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CFETP 2P0X1  
Parts I and II  
November 2002

## **AFSC 2P0X1**

# **PRECISION MEASUREMENT EQUIPMENT LABORATORY**



## **CAREER FIELD EDUCATION AND TRAINING PLAN**

**CAREER FIELD EDUCATION AND TRAINING PLAN  
PRECISION MEASUREMENT EQUIPMENT LABORATORY SPECIALTY  
AFSC 2P0X1**

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**PRECISION MEASUREMENT EQUIPMENT LABORATORY SPECIALTY**  
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***PART I***

***PREFACE***

1. This Career Field Education and Training Plan (CFETP) is a comprehensive education and training document that identifies life-cycle education/training requirements, training support resources, and minimum core task requirements for the 2P0X1, Precision Measurement Equipment Laboratory specialty. The CFETP will provide personnel a clear career path to success and instills rigor in all aspects of career field training. Note: Civilians occupying associated positions will use Part II to support duty position qualification training.

2. The CFETP consists of two parts. Supervisors will use both parts to plan, manage, and control training within the career field.

2.1. Part I provides information necessary for overall management of the specialty. **Section A** explains how everyone will use the plan; **Section B** identifies career field progression information, duties and responsibilities, training strategies, and career field path; **Section C** associates each level with specialty qualifications (knowledge, education, training, and other); **Section D** indicates resource constraints. Some examples are funds, manpower, equipment, and facilities.

2.2. Part II includes the following: **Section A** identifies the Specialty Training Standard (STS) and includes duties, tasks, technical references to support training, Air Education and Training Command (AETC) conducted training, wartime course/core task and correspondence course requirements; **Section B** contains the course objective list/training standards supervisors will use to determine if airmen satisfied training requirements; **Section C** identifies available support materials. An example is a Qualification Training Package (QTP) which may be developed to support proficiency training. **Section D** identifies a training course index supervisors can use to determine resources available to support training. Included here are both mandatory and optional courses; **Section E** identifies MAJCOM unique training requirements supervisors can use to determine additional training required for the associated qualification needs. At the unit level, supervisors and trainers will use Part II to identify, plan, and conduct training commensurate with the overall goals of this plan.

3. Using guidance provided in the CFETP will ensure individuals in this specialty receive effective and efficient training at the appropriate points in their career. This plan will enable us to train today's work force for tomorrow's jobs.

## ***ABBREVIATIONS/TERMS EXPLAINED***

**Advanced Training.** Formal course which provides individuals who are 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.

**Air Force Job Qualification Standard (AFJQS).** A comprehensive task list that describes a particular job type or duty position. Supervisors use the AFJQS to document task qualifications. The tasks of AFJQS are common to all persons serving in the described duty position.

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

**Continuation Training.** This is additional training that exceeds minimum upgrade requirements and has an emphasis on present or future duty assignments.

**Core Task.** Tasks that the Air Force Career Field Manager (AFCFM) identifies as minimum qualification requirements within an Air Force Specialty. Only a percentage of critical tasks for each system are listed as mandatory core tasks. This gives units needed flexibility to manage their workforce training. Core tasks identified with \*/R are optional for ANG and AFRC.

**Course Objective List (COL).** A publication identifying the tasks and knowledge requirements, and respective standards provided to achieve a 3-/7-level in this career field. Supervisors use the COL to assist in conducting graduate evaluations in accordance with AFI 36-2201, Developing, Managing and Conducting Military Training Programs.

**Enlisted Specialty Training (EST).** A mix of formal training (technical school) and informal training (on-the-job) to qualify and upgrade airmen in each skill level of a specialty.

**Exportable Training.** Additional training via computer assisted, paper text, interactive video, or other necessary means to supplement training.

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

**Initial Skills Training.** A formal school course that results in the award of a 3-skill level AFSC.

**Instructional System Development (ISD).** A deliberate and orderly process for developing, validating, and reviewing instructional programs that ensures personnel are taught the knowledge and skills essential for successful job performance.

**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).** Hands-on, over-the-shoulder training at the duty location used to certify personnel for both skill level upgrade and duty position qualification.

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

**Qualification Training Package (QTP).** An instructional course designed for use at the unit to qualify or aid qualification in a duty position or program or on a piece of equipment. It may be printed, computer based, or in other audiovisual media.

**Resource Constraints.** Resource deficiencies, such as money, facilities, time, manpower, or equipment, that preclude desired training from being accomplished.

**Specialty Training Standard (STS).** An Air Force publication that describes an Air Force Specialty in terms of tasks and knowledge an airman may be expected to perform or to know on the job. It serves as a contract between AETC and the functional user to show which of the overall training requirements for an AFSC are taught in formal schools, Career Development Courses, and exportable courses.

**Training Setting.** The type of forum in which training is provided (formal resident school, on-the-job, field training, mobile training team, self-study, etc.).

**Upgrade Training.** A mixture of mandatory courses, task qualification, QTPs, and CDCs required for award of the 3-, 5-, 7-, or 9-skill levels.

**Utilization and Training Workshop (U&TW).** A forum, co-chaired by the AFCCFM and Training Pipeline Manager, of MAJCOM Air Force Specialty Code (AFSC) functional managers, Subject Matter Experts (SMEs), and AETC training personnel that determines career ladder training requirements.

## **SECTION A - GENERAL INFORMATION**

**1. Purpose.** This CFETP provides information necessary for the Air Force Career Field Manager (AFCFM), MAJCOM functional managers (MFMs), commanders, training managers, supervisors and trainers to plan, develop, manage, and conduct an effective career field training program. This plan outlines the training that individuals in AFSC 2P0X1 should receive in order to develop and progress throughout their career. This plan identifies initial skills, upgrade, qualification, advanced, and proficiency training. Initial skills training is the AFS specific training an individual receives upon entry into the Air Force or upon retraining into this specialty for award of the 3-skill level. This training is conducted by AETC at Keesler AFB, MS. Upgrade training identifies the mandatory courses, task qualification requirements, and correspondence course completion requirements for award of the 3-, 5-, 7-, 9-skill levels. Qualification training is actual hands-on task performance training designed to qualify an airman in a specific duty position. This training program occurs both during and after the upgrade training process. It is designed to provide the performance skills/knowledge required to do the job. Advanced training is formal specialty training used for selected airmen. Proficiency training is additional training, either in-residence or exportable advanced training courses, or on-the-job training, provided to personnel to increase their skills and knowledge beyond the minimum required for upgrade. The CFETP has several purposes, some are:

**1.1.** Serves as a management tool to plan, manage, conduct, and evaluate a career field training program. Also, it is used to help supervisors identify training at the appropriate point in an individual's career.

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

**1.3.** Lists training courses available in the specialty, identifies sources of training, and the training delivery method.

**1.4.** Identifies major resource constraints that impact full implementation of the desired career field training process.

**2. Uses.** The plan will be used by the AFCFM, MFMs and supervisors at all levels to ensure comprehensive and cohesive training programs are available for each individual in the specialty.

**2.1.** AETC training personnel will develop/revise formal resident, non-resident, field, and exportable training based on requirements established by the users and documented in Part II of the CFETP. They will also work with the AFCFM to develop acquisition strategies for obtaining resources needed to provide the identified training.

**2.2.** MFMs will ensure their training programs complement the CFETP mandatory initial, upgrade, and proficiency requirements. Identified requirements can be satisfied by OJT, resident training, contract training, or exportable courses. MAJCOM developed training to support this AFSC must be identified for inclusion into this plan.

**2.3.** Each individual will complete the mandatory training requirements specified in this plan. The lists of courses in Part II will be used as a reference to support training.

**3. Coordination and Approval.** The AFCFM is the approval authority. MAJCOM representatives and AETC training personnel will identify and coordinate on the career field training requirements. The AETC training manager for AFSC 2P0X1 will initiate an annual review of this document by AETC and MFMs to ensure currency and accuracy. Using the list of courses in Part II, they will eliminate duplicate training. Applicable inputs/changes to this CFETP will be routed to 332 TRS/TRR, 613 Hangar Road, Room 156, Keesler AFB MS 39534-2237.

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

### **1. Specialty Description.**

**1.1. Specialty Summary.** Refer to AFMAN 36-2108, *Airman Classification*, paragraph 1.

**1.2. Duties and Responsibilities.** Refer to AFMAN 36-2108, paragraph 2.

#### **1.2.1. Precision Measurement Equipment Laboratory Apprentice and Journeyman:**

Analyzes routine maintenance problems in Test Measurement and Diagnostic Equipment (TMDE), including laboratory standards. Uses theories of operation, block diagrams, schematics, pictorial drawings, logic trees, and software diagnostics. Traces circuits and isolates malfunctions in TMDE. Obtains assistance from craftsmen in diagnosing and isolating equipment malfunctions. Inspects TMDE for preventive maintenance, cleanliness, and safety requirements. Removes components and installs replacement parts in equipment. Performs equipment maintenance using hand tools, special tools, high reliability soldering techniques, and technical data. Obtains assistance from craftsmen in overhauling and modifying intricate assemblies and subassemblies. Aligns and adjusts TMDE to technical data specifications. Studies maintenance policy and procedures in manufactures' handbooks, technical orders, and organizational maintenance directives for TMDE, including laboratory standards. Ensures equipment operational accuracy by performing laboratory and on-site calibrations. Uses laboratory working standards, reference standards, Transportable Field Calibration Unit (TFCU), Portable Automatic Test Equipment Calibrator (PATEC), engine test stand calibrator, Rapid Assistance Support for Calibration (RASCAL), and Electrical Standards Set (ESS). Certifies equipment accuracy to technical data specifications. Prepares and uses calibration correction charts. Obtains assistance from craftsmen in calibrating complex equipment. Assists in preparing calibration responsibility determinations, material deficiency reports, technical order improvement reports, requests for special training, training quality reports, and modification proposals. Records pertinent data on equipment Maintenance Data Collection (MDC) forms and/or enters data into the PMEL Automated Management System (PAMS) and other automated test products. Helps to evaluate and develop calibration and maintenance procedures, technical data verification, and operational test and evaluation of new equipment. Manages the Technical Order Distribution Office (TODO) account. Identifies deficient TMDE to the Air Force Metrology and Calibration (AFMETCAL) Product Improvement Working Group (PIWG).

Assists in the management of databases for the automated information management system. Handles, labels, and disposes of hazardous materials according to Environmental Standards.

**1.2.2. Precision Measurement Equipment Laboratory Craftsman:** Analyzes complex and unusual maintenance problems in TMDE, including laboratory standards. Traces circuits and isolates malfunctions in complex TMDE. Helps apprentices and journeymen analyze and isolate equipment malfunctions. Inspects TMDE for preventive maintenance, cleanliness, and safety requirements. Overhauls and modifies assemblies, subassemblies, and all laboratory standards. Interprets maintenance policy and procedures in manufacturers' handbooks, technical orders, and organizational maintenance directives for TMDE, including laboratory standards. Verifies United States Air Force Base Reference Standards accuracy using intercomparison techniques. Prepares, verifies, and analyzes MDC documentation and automatic test products. Accomplishes technical data verification, operational tests, and new equipment evaluation. Coordinates lateral support, command certification, and contract services. Resolves equipment logistics problems with Air Force Materiel Command (AFMC) item managers. Develops and evaluates budget requirements and logistic support agreements. Inventories equipment, tools, parts, and supplies. Evaluates procedures for storing, inventorying, and inspecting property. Resolves production problems. Manages the database for the automated management system. Analyzes and interprets trends. Recommends corrective actions. Provides technical and training assistance to TMDE users. Coordinates TMDE mission support requirements in a geographical area by evaluating workload inputs, training requirements, laboratory environmental conditions, and availability of skills and equipment. Identifies scheduled mission-essential TMDE and its impact on workload. Develops workload plans, budgets, support agreements, and special reports. Ensures compliance with published safety guidelines. Provides training and task certification for skill level advancement.

**1.2.3. Precision Measurement Equipment Laboratory Superintendent:** Determines logistic support requirements for inspecting, modifying, repairing, and calibrating TMDE and laboratory standards. Sets objectives based on available resources, alternative support sources, and supported workcenters' wartime requirements. Determines special qualifications needed by assigned personnel. Determines training requirements and personnel, equipment, and supplies availability. Determines calibration area environmental adequacy, and funds consumption rates and availability. Reviews management data to identify adverse trends in meeting plan objectives. Implements, conducts and directs TMDE logistic support plans. Delegates authority to craftsmen and journeymen to implement and conduct plans in specific areas. Submits budget inputs, quality program results, and war support plan inputs to appropriate activity. Evaluates support adequacy by reviewing reports, inspection results, and documentation error rates. Visits workcenters to discuss support adequacy. Presents briefings on geographical support. Resolves TMDE logistics support problems. Takes corrective action on negative trends revealed by quality and production programs. Seeks assistance from specialists to resolve TMDE logistics support deficiencies. Manages the Quality Program. Ensures hazardous materials and waste are handled, stored, and disposed of according to environmental standards.

**2. Career Skill Progression.** Adequate 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. It is essential that everyone involved in training do their part to plan, develop, manage, and conduct an effective training program. The guidance provided in this part

of the CFETP will ensure individuals receive viable training at appropriate points in their careers.

**2.1. Apprentice (3-Level):** Upon completion of initial skills training, trainees will work with trainers to enhance their knowledge and skills. They will utilize the Career Development Course (CDC) and Task Qualification Training to progress in their career field.

**2.2. Journeyman (5-Level):** Once upgraded to the 5-level, journeymen enter into continuation training to broaden their experience base. Five-levels may be assigned job positions such as quality assurance, section chief, task trainers and certifier, and various staff positions. Five-levels will complete supplemental courses, exportable courses, and MAJCOM specific training as required. Individuals will be eligible to attend the Airman Leadership School (ALS) as a SrA with 48 months time in service or when selected for promotion to SSgt. Individuals will use their CDCs and other study references to prepare for testing under the Weighted Airman Promotion System (WAPS). They should also consider continuing their education by working towards a Community College of the Air Force (CCAF) degree.

**2.3. Craftsman (7-Level):** Craftsmen can expect to fill various supervisory and management positions such as shift leader, element chief, and task certifier. They may also be assigned to work in staff positions. Seven-levels should take courses to obtain added knowledge on management of resources and personnel. Continued academic education through CCAF and higher degree programs is encouraged. When promoted to TSgt, individuals will attend the Noncommissioned Officer Academy.

**2.4. Superintendent (9-Level):** A 9-level can be expected to fill positions such as flight chief, production supervisor and various staff NCOIC jobs. Additional training in the areas of budget, manpower, resources, and personnel management should be pursued through continuing education. Individuals promoted to SMSgt will attend the Senior Noncommissioned Officer Academy. Additional higher education and completion of courses outside their career AFSC are also recommended.

**3. Training Decisions.** The CFETP was developed using a building block approach (simple to complex) to encompass the entire spectrum of training requirements for the Precision Measurement Equipment Laboratory Career Field. The spectrum includes a strategy for when, where, and how to meet these training requirements. The strategy must ensure we develop affordable training, eliminate duplication, and prevent a fragmented approach to training. The following training decisions were made at the career field U&TW held at Keesler AFB, 27 - 31 August 2001:

**3.1. Initial Skills Training.** A decision was made to revise the resident course. Major changes included the addition of following training items: completion of AF Form 2005 and equipment condition forms and tags; scheduling equipment; principles of Electrostatic Discharge Sensitive Devices, percents of modulation, interpolating readings, charts, and graphs, uncertainty analysis; inspection of equipment for foreign objects and the need for replacement hardware, fuses, and power cords; performing Preventative Maintenance Inspections (PMIs); use of a high-accuracy digital multimeter, high voltage probe/divider, thermal converters, precise frequency, and optical

flats/parallels; and the calibration procedure for a frequency synthesizer. Once the appropriate equipment is procured, the use of an oscilloscope calibration system will be added and the use, calibration, and troubleshooting of the time mark and constant amplitude generators will be deleted. Other training items that were deleted were: progression in career ladder 2P0X1; TMDE circuits, and calibration and troubleshooting a differential voltmeter. The required level of training was changed on numerous items to better reflect the level of training required by the field at this skill level.

**3.2. Five-Level Upgrade Training Requirements.** The 5-level CDC was revised to increase the basic knowledge in the following areas: degree minutes seconds conversions; trigonometric application; thermocouple millivolt to temperature conversions; interpolating readings, charts or graphs; pressure conversions; inspect oxygen TMDE; mass conversions; specific gravity of fluids solids or gases; high accuracy digital multimeter; microwave measurements, power, attenuation or voltage standing wave ratio (VSWR) analysis; scheduling equipment into and out of the laboratory, uncertainty analysis principles, phase noise measurements (PNMs), flow calibrations, initiating actions for cleanup of hazardous spills, performing time compliance technical order (TCTO) modifications, principles of viscosity; principles of ILS/VOR equipment, and the use of high frequency synthesizers. The 5-Level CDC was also revised to remove the following items: capacitance, logic analyzer, signature analysis, and use of modulation analyzer. The Specialty Training Standard (STS) was revised to provide additional training. The STS 5-level core tasks were reviewed and changed accordingly.

**3.3. Seven-Level Upgrade Training Requirements.** The in-residence 7-level course was revised in order to be more in alignment with the requirements of a craftsman in the field. Several items were removed and others were added. Additionally, the 7-level CDC was updated to add training on the following items: unit manning documents, unit personnel management rosters, Air Force manpower standards, participation in USAF graduate evaluation program, supply transactions; Equipment Management Officer (EMO) accounts, and use of an AC/DC transfer standard. The following training items were removed: DIFM/DEPOT level reparables (DLR), principles of ILS/VOR equipment, use of high frequency synthesizers, use of an input/output simulator, use of a modulated microwave source; use of a transfer function analyzer, and troubleshooting/repairing the STORES management system (SMS). Also, the STS 7-level core tasks were reviewed and changed accordingly.

**3.4. Proficiency Training.** Any additional knowledge and skill requirements not identified as initial skills or upgrade training were assigned to the Continuation Training Program. The purpose of continuation training is to provide additional training that exceeds minimum training requirements. The training program will identify both mandatory and optional training requirements. Emphasis is on present and future duty positions.

**4. Community College of the Air Force.** Enrollment in CCAF occurs upon completion of basic military training. CCAF provides the opportunity to obtain an Associate in Applied Science Degree. In addition to its associate degree program, CCAF offers the following:

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

**4.2. 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.

**4.3. Instructor of Technology and Military Science (2IBB).** This program applies to CCAF students with a "T" prefix to their AFSC which identifies them as instructors.

**4.4. Degree Requirements.** All airmen are automatically entered into the CCAF program. Prior to completing an associate degree, the 5-level must be awarded and the following requirements must be met:

	Semester hours
Technical Education .....	24
Leadership, Management, and Military Studies.....	6
Physical Education .....	4
General Education .....	15
Program Elective .....	15
Technical Education; Leadership, Management, and Military Studies; or General Education	
Total .....	64

**4.4.1. Technical Education (24 Semester Hours):** A minimum of 12 semester hours of Technical Core subjects and courses must be applied and the remaining semester hours applied from Technical Core or Technical Elective subjects and courses. Completion of the 2P031-training course satisfies all or part of the technical education requirement.

**4.4.2. Leadership, Management, And Military Studies (6 Semester Hours):** Professional military education and/or civilian management courses.

**4.4.3. Physical Education (4 Semester Hours):** This requirement is satisfied by completion of Basic Military Training.

**4.4.4. General Education (15 Semester Hours):** Applicable courses must meet the criteria for application of courses to the General Education Requirements (GER) and be in agreement with the definitions of applicable General Education subjects/courses as provided in *the CCAF General Catalog*.

**4.4.5. 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 GER application criteria. Six semester hours of CCAF degree applicable technical credit otherwise not applicable to this program may be applied. See the

CCAF *General Catalog* for details regarding the Associates of Applied Science in Electronic Systems Technology (4VHP).

**4.5.** Additional off-duty education is a personal choice that is encouraged for all. Individuals desiring to become an Air Education and Training Command Instructor should be actively pursuing an associate degree. A degreed faculty is necessary to maintain accreditation through the Southern Association of Colleges and Schools.

## 5. Career Field Path.

### 5.1. Enlisted Career Path. Table 5.1 identifies career milestones for the 2POX1 AFS.

<b>Table 5.1. Enlisted Career Path</b>				
<b>Education And Training Requirements</b>	<b>Grade Requirements</b>			
	<b>Rank</b>	<b>Average Sew-On</b>	<b>Earliest Sew-On</b>	<b>High Year Of Tenure (HYT)</b>
<b>Basic Military Training School</b>				
<b>Apprentice Technical School (3-Skill Level).</b>	Amn A1C	6 months 16 months		
<b>Upgrade To Journeyman (5-Skill Level).</b> - Minimum 15 months on-the-job training. - Minimum 9 months on-the-job training for retrainees. - Complete all 5-level core tasks. - Complete appropriate CDC if/when available.	Amn A1C SrA	6 months 16 months 3 years	28 months	10 Years
<b>AIRMAN LEADERSHIP SCHOOL (ALS)</b> - Must be a SrA with 48 months time in service or be a SSgt Selectee. - Resident graduation is a prerequisite for SSgt sew-on (Active Duty Only).				
<b><u>Trainer</u></b> - Qualified and certified to perform task to be trained. - Must attend formal OJT Trainer Training and be appointed by the Commander.	<b><u>CERTIFIER</u></b> - Be at least a 5-skill level SSgt; and qualified and certified to perform the task being certified. - Attend formal OJT Certifier Course and appointed by the Commander. - Be a person other than the trainer except for AFSCs, duty positions, units, and/or work centers with specialized training standardization and certification requirements.			
<b>Upgrade To Craftsman (7-Skill Level)</b> - Minimum rank of SSgt. - Minimum 12 months on-the-job training. - Minimum 6 months on-the-job training for retrainees. - Complete all 5- and 7-level core tasks on one MDS - Complete appropriate CDC if/when available. - Attend Craftsman course, if applicable.	SSgt	7.5 years	3 years	20 Years
<b>Noncommissioned Officer Academy (NCOA)</b> - Must be a TSgt or TSgt Selectee. - Resident graduation is a prerequisite for MSgt sew-on (Active Duty Only).	TSgt  MSgt	12.5 years  16 years	5 years  8 years	22 Years  24 years

**Table 5.1. Enlisted Career Path**

<b>Education And Training Requirements</b>	<b>Grade Requirements</b>			
	<b>Rank</b>	<b>Average Sew-On</b>	<b>Earliest Sew-On</b>	<b>High Year Of Tenure (HYT)</b>
<b>Usaf Senior Nco Academy (SNCOA)</b> - Must be a SMSgt or SMSgt Selectee. - Resident graduation is a prerequisite for CMSgt sew-on (Active Duty Only). - A percentage of top non-select (for promotion to E-8) MSgt attend the SNCOA each year.	SMSgt	19.2 years	11 years	26 Years
<b>Upgrade To Superintendent (9-Skill Level)</b> - Minimum rank of SMSgt.	CMSgt	21.5 years	14 years	30 Years

## 5.2. Education and Training Manager Checklist

<b>Table A5.1. Base/Unit Education and Training Manager Checklist</b>		
<b>Requirements for Upgrade to:</b>	<b>Y</b>	<b>N</b>
<p><b>Journeyman</b></p> <ul style="list-style-type: none"> <li>- Has the apprentice completed mandatory CDC, if available?</li> <li>- Has the apprentice completed all appropriate 5-level core tasks identified in the CFETP?</li> <li>- Has the apprentice completed all other duty position tasks identified by the supervisor?</li> <li>- Has the apprentice completed 15 months training (9 months for retrainees) for award of the 5-skill-level?</li> <li>- Has the apprentice met mandatory requirements listed in specialty description, AFMAN 36-2108 (Airman Classification), and CFETP?</li> <li>- Has the apprentice been recommended by their supervisor?</li> </ul>		
<p><b>Craftsman</b></p> <ul style="list-style-type: none"> <li>- Has the journeyman achieved the rank of SSgt?</li> <li>- Has the journeyman completed mandatory CDCs?</li> <li>- Has the journeyman completed all core tasks identified in the CFETP?</li> <li>- Has the journeyman completed all other duty position tasks identified by the supervisor?</li> <li>- Has the journeyman attended the E3ACR2P071 000 Craftsman Course?</li> <li>- Has the journeyman completed a minimum 12 months UGT (6 months for retrainees) for award of the 7-skill level</li> </ul>		

TO: Squadron/CC

FROM: Squadron Training Manager

SUBJECT: Upgrade Trainee

Trainee is prepared to be upgraded and has completed all training requirements.

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Training Manager

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Supervisor

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

**1. Purpose.** Skill level training requirements in the Precision Measurement Equipment Laboratory (2P0X1) career field are defined in terms of tasks and knowledge requirements. This section outlines the specialty qualification requirements for each skill level in broad, general terms and establishes the mandatory requirements for entry, award, and retention of each skill level. The standards of performance. The specific task and knowledge training requirements are identified in the STS in Part II, Section A, Specialty Training Standard (STS) and Section A and B of this CFETP.

### **2. Specialty Qualification Requirements.**

#### **2.1. Apprentice Level Training Requirements.**

**2.1.1. Specialty Qualification:** This information will be located in the official specialty description in AFMAN 36-2108, paragraph 3.

**2.1.1.1. Knowledge.** To perform duties at the 3-skill level, an individual, working under close supervision until task certified, must be able to inspect, troubleshoot, repair, modify, overhaul, align, calibrate, and certify TMDE and laboratory working standards. A 3-level must be able to use technical data, common hand tools, and special test equipment.

**2.1.1.2. Education.** Completion of high school or general education development equivalency is mandatory for entry into this specialty. Also, courses in electronics, physics, trigonometry, and algebra, and technical or vocational training in electronics or instrumentation is desirable.

**2.1.1.3. Training.** For award of AFSC 2P031, completion of a basic precision measurement equipment laboratory course is mandatory.

**2.1.1.4. Experience.** None.

**2.1.1.5. Other.** For entry into this specialty, normal color vision as defined in AFMAN 48-123 is mandatory.

**2.1.2. Training Sources/Resources.** The initial skills course will provide the required knowledge and qualifications. Initial skills training encompasses electronic principles, equipment theory and operation, system components, component removal and installation, introduction to metrology concepts, use of technical publications, maintenance documentation, and support equipment familiarization and use.

**2.1.3. Implementation.** Upon graduation from Basic Military Training, airmen are assigned to a training center for completion of course E3AQR2P031 481, Electronics Principles, and course E3ABR2P031 013, Precision Measurement Equipment Laboratory Apprentice. Completion of both courses will result in award of the 3-level.

#### **2.2. Journeyman Level Training Requirements.**

**2.2.1. Specialty Qualification.** This information will be located in the official specialty description in AFMAN 36-2108, paragraph 3.

**2.2.1.1. Knowledge.** In addition to the 3-level qualifications, an individual must possess knowledge of electrical, electronics, electromechanical, mechanical, physics, optics, and thermal principles; mathematics, and binary systems; operating principles of TMDE and laboratory working standards; analysis of block, schematic, wiring, and logic diagrams, and technical data;

troubleshooting techniques; calibration traceability, metrology techniques, and laboratory practices; microprocessors; computer operational principles, language, and software; and aerospace systems principles.

**2.2.1.2. Education.** Same as required for entry into AFSC 2P031.

**2.2.1.3. Training.** Same as required for entry into AFSC 2P031.

**2.2.1.4. Experience.** Qualification in and possession of AFSC 2P031. Also, experience in functions such as maintaining, modifying, aligning, calibrating, or certifying TMDE and laboratory standards, or preparing inputs to TMDE logistics support systems.

**2.2.1.5. Other.** Same as required for entry into AFSC 2P031.

**2.2.2. Training Sources/Resources.** The 5-level CDC provides the career knowledge training required. Qualification training and OJT will provide training and qualification on core tasks identified in the STS or AFJQS. The CDC is written to build from the trainee's knowledge base and provides more in-depth knowledge supporting OJT requirements.

**2.2.3. Implementation.** Training to the 5-level is performed by the units, utilizing the STS or AFJQS, the CDC, and OJT. Upgrade to the 5-level requires completion of the 2P051 Precision Measurement Equipment Laboratory Journeyman CDC, 15 months OJT, and completion of all core tasks.

### **2.3. Craftsman Level Training Requirements.**

**2.3.1. Specialty Qualification.** This information will be located in the official specialty description in AFMAN 36-2108, paragraph 3.

**2.3.1.1. Knowledge.** In addition to the 5-level qualifications, an individual must possess knowledge of advanced electrical, electronics, electromechanical, mechanical, physics, optics and thermal principles; operating principles of complex and intricate TMDE and laboratory standards; interpretation of block, schematic, wiring, and logic diagrams, and technical data; advanced troubleshooting techniques; planning, and quality assurance.

**2.3.1.2. Education.** Same as required for entry into AFSC 2P031.

**2.3.1.3. Training.** For award of AFSC 2P071, completion of the in-resident 7-level course is mandatory.

**2.3.1.4. Experience.** Qualification in and possession of AFSC 2P051. Also, experience in laboratory supervision, planning, maintaining, modifying, and certifying complex and intricate TMDE and laboratory standards, and preparing inputs to TMDE logistics support systems.

**2.3.1.5. Other.** Same as required for entry into AFSC 2P031.

**2.3.2. Training Sources/Resources.** Seven-level upgrade training will be conducted by certified trainers using AF core tasks, unit/MAJCOM specific courses, and a formal in-resident 7-level course. The in-resident 7-level course is written to provide advanced training that will develop the supervisory and managerial skills.

**2.3.3. Implementation.** Upgrade to the 7-level will require completion of all AF core tasks, 7-level CDCs, 12 months OJT as a SSgt selectee/SSgt, and completion of the in-resident 7-level course. The AF core tasks, CDCs, and 12 months of OJT as a SSgt selectee/SSgt must be completed before attending the in-resident 7-level course.

### **2.4. Superintendent Level Training Requirements.**

**2.4.1. Specialty Qualification.** This information will be located in the official specialty description in AFMAN 36-2108, paragraph 3.

**2.4.1.1. Knowledge.** In addition to 7-level qualifications, an individual must possess knowledge of concepts and principles in war support planning and procedures for training, manpower, personnel, supply, civil engineering, budget, maintenance data collection, integrated logistics feedback systems, and quality assurance. Knowledge of quality Air Force principles, command certification, support agreements, reimbursement procedures, equipment scheduling, production and materiel control, facility requirements, and metrology functions and procedures. They must also be knowledgeable of all environmental standards and ensure adherence to the proper handling and disposal of hazardous materials and waste.

**2.4.1.2. Education.** Same as required for entry into AFSC 2P031.

**2.4.1.3. Training.** Same as required for entry into AFSC 2P031.

**2.4.1.4. Experience.** Qualification in and possession of AFSC 2P071. Also, experience in managing or coordinating training programs and requirements; planning supply, facility, and budget requirements; quality control and assurances programs; integrated logistics support planning; feed back into Air Force Material Command logistics systems to resolve problems; interservice and interdepartmental support agreements; reimbursement procedures; and Directorate of Metrology interaction.

**2.4.1.5. Other.** Same as required for entry into AFSC 2P031.

**2.4.2. Training Sources/Resources.** The Senior NCO Academy and unit OJT will be used.

**2.4.3. Implementation.** The 9-level will be awarded after promotion to SMSgt. Individuals will attend the Senior NCO Academy after they are selected for promotion to SMSgt.

## ***SECTION D - RESOURCE CONSTRAINTS***

**1. Purpose.** This section identifies known resource constraints, which preclude optimal/desired training from being developed or conducted, including information such as cost and manpower. Narrative explanations of each resource constraint and an impact statement describing what effect each constraint has on training are included. Also included in this section are actions required, office of primary responsibility, and target completion dates. Resource constraints will be, as a minimum, reviewed and updated annually.

### **2. Apprentice Level Training Constraints.**

**2.1. Constraints.** In order to implement the training requirements added to the STS during the August 2001 U&TW and modernize the training provided in the 3-level course, the following equipment items will have to be procured: 5-8 3458A Digital Voltmeters, 10-15 Scope Calibration Systems, 2 1083A GPS distribution amplifiers with 1000 ft cable, 1 81-piece Gage Block Set, 2 Monochromatic lights, 2 sets of 2, 1-inch Optical Flats, 7 HGC-30000-AF Pressure Controllers, and 6 Thermal Voltage Converters. The 3-level course will be modified as these equipment items are received. The OPR for these equipment requirements is AFMETCAL.

### **3. Five-Level Training Constraints.**

**3.1. Constraints.** There are no perceived 5-level constraints.

### **4. Seven-Level Training Constraints.**

**4.1. Constraints.** There are no perceived 7-level constraints.

## ***PART II***

### ***SECTION A - SPECIALTY TRAINING STANDARD***

**1. Implementation.** This Specialty Training Standard (STS) will be used for training provided by Air Education and Training Command for classes beginning 1 Feb 2003 and graduating 18 July 2003.

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

**2.1.** Lists in column 1, the most common tasks, knowledge, and technical references (TR) necessary for airmen to perform in the 3-, 5-, and 7-skill level. An asterisk (\*) before the number indicates a wartime course objective.

**2.2.** Shows formal training and correspondence course requirements. Column 2 shows the proficiency to be demonstrated on the job by the graduate as a result of training on the task and knowledge and the career knowledge provided by the correspondence course. When two codes are used in columns 2, 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 and other resource constraints.

**2.3 Qualitative Requirements.** Attachment 1 contains the proficiency code key used to indicate the level of training and knowledge provided by resident training and career development courses.

**2.4.** Identifies in column 2d, exportable courses that will be used to enhance students knowledge during 5-level continuation training, 7-level upgrade training, and 7-level continuation training.

**2.5.** Identifies in column 3 (Core Tasks) by asterisk (\*), specialty-wide training requirements. Core tasks identified with an \*R are optional for the AFRC and the ANG. MAJCOM Functional Managers, commanders, and supervisors may designate additional critical tasks as necessary. When designated, certify these critical tasks using normal core task certification procedures. As a minimum, certification on all AFCFM directed core tasks applicable to the specialty must be completed for skill level upgrade.

**2.6.** Provides certification for OJT. Column 4 is used to record completion of tasks and knowledge training requirements. Use automated training management systems to document technician qualifications, if available. Task certification must show a certification or completed date.

**2.7. Job Qualification Standard.** Becomes a job qualification standard (JQS) for on-the-job training when placed in AF Form 623, **On-The-Job Training Record**, and used according to AFI 36-2201. For OJT, the tasks in column 1 are trained 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 procedures.

**2.7.1 Documentation.** Document and certify completion of training IAW AFI 36-2201.

**2.7.2. Converting from Old Document to CFETP.** All AFJQSs and previous CFETPs are replaced by this CFETP; therefore, conversion of all training records to this CFETP STS is mandatory. Use this CFETP STS (or automated STS) to identify and certify all past and current qualifications. Document and certify all previous and current training IAW AFI 36-2201.

**2.8.** Is a guide for development of promotion tests used in the Weighted Airman Promotion System (WAPS). Specialty Knowledge Tests (SKTs) are developed at the USAF Occupational Measurement Squadron, by Senior NCOs with extensive practical experience in their career fields. The tests sample knowledge of STS subject matter areas judged by test development team members as most appropriate for promotion to higher grades. Questions are based upon study references listed in the WAPS catalog. Individual responsibilities are in AFI 36-2502, *Airman Promotion Program*. WAPS is not applicable to the Air National Guard or Air Force Reserve.

**3. Recommendations.** Report unsatisfactory performance of individual course graduates using AF Form 1284, Training Quality Report, as prescribed in AFI 36-2201. Report inadequacies and suggested corrections to this STS through channels to AETC Training Manager, 332 TRS/TRR, 613 Hanger Rd, Rm 151, Keesler AFB MS 39534-2237, Defense Switched Network (DSN) 597-5381, referencing specific paragraphs. A customer service information line has been installed for the supervisor's convenience to identify graduates who may have received inadequate training on task/knowledge items listed in this training standard. For a quick response to problems, call our customer service information line, DSN 597-4566, anytime day or night.

BY THE ORDER OF THE SECRETARY OF THE AIR FORCE

OFFICIAL

MICHAEL E. ZETTLER, Lieutenant General, USAF  
DCS/Installations and Logistics

2 Attachments

1. Qualitative Requirements
2. Electronic Principles/Applications (EP/A)

<b>THIS BLOCK IS FOR IDENTIFICATION PURPOSES ONLY</b>		
<b>NAME OF TRAINEE</b>		
PRINTED NAME ( <i>Last, First, Middle Initial</i> )	INITIALS ( <i>Written</i> )	SSAN
<b>PRINTED NAME OF CERTIFYING OFFICIAL AND WRITTEN INITIALS</b>		
N / I	N / I	
N / I	N / I	
N / I	N / I	
N / I	N / I	
N / I	N / I	

**QUALITATIVE REQUIREMENTS**

<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. (ADVANCED 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)

**EXPLANATIONS**

- \* 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 2b)
- \*\* 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.
- This mark is used alone instead of a scale value to show that no proficiency training is provided in the course or CDC.
- X This mark is used alone in course columns to show that training is required but not given due to limitations in resources.

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>				3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>						
	2a	2b		2c	2d		3a	3b	4a	4b	4c	4d	4e
	3 LVL	CDC		7 LVL	EXPORTABLE COURSE		5	7	START DATE	COMP DATE	TRAINEE	TRAINER	CERT
		5	7		5	7							
<p><b>NOTE 1:</b> Training references (TRs) listed are representative of test, measurement and diagnostic equipment (TMDE) and applicable standards. Users may annotate (TRs) to identify local TMDE availability for upgrade and qualification training.</p> <p><b>NOTE 2:</b> Underlined TRs are suggested commercial publications or other service publications that may be used for Specialty Training (ST) and mission accomplishment.</p> <p><b>NOTE 3:</b> Repair is not accomplished in the resident course. Code levels for troubleshoot/repair in course column 2a and/or 2c refer to any one or a combination of theoretical or "hands on" troubleshoot or circuit analysis.</p> <p><b>NOTE 4:</b> Code levels for <u>use</u> in CDC column 2b refer to any one or a combination of use, theory or circuit analysis.</p> <p><b>NOTE 5:</b> Generic equipment part numbers will be identified in the TRs and parenthesis will be used to denote any type or model or series of equipment used. Actual equipment identified in TRs is just a general reference for Type 3 Training, Career Development Course (CDC) and to satisfy ST training requirements. Type 3 resident course training, CDC material and users in the field are not restricted to the equipment or training resources identified in the TRs.</p> <p><b>NOTE 6:</b> For tasks in column 2a identified as "2b" level tasks, the schoolhouse will determine the number of assist required depending on task complexity.</p>													
<p><b>1. CAREER LADDER PROGRESSION</b> TR: AFMAN 36-2108, AFI 36-2618</p> <p>a. Progression in career ladder 2P0X1 - B - -</p> <p>b. Duties of AFSCs 2P031/51/71 - B - -</p>													
<p><b>2. SECURITY</b> TR: AFIs 10-1101, 31-401</p> <p>*a. Specific OPSEC vulnerabilities of AFSC 2P0X1 A B - -</p> <p>b. Physical Security TR: AFD 31-1 - B - -</p>													
<p><b>3. AF OCCUPATIONAL SAFETY AND HEALTH (AFOSH) PROGRAM</b> TR: AFI 91-301; AFOSH Std 91-90; TO 31-1-141-1</p> <p>*a. Hazards of AFSC 2P0X1 TR: AFOSH Std 91-90; AFOSH Std 161-21; other applicable safety directives A B B -</p> <p>*b. Use safety practices when working with high voltage equipment TR: TOs 00-25-232, 00-25-234 b - - -</p>													
<p><b>4. HAZARDOUS MATERIALS AND WASTE HANDLING ACCORDING TO ENVIRONMENTAL STANDARDS</b> TR: AFI 32-7042; AFPAM 32-7043; AFOSH Std 161-21</p> <p>*a. Types of hazardous materials/fluids A B - B</p>													

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a	2b		2c	2d		3a	3b	4a	4b	4c	4d	4e
	3 LVL	CDC		7 LVL	EXPORTABLE COURSE		5	7	START DATE	COMP DATE	TRAINEE	TRAINER	CERT
		5	7		5	7							
*b. Handling procedures	A	B	-	B									
*c. Storage and labeling	A	B	-	B									
d. Proper disposal	-	B	-	B									
<b>5. PUBLICATIONS AND FORMS</b>													
a. Maintain													
(1) Automated Technical Order (TO) Management System (ATOMS) accounts; Joint Computer Aided Logistics Systems (JCALS) TR: TO 00-5-2-102	-	-	A	-									
(2) TO Libraries TR: TOs 00-5-1, 00-5-2	-	-	-	-									
(3) Publication libraries, other than TO libraries TR: AFIs 37-160V7, 37-161	-	-	-	-									
(4) Time Compliance Technical Orders (TCTOs) TR: TO 00-5-15	-	-	-	-									
*b. Use indexes on the world wide web to locate publication numbers and titles TR: TOs 00-5-1, 00-5-2	b	-	-	-									
*c. Use technical information to maintain TMDE TR: Applicable TMDE TOs; Commercial Publications	2b	B	-	-									
*d. Research supply requisition data, supply catalogs or federal logistics (FEDLOG) TR: Applicable Supply Publications; MIL-SPECs; Applicable TOs; D.A.T.A. Series	2b	-	-	-									
*e. Draft TO improvement reports (AFTO Form 22) TR: TO 00-5-1	a	B	-	-			*						
*f. Use calibration and correction charts TR: TO 00-20-14	2b	-	-	-									
*g. Complete TMDE documentation forms TR: TO 00-20-14	2b	-	-	-									
*h. Complete AF Form 2005 TR: AFMAN 23-110 Vol II Part 13	2b	-	-	-									
i. Complete Deficiency Reports TR: TO 00-35D-54	-	B	-	-									

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a  3 LVL	2b		2c  7 LVL	2d		3a  5	3b  7	4a  START DATE	4b  COMP DATE	4c  TRAINEE	4d  TRAINER	4e  CERT
		CDC			EXPORTABLE COURSE								
		5	7		5	7							
*j. Complete Equipment Condition Forms and Tags TR: TO 00-20 Series	b	-	-	-									
<b>6. SUPERVISION</b>													
a. Draft or write s Report of Survey TR: AFMAN 23-220; DODD 7200.10	-	-	-	-									
b. Conduct initial evaluations for newly assigned personnel TR: AFI 36-2201	-	-	-	-									
c. Initiate extension requests for TMDE calibrations TR: TO 00-20-14	-	-	-	-									
d. Schedule TR: AFI 21-101, other applicable directives													
(1) Work assignments	-	-	-	-									
(2) Work priorities	-	-	-	-									
(3) Other activities (ancillary training, staff meetings and leave time)	-	-	-	-									
e. Assign TR: AFI 21-101													
(1) Maintenance and repair work	-	-	-	-									
(2) Personnel to positions	-	-	-	-									
f. Unit Manning Document, Unit Personnel Management Rosters, and Air Force Manpower Standards TR: AFI 38-201; AFMS 2311; AFPAM 38-208	-	-	A	B									
g. Participate in USAF Graduate Evaluation Program TR: AFI 36-2201	-	-	B	-									
<b>7. TRAINING</b>													
TR: AFI 36-2201; AFMAN 36-2247													
a. Evaluate EST requirements	-	-	-	B									
b. Supervise EST													
(1) Document training	-	-	-	B									
(2) Schedule training	-	-	A	B									
c. OJT trainer responsibilities													

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a  3 LVL	2b		2c  7 LVL	2d		3a  5	3b  7	4a  START DATE	4b  COMP DATE	4c  TRAINEE	4d  TRAINER	4e  CERT
		CDC			EXPORTABLE COURSE								
		5	7		5	7							
(1) Prepare training plans and teaching outlines	-	-	-	-									
(2) Conduct training	-	-	-	-									
(3) Provide feedback to trainee	-	-	-	-									
d. OJT task certifier responsibilities													
(1) Develop training evaluation program	-	-	-	-									
(2) Evaluate trainee's attainment of training objectives	-	-	-	-									
(3) Provide feedback to supervisor and trainer on evaluation results	-	-	-	-									
<b>8. QUALITY PROGRAM</b> TR: AFI 21-101; TO 00-20-14													
a. Evaluate													
(1) TO improvement reports	-	-	-	-									
(2) Draft calibration procedures	-	-	-	-									
(3) Calibration responsibility determination reports	-	-	-	-									
b. Conduct													
(1) QP briefings for newly assigned personnel	-	-	-	-									
(2) On-site PMEL or QP inspection visits	-	-	-	-									
(3) Quality reviews	-	-	-	2b									
(4) Root cause analysis	-	-	-	2b									
(5) Trend analysis	-	-	-	2b									
c. Coordinate deficiency reports with appropriate agencies	-	-	-	-									
d. Compile QP data for monthly records, reports, and logs	-	-	-	-									
e. Maintain environmental charts and logs	-	-	-	-									
<b>9. PRODUCTION CONTROL</b> TR: AFI 21-101; TOs 00-20-14, 33-1-27													
a. Perform acceptance or receiving inspections of incoming TMDE, including documentation and condition	-	-	-	-									

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a	2b		2c	2d		3a	3b	4a	4b	4c	4d	4e
	3 LVL	CDC		7 LVL	EXPORTABLE COURSE		5	7	START DATE	COMP DATE	TRAINEE	TRAINER	CERT
		5	7		5	7							
*b. Schedule equipment into and out of the laboratory TR: AFCSM 21-303V2	b	-	-	-									
c. Maintain equipment schedules TR: AFCSM 21-303V2	-	-	-	-									
d. Maintain													
(1) Master TMDE Database	-	-	-	-									
(2) OWC master listings	-	-	-	-									
(3) OWC monthly schedules	-	-	-	-									
e. Coordinate													
(1) Maintenance of equipment with appropriate agencies	-	-	-	-									
(2) Return of completed TMDE	-	-	-	-									
(3) Cannibalization of TMDE	-	-	-	-									
f. Conduct TMDE coordinator training	-	-	-	-									
<b>10. SUPPLY AND EQUIPMENT</b> TR: AFI 64-117; AFMAN 23-110													
a. Certify status of reparable, serviceable, or condemned parts for TMDE	-	-	-	-									
b. Coordinate													
(1) Government card purchases of equipment or supplies with appropriate agencies	-	-	-	-									
(2) Requisition of equipment	-	-	-	-									
(3) Technical assistance requirements with AFMETCAL, manufacturers, or other PMELs	-	-	-	-									
(4) Turn-in of excess or surplus property with base or other agencies	-	-	-	-									
(5) Supply transactions	-	-	A	B									
(6) Outside agency support TR: AFI 25-201	-	-	-	-									
c. Maintain													
(1) Equipment Management Office (EMO) accounts	-	-	A	B									
(2) Organizational equipment or supply records	-	-	-	-									

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a  3 LVL	2b		2c  7 LVL	2d		3a  5	3b  7	4a  START DATE	4b  COMP DATE	4c  TRAINEE	4d  TRAINER	4e  CERT
		CDC			EXPORTABLE COURSE								
		5	7		5	7							
(3) Equipment support plans TR: TO 00-20-14	-	-	-	B									
d. Prepare transportable field calibration units (TFCUs)	-	-	-	-									
e. Validate													
(1) Due-In From Maintenance (DIFM) transactions TR: TO 00-20-3	-	-	-	-									
(2) Supply transaction listings or rosters, such as D-04, D-18, or M-30	-	-	-	-									
f. Verify mission capability (MICAP) conditions	-	-	-	-									
g. SMR codes TR: TO 00-25-195	-	-	-	-									
<b>11. MANAGEMENT</b>													
a. Maintenance Data Collection System TR: AFCSM 21-303V2; TOs 00-20-2, 33K-1-100-1/-2													
* (1) Function	A	-	-	-									
(2) PMEL Automated Management System (PAMS) TR: AFI 21-113; AFCSM 21-303V2; TOs 00-20-14, 33-1-27, 33K-1-100-1/-2													
* (a) Use	2b	-	-	-									
(b) Print reports	-	-	-	-									
(c) Manage systems	-	-	-	-									
b. Monitor environmental conditions TR: TO 00-20-14	-	-	A	B									
c. Manage laboratory certification program TR: TO 00-20-14	-	-	A	C									
d. Establish TMDE support agreements TR: AFI 25-201; DFAS-DER177-102; TO 00-20-14	-	-	A	B									
e. Manage budget TR: AFI 65-601V1	-	-	A	B									
f. Manage Quality Program TR: AFI 21-113; TO 00-20-14	-	-	A	C									
g. DIFM/Depot Level Repairables (DLR) TR: AFMAN 23-110; TO 00-20-3	-	A	-	B									

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a	2b		2c	2d		3a	3b	4a	4b	4c	4d	4e
	3 LVL	CDC		7 LVL	EXPORTABLE COURSE		5	7	START DATE	COMP DATE	TRAINEE	TRAINER	CERT
		5	7		5	7							
h. Fraud Waste and Abuse/Zero Overpricing TR: AFI 90-301; AFMAN 23-110V7PT4	-	-	-	-									
i. PMEL Facility Operational Requirements TR: AFMAN 32-1094; TO 00-20-14	-	-	-	B									
j. Manage reimbursements TR: AFIs 25-201, 65-601 V1	-	-	-	-									
k. Manage Preventive Maintenance Inspections TR: TO 00-20-5	-	-	-	-									
<b>12. LABORATORY PRACTICES</b>													
*a. Policies and Procedures TR: AFI 21-113; TO 00-20-14	A	B	-	B									
*b. Electrostatic Discharge Sensitive Devices (ESD) TR: TO 00-25-234	B	-	-	-									
*c. Surface Mount Technology (SMT) TR: TO 00-25-234	A	-	-	-									
*d. Cable and Connectors TR: TOs 31-10-14, 33A1-13-579-1	A	-	-	-									
*e. Tools TR: TOs 32-1-2, 32-1-101, 32-1-151, 32-1-201	A	-	-	-									
*f. Bench Stock TR: AFMAN 23-110 Vol II part 13	A	-	-	-									
*g. Substitution of TMDE standards TR: TOs 00-20-14, 33K-1-100-1/-2, 33K-1-101-CD-1	B	-	-	-									
<b>13. JOB RELATED MEASUREMENT METHODS AND PRINCIPLES</b> TR: TOs 31-1-141 Series, 33A6-4-15-1; Applicable Commercial Manuals													
a. Mathematical Calculations and Conversions													
* (1) Power Ratios, Decibels, and dBms	2b	B	-	-									
(2) Head Pressure	-	B	-	-									
(3) Trigonometric applications	-	B	-	-									
(4) Absolute, gage, or differential pressures	-	B	-	-									
* (5) Percents of modulations	2b	-	-	-									

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a	2b		2c	2d		3a	3b	4a	4b	4c	4d	4e
	3 LVL	CDC		7 LVL	EXPORTABLE COURSE		5	7	START DATE	COMP DATE	TRAINEE	TRAINER	CERT
		5	7		5	7							
(6) Specific gravity of fluids, solids, or gases	-	B	-	-									
(7) Volume, mass or area	-	B	-	-									
(8) Degrees, minutes or seconds conversions	-	B	-	-									
(9) Mass conversions	-	B	-	-									
(10) Metric/English unit conversions	-	-	-	-									
(11) Pressure conversions	-	B	-	-									
(12) Current, voltage, impedance reactance, resistance, capacitance, or power parameters	-	-	-	-									
(13) Thermocouple millivolt to temperature conversions	-	B	-	-									
*(14) Error, correction, and correction factors	2b	B	-	-									
*(15) Gross, systematic or random errors	B	B	-	-									
*(16) Interpolating readings, charts, or graphs	B	B	-	-									
*(17) Uncertainty analysis principles TR: ANSI/NCSL Z540-2-1997	A	B	-	B									
*(18) Frequency, Time, and Data Domains	A	-	-	-									
*(19) Frequency Synthesis	A	B	-	-									
(20) Calculate tolerances using equipment specifications	-	B	-	-									
b. Analysis of measurement results													
(1) Microwave measurements, power, attenuation, or voltage standing wave ratios (VSWR)	-	B	-	-									
(2) Phase noise measurements (PNMs)	-	B	-	-									
(3) Signals using data-domain TMDE	-	-	-	-									
(4) Flow calibrations	-	-	-	-									
c. General maintenance practices TR: TO 00-25-234													
(1) Design or fabricate specialized TMDE test devices, loads, cables, adapters, or test fixtures	-	-	-	-									
(2) Identify or recycle recoverable precious metals	-	-	-	-									

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a  3 LVL	2b		2c  7 LVL	2d		3a  5	3b  7	4a  START DATE	4b  COMP DATE	4c  TRAINEE	4d  TRAINER	4e  CERT
		CDC			EXPORTABLE COURSE								
		5	7		5	7							
(3) Initiate actions for cleanup of hazardous spills	-	B	-	-									
* (4) Inspect TMDE for loose, foreign or missing objects	2b	-	-	-									
* (5) Inspect or replace common electrical hardware, power plugs or fuses TR: TO 33-1-32	2b	-	-	-									
* (6) Perform preventive maintenance inspections (PMIs)	b	-	-	-									
(7) Perform time compliance technical order (TCTO) process	-	B	-	-									
(8) Repair damaged circuit cards using Pace system or soldering irons	-	-	-	-									
d. Infrared TR: Specific Equipment TO and/or Commercial Data	-	-	-	-									
*e. Temperature TR: NAVAIR 17-35QAL-2	B	B	-	-									
*f. Humidity TR: NAVAIR 17-35QAL-2	B	B	-	-									
*g. Pressure TR: TO 33-1-19	B	B	-	-									
*h. Vacuum TR: TO 33-1-19	B	B	-	-									
i. Vibration TR: TO 33A1-11-39-1 (AF75E); Comm Data (9610)	-	B	-	-									
j. Force TR: NAVAIR 17-35QAL-2	-	B	-	-									
*k. Torque TR: TO 31B14-3-1-101	B	B	-	-									
*l. Linear Measurement TR: TOs 32-1-101, 32-1-201	B	B	-	-									
m. Angular Measurement TR: TOs 32-1-101, 32-1-201	-	B	-	-									
*n. Mass and Weight TR: NAVAIR 17-35QAL-2	B	B	-	-									
o. Flow TR: NAVAIR 17-35QAL-2	-	B	-	-									
p. Density TR: NAVAIR 17-35QAL-2	-	B	-	-									

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a	2b		2c	2d		3a	3b	4a	4b	4c	4d	4e
	3 LVL	CDC		7 LVL	EXPORTABLE COURSE		5	7	START DATE	COMP DATE	TRAINEE	TRAINER	CERT
		5	7		5	7							
q. Viscosity TR: NAVAIR 17-35QAL-2	-	B	-	-									
r. Optics TR: NAVAIR 17-35QAL-9	-	B	-	-									
s. Rotary Motion TR: NAVAIR 17-35QAL-2	-	B	-	-									
t. Sound TR: TOs 33A1-7-206-1 (1551-C), 33D7-45-22-1 (2290-9159)	-	-	-	-									
u. Spectrum Analysis TR: Specific Equipment TO and/or Commercial Data (HP-150 Series App Notes)	-	B	B	-									
v. Signature Analysis TR: TO 33D7-10-128-1	-	-	-	-									
w. ILS/VOR TR: TO 33A1-3-504-1	-	B	-	-									
<b>14. AC/DC ELECTRICAL MEASUREMENT STANDARDS/TMDE</b> TR: TOs 33K-1-100-1/-2, 33K Series													
a. Resistance TR: TOs 33AA6-13-1 (240C), 33A1- 12-450-1 (RS925), 33A1-12-689-1 (DB-62), 33A1-12-1090-1 (242E); Comm Data (SR1060, 6625AF)													
*(1) Use	2b	B	-	-			*						
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
b. Decade Capacitors TR: TO 33A1-12-500-8-1 (1419A)													
(1) Use	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
c. Inductance Standards TR: TO 33A1-12-445-1 (1482L)													
(1) Use	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a  3 LVL	2b		2c  7 LVL	2d		3a  5	3b  7	4a  START DATE	4b  COMP DATE	4c  TRAINEE	4d  TRAINER	4e  CERT
		CDC			EXPORTABLE COURSE								
		5	7		5	7							
d. DC Voltage Divider TR: TO 33AA22-32-1 (720A); Comm Data (752A)													
* (1) Use	2b	B	-	-			*						
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
e. AC Ratio Transformer/Divider TR: TOs 33AA22-8-1 (RT5R), 33AA22-15-1 (DT72A)													
* (1) Use	2b	B	-	-			*						
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
f. Capacitance Bridges TR: Comm Data (1621)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
g. Kelvin-ratio Bridges TR: TO 33A1-6-153-1 (240C)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
h. DC Voltage Standards TR: TO 33D9-39-63-12 (5440B)													
* (1) Use	2b	B	-	-			*						
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	B	-									
(4) Calibrate	-	-	-	-									

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a  3 LVL	2b		2c  7 LVL	2d		3a  5	3b  7	4a  START DATE	4b  COMP DATE	4c  TRAINEE	4d  TRAINER	4e  CERT
		CDC			EXPORTABLE COURSE								
		5	7		5	7							
i. AC Voltage Standards TR: TOs 33D7-2-54-1 (5205A), 33D7-45-51-1 (5200A), 33D7-45-101 (4708)													
* (1) Use	2b	B	-	-			*						
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	B	-									
(4) Calibrate	-	-	-	-									
j. Power Supply TR: TOs 33AA17-110-1 (6202B), 35C1-2-177 (6267A), 33DA11-75-1 (6434B)													
* (1) Use	2b	B	-	-			*						
(2) Align	-	-	-	-									
* (3) Troubleshoot/Repair	b	-	-	-									
(4) Calibrate	-	-	-	-									
k. Instrument Calibrator TR: TOs 33A1-12-1362-1 (5700A), 33A1-12-1366-1 (5725A); Comm Data (5500A/5520A, 5720A)													
* (1) Use	2b	B	-	-			*						
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	B	-									
(4) Calibrate	-	-	-	-				*					
l. Analog Passive Multimeter TR: TOs 33A1-12-773 (260-AFP1), 33A1-12-1187-1 (260-6XLP)													
* (1) Use	2b	B	-	-			*						
* (2) Align	2b	-	-	-			*						
* (3) Troubleshoot/Repair	2b	-	-	-									
* (4) Calibrate	3c	-	-	-			*						
m. High Accuracy Digital Multimeter TR: TOs 33A1-12-1350 (3458A), 33D9-57-119 (8506A)													
* (1) Use	2b/x	B	-	-			*						
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a	2b		2c	2d		3a	3b	4a	4b	4c	4d	4e
	3 LVL	CDC		7 LVL	EXPORTABLE COURSE		5	7	START DATE	COMP DATE	TRAINEE	TRAINER	CERT
		5	7		5	7							
(4) Calibrate	-	-	-	-									
n. Digital Multimeter TR: TO 33A1-12-1215-1 (8840A/AF); Comm Data (77 Series, 87 Series)													
* (1) Use	2b	B	-	-			*						
* (2) Align	2b	-	-	-									
* (3) Troubleshoot/Repair	b	B	-	-									
* (4) Calibrate	3c	-	-	-			*						
o. Capacitor/Inductor Analyzer TR: Comm Data (LC53, LC75, 1689- 9751)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
p. Conductivity Meter TR: TO 33C2-90-1 (1152)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
q. High Resistance TMDE TR: TO 33A1-12-234-1 (544B); Comm Data (RX-1LM, 6500A)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
r. High Voltage TMDE TR: TOs 33A1-12-120 (MD1), 33A1- 12-1053-1 (HD103), 33D7-6-315- 1 (ANALM187A); Comm Data (ESMOO, DB40-.05)													
(1) Use	-	B	-	-			*						
(2) Align	-	-	-	-									

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a  3 LVL	2b		2c  7 LVL	2d		3a  5	3b  7	4a  START DATE	4b  COMP DATE	4c  TRAINEE	4d  TRAINER	4e  CERT
		CDC			EXPORTABLE COURSE								
		5	7		5	7							
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
s. Generator Detector TR: TOs 33A1-12-925 (801( )), 33D7- 22-33 (1238)													
(1) Use	-	B	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
t. AC/DC Transfer Standard TR: TO 33A1-12-1355 (5790A)													
(1) Use	-	-	B	-			*						
u. Phase Standard TR: TOs 33A1-5-496 (650), 33A1-8- 822-1 (411); Comm Data (5000/6000, 5500-2)													
(1) Use	-	B	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
v. Null Detector TR: TO 33A1-6-115-1 (845); Comm Data (AVM-100)													
(1) Use	-	B	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
w. Differential Voltmeter TR: TOs 33A1-12-792-1 (887A), 33A1-12-904-1 (893A)													
*(1) Use	2b	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a	2b		2c	2d		3a	3b	4a	4b	4c	4d	4e
	3 LVL	CDC		7 LVL	EXPORTABLE COURSE		5	7	START DATE	COMP DATE	TRAINEE	TRAINER	CERT
		5	7		5	7							
x. Clamp-on Voltmeter TR: TO 33A1-12-212 (633VA1)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
y. Ohmmeter TR: TO 33A1-12-850-1 (670A); Comm Data (620-4)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
z. AC Voltmeter TR: TOs 33A1-12-249-31 (400E), 33A1-12-643-1 (3400A), 33A1-12- 1094-1 (3015A)													
* (1) Use	2b	-	-	-			*						
* (2) Align	2b	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
* (4) Calibrate	2b	-	-	-									
aa. RF Millivoltmeter TR: TOs 33A1-12-949-1 (92A-S2), 33A1-12-1097-1 (MV823A1)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
bb. Phase-angle Voltmeter TR: TOs 33A1-12-755-1 (2129880- ( )), 33A1-12-967 (244RS); Comm Data (GS3940 ( ))													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a  3 LVL	2b		2c  7 LVL	2d		3a  5	3b  7	4a  START DATE	4b  COMP DATE	4c  TRAINEE	4d  TRAINER	4e  CERT
		CDC			EXPORTABLE COURSE								
		5	7		5	7							
cc. High-voltage Probe/Divider TR: TO 33AA22-31-1 (80F-15); Comm Data (2900A, 80E10, 80K( ))													
*(1) Use	B	-	-	-			*						
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
dd. AC/DC Current Shunt TR: Comm Data (A45/AF, HCF-1AF, 9211)													
(1) Use	-	-	-	-									
(2) Calibrate	-	-	-	-									
ee. DC Reference Standard TR: TOs 33A1-12-327-1 (9152-4), 33A1-12-1385-1 (734A/AF)													
(1) Use	-	-	-	-									
(2) Intercomparison	-	B	-	-									
(3) Calibration	-	-	-	-									
ff. Transconductance Amplifier TR: TO 33A1-2-276-1 (1620A); Comm Data (8100, 5220)													
(1) Use	-	-	-	-			*						
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
gg. Tape System Calibrator TR: TO 31M3-2TMQ37-1711 (TSC 2000)													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
hh. Electric Load TR: TO 33DA22-31-11 (EL750 ( ))													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a	2b		2c	2d		3a	3b	4a	4b	4c	4d	4e
	3 LVL	CDC		7 LVL	EXPORTABLE COURSE		5	7	START DATE	COMP DATE	TRAINEE	TRAINER	CERT
		5	7		5	7							
<b>15. TIME, TIME DOMAIN, FREQUENCY, FREQUENCY DOMAIN, DATA DOMAIN AND WAVEFORM ANALYSIS STANDARDS/TMDE</b> TR: TOs 33K-1-100-1/-2, 33K3 Series  a. Time Domain Reflectometer TR: TOs 33A1-4-73 (1502), 33A1-12-1155-1 (1503)  (1) Use (2) Align (3) Troubleshoot/Repair (4) Calibrate  b. Function Generator TR: TOs 33A1-8-840 (1425527), 33A1-8-847-1 (FG502), 33A1-8-877-1 (3325A)  *(1) Use *(2) Align *(3) Troubleshoot/Repair *(4) Calibrate  c. Pulse TMDE TR: TOs 33A1-8-394-1 (214A), 33A1-8-784-11 (PG506), 33A1-8-809-1 (PG502), 33A1-8-886-1 (214B), 33A1-8-934-1 (8112A)  *(1) Use (2) Align (3) Troubleshoot/Repair (4) Calibrate  d. Oscilloscope Calibration System TR: TO 33A1-8-119-1 (CG5011); Comm Data (F7529A1()), SG-5030, F5030A1, 9500B/3200AF  *(1) Use (2) Align *(3) Troubleshoot/Repair *(4) Calibrate													

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a  3 LVL	2b		2c  7 LVL	2d		3a  5	3b  7	4a  START DATE	4b  COMP DATE	4c  TRAINEE	4d  TRAINER	4e  CERT
		CDC			EXPORTABLE COURSE								
		5	7		5	7							
e. Standard Sampling System TR: TOs 33A1-8-748-1 (S4), 33A1-13-423 (7S11), 33A1-13-424 (7T11), 33A1-13-434 (S1); Comm Data (F4703A3, 11801B)  (1) Use  (2) Align  (3) Troubleshoot/Repair  (4) Calibrate  f. Signal Generator/Oscillator TR: TOs 33A1-8-523 (652A), 33A1-8-760-31 (8640B)  *(1) Use  *(2) Align  *(3) Troubleshoot/Repair  *(4) Calibrate  g. Low Frequency Synthesizer TR: TOs 33A1-8-863-1 (6011A), 33A1-8-895-1 (3335A)  (1) Use  (2) Align  (3) Troubleshoot/Repair  *(4) Calibrate  h. High Frequency Synthesizer TR: TOs 33A1-8-851-1 (8672A), 33A1-8-955-1 (8673, 33A1-8-1059 (8673E), (68000)  *(1) Use  (2) Align  (3) Troubleshoot/Repair  *(4) Calibrate  i. Feedthrough Load TR: Comm Data  *(1) Use	-	-	-	-	-	-	-	-					
	2b	-	-	-	-	*							
	2b	-	-	-	-								
	2b	-	-	-	-	*							
	2b	-	-	-	-								
	b	-	-	-	-								
	2b	B	-	-	-	*							
	-	-	-	-	-								
	-	-	B	-	-								
	b	-	-	-	-		*						
	2b	-	-	-	-	*							

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a  3 LVL	2b		2c  7 LVL	2d		3a  5	3b  7	4a  START DATE	4b  COMP DATE	4c  TRAINEE	4d  TRAINER	4e  CERT
		CDC			EXPORTABLE COURSE								
		5	7		5	7							
j. Distortion Analyzer TR: TOs 33A1-5-269-11 (334A), 33A1-5-503-1 (TS4084)													
* (1) Use	2b	B	-	-			*						
* (2) Align	2b	-	-	-									
* (3) Troubleshoot/Repair	2b	-	-	-									
* (4) Calibrate	2b	-	-	-									
k. Modulation Analyzer TR: TO 33D7-10-152-1 (8901A)													
* (1) Use	2b	-	-	-				*					
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
l. Audio Analyzer TR: TOs 33D7-10-167-1 (8903B)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
m. Spectrum Analyzer TR: TOs 33A1-13-607 (8592( )), 33A1-13- 658-2 (8563( )), 33D7-10-129-1 (8566A), 33D7-10-151-1 (496( ))													
* (1) Use	2b	B	-	-			*						
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	B	-									
(4) Calibrate	-	-	-	-				*					
n. Precise Frequency TR: TOs 33D7-12-26 (680), 33D7-12-136- 1 (888A); Comm Data (2100F, 1083, 2200, 5060 Series)													
* (1) Use	2b	B	-	-			*						
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a  3 LVL	2b		2c  7 LVL	2d		3a  5	3b  7	4a  START DATE	4b  COMP DATE	4c  TRAINEE	4d  TRAINER	4e  CERT
		CDC			EXPORTABLE COURSE								
		5	7		5	7							
o. RF/Microwave Power Amplifiers TR: TOs 33A1-2-90 (495A), 33A1-2-229 (8447A)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
p. Comb Generator TR: TO 33A1-5-251 (8406A)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
q. Electronic Counter/Timer TR: TOs 33A1-5-422-11 (5328A/AF096), 33A1-10-200-1 (5345( )), 33A1-10-254- 1 (5335( )), 33A1-10-278-(5334( )), 33A1-10-287-1 (1992( )), 33A1-10-293 (548( )); Comm Data (PM6654C/AC))													
*(1) Use	2b	B	-	-			*						
(2) Align	-	-	-	-									
*(3) Troubleshoot/Repair	2b	-	-	-									
*(4) Calibrate	3c	-	-	-			*						
r. Vector Voltmeter TR: TO 33A1-12-734-1 (8405A); Comm Data (8508A)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
s. Thermal Voltage Converters TR: Comm Data (11000 Series)													
*(1) Use	2b	-	-	-			*						
(2) Calibrate	-	-	-	-									

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a  3 LVL	2b		2c  7 LVL	2d		3a  5	3b  7	4a  START DATE	4b  COMP DATE	4c  TRAINEE	4d  TRAINER	4e  CERT
		CDC			EXPORTABLE COURSE								
		5	7		5	7							
t. Oscilloscope TR: TOs 33A1-13-491 (7000 Series), 33A1-13-591-2 (2246)													
* (1) Use	2b	B	-	-			*						
* (2) Align	2b	-	-	-									
* (3) Troubleshoot/Repair	2b	B	-	-									
* (4) Calibrate	3c	-	-	-			*						
u. Oscilloscope Plug-in Units TR: TO 33A17-12-1 (7A13)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
v. Oscilloscope calibration Fixture Plug-in Units TR: TO 33DA21-326-1 (067-0587-02)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
w. Balancer Analyzer TR: Comm Data (8500-C, 9935-2, 9000 Series)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Calibrate	-	-	-	-									
x. Oscilloscope, Digital, Waveform, Digitizing TR: TOs 33A1-13-526 (7854), 33A1-13- 583 (54111D), 33A1-13-586 (54110D)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a	2b		2c	2d		3a	3b	4a	4b	4c	4d	4e
	3 LVL	CDC		7 LVL	EXPORTABLE COURSE		5	7	START DATE	COMP DATE	TRAINEE	TRAINER	CERT
		5	7		5	7							
y. Selective Level Voltmeter TR: TO 33A1-5-467-1 (3586( ))													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
z. AM/FM Test Source TR: Comm Data (11715A)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
<b>16. MICROWAVE MEASUREMENT STANDARDS/TMDE</b> TR: TOs 33K-1-100-1/-2, 33K Series; Comm Data													
a. Attenuator TR: TOs 33AA36-10-1 (8491), 33AA36-33-1 (8496)													
* (1) Use	2b	-	B	-									
(2) Calibrate	-	-	-	-				*					
b. Waveguide/Coaxial Directional Coupler TR: TOs 33A1-12-1230-1 (1852( )), 33D7- 13-17-1 (752), 33DA100-5-1 (779( ))													
(1) Use	-	B	B	-									
(2) Calibrate	-	-	-	-									
c. Thermistor Mount/Power Sensor TR: TOs 33A1-9-47 (478A), 33A1-9-52 (8478A), 33A1-9-54-1 (GIL360), 33A1-7-270 (8481A/H)													
* (1) Use	2b	B	B	-				*					
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
d. Power Meter TR: TOs 33A1-7-205-1 (432A), 33A1-7- 261-1 (436A)													
* (1) Use	2b	B	B	-				*					

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a  3 LVL	2b		2c  7 LVL	2d		3a  5	3b  7	4a  START DATE	4b  COMP DATE	4c  TRAINEE	4d  TRAINER	4e  CERT
		CDC			EXPORTABLE COURSE								
		5	7		5	7							
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
e. Termination TR: TOs 33AA7-67-1 (914A/B), 33AA7-78-1 (905A)													
(1) Use	-	-	B	-									
(2) Calibrate	-	-	-	-									
f. Noise Generator TR: TO 33A1-6-168-1 (346B)													
(1) Use	-	-	-	-									
(2) Calibrate	-	-	-	-									
g. Measuring Receiver TR: TOs 33A1-5-478-1 (1295), 33A1-10-296 (8902( ))													
*(1) Use	2b	B	-	-			*						
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
h. Detector TR: TO 33A1-5-330-1 (423A)													
*(1) Use	2b	B	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
i. Network Analyzer TR: TOs 33D7-10-64 (8411A), 33D7-10-186 (85100), 33D7-20-45 (8410B)													
(1) Use	-	-	B	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
j. SWR Meter TR: TO 33A1-6-33 (415B/E)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a	2b		2c	2d		3a	3b	4a	4b	4c	4d	4e
	3 LVL	CDC		7 LVL	EXPORTABLE COURSE		5	7	START DATE	COMP DATE	TRAINEE	TRAINER	CERT
		5	7		5	7							
(4) Calibrate	-	-	-	-									
k. Swept Frequency Generator TR: TOs 33A1-8-943-1, 33A1-8-955-1 (8643), 33A1-8-1054-1, 33A1-12-704- 11 (8620C SYS), 33A1-12-941-1 (8340B)													
(1) Use	-	-	B	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
l. RF Wattmeter TR: TO 33A1-5-317 (TS1771AU)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
m. Wattmeter calibrator TR: TO 33A1-2-268 (SSPAO240-22/6140)													
(1) Use	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
n. Power Standard TR: TOs 33A1-12-1230-1 (1852( )), 33K- 1-100-1 (NOTE N40)													
(1) Use	-	-	-	-									
o. Peak Power Calibrator TR: Comm Data (2760)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
p. Power Meter Calibrator TR: TOs 33A1-7-226 (8477A), 33D7-45- 76-1 (11683A)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a  3 LVL	2b		2c  7 LVL	2d		3a  5	3b  7	4a  START DATE	4b  COMP DATE	4c  TRAINEE	4d  TRAINER	4e  CERT
		CDC			EXPORTABLE COURSE								
		5	7		5	7							
(4) Calibrate	-	-	-	-									
q. RF Peak Power Meter TR: TOs 33A1-7-263-11 (1018B), 33A1-7-299 (8501/8502)													
(1) Use	-	-	B	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
r. Power Measurement Calibration System TR: Comm Data (PMCS)													
(1) Use	-	-	-	-			*						
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
s. Phase Noise Measurement System TR: Comm Data (3048MS, E5504B))													
(1) Use	-	-	B	-			*						
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
t. Microwave Measurement System TR: Comm Data (8902MS)													
(1) Use	-	-	-	-			*						
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
u. Noise Figure Measurement System TR: TO 33A1-6-164 (8970V)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a	2b		2c	2d		3a	3b	4a	4b	4c	4d	4e
	3 LVL	CDC		7 LVL	EXPORTABLE COURSE		5	7	START DATE	COMP DATE	TRAINEE	TRAINER	CERT
		5	7		5	7							
v. WGMC8-40 Waveguide Mount Coupler Set TR: Comm Data													
(1) Use	-	-	-	-									
w. Photometric Calibration System TR: Comm Data (BHSPMS-1)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
x. Spectral Radiance Standards TR: Comm Data (RS-3, RS-10( ), RS-11( ))													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
y. Power Measurement Standard TR: Comm Data (PM2)													
(1) Use	-	-	-	-									
z. Fiber Optics Calibration System TR: Comm Data (FOSC1, FOCUS)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
aa. Fiber Optic TMDE TR: Comm Data (OF150, OF152, TD1000( ))													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a	2b		2c	2d		3a	3b	4a	4b	4c	4d	4e
	3 LVL	CDC		7 LVL	EXPORTABLE COURSE		5	7	START DATE	COMP DATE	TRAINEE	TRAINER	CERT
		5	7		5	7							
<b>17. PHYSICAL MEASUREMENT STANDARDS/TMDE</b> TR: TOs 32-1-201, 33K-1-100-1/-2, 33K Series  a. Linear Standards TR: Comm Data (88, GG0635)  *(1) Use (2) Troubleshoot/Repair (3) Calibrate  b. Electronic Height Gages TR: Comm Data (432, 715, 812-( ))  (1) Use (2) Align  c. Gage Block Comparator TR: Comm Data (130B Series)  (1) Use (2) Align (3) Troubleshoot/Repair (4) Calibrate  d. Supermicrometers TR: Comm Data (2000, Model B, 828)  (1) Use (2) Align (3) Troubleshoot/Repair (4) Calibrate  e. Linear Mesuring TMDE TR: Comm Data (GGGC105, GGGC111))  *(1) Use (2) Align (3) Troubleshoot/Repair *(4) Calibrate  f. Angular Standards TR: Comm Data (88, 16AA, S1D23054)  (1) Use (2) Troubleshoot/Repair													
	2b	-	B	-			*						
	-	-	-	-									
	-	-	-	-									
	-	-	-	-									
	-	-	-	-									
	-	-	-	-									
	-	-	-	-									
	2b	-	-	-			*						
	-	-	-	-									
	-	-	B	-									
	-	-	-	-									

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a  3 LVL	2b		2c  7 LVL	2d		3a  5	3b  7	4a  START DATE	4b  COMP DATE	4c  TRAINEE	4d  TRAINER	4e  CERT
		CDC			EXPORTABLE COURSE								
		5	7		5	7							
(3) Calibrate	-	-	-	-									
g. Angular Measuring TMDE TR: TOs 33-1-201 (GGGL211B), 33D9-57-27-1 (TB107A)													
(1) Use	-	-	B	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
h. Levels, other than optical levels TR: Comm Data (199)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
i. Temperature Standards TR: TO 33C3-16-1 (3.5B-67248); Comm Data (CS77, PRTs, 5303, 5309, 3605-1-101)													
*(1) Use	b	-	B	-			*						
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
j. Temperature Measuring TMDE TR: Comm Data (77, 2000M)													
*(1) Use	b	-	-	-			*						
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
*(4) Calibrate	b	-	-	-			*						
k. Humidity Standards TR: Comm Data (2500)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a	2b		2c	2d		3a	3b	4a	4b	4c	4d	4e
	3 LVL	CDC		7 LVL	EXPORTABLE COURSE		5	7	START DATE	COMP DATE	TRAINEE	TRAINER	CERT
		5	7		5	7							
i. Humidity Measuring TMDE TR: Comm Data (566, 08T2P, SA760A, CT485))  (1) Use (2) Align (3) Troubleshoot/Repair (4) Calibrate	-	-	-	-									
m. Vacuum Standards TR: TOs 33A7-4-73-1 (2200), 33C2-91-1 (80-6); Comm Data (PVS-1-10)  (1) Use (2) Align (3) Troubleshoot/Repair (4) Calibrate	-	-	B	-									
n. High Vacuum Pumping Systems TR: TO 33A7-4-48-1 (VR300)  (1) Use	-	-	-	-									
o. Vacuum Gages TR: Comm Data (GV3, VT6)  (1) Use (2) Align (3) Troubleshoot/Repair (4) Calibrate	-	-	B	-									
p. Pressure Standards TR: TO 33A6-4-7-1 (10-10525); Comm Data (3682, PPC2AF)  *(1) Use (2) Align (3) Troubleshoot/Repair (4) Calibrate	2b	-	B	-			*						
q. Primary Pressure Standards TR: TO 33A6-4-15-1 (120X); Comm Data (2465-601-58500), (HGC-30000-AF)  (1) Use (2) Align	-	-	B	-				*					

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a  3 LVL	2b		2c  7 LVL	2d		3a  5	3b  7	4a  START DATE	4b  COMP DATE	4c  TRAINEE	4d  TRAINER	4e  CERT
		CDC			EXPORTABLE COURSE								
		5	7		5	7							
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
r. Pressure Gages TR: TO 33-1-19 (3461); Comm Data (Model C/H)													
* (1) Use	2b	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
* (4) Calibrate	3c	-	-	-			*						
s. Pressure Measuring TMDE/Transducers TR: Comm Data (2100 Series, 6200 Series)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
t. Mass and Weight Standards TR: Comm Data (1100, S1, MMS)													
* (1) Use	2b	-	B	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
u. Scales TR: Comm Data (400 Series)													
* (1) Use	2b	-	B	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
* (4) Calibrate	2b	-	-	-									
v. Precision Balances TR: Comm Data (PM30000K, MT5, AT Series)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a  3 LVL	2b		2c  7 LVL	2d		3a  5	3b  7	4a  START DATE	4b  COMP DATE	4c  TRAINEE	4d  TRAINER	4e  CERT
		CDC			EXPORTABLE COURSE								
		5	7		5	7							
(4) Calibrate	-	-	-	-									
w. Tachometer Standards TR: Comm Data (230440-1, H8224-837837)													
(1) Use	-	-	B	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
x. Tachometer Measuring TMDE TR: TO 33D2-6-102													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
y. Torque Standards TR: Comm Data (CDI2000, CDT 2400, TTS250AFK))													
*(1) Use	2b	-	-	-			*						
(2) Align	-	-	B	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
z. Torque TMDE TR: TOs 32B14-3-1-101, 32B14-3-4-4													
*(1) Use	2b	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
*(4) Calibrate	3c	-	-	-			*						
aa. Tensiometers TR: TO 33A3-3-2-1 (C Series, T5 Series, 1973TYPE8, 1973TYPE9)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a  3 LVL	2b		2c  7 LVL	2d		3a  5	3b  7	4a  START DATE	4b  COMP DATE	4c  TRAINEE	4d  TRAINER	4e  CERT
		CDC			EXPORTABLE COURSE								
		5	7		5	7							
bb. Force Standards TR: TO 33C2-75 (800260); Comm Data (DMP40)													
(1) Use	-	-	B	-			*						
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
cc. Force Measuring TMDE TR: TO 35B2-2-2 (C1); Comm Data (AN60)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-				*					
dd. Surface plates TR: TO 32A19-51-1 (GGGP463)													
(1) Use	-	-	-	-									
(2) Calibrate	-	-	-	-									
ee. Vibration Standards/Pickups TR: TO 33A1-11-39-1 (AF75( )); Comm Data (9610)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
ff. Vibration TMDE TR: TO 33A1-11-39-1; Comm Data (PBS4100, 4-128, 2251)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
gg. Flow Standards TR: TOs 33A6-3-45 (31TA2073-1-()), 33DA39-52-3 (QAF-24-VWR-1SC); Comm Data (FCS-3A-SS-C, AL13, MOLBLOC)													
(1) Use	-	-	-	-									

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a	2b		2c	2d		3a	3b	4a	4b	4c	4d	4e
	3 LVL	CDC		7 LVL	EXPORTABLE COURSE		5	7	START DATE	COMP DATE	TRAINEE	TRAINER	CERT
		5	7		5	7							
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
hh. Viscosity Measuring TMDE TR: Comm Data (MED2000)													
(1) Use	-	-	-	-									
ii. Thermocouple Junctions/Calibrators TR: Comm Data (CJ Series, Xitron 2000, AN6520-4A110)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
jj. Oxygen TMDE TR: TOs 15X-1-102, 37C11-1-1													
(1) Inspect	-	B	B	-									
(2) Calibrate	-	-	-	-									
kk. Chemical Agent Alarm Systems TR: TO 33D5-6-7-3 (M140)													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
ll. Boresight Fixtures, other than optical boresight fixtures TR: TO 33DA21-239-1 (16A75029-()), 33DA21-244-1 (16A74029-()), 33DA21-247-1 (16A74028-()), 33DA21-272-1 (16A75055-()), 33DA21-295-1 (16A75062-())													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
mm. Small Arms Gages TR: Comm Data (7319994 Series)													
(1) Calibrate	-	-	-	-									

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a  3 LVL	2b		2c  7 LVL	2d		3a  5	3b  7	4a  START DATE	4b  COMP DATE	4c  TRAINEE	4d  TRAINER	4e  CERT
		CDC			EXPORTABLE COURSE								
		5	7		5	7							
nn. LASER Measurement System TR: Comm Data (5528, ML10)													
(1) Use	-	-	-	-									
(2) Calibrate	-	-	-	-									
oo. LASER measuring TMDE TR: Comm Data (Zygo 1202B)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
<b>18. OPTICAL STANDARDS/TMDE</b>													
a. Collimators/Autocollimators TR: Comm Data (714010, D600, TA Series)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
b. Optical Refractors/Mirrors TR: TO 33B4-8-9-1 (2120665-006); Comm Data (D616, 290)													
(1) Use	-	-	-	-									
(2) Calibrate	-	-	-	-									
c. Optical Clinometer TR: Comm Data (142-43)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
d. Optical Comparators TR: Comm Data (EPIC30)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a  3 LVL	2b		2c  7 LVL	2d		3a  5	3b  7	4a  START DATE	4b  COMP DATE	4c  TRAINEE	4d  TRAINER	4e  CERT
		CDC			EXPORTABLE COURSE								
		5	7		5	7							
(4) Calibrate	-	-	-	-									
e. Optical Micrometer TR: Comm Data (71-1112)													
(1) Use	-	-	-	-									
(2) Calibrate	-	-	-	-									
f. Optical Flats and parallels TR: Comm Data (D617)													
*(1) Use	2b	-	-	-			*						
(2) Calibrate	-	-	-	-									
g. Theodolites, Transits, Optical and Surveying Levels TR: TO 49A8-4-1 (T-2); Comm Data (D626, 75( ), T Series)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
h. Short Range Calibrator TR: Comm Data (714010, D600, 270BN)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
i. Heads-up-display (HUD) Alignment Equipment TR: Comm Data (587-10200-21)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a  3 LVL	2b		2c  7 LVL	2d		3a  5	3b  7	4a  START DATE	4b  COMP DATE	4c  TRAINEE	4d  TRAINER	4e  CERT
		CDC			EXPORTABLE COURSE								
		5	7		5	7							
<b>19. F-15 TMDE</b> TR: Specific Equipment TO and/or Comm Data  a. Control Stick Boost and Pitch Controller (CSBPC) TR: TOs 33D2-5-71-1 (68D30002-1001), 33D2-5-76-1 (68D300041-1001)  (1) Align (2) Troubleshoot/Repair (3) Calibrate  b. Gun Control Test Set TR: TO 33D5-12-209-1 (68D150015-1001)  (1) Align (2) Troubleshoot/Repair (3) Calibrate  c. Instrument Landing System (ILS) Test Set TR: TO 33D2-6-207-11 (1993142)  (1) Align (2) Troubleshoot/Repair (3) Calibrate  d. Input/Output Simulator TR: TO 33D7-8-101 (68D040040-1001)  (1) Use (2) Troubleshoot/Repair  e. Magnetic Azimuth Detector Simulator TR: TO 33D2-8-359-1 (2128940)  (1) Align (2) Troubleshoot/Repair (3) Calibrate  f. Microwave Noise Analyzer TR: TO 33D7-10-77-4 (1992602)  (1) Align (2) Troubleshoot/Repair (3) Calibrate	-	-	-	-	-	-	-	-	-	-	-	-	-

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a	2b		2c	2d		3a	3b	4a	4b	4c	4d	4e
	3 LVL	CDC		7 LVL	EXPORTABLE COURSE		5	7	START DATE	COMP DATE	TRAINEE	TRAINER	CERT
		5	7		5	7							
g. Microwave Synthesizer System (MSS) TR: TO 33A1-8-792, 3, 4 (65704( ))													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
h. Modulated Microwave Source (Watkins- Johnson) TR: TO 33DA52-17-1 (WJ1221-23)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
i. Programmable Waveform Generator TR: TO 33A1-8-795-1 (157S409)													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
j. RF Measurement/Stimuli Drawers TR: TO 33A1-5-417-1 (661004 ( ))													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
k. Sampling Waveform Digitizing System (SWDS) TR:													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
l. Supervisory Control System Test Set TR: TO 33D4-6-521-1 (A/E24T136)													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
m. Suppressed Carrier Modulator TR: TO 33D7-3-160-8-9-1 (2129664)													
(1) Align	-	-	-	-									

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a  3 LVL	2b		2c  7 LVL	2d		3a  5	3b  7	4a  START DATE	4b  COMP DATE	4c  TRAINEE	4d  TRAINER	4e  CERT
		CDC			EXPORTABLE COURSE								
		5	7		5	7							
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
n. TEWS Intermediate Support System (TISS) TR: TO 33D7-38-251-1 (AN/ALM-246)													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
o. Transfer Function Analyzer TR: TOs 33D7-10-79-1 (1993219), 33D7- 10-153-1 (3594971)													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
p. Waveguide Interlocks TR: TO 33D7-35-58-1 (2132433)													
(1) Align	-	-	-	-									
(2) Calibrate	-	-	-	-									
q. X-Band Signal Source TR: TO 33A1-8-718-4 (2129570)													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
r. Weapons Control Test Set TR: TOs 33D5-3-46-1 (A/E24T-171), 33D5- 16-72-1 (A/E24T-169), 33D5-30-4-1 (A/E24T-170)													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
s. Weapons Firing Test Set Stray Voltage Detector TR: TO 33D5-3-46-1 (372-2/AO6G2621)													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
t. Ignition Test Set TR: TO 33D4-6-515-1 (A/E24T-116)													
(1) Align	-	-	-	-									

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a  3 LVL	2b		2c  7 LVL	2d		3a  5	3b  7	4a  START DATE	4b  COMP DATE	4c  TRAINEE	4d  TRAINER	4e  CERT
		CDC			EXPORTABLE COURSE								
		5	7		5	7							
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
u. IFSS Signal Generator TR: TO 33A1-8-717-1 (1992604)													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
v. Mach Simulator TR: TO 33D4-6-518-1 (A/E24T-137)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
w. Walk-around Test Set TR: TO 33D7-13-88-1 (AN/ALM-231)													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
x. Temperature Control Unit TR: TO 33C3-25-1 (70323-1)													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
y. Phase Sensitive Converter TR: TO 33D7-17-47-1 (1997006-( ))													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
z. AM/FM Signal Generator TR: TO 33A1-8-755-1 (1993120-( ))													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a  3 LVL	2b		2c  7 LVL	2d		3a  5	3b  7	4a  START DATE	4b  COMP DATE	4c  TRAINEE	4d  TRAINER	4e  CERT
		CDC			EXPORTABLE COURSE								
		5	7		5	7							
aa. X-Band Signal Generator TR: TO 33A1-8-722-1 (1993126-())  (1) Align  (2) Troubleshoot/Repair  (3) Calibrate	-	-	-	-									
bb. Precision Synchro Signal Converter (PSSC) TR: TO 33D7-17-74-1 (3597141-())  (1) Align  (2) Troubleshoot/Repair  (3) Calibrate	-	-	-	-									
cc. Secondary Power System Test Set TR: TO 33D7-38-129-1 (68D170009- 1001)  (1) Align  (2) Troubleshoot/Repair  (3) Calibrate	-	-	-	-									
dd. Microwave Signal Generator TR: TO 33A1-8-720-4 (1993213-())  (1) Align  (2) Troubleshoot/Repair  (3) Calibrate	-	-	-	-									
ee. Fuel Systems TMDE TR: TO 33D7-1-101 (68D290049-1001, 68D29007-1007, 68D290056-1003)  (1) Align  (2) Troubleshoot/Repair  (3) Calibrate	-	-	-	-									
ff. Xmitter Pulse Generator TR: TO 33A1-8-719-1 (1993215-1)  (1) Align  (2) Troubleshoot/Repair  (3) Calibrate	-	-	-	-									

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a  3 LVL	2b		2c  7 LVL	2d		3a  5	3b  7	4a  START DATE	4b  COMP DATE	4c  TRAINEE	4d  TRAINER	4e  CERT
		CDC			EXPORTABLE COURSE								
		5	7		5	7							
gg. Data Link Simulator TR: TO 33D7-88-14-1 (ANGJM59)													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
hh. TISS Standard Mismatch Equipment TR: TO 33D7-80-1193-1-1 (C280- 192/193)													
(1) Align	-	-	-	-									
(2) Calibrate	-	-	-	-									
ii. Microwave Signal Switching Unit (MSSU) TR: TO 33DA86-57-1 (6406804)													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
jj. Special Test Station Support Equipment Low Noise Test System TR: Comm Data (8780A-K21)													
(1) Use	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
kk. Flight Director Test Set TR: TO 33D3-4-150-1 (980L1)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Calibrate	-	-	-	-									
ll. Electronic Test Set TR: TO 33D7-38-215-2 (AN/USM-603)													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
mm. AFCS System Test Set TR: TO 33D3-9-166-1 (AN/ASM-497)													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a  3 LVL	2b		2c  7 LVL	2d		3a  5	3b  7	4a  START DATE	4b  COMP DATE	4c  TRAINEE	4d  TRAINER	4e  CERT
		CDC			EXPORTABLE COURSE								
		5	7		5	7							
<b>20. F-15E PECULIAR ITEMS</b> TR: Specific Equipment TO and/or Comm Data  a. STORES Management/Fire Control Subsystem TR: TOs 33D5-63-5-1 (A/E24T-197), 33D5-12-231-1 (A/E24T-198)  (1) Align  (2) Troubleshoot/Repair  b. RF Power Test Set TR: TO 33D5-12-152-1 (TS2059AWM18)  (1) Align  (2) Troubleshoot/Repair  (3) Calibrate  c. Calibration Module TR: TO 33D7-33-247-1 (654334-1)  (1) Align  (2) Troubleshoot/Repair  (3) Calibrate  d. Remote Map reader PIU TR: TO 33D7-50-1297-1 (A06G2860-1)  (1) Align  (2) Troubleshoot/Repair  (3) Calibrate  e. Air Inlet Control PIU TR: TO 33D7-50-1439-1 (A06G2864-1)  (1) Align  (2) Troubleshoot/Repair  (3) Calibrate  f. Air Data Computer TR: TO 33D7-50-1426-1 (A06G2865-1)  (1) Align  (2) Troubleshoot/Repair  (3) Calibrate													

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a  3 LVL	2b		2c  7 LVL	2d		3a  5	3b  7	4a  START DATE	4b  COMP DATE	4c  TRAINEE	4d  TRAINER	4e  CERT
		CDC			EXPORTABLE COURSE								
		5	7		5	7							
g. UHF Receiver-Transmitter PIU TR: TO 33D7-50-1474-1 (A06G2867-1)													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
h. IFF Receiver-Transmitter PIU TR: TO 33D7-50-1401-1 (A06G2868-1)													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
i. TACAN Unit PIU TR: TO 33D7-50-1400-1 (A06G2869-1)													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
j. ILS Unit PIU TR: TO 33D7-50-1341-1 (A06G2870-1)													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
k. Antenna Noise Analyzer TR: TO 33D7-10-76-1 (1992518-4)													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
l. Guided Missile Launcher Test Set TR: TO 33D9-45-34-1 (A/E24T-140)													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
m. Armament System Test Set TR: TO 33D5-12-204-4 (AN/AWM-72)													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a  3 LVL	2b		2c  7 LVL	2d		3a  5	3b  7	4a  START DATE	4b  COMP DATE	4c  TRAINEE	4d  TRAINER	4e  CERT
		CDC			EXPORTABLE COURSE								
		5	7		5	7							
n. Coolant Processing Unit TR: TO 33D7-35-58-2 (3598386-3)													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
o. Microwave Interfaces TR: Comm Data (6457373-1)													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
<b>21. F-16 TMDE</b> TR: Specific Equipment TO and/or Comm Data													
a. Avionics Multiplexers (AMUX) TR: TO 33D7-45-73-1 (624-())													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
b. Emergency Power Unit (EPU) Test Set TR: TO 33D7-38-102-1 (912476-())													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
c. Permissive Action Link/Unique Signal Generator Multiplexer (PAL/USG/MUX) TR: TO 33D7-45-60-1 (568-())													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
d. Preload Armament Circuit Test Set TR: TO 33D5-3-47-1 (16U75060-())													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a  3 LVL	2b		2c  7 LVL	2d		3a  5	3b  7	4a  START DATE	4b  COMP DATE	4c  TRAINEE	4d  TRAINER	4e  CERT
		CDC			EXPORTABLE COURSE								
		5	7		5	7							
e. STORES Management System (SMS) Breakout Box TR: TO 33D7-45-59-1 (16UE75517-( ))													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
f. STORES Management System (SMS) TR: TO 33D5-63-3-1 (16UE75501-( ))													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
g. STORES Release Equipment (SRE) TR: TO 33D5-63-2-1 (16UE75500-( ))													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
h. Electrical Engine Test Set TR: TO 33D2-3-98-1 (729900)													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
i. Brake Pressure Test Set TR: TO 33D2-23-26-1 (10012-( ))													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
j. EPU Sensing Monitor TR: TO 33D7-86-26-1 (16U42554-1)													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
k. Display Monitor TR: TO 33D7-38 (606*20)													
(1) Troubleshoot/Repair	-	-	-	-									

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>															
	2a  3 LVL	2b		2c  7 LVL	2d		3a  5	3b  7	4a  START DATE	4b  COMP DATE	4c  TRAINEE	4d  TRAINER	4e  CERT											
		CDC			EXPORTABLE COURSE																			
		5	7		5	7																		
I. Service Life Monitor Test Set TR: TO 33D7-38-103-1 (7953A77-( ))  (1) Align (2) Troubleshoot/Repair (3) Calibrate  m. Engine Warning Test Set TR: TO 33D2-19-12-1 (16UE23510-( ))  (1) Align (2) Troubleshoot/Repair (3) Calibrate  n. INU Battery Tester TS TR: TO 35C3-2-82-1 (16UE4512-( ))  (1) Use (2) Align (3) Troubleshoot/Repair (4) Calibrate  <b>22. SPECIAL TMDE</b> TR: 33K-1-100-1, 33K Series  a. Combustible/Toxic Gas Alarms/Analyzers TR: TOs 11H2-9-1 (AE23T4), 11H5-14-1 (R2), 11H5-20-1 (TBC-1), 11H5-35-1 (514M); Comm Data (M8A1)  (1) Align (2) Troubleshoot/Repair (3) Calibrate  b. TACAN Test Set TR: TOs 33D2-8-356 (AN/ARM-135A), 33D7-71-23 (AN/ARM-162)  (1) Align (2) Troubleshoot/Repair (3) Calibrate  c. ILS/VOR Standards TR: Comm Data (5401, CIVS, ZIFOR)  (1) Use (2) Align																								

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a  3 LVL	2b		2c  7 LVL	2d		3a  5	3b  7	4a  START DATE	4b  COMP DATE	4c  TRAINEE	4d  TRAINER	4e  CERT
		CDC			EXPORTABLE COURSE								
		5	7		5	7							
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
d. ILS/VOR Test Sets TR: TOs 33A1-3-504 (AN/ARM-186), 33D7-71-52-1 (AN/ARM-201)													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
e. IFF/SIF Transponder Test Set TR: TOs 33A1-3-426 (AN/UPM-137A), 33D7-4-14-9-1, 2, 4 (AN/UPM-155), 33D7-29-52-1 (AN/APM424V( )), 33D9-62-5 (AN/APM-270V3); Comm Data (AN/APM-480)													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
f. Joint Oil Analysis Program TR: TOs 33A6-7-24 (A/E 35U-3), 33B4- 2-29-1 (Spectroil M)													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
g. Engine Trim Boxes, JetCal Test Set TR: TOs 33D4-6-555-4 (BH112JB40), 33D4-6-556-1 (A/E24T141/PWA 50081), 33D7-3-175-11 (H301-( ))													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
h. Aircraft Engine Test Stand, Test Stand Calibration Trailer TR: TOs 00-25-238, 33D4-6-212-44 (AM 37T-20, AM 37T-21), 33D4-6-680 (AM 99T-2)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a  3 LVL	2b		2c  7 LVL	2d		3a  5	3b  7	4a  START DATE	4b  COMP DATE	4c  TRAINEE	4d  TRAINER	4e  CERT
		CDC			EXPORTABLE COURSE								
		5	7		5	7							
(4) Calibrate	-	-	-	-									
i. Munitions Test Set TR: TO 33D5-24-14-2 (AN/GJM-55); Comm Data (AN/GJM-64)													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
j. Air Data/Environmental Test Sets TR: TOs 33D2-39-26-1 (TTU 415( )), 33D7-3-60 (TTU 205( ))													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
k. Emergency Radio Test Set TR: TO 33D7-71-42-1 (TS24B)													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
l. Telecommunication TMDE TR: TOs 33A1-3-533-2 (HATS2), 33A1- 8-1041 (8328A), 33A1-13-505-1 (3551A, 4935A); Comm Data (FM/AM1500, 702)													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
m. Missile Guidance TMDE TR: TOs 33D5-12-187-1 (AN/ASM- 184( )V2), 33D9-54-62-1 (AN/DSM-157), 33D9-61-39-1 (AN/DSM-129); Comm Data (TS4044( ), AN/DSM-162)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a	2b		2c	2d		3a	3b	4a	4b	4c	4d	4e
	3 LVL	CDC		7 LVL	EXPORTABLE COURSE		5	7	START DATE	COMP DATE	TRAINEE	TRAINER	CERT
		5	7		5	7							
n. Doppler radar TMDE/Radar Guns TR: Comm Data (K15, KR10SP, S900-12)													
(1) Use	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
o. Sound Calibration System TR: Comm Data (U9801, QC-10)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
p. Sound/Audio TMDE TR: Comm Data (9DB310, DB3100, MK( ))													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
q. Infrared Target Simulator TMDE TR: TO 33D9-14-70-1 (SM787DSM)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
r. Interrogator/Transponder Electronic Warfare Systems TMDE TR: TO 33D7-8-115-1 (AN/APM-427)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
s. LANTIRN Support Equipment TR: TO 33D7-45-90-8-1 (AN/AAM-82)													
(1) Use	-	-	-	-									

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a  3 LVL	2b		2c  7 LVL	2d		3a  5	3b  7	4a  START DATE	4b  COMP DATE	4c  TRAINEE	4d  TRAINER	4e  CERT
		CDC			EXPORTABLE COURSE								
		5	7		5	7							
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
t. Radio receiver Test Sets TR: TO 33D7-36-42-1 (AN/GRM-112)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
u. Countermeasures Test Set TR: TOs 33D7-13-75 (AN/ALM-177( )), 33D7-13-288-1 (AN/ALM-288); Comm Data (AN/ALM-233C)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
v. Angle Position Indicator TR: TOs 33AA45-7 (8300( )), 33D7-20- 72-1 (545A)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
w. Synchro/Resolver Standard TR: TOs 33D2-8-302 (A202S5), 33D7-8- 98-1 (530S741)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
x. Fuel Quantity Test Sets TR: TO 33D2-3-86 (GTF-6)													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a  3 LVL	2b		2c  7 LVL	2d		3a  5	3b  7	4a  START DATE	4b  COMP DATE	4c  TRAINEE	4d  TRAINER	4e  CERT
		CDC			EXPORTABLE COURSE								
		5	7		5	7							
(3) Calibrate	-	-	-	-									
y. RF Transmission Line Test Set TR: Comm data (AN/USM-638)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
z. Oxygen Regulator Field Tester TR: TOs 33D2-10-55-1 (31TA655-2), 33D2-10-67-1 (3300223-6001)													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
aa. Defibrillator Testing Device TR: Comm Data (3000, 3100B)													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
bb. Safety Analyzer TR: Comm Data (431F, 501PR)													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
cc. Radar Test Sets TR: TO 33D7-44-225 (AN/UPM-145)													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
dd. Aircraft Compass calibration Test Sets TR: TO 5N3-3-7 (MC1-( ))													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									

1.  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a  3 LVL	2b		2c  7 LVL	2d		3a  5	3b  7	4a  START DATE	4b  COMP DATE	4c  TRAINEE	4d  TRAINER	4e  CERT
		CDC			EXPORTABLE COURSE								
		5	7		5	7							
ee. Aircraft Electrical Wiring Test Sets TR: TO 33D7-38-79-1 (AN/USM-430)													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
ff. Night Vision Test Sets TR: Comm Data (ANV-126-085-CAL, ANV-20-20, ANV-126- ( ))													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
gg. Radiometer TR: Comm Data (12-550)													
(1) Use	-	-	-	-									
hh. Vector Network Analyzer TR: Comm Data (SM 4515)													
(1) Use	-	-	-	-									
(2) Align	-	-	-	-									
(3) Troubleshoot/Repair	-	-	-	-									
(4) Calibrate	-	-	-	-									
ii. Digital Barometer/Altimeter Set TR: TO 33M1-26M62 (ML658GM)													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									
jj. Manside Test Set TR: TO 33D2-10-68-1 (F278-5700-1); Comm Data (TTU 529E)													
(1) Align	-	-	-	-									
(2) Troubleshoot/Repair	-	-	-	-									
(3) Calibrate	-	-	-	-									

1..  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>					3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a	2b		2c	2d	3a	3b	4a	4b	4c	4d	4e
	3 LVL	CDC		7 LVL	EXPORTABLE COURSE							
	5	7	5	7	5	7	START DATE	COMP DATE	TRAINEE	TRAINER	CERT	
<p><b>NOTE 1:</b> This attachment identifies the Air Force standardized STS electronic fundamentals and applications STS entries.</p> <p><b>NOTE 2:</b> Only those electronic fundamentals and applications items in column 2 that have a training code in the course or CDC columns are trained to the specified level. Items that are "/X" will be incorporated into the course when resources become available. Items with the proficiency level code in parentheses ( ), all or part of the proficiency is obtained in the equipment portion of the course.</p> <p><b>NOTE 3:</b> Users may annotate additional devices or circuits not identified by this attachment that are specific to their AFSC IAW AFI 36-2201.</p>												
<b>1. ELECTRONIC SUPPORT SUBJECTS</b>												
a. Safety	B	-	-	-								
b. First Aid	B	-	-	-								
c. Electrostatic Discharge (ESD) Control	B	-	-	-								
d. Electromagnetic Effects (EMP/EMI)	B	-	-	-								
e. Metric Notation												
(1) Powers of Ten	B	-	-	-								
(2) Electrical Prefixes	B	-	-	-								
<b>2. USE TEST EQUIPMENT</b>												
a. Analog Multimeter	2b	-	-	-								
b. Digital Multimeter	2b	-	-	-								
c. Oscilloscope	2b	-	-	-								
d. Signal Generator	2b	-	-	-								
<b>3. BASIC CIRCUITS</b>												
a. Direct Current (DC)												
(1) Terms	B	-	-	-								
(2) Theory	B	-	-	-								
(3) Calculations	B	-	-	-								
b. Alternating Current (AC)												
(1) Terms	B	-	-	-								
(2) Calculations	B	-	-	-								

1..  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a	2b		2c	2d		3a	3b	4a	4b	4c	4d	4e
	3 LVL	CDC		7 LVL	EXPORTABLE COURSE		5	7	START DATE	COMP DATE	TRAINEE	TRAINER	CERT
		5	7		5	7							
<b>4. BASIC CIRCUIT COMPONENTS</b>													
a. Resistors													
(1) Theory	B	-	-	-									
(2) Color Code	B	-	-	-									
(3) Troubleshoot	2b	-	-	-									
b. Induction													
(1) Theory	B	-	-	-									
(2) Troubleshoot	2b	-	-	-									
c. Capacitors													
(1) Theory	B	-	-	-									
(2) Troubleshoot	2b	-	-	-									
d. Resistive-Capacitive-Inductive (RCL) Circuits Theory													
(1) Basic	B	-	-	-									
(2) Resonant	B	-	-	-									
(3) Frequency Sensitive Filter	B	-	-	-									
<b>5. ELECTROMAGNETIC DEVICES</b>													
a. Transformers													
(1) Theory	B	-	-	-									
(2) Troubleshoot	2b	-	-	-									
b. Relays and Solenoids													
(1) Theory	B	-	-	-									
(2) Troubleshoot Relays	2b	-	-	-									
c. Motor Theory													
(1) DC	B	-	-	-									
(2) AC	B	-	-	-									
d. Generator Theory													
(1) DC	B	-	-	-									
(2) AC	B	-	-	-									

1..  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a  3 LVL	2b		2c  7 LVL	2d		3a  5	3b  7	4a  START DATE	4b  COMP DATE	4c  TRAINEE	4d  TRAINER	4e  CERT
		CDC			EXPORTABLE COURSE								
		5	7		5	7							
e. Synchro/Servo													
(1) Theory	B	-	-	-									
(2) Fault Isolate	b	-	-	-									
f. Transducer Theory	B												
<b>6. SOLID STATE DEVICES</b>													
a. Diodes													
(1) Theory	B	-	-	-									
(2) Troubleshoot	2b	-	-	-									
b. Bipolar Junction Transistors													
(1) Theory	B	-	-	-									
(2) Troubleshoot	2b	-	-	-									
c. Special Purpose Device Theory													
(1) Zener Diode	B	-	-	-									
(2) Light Emitting Diode (LED)	B	-	-	-									
(3) Liquid Crystal Display (LCD)	B	-	-	-									
(4) Integrated Circuits (IC)	B	-	-	-									
(5) Metal Oxide Semiconductor Field Effect Transistor (MOSFET)	B	-	-	-									
(6) Operational Amplifiers	B	-	-	-									
<b>7. TRANSISTOR AMPLIFIER CIRCUITS</b>													
a. Theory	B	-	-	-									
b. Stabilization	B	-	-	-									
c. Coupling	B	-	-	-									
d. Troubleshoot	2b	-	-	-									
<b>8. POWER SUPPLY CIRCUITS</b>													
a. Theory													
(1) Rectifiers	B	-	-	-									
(2) Filters	B	-	-	-									
(3) Voltage Regulators	B	-	-	-									

1..  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a	2b		2c	2d		3a 5	3b 7	4a START DATE	4b COMP DATE	4c TRAINEE	4d TRAINER	4e CERT
	3 LVL	CDC		7 LVL	EXPORTABLE COURSE								
		5	7		5	7							
b. Troubleshoot	2b	-	-	-									
<b>9. WAVE GENERATING CIRCUITS</b>													
a. Theory													
(1) Oscillators	B	-	-	-									
(2) Multivibrators	B	-	-	-									
(3) Waveshaping Circuits	B	-	-	-									
b. Troubleshoot	2b	-	-	-									
<b>10. DIGITAL NUMBERING SYSTEMS</b>													
a. Conversions													
(1) Binary	B	-	-	-									
(2) Octal	B	-	-	-									
(3) Hexadecimal	B	-	-	-									
(4) Binary Coded Decimal	B	-	-	-									
b. Binary Math Operations	B	-	-	-									
<b>11. DIGITAL LOGIC CIRCUITS</b>													
a. Theory													
(1) Gates	B	-	-	-									
(2) Flip-flops	B	-	-	-									
(3) Counters	B	-	-	-									
(4) Registers	B	-	-	-									
(5) Combinational Logic Circuits	B	-	-	-									
b. Troubleshoot	2b	-	-	-									
c. Digital-to-Analog (DA) and Analog-to-Digital (AD) Converters Theory	B	-	-	-									
<b>12. BASIC COMPUTER FUNDAMENTALS</b>													
a. Computer Theory													
(1) Hardware	B	-	-	-									
(2) Software													

1..  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a	2b		2c	2d		3a	3b	4a	4b	4c	4d	4e
	3 LVL	CDC		7 LVL	EXPORTABLE COURSE		5	7	START DATE	COMP DATE	TRAINEE	TRAINER	CERT
		5	7		5	7							
(a) Operating Systems	B	-	-	-									
(b) Virus Protection	B	-	-	-									
(c) Diagnostics	B	-	-	-									
(d) Applications	B	-	-	-									
(3) Peripherals	B	-	-	-									
b. Network Theory													
(1) Components	B	-	-	-									
(2) Types	B	-	-	-									
(3) Topologies	B	-	-	-									
(4) Communication Mediums	B	-	-	-									
<b>13. BASIC COMMUNICATIONS THEORY</b>													
a. Antenna	B	-	-	-									
b. Transmission Lines	B	-	-	-									
c. Waveguide	B	-	-	-									
d. Transmitters													
(1) Amplitude Modulation (AM)	(B)	-	-	-									
(2) Frequency Modulation (FM)	(B)	-	-	-									
e. Receivers													
(1) Amplitude Modulation (AM)	B	-	-	-									
(2) Frequency Modulation (FM)	B	-	-	-									
<b>14. SOLDER AND DESOLDER</b>													
a. Terminal Connection	2b	-	-	-									
b. Printed Circuit Board (PCB)	2b	-	-	-									
c. Multipin Connector	2b	-	-	-									
d. Coaxial Connector	2b	-	-	-									

1..  <b>TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES</b>	2. <b>FORMAL TRAINING</b>						3. <b>CORE TASKS</b>		4. <b>OJT CERTIFICATION</b>				
	2a  3 LVL	2b		2c  7 LVL	2d		3a  5	3b  7	4a  START DATE	4b  COMP DATE	4c  TRAINEE	4d  TRAINER	4e  CERT
		CDC			EXPORTABLE COURSE								
		5	7		5	7							
<b>15. ASSEMBLE SOLDERLESS CONNECTORS</b>													
a. Crimped Connection	2b	-	-	-									
b. Coaxial Connector	2b	-	-	-									
c. Multipin Connector	2b	-	-	-									

## **SECTION B - COURSE OBJECTIVE LIST**

**1. Measurement.** Each objective is indicated as follows: **W** indicates task or subject knowledge which is measured using a written test, **PC** indicates required task performance which is measured with a performance progress check, and **PC/W** indicates separate measurement of both knowledge and performance elements using a written test and a performance progress check.

**2. Standard.** The standard is 70% on written examinations. Standards for performance measurement are indicated in the objective and delineated on the individual progress checklist. Instructor assistance is provided as needed during the progress check, and students may be required to repeat all or part of the behavior until satisfactory performance is attained.

**3.** Most task performance is taught to the “2b” proficiency level which means the students can do most parts of the task, but does need assistance on the hardest parts of the task (partially proficient). The student can also determine step-by-step procedures for doing the task.

**4. Course Objective List.** These objectives are listed in the sequence taught by Block of Instruction.

**4.1. Initial Skills Course.** E3ABR2P031 013; Precision Measurement Equipment Laboratory Apprentice

**4.1.1. Block 1.1. - Introduction To Metrology**

- 2a. Identify the terms and definitions that apply to Metrology and the AFMETCAL program with a minimum of 70% accuracy. STS: 10a Meas.: PC/W
- 2b. Given appropriate reference materials, determine maintenance procedures using TMDE technical data with a minimum of 70% accuracy. STS: 5a(3) Meas.: PC/W
  - (1) Technical Orders
  - (2) Commercial Data
  - (3) Calibration Procedures (33K)
- 2c. Identify characteristics of cables and connectors with a minimum of 70% accuracy. STS: 10d Meas.: PC/W
- 2d. Given appropriate reference materials, identify principles regarding the proper use and care of hand tools with a minimum of 70% accuracy. STS: 10e Meas.: PC/W

- 2e. Identify the characteristics of Surface Mount Technology with a minimum of 70% accuracy. STS: 10c Meas.: PC/W
- 2f. Identify terms that apply to Operational Security (OPSEC) that are specific to AFSC 2P0X1 with a minimum of 70% accuracy. STS: 2a Meas.: PC/W
- 3a. Identify principles of TMDE-related parameters and the steps required to calculate these parameters with a minimum of 70% accuracy. STS: 11a(4), 18a (Attachment 2) Meas.: PC/W
- 3b. Given appropriate equations, identify the principles involved in the calculation of acceptable accuracy limitations, power ratios, and power levels with a minimum of 70% accuracy. STS: 10h, 11a(1), 11a(2) Meas.: PC/W
  - (1) Traceability and Suitable Substitute Standards
  - (2) Error, Correction, and Correction Factors
  - (3) Power Ratio and dB Conversions
  - (4) Power Level and dBm Conversions
- 3c. Identify the principles of Gross, Systematic, and Random Error with a minimum of 70% accuracy. STS: 11a(3) Meas.: PC/W
- 4a. Identify the potential safety hazards associated with the 2P0X1-career field with a minimum of 70% accuracy. STS: 3a Meas.: PC/W
- 4b. Identify procedures for working around high voltages with a minimum of 70% accuracy. STS: 3b Meas.: PC/W
- 4c. Given appropriate references, identify procedures for maintaining hazardous materials with a minimum of 70% accuracy. STS: 4a, 4b, 4c, 4d Meas.: PC/W

**4.1.2. Block 1.2. - Multimeters**

- 1a. Identify operating principles associated with special purpose devices with a minimum of 70% accuracy. STS: 22a(1), 22a(3), 22a(6), and 22a(7) (Attachment 2) Meas.: PC/W
  - (1) SCR
  - (2) JFET
  - (3) UJT
  - (4) Tunnel Diode

- 1b. Given TMDE and technical data, calibrate an analog multimeter with no more than two (2) instructor assists. STS: 12a(1), 12h(1), 12i(1), 12i(4) Meas.: PC/W
- (1) Meter calibrators
  - (2) Resistance Standards
  - (3) Analog Multimeter
  - (4) Calibration
- 1c. Given TMDE and technical data, align an analog multimeter with no more than two (2) instructor assists. STS: 12i(2) Meas.: PC/W
- 1d. Given TMDE and technical data, troubleshoot an analog multimeter to a faulty component with no more than two (2) instructor assists. STS: 11b(1), 11b(6), 12i(3) Meas.: PC/W
- 2a. Given TMDE and technical data, calibrate a digital multimeter with no more than two (2) instructor assists. STS: 12c(1), 12h(1), 12k(1), 12k(4) Meas.: PC/W
- (1) Voltage divider use and operation
  - (2) Digital multimeter
  - (3) Calibration procedure
- 2b. Given appropriate technical data, theoretically troubleshoot a digital multimeter to the faulty component with a minimum of 70% accuracy. STS: 11b(3), 12k(3) Meas.: PC/W
- (1) Schematic analysis of a digital voltmeter
  - (2) Theoretical troubleshooting
- 2c. Given TMDE and technical data, align a digital multimeter with no more than two (2) instructor assists. STS: 12k(2) Meas.: PC/W

#### **4.1.3. Block 1.3. - Differential Voltmeter and Power Supply**

- 1a. Given TMDE and technical data, calibrate a differential voltmeter with no more than three (3) instructor assists. STS: 12e(1), 12f(1), 12r(1), 12r(4) Meas.: PC/W
- 1b. Given appropriate technical data, theoretically troubleshoot a differential voltmeter to a faulty component with a minimum of 70% accuracy. STS: 12r(3) Meas.: PC/W

- 2a. Given TMDE and technical data, perform the power supply calibration procedure with no more than three (3) instructor assists. STS: 12g(1), 12g(4) Meas.: PC/W
- 2b. Given appropriate technical data, theoretically troubleshoot a power supply to a faulty component with a minimum of 70% accuracy. STS: 12g(3) Meas.: PC/W
- 2c. Given TMDE and technical data, align a power supply with no more than two (2) instructor assists. STS: 12g(2) Meas.: PC/W

**4.1.4. Block 1.4 - Advanced Measurements Techniques**

- 1a. Given TMDE and technical data, calibrate an AC voltmeter with no more than two (2) instructor assists. STS: 12d(1), 12u(1), 12u(4), 13h(1), 13j(1) Meas.: PC/W
- 1b. Given TMDE and technical data, align an AC voltmeter with no more than two (2) instructor assists. STS: 12u(2) Meas.: PC/W
- 2a. Given TMDE and technical data, calibrate a test oscillator with no more than three (3) instructor assists. STS: 13h(4), 13k(1), 14a(1), 14g(1) Meas.: PC/W
- 2b. Given TMDE and technical data, align a test oscillator with no more than two (2) instructor assists. STS: 13h(2) Meas.: PC/W
- 3a. Given TMDE and technical data, calibrate a distortion analyzer with no more than three (3) instructor assists. STS: 13k(1), 13k(4) Meas.: PC/W
- 3b. Given TMDE and technical data, align a distortion analyzer with no more than two (2) instructor assists. STS: 13k(2) Meas.: PC/W
- 4a. Given TMDE and technical data, troubleshoot a test oscillator and a distortion analyzer with no more than two (2) instructor assists per item of TMDE. STS: 13h(3), 13k(3), 13t(1) Meas.: PC/W

**4.1.5. Block 1.5 - Oscilloscope Calibration Systems**

- 1a. Given TMDE and technical data, use the time mark generator to generate specified outputs with no more than one (1) instructor assist. STS: 13e(1) Meas.: PC/W

- 1b. Given a time mark generator, TMDE, and technical data, perform selected calibrations with no more than two (2) instructor assists. STS: 13e(4)  
Meas.: PC/W
- 1c. Given appropriate technical data, theoretically troubleshoot the time mark generator to a faulty component with a minimum of 70% accuracy. STS: 13e(3) Meas.: PC/W
- 2a. Given TMDE and technical data, use constant amplitude generator to generate specified outputs with no more than one (1) instructor assist. STS: 13f(1)  
Meas.: PC/W
- 2b. Given a constant amplitude generator, TMDE, and technical data, perform selected calibrations with no more than two (2) instructor assists. STS: 13f(4) Meas.: PC/W
- 2c. Given appropriate technical data, theoretically troubleshoot constant amplitude generator to a faulty component with a minimum of 70% accuracy. STS: 13f(3) Meas.: PC/W
- 3a. Given TMDE and technical data, use a pulse generator to generate specified outputs with no more than one (1) instructor assist. STS: 13d(1) Meas.: PC/W
- 3b. Given a pulse generator, TMDE, and technical data, perform selected calibrations with no more than two (2) instructor assists. STS: 13d(4)  
Meas.: PC/W
- 3c. Given appropriate technical data, theoretically troubleshoot pulse generator to a faulty component with a minimum of 70% accuracy. STS: 11b(3), 13d(3)  
Meas.: PC/W

**4.1.6. Block 1.6 - Oscilloscope and Waveform Analysis**

- 1a. Given TMDE and technical data, use an oscilloscope to measure specified outputs with no more than two (2) instructor assists. STS: 13t(1) Meas.: PC/W
- 1b. Given TMDE and technical data, calibrate an oscilloscope with no more than two (2) instructor assists. STS: 13t(4) Meas.: PC/W
- 1c. Given TMDE and technical data, perform selected alignments of an oscilloscope with no more than two (2) instructor assists. STS: 13t(2)  
Meas.: PC/W

- 1d. Given TMDE and technical data, troubleshoot an oscilloscope to a faulty stage with no more than two (2) instructor assists. STS: 3b, 13t(3) Meas.: PC/W

#### **4.1.7. Block 1.7 - Precise Frequency Measurement**

- 1a. Using applicable technical data, a power meter, a thermistor mount, a frequency synthesizer, and a synthesized sweeper, generate specified signals and measure RF power with no more than three (3) instructor assists. STS: 13i(1), 14c(1), 14e(1) Meas.: PC/W
- 1b. Using applicable technical data, a power meter, a power sensor, and a synthesized sweeper, measure the power level of generated signals with no more than two (2) instructor assists. STS: 14d(1), 14e(1) Meas.: PC/W
- 2a. Given TMDE and applicable technical data, measure the frequency offset of a frequency standard internal oscillator with no more than two (2) instructor assists. STS: 13n(1) Meas.: PC/W
- 2b. Using a frequency counter, TMDE and applicable technical data, perform measurements in selected functions and ranges with no more than two (2) instructor assists. STS: 13r(1) Meas.: PC/W
- 2c. Given TMDE and applicable technical data, calibrate the frequency counter with no more than two (2) instructor assists. STS: 13r(4) Meas.: PC/W
- 2d. Given TMDE and applicable technical data, troubleshoot the frequency counter to the faulty component with no more than three (3) instructor assists. STS: 11b(2), 13r(3) Meas.: PC/W

#### **4.1.8. Block 1.8 - Signal Generation Measurements**

- 1a. Given a signal generator, function generator, and spectrum analyzer, measure specific signal parameters with no more than three (3) instructor assists. STS: 11b(4), 13c(1), 13h(1), 13m(1); 51a(1) and 51a(4) (Attachment 2) Meas.: PC/W
- 1b. Given TMDE and technical information, calibrate a function generator with no more than three (3) instructor assists. STS: 13c(4) Meas.: PC/W
- 1c. Given a signal generator, detector, oscilloscope, and modulation analyzer, measure specific signal parameters of generated signals with no more than two (2) instructor assists. STS: 13l(1), 14g(1), 14h(1) Meas.: PC/W

- 1d. Given TMDE and technical information, calibrate a signal generator with no more than three (3) instructor assists. STS: 13h(4), 13l(1) Meas.: PC/W
- 1e. Given TMDE and technical information, troubleshoot a function generator and signal generator with no more than two (2) instructor assists per generator. STS: 11b(5), 13c(3), 13h(3) Meas.: PC/W
- 1f. Given appropriate technical data, identify the alignment procedures for a function generator with a minimum of 70% accuracy. STS: 13c(2) Meas.: PC/W
- 1g. Given TMDE and technical information, align a signal generator with no more than two (2) instructor assists. STS: 13h(2) Meas.: PC/W

**4.1.9. Block 1.9 - Physical/Dimensional Measurement**

- 1a. Given appropriate technical data, identify selected principles of physical and dimensional measurements with a minimum of 70% accuracy. STS: 11e, 11f, 11g, 11h, 11k, 11l, 11n Meas.: PC/W
  - (1) Temperature
  - (2) Humidity
  - (3) Mass and Weight
  - (4) Linear Dimensions
  - (5) Pressure
  - (6) Vacuum
  - (7) Torque
- 1b. Given appropriate technical data, identify the procedures for calibrating temperature-measuring TMDE with a minimum of 70% accuracy. STS: 15f(1), 15g(1), 15g(4) Meas.: PC/W
  - (1) Use of temperature standards
  - (2) Use of temperature-measuring TMDE
  - (3) Calibration of temperature-measuring TMDE
- 2a. Given a scale, standard weight set, and necessary technical data, calibrate a scale with no more than two (2) instructor assists. STS: 15n(1), 15o(1), 15o(4) Meas.: PC/W
  - (1) Use of Mass/Weight Standards
  - (2) Use of a Scale
  - (3) Calibration of a Scale

- 2b. Given TMDE and necessary technical data, calibrate a micrometer with no more than two (2) instructor assists. STS: 15a(1), 15c(1), 15c(4) Meas.: PC/W
- (1) Use of Gage Blocks and the Optical Flat
  - (2) Use of a Micrometer
  - (3) Calibration of a Micrometer
- 2c. Given a pressure standard, pressure gauges, and necessary technical data, use the pressure standard to calibrate two (2) different pressure gauges with no more than two (2) instructor assists per gauge. STS: 15k(1), 15m(1), 15m(4) Meas.: PC/W
- (1) Use of Pressure Gauges
  - (2) Use of a Pressure Standard
  - (3) Calibration of Pressure Gauges
- 2d. Given a torque tester/mechanical loader, torque wrenches, and necessary technical data, use the torque tester/mechanical loader to calibrate two (2) different types of torque wrenches with no more than two (2) instructor assists per torque wrench. STS: 15r(1), 15s(1), 15s(4) Meas.: PC/W
- (1) Use of Torque Wrenches
  - (2) Use of a Torque Standard
  - (3) Calibration of Torque Wrenches

**4.1.10. Block 1.10 - Standard PMEL Operations**

- 1a. Given appropriate references, identify the duties of AFSC 2P0X1 with at least 70% accuracy. STS: 1b Meas.: PC/W
- 2a. Given appropriate references, identify facts and principles related to a Metrology Laboratory with at least 70% accuracy. STS: 10a Meas.: PC/W
- 3a. Given equipment part numbers and reference data, select the proper publication for maintenance and/or calibration of specific pieces of equipment with no more than one (1) instructor assist. STS: 5a(2), 5a(3) Meas.: PC
- 3b. Given reference material, locate part numbers, stock numbers, and management information necessary for ordering replacement parts with no more than three (3) instructor assists. STS: 5a(4) Meas.: PC/W
- 3c. Identify basic facts of Bench Stock with a minimum of 70% accuracy. STS: 10f Meas.: PC/W

- 3d. Using appropriate references, identify the procedures to initiate a TO improvement report with a minimum of 70% accuracy. STS: 5a(5) Meas.: PC/W
- 4a. Given appropriate technical data, identify basic facts and principles of the Maintenance Data Documentation System with at least 70% accuracy. STS: 8b(1) Meas.: PC/W
- 4b. Given maintenance situations, use the PAMS to process maintenance actions with no more than three (3) instructor assists. STS: 8b(2)(a) Meas.: PC
- 4c. Given calibration scenarios and appropriate references, complete applicable TMDE documentation with no more than two (2) instructor assists. STS: 5b(1), 5b(2) Meas.: PC/W

**4.1.11. Block 1.11 - Mission Ready Certification**

- 1a. Brief the students on the practices and procedures used in a typical PMEL laboratory. STS: NONE MEAS: N/A
  - (1) Class Leader responsibilities
  - (2) TO location
  - (3) Equipment location
  - (4) Connector/cable/tool location
  - (5) Certification label location
  - (6) Test compromise
  - (7) Equipment processing demonstration
- 2a. Calibrate a passive analog multimeter utilizing appropriate test equipment and calibration procedures. STS: 12i(4) Meas.: PC
- 3a. Calibrate a digital multimeter utilizing appropriate test equipment and calibration procedures. STS: 12k(4) Meas.: PC
- 4a. Calibrate a frequency counter utilizing appropriate test equipment and calibration procedures. STS: 13r(4) Meas.: PC
- 5a. Calibrate an oscilloscope utilizing appropriate test equipment and applicable calibration procedure. STS: 13t(4) Meas.: PC
- 6a. Calibrate selected pressure gauges utilizing appropriate test equipment and calibration procedures. STS: 15m(4) Meas.: PC

- 7a. Calibrate selected torque wrenches utilizing appropriate test equipment and calibration procedures. STS: 15s(4) Meas.: PC

**4.2. Advanced Skills Course.** E3ACR2P071 000; Precision Measurement Equipment Laboratory Craftsman

**4.2.1. Block I. - Metrology Management and Operations**

- 2a. Given reference materials, analyze the AFMETCAL Program. STS: 10a  
Meas.: W
- 3a. Given reference materials, analyze the operation and supervision of the PMEL.  
STS: 6d(1), 6e(2) Meas.: W
- 3b. Given reference materials, analyze laboratory production management. STS:  
8c, 8f, Meas.: W
- 4a. Given reference materials, analyze the calibration assistance process. STS:  
6e(1), 6d(2) Meas.: W
- 4b. Given reference materials, describe types of support agreements. STS: 8l  
Meas.: W
- 5a. Given reference materials, identify resource management processes. STS: 6i,  
8m Meas.: W
- 5b. Given reference materials, analyze PMEL supply section's coordination actions  
with base supply. STS: 8g Meas.: W
- 5c. Given reference materials, identify process of DIFM items. STS: 10g  
Meas.: W
- 5d. Given reference materials, analyze management of Depot Level Repairables.  
STS: 8p Meas.: W
- 5e. Given reference materials, analyze management of equipment account. STS:  
8i Meas.: W
- 5f. Given reference materials, explain validation of equipment authorization.  
STS: 6a Meas.: W
- 5g. Given reference materials, describe process to submit a Deficiency Report.  
STS: 9b Meas.: W

- 5h. Given reference materials, identify facts of Report of Survey. STS: 6b, 6c  
Meas: W
- 6a. Given reference materials, analyze the environmental requirements for PMEL facilities. STS: 8h Meas.: W
- 6b. Given reference materials, identify facility requirements of a PMEL. STS: 8r  
Meas.: W
- 7a. Given reference materials, identify safety hazards associated with PMEL.  
STS: 3a Meas.: W
- 7b. Given reference materials, identify records and reports used in conjunction with the PMEL safety program. STS: 3a Meas.: W
- 8a. Given reference materials, analyze facts associated with hazardous materials used in PMEL. STS: 4a Meas.: W
- 8b. Given reference materials, analyze the proper procedures for handling, storing and disposing of hazardous materials. STS: 4b, 4c, 4d Meas.: W
- 8c. Given reference materials, identify the purpose of the Hazard Communication Program. STS: 3a Meas.: W
- 9a. Given reference materials, analyze the PMEL Total Quality Program. STS: 8o Meas.: W
- 9b. Given reference materials, analyze the PMEL Certification process. STS: 8j, 9a Meas.: W
- 10a. Given reference materials, analyze the PMEL training program. STS: 6d(3), 7a, 7b(1), 7b(2), 7b(3) Meas.: W
- 10b. Given reference materials, describe the procedure for completing a RCS: HAF-ILM (SA) 7808 report. STS: 6g, 6h(1) Meas.: W
- 10c. Given reference materials, analyze the process of maintaining a PMEL Publication Library. STS: 5a(6) Meas.: W
- 10d. Given reference materials, identify the process for maintaining a PMEL Technical Order library. STS: 5a(1) Meas.: W

***SECTION C - SUPPORT MATERIALS***

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

## **SECTION D - TRAINING COURSE INDEX**

**1. Purpose.** This section of the CFETP identifies training courses available for the specialty for broadening and expanding career field knowledge. Refer to Education and Training Course Announcement (ETCA), for information on all courses listed in this index.

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

<b>COURSE NUMBER</b>	<b>USER</b>	<b>TITLE</b>	<b>LOCATION</b>
E3AQR2P031	481 AF	Electronic Principles (EP)	Keesler AFB
E3ABR2P031	013 AF	Precision Measurement Equipment Laboratory (PMEL) Apprentice	Keesler AFB
E3ACR2P071	000 AF	Precision Measurement and Calibration Craftsman	Keesler AFB

### **3. Supplemental Courses**

<b>COURSE NUMBER</b>	<b>USER</b>	<b>TITLE</b>	<b>LOCATION</b>
E3AZR2P051	008 AF	Physical Measurement and Calibration	Keesler AFB
E3AZR2P051	045 AF	TACAN/DOD AIMS Diagnostic Principles	Keesler AFB
E3AZR2P051	052 AF	PMEL Automated Maintenance System (PAMS)	Keesler AFB
E3AZR2P051	056 AF	Advanced Calibration, Measurement, and Diagnostics	Keesler AFB
E3AZR2E0000	001 AF	High Reliability Soldering and Connections	Keesler AFB

#### 4. General FTD Courses

The following general FTD courses apply to subject AFSCs and other AFSCs as well.

<b>COURSE NUMBER</b>	<b>USER</b>	<b>TITLE</b>	<b>LOCATION</b>
J4ASF30000	022 AF	Basic Soldering Techniques	982TRG
J6AZU2E066	059 AF	Air Force Maintenance Data Collection System (CAMS) (81 AUTO FORMS)	982TRG

#### 5. Air Force Institute of Advanced Distributed Learning (AFIADL) Courses

<b>COURSE NUMBER</b>	<b>USER</b>	<b>TITLE</b>	<b>LOCATION</b>
2P051A		Precision Measurement and Calibration Journeyman	AFIADL
2P051B		Precision Measurement and Calibration Journeyman	AFIADL
2P071		Precision Measurement and Calibration Craftsman	AFIADL

#### 6. Exportable Courses

<b>COURSE NUMBER</b>	<b>USER</b>	<b>TITLE</b>	<b>LOCATION</b>
J4ANU00036	038 AF	Air Force T.O. System (Gen.)	DL
J4ANU00036	039 AF	Air Force T.O. System (Adv.)	DL
J4ANU00036	058 AF	Air Force Maintenance Data Collection System (CAMS)	DL
J4ANU00036	062	Air Force Maintenance Data Collection System (CAMS) Mid-Level Maintenance Manager's Course	DL

## 7. Courses Under Development/Revision/Deletion

<b>COURSE NUMBER</b>	<b>USER</b>	<b>TITLE</b>	<b>LOCATION</b>
E3ACR2P051 000	AF	PMEL Craftsman	Keesler AFB
E3ABR2P031 013	AF	Precision Measurement Equipment Laboratory (PMEL) Apprentice	Keesler AFB
E3AZR2P051 008	AF	Physical Measurement and Calibration	Keesler AFB
E3AZR2P051 045	AF	TACAN/DOD AIMS Diagnostic Principles	Keesler AFB
E3AZR2P051 049	AF	Fluid Analysis Spectrometer Maintenance/ Calibration (Being discontinued Dec 01)	Keesler AFB
E3AZR2P051 052	AF	PMEL Automated Maintenance System (PAMS)	Keesler AFB
E3AZR2P051 056	AF	Advanced Calibration, Measurement, and Diagnostics	Keesler AFB
E3AZR2P051 XXX		Microwave Measurement and Calibration (New course that may be added)	TBD

***SECTION E - MAJCOM UNIQUE REQUIREMENTS***

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