill level or 7-skill level prior to implementation of the Year of Training (YOT) initiatives **are not** required to complete core tasks for that awarded skill level unless required for current duty position. Individuals are highly encouraged to complete these core tasks, if possible. Personnel upgrading after the implementation of YOT initiatives must complete all upgrade training requirements, including core tasks. This decision was based on the overwhelming training burden that would result if personnel previously awarded 5-and 7-skill levels were required to return to training. Additionally, many personnel are located at units which could not comply with current core tasks identified by this U&TW.

4.2. 2M0XX U&TW 31 Jul - 4 Aug 95 & ICBM Training Conference 21 - 22 Feb 96. Mission Ready Technician (MRT) Program: After the 2M0XX U&TW met 31 Jul - 4 Aug 95, the 2M0XX community was directed to incorporate the MRT concept in its 3-level technical training. The Air Force MRT Program is designed to shift the training burden from the operational units to the technical school by producing certified 3-level apprentice personnel directly from technical school. Upon arrival at their first duty station, a mission ready trained apprentice may be utilized on those 3-level tasks certified at the technical school in minimum time. An ICBM MRT conference was held with representatives from all units to identify MRT 3-level tasks to be trained and certified by the technical school. Certification of these 3-level tasks by technical school instructors resulted in a significant increase in training days to the original U&TW. This and the MRT concept drove the group to reevaluate the STS requirements identified at the previous U&TW resulting in changes to the STS. All subjects and tasks were still covered; however, some were deleted from the basic course if they could be covered in the CDC.

4.3. 2M0XX Training Conference 23 - 26 Mar 98. Mission Ready Technician (MRT) Program: After the Feb 98 AETC Trained Personnel Requirements (TPR) conference, a decision was made to revise the 2M0X1 Specialty Training Standards (STS). The existing MRT training courses cannot produce a sufficient amount of graduates to sustain the career field. Air Force Space Command (AFSPC) redefined MRT training requirements.

4.4. 2M0XX Training Conference 23 - 25 Feb 99. Mission Ready Technician (MRT) will now be identified as a Mission Ready Airman (MRA). All 2M0XX specialty and course training standards were reviewed and revised. Seven -level in residence courses will be discontinued at Vandenberg AFB effective Mar 99. Space Launch Maintenance Training Course will be discontinued at Vandenberg AFB effective Sep 99.

4.5. 2M0XX Training Conference 16 - 17 Aug 99. Career Field Manager directed a review of the 2M0XX technical training courses. The Technical Engineering B/CDB course will be discontinued in residence at Vandenberg AFB effective Sep 00. The Wing VI information will be converted to Wing IX, enhanced and moved to the AM/CDB course effective Oct 00. Career Development Courses (CDCs) were reviewed in-depth. A new Electronic Principles (EP) STS is scheduled to be implemented Oct 00. 20 AF will create a course for new shop chiefs incorporating the 532d Training Squadron's discontinued 7-level course material.

4.6. 2M0XX Pre U&TW 15 - 16 May 01. A pre U&TW meeting was held at the 532<sup>nd</sup> TRS in May 01. Purpose was to provide familiarization of the U&TW process to the AFSC and to identify proposed changes to the 2M0XX AFSC awarding courses, CFETPs and CDCs. We also revised the 5- and 7-level upgrade requirements to address problems for 2M0XX personnel assigned to Spacelift and R&D positions.

4.7. 2M0XX U&TW 10 - 12 Dec 01. Each of the 2M0XX AFSCs met and made changes to core tasks, Specialty Training Standards and general CFETP verbiage. In addition, the 2M0X1B AFSC added material to the Career Development Course. Extensive minutes have been compiled detailing the changes made by each AFSC --- the Training Managers and Career Field Managers have copies of these Minutes.

4.7.1. A major topic of this U&TW was upgrade training. We decided to provide 5-level core tasks in limited areas. For cruise missiles, 5-level core tasks are limited to Missile Checkout section. For ICBMs, 2M0X1 5-level core tasks are limited to Electro-mechanical section, 2M0X2 5-level core tasks can be obtained in either Missile Mechanical section or Missile Handling section, 2M0X3 5-level core tasks can be obtained in either Facilities Maintenance Team section or Periodic Maintenance Teams section. 7-level core tasks have been changed to non-technical tasks, which can be found in Attachment 1. These decisions were made in full appreciation of the difficulties this places on manning moves for airmen in our AFSC. Our intent is that our airmen receive basic instruction in the duties that are fundamental for our AFSC. The 5-level core task sections, by default, become "feeder" sections for all other 2M0XX positions.

4.7.2. Another major topic of this U&TW centered on delays in obtaining security Clearances and subsequently the Personnel Reliability Program (PRP). Our airmen cannot enter into 5-level training without security clearances and PRP. We decided to address the PRP issue with changes to the wording of AFMAN 36-2108, Airmen Classifications, and address our problems with security clearances by message through the Air Staff (CFM has action to submit both).



**5. Community College of the Air Force Academic Programs.** Enrollment in CCAF occurs upon completion of basic military training. *Off duty education is a personal choice but highly encouraged.* Individuals desiring to become an Air Education and Training Command Instructor should actively pursue an associate degree. A degreed faculty is necessary to maintain accreditation through the Southern Association of Colleges and Schools. CCAF provides the opportunity to obtain an Associate in Applied Sciences Degree. In addition to its associate degree program, CCAF offers the following:

5.1. Occupational Instructor Certification. Upon completion of instructor qualification training, consisting of an instructor methods course and supervised practice teaching, CCAF instructors who possess an associates degree or higher may be nominated by their school commander/commandant for certification as an Occupational Instructor.

5.2. Trade Skill Certification. When a CCAF student separates or retires, a trade skill certification is awarded for the primary occupational specialty. The College uses a competency based assessment process for trade skill certification at one of four proficiency levels - Apprentice, Journeyman, Craftsman/Supervisor, or Master Craftsman/Manager. All are transcribed on the CCAF transcript.

5.3. Degree Requirements. The skilled (5) level must be held at the time of program completion with degree requirements for an Associate in Applied Science in Electronic Systems Technology as follows:

**OVERALL REQUIREMENTS**

<i>Subject</i>	<i>Semester Hours</i>
Technical Education.....	24
Leadership, Management, and Military Studies.....	6
Physical Education.....	4
General Education.....	15
Program Elective.....	15
<b>Total.....</b>	<b>64</b>

5.4. Technical Education (24 Semester Hours): A minimum of 12 semester hours of Technical Core subjects/courses must be applied and the remaining semester hours applied from Technical Core/Technical Elective subjects/courses. Requests to substitute subjects/courses must be approved in advance by the Technical Branch. Refer to the CCAF catalog for Application of Courses to the Technical Education area.

**Technical Core**

<i>Subjects/Courses</i>	<i>Maximum Semester Hours</i>
CCAF Internship.....	16
Communication Systems Theory/Maintenance.....	24
Electronic Communications-Computer Systems Theory/Maintenance.....	24
Electronic Systems Theory/Maintenance.....	24
Ground Radar Systems Theory/Maintenance.....	24
Metrology.....	24

Missile and Space Systems Electronic Maintenance (ICBM) .....	19
Missile and Space Systems Electronic Maintenance (ALCM/ACM).....	31

**Technical Electives**

Advanced Electronics.....	12
Air Force Enlisted Professional Military Education .....	12
Algebra--Based Physics .....	4
Basic Electronics Theory/Applications.....	12
College Algebra (or Higher Level Mathematics).....	3
Computer Science .....	6
Digital Techniques .....	6
Computer Systems Maintenance and Operations Principles.....	6
FCC General Radiotelephone Operator's License.....	9
High Reliability Soldering .....	3
Industrial Safety .....	3
Microprocessor Electronic Theory.....	6
Quality Assurance .....	3
Solid-State Theory/Applications.....	6
Technical Writing.....	3

5.5 Leadership, Management, And Military Studies (6 Semester Hours): Professional military education and/or civilian management courses. The preferred method of completing Leadership, Management, and Military Studies is through attendance at an Airman Leadership School, MAJCOM NCO Academy, and/or Air Force Senior NCO Academy. However, civilian courses that emphasize fundamentals of managing human or material resources may also be applicable.

5.6. Physical Education (4 Semester Hours): Basic Military Training satisfies this requirement.

5.7. General Education (15 Semester Hours): This requirement is satisfied by application of courses accepted in transfer or by testing credit. The following is a specific breakout of requirements:

<i>Subjects/Courses</i>	<i>Semester Hours</i>
Oral Communication (Speech) .....	3
Written communication (English Composition) .....	3
Mathematics .....	3
<i>Intermediate algebra or a college-level mathematics course is required. If an acceptable mathematics course is applied as a Technical or Program Elective, a natural science course meeting general education requirements Application criteria may be applied as a General Education Requirement.</i>	
Social Science .....	3
<i>Anthropology, Archeology, Economics, Geography, Government, History, Political Science, Psychology, Sociology.</i>	
Humanities .....	3
<i>Fine Arts (History, Criticism, and Appreciation), Foreign Language, Literature, Philosophy, Religion.</i>	

5.8. Program Elective (15 Semester Hours): Satisfied with applicable Technical Education; Leadership, Management, and Military Studies; or General Education subjects/courses, including natural science courses meeting general education requirements application criteria. Six semester hours of CCAF degree-applicable technical credit, otherwise not applicable to this program, may be applied.

6. **Career Field Flow Charts.** Charts depicting this career path are presented. The Career path outlines when training is required for career progression within this specialty. This is a nominal timeline for comparison purposes only.

**2M0X1 MISSILE AND SPACE SYSTEMS ELECTRONICS SPECIALTY TRAINING FLOW**

6 MONTHS	<ul style="list-style-type: none"> <li>- COMPLETE 3-LEVEL COURSES               <ul style="list-style-type: none"> <li>-- ELECTRONIC PRINCIPLES</li> <li>-- ICBM/CRUISE MISSILE TECH SCHOOL</li> </ul> </li> <li>- AWARD 3-LEVEL</li> <li>- AWARD OF BASIC MISSILE BADGE</li> </ul>
12 MONTHS	<ul style="list-style-type: none"> <li>- ENROLL IN 5-LEVEL CDC</li> <li>- BEGIN 5-LEVEL CORE TASK TRAINING</li> </ul>
24 MONTHS	<ul style="list-style-type: none"> <li>- COMPLETE CDC</li> <li>- COMPLETE CORE TASK TRAINING</li> </ul>
36 MONTHS	<ul style="list-style-type: none"> <li>- PROMOTE E-4/AWARD 5-LEVEL</li> <li>- ADDITIONAL CONTINUATION TRAINING</li> </ul>
48 MONTHS	<ul style="list-style-type: none"> <li>- AIRMAN LEADERSHIP SCHOOL</li> <li>- TRAINER DUTIES</li> </ul>
6.5 YEARS	<ul style="list-style-type: none"> <li>- PROMOTION TO E-5</li> <li>- BEGIN 7-LEVEL CORE TASK TRAINING</li> <li>- BEGIN 7-LEVEL CDCs</li> </ul>
8 YEARS	<ul style="list-style-type: none"> <li>- 18 MONTHS TIG AS SSGT</li> <li>- COMPLETE 7-LEVEL CDCs</li> <li>- COMPLETE CORE TASK TRAINING</li> </ul>
11 YEARS	<ul style="list-style-type: none"> <li>- SELECTION FOR PROMOTION TO E-6</li> <li>- AWARD 7-LEVEL</li> <li>- NCO ACADEMY</li> <li>- AWARD OF SENIOR MISSILE BADGE</li> </ul>
14 YEARS	<ul style="list-style-type: none"> <li>- SELECTION FOR PROMOTION TO E-7</li> <li>- ADVANCED TRAINING COURSES</li> </ul>

## **2M0X1 MISSILE AND SPACE SYSTEMS ELECTRONICS SPECIALTY TRAINING FLOW**

16 YEARS	- AWARD OF MASTER MISSILE BADGE
18 YEARS	- SELECTION FOR PROMOTION TO E-8 - SENIOR NCO ACADEMY - AWARD 9-LEVEL
23 YEARS	- SELECTION FOR PROMOTION TO E-9

### **Part I**

#### **Section C - SKILL LEVEL TRAINING REQUIREMENTS**

1. **Purpose.** The various skill levels in the career field are defined in terms of tasks and knowledge requirements for each skill level in the missile and space systems Electronics Specialty. They are stated in broad, general terms and establish the standards of performance. The specific task and knowledge training requirements are identified in the STS.

#### **2. Missile and Space Systems Electronics Apprentice (3-skill level).**

##### 2.1. Specialty Qualifications.

2.1.1. Knowledge. Knowledge is desirable of electronic theory, circuitry, and schematic diagrams.

2.1.2. Education. Completion of high school is required with courses in mathematics and physics desirable.

2.1.3. Training. The following requirements are mandatory for award of the three skill level:

2.1.3.1. Completion of the in-residence Electronics Principles course.

2.1.3.2. Completion of either the in-residence ICBM Missile Systems Electronics Apprentice course or the in-residence Air Launched Missile Systems Electronics Apprentice Course.

2.1.3.3. Shotgun familiarization and live fire of the weapon.

2.1.4. Other. Any record of emotional instability precludes entry, award, and retention of AFSC 2M0X1. Normal color vision as defined in AFI 48-143 is mandatory for entry into this AFSC. Eligibility for a Top Secret security clearance according to AFI 31-501 is mandatory for award of the 2M031A and 2M031B. Eligibility for Personnel Reliability Program certification IAW AFPAM 48-133 is mandatory to complete core requirements and upgrade to the 5-skill level.

2.2. Training Sources/Resources. Completion of one of the basic Missile and Space Systems Electronics Courses at Vandenberg AFB, CA satisfies the knowledge and training requirements for the award of the 3-skill level. A list of all training courses to support education and training is in Part II, Section C of this CFETP.

### **3. Missile and Space Systems Electronics Journeyman (5-skill level).**

#### 3.1. Specialty qualifications.

3.1.1. Knowledge. Knowledge is mandatory of electronic theory, circuitry, and schematic diagrams.

3.1.2. Education. Completion of high school is required with courses in mathematics and physics desirable.

3.1.3. Training. The following requirements are mandatory for award of the 5-skill level:

3.1.3.1. Completion of mandatory requirements in AFI 36-2201.

3.1.3.2. Completion of the 5-skill level CDC 2M051.

3.1.3.3. Qualification on applicable 5-skill level core tasks for the assigned weapon system if individual is assigned to a location that performs those tasks. This item is waived for individuals in upgrade training assigned to locations that do not perform core tasks.

3.1.4. Experience. Experience is mandatory in electro-mechanical team tasks or in Cruise missile maintenance tasks.

3.1.5. Other. Any record of emotional instability precludes entry, award, and retention of AFSC 2M0X1. Normal color vision as defined in AFI 48-143 is mandatory for entry into this AFSC. Eligibility for a Top Secret security clearance according to AFI 31-501 is mandatory for award and a Secret security clearance for retention of this AFSC. Eligibility for Personnel Reliability Program certification IAW AFPAM 48-133 is mandatory to complete core requirements and upgrade to the 5-skill level.

3.2. Five level core tasks - All 2M031A and 2M031B personnel shall be qualified/certified on the applicable weapon system core tasks before being awarded a 5 skill-level. See the appropriate portion of the STS for a list of core tasks.

3.2.1. 2M051 Core Tasks (ICBM). All 2M031A personnel will complete mandatory 2M051 core tasks listed in Attachment 2 of the 2M051/2M071 STS.

3.2.2. 2M051 Core Tasks (CM). All 2M031B personnel will complete mandatory 2M051 core tasks listed in Attachment 4 of the 2M051/2M071 STS. Completion of 5-level core tasks can be accomplished on ALCM, CALCM or ACM.

3.2.3. Training Sources/Resources. The STS identifies all the core tasks required for qualification in the individual's weapon system. Qualified trainers provide UGT and QT. Continuation (Advanced) training courses are available and individuals should attend based on training needs and duty position requirements. A list of all training courses to support education and training is in Part II, Section C of this CFETP.

3.2.4. Implementation. Entry into 5-level upgrade training may be initiated when an individual possesses the 3-skill level and has been assigned to the base. Then, the individual may be enrolled in the 2M051 CDC upon recommendation of the supervisor. Qualification training is initiated any time an individual is assigned duties he/she is not qualified to perform (i.e. crossflows between ICBM and Cruise Missiles).

#### **4. Missile and Space Systems Electronics Craftsman (7-skill level).**

##### 4.1. Specialty Qualifications.

4.1.1. Knowledge. Knowledge is mandatory of electronic systems that apply to missiles, spacelift boosters, payloads, cruise missiles, Research and Development systems, associated launch systems, and aerospace ground equipment; electronic theory, circuitry, schematic diagrams.

4.1.2. Education. To assume the grade of SSgt and MSgt, individuals must be graduates of the Airman Leadership School and NCO Academy, respectively.

4.1.3. Training. The following requirements are mandatory for award of the 7-skill level:

4.1.3.1 Completion of mandatory requirements in AFMAN 36-2108.

4.1.3.2. Completion of the 7-skill level CDC 2M071.

4.1.3.3. Qualification on all applicable 7-skill level core tasks.

4.1.4. Experience. Qualification is mandatory as a Missile and Space Systems Electronics Journeyman. Also, experience is mandatory in performing or supervising functions in 2M0X1 production workcenters.

4.1.5. Other. Any record of emotional instability precludes entry, award, and retention of AFSC 2M0X1. Normal color vision as defined in AFI 48-143 is mandatory for entry into this AFSC. Eligibility for a Secret security clearance according to AFI 31-501 is mandatory for award and retention of this AFSC.

4.2. Seven level core tasks - All 2M051 personnel must obtain qualification on 7-level core tasks identified in Attachment 1, Common 2M0XX Missile & Space Maintenance Tasks.

4.3. Training Sources/Resources. The STS identifies all the core tasks required for qualification in the individual's duty position. Qualified trainers provide UGT and QT.

Continuation (Advanced) training courses are available and individuals should attend based on training needs and duty position requirements. A list of all training courses to support education and training is in Part II, Section C of this CFETP.

4.4. Implementation. Entry into 7-level upgrade training is initiated when an individual possesses the 5-skill level and has been selected for promotion to the grade of SSgt. Qualification training is initiated any time an individual is assigned duties he/she is not qualified to perform.

## **5. Missile and Space Systems Superintendent (9-skill level).**

### **5.1. Specialty Qualifications.**

5.1.1. Knowledge. Possess advanced skills and knowledge of ICBM, Cruise missiles, R&D systems, and Spacelift operations.

5.1.2. Education. To assume the grade of CMSgt, individuals must be graduates of the Senior NCO Academy.

5.1.3. Training. Completion of mandatory requirements in AFMAN 36-2108.

5.1.4. Experience. Qualification as one of the following is mandatory: Missile and Space Systems Electronics Craftsman, Missile and Space Systems Maintenance Craftsman, or Missile and Space Systems Facilities Craftsman.

5.1.5. Other. Any record of emotional instability precludes entry, award, and retention of AFSC 2M090. Normal color vision as defined in AFPAM 48-133 is mandatory for entry into this AFSC. Eligibility for a Secret security clearance according to AFI 31-501 is mandatory for award and retention of this AFSC.

5.2. Training Sources/Resources. A list of all training courses to support education and training is in Part II, Section C of this CFETP.

5.3. Implementation. Entry into OJT is initiated when an individual possesses the 7-skill level and is a SMSgt selectee. Qualification training is initiated any time an individual is assigned duties he/she is not qualified to perform. 9-level is awarded at sew-on of SMSgt.

## **PART I**

### **Section D - RESOURCE CONSTRAINTS**

1. **Purpose.** This section of CFETP identifies known resource constraints which preclude minimal/desired training from being developed or conducted. This section includes a narrative explanation of each resource constraint and impact statement describing what effect each constraint has on training. Also identified in this section are the resources needed to satisfy training requirements, include information such as part numbers, national stock numbers, number

of units required, cost, manpower, etc. Finally, this section includes action required, identifies the OPR, and establishes target completion dates. Resource constraints will be, at a minimum, reviewed and updated annually.

**None identified.**



**PART II**  
**Section A - SPECIALTY TRAINING STANDARDS**

1. **Implementation.** This STS will be used for technical training provided by AETC for classes beginning 21 Oct 2002 (for the 2M0X1A course) and 10 Sep 2002 (for the 2M0X1B course).

2. **Purpose.** This section identifies the specific task and knowledge training requirements required for personnel to be awarded specific skill levels and perform duties in AFSC 2M0X1. This section contains:

2.1. Section A1 - The Proficiency Code Keys. The proficiency code key is used to indicate level of training and knowledge provided by resident training and career development courses. This proficiency code key applies to the training standards in section A2 through A5.

2.2. Section A2 - The Course Training Standard for the Electronic Principles Course. This course is a prerequisite for all personnel attending either the in-residence ICBM Missile Systems Electronics Apprentice course or the in-residence Air Launched Missile Systems Electronics Apprentice course.

2.3. Section A3 - The STS and all Attachments for the 2M0X1X are located in section A3.

2.3.1. Section A3a - The 2M031A STS (for the ICBM course). This document identifies the task and knowledge requirements used to develop the 2M0X1A course.

2.3.2. Section A3b - The 2M0X1B STS (for the Air Launched Missile course). This document identifies the task and knowledge requirements used to develop the 2M0X1B course.

2.3.3. Section A3c - The 2M051/2M071 STS and Attachments. The 2M051/2M071 STS identifies the task and knowledge requirements for development of the 5-and 7-level CDCs for the 2M0X1 career field. Attachments to the 2M051/2M071 STS list the qualification tasks for specific weapon systems/duties of the 2M0X1 career field. These attachments also identify the core tasks and any critical tasks.

3. Qualification training will be documented on the appropriate attachment of the 2M051/2M071 STS unless the AFCFM has approved the use of other training systems to document and manage the training of 2M0X1 personnel.

**Part II**  
**Section A1**

<b>PROFICIENCY CODE KEY</b>		
	<b>SCALE VALUE</b>	<b>DEFINITION: The individual</b>
<b>Task Performance Levels</b>	1	Can do simple parts of the task. Needs to be told or shown how to do most of the task. (EXTREMELY LIMITED)
	2	Can do most parts of the task. Needs help only on hardest parts. (PARTIALLY PROFICIENT)
	3	Can do all parts of the task. Needs only a spot check of completed work. (COMPETENT)
	4	Can do the complete task quickly and accurately. Can tell or show others how to do the task. (HIGHLY PROFICIENT)
<b>*Task Knowledge Levels</b>	a	Can name parts, tools, and simple facts about the task. (NOMENCLATURE)
	b	Can determine step by step procedures for doing the task. (PROCEDURES)
	c	Can identify why and when the task must be done and why each step is needed. (OPERATING PRINCIPLES)
	d	Can predict, isolate, and resolve problems about the task. (COMPLETE THEORY)
<b>**Subject Knowledge Levels</b>	A	Can identify basic facts and terms about the subject. (FACTS)
	B	Can identify relationship of basic facts and state general principles about the subject. (PRINCIPLES)
	C	Can analyze facts and principles and draw conclusions about the subject. (ANALYSIS)
	D	Can evaluate conditions and make proper decisions about the subject. (EVALUATION)
<p><i>EXPLANATIONS</i></p> <p>* A task knowledge scale value may be used alone or with a task performance scale value to define a level of knowledge for a specific task. (Examples: b and 1b)</p> <p>** A subject knowledge scale value is used alone to define a level of knowledge for a subject not directly related to any specific task, or for a subject common to several tasks.</p> <p>X This mark is used alone instead of a scale value to show that no proficiency training is provided in the course.</p> <p>- This mark is used alone in course columns to show that training is required but not given due to limitations in resources.</p>		

**PART II**  
**Section A2**

DEPARTMENT OF THE AIR FORCE ..... CTS L3ATR40020 002  
37 Training Group..... PDS Code (See Paragraph 2)  
Lackland Air Force Base, Texas 78236-5417.....21 September 1999

**ELECTRONIC PRINCIPLES**  
**Condensed Course**

1. Implementation of training in support of this CTS is with the first class after 1 October 2000.
2. Purpose. This course training standard:
  - 2.1. Establishes the training requirements using tasks, knowledge, and proficiency levels of training for the following courses:

**PDS Code PO4 (34 days):**

L3AQR2A331A 332 (PDS Code PO4)  
L3AQR2A331B 332 (PDS Code PO4)  
L3AQR2A331C 332 (PDS Code PO4)  
L3AQR2A332 332 (PDS Code PO4)  
L3AQR2A533A 332 (PDS Code PO4)  
L3AQR2A533A 333 (PDS Code PO4)  
L3AQR2A533B 332 (PDS Code PO4)  
L3AQR2A533C 332 (PDS Code PO4)  
L3AQR2M031A 332 (PDS Code PO4)  
L3AQR2M031B 332 (PDS Code PO4)  
L3AQR2M033A 332 (PDS Code PO4)

**PDS Code PO5 (31 days):**

L3AQR2A131 301 (PDS Code PO5)  
L3AQR2A131 302 (PDS Code PO5)

**PDS Code PO6 (7 days):**

L3AQR2MO32A 701 (PDS Code PO6)

- 2.2. Provides the basis for the development of more detailed training materials, training objectives, and training evaluation instruments for the course.
- 2.3. Is derived from the Course Training Standard for the Electronic Principles Master Course L3ATR40020 001. The Master Course CTS permanently replaces the Electronics Fundamentals and Applications (EF&A) listing dated June 1996.

3. Course description. This course provides training in the knowledge and skills needed to perform the duties of maintenance personnel for several AFSCs. This course also trains selected DOD and International Military personnel, and is the prerequisite for follow-on courses either at Sheppard or Vandenberg AFB. The scope of training includes safety, first aid, Direct Current (DC) principles, Alternating Current (AC) principles, semiconductors, power supplies, amplifiers, waveshaping circuits, digital circuits, computer fundamentals, and soldering. The training day for this course is an 8 hour training day for each student. The scope of training is tailored to the prerequisites of the AFSCs. Trainees must be assigned as a student in one of the following AFSCs: 2A331X, 2A332, 2A533X, 2M031X, 2M032A, or 2M033A, international students destined for 2A131 factory training, or the civilian or other military equivalent. Specific course content is identified on the attached training matrix. AFSCs identified in previous EP Training Plans but not reflected above will be trained in the EP Master Course, L3ATR40020-001, which has its own Training Plan and CTS. There is one exception. Effective 1 October 2000, the 2E631 career field will merge into the 2E632 AFSC. Therefore 2E631 training will be discontinued after 1 October 2000.

4. Qualitative requirements: Attachment 1 contains the tasks, knowledge, and proficiency levels referenced in paragraph 2. Columns are marked with a proficiency code to indicate subjects taught. Trainees without prerequisites specified in Education & Training Course Announcement (ETCA) website cannot be expected to meet proficiency levels indicated.

5. Recommendations: Comments and recommendations are invited concerning quality of AETC training. Reference this CTS and address correspondence regarding changes to 37 Training Group/TTS, 1000 Mercury Drive, Lackland AFB, TX 78236-5717. Return the Field Evaluation Questionnaire (FEQ), to identify unsatisfactory performance of individual graduates. A Customer Service Information Line has been installed for the supervisor's convenience to identify graduates who may have received over or under training on task/knowledge items listed in this training standard. For a quick response to problems, call our Customer Service Information Line, DSN 473-2917, anytime day or night.

OFFICIAL

KENNETH M. FREEMAN, Colonel, USAF  
Commander

JESSE JOHNSON, MSgt, USAF  
Chief, Group IM

2 Attachments  
1. Qualitative Requirements  
2. Task Listing

Supersedes: None  
Prepared by: 342 TRS/DOR  
Distribution: See page i

**QUALITATIVE REQUIREMENTS**

	P04	P05	P06
<b>1. ELECTRONICS SUPPORT SUBJECTS</b>			
1.1. Safety	B	B	B
1.2. First Aid	B	B	B
1.3. Electrostatic Discharge (ESD) Control	B	B	-
1.4. Electromagnetic Effects (EMP/EMI)	B	B	-
1.5. Metric Notation			
1.5.1. Powers of Ten	B	B	B
1.5.2. Electrical Prefixes	B	B	B
<b>2. USE TEST EQUIPMENT</b>			
2.1. Analog Multimeter	2b	2b	2b
2.2. Digital Multimeter	2b	2b	2b
2.3. Oscilloscope	-	-	-
2.4. Signal Generator	-	-	-
<b>3. BASIC CIRCUITS</b>			
3.1. Direct Current (DC)			
3.1.1. Terms	B	B	B
3.1.2. Theory	B	B	B
3.1.3. Calculations	B	B	B
3.2. Alternating Current (AC)			
3.2.1. Terms	B	B	-
3.2.2. Calculations	B	B	-
<b>4. BASIC CIRCUIT COMPONENTS</b>			
4.1. Resistors			
4.1.1. Theory	B	B	B
4.1.2. Color Code	B	B	B
4.1.3. Troubleshoot	2b	2b	2b
4.2. Inductors			
4.2.1. Theory	B	B	-
4.2.2. Troubleshoot	2b	2b	-
4.3. Capacitors			
4.3.1. Theory	B	B	-
4.3.2. Troubleshoot	2b	2b	-
4.4. Resistive-Capacitive-Inductive (RCL) Circuits Theory			
4.4.1. Basic	-	-	-
4.4.2. Resonant	-	-	-
4.4.3. Frequency Sensitive Filter	-	-	-
<b>5. ELECTROMAGNETIC DEVICES</b>			
5.1. Transformers			
5.1.1. Theory	B	B	-
5.1.2. Troubleshoot	2b	2b	-

	P04	P05	P06
5.2. Relays and Solenoids			
5.2.1. Theory	B	B	-
5.2.2. Troubleshoot Relays	2b	2b	-
5.3. Motor Theory			
5.3.1. Direct Current (DC)	B	B	-
5.3.2. Alternating Current (AC)	B	B	-
5.4. Generator Theory			
5.4.1. Direct Current (DC)	B	B	-
5.4.2. Alternating Current (AC)	B	B	-
5.5. Synchro/Servo			
5.5.1. Theory	B	B	-
5.5.2. Fault Isolate	b	b	-
5.6. Transducer Theory	B	B	-
<b>6. SOLID STATE DEVICES</b>			
6.1. Diodes			
6.1.1. Theory	B	B	-
6.1.2. Troubleshoot	2b	2b	-
6.2. Bipolar Junction Transistors			
6.2.1. Theory	B	B	-
6.2.2. Troubleshoot	2b	2b	-
6.3. Special Purpose Device Theory			
6.3.1. Zener Diode	B	B	-
6.3.2. Light Emitting Diode (LED)	B	B	-
6.3.3. Liquid Crystal Display (LCD)	B	B	-
6.3.4. Integrated Circuits (IC)	B	B	-
6.3.5. Metal Oxide Semiconductor Field Effect Transistor (MOSFET)	-	-	-
6.3.6. Operational Amplifiers	-	-	-
<b>7. TRANSISTOR AMPLIFIER CIRCUITS</b>			
7.1. Theory	-	-	-
7.2. Stabilization	-	-	-
7.3. Coupling	-	-	-
7.4. Troubleshoot	-	-	-
<b>8. POWER SUPPLY CIRCUITS</b>			
8.1. Theory			
8.1.1. Rectifiers	B	B	-
8.1.2. Filters	B	B	-
8.1.3. Voltage Regulators	B	B	-
8.2. Troubleshoot	-	-	-
<b>9. WAVE GENERATING CIRCUITS</b>			
9.1. Theory			
9.1.1. Oscillators	B	B	-

	P04	P05	P06
9.1.2. Multivibrators	B	B	-
9.1.3. Wave shaping Circuits	B	B	-
9.2. Fault Isolate	-	-	-
<b>10. DIGITAL NUMBERING SYSTEMS</b>			
10.1. Conversions			
10.1.1. Binary	B	B	-
10.1.2. Octal	B	B	-
10.1.3. Hexadecimal	B	B	-
10.1.4. Binary Coded Decimal	B	B	-
10.2. Binary Math Operations	B	B	-
<b>11. DIGITAL LOGIC CIRCUITS</b>			
11.1. Theory			
11.1.1. Gates	B	B	-
11.1.2. Flip-flops	B	B	-
11.1.3. Counters	-	-	-
11.1.4. Registers	-	-	-
11.1.5. Combinational Logic Circuits	-	-	-
11.2. Troubleshoot	-	-	-
11.3. Digital to Analog (DA) and Analog to Digital (AD) Converters Theory	A	A	-
<b>12. BASIC COMPUTER FUNDAMENTALS</b>			
12.1. Computer Theory			
12.1.1. Hardware	B	B	-
12.1.2. Software			
12.1.2.1. Operating Systems	B	B	-
12.1.2.2. Virus Protection	B	B	-
12.1.2.3. Diagnostics	B	B	-
12.1.2.4. Applications	B	B	-
12.1.3. Peripherals	B	B	-
12.2. Network Theory			
12.2.1. Components	-	-	-
12.2.2. Types	-	-	-
12.2.3. Topologies	-	-	-
12.2.4. Communication Mediums	-	-	-
<b>13. BASIC COMMUNICATIONS THEORY</b>			
13.1. Antenna	B	B	-
13.2. Transmission Lines	B	B	-
13.3. Wave guides	B	B	-
13.4. Transmitters			
13.4.1. Amplitude Modulation (AM)	B	B	-
13.4.2. Frequency Modulation (FM)	B	B	-
13.5. Receivers			

	P04	P05	P06
13.5.1. Amplitude Modulation (AM)	B	B	-
13.5.2. Frequency Modulation (FM)	B	B	-
<b>14. SOLDER AND DESOLDER</b>			
14.1. Terminal Connection	2b	-	-
14.2. Printed Circuit Board (PCB)	2b	-	-
14.3. Multipin Connector	2b	-	-
14.4. Coaxial Connector	2b	-	-
<b>15. ASSEMBLE SOLDERLESS CONNECTORS</b>			
15.1. Crimped Connection	2b	-	-
15.2. Coaxial Connector	2b	-	-
15.3. Multipin Connector	2b	-	-



**PART II**  
**Section A3**  
**SPECIALTY TRAINING STANDARDS (STS)**

**The 2M0X1 AFSC has three STSs. There is a separate 3-level STS for each suffix (2M0X1A and 2M0X1B) and a single STS for the 5-/7-level 2M0X1. 2M0X1 personnel loose their “A” or “B” suffix when they are awarded their five skill level.**

**PART II**  
**Section A3a**  
**AFSC 2M031A STS**

1. **Purpose.** As prescribed in AFI 36-2201 this STS:

1.1. Lists the tasks, knowledge, and technical references (TR) necessary for airmen to be awarded the 3-skill level in the 2M031A Missile and Space Systems Electronics ladder of the Missile and Space Systems Career Field. These are based on an analysis of the duties in AFI 36-2108. Those tasks marked with an asterisk (\*) will be trained in the resident wartime initial skills course.

**Note: Users are responsible for annotating training references to identify current references pending STS revision.**

1.2. Show formal training requirements. The basic STS shows the level to which the Technical Training Unit for course 2M031A as described in ETCA, located on the HQ 2AF website has accomplished task/knowledge training. When two codes are used in the same task proficiency column, the first code is the established requirement for resident training on the task/knowledge, and the second code indicates the level of training provided in the course due to equipment shortages or other resource constraints.

2. **Proficiency Code Keys.** The proficiency code key (see page 23) is used to indicate level of training and knowledge provided by resident training and career development courses.

3. **Recommendations.** Report unsatisfactory performance of individual course graduates using AF Form 1284 as prescribed in AFI 36-2201. Report inadequacies and suggested corrections to this STS to the 2M0XX AFCFM through the MAJCOM functional manager. All approved changes to this CFETP will be forwarded to 532 TRS/DOAT, 597 7th St, Vandenberg AFB, CA, 93437-5305.

4. This STS supersedes AFSC 2M031A STS in CFETP 2M0X1, Parts 1 - 2, 31 Oct 2000.

MICHAEL E. ZETTLER, Lt General, USAF  
DCS/Installations & Logistics

**AFSC 2M031A STS**  
**MISSILE AND SPACE SYSTEMS ELECTRONIC MAINTENANCE (ICBM APPRENTICE)**

ITEM #	TASK / KNOWLEDGE ITEM	3 LEVEL COURSE
<b>1</b>	<b>AF OCCUPATIONAL SAFETY AND HEALTH (AFOSH) PROGRAM</b> <b>TR: AFI 91-X, 91-104, 91-105, 91-107, 91-114, 91-201, 91-202, 91-301, 32-7041, 32-7042; 40 CFR Part 261, 262; 29 CFR Part 1910; 40 CFR Part 761; 49 CFR Part 107, 120, 172; AFOSH 161-21; TOs 00-25-245, 31-1-141, 21-LG118A-2-10, 21M-LGM30G-2-10-(X), AFOSHTD 161-21.1W DoD Federal Hazard Communication Training Program</b>	
1a	Hazards of AFSC 2M0X1A/B	A
1b	Safety	A
1c	USAF Mishap Prevention Program	A
1d	Missile safety	A
1e	Nuclear surety	A
1f	Explosive safety	A
1g	Hazard report	A
1h	Environmental compliance	-
1h(1)	Overview of hazardous waste	A
1h(2)	Hazardous material	-
1h(2a)	Handler responsibilities	A
1h(2b)	Transportation requirements	A
1h(3)	Hazardous communication	B
1h(4)	Polychlorinated Biphenyls (PCBs)	A
<b>2</b>	<b>PUBLICATIONS</b> <b>TR: AFI 37-X, AFPD 21-3; AFSPCIND 0-7, AFSPCI 32-1009; TOs 0-1-01, 0-1-02, 00-5-1, 00-5-2</b>	
2a	Use standard publications	A
2b	Technical order system	-
2b(1)	Description	A
2b(2) *	Use technical orders	3c
2b(3) *	Initiate TO improvement report	A
2c *	CEMs	A
<b>3 *</b>	<b>HARDNESS ASSURANCE PROGRAM</b> <b>TR: AFI 32-1054; TOs 21-LG118A-2-10, 21M-LGM30G-2-31, 21M-LGM30G-2-10</b>	A
<b>4</b>	<b>COMMON MAINTENANCE PRACTICES</b> <b>TR: AFIs 32-1054, 21-105; AFSPCI 21-1005; TOs 00-25-234, 32-1-2, 32-1-151, 32-2-101, 32B14-3-1-101, 1-1-2, 1-1A-8, 1-1A-15, 21-LG118A-2-10, 21M-LGM30G-2-10-(x), 21M-LGM30F-112</b>	
4a *	Use Tools	3c
4b	Use aerospace hardware	B
4c	Corrosion identification	A
4d	RFI/EMI gaskets	-
4d(1) *	Inspect	3c

**AFSC 2M031A STS**  
**MISSILE AND SPACE SYSTEMS ELECTRONIC MAINTENANCE (ICBM APPRENTICE)**

<b>ITEM #</b>	<b>TASK / KNOWLEDGE ITEM</b>	<b>3 LEVEL COURSE</b>
4d(2) *	Repair	b
4e	Electrostatic Discharge (ESD) Control Procedures	-
4e(1)	Perform printed circuit board handling and storage procedures	3c
4e(2)	Perform ESD control procedures	3c
<b>5</b>	<b>CODE HANDLING PROCEDURES</b> TR: AFSPCI 91-1005	A
<b>6</b>	<b>WEAPON SYSTEM DESCRIPTION (WS 133A/B and WS 118A)</b> TR: TOs 21-LG118A-1, 21-LG118A-2-1, 21-LG118A-2-10, 21M-LGM30G-1-1, 21M-LGM30G-2-1-X, 21M-LGM30G-2-10-(x)	
6a	Missile	A
6b	Launch Facility	A
6c	Missile Alert Facility	A
<b>7</b>	<b>ACCESS SYSTEMS</b> TR: TOs, 21M-LGM30F-2-19, 21-LG118A-1, 21-LG118A-2-10, 21M-LGM30G-1-1, 21M-LGM30G-2-10-(x)	
7a	Description	B
7b	Electro-mechanical Linear Actuator	-
7b(1) *	Adjust	2b
7b(2) *	Troubleshoot	2b
7b(3) *	Repair	2b
7c	Perform security pit door lockout break-in procedures	A
7d	Secondary door	-
7d(1) *	Change lock combination	3b
7d(2)	Troubleshoot	2b
7d(3) *	Repair	2b
7e	Telescoping ladder	-
7e(1) *	Inspect	2b
7e(2) *	Repair	2b
7f	Security pit vault door	-
7f(1) *	Repair	2b
7f(2) *	Troubleshoot	2b
<b>8</b>	<b>COMMAND AND CONTROL (WS133A/B)</b> TR: TOs 21M-LGM30G-2-1-X, 21M-LGM30G-2-12-X, 21M-LGM30G-1-1, 21M-LGM30G-2-12-2	
8a	Description	B
8b	Replace keying variable	3c
8c	REACT console	-
8c(1) *	Checkout	2b
8c(2) *	Repair	2b
8c(3) *	Replace circuit card assembly	2b

**AFSC 2M031A STS**  
**MISSILE AND SPACE SYSTEMS ELECTRONIC MAINTENANCE (ICBM APPRENTICE)**

ITEM #	TASK / KNOWLEDGE ITEM	3 LEVEL COURSE
<b>9</b>	<b><i>INTRASITE CABLING SYSTEM (WS133A/B AND WS118A)</i></b> <b>TR: TOs 21-LG118A-1, 21-LG118A-2-21- (X), 21M-LGM30G-1-1, 21M-LGM30G-2-1-X, 21M-LGM30G-2-21-X</b>	
9a	Description	B
9b	LF electrical filter assembly	-
9b(1)	Checkout	B
9b(2)	Repair	B
9c	LF electrical surge arrestor	-
9c(1)	Checkout	B
9c(2)	Replace	B
9d	Checkout intrasite cables	B
9e	LF interconnecting box	-
9e(1) *	Checkout	B
9e(2) *	Repair	B
<b>10</b>	<b><i>MISSILE ALERT FACILITY</i></b> <b>TR: TO 21M-LGM30G-2-11</b>	
10a	Launch control center motor generator	-
10a(1) *	Start up and load	2b
10a(2) *	Unload and Shutdown	2b
<b>11</b>	<b><i>LAUNCH FACILITY</i></b> <b>TR: TO 21M-LGM30G-2-10</b>	
11a	LSB	-
11a(1) *	Enter	1b
11a(2) *	Exit	1b
11b	LER <b>(See note 5)</b>	-
11b(1) *	Enter	1b
11b(2) *	Exit	1b
11c *	Perform emergency shutdown procedures	1b
11d *	Evacuate LF for EWO launch	1b
11e *	Perform emergency procedures for electrical isolation of LSB	1b
11f *	Perform LF hostile securing procedures	1b
11g	Raise/lower equipment	1b
<b>12</b>	<b><i>MISSILE</i></b> <b>TR: TOs 21M-LGM30G-2-1-X, 21M-LGM30G-2-12-X</b>	
12a	Startup and coding operations description	B
12b *	Change Command Signal Decoder Missile, CSD (M) code	3c
12c *	Downgrade computer memory information	3c
12d *	Perform normal AVE/OGE shutdown	3c
12e *	Start up AVE/OGE	3c
12f *	Load computer memory	3c

**AFSC 2M031A STS**  
**MISSILE AND SPACE SYSTEMS ELECTRONIC MAINTENANCE (ICBM APPRENTICE)**

ITEM #	TASK / KNOWLEDGE ITEM	3 LEVEL COURSE
12g *	Readout and record local data words	2b
<b>13</b>	<b>MISSILE GUIDANCE SET COOLING SYSTEM</b> <b>TR: TOs 21M-LGM30G-1-1, 21M-LGM30G-2-1-X, 21M-LGM30G-2-6</b>	
13a	Description	B
13b *	Checkout	3b
13c *	Troubleshoot	3b
13d *	Repair	2b
<b>14</b>	<b>POWER SYSTEM (WS133A/B AND WS118A)</b> <b>TR: TOs 21-LG118A-1, 21-LG118A-2-11-(1), 21M-LGM30G-1-1, 21M-LGM30G-2-11-X, 21M-LGM30G-2-1-X; CEM 21M-SM80X-2-21-X</b>	
14a	Description	B
14b	LF Storage batteries	-
14b(1) *	Checkout	3c
14b(2) *	Replace	2b
14c	LF battery charger set	-
14c(1) *	Checkout	3c
14c(2) *	Replace	2b
14d	LF distribution box	-
14d(1) *	Checkout	2b
14d(2) *	Repair	2b
14e *	Checkout LCC motor generator set	2b
14f *	Checkout LF motor generator set	2b
14g *	Perform power fault to ground checkout	2b
14h	LCC power supply group	-
14h(1) *	Checkout	3b
14h(2) *	Repair	2b
14i	LF power supply group	-
14i(1) *	Checkout	2b
14i(2) *	Repair	2b
<b>15</b>	<b>SECURITY SYSTEM</b> <b>TR: TOs 21M-LGM30F-2-19, 21M-LGM30G-1-1, 21M-LGM30G-2-1-X, 21M-LGM30G-2-4</b>	
15a	Description	B
15b *	Perform system checkout	2b
<b>16 *</b>	<b>REPLACE ELECTRONIC DRAWER</b> <b>TR: TOs 21M-LGM30G-2-12-X, 21M-LGM30G-2-11-X, 21M-LGM30G-2-4</b>	3c
<b>17</b>	<b>STANDARD TEST EQUIPMENT</b> <b>TR: TO 31-1-141 Series, 33A1 Series; Applicable owner/user manuals</b>	
17a	Use analog multimeters	3c
17b	Use digital multimeters	3c

**AFSC 2M031A STS**  
**MISSILE AND SPACE SYSTEMS ELECTRONIC MAINTENANCE (ICBM APPRENTICE)**

ITEM #	TASK / KNOWLEDGE ITEM	3 LEVEL COURSE
	<b>NOTE 1: Items in column 1 marked with an asterisk (*) are tasks that are trained in resident wartime course</b>	
	<b>NOTE 2: Applicable AFSC job oriented safety training is integrated throughout the course</b>	
	<b>NOTE 3: Applications of the USAF technical data systems are integrated throughout the course</b>	
	<b>NOTE 4: Mission Ready Airman tasks ("3c" level) will be certified by the technical school in the applicable attachment (identified with a "3" in the core task column)</b>	
	<b>NOTE 5: This task requires initial shotgun familiarization</b>	

**PART II**  
**Section A3b**

**AFSC 2M031B STS**

1. **Purpose.** As prescribed in AFI 36-2201 this STS:

1.1. Lists the tasks, knowledge, and technical references (TR) necessary for airmen to be awarded the 3-skill level in the 2M031B Missile and Space Systems Electronics ladder of the Missile and Space Systems Career Field. These are based on an analysis of the duties in AFI 36-2108. Those tasks marked with an asterisk (\*) will be trained in the resident wartime initial skills course.

**Note: Users are responsible for annotating training references to identify current references pending STS revision.**

1.2. Show formal training requirements. The basic STS shows the level to which the Technical Training Unit for course 2M031B as described in ETCA, located on the HQ 2AF website has accomplished task/knowledge training. When two codes are used in the same task proficiency column, the first code is the established requirement for resident training on the task/knowledge, and the second code indicates the level of training provided in the course due to equipment shortages or other resource constraints.

2. **Proficiency Code Keys.** The proficiency code key (see page 23) is used to indicate level of training and knowledge provided by resident training and career development courses.

3. Report unsatisfactory performance of individual course graduates using AF Form 1284 as prescribed in AFI 36-2201. Report inadequacies and suggested corrections to this STS to the 2M0XX AFCFM through the MAJCOM functional manager. All approved changes to this CFETP will be forwarded to 532 TRS/DOAT, 597 7th St, Vandenberg AFB, CA, 93437-5305.

4. This STS supersedes AFSC 2M031B STS in CFETP 2M0X1, Parts 1 - 2, 31 Oct 2000.

MICHAEL E. ZETTLER, Lt General, USAF  
DCS/Installation & Logistics

**AFSC 2M0X1B STS**  
**MISSILE AND SPACE SYSTEMS ELECTRONIC MAINTENANCE (CM APPRENTICE)**

ITEM #	TASK / KNOWLEDGE ITEM	3 LEVEL COURSE
<b>1</b>	<b>CAREER LADDER PROGRESSION</b> <b>TR: AFI 36-2101, 2M0X1 Career Field Education and Training Plan (CFETP), AFVA 36-212</b>	
1a	Progression in career ladder 2M0X1A/B	A
1b	Duties of AFSs 2M0X1A/B	A
<b>2</b>	<b>AF OCCUPATIONAL SAFETY AND HEALTH (AFOSH) PROGRAM</b> <b>TR: AFI 91-301</b>	
2a	Hazards of AFSC 2M0X1A/B <b>TR: AFI 91-301</b>	A
2b	Safety <b>TR: TOs 00-25-245, 21-AG129-2-1, 21M-AGM86-2-1, 21M-AGM86-2-3</b>	A
2c	USAF Mishap Prevention Program <b>TR: AFI 91-202, TO 31-1-141</b>	A
2d	Missile safety <b>TR: AFIs 91-107, 91-114, 91-202</b>	B
2e	Nuclear surety <b>TR: AFIs 91-104, 91-105, 91-202</b>	B
2f	Explosive safety <b>TR: AFIs 91-201, 91-202, 11N-W80.83-2</b>	B
2g	Hazard report <b>TR: AFI 91-202</b>	B
2h	Environmental compliance	-
2h(1)	Overview of hazardous waste <b>TR: AFIs 32-7041, 32-7042, 40 CFR Part 261, 262, 29 CFR Part 1910</b>	A
2h(2)	Hazardous material <b>TR: 49 CFR Part 107, 120, 172</b>	-
2h(2a)	Handler responsibilities	B
2h(2b)	Transportation requirements	B
2h(3)	Hazardous material pharmacy concept of operation <b>TR: ACC Environmental Program Guidance Document, Reference number 93-005, CSAF Action Memo P3, dated 7 Jan 93</b>	A
2h(4)	Hazardous communication <b>TR: 29 CFR Part 1910, AFOSH 161-21, AFOSHTD 161-21.1W DoD Federal hazard Communication Training Program</b>	B
<b>3</b>	<b>PUBLICATIONS</b> <b>TR: AFI 37-X, ACCI 21-101</b>	
3a	Use standard publications	2b
3b	Technical order system <b>TR: AFPD 21-3, TOs 00-5-1, 00-5-2</b>	-
3b(1)	Description	A
3b(2) *	Use technical orders	3c
3b(3)	Initiate TO improvement report	2b
<b>4</b>	<b>MAINTENANCE MANAGEMENT</b> <b>TR: AFPD 21-1, AFIs 21-114, 21-108, 38-101, 21-101</b>	
4a	Functions and responsibilities of missile and space organizations	A



**AFSC 2M0X1B STS**  
**MISSILE AND SPACE SYSTEMS ELECTRONIC MAINTENANCE (CM APPRENTICE)**

ITEM #	TASK / KNOWLEDGE ITEM	3 LEVEL COURSE
4b	Basic functions of missile/space maintenance units	A
4c	Maintenance data collection forms <b>TR: TO 00-20-2</b>	A
<b>5</b>	<b>COMMON MAINTENANCE PRACTICES</b> <b>TR: TOs 00-25-234, 1-1A-8, 1-1A-14, 1-1A-15</b>	
5a *	Use common hand tools <b>TR: TO 32-1-2, 32-2-101, 32-1-151</b>	3c
5b *	Use special tools <b>TR: TO 32B14-3-1-101</b>	3c
5c *	Use aerospace hardware <b>TR: TO 1-1A-8, 1-1A-14, 1-1A-15</b>	3c
5d *	Corrosion identification <b>TR: TO 1-1-2, 21M-AGM86-23, 21-AG129-23</b>	A
5e	Electrostatic Discharge (ESD) Control Procedures <b>TR: TO 00-25-234</b>	-
5e(1) *	Perform printed circuit board handling and storage procedures	3c
5e(2) *	Perform ESD control procedures	3c
<b>6</b>	<b>AIRCRAFT WEAPON INTEGRATION SYSTEM</b>	
6a	B-52H aircraft weapon integration system <b>TR: TO 1B-52H-2-38GA-1</b>	A
6b	B-2A aircraft weapon integration system <b>TR: TO 1B-2A-2-94GA</b>	A
<b>7</b>	<b>AGM-86B/C/D MISSILE SYSTEMS</b> <b>TR: TOs 11N-W80.83-2, 21M-AGM86-2-1, 21M-AGM86-2-3, 21M-AGM86-8-1, 21M-AGM86-8-3, 21M-AGM86-2-4, 21M-AGM86-8-5</b>	
7a	Systems	-
7a(1) *	Electrical	A
7a(2) *	Safe, arm and fuse	A
7a(3) *	Environmental control	A
7a(4) *	Propulsion	A
7a(5) *	Flight control	A
7a(6) *	Navigation	A
7b *	Interpret missile diagrams	2b
7c	Describe missile maintenance processes	-
7c(1) *	Engine fuel priming	A
7c(2) *	Missile fuel/defuel/emergency defueling <b>TR: TOs 21M-AGM86-31, 21M-AGM86-32, 21M-AGM86-33</b>	A
7c(3) *	Missile general repair	B
7c(4) *	Perform hardness critical procedures	3c
7c(5) *	Inspect RFI/EMI gaskets	3c
7d	Replace missile components	-
7d(1) *	Common missile radar altimeter	3c

**AFSC 2M0X1B STS**  
**MISSILE AND SPACE SYSTEMS ELECTRONIC MAINTENANCE (CM APPRENTICE)**

ITEM #	TASK / KNOWLEDGE ITEM	3 LEVEL COURSE
7d(2) *	Inertial navigation element	3c
7d(3) *	Engine	3c
7d(4) *	Rotary switch	3c
7d(5) *	Guided missile flight controller	3c
7d(6) *	Actuator controller	3c
7d(7) *	Warhead arming device	3c
7d(8) *	Flight data transmitter	3c
7d(9) *	Desiccant Assembly	3c
7e	Perform the following	-
7e(1) *	Aerosurface deployment/stowage	3c
7e(2) *	Missile transfer	3c
7e(3) *	Forward ECS leakage rate check	3c
7e(4) *	Engine leakage rate check	3c
7e(5) *	EED Squib Resistance Test (ICT)	3c
7e(6) *	Missile safe status check	3c
7f	Perform missile checkout	-
7f(1) *	ALCM level I	3c
7f(2) *	CALCM level I	B
7f(3) *	Flight load	b
7f(4) *	Isolate malfunctions	2b
<b>8</b>	<b>AGM-129A MISSILE</b> <b>TR: TOs 11N-W80.85-2, 21-AG129-2-1, 21-AG129-8-1</b>	
8a	Systems	-
8a(1) *	Electrical	A
8a(2) *	Warhead safe, arm, fuse	A
8a(3) *	Environmental control	A
8a(4) *	Pyrotechnic	A
8a(5) *	Fin control	A
8a(6) *	Propulsion	A
8a(7) *	Navigation and guidance	A
8a(8) *	Observables technology	A
8b *	Interpret missile diagrams	2b
8c	Describe the following maintenance processes <b>TR: TOs 21-AG129-2-1, 21-AG129-31</b>	-
8c(1) *	Engine fuel priming	A
8c(2) *	Fuel/defuel/emergency defuel	A
8c(3)	Missile general repair	b

**AFSC 2M0X1B STS**  
**MISSILE AND SPACE SYSTEMS ELECTRONIC MAINTENANCE (CM APPRENTICE)**

ITEM #	TASK / KNOWLEDGE ITEM	3 LEVEL COURSE
8c(4) *	Perform hardness critical procedures	3c
8c(5) *	Inspect RFI/EMI gasket	3c
8d	Replace missile components	-
8d(1) *	Sensor set	3c
8d(2) *	Engine	3c
8d(3) *	Aft avionics unit	2b
8d(4) *	Forward avionics unit	3c
8d(5) *	Navigation control set	3c
8d(6) *	Ice detector transducer	3c
8d(7) *	Air cycle cooling unit assembly	3c
8d(8) *	Desiccant assemblies	3c
8e	Perform the following <b>TR: TOs 11N-W80.85-2, 21-AG129-2-1</b>	-
8e(1) *	Missile transfer	3c
8e(2) *	ECS leak check	2b
8e(3) *	Environmental sealing checks	B
8e(4) *	Coating repair	2b
8e(5) *	Aerosurface deployment/stowage	3c
8e(6)*	Missile safe status check	3c
8f	Perform missile checkout <b>TR: TO 21-AG129-8-1</b>	-
8f(1) *	Level I	3c
8f(2) *	Isolate malfunctions	2b
8f(3) *	Flight load	b
<b>9</b>	<b>AIRCRAFT ROTARY LAUNCHER AND PYLON SYSTEMS</b> <b>TR: TOs 11G22-5-5-2, 11G22-5-5-8-19, 11L1-2-25-8-1, 11L1-2-25-8-4, 11N-L5001-2, 11N-L5005-8, 11N-L5006-2, 11N-L5006-8, 11N-T5162-2, 11N-T5162-8, 11N-T5166-2, 11N-T5166-8, 11N-T5167-2, 11N-T5167-8, 11N-T5168-2, 11N-T5168-8, 11N-T5169-2, 11N-T5169-8, 16W6-33-1, 16W6-33-8-1, 21-AG129-8-2, 21M-AGM86-8-2, 21M-AGM86-8-4</b>	
9a	Describe the operation of the following launcher/pylon systems	-
9a(1) *	Power	A
9a(2) *	Environmental control	A
9a(3) *	Monitor and control	A
9a(4) *	Mechanical	A
9b *	Interpret launcher/pylon diagrams	2b
9c	Perform launcher/pylon checkout	-
9c(1)	Empty pylon	b
9c(2)	Empty launcher	b

**AFSC 2M0X1B STS**  
**MISSILE AND SPACE SYSTEMS ELECTRONIC MAINTENANCE (CM APPRENTICE)**

ITEM #	TASK / KNOWLEDGE ITEM	3 LEVEL COURSE
9c(3)	Loaded launcher	b
9c(4)	Loaded pylon	b
9d	Perform Level III checkout	-
9d(1)	Decoder receiver	2b
9d(2)	Nuclear station logic unit	2b
9e	Isolate/repair malfunctions on the following	-
9e(1)	Decoder receiver	2b
9e(2)	Nuclear station logic unit	2b
<b>10</b>	<b>MISSILE SUPPORT AND TEST EQUIPMENT</b>	
10a *	State the operation and use of the missile support equipment <b>TR: TOs 11N-H5028-2, 11N-H5054-2, 11N-H5088-2, 11N-H5095-2, 11N-H5099-2, 11N-T5039-2, 11N-T5087-2, 11N-W80.83-2, 21-AG129-2-1, 21M-AGM86-31, 33D3-11-50-2, 33D5-14-20-1, 33D9-2-7-2, 33D9-5-42-1, 35D-1-193, 35D3-11-45-2, 35D3-11-50-2, 35D5-4-6-1, 35D9-38-56-1, 35M8-2-7-1, 37A9-6-2-1</b>	A
10b *	State the operation and use of the missile systems test equipment <b>TR: TOs 11N-H5028-2, 11N-H5088-2, 11N-H5095-2, 11N-T5113-2, 33D7-3-189-7, 33D7-16-19-1-1, 33D7-16-19-1-2, 33D7-38-127-1, 33D7-38-127-2, 33D7-44-233-1, 33D7-86-51-1, 33D9-16-9-1, 33D9-19-54-1, 33D9-19-54-8-1, 33D9-19-55-1, 33D9-19-58-11, 33D-19-81-1, 33D9-54-75-1, 33D9-54-75-8-1, 33D9-61-71-1, 33D9-61-71-21, 33D9-142-23-1, 33DA43-20-2, 35D3-11-50-2, 35D5-4-6-1, 33D9-122-20-1, 35M8-2-7-1</b>	A
<b>11</b>	<b>FUEL/DEFUEL SET A/F32R-5</b> <b>TR: TO 33D9-2-7-2</b>	
11a	Describe the operation of the following systems	-
11a(1) *	Shop air	A
11a(2) *	Nitrogen	A
11a(3) *	Fuel piping	A
11a(4) *	Vent	A
11a(5) *	Vacuum	A
<b>12</b>	<b>ELECTRONIC SYSTEM TEST SET (ESTS) AN/GSM263/A/F/G</b> <b>TR: TOs 33D9-61-71-1, 33D9-61-71-1-1, 33D9-61-71-4</b>	
12a *	State the purpose of the ESTS major components	A
12b *	Perform ESTS confidence test <b>TR: TO 33D9-61-71-7-1</b>	3c
<b>13</b>	<b>WEAPONS STORAGE AREA (WSA) FACILITIES/SUPPORT SYSTEMS</b> <b>TR: AFI 91-201</b>	
13a	Describe the following WSA facilities	-
13a(1)	Integrated maintenance facility	A
13a(2)	Unarmed Weapons Storage Facility (UWSF)	A
13a(3)	Weapons storage structures (igloos)	A
13b	Operation of WSA facility systems	-

**AFSC 2M0X1B STS**  
**MISSILE AND SPACE SYSTEMS ELECTRONIC MAINTENANCE (CM APPRENTICE)**

ITEM #	TASK / KNOWLEDGE ITEM	3 LEVEL COURSE
13b(1)	Fire suppression (halon/AFFF/water)	A
13b(2)	Static ground/lightning protection system	A
13b(3)	Overhead hoist/monorail	3c
13b(4)	Hydraulic/electrical/pneumatic systems	A
13b(5)	Cruise missile bulk fuel storage system	A
13b(6)	Security systems (sensors/alarms)	A
13b(7)	Weapons physical security/limits <b>TR: DOD 5210.41-M, AFI 31-101 Vols 1 &amp; 2, TOs 11N-20-1, 11N-20-7</b>	A
	<b>NOTE 1: Items in column 1 marked with an asterisk (*) are tasks that are trained in resident wartime course</b>	
	<b>NOTE 2: Applicable AFSC job oriented safety training is integrated throughout the course</b>	
	<b>NOTE 3: Applications of the USAF technical data systems are integrated throughout the course</b>	
	<b>NOTE 4: Mission Ready Airman tasks ("3c" level) will be certified by the technical school in the applicable attachment (identified with a "3" in the core task column)</b>	
	<b>NOTE 5: Users are responsible for annotating training references to identify current references pending STS revision</b>	

**PART II**  
**Section A3c**

**2M051/2M071 STS**

1. **Purpose.** As prescribed in AFI 36-2201, this STS:

1.1. Lists the tasks, knowledge, and technical references (TR) necessary for airmen to perform in the 3-, 5-, and 7-skill level in the Missile and Space Systems Electronics ladder of the Missile and Space Systems Career Field. These are based on an analysis of the duties in AFI 36-2108. Those tasks marked with an asterisk (\*) will be trained in the resident wartime initial skills course.

**Note: Users are responsible for annotating training references to identify current references pending STS revision.**

1.2. Show formal training requirements. The basic STS shows the level to which the Technical Training Unit for course 2M071 as described in ETCA, located on the HQ 2AF website has accomplished task/knowledge training. When two codes are used in the same task proficiency column, the first code is the established requirement for resident training on the task/knowledge, and the second code indicates the level of training provided in the course due to equipment shortages or other resource constraints.

1.3. Indicates the career knowledge provided in the 5-skill level and 7 skill level CDC. See ECI/AFSC/CDC listing maintained by the unit Enlisted Specialty Training (EST) manager for current CDCs or part II, section C of the CFETP.

1.4. Identifies Air Force core task training requirements for award of AFSCs 2M051 and 2M071.

1.5. Provides OJT certification columns to record completion of task and knowledge training requirements.

1.6. Is a guide for development of promotion tests used in the Weighted Airman Promotion System (WAPS). Senior NCOs with extensive practical experience in the career fields develop specialty Knowledge Tests (SKTs) at the USAF Occupational Measurement Squadron. The test samples knowledge of STS subject matter areas judged by test development team members to be the most appropriate for promotion to higher grades. Questions are based on the study references listed in the WAPS catalog. Individual responsibilities are in AFI 36-2605.

1.7. Serves as a Job Qualification Standard (JQS). Trainees are trained, evaluated and qualified to the go/no go level. "Go" means the individual can perform the task without assistance and meets local requirements for accuracy, timeliness, and correct use of procedures. This document may be automated in whole or part to reflect duty position requirements and qualifications. Partial automation requires annotation in the CFETP of location/system used to reflect duty position requirements/qualifications.

1.8. Upgrade Certification Procedures: Prior to upgrade, all 2M0X1 maintenance personnel, regardless of duty position, must satisfactorily complete upgrade training requirements identified in Part I, Section B, paragraph 3b for 5-level upgrade, paragraph 3c for 7-level upgrade, and paragraph 3d for 9-level upgrade. Trainees must also meet AFSC experience requirements outlined in AFI 36-2201 and AFMAN 36-2108. Work centers may add local upgrade tasks and non-mandatory tasks to the applicable attachment. Completion of non-mandatory tasks pertinent to the unit will continue to be accomplished, as tasks become available for training. See Part 1, Section C - Skill Level Training Requirements for a complete list of the applicable core tasks.

**2. Records Documentation.** Document training as follows:

2.1. Identification: Enter trainee, trainer, and certifying official information on the identification page (page 53 of this CFETP).

2.2. Certification: Certify tasks in pencil as follows:

2.2.1. Identify tasks required for current duty position by circling applicable task numbers and/or weapon system identifier.

2.2.1.1. If in skill level upgrade training, annotate required core tasks and other required tasks (as applicable) commensurate with the required upgrade skill level. (The only “circled” tasks should be the tasks required for the duty position.)

2.2.1.2. Once upgrade training is completed, remove the annotation for core-level tasks. (The only “circled” tasks should be the tasks required for the duty position.)

2.2.2. When task training starts, enter the training start date.

2.2.3. When the trainer and trainee agree to task proficiency, enter the completion date and both will initial the appropriate section of the STS. If third party certification is required, i.e. core tasks, task certification occurs when the appropriate certifier determines the trainee is proficient, and initials the certifying officials block for that task. Third party certifiers are mandatory for all core tasks and MAJCOM identified critical tasks (see AFI 36-2201 for exceptions). For non-core tasks, only the trainer’s initials in the trainer block are required for certification. Within a given CFETP, the certifier may be the same individual as the trainer provided they meet all requirements as a certifier (see AFI 36-2201), however, a single person cannot be the trainer and certifier for the same task. (NOTE: Certification can be performed without a demonstration/performance of the task (i.e. at the certifier’s desk)).

2.3. Decertification: To decertify an individual, who is no longer proficient in a task, erase the trainer’s initials. For core tasks, erase the certifier’s initials. Annotate 623a with reason for decertification.

2.4. Recertification: Task recertification requires some level of retraining. To recertify an individual on a previously certified task, erase the start date, completion date, trainee initials, and trainer initials. Recertify following the procedures in paragraphs 2.2.2. and 2.2.3. above.

2.5. Transcription: When necessary, e.g., a new CFETP is published, the supervisor or designated representative may transcribe the data to a new CFETP Part II. Following the transcription, annotate an AF Form 623a to explain the transcription actions. The supervisor will enter his or her name and initials following the explanation. This annotation will be the certifying process that ensures all applicable information was properly transferred from the old CFETP Part II. Transcription should be performed by the supervisor or a trainer or certifier (other than the person who the CFETP is for). Give the old CFETP Part II to the trainee to retain as training history. To transcribe data, the supervisor (or designated representative) will:

2.5.1. For tasks required in current duty position:

2.5.1.1. Identify required tasks for current duty position by circling the applicable task number in the new CFETP Part II.

2.5.1.2. Have the trainee initial in the “trainee block” in the new CFETP Part II.

2.5.1.3. Initial in the trainer or certifier block, for non core tasks as applicable in the new CFETP Part II. Initial in the certifier block for core tasks as applicable in the new CFETP Part II.

2.5.1.4. Enter the transcription date in the “comp date” column.

2.5.2. For tasks not required in current duty position:

2.5.2.1. Transcribe the previous “comp date” to the new “comp date” column.

2.5.2.2. Ensure all completion dates are transcribed from the old CFETP Part II to the new CFETP Part II.

2.6. Tasks that are not included in the STS may be added to a local attachment, provided the same format as the STS is used. These attachments will be reviewed annually during the CFETP review to determine if these tasks should be added to the CFETP Part II.

3. **Proficiency Code Keys**. The proficiency code key (see page 23) is used to indicate level of training and knowledge provided by resident training and career development courses.

4. Report inadequacies and suggested corrections to this CFETP to the 2M0XX AFCFM (DSN 222-9941) through your MAJCOM functional manager. All approved changes to this CFETP will be forwarded to 532 TRS/DOAT, 597th St, Vandenberg AFB, CA, 93437-5305.

5. This STS supersedes AFSC 2M051/2M071 STS in CFETP 2M0X1, Parts 1 - 2, 31 Oct 2000.

MICHAEL E. ZETTLER, Lt General, USAF  
DCS/Installations & Logistics

## 5 Attachments

1. Common Missile & Space Maintenance Tasks
2. ICBM Electronic Maintenance Tasks
3. Spacelift Electronic Maintenance Tasks
4. Cruise Missile Maintenance Tasks
5. AF Research Laboratory Tasks



**AFSC 2M051/2M071STS**  
**MISSILE AND SPACE SYSTEMS ELECTRONIC MAINTENANCE (JOURNEYMAN/CRAFTSMAN)**

ITEM #	TASK / KNOWLEDGE ITEM	5 LEVEL CDC	7 LEVEL CDC
<b>1</b>	<b>CAREER LADDER PROGRESSION</b> TR: AFI 36-2101; 2M0X1 Career Field Education and Training Plan (CFETP)		
1a	Progression in career ladder 2M0X1/A/B	B	-
1b	Duties of AFSC 2M0X1/A/B	B	-
<b>2</b>	<b>PUBLICATIONS</b> TR: AFI 37-X, AFPD 21-3, AFSPCIND 0-7, AFSPCI 32-1009; TOs 00-5-1, 00-5-2		
2a	Use standard publications	B	-
2b	Technical Order System	-	-
2b(1)	Description	B	-
2b(2)	Initiate TO improvement report	B	-
2c	Use CEMs	B	-
<b>3</b>	<b>MAINTENANCE MANAGEMENT</b> TR: AFP 80-24, AFPD 21-1; AFIs 21-108, 21-114, 32-1054, 38-101; AFSPCI 21-0114, ACCI 21-101, AFSPCI 21-0103, AFCSM 21-556 thru 21-579, SD 501-14, MCR 55-8; TOs 00-35D-54, 33D9-61-76-1, 21-LG118A-2-10, 21M-LGM30G-2-10-(1), 21M-LGM30G-2-31; Document #IMMP-SIOM, Vol 1 of 1, dated 21 Dec 95, Tutorials		
3a	Functions and responsibilities of missile and space organizations	B	B
3b	Functions of missile/space maintenance units	B	B
3c	Deficiency reports	A	B
3d	Hardness assurance program	B	-
3e	Improved Maintenance Management Program (IMMP)	B	B
3f	Core Automated Management System (CAMS)	B	-
3g	Reliability and maintainability	-	B
3h	Strategic Force accounting Module	-	B
<b>4</b>	<b>COMMON MAINTENANCE PRACTICES</b> TR: AFI 32-1054; TOs 00-25-234, 31-1-141, 32B14-3-1-101, 21-LG118A-2-10, 21M-LGM30F-112, 21M-LGM30G-2-10-(1), 21M-LGM30G-2-31		
4a	Use special tools	B	-
4b	Inspect RFI/EMI Gaskets	B	-
4c	Common troubleshooting theory/techniques	B	-
4d	Electrostatic Discharge (ESD) Control Procedures	B	-
<b>5</b>	<b>SPACE AND MISSILE SYSTEMS TEST/INSPECTION PROCESSES</b> TR: AFIs 99-1, 99-103; AFMCI 21-102; TOs 21M-LGM30G-1-17, 21M-LGM30G-1-18, 33D9-61-108-1		
5a	Test and evaluation	-	B
5b	Simulated Electronic Launch Minuteman/Peacekeeper (SELM/SELP)	-	B
5c	Analytical Condition Inspection (ACI)	-	B

**AFSC 2M051/2M071STS**  
**MISSILE AND SPACE SYSTEMS ELECTRONIC MAINTENANCE (JOURNEYMAN/CRAFTSMAN)**

ITEM #	TASK / KNOWLEDGE ITEM	5 LEVEL CDC	7 LEVEL CDC
<b>6</b>	<b>SPACELIFT SYSTEMS</b> TR: TITAN II SLV Propulsion Subsystem (GenCorp Aerojet dated: 1992); Atlas II AS & Titan IVB Type I Training; Delta II MLVIII Self Study Guide; AU-18 Space Handbook		
6a	Mission	A	-
6b	Vehicle configuration	-	-
6b(1)	Atlas II TR: Atlas II AS Type I Training	A	-
6b(2)	Delta II TR: AU-18 Space Handbook, MLVIII Self Study Guide	A	-
6b(3)	Titan II TR: TITAN II SLV Propulsion Subsystem (GenCorp Aerojet dated: 1992); AU-18 Space Handbook; MMC Study Guide 1001; VT2 1000	A	-
6b(4)	Titan IV TR: Titan IV B Type I Training	A	-
6b(5)	Other	A	-
<b>7</b>	<b>SPACELIFT FACILITIES</b> TR: VT2 1000, Atlas II AS & Titan IVB Type I Training; Delta II MLVIII Self Study Guide		
7a	Satellite processing and control center	-	A
7b	Launch complex	A	-
7c	Blockhouse/control center	A	-
7d	Support	A	-
<b>8</b>	<b>SPACELIFT ELECTRICAL SYSTEMS</b> TR: VT II-90, Atlas II AS & Titan IVB Type I Training; Delta II MLVIII Self Study Guide		
8a	Airborne	-	B
8b	AGE	-	B
<b>9</b>	<b>SPACELIFT HYDRAULIC SYSTEMS</b> TR: VT II-860, Atlas II AS & Titan IVB Type I Training; Delta II MLVIII Self Study Guide		
9a	Airborne	-	A
9b	AGE	-	A
<b>10</b>	<b>SPACELIFT PNEUMATIC SYSTEMS</b> TR: VT II-830, Atlas II AS & Titan IVB Type I Training; Delta II MLVIII Self Study Guide		
10a	Airborne	-	A
10b	AGE	-	A
<b>11</b>	<b>PROPELLANTS</b> TR: Atlas II AS & Titan IVB Type I Training; Delta II MLVIII Self Study Guide		
11a	Solids	-	A
11b	Liquids	-	A

**AFSC 2M051/2M071STS**  
**MISSILE AND SPACE SYSTEMS ELECTRONIC MAINTENANCE (JOURNEYMAN/CRAFTSMAN)**

ITEM #	TASK / KNOWLEDGE ITEM	5 LEVEL CDC	7 LEVEL CDC
11c	Gases	-	A
<b>12</b>	<b>SPACELIFT PROPULSION SYSTEMS</b> <b>TR: Atlas II AS &amp; Titan IVB Type I Training; Delta II MLVIII Self Study Guide</b>		
12a	Solids	-	A
12b	Liquids	-	A
12c	Gases	-	A
<b>13</b>	<b>SPACELIFT ORDNANCE SYSTEMS</b> <b>TR: VT2-875; Atlas II AS &amp; Titan IVB Type I Training;</b> <b>Delta II MLVIII Self Study Guide</b>		
13a	Ignition	-	A
13b	Separation	-	A
13c	Flight Termination	-	A
<b>14</b>	<b>SPACELIFT GUIDANCE AND CONTROL SYSTEMS</b> <b>TR: VT II-910, VT II-900, 920; Atlas II AS &amp; Titan IVB Type I Training;</b> <b>Delta II MLVIII Self Study Guide</b>		
14a	Inertial Systems	-	B
14b	Guidance Computer	-	B
14c	Flight Control Systems <b>TR: AFSC Design Handbook 3-2, Chap 11 &amp; 12; MMC DOC 1002, 1003</b>	-	B
<b>15</b>	<b>TELEMETRY SYSTEMS</b> <b>TR: VT II-970, 975, 980; Atlas II AS &amp; Titan IVB Type I Training;</b> <b>Delta II MLVIII Self Study Guide</b>		
15a	Airborne	-	B
15b	Ground	-	B
15c	Flight Termination	-	B
<b>16</b>	<b>COUNTDOWN OPERATIONS</b> <b>TR: Atlas II AS &amp; Titan IVB Type I Training; Delta II MLVIII Self Study Guide</b>		
16a	Launch Preparation	-	B
16b	Terminal Countdown	-	B
16c	Post-Launch Procedures	-	B
<b>17</b>	<b>SATELLITE SYSTEMS</b> <b>TR: Atlas II AS &amp; Titan IVB Type I Training; Delta II MLVIII Self Study Guide</b>		
17a	Mission	A	-
17b	Characteristics	-	B
17c	Electrical	-	B
17d	Boost	-	B
<b>18</b>	<b>RESEARCH AND DEVELOPMENT SYSTEMS</b> <b>TR: AFI 10-201</b>		
18a	Missions of Air Force Research Laboratory	A	-
18b	Missions of Test and Evaluation Centers	A	-

**AFSC 2M051/2M071STS**  
**MISSILE AND SPACE SYSTEMS ELECTRONIC MAINTENANCE (JOURNEYMAN/CRAFTSMAN)**

ITEM #	TASK / KNOWLEDGE ITEM	5 LEVEL CDC	7 LEVEL CDC
<b>19</b>	<b>CLOSED CIRCUIT VIDEO SYSTEMS</b> TR: TO 31-1-141-9		
19a	Theory	-	B
19b	Operation	-	A
<b>20</b>	<b>LASERS</b> TR: TO 31-1-141-3; AFOSH Std 48-139		
20a	Theory	-	B
20b	Operation	-	A
<b>21</b>	<b>OPTICAL SYSTEMS</b> TR: TO 33B4-8-9-1		
21a	Theory	-	B
21b	Operation	-	A
<b>22</b>	<b>PRESSURIZED SYSTEMS</b> TR: TO 00-25-223		
22a	Theory	-	A
22b	Operation	-	A
<b>23</b>	<b>VACUUM SYSTEMS</b> TR: TO 00-25-223		
23a	Theory	-	A
23b	Operation	-	A
<b>24</b>	<b>WEAPON SYSTEMS DESCRIPTION (WS 133A/B AND WS 118A)</b> TR: TOs 21-LG118A-1-1, 21-LG118A-2-1, 21-LG118A-2-10, 21M-LGM30G-1-1, 21M-LGM30G-2-1-X, 21M-LGM30G-2-10-(1)		
24a	Missile	B	-
24b	Launch Facility	B	-
24c	Missile Alert Facility	B	-
24d	Missile Support Base	B	-
<b>25</b>	<b>ACCESS SYSTEMS (WS133A/B AND WS118A)</b> TR: TOs 21-LG118A-1-1, 21-LG118A-2-10, 21-LG118A-2-19, 21M-LGM30F-2-19, 21M-LGM30G-1-1, 21M-LGM30G-2-10-(1)		
25a	Description	B	-
25b	Perform secondary door lockout break-in procedures TR: TO 35M37-4-12	A	-
<b>26</b>	<b>COMMAND AND CONTROL</b>		
26a	WS133A/B TR: TOs 21M-LGM30G-1-1, 21M-LGM30G-2-1-X, 21M-LGM30G-2-12-X, 33D9-74-42-2	B	B
26b	WS118A TR: TOs 21-LG118A-1, 21-LG118A-2-1, 21-LG118A-2-12-(1)	B	B

**AFSC 2M051/2M071STS**  
**MISSILE AND SPACE SYSTEMS ELECTRONIC MAINTENANCE (JOURNEYMAN/CRAFTSMAN)**

ITEM #	TASK / KNOWLEDGE ITEM	5 LEVEL CDC	7 LEVEL CDC
<b>27</b>	<b><i>INTRASITE CABLING SYSTEM</i></b>		
27a	WS133A/B TR: TOs 21M-LGM30F-12, 21M-LGM30G-1-1, 21M-LGM30G-2-1-X, 21M-LGM30(x)-2-21-X	B	-
27b	WS118A TR: TOs 21-LG118A-2-21, 21-LG118A-2-21-1	B	-
<b>28</b>	<b><i>ISOLATE FAULTS</i></b> TR: TOs 21-LG118A-2-1, 21M-LGM30G-2-1-X	-	B
<b>29</b>	<b><i>MISSILE STARTUP AND CODING OPERATIONS DESCRIPTION</i></b> TR: TOs 21-LG118A-2-12-X, 21M-LGM30G-2-12-X, 31X8-2-2-X	B	-
<b>30</b>	<b><i>MISSILE GUIDANCE SET COOLING SYSTEM</i></b> TR: TOs 21M-LGM30G-1-1, 21M-LGM30G-2-6	B	-
<b>31</b>	<b><i>POWER SYSTEM</i></b>		
31a	WS133A/B TR: TOs 21M-LGM30G-1-1, 21M-LGM30G-2-11-X, 21M-LGM30G-2-12-(x); CEM 21-SM80X-2-21-X	B	B
31b	WS118A TR: TOs 21-LG118A-1, 21-LG118A-2-11-1, CEM 21-SM80B-2-21-4	B	B
<b>32</b>	<b><i>SECURITY SYSTEM</i></b> TR: TOs 21-LG118A-1, 21M-LGM30F-2-19, 21M-LGM30G-1-1, 21M-LGM30G-2-4	B	-
<b>33</b>	<b><i>ELECTRICAL EQUIPMENT TEST STATION DESCRIPTION (E35)</i></b> TR: TOs 33D9-61-57-21, 33D9-61-91-2, 33K3-4-1196-1	A	B
<b>34</b>	<b><i>ELECTRICAL FACILITY - BASE MAINTENANCE DESCRIPTION</i></b> TR: TO 33D9-6-21-1	A	-
<b>35</b>	<b><i>COMPUTER TEST SET DESCRIPTION</i></b> TR: TOs 31S5-2UYK11-2, 33D9-53-73-1	A	-
<b>36</b>	<b><i>MEMORY CONTROLLER GROUP TEST SET DESCRIPTION</i></b> TR: TO 33D9-17-79-2	A	-
<b>37</b>	<b><i>CODE PROCESSING SYSTEM DESCRIPTION</i></b> TR: TO 31X8-2-2-X	A	-
<b>38</b>	<b><i>HARDWARE CERTIFICATION VERIFICATION EQUIPMENT DESCRIPTION</i></b> TR: TO 31X8-2-3-1	A	-
<b>39</b>	<b><i>NUCLEAR CERTIFICATION OF CRITICAL COMPONENT DESCRIPTION</i></b> TR: AFI 91-103; TOs 21M-LGM30F-21-1, 21-LG118A-12-1	A	-
<b>40</b>	<b><i>AIRCRAFT WEAPON INTEGRATION SYSTEM</i></b>		
40a	B-52H aircraft weapon integration system TR: TOs 1B-52H-1-12, 1B-52H-30-3, 1B-52H-30-4, 1B-52H-2-38GA-1	A	-
40b	B-2A aircraft weapon integration system TR: TO 1B-2A-2-94GA	A	-
<b>41</b>	<b><i>AGM-86B/C/D MISSILE</i></b> TR: TOs 11N-W80.83-2, 21M-AGM86-2-1, 21M-AGM86-2-3, 21M-AGM86-8-1, 21M-AGM86-8-3, 21M-AGM86-2-4, 21M-AGM86-8-5		
41a	Systems	-	-

**AFSC 2M051/2M071STS**  
**MISSILE AND SPACE SYSTEMS ELECTRONIC MAINTENANCE (JOURNEYMAN/CRAFTSMAN)**

ITEM #	TASK / KNOWLEDGE ITEM	5 LEVEL CDC	7 LEVEL CDC
41a(1)	Electrical	B	-
41a(2)	Safe, arm and fuse	B	-
41a(3)	Environmental control	B	-
41a(4)	Propulsion	B	-
41a(5)	Flight control	B	-
41a(6)	Navigation	B	-
41b	Interpret missile diagrams	-	B
41c	Describe Level 1 testing	B	-
<b>42</b>	<b>AGM-129A MISSILE</b> <b>TR: TOs 11N-W80.85-2, 21-AG129-2-1, 21-AG129-8-1</b>		
42a	Systems	-	-
42a(1)	Electrical	B	-
42a(2)	Warhead safe, arm, fuse	B	-
42a(3)	Environmental control	B	-
42a(4)	Pyrotechnic	B	-
42a(5)	Fin control	B	-
42a(6)	Propulsion	B	-
42a(7)	Navigation and guidance	B	-
42a(8)	Observables technology	B	-
42b	Interpret missile diagrams	-	B
42c	Describe Level 1 testing	B	-
<b>43</b>	<b>AIRCRAFT ROTARY LAUNCHER AND PYLON SYSTEMS</b> <b>TR: TOs 11G22-5-5-2, 11G22-5-5-8-19, 11L1-2-25-8-1, 11L1-2-25-8-4, 11N-L5001-2, 11N-L5005-8, 11N-L5006-2, 11N-L5006-8, 11N-T5162-2, 11N-T5162-8, 11N-T5166-2, 11N-T5166-8, 11N-T5167-2, 11N-T5167-8, 11N-T5168-2, 11N-T5168-8, 11N-T5169-2, 11N-T5169-8, 16W6-33-1, 16W6-33-8-1, 21-AG129-8-2, 21M-AGM86-8-2, 21M-AGM86-8-4</b>		
43a	Describe the operation of the following launcher/pylon systems	-	-
43a(1)	Power	B	-
43a(2)	Environmental control	B	-
43a(3)	Monitor and control	B	-
43a(4)	Mechanical	B	-
43b	Interpret launcher/pylon diagrams	-	B
<b>44</b>	<b>FUEL/DEFUEL SET A/F32R-5</b> <b>TR: TO 33D9-2-7-2</b>		
44a	Describe the operation of the following systems	-	-
44a(1)	Shop air	B	-
44a(2)	Nitrogen	B	-

**AFSC 2M051/2M071STS**  
**MISSILE AND SPACE SYSTEMS ELECTRONIC MAINTENANCE (JOURNEYMAN/CRAFTSMAN)**

ITEM #	TASK / KNOWLEDGE ITEM	5 LEVEL CDC	7 LEVEL CDC
44a(3)	Fuel piping	B	-
44a(4)	Vent	B	-
44a(5)	Vacuum	B	-
<b>45</b>	<b>Electronic System Test Set (ESTS) AN/GSM263/A/C/F/G</b> <b>TR: TOs 33D9-61-71-1-(1), 33D9-61-71-4, 33D9-61-71-21</b>		
45a	State the purpose of the ESTS major components	A	-
45b	Describe the operation of the following systems	-	-
45b(1)	Computer system/peripherals	A	-
45b(2)	Measurement	A	-
45b(3)	Digital interface	A	-
45b(4)	Analog stimuli interface	A	-
<b>46</b>	<b>PURPOSE OF AIR DATA TEST SET (ADTS) AN/GSM-291 MAJOR COMPONENTS</b> <b>TR: TO 33D9-61-71-1</b>	B	-
<b>47</b>	<b>PURPOSE OF MISSILE RADAR ALTIMETER TEST ASSEMBLY (MRATA) MAJOR COMPONENTS</b> <b>TR: TOs 33D7-44-233-1, 33D7-44-233-4</b>	B	-
<b>48</b>	<b>COOLING EQUIPMENT</b> <b>TR: TO 33D9-122-20-1, 33D7-86-51-1</b>		
48a	Electronics Components Cooling Equipment MXU-690/E, MXU-690A/E		-
48a(1)	State the purpose of MXU-690 major components	B	
48a(2)	Describe the operation of flow circuit components	B	
48b	Air Flow Cooling Monitor, P/N DAA7294G707-005		-
48b(1)	State the purpose of air flow cooling monitor major components	B	
48b(2)	Describe the operation of flow circuit components	B	
<b>49</b>	<b>PURPOSE OF REMOTE SWITCHING CONTROL ASSEMBLY (RSCA) MAJOR COMPONENTS</b> <b>TR: TOs 33D9-54-75-1, 33D9-54-75-8-1</b>	B	-
<b>50</b>	<b>PURPOSE OF SENSOR TEST AN/GSM-320 MAJOR COMPONENTS</b> <b>TR: TO 33D9-142-23-1</b>	B	-
<b>51</b>	<b>DESCRIBE THE WEAPONS STORAGE AREA (WSA) FACILITIES/SUPPORT SYSTEMS</b> <b>TR: AFI 91-201</b>		
51a	Integrated Maintenance Facility (IMF)	A	-
51b	Weapons storage structures (igloos)	A	-

## Trainee/Trainer/Certifier Identification Table

*THIS BLOCK IS FOR IDENTIFICATION PURPOSES ONLY*

### NAME OF TRAINEE

PRINTED NAME (*LAST, FIRST, MIDDLE INITIAL*)

INITIALS (*WRITTEN*)

SSAN

### PRINTED NAME OF TRAINING/CERTIFYING OFFICIAL AND WRITTEN INITIALS

N/I

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AFSC 2M051/2M071 STS **ATTACHMENT 1**  
COMMON 2M0XX MISSILE AND SPACE MAINTENANCE TASKS

ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
<b>1</b>	<b>AF OCCUPATIONAL SAFETY AND HEALTH (AFOSH) PROGRAM</b> <b>TR: AFI 91-301</b>						
1a	Use safety practices when working with weapon system equipment <b>TR: TO applicable to the weapon system</b>						
1b	Report hazards <b>TR: AFI 91-202</b>						
1c	Inspect safety equipment for serviceability <b>TR: TOs 00-25-245, 21-LG118A-2-10, 21-LG118A-2-17-2, 21M-LGM30F-2-17-9, 21M-LGM30G-2-10 (-1)</b>						
1d	Comply with hazardous material safety requirements <b>TR: AFOSH STD 161-21</b>						
<b>2</b>	<b>PUBLICATIONS</b>						
2a	Use standard publications <b>TR: AFI 37-X; AFSPCI 21-0114</b>						
2b	Use technical orders <b>TR: AFPD 21-3; TOs 00-5-1, 00-5-2</b>	3					
2c	Initiate TO improvement report <b>TR: TO 00-5-1</b>						
2d	Use supply publications/illustrated parts breakdown (IPB) <b>TR: AFMAN 23-110</b>						
2e	Use Civil Engineering Manuals (CEM) <b>TR: AFSPCIND7; AFSPCIs 32-1005, 32-1006, 32-1009</b>						
2f	Initiate CEM improvement report <b>TR: AFSPCIs 32-1005, 32-1006, 32-1009</b>						
<b>3</b>	<b>MAINTENANCE MANAGEMENT</b> <b>TR: AFPD 21-1; AFIs 21-108, 21-114; AFSPCI 21-0114; ACCI 21-101</b>						
3a	Complete Maintenance Data Collection (MDC) forms <b>TR: TOs 00-20-2, 21M-AGM86-06, 21-AG129-06, 21M-LGM30F-06-X; CEM 21-SM80-06</b>						
3b	Use Core Automated Management System (CAMS) <b>TR: AFCSM 21-556 thru 21-579</b>						
3c	Use Improved Maintenance Management Program (IMMP) <b>TR: Applicable Software and System Manuals</b>						
<b>4</b>	<b>TOOLS AND HARDWARE</b> <b>TR: TOs 00-25-234, 1-1A-8, 21-LG118A-2-10, 21-LG118A-12, 21M-LGM30F-12, 21M-LGM30G-2-10(-1), 21M-LGM30G-2-31</b>						
4a	Use tools <b>TR: TOs 32-1-2, 32-1-101, 32-1-151, 32B14-3-1-101</b>	3					
4b	Use aerospace hardware <b>TR: TOs 1-1A-8, 1-1A-14, 1-1A-15</b>						

AFSC 2M051/2M071 STS **ATTACHMENT 1**  
COMMON 2M0XX MISSILE AND SPACE MAINTENANCE TASKS

ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
<b>5</b>	<b><i>SUPERVISION AND TRAINING</i></b> <b>TR: AFI 36-2201; AFSPCI 21-0114; ACCI 10-204</b>						
5a	Supervision						
5a(1)	Orient new personnel	7					
5a(2)	Conduct predispatch/pretask maintenance briefings	7					
5a(3)	Plan work assignments	7					
5a(4)	Schedule work assignments	7					
5a(5)	Evaluate technical school graduates						
5a(6)	Team Chief/Task supervisor duties IAW AFSPCI 21-0114						
5a(7)	Technician duties IAW FSPCI 21-0114						
5a(8)	Perform production inspector duties IAW AFSPCI 21--0114						
5b	Training						
5b(1)	Plan and supervise training programs						
5b(2)	Conduct qualification training <b>TR: AF Trainer Course</b>						
5b(3)	Prepare lesson plans						
5b(4)	Maintain training records	7					
5b(5)	Certify trainee qualifications <b>TR: AF Certifier Course</b>						
<b>6</b>	<b><i>GENERAL MAINTENANCE</i></b>						
6a	Operate portable heaters <b>TR: TO 35E7-2-11-11; Applicable Manufacturer's Operation and Service Instructions</b>						
6b	Operate portable pumps <b>TR: TOs 21-LG118A-2-10, 21M-LGM30G-2-10 (-1); Applicable Manufacturer's Operation and Service Instructions</b>						
6c	Tubing maintenance <b>TR: TOs 00-25-233, 1-1A-8</b>						
6c(1)	Flare tubing						
6c(2)	Swage tubing						
6d	Solder/Solderless connectors <b>TR: TOs 00-25-234, 1-1A-14, 1-1A-15, 21M-LGM30F-12, 31-1-141-15, 31-10-7, 34W4-1-5, 34W4-1-7, 34W4-1-8</b>						
6d(1)	Soft soldering						
6d(2)	Silver soldering						
6d(3)	Electrical soldering						
6d(3a)	Perform basic soldering/desoldering procedures						

AFSC 2M051/2M071 STS **ATTACHMENT 1**  
COMMON 2M0XX MISSILE AND SPACE MAINTENANCE TASKS

ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
6d(3b)	Perform soldering/desoldering on printed circuit boards						
6d(4)	Solderless connectors						
6d(4a)	Assemble solderless crimp connectors						
6d(4b)	Assemble solderless multipin connectors						
6e	Pneumatics <b>TR: TOs 00-25-223, 00-25-229, 1-1A-8, 33-1-19, 42B5-1-2, 42E1-1-1, 42E2-1-2, 44H3-1-3</b>						
6e(1)	Remove components						
6e(2)	Install components						
6e(3)	Read pneumatic flow diagrams						
6e(4)	Replace hoses						
6e(5)	Replace tubing						
6e(6)	Replace seals						
6e(7)	Fabricate tubing						
6e(8)	Fabricate hoses						
6f	Hydraulics <b>TR: TOs 00-25-223, 00-25-229, 1-1A-8, 33-1-19, 42B2-1-3, 42E1-1-1, 42E2-1-2, 44H3-1-3</b>						
6f(1)	Remove components						
6f(2)	Install components						
6f(3)	Read hydraulic flow diagrams						
6f(4)	Replace hoses						
6f(5)	Replace tubing						
6f(6)	Replace seals						
6f(7)	Fabricate tubing						
6f(8)	Fabricate hoses						
6g	Standard Test Equipment <b>TR: TO 33-1-21; Applicable Manufacturer's Operation and Service Instructions</b>						
6g(1)	Use analog multimeters <b>TR: TOs 33A1-12-2-1, 33A1-12-216-1, 33A1-12-681-1, 33A1-12-773-1, 33A1-12-933-1</b>	3					
6g(2)	Use bridge meters <b>TR: TOs 33A1-6-63-1, 33A1-16-91-1</b>						
6g(3)	Use counters						
6g(4)	Use digital multimeters <b>TR: TOs 33A1-12-1059-1, 33A1-12-1092-1, 33A1-12-1176-1, 33A1-12-1177-1, 33A1-12-1198-1, 33A1-12-1199-1</b>	3					

AFSC 2M051/2M071 STS **ATTACHMENT 1**  
COMMON 2M0XX MISSILE AND SPACE MAINTENANCE TASKS

ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
6g(5)	Use modulation meters						
6g(6)	Use oscilloscopes						
6g(7)	Use power meters						
6g(8)	Use power supplies <b>TR: TO 33AA17-176-1</b>						
6g(9)	Use signal generators						
6g(10)	Use megohmmeters <b>TR: TOs 33A1-4-29-1, 33A1-4-35-1</b>						
6g(11)	Use bonding meters <b>TR: TO 33A1-12-1124-1</b>						
6g(12)	Use ammeters/current probes <b>TR: TOs 33A1-12-145-21, 33A1-12-871-1, 33DA98-15-1</b>						
6g(13)	Use ohmmeters <b>TR: TOs 33A1-12-185-11, 33A1-12-1006-1</b>						
6g(14)	Use air sampling equipment						
6g(15)	Use electronic freon leak detector						
6h	Perform operator maintenance on weapon system test equipment <b>TR: TOs 00-25-234, 1-1A-1, 1-1A-8, 1-1A-14, 1-1A-15, 33D9-61-58-2 33-1-27, 21M-GM30G-2-10(x), 21-LG118A-2-10</b>						
6i	General Maintenance <b>TR: TOs 00-25-234, 1-1A-1, 1-1A-8, 1-1A-14, 1-1A-15, 33D9-61-58-2</b>						
6i(1)	Repair equipment panels and cases						
6i(2)	Perform safety wiring						
6i(3)	Repair wiring						
6i(4)	Repair general connectors						
6i(5)	Repair shielded and coaxial connectors						
6i(6)	Perform cable binding and lacing						
6i(7)	Repair crimped electrical connections						
6i(8)	Qualify solderless wire wrapping Tool Kit (TK-148/g)						
6i(9)	Perform wire wrapping						
6i(10)	Perform systematic troubleshooting						
6i(11)	Perform electronic part replacement and repair						
6i(12)	Repair electrical contact strips						
6i(13)	Perform printed circuit board handling and storage procedures	3					
6i(14)	Perform electrostatic discharge control procedures <b>TR: 00-25-234</b>	3					

AFSC 2M051/2M071 STS **ATTACHMENT 1**  
COMMON 2M0XX MISSILE AND SPACE MAINTENANCE TASKS

ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
6i(15)	Perform visual inspections						
6i(16)	Clean electronic equipment						
6j	Emergency breathing apparatus <b>TR: TOs 14P4-9-31, 14P5-3-1, 14S5-11-11, 14S5-16-1, 14S5-18-1, 14S5-19-11, 14S5-29-1, 14S5-30-2, 14S5-32-1; LJGs 20AF-01-001, 20AF-01-002; Applicable Manufacturer's Operation and Service Instructions</b>						
6j(1)	Perform periodic maintenance						
6j(2)	Troubleshoot						
6j(3)	Repair						
6j(4)	Operate						
6j(5)	Self Contained Atmospheric Protective Ensemble (SCAPE) <b>TR: Local Training Course</b>						
6j(5a)	Describe						
6j(5b)	Checkout/Operate						
6j(6)	Emergency response equipment <b>TR: TOs 21-LG118A-2-32, 21M-LGM30G-2-33; OO-ALC 91-1; LJGs 20AF-01-001, 20AF-01-002; Applicable Manufacturer's Operation &amp; Service Instructions; Wing emergency response plan</b>						
6j(6a)	Level A suit						
6j(6a1)	Inspect						
6j(6a2)	Use						
6j(6b)	Air skid						
6j(6b1)	Inspect						
6j(6b2)	Service						
6j(6b3)	Operate						
6k	Communications equipment						
6k(1)	Inspect						
6k(2)	Service						
6k(3)	Operate						
6l	Bench stock items <b>TR: AFMAN 23-110; AFSPCI 21-0114; ACCI 21-101</b>						
6l(1)	Issue						
6l(2)	Inventory						
6l(3)	Maintain						

AFSC 2M051/2M071 STS **ATTACHMENT 1**  
COMMON 2M0XX MISSILE AND SPACE MAINTENANCE TASKS

ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
6m	Isolate faulty components <b>TR: TO 31-1-141 Series</b>						
6m(1)	Basic circuits						
6m(2)	Resistors						
6m(3)	Relays/solenoids						
6m(4)	Capacitors						
6m(5)	Semi-conductors						
6m(6)	Inductors						
6m(7)	Transformers						
6n	RFI / EMI Gaskets <b>TR: TO 21M-LGM30F-112, 21-AG129-2-1, 33D9-19-55-1</b>						
6n(1)	Inspect	3					
6n(2)	Repair						
6o	Terminal Swagger Kit <b>TR: TO 33A16-3-1</b>						
6o(1)	Operate						
6o(2)	Service						
6p	Portable cable terminal pull tester <b>TR: TO 33A8-4-6-1</b>						
6p(1)	Operate						
6p(2)	Service						
<b>7</b>	<b>CRANE - LORAIN/NATIONAL</b> <b>TR: AFOSH 91-46; TOs 35D36-1-102, 35D36-2-2;</b> <b>LJG 20AF-95-002; Applicable Manufacturer's Operation and</b> <b>Service Instructions</b>						
7a	Inspect						
7b	Repair components						
7c	Troubleshoot components						
7d	Proofload						
<b>8</b>	<b>VEHICLE AND EQUIPMENT CONTROL</b> <b>TR: AFSPCI 21-0114</b>						
8a	Perform preoperational checkout of						
8a(1)	Payload Transporter (PT) <b>TR: TOs 21M-LGM30G-2-33, 36A9-8-49-1, 36A9-8-58-1</b>						
8a(2)	Mechanical Maintenance Truck <b>TR: TOs 21M-LGM30G-2-10 (-1), 35D4-7-4-2, 36A12-24-3-1;</b> <b>LJG 20AF-95-001</b>						
8a(3)	Missile Guidance and Control Set Support Truck <b>TR: TOs 21-LG118A-2-10, 21-LG118A-2-34, 36A13-31-1</b>						

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COMMON 2M0XX MISSILE AND SPACE MAINTENANCE TASKS

ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
8a(4)	Periodic Maintenance Van <b>TR: TO 36A9-8-56-1</b>						
8b	Operate hoist in						
8b(1)	Payload Transporter <b>TR: TOs 21M-LGM30G-2-33, 36A9-8-49-1, 36A9-8-58-1</b>						
8b(2)	Mechanical Maintenance Truck <b>TR: TOs 21-LG118A-2-10, 21M-LGM30G-2-10 (-1), 35D4-7-4-2, 36A12-24-3-1; LJJ 20AF-95-001</b>						
8b(3)	Missile Guidance and Control Set Support Truck <b>TR: TOs 21-LG118A-2-10, 21-LG118A-2-34, 36A13-31-1</b>						
8b(4)	Periodic Maintenance Van <b>TR: TO 36A9-8-56-1</b>						
8c	Forms/records <b>TR: TOs 00-20-1, 00-20-2, 00-20-5, 00-20B-5, 00-25-245, 36-1-58</b>						
8c(1)	Initiate						
8c(2)	Maintain						
8d	Vehicles						
8d(1)	Perform daily inspections of <b>TR: AFI 24-301</b>						
8d(1a)	General purpose vehicles <b>TR: TO 36-1-23</b>						
8d(1b)	Special purpose vehicles <b>TR: TOs 36A9-8-49-1, 36A9-8-58-1, 36A12-24-3-1, 36A13-31-1</b>						
8d(2)	Track vehicle status/location						
8d(3)	Schedule vehicles for inspection/repair						
8e	Equipment						
8e(1)	Store/Issue equipment						
8e(2)	Track equipment status/location						
8f	Nitrogen bottles <b>TR: TOs 35M1-1-101, 42B5-1-1-2</b>						
8f(1)	Install in purge manifold						
8f(2)	Remove from purge manifold						
8f(3)	Drain						
8g	Perform self test on Explosive set circuitry test set <b>TR: TO 33D9-38-15-21</b>						
8h	Configure vehicles with equipment for the following: <b>TR: Applicable weapon system TO; configuration load lists</b>						
8h(1)	MMT dispatches						
8h(2)	EMT dispatches						

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ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
8h(3)	FMT dispatches						
8h(4)	PNEU dispatches						
8i	Equipment recovery <b>TR: TOs 00-25-234, 00-24-245, 1-1A-8, 11N-HRV-5022-2</b>						
8i(1)	Inspect equipment						
8i(2)	Repair equipment						
8i(3)	Process equipment						
8j	EMT Battery Van <b>TR: TOs 36A9-8-56-1, 35C2-3-498-1, 35E9-272-1, 36Y16-25-1, 34Y1-208-1, 34Y1-236-1</b>						
8j(1)	Operate ECS						
8j(2)	Operate APU						
8j(3)	Operate Compressor						
8j(4)	Stabilize/De-stabilize Van						
8j(5)	Operate Hoist						
8j(6)	Perform Preoperational Check-out						
<b>9</b>	<b>TRAINER MAINTENANCE OPERATION</b>						
9a	Launch Facility Trainer (AN/GSQ-T8 and AN/GSQ-T9) <b>TR: TO 43D2-3-27-1</b>						
9a(1)	Perform startup, shutdown, emergency shutdown, and startup after inadvertent shutdown						
9a(2)	Perform inspection and lubrication of trainer						
9a(3)	Perform checkout, trouble analysis and repair of the following trainer unique equipment						
9a(3a)	Security system						
9a(3b)	OGE power and systems						
9a(3c)	Communication system						
9a(3d)	Instructor control panel						
9a(3e)	Ground G&C liquid cooling system						
9a(3f)	Distribution box						
9a(3g)	Simulated environmental control system						
9b	Launch Facility trainer (AN/GSQ-T10, AN/GSQ-T13, and AN/GSQ-T41) <b>TR: TOs 43D2-3-55-1, 43D2-3-81-1</b>						
9b(1)	Perform startup, shutdown, emergency shutdown, and startup after inadvertent shutdown						
9b(2)	Perform inspection and lubrication of trainer						



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ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
9b(3)	Perform checkout, trouble analysis and repair of the following trainer unique equipment						
9b(3a)	Security system						
9b(3b)	OGE power and systems						
9b(3c)	Communication system						
9b(3d)	Instructor control panel						
9b(3e)	Ground G&C liquid cooling system						
9b(3f)	GMSR system						
9b(3g)	Distribution box						
9c	Launch Facility trainer (A/F 24A-T2) <b>TR: TOs 43D2-10-3-1, 43D2-10-3-2</b>						
9c(1)	Inspect trainer						
9c(2)	Repair trainer						
9c(3)	Lubricate trainer						
9c(4)	Perform startup, shutdown and emergency shutdown						
9d	Launch Facility operational support equipment (AF 24A-T4) <b>TR: TOs 43D2-10-3-1, 43D2-10-3-2</b>						
9d(1)	Inspect						
9d(2)	Repair						
9d(3)	Perform startup, shutdown and emergency shutdown						
9e	Training Guided Missile Set (A/E37A-T47) <b>TR: TO 43D2-3-18-1</b>						
9e(1)	Perform checkout, trouble analysis, and repair of trainer						
9e(2)	Perform inspections						
9f	Perform checkout, trouble analysis, and repair of code change verifier set (AN/DJW-36T1A) <b>TR: TO 43D2-3-18-1</b>						
9g	Missile Guidance Set Trainer (AN/DJW-36T1) <b>TR: TO 43D2-3-73-1</b>						
9g(1)	Perform checkout, trouble analysis, and repair						
9g(2)	Perform inspections						
9h	Propulsion System Rocket Engine Trainer (A/A44A-4T1) <b>TR: TO 43D2-3-72-1</b>						
9h(1)	Perform checkout, trouble analysis, and repair						
9h(2)	Perform inspections						
9i	Control Monitor Procedures Trainer (AN/GSQ-T46/T47/T48/T49) <b>TR: TO 43D2-3-93-1</b>						
9i(1)	Operate trainer						

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ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
9i(2)	Perform installation, adjustment, checkout, trouble analysis, inspection, and repair						
9j	Environmental Control System/power Procedures Trainer (A/F37FU-T19/T22/T24/T25) <b>TR: TOs 43D2-3-84-1, 43D2-3-89-1, 43D2-3-91-1, 43D2-3-92-1</b>						
9j(1)	Perform startup, shutdown, and emergency shutdown						
9j(2)	Perform checkout, trouble analysis, repair, adjustment, and inspection of the following trainer unique equipment						
9j(2a)	Instructor control panel						
9j(2b)	Intercommunication system						
9j(2c)	Load bank						
9j(2d)	Simulated electronic rack						
9j(2e)	DC power supply PS-500						
9j(2f)	Transfer control panel						
9j(3)	Perform checkout trouble analysis, repair, adjustment, and inspection of trainer unique circuitry/mechanical devices						
9k	Perform checkout, trouble analysis, and repair of Minuteman III Reentry System Trainer (A/E32U-T4) <b>TR: TO 43D2-3-67-1</b>						
9l	Missile Guidance and Control Set (P/N 14900-201-1) <b>TR: TO 43D32-2-3-1</b>						
9l(1)	Inspect						
9l(2)	Repair						
9m	Operate digital computer system model PC380-AA <b>TR: TOs 43D2-10-3-1, 43D2-10-3-2</b>						
9n	Sump pump trainers, Minuteman/Peacekeeper (A/F 374-T25) <b>TR: TOs 43D2-3-84-1, 43D2-3-92-1, 43D2-3-97-1; CEM 21-SM80X-2-24-X</b>						
9n(1)	Inspect/operate						
9n(2)	Perform checkout						
9n(3)	Troubleshoot						
9n(4)	Repair						
9o	Third Stage Trainer <b>TR: TO 21MLGM30F-2-17-5</b>						
9o(1)	Checkout						
9o(2)	Troubleshoot						
9o(3)	Repair						
9o(4)	Inspect						

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ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
9p	Operate Code Change Verifier Simulator (SM-876/G) <b>TR: TO 43D2-3-18-1</b>						
<b>10</b>	<b>QUALITY ASSURANCE</b>						
10a	Technical data <b>TR: AFD 21-3; TOs 00-5-1, 00-5-2; AFSPCIND7; AFSPCIs 21-0108, 21-0114, 32-1005, 32-1009; ACCI 21-101</b>						
10a(1)	Review/process AFTO Forms 22 and AFSPC Forms 272						
10a(2)	Review all new and revised technical data and standard publications for completeness and technical accuracy						
10a(3)	Review supplements and maintenance OIs for accuracy, intent, and necessity						
10b	TCTO, MCLs, and modifications <b>TR: AFSPCIs 21-0108, 21-0114; ACCI 21-101</b>						
10b(1)	Review for applicability, training, supplies, and equipment requirements						
10b(2)	Determine sampling size and perform random inspections						
10b(3)	Conduct final review of TCTO/MCLs submitted by Logistics Group						
10c	Management inspections <b>TR: AFSPCIs 21-0108, 21-0114; ACCI 21-101</b>						
10c(1)	Conduct activity inspections						
10c(2)	Conduct special inspections						
10d	Hardware inspections <b>TR: AFSPCIs 21-0114</b>						
10d(1)	Conduct hardware equipment inspection						
10d(2)	Conduct hardware acceptance inspection						
10e	Proficiency evaluations <b>TR: AFSPCIs 21-0108, 21-0114</b>						
10e(1)	Conduct personnel proficiency evaluations						
10e(2)	Conduct proficiency verification evaluations						
10e(3)	Conduct trainer proficiency evaluations						
10f	Evaluation/Inspection reports <b>TR: AFSPCIs 21-0108, 21-0114; ACCI 21-101</b>						
10f(1)	Document evaluations/inspections						
10f(2)	Prepare evaluation/inspection reports						
10g	Evaluate deferred discrepancies <b>TR: AFSPCIs 21-0114</b>						
10h	Training <b>TR: AFSPCI 21-0114</b>						
10h(1)	Conduct MEP orientation course						
10h(2)	Conduct DR course						

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ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
10h(3)	Conduct production inspector course						
10h(4)	Conduct technical data course <b>TR: TOs 00-5-1, 00-5-2</b>						
10i	Deficiency Reporting <b>TR: AFMAN 23-110; TO 00-35D-54</b>						
10i(1)	Identify deficiencies						
10i(2)	Process deficiency reports						
<b>11</b>	<b>MISSILE MAINTENANCE OPERATIONS CENTER (MMOC)</b> <b>TR: AFSPCI 21-0114</b>						
11a	Understand security enhancement procedures and site security procedures <b>TR: 31-1101</b>						
11b	Use the maintenance priority system						
11c	Accept, evaluate, and respond to reports from LFs/MAFs <b>TR: TOs 21-LG118A-2-1, 21M-LGM30X-2-1-X</b>						
11d	Monitor, update, and delete maintenance data for priorities 1-4 <b>TR: 33D9-61-76-1</b>						
11e	Coordinate with Material Control on priority changes, PMCS, NMCS, and MICAP conditions						
11f	Coordinate and document maintenance on and off base						
11g	Coordinate unscheduled dispatches <b>TR: 33D9-61-76-1</b>						
11h	Monitor critical equipment and vehicle status <b>TR: 33D9-61-76-1</b>						
11i	Coordinate and document cannibalization procedures <b>TR: TO 00-2-2, TR: 33D9-61-76-1</b>						
11j	Perform EWO actions <b>TR: SRR OPLAN 55; Local wing OPLANS</b>						
11j(1)	Senior controller						
11j(2)	Weapons system controller						
11k	Use procedural, situational, and EWO checklists to						
11k(1)	Coordinate disaster response actions <b>TR: Local OPLAN directive</b>						
11k(2)	Coordinate movement of and emergency procedures for						
11k(2a)	Stage IV <b>TR: Local OPLAN directive</b>						
11k(2b)	PSRE <b>TR: Local OPLAN directive</b>						
11k(2c)	Reentry Systems <b>TR: AFSPCI 31-1101; Local OPLAN directive</b>						
11k(2d)	Missile <b>TR: Local OPLAN directive</b>						

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ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
11k(3)	Perform actions in support of Missile Potential Hazard (MPH) conditions						
11l	Coordinate with BCE on RPIE maintenance requirements and interruptions of normal commercial power <b>TR: AFSPCI 32-1005</b>						
11m	Coordinate and document airborne launch and control systems tests <b>TR: TOs 21-LG118A-2-1, 21M-LGM30X-2-1-X; ALCC Log</b>						
11n	Coordinate and document code change action <b>TR: TOs 21-LG118A-2-1, 21M-LGM30G-2-1-X; AFSPCI 91-1005</b>						
11o	Perform actions required of severe weather, snow, ice, and flood control plans <b>TR: Local OPLAN directives</b>						
11p	Perform support battle staff maintenance duties <b>TR: Local OPLAN directives</b>						
11q	Report wing status <b>TR: AFI 21-103; MCR 55-8; AFSPCI 21-0103</b>						
11r	Use STU III <b>TR: Operating Manual</b>						
<b>12</b>	<b>PLANS AND SCHEDULING</b> <b>TR: AFSPCI 21-0114</b>						
12a	Planning						
12a(1)	Plan, coordinate, and compile maintenance forecasts						
12a(2)	Plan and coordinate						
12a(2a)	SELM/SELP						
12a(2b)	Code change						
12a(2c)	TCTO/MCL modification program						
12a(2d)	EWO generation meeting						
12a(2e)	Periodic maintenance program						
12a(2f)	RIVET Mile programs						
12a(2g)	Perform AVDO Functions						
12b	Scheduling						
12b(1)	Plan and schedule the use and maintenance of vehicles and equipment						
12b(2)	Coordinate jobs in conjunction with Missile Maintenance Operations Center (MMOC) using appropriate work center requirements						
12b(3)	Develop daily work packages						
12b(4)	Conduct daily scheduling meetings						

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ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
<b>13</b>	<b>BRIEFING/DEBRIEFING</b> <b>TR: AFSPCI 21-0114</b>						
13a	Brief work packages, site discrepancies, current road and weather conditions, and related information to						
13a(1)	On base shop personnel						
13a(2)	Dispatching personnel/teams						
13b	Debrief work packages, site discrepancies, and related information from						
13b(1)	On base shop personnel						
13b(2)	Dispatching personnel/teams						
13c	Assign, verify, and change maintenance priorities using the maintenance priority system						
13d	Forward LF site inspections and inventory forms to the proper agencies for review						
13e	Maintain currency of record copy of Site Workload Requirements/ Equipment Workload Requirements (SWR/EWR)						
13f	Perform SWR/EWR reconciliations with applicable agencies						
<b>14</b>	<b>TECHNICAL ENGINEERING</b>						
14a	Use technical data, special drawings, engineering data, and other data as applicable <b>TR: Special contractor data; depot instructions; CE technical data; "as built" drawings; engineering data; Inertial Performance Data (IPD); Launch Facility Activity Data (LFAD)</b>						
14b	Conduct engineering studies <b>TR: Applicable technical data; AFSPCI 21-0114</b>						
14c	Evaluate applicable Engineering Change Proposals (ECPs) and Facility Change Proposals (FCPs) <b>TR: Applicable technical data; AFSPCI 21-0114</b>						
14d	Perform technical assistance and/or analysis for system effectiveness <b>TR: Applicable technical data</b>						
14e	Perform technical engineering EWO planning duties <b>TR: Local directives</b>						
14f	Perform Disaster Control Group Team duties <b>TR: Local O-Plan directives</b>						
14g	System anomalies <b>TR: Applicable technical data</b>						
14g(1)	Troubleshoot						
14g(2)	Use special engineering test equipment						
14g(3)	Document faults and dispatches						

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ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
<b>15</b>	<b><i>TO LIBRARY</i></b> <b>TR: RM 1103; TOs 00-5-1, 00-5-2-2, 00-5-2-102, 005-17</b>						
15a	Maintain and generate products from ATOMS data base						
15b	Process and control technical order, CEM, and CPIN distribution						
15c	Maintain initial distribution requirements						
15d	Perform routine, annual, and other required checks						
15e	Post TO						
15e(1)	Revisions						
15e(2)	Changes						
15e(3)	Supplements						
15e(3a)	Safety						
15e(3b)	Operational						
15e(3c)	Routine						
15e(3d)	TOPS						
15e(3e)	ITPS						
15e(3f)	TOFCN/VB pages						
15f	Post CEM						
15f(1)	Revisions						
15f(2)	Changes						
15f(3)	CEMICs						
15g	A-Page TO, CEM						
15h	Maintain task documents						
15h(1)	Revision and supplements						
15h(2)	RM 150 Change requests						
15h(3)	RM 150 logs						
15i	Maintain other support documents						
15i(1)	CPIN						
15i(2)	Task requirement documents						
15i(3)	Task flow documents						
15j	Issue/sign-in TO, CEM, and dispatch kits						
<b>16</b>	<b><i>MAINTENANCE PROGRAMS</i></b> <b>TR: AFIs 21-101, 38-101, 38-201; AFSPCI 21-0114;</b> <b>ACCI 21-101</b>						
16a	Manpower						

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ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
16a(1)	Monitor adequacy of assigned and authorized positions						
16a(2)	Advise maintenance managers of overall manpower positions						
16a(3)	Initiate manpower change requests						
16b	Mission Support Equipment (MSE) <b>TR: AFMAN 23-110</b>						
16b(1)	Monitor authorized and assigned MSE						
16b(2)	Ensure MSE is requisitioned by the appropriate custodian						
16b(3)	MSE allowance authorization change request						
16b(3a)	Review, evaluate, and coordinate						
16b(3b)	Approve/Disapprove						
16b(4)	Complete allowance document files						
16b(5)	Plan and accomplish acquisition/deletion of MSE for system modifications						
16b(6)	Assist equipment custodians						
16b(7)	Monitor Maintenance Complex CA/CRLs						
16c	Facility management						
16c(1)	Manage facility program						
16c(2)	Monitor and act upon requests for new/additional facilities or alterations of existing facilities						
16c(3)	Coordinate with work centers						
16d	Resource management						
16d(1)	Monitor and control expenditure of funds						
16d(2)	Plan and budget for financial requirements						
16d(3)	Add financial requirements to long range plans						
16e	OPLAN monitor						
16e(1)	Develop, coordinate, and distribute OPLANs within the maintenance complex						
16e(2)	Coordinate and review						
16e(2a)	OPLANs from outside agencies						
16e(2b)	Feasibility studies						
16e(2c)	Host-tenant and Interservice Support Agreements						
16f	Review/Update/Maintain LG Battle Staff checklists						
<b>17</b>	<b>ICBM CODES VAULT</b>						
17a	Lock/Alarm class A vault door <b>TR: AFI 31-209; TO 00-20F-2; SD 501-12; AFSPCI 91-1005</b>						



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ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
17b	Maintain security of division containers, locks/combinations <b>TR: AFPD 31-1, 31-4; AFI 31-401; SD 501-12</b>						
17c	Maintain visitor control <b>TR: SD 501-12; AFMAN 37-139; AFSPCI 91-1005</b>						
17d	Maintain code controller operations records <b>TR: SD 501-12; AFSPCI 91-1005</b>						
17e	Comply with system control/requirements for <b>TR: SD 501-12; AFSPCI 91-1005</b>						
17e(1)	WCPS						
17e(2)	20 year spares						
17e(3)	HCVE						
17e(4)	Master tapes/cartridges/discs						
17e(5)	LCP/keys						
17e(6)	LECG/EP (WS118A)						
17e(7)	LEP						
17e(8)	CCV/CSD(M)						
17e(9)	CCV/SCD (WS118A)						
17e(10)	P Plug						
17e(11)	KVP (WS118A)						
17e(12)	LFLC						
17e(13)	MCLC/LCLC/KCLC (WS118A)						
17e(14)	LFOC/Pen D LFLC						
17e(15)	WSC/MCG Pen C/D Tapes (WS118A)						
17e(16)	Encryption System components						
17e(17)	Program tapes/cartridges/discs						
17e(18)	Target materials and execution plans <b>TR: AFI 10-1102</b>						
17e(19)	WSC (WS118A)						
17e(20)	MCG (WS118A)						
17e(21)	LVP/COOP panel/keys (WS118A)						
17e(22)	TDIs						
17e(23)	CSD(G)						
17e(24)	IMU tapes						
17e(25)	GRP MGS Parameters data						
17e(26)	MGCS parameter tapes (WS118A)						
17e(27)	CTU (C631A)						

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17e(28)	LCSC (WS118A)						
17e(29)	LCMU (WS118A)						
17e(30)	Tape transport (C-164A)						
17e(31)	MCU						
17e(32)	MGS computer						
17e(33)	MGC Computer (GRP)						
17e(34)	MGCS computer (WS118A)						
17e(35)	WCPS computer						
17e(36)	Sumcheck controls						
17e(37)	Off base training LF						
17e(38)	Test components						
17e(39)	Code change procedures						
17e(40)	SELM						
17e(41)	SELP (WS118A)						
17e(42)	Encryption PROMS						
17e(43)	Failed WCPS components						
17e(44)	WCPS APM (KIV-42) (WS118A)						
17e(45)	LF APMs (KIV-42) (WS118A)						
17e(46)	WSP						
17e(47)	SIOP unlock code change						
17f	Documentation <b>TR: AFIs 33-322, 37-138; SD 501-12; AFSPCI 91-1005</b>						
17f(1)	Establish and maintain files						
17f(2)	File and locate records						
17f(3)	Classify and control records						
17f(4)	Maintain component control records						
17f(5)	Maintain WCPS operation records						
17f(6)	Maintain receipt/disposition records						
17g	Follow emergency procedures for						
17g(1)	Possible Code Compromise (PCC) <b>TR: SDs 501-11, 501-12; AFSPCI 91-1005</b>						
17g(2)	Two-person concept violations <b>TR: AFIs 91-101, 91-104</b>						
17g(3)	Single flight/ECC <b>TR: AFI 91-114; SD 501-11</b>						

AFSC 2M051/2M071 STS **ATTACHMENT 1**  
COMMON 2M0XX MISSILE AND SPACE MAINTENANCE TASKS

ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
17g(4)	Lateral coding <b>TR: SD 501-11</b>						
17g(5)	Emergency evacuation/destruction <b>TR: SD 501-11</b>						
17g(6)	Violations of code handling procedures <b>TR: SDs 501-11, 501-12; AFSPCI 91-1005</b>						
17g(7)	Possible compromise to Tamper Detection Indicator (TDI) technology <b>TR: SDs 501-11, 501-12; AFSPCI 91-1005</b>						
17h	Code components, programs, and misc. materials <b>TR: SD 501-12; AFSPCI 91-1005</b>						
17h(1)	Receipt for materials						
17h(2)	Store materials						
17h(3)	Inventory materials						
17h(4)	Dispose of materials						
17h(5)	Transfer materials						
17h(6)	Select and assign materials for						
17h(6a)	WCPS use only						
17h(6b)	Squadron use						
17h(6c)	LCC use						
17h(6d)	LF use						
17h(7)	Monitor availability of materials						
17h(8)	Identify, classify, and mark materials <b>TR: AFI 31-401</b>						
17i	Field requirements <b>TR: SD 501-12; AFSPCI 91-1005</b>						
17i(1)	Operational/test code configuration						
17i(1a)	Monitor code requirements/status						
17i(1b)	Coordinate job requirements						
17i(1c)	Maintain work status boards						
17i(2)	Team dispatch/recovery <b>TR: SD 501-12; AFSPCI 91-1005</b>						
17i(2a)	Prepare materials/equipment for issue						
17i(2b)	Identify and brief team						
17i(2c)	Apply issue restrictions						
17i(2d)	Recover materials						
17i(3)	Status of Field Teams						
17i(3a)	Monitor transport of material						

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ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
17i(3b)	Monitor transfer of material						
17i(3c)	Monitor field storage of material						
17i(3d)	Monitor installation of materials						
17i(3e)	Validate CMSC from LF						
17i(3f)	Validate VN from LF						
17i(3g)	Validate WSC/MCG CMCC from LCC						
17i(3h)	Install/inspect/remove TDIs						
17j	Equipment configuration <b>TR: TO 31X8-2-2-1</b>						
17j(1)	Load/unload MTC						
17j(2)	Load/unload punched mylar tape						
17j(3)	Install/remove LECG test adapter						
17j(4)	Install/remove LECG/EP						
17j(5)	Install/remove LEP						
17j(6)	Install/remove MCU and reset tamper mechanism						
17j(7)	Install/remove MCU (MCU encoder)						
17j(8)	Install/remove C-164A tape transport						
17j(9)	Install/remove WSC test adapter						
17j(10)	Install/remove WSC processor drawer (WS118A)						
17j(11)	Install/remove WSC memory drawer (WS118A)						
17j(12)	Install/remove MCG test adapter						
17j(13)	Install/remove MCG controller-synchronizer (WS118A)						
17j(14)	Install/remove MCG drum (WS118A)						
17j(15)	Degauss MTC/7-track/9-track magnetic tape <b>TR: TO 31X8-2-2-1</b>						
17j(16)	Install/remove CSD(G) test adapter						
17j(17)	Install/remove CSD(G) (Code verifier)						
17j(18)	Apply 7/9-track magnetic tape BOT/EOT markers						
17j(19)	Load/place on-line /unload 7/9-track magnetic tape						
17j(20)	Install/remove LCP verifier/test adapter						
17j(21)	Install/remove P Plug test adapter <b>TR: TO 31X8-2-2-2</b>						
17j(22)	Install/remove KVP test adapter <b>TR: TO 31X8-2-2-2</b>						
17j(23)	Install/remove removable disc						

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ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
17j(24)	Load KG84A						
17j(25)	Load/adjust/unload printer paper						
17j(26)	Load/remove printer ribbon cartridge						
17k	Equipment checkout <b>TR: TO 31X8-2-2-1</b>						
17k(1)	Clean CTU read/write head						
17k(2)	Inspect MTC						
17k(3)	Condition MTC						
17k(4)	Inspect/clean CDU, CTU, LCMU, 7/9 track read head and lamp aperture						
17k(5)	Clean MTU tape deck						
17k(6)	Comply with electrostatic discharge requirements <b>TR: TO 00-25-234</b>						
17k(7)	Perform CCV self test						
17k(8)	Perform MCU functional test <b>TR: TO 31X8-2-2-1</b>						
17l	Shielded enclosure <b>TR: TO 31X8-2-2-1</b>						
17l(1)	Perform SE visual inspection						
17l(2)	Perform SE fire alarm test						
17l(3)	Perform SE environmental test						
17l(4)	Perform SE air pressure and door seal test						
17l(5)	Perform SE communications test						
17m	WCPS power <b>TR: TO 31X8-2-2-1</b>						
17m(1)	Start-up WCPS - normal start procedure						
17m(2)	Start-up WCPS - cold start procedure						
17n	CCOS executive functions <b>TR: TOs 31X8-2-2-1, 31X8-2-2-2</b>						
17n(1)	Perform						
17n(1a)	Computer subsystem test						
17n(1b)	CRT/keyboard terminal test						
17n(1c)	Power supplies/ADC test						
17n(1d)	Disc assembly test						
17n(1e)	Line printer test						
17n(1f)	Tape transport test						
17n(1g)	Cartridge drive unit test						

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<b>ITEM #</b>	<b>TASK / KNOWLEDGE ITEM</b>	<b>CORE TASK</b>	<b>START DATE</b>	<b>COMP DATE</b>	<b>TRAINEE INITIALS</b>	<b>TRAINER INITIALS</b>	<b>CERTIFYING OFFICIAL INITIALS</b>
17n(1h)	9-track MTU test						
17n(1i)	KVP interface test						
17n(1j)	7-track MTU test						
17n(1k)	Isolation circuit test						
17n(1l)	Digital clock test						
17n(1m)	KG84A/modem comm link test						
17n(1n)	P-Plug adapter test						
17n(1o)	MCU encoder test						
17n(1p)	Force mod/Peacekeeper LCP test						
17n(1q)	Wing IX LCP test						
17n(1r)	LECG interface test						
17n(1s)	CSD(G) interface test						
17n(1t)	KIV-42 interface test						
17n(1u)	KI-22 interface test						
17n(1v)	MCG interface test						
17n(1w)	CCV interface test						
17n(1x)	MSD/L interface test						
17n(1y)	WSC interface test						
17n(1z)	REACT BS/L test						
17n(1aa)	REACT FDD test						
17n(1ab)	Self test						
17n(1ac)	End item load						
17n(2)	Display equipment status						
17n(3)	Display/reset log file						
17n(4)	Pack system disc						
17n(5)	Prepare new disc						
17n(6)	Display disc ID						
17n(7)	Transmit data via link						
17n(8)	Receive data via link						
17n(9)	Edit link control files						
17n(10)	Perform manual record keeping						
17n(11)	Relog (change operator)						
17n(12)	Prepare PVS backup tape						

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ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
17n(13)	Verify DC300 program copies						
17n(14)	Verify 9-track program copies						
17n(15)	Select commanded overwrite						
17n(16)	Perform media to media conversion						
17n(17)	Log off (exit) systems						
17n(18)	Inhibit operator input print						
17n(19)	Enable operator input print						
17n(20)	Perform console shutdown						
17n(21)	Change KI-22 keying variable						
17n(22)	Initialize REACT BS/L HDA						
17n(23)	Verify reel to reel tape copies						
17n(24)	Enable telephone						
17n(25)	Convert 9-track to 7-track tapes						
17n(26)	Backup system disk						
17n(27)	Format disc in data drive						
17n(28)	Execute all tests						
17o	Display main menu (WMAP/WPAP) <b>TR: TO 31X8-2-2-1</b>						
17p	Accomplish master data control (WMAP/WPAP) <b>TR: TO 31X8-2-2-1</b>						
17p(1)	Load A/B cartridge						
17p(2)	Change ITSC pen data						
17p(3)	Load pen data						
17p(4)	Load wing code disc						
17p(5)	Perform KI-22 key change						
17p(6)	Assign pen data to LCF						
17p(7)	Assign pen data to LF						
17p(8)	Display master data						
17p(9)	Load/delete P-Plug						
17p(10)	Rekey KIV-42 (WS118A)						
17p(11)	Assign L prime data (WS118A)						
17p(12)	Load L prime data (WS118A)						
17p(13)	Load F data (WS118A)						
17p(14)	Load/delete KVP (WS118A)						

AFSC 2M051/2M071 STS **ATTACHMENT 1**  
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ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
17p(15)	Load/replenish I code data (REACT)						
17p(16)	Load GRP I code data						
17p(17)	Prepare end item tapes						
17p(18)	Assign GRP I code data to LF						
17q	Establish support data <b>TR: TO 31X8-2-2-1</b>						
17q(1)	Load MM III WS133AM OGP						
17q(2)	Load MM III WS133B OGP (Wing 1X Only)						
17q(3)	Load MM III OFP						
17q(4)	Load MM III overwrite						
17q(5)	Load execution plan						
17q(6)	Load flight constants						
17q(7)	Load OEP						
17q(8)	Load IMU tape						
17q(9)	Load LF offload tapes						
17q(10)	Load GRP OGP/OFP data						
17q(11)	Load GRP MGS parameter data						
17q(12)	Load targeting tape						
17q(13)	Load LF master data						
17q(14)	Load MCG tapes (WS118A)						
17q(15)	Load PK OGP/OFP (WS118A)						
17q(16)	Load mission parameters (WS118A)						
17q(17)	Load MGCS parameters (WS118A)						
17q(18)	Load launch control program (WS118A)						
17q(19)	Load POEP tapes (WS118A)						
17r	Generate and verify data (WMAP/WPAP) for <b>TR: TO 31X8-2-2-1</b>						
17r(1)	WSC Pen C/D tape (WS 118A)						
17r(2)	MCG Pen C/D tape (WS118A)						
17r(3)	Fixed data cartridge						
17r(4)	LFLC variable data						
17r(5)	Complete load LFLC (GRP)						
17r(6)	Code change LFLC (GRP)						
17r(7)	Pen D LFLC (GRP)						



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ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
17r(8)	LFOC variable data						
17r(9)	Wing code disk						
1710)	MECA LFLC (WS118A)						
17r(11)	Keys/codes LFLC (WS118A)						
17r(12)	LCSC LFLC (WS118A)						
17s	Perform the sum checks (WMAP/WPAP) <b>TR: TO 31X8-2-2-1</b>						
17s(1)	MM CMSC						
17s(2)	GRP CMSC						
17s(3)	WSC CMCC						
17s(4)	MCG CMCC						
17s(5)	LCSC CMSC (WS118A)						
17s(6)	MECA CMSC (WS118A)						
17s(7)	Keys/codes CMSC (WS118A)						
17t	Encode and verify devices (WMAP/WPAP) <b>TR: TO 31X8-2-2-1</b>						
17t(1)	Encode and verify LECG (WS118A)						
17t(2)	Encode and verify LEP						
17t(3)	Encode and verify LCP						
17t(4)	Encode and verify CCV						
17t(5)	Perform CCV trace data functions						
17t(6)	Verify CSD(G)						
17t(7)	Encode MCU with maintenance code						
17t(8)	Encode SCD (WS118A)						
17u	Data verification <b>TR: TO 31X8-2-2-1</b>						
17u(1)	Perform selective enable verification (WS118A)						
17u(2)	Perform launch verification						
17v	Verify only data functions <b>TR: TO 31X8-2-2-1</b>						
17v(1)	Verify WSC Pen C/D tapes (WS118A)						
17v(2)	Verify MCG Pen C/D tapes (WS118A)						
17v(3)	Verify fixed data cartridges						
17v(4)	Verify LFLC variable data						
17v(5)	Verify GRP complete load LFLC						

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ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
17v(6)	Verify GRP code change LFLC						
17v(7)	Verify GRP Pen D LFLC						
17v(8)	Verify LFOC variable data						
17v(9)	Verify wing code disk						
17v(10)	Verify LECG (WS118A)						
17v(11)	Verify LEP						
17v(12)	Verify MECA LFLC (WS118A)						
17v(13)	Verify keys/codes LFLC (WS118A)						
17v(14)	Verify LCSC LFLC (WS118A)						
17w	Display tape ID (WMAP/WPAP) <b>TR: TO 31X8-2-2-1</b>						
17w(1)	Display wing code disk ID						
17w(2)	Display A/B cartridge ID						
17w(3)	Display WSC/MCG pen tape ID						
17w(4)	Display DC300 cartridge ID						
17w(5)	Display MECA LFLC ID (WS118A)						
17w(6)	Display keys/codes LFLC ID (WS118A)						
17w(7)	Display LCSC LFLC ID (WS118A)						
17x	Load and verify devices (REACT) <b>TR: TO 31X8-2-2-1</b>						
17x(1)	Initialize LCF BS/L HDA						
17x(2)	Load/verify LCF BS/L HDA						
17x(3)	Perform LCF BS/L HDA backout CMSC						
17x(4)	Load/verify LCF diskettes						
17x(4a)	Code change diskette						
17x(4b)	EPP/MA database diskette						
17x(4c)	FDM format database diskette						
17x(4d)	TCI/EPCI diskette						
17y	Load WSC (WMAP/WPAP) <b>TR: TO 31X8-2-2-1</b>						
17z	Load and initialize MCG (WMAP/WPAP) <b>TR: TO 31X8-2-2-1</b>						
17aa	Respond to unsuccessful sum checks <b>TR: TO 31X8-2-2-1</b>						
17aa(1)	Perform MM CMSC backout procedures						
17aa(2)	Perform GRP CMSC backout procedures						

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ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
17aa(3)	Perform MM CMCC backout procedures						
17aa(4)	Perform PK CMCC, CMSC backout procedures						
17aa(5)	Respond to unsuccessful VNs <b>TR: SD 501-12, AFSPCI 91-1005</b>						
17ab	Equipment malfunctions <b>TR: TOs 31X8-2-2-1, 31X8-2-2-2</b>						
17ab(1)	Perform corrective actions						
17ab(2)	Restart 7/9-track after power failure						
17ab(3)	Perform WCPS emergency shutdown						
17ab(4)	Perform KG84A emergency operations						
17ab(5)	Perform SCD code erase procedure (WS118A)						
17ac	Administrative communications management <b>TR: AFI 10-1102, 31-401; AFMAN 33-326; AFKAG-3H; SD 501-12; AFSPCI 91-1005</b>						
17ac(1)	Process official incoming/outgoing communications						
17ac(2)	Process, protect, and destroy classified information						
17ac(3)	Apply classification markings						
17ac(4)	Handle/store/account for classified materials						
17ac(5)	Document/package/process package for courier/classified shipments						

AFSC 2M051/2M071 STS **ATTACHMENT 2**  
ICBM ELECTRONIC MAINTENANCE TASKS

ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
<b>1</b>	<b>LAUNCH FACILITY, MISSILE ALERT FACILITY AND SUPPORT BASE FACILITIES</b>						
1a	Launch facility WS133AM/CDB, WS133B/CDB, WS118A <b>TR: TOs 21M-LGM30G-2-10 (-1), 21-LG118A-2-10, 21M-LGM30F-2-17-9, 21-LG118A-2-17-2</b>						
1a(1)	Enter LER	5					
1a(2)	Enter LSB/LEB	5					
1a(3)	Perform emergency shutdown	5					
1a(4)	Evacuate launch facility for EWO launch conditions	5					
1a(5)	Follow emergency procedures for electrical isolation of LSB/LEB	5					
1a(6)	Restart LF ECS/brine chiller						
1a(7)	Lower equipment						
1a(8)	Raise equipment						
1a(9)	Exit LER	5					
1a(10)	Exit LSB/LEB	5					
1a(11)	Perform LF hostile securing procedures	5					
1a(12)	Perform LF exit procedures	5					
1a(13)	Perform Contaminated Atmosphere Purge						
1b	Personnel access system <b>TR: TOs 21-LG118A-2-19, 21M-LGM30F-2-19, 21-LG118A-2-10, 21M-LGM30G-2-10 (-1)</b>						
1b(1)	Electro-mechanical linear actuator						
1b(1a)	Adjust						
1b(1b)	Troubleshoot						
1b(1c)	Repair						
1b(1d)	Replace						
1b(1e)	Service						
1b(2)	Replace folding ladder						
1b(3)	Forced entry of LF <b>TR: TOs 35M37-4-12, 21-LG118A-2-19, 21M-LGM30F-2-19</b>						
1b(3a)	Perform break-in procedures for secondary door lockout						
1b(3b)	Perform break-in procedures for security pit lockout						
1b(3c)	Perform nondestructive procedures						
1b(4)	Remove and replace hand driven linear actuator						
1b(5)	Repair personnel access system hardware						
1b(6)	Security pit						
1b(6a)	Repair						
1b(6b)	Service						

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ICBM ELECTRONIC MAINTENANCE TASKS

ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
1b(6c)	Perform electrical test						
1b(6d)	Troubleshoot						
1b(7)	Security pit vault door (Mosler/Ilco)						
1b(7a)	Repair						
1b(7b)	Troubleshoot						
1b(8)	Telescoping ladder						
1b(8a)	Inspect						
1b(8b)	Repair						
1b(8c)	Align						
1b(9)	Alternate opening of LF						
1b(9a)	Perform primary door procedures						
1b(9b)	Perform secondary door procedures						
1b(10)	Secondary door (Mosler/Ilco)						
1b(10a)	Change lock combination	3					
1b(10b)	Troubleshoot						
1b(10c)	Repair	5					
1b(10d)	Replace						
<b>2</b>	<b><i>ELEVATOR WORK CAGE/GUIDED MISSILE MAINTENANCE PLATFORM: OPERATE</i></b> <b>TR: TOs 21M-LGM30G-2-10(-1), 21-LG118A-2-10</b>						
<b>3</b>	<b><i>COMMAND AND CONTROL (WS133AM/CDB)</i></b> <b>TR: TOs 21M-LGM30G-2-1-X, 21M-LGM30G-2-12-X</b>						
3a	IMU Performance Data <b>TR: TO 33D9-74-42-2</b>						
3a(1)	Repair Communication Equipment Interface Unit (CEIU) <b>TR: TO 21M-LGM30G-2-12-4</b>						
3a(2)	Portable terminal <b>TR: TO 33D9-74-42-2</b>						
3a(2a)	Install						
3a(2b)	Remove						
3b	Repair digital data group						
3c	Command message processing group						
3c(1)	Checkout						
3c(2)	Repair						
3d	Programmer group						
3d(1)	Checkout						
3d(2)	Repair						
3d(3)	Replace keying variable	3					

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ICBM ELECTRONIC MAINTENANCE TASKS

ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
3e	UHF command radio system						
3e(1)	UHF receiver						
3e(1a)	Checkout						
3e(1b)	Repair						
3e(2)	Inspect antenna						
3f	REACT Console						
3f(1)	Repair						
3f(2)	Checkout						
3f(3)	Replace circuit card						
<b>4</b>	<b>COMMAND AND CONTROL (WS133B/CDB)</b> <b>TR: TOs 21M-LGM30G-2-1-49, 21M-LGM30G-2-12-X</b>						
4a	LF medium frequency radio system						
4a(1)	Repair						
4a(2)	Troubleshoot						
4b	LF digital data terminal						
4b(1)	Checkout power supply						
4b(2)	Repair						
4b(3)	Replace keying variable						
4c	Repair MAF digital data terminal						
4d	MAF medium frequency radio system						
4d(1)	Repair						
4d(2)	Troubleshoot						
4e	IMU Performance Data <b>TR: TO 33D9-74-42-2</b>						
4e(1)	Repair Communication Equipment Interface Unit (CEIU) <b>TR: TO 21M-LGM30G-2-12-4</b>						
4e(2)	Portable terminal <b>TR: TO 33D9-74-42-2</b>						
4e(2a)	Install						
4e(2b)	Remove						
4f	UHF command radio system						
4f(1)	UHF receiver						
4f(1a)	Checkout						
4f(1b)	Repair						
4f(2)	Inspect antenna						
4g	REACT Console						
4g(1)	Repair						
4g(2)	Checkout						

AFSC 2M051/2M071 STS **ATTACHMENT 2**  
ICBM ELECTRONIC MAINTENANCE TASKS

ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
4g(3)	Replace circuit card						
<b>5</b>	<b>COMMAND AND CONTROL (WS118A)</b> <b>TR: TOs 21-LG118A-2-1, 21-LG118A-2-12, 21-LG118A-2-12-1</b>						
5a	Launch control facility processor						
5a(1)	Generate case data image tape						
5a(2)	Perform program loading						
5a(3)	Repair						
5a(4)	Replace keying variable						
5b	Replace keyboard printer						
5c	Repair launch enable control group						
5d	IPD processor unit						
5d(1)	Repair						
5d(2)	Portable terminal <b>TR: TO 33D9-74-42-2</b>						
5d(2a)	Install						
5d(2b)	Remove						
5e	Launch control console						
5e(1)	Checkout						
5e(2)	Repair						
5f	Communications control console						
5f(1)	Checkout						
5f(2)	Repair						
5g	Repair digital data group						
5h	Command message processing group						
5h(1)	Checkout						
5h(2)	Repair						
5i	Programmer group						
5i(1)	Checkout						
5i(2)	Repair						
5i(3)	Replace keying variable						
5j	UHF command radio system						
5j(1)	UHF receiver						
5j(1a)	Checkout						
5j(1b)	Repair						
5j(2)	UHF transmitter						
5j(2a)	Checkout						
5j(2b)	Repair						

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ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
5j(3)	Inspect antenna						
5k	Launch control system controller						
5k(1)	Computer memory						
5k(1a)	Overwrite LCSC						
5k(1b)	Load LCSC						
5k(1c)	Load MECA	5					
5k(2)	Read out and record local data words						
5k(3)	Perform local tests						
5k(4)	Read out and record IMU maintenance data						
5k(5)	Replace						
<b>6</b>	<b><i>INTRASITE CABLING (WS133AM/CDB)</i></b> <b>TR: TOs 21M-LGM30G-2-1-X, 21M-LGM30G-2-21-X, 21M-LGM30F-2-21-8</b>						
6a	LF electrical filter assembly F-1343/ F-1344/F-1345/F-1431/F-1432						
6a(1)	Checkout						
6a(2)	Repair						
6a(3)	Troubleshoot						
6b	LCC electrical surge arrester						
6b(1)	Checkout						
6b(2)	Replace						
6b(3)	LCC ESA - Circuit Card Assembly						
6b(3a)	Checkout						
6b(3b)	Replace						
6b(4)	LCC Radio/TV ESA						
6b(4a)	Checkout						
6b(4b)	Replace						
6c	LF electrical surge arrester						
6c(1)	Checkout						
6c(2)	Replace						
6d	Intrasite cables						
6d(1)	Checkout						
6d(2)	Repair						
6d(3)	Certify critical component cables <b>TR: TO 21M-LGM30F-12-1</b>						
6e	LCC interconnecting box						
6e(1)	Checkout						
6e(2)	Repair						



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ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
6f	LF interconnecting box						
6f(1)	Checkout						
6f(2)	Repair						
6f(3)	Troubleshoot						
6g	Perform procedures for isolating and restoring LF and MAF communications <b>TR: TO 21M-LGM30F-12</b>						
6h	Perform LCC command line tone/resistance checkout						
6i	Perform LF command line tone/resistance checkout						
6j	Perform GMR 3 or GMR 5 monitor circuits checkout						
6k	Facility Alarm Protection Assembly/Door Alarm Protection Assembly <b>TR: TO 21M-LGM30G-2-28</b>						
6k(1)	Checkout						
6k(2)	Repair						
6k(3)	Troubleshoot						
6l	LCC High Energy Spark Gap						
6l(1)	Checkout						
6l(2)	Replace						
6m	LCC Power Junction Box						
6m(1)	Checkout						
6m(2)	Replace						
6n	LCC Security/Monitor Junction Box						
6n(1)	Checkout						
6n(2)	Replace						
<b>7</b>	<b>INTRASITE CABLING (WS 133B/CDB)</b> <b>TR: TOs 21M-LGM30G-2-1-9, 21M-LGM30G-2-21-6</b>						
7a	LF electrical filter assembly checkout						
7a(1)	Checkout						
7a(2)	Repair						
7a(3)	Troubleshoot						
7b	LCC electrical surge arrester						
7b(1)	Checkout						
7b(2)	Replace						
7c	LF electrical surge arrester						
7c(1)	Checkout						
7c(2)	Replace						
7d	Intrasite cables						

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ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
7d(1)	Checkout						
7d(2)	Repair						
7d(3)	Certify critical component cables <b>TR: TO 21M-LGM30F-12-1</b>						
7e	LCC junction box set						
7e(1)	Checkout						
7e(2)	Repair						
7f	Transformer filter assembly, F-1366/GSW-13						
7f(1)	Checkout						
7f(2)	Repair						
7g	Perform procedures for isolating and restoring LF and MAF communications <b>TR: TO 21M-LGM30F-12</b>						
7h	Facility Alarm Protection Assembly <b>TR: TO 21M-LGM30G-2-28-1</b>						
7h(1)	Checkout						
7h(2)	Repair						
7h(3)	Troubleshoot						
<b>8</b>	<b><i>INTRASITE CABLING (WS118A)</i></b> <b>TR: TOs 21-LG118A-2-1, 21-LG118A-2-21, 21-LG118A-2-21-1</b>						
8a	LF electrical filter assembly						
8a(1)	Checkout						
8a(2)	Repair						
8a(3)	Troubleshoot						
8b	LCC electrical filter assembly						
8b(1)	Checkout						
8b(2)	Repair						
8b(3)	Troubleshoot						
8c	MAF electrical surge arrester						
8c(1)	Checkout						
8c(2)	Replace						
8d	LF electrical surge arrester						
8d(1)	Checkout						
8d(2)	Replace						
8e	Intrasite cables						
8e(1)	Checkout						
8e(2)	Repair						
8e(3)	Certify critical component cables <b>TR: TO 21M-LG118A-12-1</b>						

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ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
8f	LCC interconnecting box						
8f(1)	Checkout						
8f(2)	Repair						
8g	LF interconnecting box						
8g(1)	Checkout						
8g(2)	Repair						
8g(3)	Troubleshoot						
8h	Perform procedures for isolating and restoring LF and MAF communications <b>TR: TO 21M-LGM30F-12</b>						
8i	Perform LCC command line tone/resistance checkout						
8j	Perform LF command line tone/resistance checkout						
<b>9</b>	<b>MISSILE ALERT FACILITY (WS133AM/CDB, WS133B/CDB, WS118A)</b>						
9a	Launch control center motor generator <b>TR: TOs 21-LG118A-2-11-1, 21M-LGM30G-2-11, 21M-LGM30G-2-11-1</b>						
9a(1)	Start up and load						
9a(2)	Unload and shut down						
9b	Isolate faults <b>TR: TOs 21-LG118A-2-1, 21M-LGM30G-2-1-X</b>						
9c	Analyze anomalies <b>TR: TO 21M-LGM30G-2-1-X, 21M-LGM30X-2-21-X, 21M-LGM30G-2-11, 21M-LGM30G-2-11-1, 21M-LGM30G-1-1, 21M-LGM30G-2-12-X, 21-LG118A-2-1, 21-LG118A-2-21-1, 21-LG118A-2-11-1, 21-LG118A-2-12-1, 21-LG118A-2-12,</b>						
9d	Power signal distribution unit <b>TR: TOs 1-1A-14, 21-LG118A-2-1, 21-LG118A-2-11-1, 21-LG118A-2-12-1, 21M-LGM30G-2-1-X, 21M-LGM30G-2-11, 21M-LGM30G-2-11-1, 21M-LGM30G-2-12-X, 31S8-2GYW-1-2, 31X2-56-8-1, 31X3-6-9-1, 31X4-1-102, 31X4-1-142, 31X4-1-152</b>						
9d(1)	Checkout						
9d(2)	Replace						
9e	Replace electrical cabinet <b>TR: TOs 21M-LGM30G-2-12-X, 36A12-24-3-1</b>						
9f	LCC operator chair <b>TR: TOs 21M-LGM30G-2-28-X, 21-LG118A-2-28</b>						
9f(1)	Replace						
9f(2)	Repair						
9f(3)	Checkout						
9g	LCC Survival Lighting Repair <b>TR: TO 21M-LGM30G-2-11 (X)</b>						

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ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
<b>10</b>	<b>COMMON LAUNCH FACILITY MAINTENANCE (WS-133AM/CDB, WS133B/CDB, WS118A)</b> TR: TOs 21M-LGM30G-2-1-X, 21M-LGM30X-2-21-X, 21M-LGM30G-1-1, 21M-LGM30G-2-11-(X), 21M-LGM30G-2-10-(X), 21M-LGM30G-2-12-X, 21M-LGM30G-2-4,21M-LGM30F-2-19, 21M-LGM30G-2-6, 1-1A-14, 31X2-56-8-1, 31X3-6-9-1, 31X4-1-102,31X4-1-142, 21-LG118A-2-10, 21-LG118A-2-17-2, 21-LG118A-2-1, 21-LG118A-2-21, 21-LG118A-2-11, 21-LG118A-2-12						
10a	Isolate faults						
10b	Analyze anomalies						
10c	Power signal distribution unit TR: TOs 1-1A-14, 21M-LGM30GX-2-11-(x), 21M-LGM30GX-2-1-X, 21M-LGM30GX-2-12-X, 31X2-56-8-1, 31X3-6-9-1, 31X4-1-102, 31X4-1-142, 31X4-1-152, 21-LG118A-2-1, 21-LG118A-2-11, 21-LG118A-2-12						
10c(1)	Checkout						
10c(2)	Replace						
10c(3)	Certify critical component PSDUs TR: TOs 21M-LGM30F-12-1, 21-LG118A-12-1						
10d	Perform primary power restart TR: TOs 21M-LGM30G-2-10-(x), 21-118A-2-10						
10e	Perform LER electronic rack power removal TR: TOs 21M-LGM30G-2-10, 21-LG118A-2-10						
10f	Perform LF Monitor power application						
<b>11</b>	<b>MISSILE (WS133AM/CDB, WS133B/CDB)</b> TR: TOs 21M-LGM30G-2-12-X, 21M-LGM30G-2-1-X						
11a	Change command signal decoder (M) code	3					
11b	Downgrade computer memory information (NS-20 / NS-50)	3					
11c	Perform normal shutdown AVE/OGE	3					
11d	Start up AVE/OGE (see note 1)	3/5					
11e	Load computer memory (NS-20 / NS-50)	3					
11f	Read out and record local data/dedicated data (NS-20 / NS-50)						
11g	Remove MGS Computer TR: TO 21M-LGM30G-2-33						
<b>12</b>	<b>MISSILE (WS118A)</b> TR: TOs 21-LG118A-2-1, 21M-LG118A-2-12						
12a	Perform normal shutdown AVE/OSE						
12b	Start up AVE/OSE	5					
<b>13</b>	<b>MISSILE GUIDANCE SET COOLING SYSTEM</b> TR: TOs 21M-LGM30G-2-1-X, 21M-LGM30G-2-6						
13a	Checkout	3					

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ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
13b	Troubleshoot						
13c	Repair						
13d	Service						
<b>14</b>	<b>POWER SYSTEM (WS133AM/CDB)</b> <b>TR: TOs 21M-LGM30G-2-11, 21M-LGM30G-2-1-X,</b> <b>21M-LGM30G-2-21-X; CEM 21-SM80X-2-21-X</b>						
14a	LCC storage batteries						
14a(1)	Checkout						
14a(2)	Replace						
14a(3)	Service						
14a(4)	Troubleshoot						
14a(5)	Isolate						
14a(6)	Repair						
14b	LF storage batteries						
14b(1)	Checkout <b>(see note 1)</b>	3/5					
14b(2)	Replace						
14b(3)	Service						
14b(4)	Troubleshoot						
14b(5)	Repair						
14c	LF battery charger set						
14c(1)	Checkout <b>(see note 1)</b>	3/5					
14c(2)	Replace						
14c(3)	Troubleshoot						
14d	Operate diesel electric unit						
14e	LCC distribution box						
14e(1)	Checkout						
14e(2)	Repair						
14f	LF distribution box						
14f(1)	Checkout						
14f(2)	Repair						
14f(3)	Troubleshoot						
14f(4)	Certify <b>TR: TO 21M-LGM30F-12-1</b>						
14g	LCC motor generator set						
14g(1)	Checkout						
14g(2)	Repair						
14g(3)	Replace						

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ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
14g(4)	Service						
14g(5)	Troubleshoot						
14h	LF motor generator set						
14h(1)	Checkout	5					
14h(2)	Repair						
14h(3)	Replace						
14h(4)	Service						
14h(5)	Troubleshoot						
14h(6)	Replace MG DC switch box						
14i	Perform power fault to ground check						
14j	Restore power						
14k	LCC power supply group						
14k(1)	Checkout	3					
14k(2)	Repair						
14k(3)	Troubleshoot						
14l	LF power supply group						
14l(1)	Checkout						
14l(2)	Repair						
14l(3)	Troubleshoot						
14m	Operate Pre-installation Test Set (PITS)						
<b>15</b>	<b>POWER SYSTEM (WS133B/CDB)</b> <b>TR: TOs 21M-LGM30G-2-1-9, 21M-LGM30G-2-11-1,</b> <b>21M-LGM30G-2-21-6, CEM 21-SM80X-2-21-X</b>						
15a	LCC storage batteries						
15a(1)	Checkout						
15a(2)	Replace						
15a(3)	Service						
15a(4)	Troubleshoot						
15a(5)	Isolate						
15a(6)	Repair						
15b	LF storage batteries						
15b(1)	Checkout	5					
15b(2)	Replace						
15b(3)	Service						
15b(4)	Troubleshoot						
15b(5)	Repair						

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ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
15c	LCC battery charger set (32 volt)						
15c(1)	Checkout						
15c(2)	Repair						
15c(3)	Troubleshoot						
15d	LCC battery charger set (160 volt)						
15d(1)	Checkout						
15d(2)	Repair						
15d(3)	Troubleshoot						
15e	Operate diesel electric unit						
15f	LF distribution box						
15f(1)	Checkout						
15f(2)	Repair						
15f(3)	Troubleshoot						
15f(4)	Certify <b>TR: TO 21M-LGM30F-12-1</b>						
15g	Fault locator indicator drawer <b>TR: TO 21M-LGM30G-2-12-4</b>						
15g(1)	Checkout						
15g(2)	Replace						
15h	LCC motor generator set						
15h(1)	Checkout						
15h(2)	Repair						
15h(3)	Replace						
15h(4)	Service						
15h(5)	Troubleshoot						
15i	LF motor generator set						
15i(1)	Checkout	5					
15i(2)	Repair						
15i(3)	Replace						
15i(4)	Service						
15i(5)	Troubleshoot						
15j	Perform power fault to ground check						
15k	Shut down LF power system						
15l	Start up LF power						
15m	LCC power distribution group						
15m(1)	Checkout						
15m(2)	Repair						

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ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
15m(3)	Troubleshoot						
15n	Power Supply Set (6409)						
15n(1)	Checkout						
15n(2)	Repair						
15n(3)	Troubleshoot						
15o	Power Supply Set (6521)						
15o(1)	Checkout	5					
15o(2)	Repair						
15o(3)	Troubleshoot						
<b>16</b>	<b>POWER SYSTEM (WS118A)</b> <b>TR: TOs 21-LG118A-1, 21-LG118A-2-1, 21-LG118A-2-11, 21-LG118A-2-11-1, 21-LG118A-2-21, CEM 21-SM80X-2-21-X</b>						
16a	LCC storage batteries						
16a(1)	Checkout						
16a(2)	Replace						
16a(3)	Service						
16a(4)	Troubleshoot						
16a(5)	Isolate						
16a(6)	Repair						
16b	LF storage batteries						
16b(1)	Checkout	5					
16b(2)	Troubleshoot						
16b(3)	Replace						
16b(4)	Service						
16b(5)	Repair						
16c	Operate diesel electric unit						
16d	LCC distribution box						
16d(1)	Checkout						
16d(2)	Repair						
16e	LF distribution box						
16e(1)	Checkout						
16e(2)	Repair						
16e(3)	Troubleshoot						
16e(4)	Certify <b>TR: TO 21-LG118A-12-1</b>						
16f	LCC motor generator set						
16f(1)	Checkout						



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ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
16f(2)	Repair						
16f(3)	Replace						
16f(4)	Service						
16f(5)	Troubleshoot						
16g	LCC power supply group						
16g(1)	Checkout						
16g(2)	Repair						
16g(3)	Troubleshoot						
16h	LF power supply group						
16h(1)	Checkout						
16h(2)	Repair						
16i	AC/DC converter						
16i(1)	Checkout	5					
16i(2)	Repair						
16j	Cooling drawer assembly						
16j(1)	Checkout						
16j(2)	Repair						
16k	LF power system						
16k(1)	Shutdown						
16k(2)	Startup						
<b>17</b>	<b>SECURITY SYSTEM (WS133AM/CDB, WS133B/CDB, WS118A) TR: TOs 21M-LGM30F-2-19, 21M-LGM30G-2-1-X, 21M-LGM30G-2-4, 21-LG118A-2-1</b>						
17a	Perform TDR test						
17b	Repair switch assembly						
17b(1)	Personnel access hatch/LSB (LSB Wing 1)						
17b(2)	Launcher closure magnetic switch						
17b(3)	Launcher closure sensitive switch						
17c	Replace transducer						
17d	Rack (6409)						
17d(1)	Replace filter						
17d(2)	Replace capacitor						
17e	Replace transmit filter <b>TR: TOs 21-LGM30X-2-21-X, 21-LG118A-2-21</b>						
17f	Perform system checkout	5					
17g	Troubleshoot system						
17h	Replace CB-1						

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ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
<b>18</b>	<b>REPLACE ELECTRONIC DRAWER</b> TR: TOs 21M-LGM30G-2-12-X, 21M-LGM30G-2-11-X, 21M-LGM30G-2-4, 21-LG118A-2-11-1, 21M-LGM30F-2-17-9, 21-LG118A-2-17-2, 21-LG118A-2-11, 21-LG118A-2-12-X	3					
<b>19</b>	<b>ELECTRONIC EQUIPMENT TEST STATION (AN/GSM-315), MOBILE WORK SURFACE (MWS) (OQ-364/GSM-315)</b> TR: TOs 33D9-61-57-21, 33D9-61-91-2						
19a	Operation						
19a(1)	Perform power and wake-up						
19a(2)	Perform operating instructions						
19a(3)	Use test flow diagrams						
19a(4)	Understand functions, theory of operation, and inter-working relationship						
19b	Maintenance						
19b(1)	Use CHIEF ATS						
19b(2)	Perform inspection and preventive maintenance						
19b(3)	Perform system operational checkout/self-test						
19b(4)	Perform extended test						
19b(5)	Perform instrument built-in tests						
19b(6)	Perform computer subsystem off-line testing						
19c	Troubleshoot						
19c(1)	Station/MWS using test flow diagrams and self-test diagnostics						
19c(2)	Computer subsystem						
19c(3)	Digital subsystem						
19c(4)	AC power distribution						
19c(5)	Programmable power supply 6268B						
19c(6)	Switch controller 9411B						
19c(7)	Synthesizer/function generator 3325A						
19c(8)	Digital magnetic tape unit 7970E						
19c(9)	Line printer unit 2563A						
19c(10)	Video display terminal 45851A						
19c(11)	Disc drive 9123D						
19c(12)	MWS interface panel						
19d	Repair						
19e	Perform alignment and adjustment						
19f	Calibrate TR: TOs 33K3-4-1196-1, 33K3-4-1196-2						

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<b>20</b>	<b>INTERFACE TEST ADAPTER</b> <b>TR: TOs 33D9-19-80-2, 33D9-61-90-2, 33D9-61-90-3</b>						
20a	Perform inspection and preventive maintenance						
20b	Troubleshoot						
20c	Repair ITA						
20d	Repair ITA PCA						
<b>21</b>	<b>TEST SETS</b>						
21a	Common						
21a(1)	C338A test adapter <b>TR: TO 31S3-2G-1</b>						
21a(1a)	Checkout						
21a(1b)	Troubleshoot						
21a(1c)	Repair						
21a(2)	Connector adapter test set AN/GSM-94 <b>TR: TO 31X2-56-8-1</b>						
21a(2a)	Select connectors						
21a(2b)	Repair						
21a(3)	Electronic facility-base maintenance test equipment (AN/GSM-82) <b>TR: TO 33D9-6-21-1</b>						
21a(3a)	Checkout						
21a(3b)	Troubleshoot						
21a(3c)	Repair						
21a(3d)	R/T alarm set test set adapter (MX-18317/GSM-82)						
21a(3d1)	Checkout						
21a(3d2)	Troubleshoot						
21a(3d3)	Repair						
21a(3e)	Keyboard-printer/recorder-reproducer test adapter (TS-325/GSM-127B) <b>TR: TO 33D9-6-21-1</b>						
21a(3e1)	Checkout						
21a(3e2)	Troubleshoot						
21a(3e3)	Repair						
21a(3f)	Coder decoder indicator test adaptor (TS-3250/GSM-127B) <b>TR: TO 33D9-6-21-1</b>						
21a(3f1)	Checkout						
21a(3f2)	Troubleshoot						
21a(3f3)	Repair						

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21b	Weapon System (WS-133B/CD) Power Equipment Test Set (AN/GSM-131) <b>TR: TO 33D9-38-44-1</b>						
21b(1)	Checkout						
21b(2)	Troubleshoot						
21b(3)	Repair						
21b(4)	Calibrate						
21c	Weapon System (WS-118)						
21c(1)	AC/DC converter adapter test set <b>TR: TO 33D9-19-76-1</b>						
21c(1a)	Checkout						
21c(1b)	Troubleshoot						
21c(1c)	Repair						
21c(2)	Battery simulator kit <b>TR: TO 33D9-19-73-1</b>						
21c(2a)	Checkout						
21c(2b)	Troubleshoot						
21c(2c)	Repair						
21c(3)	DC/AC inverter adapter test set <b>TR: TO 33D9-19-74-1</b>						
21c(3a)	Checkout						
21c(3b)	Troubleshoot						
21c(3c)	Repair						
21c(4)	Load bank <b>TR: TO 33DA22-35-1</b>						
21c(4a)	Checkout						
21c(4b)	Troubleshoot						
21c(4c)	Repair						
21c(5)	Memory erase unit <b>TR: TO 31X3-15-8-1</b>						
21c(5a)	Checkout						
21c(5b)	Troubleshoot						
21c(5c)	Repair						
21c(6)	Missile ground power supply adapter test set <b>TR: TO 33D9-19-77-1</b>						
21c(6a)	Checkout						
21c(6b)	Troubleshoot						
21c(6c)	Repair						
21c(7)	Computer test set (AN/UYM-3) <b>TR: TOs 31S5-2UYK11-2, 33D9-53-73-1</b>						

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21c(7a)	Checkout						
21c(7b)	Troubleshoot						
21c(7c)	Repair						
21c(8)	Memory-controller group test set (AN/GSM-234) <b>TR: TO 33D9-17-79-2</b>						
21c(8a)	Checkout						
21c(8b)	Troubleshoot						
21c(8c)	Repair						
21d	Nuclear Certification Test Station (AN/GSM-374) WS133AM/CDB, WS133B/CDB <b>TR: TOs 33D9-54-100-1, 21M-LGM30F-12-1</b>						
21d(1)	Initialize and Certify						
21d(2)	Checkout						
21d(3)	Troubleshoot						
21d(4)	Repair						
21d(5)	Calibrate						
21d(6)	Disk Copy/Partition						
21d(7)	Program/erase SMC-810 Card						
21d(8)	Certify SMC-810 Card						
21d(9)	Certify EMAD Card						
21d(10)	Verify RMB 32 Card						
21d(11)	Certify WSP Drawer						
21d(12)	Decertify WSP Drawer						
21d(13)	Decertify CDA Assemblies						
21d(14)	Decertify CDA/IPD Card						
<b>22</b>	<b>CODING EQUIPMENT</b>						
22a	Hardware certification verification equipment (HCVE) <b>TR: TO 31X8-2-3-1</b>						
22a(1)	Perform on-line diagnostics						
22a(2)	Perform off-line diagnostics						
22a(3)	Perform system configuration						
22a(4)	Repair						
22a(5)	Use programmable read-only memory programmer						
22a(6)	Preventive Maintenance						
22b	Wing code processing system <b>TR: TOs 21-LG118A-12-1, 31X8-2-2-1, 31X8-2-2-2</b>						
22b(1)	Perform common certification operating system procedures						
22b(2)	Troubleshoot						

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22b(3)	Repair						
22b(4)	Perform preventive maintenance						
22b(5)	Certify						
22b(6)	Perform power conditioner rated battery test						
22c	Shielded enclosure <b>TR: TO 31X8-2-2-2</b>						
22c(1)	Door seal/fire alarm/communications panel circuitry						
22c(1a)	Checkout						
22c(1b)	Troubleshoot						
22c(1c)	Repair						
22c(2)	Fiber optics						
22c(2a)	Checkout						
22c(2b)	Troubleshoot						
22c(2c)	Repair						
<b>23</b>	<b>SUPPORT EQUIPMENT</b>						
23a	Common						
23a(1)	Alarm set test set AN/GSM-319 <b>TR: TO 33D9-137-20-1</b>						
23a(1a)	Checkout						
23a(1b)	Troubleshoot						
23a(1c)	Repair						
23a(2)	Cable assembly set, electrical, models SE214A, SE536A1 (AN/GJA28A) (ANGJQ-33) (ON-146/G) <b>TR: TOs 21M-LGM30F-12-1, 31S3-2G-1</b>						
23a(2a)	Checkout						
23a(2b)	Certify W-5 Cable						
23a(3)	Connector adapter set (AN/GSM-85) <b>TR: TO 31X2-56-8-1</b>						
23a(3a)	Perform continuity checks						
23a(3b)	Troubleshoot						
23a(3c)	Repair						
23a(4)	Electrical cable assembly set (A/E 24A-148A) (A/E 24T-52) (A/E 24T-176) electrical lead assembly (HRK-465/E25T-1) <b>TR: TOs 33D9-38-15-1, 33D9-38-15-21</b>						
23a(4a)	Checkout						
23a(4b)	Troubleshoot						
23a(4c)	Repair						
23a(5)	Electrical power test set (AN/GJM-42) (AN/GJM-26) (AN/GJM-52) (AN/GJM-53) <b>TR: TO 33D9-6-93-1</b>						

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23a(5a)	Checkout						
23a(5b)	Troubleshoot						
23a(5c)	Repair						
23a(6)	Explosive Set Circuitry Test Set (TTU 463 A/E) <b>TR: TO 33D9-38-15-21</b>						
23a(6a)	Perform self-test						
23a(6b)	Troubleshoot						
23a(6c)	Repair						
23a(7)	Guidance section liquid cooler test set (TTU-367A/E) <b>TR: TO 33D9-17-81-2</b>						
23a(7a)	Checkout						
23a(7b)	Troubleshoot						
23a(7c)	Repair						
23a(7d)	Adjust						
23a(8)	Perform waveform checkout of guidance set cooler test bench (A/E-47T-23) <b>TR: TO 33D9-17-89-1</b>						
23a(9)	Magnetic tape degausser (TD 2903-4B)(MX-10387/T) <b>TR: TO 31S3-4-52-11; MX-10387/T Commercial Manual</b>						
23a(9a)	Inspect						
23a(9b)	Repair						
23a(9c)	Troubleshoot						
23a(10)	Magnetic tape transport (C631A) <b>TR: TO 33DA30-23-1. 21M-LGM30F-12-1</b>						
23a(10a)	Perform self-test						
23a(10b)	Troubleshoot						
23a(10c)	Repair						
23a(10d)	Certify						
23a(11)	Minuteman power processor/power system verification boxes <b>TR: CEM 21-SM80-2-22</b>						
23a(11a)	Checkout						
23a(11b)	Troubleshoot						
23a(11c)	Repair						
23a(12)	RFI filter unit <b>TR: TO 21M-LGM30F-12</b>						
23a(12a)	Checkout						
23a(12b)	Troubleshoot						
23a(12c)	Repair						
23a(13)	Tape transport (RP-131/G) <b>TR: TOs 31S3-2G-1, 21M-LGM30F-12-1</b>						

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23a(13a)	Checkout						
23a(13b)	Troubleshoot						
23a(13c)	Repair						
23a(13d)	Certify						
23a(14)	Temperature Control Test Set (Tronac Model 200) <b>TR: TO 33D9-17-82-1</b>						
23a(14a)	Checkout						
23a(14b)	Troubleshoot						
23a(14c)	Repair						
23a(14d)	Calibrate						
23a(15)	Controller Monitor (YG 9638A2) <b>TR: TOs 33D9-61-57-21, 33D9-111-35-2</b>						
23a(15a)	Checkout						
23a(15b)	Troubleshoot						
23a(15c)	Repair						
23a(16)	Code change verifier (KY-930/AJQ-21/SM-876/G) <b>TR: TOs 31X2-24-31-2, 21M-LGM30F-12-1</b>						
23a(16a)	Self Test						
23a(16b)	Troubleshoot						
23a(16c)	Repair						
23a(16d)	Certify						
23a(17)	Code change verifier test set <b>TR: TOs 33D9-107-13-2, 21M-LGM30F-12-1</b>						
23a(17a)	Certify Program Memory Comparator						
23a(17b)	Checkout						
23a(17c)	Troubleshoot						
23a(17d)	Repair						
23b	Fault Locating Indicator (ID-2288/GSW) (WS-133AM/CDB, WS 118A) <b>TR: TO 33D9-29-14-1</b>						
23b(1)	Checkout						
23b(2)	Troubleshoot						
23b(3)	Repair						
23c	Electrical Power Test Set (AN/GSM-121) (WS-133B/CDB) <b>TR: TO 33D9-6-98-1</b>						
23c(1)	Perform continuity checks						
23c(2)	Repair						
23d	Weapon System WS 118A						
23d(1)	Battery isolator kit <b>TR: TO 33D9-19-73-1</b>						



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23d(1a)	Perform continuity checks						
23d(1b)	Repair						
23d(2)	Cable connector adapter sets <b>TR: TOs 33D9-19-73-1, 33D9-19-78-1</b>						
23d(2a)	Perform continuity checks						
23d(2b)	Repair						
23d(3)	Distribution box adapter test set <b>TR: TO 33D9-19-75-1</b>						
23d(3a)	Checkout						
23d(3b)	Troubleshoot						
23d(3c)	Repair						
23d(4)	Perform transducer adjustment of guidance control conditioning unit test bench <b>TR: TO 33D9-3-265-1</b>						
23d(5)	Launch control system controller memory management certification set <b>TR: TOs 21-LG118A-12-1, 31X3-10-76-1</b>						
23d(5a)	Perform self-test/verification						
23d(5b)	Checkout						
23d(5c)	Troubleshoot						
23d(5d)	Repair						
23d(5e)	Certify						
23d(6)	Loader control monitor unit <b>TR: TOs 21-LG118A-12-1, 31X3-12-14-1, 33D9-61-87-1</b>						
23d(6a)	Perform self-test						
23d(6b)	Checkout						
23d(6c)	Troubleshoot						
23d(6d)	Repair						
23d(6e)	Certify						
23d(7)	Missile guidance control set certification set (C772A) <b>TR: TOs 21-LG118A-12-1, 33D9-54-73-2</b>						
23d(7a)	Perform self-test						
23d(7b)	Troubleshoot						
23d(7c)	Repair						
23d(7d)	Certify						
23e	Weapon System (WS-133AM/CDB, WS-133B/CDB, WS-118) Electronic data processing tape recorder reproducer (RD-368/G) <b>TR: TO 33D9-104-31-2</b>						
23e(1)	Checkout						

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ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
23e(2)	Troubleshoot						
23e(3)	Repair						
<b>24</b>	<b>OPERATIONAL GROUND EQUIPMENT (OGE)</b>						
24a	Common						
24a(1)	Strap/adjust electronic drawers <b>TR: TOs 31R2-2GRC128-2, 31S8-2GSW6-2, 33D9-61-58-2</b>						
24a(2)	Power supply (PP-3030/GSW-4, PP-3027/GSW-4, PP-3026/GSW-4) <b>TR: TOs 33D9-61-57-21, 35C2-2-63-1</b>						
24a(2a)	Checkout						
24a(2b)	Troubleshoot						
24a(2c)	Repair						
24a(2d)	Calibrate						
24b	Common LF Equipment (WS-133AM/CDB, WS133B/CDB and WS-118)						
24b(1)	Minuteman power processor <b>TR: CEM 21-SM80-2-22</b>						
24b(1a)	Checkout						
24b(1b)	Troubleshoot						
24b(1c)	Repair						
24b(2)	Receiver-transmitter alarm set (RT-1533/FSQ-149) <b>TR: TOs 31X3-31-9-2, 21M-LGM30F-12-1</b>						
24b(2a)	Checkout						
24b(2b)	Troubleshoot						
24b(2c)	Repair						
24b(2d)	Certify						
24d(3)	Portable IPD terminal <b>TR: TO 33D9-74-42-2</b>						
24b(3a)	Checkout						
24b(3b)	Troubleshoot						
24b(3c)	Repair						
24c	Common LF Equipment (WS-133AM/CDB, WS-118A)						
24c(1)	Audio frequency detector (DT-252/GYK-2) URD 403A2 <b>TR: TOs 33D9-61-57-21, 33D9-61-58-2</b>						
24c(1a)	Checkout						
24c(1b)	Troubleshoot						
24c(1c)	Repair						
24c(2)	Digital data receiver-transmitter (RT-646/GYK-2) URD 403A3 <b>TR: TOs 33D9-61-57-21, 33D9-61-58-2</b>						
24c(2a)	Checkout						

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ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
24c(2b)	Troubleshoot						
24c(2c)	Repair						
24c(3)	UHF radio receiver (R-1358A/B/GSW-10) URD 1475A1, 1475A4 <b>TR: TOs 33D9-61-57-21, 33D9-61-58-2, 31X2-19-3-2</b>						
24c(3a)	Checkout						
24c(3b)	Troubleshoot						
24c(3c)	Repair						
24c(3d)	Adjust						
24c(3e)	Change frequency/address						
24d	Common LF Equipment (WS-133AM/CDB, WS-133B/CDB)						
24d(1)	Guidance section liquid cooler electronic control amplifier URDs 6402A1, 413A1 <b>TR: TO 35E9-35-22</b>						
24d(1a)	Checkout						
24d(1b)	Troubleshoot						
24d(1c)	Repair						
24d(2)	Common Equipment Interface Unit (CEIU) <b>TR: TO 33D9-74-42-2</b>						
24d(2a)	Checkout						
24d(2b)	Troubleshoot						
24d(2c)	Repair						
24e	LF Equipment (WS-133AM/CDB)						
24e(1)	Control monitor (C-9212A/GSW-13, C-10153A/GSW-13) URD 403A6 <b>TR: TOs 33D9-61-57-21, 33D9-61-58-2, 21M-LGM30F-12-1</b>						
24e(1a)	Checkout						
24e(1b)	Troubleshoot						
24e(1c)	Repair						
24e(1d)	Certify						
24e(2)	Electronic equipment drawer (MX-9334/GSW-13) URD 403A1 <b>TR: TO 31X3-12-13-2</b>						
24e(2a)	Perform continuity checks						
24e(2b)	Repair						
24e(2c)	Reset/purge command signal decoder/ground (KY-412/GYK-2)						
24e(3)	Guidance and control coupler unit (CU-2063/G) URD 403A5 <b>TR: TOs 31R3-4-24-2, 33D9-61-57-21, 21M-LGM30F-12-1</b>						
24e(3a)	Checkout						
24e(3b)	Troubleshoot						
24e(3c)	Repair						

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24e(3d)	Certify						
24e(4)	Message processor (C-9211A/GSW-13) URD 403A4 <b>TR: TOs 33D9-61-57-21, 33D9-61-58-2, 21M-LGM30F-12-1</b>						
24e(4a)	Checkout						
24e(4b)	Troubleshoot						
24e(4c)	Repair						
24e(4d)	Certify						
24e(5)	Power supply (PP-6879/GSW-13) URD 403A7 <b>TR: TO 31X3-12-13-2</b>						
24e(5a)	Checkout						
24e(5b)	Troubleshoot						
24e(5c)	Repair						
24f	LF Equipment (WS-133B/CD)						
24f(1)	Amplifier converter (AM-4624/GSW-11) URD 6406A6 <b>TR: TOs 31S8-2GSW6-2, 33D9-61-57-21</b>						
24f(1a)	Checkout						
24f(1b)	Troubleshoot						
24f(1c)	Repair						
24f(2)	Computer control (C-9559/GSW-11) URD 6406A4 <b>TR: TOs 31S8-2GSW6-2, 33D9-61-57-21</b>						
24f(2a)	Checkout						
24f(2b)	Troubleshoot						
24f(2c)	Repair						
24f(2d)	Certify						
24f(3)	Filter monitor (F-895/FSQ-50) URD 6521A2 <b>TR: TO 35C3-2-45-1</b>						
24f(3a)	Checkout						
24f(3b)	Troubleshoot						
24f(3c)	Repair						
24f(4)	Interconnecting box (J-2231/GSW-7) URD 6406A1 <b>TR: TOs 31S8-2GSW6-2, 33D9-61-57-21</b>						
24f(4a)	Checkout						
24f(4b)	Troubleshoot						
24f(4c)	Repair						
24f(5)	Power supply, digital data terminal (PP-7037/GSW-13) URD 6406A7 <b>TR: TO 35C1-2-477-1</b>						
24f(5a)	Checkout						
24f(5b)	Troubleshoot						
24f(5c)	Repair						

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24f(6)	Power supply (PP-3927/FSQ-50) URD 6521A3-5 <b>TR: TO 35C3-2-45-1</b>						
24f(6a)	Checkout						
24f(6b)	Troubleshoot						
24f(6c)	Repair						
24f(7)	Radio frequency amplifier (AM-7739/GRC-225) URD 6224A5, 6407A5 <b>TR: TOs 31R2-2GRC128-2, 33D9-61-57-21</b>						
24f(7a)	Checkout						
24f(7b)	Troubleshoot						
24f(7c)	Repair						
24f(8)	Radio receiver transmitter (RT-1536/GRC-225) URD 6224A4, 6407A4 <b>TR: TOs 31R2-2GRC128-2, 33D9-61-57-21</b>						
24f(8a)	Checkout						
24f(8b)	Troubleshoot						
24f(8c)	Repair						
24f(9)	Signal data converter (CV-3269/G) URD 6406A5 <b>TR: TOs 31R3-4-25-2, 33D9-61-57-21</b>						
24f(9a)	Checkout						
24f(9b)	Troubleshoot						
24f(9c)	Repair						
24f(9d)	Certify						
24f(10)	UHF radio receiver (R-1389/GRA-80) URD 6408A7 <b>TR: TOs 31R2-2GRC128-2, 33D9-61-57-21</b>						
24f(10a)	Checkout						
24f(10b)	Troubleshoot						
24f(10c)	Repair						
24f(10d)	Adjust						
24f(10e)	Change frequency/address						
24g	LF Equipment (WS-118A)						
24g(1)	AC/DC converter <b>TR: TO 31X3-13-32-1</b>						
24g(1a)	Control drawer URD 475A5						
24g(1a1)	Checkout						
24g(1a2)	Troubleshoot						
24g(1a3)	Repair						
24g(1b)	Power chassis URD 475A6/A7						
24g(1b1)	Checkout						

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24g(1b2)	Troubleshoot						
24g(1b3)	Repair						
24g(2)	Control monitor URD 403A6 <b>TR: TOs 21-LG118A-12-1, 31X3-16-14-1, 33D9-61-87-1</b>						
24g(2a)	Checkout						
24g(2b)	Troubleshoot						
24g(2c)	Repair						
24g(2d)	Certify						
24g(3)	DC/AC inverter URD 406A5, A6, A7 <b>TR: TO 31X3-13-35-1</b>						
24g(3a)	Waveform generator (drawer 1)						
24g(3a1)	Checkout						
24g(3a2)	Troubleshoot						
24g(3a3)	Repair						
24g(3b)	Single-phase inverter (drawers 2 and 3)						
24g(3b1)	Checkout						
24g(3b2)	Troubleshoot						
24g(3b3)	Repair						
24g(4)	Launch control system controller URD 1475A6 <b>TR: TOs 21-LG118A-12-1, 31X3-10-74-1, 33D9-61-87-1</b>						
24g(4a)	Checkout						
24g(4b)	Troubleshoot						
24g(4c)	Repair						
24g(4d)	Certify						
24g(4e)	Erase core memory modules						
24g(5)	Message processor URD 403A4 <b>TR: TOs 21-LG118A-12-1, 31X3-16-14-1, 33D9-61-87-1</b>						
24g(5a)	Checkout						
24g(5b)	Troubleshoot						
24g(5c)	Repair						
24g(5d)	Certify						
24g(6)	Missile ground power supply URD 406A3, A4 <b>TR: TO 31X3-13-31-1</b>						
24g(6a)	Drawer 1						
24g(6a1)	Checkout						
24g(6a2)	Troubleshoot						
24g(6a3)	Repair						
24g(6b)	Drawer 2						

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24g(6b1)	Checkout						
24g(6b2)	Troubleshoot						
24g(6b3)	Repair						
24g(7)	Power supply URD 403A7 <b>TR: TOs 31X3-16-14-1, 33D9-61-87-1</b>						
24g(7a)	Checkout						
24g(7b)	Troubleshoot						
24g(7c)	Repair						
24g(8)	UHF transmitter URD 1475A5 <b>TR: TOs 31X1-2-1-301, 33D9-61-87-1</b>						
24g(8a)	Checkout						
24g(8b)	Troubleshoot						
24g(8c)	Repair						
24g(9)	Certify secure code device <b>TR: TOs 21M-LGM30F-12-1, 33D9-61-57-1</b>						
24h	Common MAF Equipment WS-133AM/CDB, WS-118A						
24h(1)	Audio frequency amplifier (AM-3159) URD 303A4 <b>TR: TOs 33D9-61-57-21, 33D9-61-58-2</b>						
24h(1a)	Checkout						
24h(1b)	Troubleshoot						
24h(1c)	Repair						
24h(2)	Digital data receiver (R-1096, R-1096A) URD 303A2, A3 <b>TR: TOs 33D9-61-57-21, 33D9-61-58-2</b>						
24h(2a)	Checkout						
24h(2b)	Troubleshoot						
24h(2c)	Repair						
24h(3)	Digital data receiver (R-1131) URD 303A7 <b>TR: TOs 33D9-61-57-21, 33D9-61-58-2</b>						
24h(3a)	Checkout						
24h(3b)	Troubleshoot						
24h(3c)	Repair						
24h(4)	Digital data transmitter (T-869) URD 303A1 <b>TR: TOs 33D9-61-57-21, 33D9-61-58-2</b>						
24h(4a)	Checkout						
24h(4b)	Troubleshoot						
24h(4c)	Repair						
24h(5)	Message processing control (C-9043) URD 10364A6 <b>TR: TOs 33D9-61-57-21, 33D9-61-58-2</b>						
24h(5a)	Checkout						
24h(5b)	Troubleshoot						

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24h(5c)	Repair						
24h(6)	Missile away indicator (ID-979) URD 303A6 <b>TR: TOs 33D9-61-57-21, 33D9-61-58-2</b>						
24h(6a)	Checkout						
24h(6b)	Troubleshoot						
24h(6c)	Repair						
24h(7)	Power supply (PP-4359/GSW-10) URD 305A7, 10364A7 <b>TR: TO 31X2-32-3-2</b>						
24h(7a)	Checkout						
24h(7b)	Troubleshoot						
24h(7c)	Repair						
24h(8)	Station alert ringing unit (MX-3681, MX-3682, MX-3683, MX-3684, MX-3685) URD 303A5 <b>TR: TOs 33D9-61-57-21, 33D9-61-58-2</b>						
24h(8a)	Checkout						
24h(8b)	Troubleshoot						
24h(8c)	Repair						
24i	MAF Equipment WS-133B/CDB						
24i(1)	Analog to digital converter (CV-1709/GSW-6, CV-1710/GSW-6) URD 6210A3, 6210A4 <b>TR: TOs 31S8-2GSW6-2, 33D9-61-57-21</b>						
24i(1a)	Checkout						
24i(1b)	Troubleshoot						
24i(1c)	Repair						
24i(2)	Battery charger (PP-4068/GSA-67) URD 6258A1 <b>TR: TO 31S1-2GSA66-2</b>						
24i(2a)	Checkout						
24i(2b)	Troubleshoot						
24i(2c)	Repair						
24i(3)	Battery charger (PP-4069/GSA-76) URD 6258A3 <b>TR: TO 31S1-2GSA66-2</b>						
24i(3a)	Checkout						
24i(3b)	Troubleshoot						
24i(3c)	Repair						
24i(4)	Control test panel/Battery charger group AN/GSM-76 <b>TR: TO 31S1-2GSA66-2</b>						
24i(4a)	Checkout						
24i(4b)	Troubleshoot						
24i(4c)	Repair						



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24i (5)	Electrical synchronizer (SN-366/GSW-6) URD 6210A2 <b>TR: TOs 31S8-2GSW6-2, 33D9-61-57-21</b>						
24i(5a)	Checkout						
24i(5b)	Troubleshoot						
24i(5c)	Repair						
24i(6)	Fault isolator (TS-2060/GSQ-83) URD 6208A3 <b>TR: TOs 31S8-2GSW6-2, 33D9-61-57-21</b>						
24i(6a)	Checkout						
24i(6b)	Troubleshoot						
24i(6c)	Repair						
24i(7)	Fault monitor (ID-1201/GSQ-83) URD 6208A2 <b>TR: TOs 31S8-2GSW6-2, 33D9-61-57-21</b>						
24i(7a)	Checkout						
24i(7b)	Troubleshoot						
24i(7c)	Repair						
24i(8)	Interconnecting box (J-2230/GRC-131) URD 6218A1 <b>TR: TOs 31R2-2GRC128-2, 33D9-61-57-21</b>						
24i(8a)	Checkout						
24i(8b)	Troubleshoot						
24i(8c)	Repair						
24i(9)	Missile away detector indicator (DT-286/GSW-6) URD 6210A6 <b>TR: TOs 31S8-2GSW6-2, 33D9-61-57-21</b>						
24i(9a)	Checkout						
24i(9b)	Troubleshoot						
24i(9c)	Repair						
24i(10)	Power distribution panel (SB-2301/GSA-66) URD 6214A1 <b>TR: TO 31S1-2GSA66-2</b>						
24i(10a)	Perform continuity checks						
24i(10b)	Repair						
24i(11)	Power distribution panel (SB-2302/GSA-67) URD 6258A1 <b>TR: TOs 31S1-2GSA66-2, 33D9-61-57-21</b>						
24i(11a)	Checkout						
24i(11b)	Troubleshoot						
24i(11c)	Repair						
24i(12)	Power distribution panel (SB-2303/GSA-66) URD 6214A2 <b>TR: TO 31S1-2GSA66-2</b>						
24i(12a)	Perform continuity checks						
24i(12b)	Repair						
24i(13)	Power distribution panel (SB-2304/GSA-66) URD 6214A3 <b>TR: TO 31S1-2GSA66-2</b>						

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24i(13a)	Perform continuity checks						
24i(13b)	Repair						
24i(14)	Power distribution panel (SB-2305/GSA-66) URD 6214A4 <b>TR: TO 31S1-2GSA66-2</b>						
24i(14a)	Perform continuity checks						
24i(14b)	Repair						
24i(15)	Power distribution panel (SB-2306/GSA-66) URD 6214A5 <b>TR: TO 31S1-2GSA66-2</b>						
24i(15a)	Perform continuity checks						
24i(15b)	Repair						
24i(16)	Power supply (PP-4014/GS) URD 6208A1, 6209A1, 6210A1 <b>TR: TOs 31S8-2GSW5-2-1, 31S8-2GSW6-2, 33D9-61-57-21</b>						
24i(16a)	Checkout						
24i(16b)	Troubleshoot						
24i(16c)	Repair						
24i(17)	Power supply (PP-4155/GRC-128) URD 6218A2 <b>TR: TOs 31R2-2GRC128-2, 33D9-61-57-21</b>						
24i(17a)	Checkout						
24i(17b)	Troubleshoot						
24i(17c)	Repair						
24i(18)	Power supply (PP-4016/GSW5) URD6203A13/6207A11 <b>TR: TOs 31S8-2GSW5-2-1, 33D9-61-57-21</b>						
24i(18a)	Checkout						
24i(18b)	Troubleshoot						
24i(18c)	Repair						
24i(19)	Status signal receiver (R-1246/GSW-6) URD 6210A5 <b>TR: TOs 31S8-2GSW6-2, 33D9-61-57-21</b>						
24i(19a)	Checkout						
24i(19b)	Troubleshoot						
24i(19c)	Repair						
24j	MAF Equipment WS-118A						
24j(1)	Alarm Monitor Panel (SB-1382/GSW4, SB-2435/GSW10, 25-43743) URD 300A1A9 <b>TR: TO 31X3-3-9-2-1</b>						
24j(1a)	Troubleshoot						
24j(1b)	Repair						
24j(2)	Audible alarm assembly (BZ-71/GSW-4) URD 300A2A2 <b>TR: TO 31X3-3-9-2-1</b>						
24j(2a)	Checkout						
24j(2b)	Troubleshoot						

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24j(2c)	Repair						
24j(3)	Coder decoder indicator (KY-758/GYW-1) URD 16231A1 <b>TR: TOs 31S8-2GYW1-22, 33D9-61-57-21</b>						
24j(3a)	Checkout						
24j(3b)	Troubleshoot						
24j(3c)	Repair						
24j(4)	Computer processor verifier (CP-1109) URD 16231A4 <b>TR: TOs 31S5-2UYK11-2, 21M-LGM30F-12-1</b>						
24j(4a)	Checkout						
24j(4b)	Troubleshoot						
24j(4c)	Repair						
24j(4d)	Certify						
24j(5)	Controller-synchronizer (C-8984/GYW-1) URD 16231A2 <b>TR: TO 31S8-2GYW1-12</b>						
24j(5a)	Checkout						
24j(5b)	Troubleshoot						
24j(5c)	Repair						
24j(6)	Digital data memory unit (MU-512) URD 10364A2 <b>TR: TOs 33D9-61-57-21, 33D9-61-58-2</b>						
24j(6a)	Checkout						
24j(6b)	Troubleshoot						
24j(6c)	Repair						
24j(7)	Digital to digital converter (CV-2952, CV3970) URD 10364A3 <b>TR: TOs 33D9-61-57-21, 33D9-61-58-2</b>						
24j(7a)	Checkout						
24j(7b)	Troubleshoot						
24j(7c)	Repair						
24j(8)	Direct current power filter assembly (F-639/GSW-4) URD 300A1A8 <b>TR: TO 31X3-3-9-2-1</b>						
24j(8a)	Checkout						
24j(8b)	Troubleshoot						
24j(8c)	Repair						
24j(9)	Inertial performance data collection system terminal processor group URDs 311A5, 6218A5 <b>TR: TO 33D9-61-51-1</b>						
24j(9a)	Install SDU						
24j(9b)	Remove SDU						
24j(10)	Keyboard printer <b>TR: TOs 31S8-4-9-2, 33D9-61-57-21, 33D9-61-57-21-2</b>						

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24j(10a)	Checkout						
24j(10b)	Troubleshoot						
24j(10c)	Repair						
24j(11)	Launch verification panel (SB-2434A, SB-3651/GSW-13) URD 10364A4 <b>TR: TO 31X2-32-3-2</b>						
254j(11a)	Checkout						
24j(11b)	Troubleshoot						
24j(11c)	Repair						
24j(12)	Magnetic drum memory unit (MU-580/GYW-1) URD 16231A3 <b>TR: TO 31S8-2GYW1-12</b>						
24j(12a)	Checkout						
24j(12b)	Troubleshoot						
24j(12c)	Repair						
24j(12d)	Perform drum erase and clock track write procedures						
24j(13)	Plated wire memory unit (MU-582) URD 16231A6 <b>TR: TOs 31S5-2UYK11-2, 21M-LGM30F-12-1</b>						
24j(13a)	Checkout						
24j(13b)	Troubleshoot						
24j(13c)	Repair						
24j(13d)	Certify						
24j(14)	Signal data recorder (RO-277B/GSW-10) URD 10364A5 <b>TR: TOs 33D9-61-57-21, 33D9-61-58-2</b>						
24j(14a)	Checkout						
24j(14b)	Troubleshoot						
24j(14c)	Repair						
24j(15)	Voltage dividing network (MX-6921) URD 10364A1 <b>TR: TOs 33D9-61-57-21, 33D9-61-58-2</b>						
24j(15a)	Checkout						
24j(15b)	Troubleshoot						
24j(15c)	Repair						
<b>25</b>	<b>MISCELLANEOUS ELECTRICAL EQUIPMENT</b>						
25a	Electrical cables, harnesses and wire assemblies <b>TR: TO 31X4-1-152</b>						
25a(1)	Perform continuity checks						
25a(2)	Repair						
25b	Electrical equipment cabinet (CY-7201/GYW-1(v)) <b>TR: TO 31S8-2GYW1-2</b>						
25b(1)	Perform continuity checks						
25b(2)	Repair						

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25c	Power signal distribution units, distribution boxes, electrical surge arresters and cable assemblies <b>TR: TO 31X4-1-102</b>						
25c(1)	Checkout						
25c(2)	Troubleshoot						
25c(3)	Repair						
25d	Relay assemblies, power-signal distribution unit <b>TR: TO 31X3-6-9-1</b>						
25d(1)	Checkout						
25d(2)	Troubleshoot						
25d(3)	Repair						
25e	Wire assemblies and electrical surge arresters <b>TR: TO 31X4-1-142</b>						
25e(1)	Perform continuity checks						
25e(2)	Repair						
25f	Distribution box assemblies <b>TR: TO 35M1-1-101</b>						
25f(1)	Checkout						
25f(2)	Troubleshoot						
25f(3)	Repair						
<b>26</b>	<b>AEROSPACE VEHICULAR EQUIPMENT</b>						
26a	Missile Guidance Set (NS20) <b>TR: TO 21M-LGM30G-2-33</b>						
26a(1)	Receive from special repair area						
26a(2)	Install components						
26a(3)	Prepare shipping container for MGS receipt						
26a(4)	Remove components						
26a(5)	Prepare for transport to special repair area						
26a(6)	Repair						
26a(7)	Repair MGS shipping container						
26b	Squib actuated battery <b>TR: TO 11A15-1-167-1</b>						
26b(1)	Checkout						
26b(2)	Inspect						
26c	Missile Guidance Set (NS-50) <b>TR: TOs 21M-LGM30G-2-33, 21M-LGM30F-12-1</b>						
26c(1)	Receive from special repair area						
26c(2)	Install components						
26c(3)	Prepare shipping container for MGS receipt						
26c(4)	Remove components						

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26c(5)	Prepare for transport to special repair area						
26c(6)	Repair						
26c(7)	Repair MGS shipping container						
26c(8)	Certify						
26d	Missile Guidance Set Test Set (MGSTS) <b>TR: TOs 33D9-3-284-1, 21M-LGM30F-12-1</b>						
26d(1)	Operate						
26d(2)	Checkout						
26d(3)	Troubleshoot						
26d(4)	Repair						
26d(5)	Calibrate						
26e	Squib Actuated Battery <b>TR: TO 21M-LGM30G-2-33</b>						
26e(1)	Battery/EMI Cover Inspect						
26e(2)	EMI Cover and Strap Assembly						
26e(2a)	Install						
26e(2b)	Remove						
26e(3)	Battery Assembly Checkout						
26f	Checkout reentry system simulator <b>TR: TO 33D9-61-57-21-2</b>						
<b>27</b>	<b>VANDENBERG ONLY</b>						
27a	Relay Assembly (LEPS Drawer) P/N 25-41855-30/32 <b>TR: TO 31X3-13-1-102</b>						
27a(1)	Checkout						
27a(2)	Troubleshoot						
27a(3)	Repair						
27b	Missile Systems Components Test Set (3 in1) AN/GSM-349 <b>TR: TO 33D9-9-8-2</b>						
27b(1)	Checkout						
27b(2)	Troubleshoot						
27b(3)	Repair						
27b(4)	Calibrate						
27c	Command Signal Decoder Simulator P/N 83244550-501 SM-315/GYK-2: Checkout <b>TR: TO 33D9-88-6-1</b>						
27d	Stage Test P/N 863G1400000-019 <b>TR: TO 33D9-89-23-1</b>						
27d(1)	Checkout						
27d(2)	Troubleshoot						
27d(3)	Repair						

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27e	Low Voltage Continuity Test Set (LVCTS) <b>TR: TO 33D9-89-24-1</b>						
27e(1)	Checkout						
27e(2)	Troubleshoot						
27e(3)	Repair						
27e(4)	Calibration						
27f	Low Voltage Continuity Test Set (LVCTS) test tube <b>TR: TO 33D9-89-24-1</b>						
27f(1)	Checkout						
27f(2)	Troubleshoot						
27f(3)	Repair						
27g	Electrical Checkout Test Set (ECTS) <b>TR: TO 33D9-54-68-2</b>						
27g(1)	Checkout						
27g(2)	Troubleshoot						
27g(3)	Repair						
27g(4)	Calibrate						
27h	Guided Missile Launcher Electrical Circuit (GMLEC) Test Set <b>TR: TO 33D9-14-82-2</b>						
27h(1)	Self Test						
27h(2)	Troubleshoot						
27h(3)	Calibrate						
27h(4)	Software maintenance						
27h(5)	Repair						
27i	Circuit Card Repair (Huntron Tracker) <b>TR: TO 00-25-234, User's Manual</b>						
27i(1)	Checkout						
27i(2)	Troubleshoot						
27i(3)	Repair						
27j	Operate Explosive Set Circuitry Test Set <b>TR: TOs 21M-LGM30F-2-17-9, 21-LG118A-2-17-2, 33D9-38-15-21</b>						
27k	Security Pit Vault Door <b>TR: TOs 21M-LGM30F-2-19, 21-LG118A-2-19</b>						
27k(1)	Change Lock Combination						
27k(2)	Replace						
27l	Operational Test Launch Support (Minuteman) <b>TR: TO 21M-LGM30F-2-17-9,</b>						
27l(1)	Perform Launch Capability Test						
27l(2)	Checkout Final Prelaunch (Final Enable)						

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27l(3)	Enter and Safe Post-Launch LF						
27l(4)	Enable/Dis-enable MOSR						
27l(5)	Safe LF and Missile (Hangfire)						
27m	Launch Environmental Protection System (LEPS) <b>TR: TO 21M-LGM30F-2-17-9</b>						
27m(1)	Repair						
27m(2)	Service						
27m(3)	Troubleshoot						
27m(4)	Startup/Shutdown						
27m(5)	Replace Nitrogen Bottle						
27n	Checkout Refire Control Subsystem <b>TR: TO 21-LGM30F-2-7-4</b>						
27o	Operational Test Launch Support (Peacekeeper) <b>TR: TOs 33D9-61-108-1, 21-LG118A-2-17-2</b>						
27o(1)	Perform Ground System Test						
27o(2)	Perform USDA Connectivity Test						
27o(3)	Enable LF For Launch (Final Enable)						
27o(4)	Enter and Safe Post Launch LF						
27o(5)	Safe LF and Missile (Hangfire)						
27o(6)	Change Secure Code Device Code						
27o(7)	Apply/Remove LF Monitor Power During MOSR						
27o(8)	Startup/Shutdown Partial OSE						
27p	Peacekeeper Launch Support Center (PLSC) <b>TR: TOs 21-LG118A-2-72, 21-LG118A-2-17-2</b>						
27p(1)	Checkout						
27p(2)	Troubleshoot						
27p(3)	Repair						
27p(4)	Startup / Shutdown						
27q	Launcher Auxiliary Support Building (LASB) <b>TR: TOs 21-LG118A-2-17-2, 21-LG118A-2-72</b>						
27q(1)	Enter/Exit						
27q(2)	Isolate Electrically						
27r	Launch Protection System (LPS) <b>TR: TOs 21-LG118A-2-17-2, 21-LG118A-2-72</b>						
27r(1)	Checkout						
27r(2)	Troubleshoot						
27r(3)	Repair						
27r(4)	Startup/Shutdown						
27s	Checkout OT&E Junction Box <b>TR: TO 21-LG118A-2-21-1</b>						



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ICBM ELECTRONIC MAINTENANCE TASKS

ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
27t	MAF: 01A, 01E and D0 <b>TR: TO 21-SM80-19</b>						
27t(1)	Enter						
27t(2)	Exit						
27t(3)	Perform Emergency Procedures						
<b>28</b>	<b><i>SIMULATED ELECTRONIC LAUNCH MINUTEMAN (SELM)</i></b> <b><i>(WS-133AM/B)</i></b> <b>TR: TOs 21M-LGM30G-1-X, 31R2-2GRC128-2,</b> <b>21M-LGM30G-2-10-(x)</b>						
28(a)	Posture						
28(b)	Deposture						
28(c)	Remove/Replace MF Radio Reciever-Transmitter Filter for SELM						
28(d)	Enter/Exit SELM configured LF						
<b>29</b>	<b><i>SIMULATED ELECTRONIC LAUNCH PEACEKEEPER (SELP)</i></b> <b>TR: TOs 33D9-61-108-1, 21-118A-2-10</b>						
29(a)	Perform diagnostics on DASA						
29(b)	Perform AVE shutdown						
29(c)	Prepare for OMU/ILU/DASA test						
29(d)	Perform OMU/ILU/DASA test						
29(e)	Configure for SELP test						
29(f)	Power-up and initialize SELP						
29(g)	Star up AVE (initial load)						
29(h)	Prepare for TCD enable						
29(i)	Perform LF emergency power mode						
29(j)	Determine isolation sequence						
29(k)	Perform test LF isolation and/or last line						
29(l)	Perform test LCC isolation and/or last line						
29(m)	Secure and exit test LF						
29(n)	Perform SELP DAS configure check						
29(o)	Determine SELP post TCD conditions						
29(p)	Perform SELP data retrieval						
29(q)	Remove SELP equipment						
29(r)	Restore LF to operational configuration						
29(s)	Perform test LCC de-isolation						
29(t)	Remove LF isolation						
29(u)	Perform AVE start up						
29(v)	Perform SELP emergency operation						

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ICBM ELECTRONIC MAINTENANCE TASKS

ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
29(w)	Perform DAS Inspection & preventive maintenance						
29(x)	Perform DAS troubleshooting						
29(y)	Repair DAS						
29(z)	Perform USDA Connectivity Test						
29(aa)	Enter/Exit SELP Configured LF						
	<b>NOTE 1: For tasks 11d,14b(1), and 14c(1) circle appropriate task skill level</b>						

AFSC 2M051/2M071 STS **ATTACHMENT 3**  
**SPACELIFT ELECTRONIC MAINTENANCE TASKS**

<b>TASK #</b>	<b>TASK / KNOWLEDGE ITEM</b>	<b>CORE TASK</b>	<b>START DATE</b>	<b>COMP DATE</b>	<b>TRAINEE INITIALS</b>	<b>TRAINER INITIALS</b>	<b>CERTIFYING OFFICIAL INITIALS</b>
<b>1</b>	<b>MAINTENANCE CONTROLLER COMMON TASKS</b> <b>TR: AFSPCI 21-0108, EWR 127-1, Local directives and operating instructions</b>						
1a	Support						
1a(1)	Program/readiness reviews						
1a(2)	Problem resolutions/troubleshooting						
1b	Perform						
1b(1)	Post launch actions						
1b(2)	Launch day activities						
1b(3)	Walk-down procedures						
1b(4)	Disaster recovery operations						
1b(5)	Data reviews/procedure closeout						
1c	Ensure compliance with						
1c(1)	Procedures						
1c(2)	Test Configuration control						
1c(3)	Emergency procedures						
1c(4)	Local safety procedures						
1c(5)	Local security requirements						
1c(6)	Environmental requirements						
1d	Conduct briefing/debriefing						
1e	Review/approve procedures						
1f	Operate communication systems						
<b>2</b>	<b>UNDERSTAND FUNCTION, OPERATION AND PROCESSING OF THE FOLLOWING ATLAS SUBSYSTEMS</b> <b>TR: Procedures and training materials</b>						
2a	Avionics						
2a(1)	Ordnance						
2a(2)	Flight Control						
2a(3)	Instrumentation						
2a(4)	Flight Tracking						
2a(5)	Flight Termination						
2a(6)	Airborne Electrical						
2a(7)	Reaction Control System (RCS) Interface						
2a(8)	Computer Controlled Atlas Pressurization System						
2a(9)	Computer Controlled Vent and Pressurization System						
2b	Electrical Age						
2b(1)	RF Test and Measurement						
2b(2)	Hardware Extension Remote						

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 SPACELIFT ELECTRONIC MAINTENANCE TASKS

TASK #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
2b(3)	Computer Controlled Launch Set						
2b(4)	Launch Site Communications Lines						
2b(5)	Automated Data Monitoring System (ADMS)						
2b(6)	Remote Aerospace Ground Equipment						
2c	Payload Fairings /Adapters						
<b>3</b>	<b>UNDERSTAND FUNCTION, OPERATION AND PROCESSING OF THE FOLLOWING DELTA SUBSYSTEMS</b> <b>TR: Procedures and training materials</b>						
3a	Payload fairings/adapters						
3b	Monitor, evaluate and report on						
3b(1)	Payload attach fitting						
3b(2)	Composite electrical checks						
3c	Avionics (First, Second, Third Stage)						
3c(1)	Electrical						
3c(2)	Ordnance						
3c(3)	Telemetry						
3c(4)	Flight Control						
3c(5)	Flight Tracking						
3c(6)	Nutation Control						
3c(7)	Flight Termination						
3d	Advanced Launch Control System (ALCS)						
3e	Monitor, evaluate and report on the following pad electrical procedures						
3e(1)	Pre-test Preparations						
3e(2)	Simulated Flight Test						
3e(3)	Flight Program Verification						
3e(4)	Guidance Control Beacon Checks						
3e(5)	First and Second Electrical Age Quals						
3e(6)	Vehicle Guidance and Control Checks						
3e(7)	Vehicle Electro-Mechanical Qualifications						
3f	Monitor, evaluate and report on the following Delta Mission Checkout (DMCO) procedures						
3f(1)	RIFCA Qualifications						
3f(2)	Dual Composite Test						
3f(3)	Simulated Flight-DMCO						
3f(4)	Flight Battery Preparation						
3f(5)	First Stage Control System Checkout						

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SPACELIFT ELECTRONIC MAINTENANCE TASKS

TASK #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
3f(6)	Individual Acceptance Test of the CRD						
3f(7)	First Stage Electrical /Telemetry System Checkout						
3f(8)	Second Stage Control System Checkout						
3f(9)	First Stage Rate Gyro Stand Alone Functional Test						
<b>4</b>	<b>UNDERSTAND FUNCTION, OPERATION AND PROCESSING OF THE FOLLOWING TITAN SUBSYSTEMS</b> <b>TR: Procedures and training materials</b>						
4a	Ordnance system						
4b	Centaur (Upper Stage)						
4b(1)	Electrical						
4b(2)	Flight safety						
4b(3)	Instrumentation						
4b(4)	Guidance and navigation						
4b(5)	Computer controlled launch set						
4c	Avionics (Core vehicle)						
4c(1)	Electrical						
4c(2)	Instrumentation						
4c(3)	Guidance and navigation						
4c(4)	Tracking and flight safety						
4d	Inertial Upper Stage (IUS)						
4d(1)	Electrical						
4d(2)	Flight safety						
4d(3)	Instrumentation						
4d(4)	Guidance and navigation						
4d(5)	Shuttle transport system Airborne Support Equipment (ASE)						
4e	Ground Support Equipment (GSE)						
4e(1)	Ground Power						
4e(2)	Launch control and monitor system						
4e(3)	Guidance, control and monitor group (GCMG)						
4e(4)	Programmable aerospace ground equipment (PAGE)						
4e(5)	Programmable aerospace computer equipment (PACE)						
4f	Solid Rocket Motor Upgrade (SRMU)						
4f(1)	Electrical						
4f(2)	Flight safety						
4f(3)	Flight controls						
4f(4)	Instrumentation						

AFSC 2M051/2M071 STS **ATTACHMENT 3**  
 SPACELIFT ELECTRONIC MAINTENANCE TASKS

TASK #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
<b>5</b>	<b><i>UNDERSTAND FUNCTION, OPERATION AND PROCESSING OF THE FOLLOWING SPACECRAFT SUBSYSTEMS</i></b> <b>TR: Procedures and training materials</b>						
5a	Sensors						
5b	Ordnance						
5c	Electrical						
5d	Telemetry						
5e	Solar array						
5f	Thermal control						
5g	Flight termination						
5h	Guidance and navigation						

**AFSC 2M051/2M071 STS ATTACHMENT 4**  
**CRUISE MISSILE MAINTENANCE TASKS**

ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
<b>1</b>	<b>AGM-86 MISSILE SYSTEMS</b> TR: TOs 11N-W80.83-2, 21M-AGM86-2-1, 21M-AGM86-6-1, 21M-AGM86-8-1, 21M-AGM86-2-3, 21M-AGM86-8-3, 21M-AGM86-31, 21M-AGM86-32, 21M-AGM86-8-2, 21M-AGM86-8-4, 21M-AGM86-23, 21M-AGM86-2-4, 21M-AGM86-8-5, 21M-AGM86-33						
1a	Interpret missile diagrams	5					
1b	Replace missile components						
1b(1)	Common missile radar altimeter	3					
1b(2)	Receive radar antenna						
1b(3)	Guided missile flight controller	3					
1b(4)	Impact fuse						
1b(5)	Electrical resistance temperature transmitter						
1b(6)	Pitot static tube						
1b(7)	Inertial navigation element	3					
1b(8)	Pressure sensing transducer						
1b(9)	Warhead arming device	3					
1b(10)	Flight data transmitter	3					
1b(11)	Air cycle machine						
1b(12)	Umbilical enclosure assembly						
1b(13)	Transmit radar antenna						
1b(14)	Rotary switch	3					
1b(15)	Heat exchanger						
1b(16)	Pyrotechnic cartridges						
1b(17)	Deployment actuators						
1b(17a)	Wing						
1b(17b)	Elevon						
1b(17c)	Fin						
1b(18)	Control surfaces						
1b(18a)	Wing						
1b(18b)	Elevon						
1b(18c)	Fin						
1b(19)	AGM-86B, AGM-86C, AGM-86D Thermal battery						
1b(20)	Engine air inlet						
1b(21)	Fuel pump electronic unit						
1b(22)	File drawer						
1b(23)	Fuel system valves						
1b(24)	Electrical J-box						

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CRUISE MISSILE MAINTENANCE TASKS**

<b>ITEM #</b>	<b>TASK / KNOWLEDGE ITEM</b>	<b>CORE TASK</b>	<b>START DATE</b>	<b>COMP DATE</b>	<b>TRAINEE INITIALS</b>	<b>TRAINER INITIALS</b>	<b>CERTIFYING OFFICIAL INITIALS</b>
1b(25)	Electromechanical linear actuator	5					
1b(26)	Actuator controller	3					
1b(27)	Missile cabling						
1b(28)	DC Generator						
1b(29)	Engine	3					
1b(30)	Engine inlet side panel antennas						
1b(31)	AGM-86C, AGM-86D GPS Receiver Interface Unit, Precision (GRIU/P)	5					
1b(32)	AGM-86C Warhead Interface Unit	5					
1b(33)	AGM-86C, AGM-86D Global Positioning System antenna						
1b(34)	AGM-86C, AGM-86D Fuse cables/J-box						
1b(35)	Desiccant assembly	3					
1b(36)	Expanding Tube Release System						
1b(37)	Fuel boost pump						
1b(38)	Fuse Interface Unit (FIU)						
1b(39)	AGM-86C, AGM-86D Anti-Jam Module						
1b(40)	FMU-159A Fuse						
1b(41)	GPS Anti-Jam Antenna System (GAJAS)						
1c	Perform the following						
1c(1)	Aero surface deployment/stowage	3					
1c(2)	AGM-86B, AGM-86C, AGM-86D Missile transfer	3					
1c(3)	Forward ECS leakage rate check	3					
1c(4)	Fin/elevon rigging inspection	5					
1c(5)	Fin/elevon rigging	5					
1c(6)	Aft ECS leakage rate check						
1c(7)	Engine leakage rate check	3					
1c(8)	Engine fuel priming	5					
1c(9)	Fueling Operations						
1c(9a)	AGM 86B, AGM-86C, AGM-86D Fuel/defuel						
1c(9b)	AGM 86B, AGM-86C, AGM-86D Emergency Defuel/Fuel Leak repair	5					
1c(10)	AGM-86B, AGM-86C, AGM-86D Missile safe status check	3					
1c(11)	Missile receipt/preparation for shipment						
1c(12)	Engine receipt/preparation for shipment						
1c(13)	Crating/Uncrating missile to/from shipping container (CNU-617/E, ALCM shipping container)						
1c(14)	EED Squib Resistance Test (ICT)	3					



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CRUISE MISSILE MAINTENANCE TASKS**

ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
1c(15)	Corrosion prevention and treatment						
1d	Perform missile checkout						
1d(1)	AGM 86B, AGM 86C, AGM-86D Level I	3					
1d(2)	AGM 86B, AGM 86C, AGM-86D Level II						
1d(3)	Flight Load	5					
1d(4)	INE autocal/declassification						
1d(5)	Memory dump/interpret memory dump printout	5					
1d(6)	Isolate malfunctions	5					
1d(7)	AGM-86C, AGM-86D VSWR test						
1e	Perform missile serviceability inspection						
1f	Perform missile component installation inspection						
1g	General Repair						
1g(1)	Structural						
1g(2)	Electrical						
1g(3)	Arming Device MAU-191/A Pin and Streamer Repair						
1g(4)	Antenna Assembly (Engine Inlet Side Panel) Repair						
1g(5)	Desiccant Assembly						
2	<b>AGM-129A MISSILE SYSTEMS</b> <b>TR: T.O. 21-AG129-2-1, 21-AG129-6-1, 21-AG129-31,</b> <b>11N-W80.85-2, 21-AG129-8-1, 21-AG129-8-2, 21-AG129-23</b>						
2a	Interpret missile diagrams	5					
2b	Replace missile components						
2b(1)	Impact sensor assembly						
2b(2)	Electrical equipment cooling unit						
2b(3)	Air cycle cooling unit assembly	3					
2b(4)	Navigation control set	3					
2b(5)	Sensor set	3					
2b(6)	Ice detector transducer	3					
2b(7)	Electrical/pneumatic distribution box						
2b(8)	Forward avionics unit	3					
2b(9)	Arm/disarm device	5					
2b(10)	Cable assemblies						
2b(11)	Separation switch						
2b(12)	Radar altimeter						
2b(13)	Forward altimeter antenna						
2b(14)	Aft altimeter antenna						

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CRUISE MISSILE MAINTENANCE TASKS**

<b>ITEM #</b>	<b>TASK / KNOWLEDGE ITEM</b>	<b>CORE TASK</b>	<b>START DATE</b>	<b>COMP DATE</b>	<b>TRAINEE INITIALS</b>	<b>TRAINER INITIALS</b>	<b>CERTIFYING OFFICIAL INITIALS</b>
2b(15)	Pressure transmitter						
2b(16)	Air data pitot assembly						
2b(17)	Air shutoff valve						
2b(18)	Propellant actuated gas pressure generator						
2b(19)	Engine	3					
2b(20)	Explosive actuators						
2b(21)	Aft avionics unit	5					
2b(22)	Thermal batteries						
2b(23)	Linear electromechanical actuators						
2b(24)	Deployment actuators						
2b(25)	Control surfaces						
2b(26)	Desiccant assemblies	3					
2c	Perform the following						
2c(1)	Fuel vapor detection	5					
2c(2)	Fuel Operations						
2c(2a)	Fuel/Defuel						
2c(2b)	Emergency defuel/fuel leak repair	5					
2c(3)	Missile transfer	3					
2c(4)	ECS leak test and isolation	5					
2c(5)	Missile leak test and isolation/repair	5					
2c(6)	Coating repair	5					
2c(7)	Aero surface deployment/ stowage	3					
2c(8)	Missile safe status check	3					
2c(9)	Missile receipt/preparation for shipment						
2c(10)	Engine receipt/preparation for shipment						
2c(11)	Engine fuel priming	5					
2c(12)	Crating/Uncrating missile to/from shipping container						
2c(13)	Corrosion prevention and treatment						
2d	Perform missile checkout						
2d(1)	Level I	3					
2d(2)	Full fin Level I						
2d(3)	Level II						
2d(4)	Flight Load	5					
2d(5)	Isolate malfunctions	5					
2e	Perform guidance set calibration						
2f	Perform Guidance set declassification						

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CRUISE MISSILE MAINTENANCE TASKS

ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
2g	Perform missile serviceability inspection						
3	<b>AIRCRAFT ROTARY LAUNCHER AND PYLON SYSTEMS</b> TR: TOs 11G22-5-5-2, 11G22-5-5-8-19, 11L1-2-25-8-1, 11L1-2-25-8-4, 11N-C5039-2, 11N-C5039-8, 11N-L5001-2, 11N-L5002-2, 11N-L5002-8, 11N-L5006-2, 11N-L5006-8, 11N-L5005-8, 11N-T5162-2, 11N-T5162-8, 11N-T5166-2, 11N-T5166-8, 11N-T5167-2, 11N-T5167-8, 11N-T5168-2, 11N-T5168-8, 11N-T5169-2, 11N-T5169-8, 16W6-33-1, 16W6-33-8-1, 21-AG129-6-2, 21-AG129-8-2, 21M-AGM86-6-2, 21M-AGM86-8-2, 21M-AGM86-8-4						
3a	Interpret launcher/pylon diagrams	5					
3b	Perform launcher/pylon missile safe status check	5					
3c	Replace launcher components						
3c(1)	Decoder-receiver	5					
3c(2)	Nuclear station logic unit	5					
3c(3)	B-52H relay assembly	5					
3c(4)	B-2 nuclear weapons control monitor						
3c(5)	B-2 missile status relay assembly						
3c(6)	B-2 transformer rectifier unit						
3c(7)	B-2 bomb status relay assembly						
3c(8)	B-2 ejector relay assembly						
3c(9)	Cables (B-2/B-52H)						
3d	Replace pylon components						
3d(1)	Decoder-receiver	5					
3d(2)	Relay assembly	5					
3d(3)	Cables						
3e	Perform launcher/pylon checkout						
3e(1)	Empty pylon	5					
3e(2)	Empty launcher	5					
3e(3)	Loaded launcher/Autocal/declassification/memory dump/flight load	5					
3e(4)	Loaded pylon/Autocal/declassification/memory dump/flight load	5					
3e(5)	Interpret Memory Dump	5					
3e(6)	Isolate malfunctions	5					
3f	Perform serviceability (post download) inspection						
3f(1)	Loaded launcher						
3f(2)	Loaded pylon						
3g	Perform Level III checkout						

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ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
3g(1)	Decoder receiver						
3g(2)	Nuclear station logic unit						
3g(3)	B-2 nuclear weapons control monitor						
3g(4)	B-2 missile relay status assembly checkout						
3g(5)	B-2 bomb status relay assembly checkout						
3g(6)	B-2 ejector relay assembly checkout						
3h	Isolate/repair malfunctions on the following						
3h(1)	Decoder receiver						
3h(2)	Nuclear station logic unit						
2h(3)	B-2 nuclear weapons control monitor						
3h(4)	B-2 missile status relay assembly						
3h(5)	B-2 bomb status relay assembly						
3h(6)	B-2 ejector relay assembly						
3i	B-2 perform RLA cable neoprene insulation repair						
3j	<b>WEAPONS HANDLING, STORAGE, AND TRANSPORTATION</b> <b>TR: AFI 91-115, AFI 21-204, T.O. 11N-H5083-1, 11N-H5083-1CL-1, 11N-W80.83-2CL-2, 11N-W80.85-2CL, 35D3-11-36-6WC-2</b>						
3j(1)	MHU-196/M, MHU-204/M (need TR for 204)						
3j(1a)	Transport CSRL/LLA						
3j(1b)	Transfer CSRL/LLA to and from trailer						
3j(1c)	Transport Pylon/PLA						
3j(1d)	Transfer Pylon/PLA to and from trailer						
3j(2)	MHU-141/M						
3j(2a)	Transport missile/handling fixture						
3j(2b)	Transfer missile/handling fixture to and from trailer						
3j(2b1)	Using overhead hoist						
3j(2b2)	Using jammer						
3j(2b3)	Using forklift						
3j(3)	Transport missile using 40 ft. trailer using MHU-195/E						
3j(4)	Pylon Loader Adapter (PLA) <b>TR: T.O. 11N-H5066-2, 35MA1-1-101</b>						
3j(4a)	Inspect						
3j(4b)	Maintain						
3j(4c)	Repair						
3j(4d)	Prepare for shipment/receiving						
3j5)	Launcher Loader Adapter (LLA) <b>TR: T.O. 11N-H5084-2</b>						

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CRUISE MISSILE MAINTENANCE TASKS**

<b>ITEM #</b>	<b>TASK / KNOWLEDGE ITEM</b>	<b>CORE TASK</b>	<b>START DATE</b>	<b>COMP DATE</b>	<b>TRAINEE INITIALS</b>	<b>TRAINER INITIALS</b>	<b>CERTIFYING OFFICIAL INITIALS</b>
3j(5a)	Inspect						
3j(5b)	Maintain						
3j(5c)	Repair						
3j(5d)	Prepare for shipment/receiving						
3j(6)	Weapons movement						
3j(6a)	Inner area movement						
3j(6b)	Outer area movement						
4	<b>PERFORM MAINTENANCE/INSPECTION/REPAIR</b> <b>TR: TOs 11N-H5028-2, 11N-H5054-2, 11N-H5095-2, 11N-T5039-2, 11N-T5087-2, 11N- H5088-2, 11N-H5099-2, 11N-W80.83-2, 21-AG129-2-1, 21M-AGM86-2-31, 33D9-11-50-2, 33D3-14-20-1, 33D9-2-7-2, 35D-1-193, 35D3-11-45-2, 35D3-11-50-2, 35D5-4-6-1, 35D9-38-56-1, 35M8-2-7-1, 37A9-6-2-1, 35D3-6-33-13, 42B5-1-2, 37A9-6-2-1, 21M-AGM86-31, 33A2-2-23-31, 35C2-2-31-61, 35C2-3-31-61, 35C2-2-127-1, 33D9-5-42-1, 35C3-3-25-11, 35C3-3-41-2, 33D9-2-14-2, 33D5-14-44-1, 21M-AGM86-32, 21M-AGM86-2-1, 21M-AGM86-2-3, 21M-AGM86-6-2, 21-AG129-6-2, 21-AG129-31, 35E20-2-47-2 and applicable service manuals</b>						
4a	Nitrogen/Argon Cart						
4b	Air Purge Pressurization Unit TL-1977/TL-2800	5					
4c	Fuel/defuel equipment	5					
4d	Fuel vapor detector						
4e	Missile test stand (MSU 179/E)	5					
4f	Guided missile handling fixture (MHU-159/E)						
4g	Guided missile handling unit (MHU-200/E)						
4h	Missile nitrogen charging adapter set						
4i	Test/maintenance stand rail set (MTU-89/E)	5					
4j	Guided missile maintenance stand (MSU-202/E)	5					
4k	ACM Fuel Adapter Unit ADU-737/E						
4l	Engine leak detector MXU-720/E						
4m	Electric Squib Test Set AN-GSM-267						
4n	Blue M Oven/DC-1406G						
4o	Forma Scientific Freezer/707						
4p	CNU-617/E 180-Day Desiccant Inspection/replacement						
5	<b>ELECTRONIC SYSTEM TEST SET (ESTS) AN/GSM-263/A/C/F/G</b> <b>TR: TOs 33D9-61-71-1, 33D9-61-71-1-1, 33D9-61-71-4, 33D9-671-71-21, 33D9-61-71-24</b>						
5a	Describe the operation of the following systems						

**AFSC 2M051/2M071 STS ATTACHMENT 4  
CRUISE MISSILE MAINTENANCE TASKS**

ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
5a(1)	Power distribution, control, and monitor						
5a(2)	Temperature control/cooling						
5a(3)	Bus analyzer (263C)						
5a(4)	Waveform generator (263C)						
5a(5)	Tape drive system (263C)						
5a(6)	Data bus extender (263F/G)						
5b	Perform ESTS tests <b>TR: TOs 33D9-61-71-7-1, 33D9-61-71-28-1</b>						
5b(1)	Confidence test	3					
5b(2)	Auto calibration						
5b(3)	Operational Assurance Test						
5c	Perform ESTS preventive maintenance						
5d	Perform ESTS calibration/adjustment procedures						
5d(1)	Calibration/certification						
5d(2)	HP7906 disc drive alignment <b>TR: TO 33DA43-20-2</b>						
5d(3)	Computer/controller power supplies						
5e	Interpret ESTS schematics/ diagrams						
5f	Inspect ESTS disc media using cleaner/verifier						
5g	Describe the operation of the disc cleaner/verifier						
5h	Isolate ESTS malfunctions						
5i	Bench test ESTS modular power supplies <b>TR: TOs 33D7-6-202-1, 35C1-2-1-191, 35C1-2-560-1, 35C1-2-750-1</b>						
5j	Replace ESTS components						
5j(1)	Computer subcomponents						
5j(2)	Disc drive subcomponents						
5j(3)	Circuit card assemblies						
5j(4)	Power supplies						
5j(5)	Cable assemblies						
5j(6)	Drawer assemblies						
5j(7)	Drawer assembly subcomponents						
5j(8)	Patch board components						
5j(9)	Patch board receiver contacts						
5k	Perform serviceability inspection						
5l	Perform <b>TR: TOs 11N-T5113-2, 33D9-16-9-1, 33D9-19-55-1, 33D9-19-58-11, 33D9-19-81-1, 11N-T5166-1, 11N-T5167-1, 11N-T5168-1, 11N-T5169-1, 11N-T5172-1</b>						

AFSC 2M051/2M071 STS **ATTACHMENT 4**  
CRUISE MISSILE MAINTENANCE TASKS

ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
5l(1)	Test adapter groups/interconnecting groups/test adapter kits maintenance						
5l(2)	Antenna hood certification						
5l(3)	Temp probe certification						
5l(4)	Signal data converter CV-364/GSM-263 <b>TR: TOs 33D9-19-54-1, 33D9-19-54-8-1</b>						
5l(4a)	Inspection/self-test						
5l(4b)	Calibration						
5l(5)	Genie Mix-N-Match portable lift truck <b>TR: 35D5-4-6-1</b>						
5l(5a)	Inspection						
5l(5b)	Maintain						
5m	Test program sets (TPS) <b>TR: 11N-T5166-1, 11N-T5167-1, 11N-T5168-1, 11N-T5169-1, 11N-T5172-1</b>						
5m(1)	Operate						
5m(2)	Perform maintenance						
<b>6</b>	<b>AIR DATA TEST SET (ADTS) AN/GSM-291</b> <b>TR: TO 33D9-61-71-1</b>						
6a	Describe the operation/function of the following systems						
6a(1)	AC power control						
6a(2)	Air data test controller						
6a(3)	Air dryer						
6a(4)	Vacuum pump						
6a(5)	Oil trap						
6b	Interpret ADTS schematics/diagrams						
6c	Perform ADTS preventive maintenance/servicing						
6d	Perform ADTS tests						
6d(1)	Self-test						
6d(2)	Air dryer leak test						
6e	Calibrate air data test controller						
6f	Isolate ADTS faults						
6g	Repair ADTS components						
6g(1)	Air data test controller						
6g(2)	Rack subcomponents						
6g(3)	Air dryer assembly						
6g(4)	Air dryer assembly subcomponents						
6g(5)	Vacuum pump						

AFSC 2M051/2M071 STS **ATTACHMENT 4**  
CRUISE MISSILE MAINTENANCE TASKS

ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
6g(6)	Vacuum pump components						
6g(7)	Blower						
<b>7</b>	<b>MISSILE RADAR ALTIMETER TEST ASSEMBLY (MRATA)</b> <b>TR: TOs 33D7-44-233-1, 33D7-44-233-4</b>						
7a	Describe the operation of MRATA subsystems						
7a(1)	Data control						
7a(2)	RF circuits control						
7a(3)	Measurement/monitoring						
7a(4)	RF signal processing/routing						
7a(5)	ESTS interface						
7a(6)	Power distribution and control						
7a(7)	Cooling						
7b	Perform MRATA tests						
7b(1)	Maintenance self-test						
7b(2)	ESTS-controlled self-test						
7c	Perform MRATA preventive maintenance						
7d	Perform MRATA fault isolation						
7d(1)	Interpret MRATA schematics/diagrams						
7d(2)	Interpret RF path status via LED indicators						
7d(3)	Interpret, develop, and use RF path programming for troubleshooting						
7e	Perform MRATA calibration/ alignment						
7f	Repair/replace MRATA components						
7f(1)	Drawer assemblies						
7f(2)	Power supplies						
7f(3)	Cable assemblies						
7f(4)	Circuit card assemblies						
7f(5)	Active RF components/modules						
7f(6)	Couplers and fixed attenuators						
7f(7)	Semi-rigid coaxial assemblies						
7f(8)	Coaxial switches						
7f(9)	Programmable attenuators						
7f(10)	Self-test receiver						
7f(11)	Delay assemblies						
7f(12)	Socketed integrated circuits (ICs)						
7g	Perform serviceability inspection						



**AFSC 2M051/2M071 STS ATTACHMENT 4  
CRUISE MISSILE MAINTENANCE TASKS**

<b>ITEM #</b>	<b>TASK / KNOWLEDGE ITEM</b>	<b>CORE TASK</b>	<b>START DATE</b>	<b>COMP DATE</b>	<b>TRAINEE INITIALS</b>	<b>TRAINER INITIALS</b>	<b>CERTIFYING OFFICIAL INITIALS</b>
<b>8</b>	<b><i>ELECTRONIC COMPONENTS COOLING EQUIPMENT</i></b> <b>TR: TO 33D9-122-20-2, 33D7-86-51-1</b>						
8a	Perform operational test						
8b	Perform preventive maintenance						
8c	Interpret schematics/ diagrams						
8d	Isolate malfunctions						
8e	Calibrate						
8e(1)	Flowmeters						
8e(2)	Temperature and pressure switches						
8e(3)	Air flow switch (ACM)						
8e(4)	Perform facility input air test						
8f	Replace/Repair subcomponents						
8g	Perform serviceability inspection						
8h	Certify temperature gauge						
<b>9</b>	<b><i>REMOTE SWITCHING CONTROL ASSEMBLY (RSCA)</i></b> <b><i>C-11870/GSM-263</i></b> <b>TR: TOs 33D9-54-75-1, 33D9-54-75-7-1</b>						
9a	Perform operational checkout						
9b	Perform preventive maintenance						
9c	Interpret schematics/diagrams						
9d	Perform self-test						
9e	Perform calibration						
9f	Replace components						
9f(1)	Power distribution assembly						
9f(2)	Interface bus extender						
9f(3)	Interface assembly						
9f(4)	Chained card cage assembly						
9f(5)	Circuit card assemblies						
9f(6)	Cabinet assembly subcomponents						
9f(7)	Cable assemblies						
9g	Isolate malfunctions						
9h	Perform serviceability inspection						
<b>10</b>	<b><i>SENSOR TEST SET AN/GSM-320</i></b> <b>TR: TO 33D9-142-23-1</b>						
10a	State the purpose of Sensor Test Set major components						
10b	Perform operational checkout						
10c	Perform preventive maintenance						

AFSC 2M051/2M071 STS **ATTACHMENT 4**  
CRUISE MISSILE MAINTENANCE TASKS

ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
10d	Interpret test set schematics/diagrams						
10e	Isolate test set malfunctions						
10f	Calibrate/align subcomponents						
10f(1)	Calorimeter signal conditioning loop						
10f(2)	Belt alignment						
10g	Replace test set components						
<b>11</b>	<b>USE THE FOLLOWING TYPES OF TEST EQUIPMENT AND MAINTAIN AGM-86/AGM-129A SUPPORT EQUIPMENT</b> <b>TR: TO 31-1-141-10 (Sections I, III, VIII, XI);</b> <b>End Item User Manuals</b>						
11a	Oscilloscope						
11b	Signal/pulse generating equipment						
11c	Frequency/time measuring equipment						
11d	Microwave calibration equipment						
11e	Portable automatic test equipment calibrator						
11f	Optical Micrometer						
<b>12</b>	<b>WEAPON STORAGE AREA (WSA) FACILITIES/SUPPORT SYSTEMS</b> <b>TR: AFI 32-1065, AFI 23-201, AFI 31-101, AFI 31-207</b> <b>AFOSH STAND 91-46, DoD 5210.41-M</b>						
12a	Operate the Fire suppression (halon/AFFF/water)						
12b	Operate the overhead hoist/monorail system	3					
12c	Operate the hydraulic/electrical/pneumatic systems						
12d	Operate the cruise missile bulk fuel storage system						
12e	Operate the indoor fuel tank system						
12f	Perform the following						
12f(1)	IMF/structure Open/Close procedures						
12f(2)	Close-in sentry duties						
12f(3)	Sole Vouching Authority Duties						
12f(4)	Key and lock procedures						
<b>13</b>	<b>ADMINISTRATIVE SUPPORT FUNCTIONS</b>						
13a	Information security <b>TR: AG-129 SCG, AGM-86B/C/D SCG, AFI 31-401</b>						
13a(1)	Perform marking, storage, handling, and destruction of classified material						
13a(2)	Determine classification/declassification of material						
13b	Compile, update, and distribute reports <b>TR: ACCI 21-101, local operating instructions</b>						
13b(1)	Daily status reporting / Force Management Info Sys (FMIS) reporting						

AFSC 2M051/2M071 STS **ATTACHMENT 4**  
CRUISE MISSILE MAINTENANCE TASKS

ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
13b(2)	Monthly Maintenance Summary						
13b(3)	Executive summary						
13c	Compile, review, analyze, and maintain missile systems information for historical documentation <b>TR: ACCI 21-101, AFI 21-103, TO 00-5 series, 00-20 series</b>						
13c(1)	CSAS/REMIS						
13c(2)	Historical documentation						
13c(3)	ESTS printouts						
13d	Perform trend analysis on <b>TR: ACCI 21-101</b>						
13d(1)	ELT/EPT						
13d(2)	LLT/LPT						
13d(3)	LVL I, LVL II, LVL III						
13d(4)	SIT/MIT						
13d(5)	B-2A post-load check						
<b>14</b>	<b>PERFORM CTK DUTIES</b> <b>TR: AFI 21-101, ACCI 21-101</b>						
<b>15</b>	<b>PERFORM SUPPLY DUTIES</b> <b>TR: AFMAN 23-110</b>						
15a	Maintain shelf life program						
15b	Initiate AF Form 1500 series tags						
<b>16</b>	<b>ENVIRONMENTAL POLLUTION/HAZARDOUS WASTE DUTIES</b> <b>TR: AFI 32-7042</b>						
<b>17</b>	<b>PERFORM TMDE MANAGEMENT DUTIES</b> <b>TR: 00-20-14, 32B14-3-1-101, 33K-1-100-1, 33K-1-100-2, 51-1-01</b>						

**AFSC 2M051/2M071 STS ATTACHMENT 5  
AF RESEARCH LABORATORY TASKS**

<b>ITEM #</b>	<b>TASK / KNOWLEDGE ITEM</b>	<b>CORE TASK</b>	<b>START DATE</b>	<b>COMP DATE</b>	<b>TRAINEE INITIALS</b>	<b>TRAINER INITIALS</b>	<b>CERTIFYING OFFICIAL INITIALS</b>
	All tasks performed are coordinated through local agencies with the technicians signing off on the coordination page. This will serve as task qualification documentation and the following tasks are generic in nature due to the Research and Development mission. (i.e. Safety, Bio-Environmental, Security, Laboratory/Development Engineers, etc.)						
<b>1</b>	<b>COMPLY WITH EXPLOSIVE SAFETY PROCEDURES</b> <b>TR: AFIs 92-201, AFI 92-202; TOs 11A-1-46, 11A-1-42, 11A-1-66</b>						
1a	Laboratory/Range safety						
1b	Transportation						
1c	Initiators (EBWS/CAPS)						
1d	Storage						
<b>2</b>	<b>ELECTRONIC CABLES</b> <b>TR: TO 00-25-234</b>						
2a	Fabricate						
2b	Repair						
<b>3</b>	<b>TRANSDUCERS</b> <b>TR: TOs 31-1-141-143, 31-1-141-3</b>						
3a	Describe theory of operation						
3b	Install						
3c	Remove						
3d	Calibrate						
<b>4</b>	<b>CLOSED CIRCUIT VIDEO (CCV) SYSTEMS</b> <b>TR: TO 31-1-141-9</b>						
4a	Describe theory of operation						
4b	Operate:						
4b(1)	Cameras						
4b(2)	Monitors						
4b(3)	Recorders						
4c	Maintain:						
4c(1)	Cameras						
4c(2)	Monitors						
4c(3)	Recorders						
<b>5</b>	<b>LASERS</b> <b>TR: TO 31-1-141-3; AFOSH STD 161-10</b>						
5a	Comply with standard safety practices						
5b	Describe theory of operation						
5c	Set -up						
5d	Operate						

AFSC 2M051/2M071 STS **ATTACHMENT 5**  
AF RESEARCH LABORATORY TASKS

ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
<b>6</b>	<b>High Energy Microwave Systems</b> <b>TR: TO 31-1-141-11</b>						
6a	Comply with standard safety practices						
6b	Describe theory of operation						
6c	Setup						
6d	Operate						
<b>7</b>	<b>OPTICS</b> <b>TR: TO 33B4-8-9-1</b>						
7a	Describe theory of operation						
7b	Clean						
7c	Align						
7d	Handle						
<b>8</b>	<b>Propellants</b> <b>TR: AFIs 91-201, 91-202, AFMAN 161-30 Vol 2</b>						
8a	Solid Propellant						
8a(1)	Comply with standard safety practices						
8a(2)	Handle						
8a(3)	Store						
8a(4)	Inspect spent cases						
8b	Liquid Propellants						
8b(1)	Comply with standard safety practices						
8b(2)	Store/Handle						
8b(2a)	LOX/LN2						
8b(2b)	Hypergolics						
<b>9</b>	<b>LIQUID/GAS/VACUUM SYSTEMS</b> <b>TR: TOs 00-25-233, 00-25-244, 1-1A-7, 33-1-19,42B5-1-2;</b> <b>AFOSH 127-31</b>						
9a	Liquid Systems:						
9a(1)	Comply with standard safety practices						
9a(2)	Describe theory of operation						
9a(3)	Design						
9a(4)	Fabricate						
9a(5)	Install						
9a(6)	Operate						
9b	Gas systems:						
9b(1)	Comply with standard safety practices						
9b(2)	Describe theory of operation						
9b(3)	Design						

AFSC 2M051/2M071 STS **ATTACHMENT 5**  
AF RESEARCH LABORATORY TASKS

ITEM #	TASK / KNOWLEDGE ITEM	CORE TASK	START DATE	COMP DATE	TRAINEE INITIALS	TRAINER INITIALS	CERTIFYING OFFICIAL INITIALS
9b(4)	Fabricate						
9b(5)	Install						
9b(6)	Operate						
9c	Vacuum systems:						
9c(1)	Comply with standard safety practices						
9c(2)	Describe theory of operation						
9c(3)	Design						
9c(4)	Fabricate						
9c(5)	Install						
9c(6)	Operate						
<b>10</b>	<b>RESEARCH AND DEVELOPMENT LABORATORY EQUIPMENT TR: TOs 33-1-19, 00-25-299</b>						
10a	Vacuum pumps:						
10a(1)	Inspect						
10a(2)	Operate						
10b	Ovens:						
10b(1)	Inspect						
10b(2)	Operate						
10c	Chillers:						
10c(1)	Inspect						
10c(2)	Operate						
<b>11</b>	<b>Firing Console</b>						
11a	Setup						
11b	Operate						
11c	Shutdown						
11d	Emergency Shutdown						

**PART II**  
**Section B - COURSE OBJECTIVE LIST**

**This is currently no course objective list. This area is reserved.**

**Section C - SUPPORT MATERIALS**

**There are currently no support material requirements. This area is reserved.**

**Section D - TRAINING COURSE INDEX**

1. **Purpose.** This section of CFETP identifies training courses available in the Missile and Space Systems Electronics specialty and shows how the courses are used by each MAJCOM in their career field training programs. Career field functional managers and training management personnel should use this information to plan, develop, and update their respective MAJCOM continuation training program.

**2. Air Force In-Residence Courses**

2.1. *3-Level Awarding Courses.* Completion of one of the following courses is mandatory for the award of the 3-skill level.

<u>CRS NO./TITLE</u>	<u>MDS/EQUIP</u>	<u>LOCATION</u>	<u>USER</u>
V3ABR2M031A 005 Missile and Space Systems Electronics Maintenance Apprentice (ICBM)	ICBM	VANDENBERG	AFSPC
V3ABR2M031B 001 Missile and Space Systems Electronics Maintenance Apprentice (ALCM/ACM)	ALCM/ACM	VANDENBERG	ACC

2.2. *Other In-Resident Courses.*

<u>CRS NO./TITLE</u>	<u>MDS/EQUIP</u>	<u>LOCATION</u>	<u>USER</u>
V3AZR2M051 001 Automated Test Station (ATS) Systems Maintenance (Support Equipment Maintenance)	ICBM	VANDENBERG	AFSPC
V3AZR2M051 002 Verification and Checkout Equipment (VACE) (Support Equipment Maintenance)	ALCM/ACM	VANDENBERG	ACC
V3AZR2M071 009 WS-133A/M Technical Engineering	ICBM	VANDENBERG	AFSPC
L3AQR2M031A 332/L3AQR2M031B 332 Electronic Principles		LACKLAND	ALL

ICBM-IC ICBM Maintenance Instructional Techniques Course	ICBM	F E WARREN	AFSPC
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ICBM-MIC ICBM Maintenance Evaluator Course	ICBM	F E WARREN	AFSPC
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### 3. Extension Course Institute (ECI) Courses

<b><i>CRS NO.</i></b>	<b><i>COURSE TITLE</i></b>
CDC 2M051	Missile and Space Systems Electronics Journeyman
CDC 2M071	Missile and Space Systems Electronics Craftsman

### **Section E - MAJCOM UNIQUE PROCEDURES**

**There are currently no MAJCOM unique requirements. This area is reserved.**