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PRECISION MEASUREMENT EQUIPMENT LABORATORY



CAREER FIELD EDUCATION AND TRAINING PLAN

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

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

PART I

PREFACE

1. This Career Field Education and Training Plan (CFETP) for AFSC 2P0X1 Precision Measurement Equipment Laboratory (PMEL) Specialty, is a comprehensive education and training document that identifies life-cycle education/training requirements, training support resources, and minimum core task requirements for this 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. Contractors occupying associated positions are encouraged to use Part II to document duty position qualification training.

2. The CFETP consists of two parts. Supervisors will use both parts to plan, manage, and control training. Using guidance provided in the CFETP will ensure individuals in this specialty receive effective and efficient training at the appropriate point in their career. This plan will enable us to train today's work force for tomorrow's jobs.

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 to accomplishing this plan, such as funds, manpower, equipment, and facilities. Section E identifies transition training guide requirements for SSgt through MSgt.

2.2 Part II 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. Part II includes the following: **Section A** contains the course objective list and training standards supervisors will use to determine if Airmen have satisfied training requirements. **Section B** contains the course objective list and the levels they are trained too in the Electronic Principles Course. **Section C** lists all of the training objectives for the PMEL apprentice course. **Section D** identifies the applicable support materials. **Section E** identifies a training course index that supervisors can use to determine if resources are available to support training. Included here are both mandatory and optional courses. **Section F** identifies MAJCOM unique training requirements supervisors can use to determine additional training required for the associated qualification needs. At unit level, supervisors and trainers will use Part II to identify, plan, and conduct training commensurate with the overall goals of this plan.

ABBREVIATIONS/TERMS EXPLAINED

Advanced Training (AT). 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.

Bridge Course. A formal or informal course, which allows the individual to expand their knowledge in another area of expertise.

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.

Certification. A formal indication of an individual's ability to perform a task to required standards.

Certification Official. A person authorized by appropriate commander to determine an individual's ability to perform a task to required standards.

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-, -5-, and 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*.

Course Training Standard (CTS). A formal course document that identifies in board terms the training members will receive in a specific course.

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

Go/No Go Level. In OJT, the stage at which an individual has gained enough skill, knowledge and experience to either be qualified to perform an identified task without assistance, or not.

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.

Maintenance Information System (MIS). Systems and applications that support and enable maintenance business processes. Used to document maintenance actions. Provides maintenance supervisors with products to evaluate organizational effectiveness and to aid in decision-making processes at all levels.

Master Task Listing (MTL). Document maintained within the workcenter that identifies all tasks performed in a workcenter. This includes core, critical position qualification and wartime tasks. This document can be automated.

Master Training Plan (MTP). A comprehensive workcenter training plan that may include MTLs QTPs, AFJQS, CFETP, task breakdowns, commercial publications and any other document that supports training.

Mobile Training Team (MTT). Instructors, trainers, training aids and operational equipment that formal schools send to bases or operating locations used to perform formal training.

Occupational Analysis Report (OAR). 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.

Position Qualification Training. Training designed to qualify an Airman in a specific position and is accomplished after upgrade training.

Proficiency Training. 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.

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.

Standard. An exact value, a physical entity, or abstract concept, established and defined by authority, custom, or common consent, to serve as a reference, model, or rule in measuring quantities or qualities. Standards are used to establish practices or procedures and to evaluate results.

Supplemental Training. Formal, standardized training within an AFS that is in addition to required initial skills training and skill level upgrade training. It may support new/newly assigned equipment, methods, and/or technology.

Training Business Area (TBA) – is a Net-Centric, GCSS-AF IF Web-Based application providing Air Force Warfighters with global, real-time visibility into the technical qualifications, certifications and training status of logistics, communications and information professionals Air Force wide. TBA supports base, wing and work center level training management activities by automating training management business processes. The primary users of TBA will be any personnel directly involved in base level training management and certification activities. TBA is developed and maintained by the Air Force Life Cycle Management Center (AFLCMC) located at Maxwell-Gunter AFB and can be reached at DSN: 596-5771 or via email at: Team4@us.af.mil.

Training Detachment (TD). An AETC detachment that provides maintenance oriented technical training, at an operational location, on specific systems and their aerospace ground equipment. A TD aims to qualify personnel on new equipment or in new techniques and procedures, maintain proficiency and increase skill and knowledge, acquaint personnel with specific systems, and keep personnel aware of changing concepts and requirements.

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 (UGT). 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 AF Career Field Manager and Training Pipeline Manager and AETC Training Pipeline Manager consisting 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. Normally, this training is conducted by AETC at one of the technical training centers. 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. Also, the AFCFM will initiate an annual review of this document to ensure currency and accuracy. MAJCOM representatives and AETC training personnel will identify and coordinate on the career field training requirements. Using the list of courses in Part II, they will eliminate duplicate training. Applicable inputs/changes to this CFETP will be routed to AFMETCAL, 813 Irving-Wick Drive W. Bldg 2, Heath OH, 43056-1199.

SECTION B - CAREER PROGRESSION AND INFORMATION

1. Specialty Description.

1.1. Specialty Summary: Refer to the Air Force Enlisted Classification Directory (AFECD).

1.2. Duties and Responsibilities.

1.2.1. Precision Measurement Equipment Laboratory Apprentice and Journeyman:

Inspects, aligns, troubleshoots, and repairs PMEL standards, common and weapon system peculiar test, measurement, and diagnostic equipment (TMDE). Inspects TMDE for preventive maintenance, cleanliness, and safety requirements. Performs equipment maintenance using theories of operation, block diagrams, schematics, logic trees, and software diagnostics. Isolates malfunctions to component level. Calibrates and certifies TMDE to technical data specifications ensuring traceability to Air Force Reference Standards. Records and reports maintenance data; prepares technical order improvement reports, special training requests, training quality reports, and modification proposals. Tracks equipment warranties. Provides training and manages technical order distributions. Handles, labels, and disposes of hazardous materials and waste according to environmental standards.

1.2.2. Precision Measurement Equipment Laboratory Craftsman: In addition to Apprentice and Journeyman duties and responsibilities, plans, organizes, and coordinates mission support requirements. Collects and analyzes maintenance data and performs trend analysis. Identifies mission essential TMDE and its impact on workload. Coordinates lateral support, command certification, or contract services. Evaluates procedures for storage, inventory, and inspection of property. Provides training and assistance to TMDE users. Maintains PMEL automated management systems (PAMS).

1.2.3. Precision Measurement Equipment Laboratory Superintendent: In addition to Craftsman duties and responsibilities, develops and evaluates workload plans, budget, and support agreements. Manages PMEL quality program (QP) and management system (MS). Submits reports to higher headquarters, maintains a safe working environment.

2. Skill and Career 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. The following narrative and the AFSC 2P0X1 Career Development Flow Charts identify the career skill progression.

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 as task trainers. 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) between 3 and 6 years Time in Service (TIS). 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 quality assurance, shift leader, and element chief. 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. Airmen between 7 – 12 years TIS will be eligible to complete and/or attend the basic and comprehensive 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. Airmen will be eligible to attend the basic Senior Noncommissioned Officer Academy (SNCOA) between 12 and 18 years TIS. SNCOs will be eligible to attend the resident comprehensive SNCOA between 13 and 18 years TIS. 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 be apparent and affordable to reduce duplication of training and eliminate a disjointed approach to training. The following training decisions were made at the career field U&TW held at AFMETCAL, Heath, Ohio, 19 – 21 March 2014:

3.1. Initial Skills Training. A decision was made to revise the resident course. Major changes included the addition of the following training items: The use of the Air Force Calibration Viewer (AFCAV), Metric/English unit conversions, and Pressure conversions. Once the appropriate equipment is procured, the use and calibration of digitizing oscilloscopes will be added. The required level of training was changed on four objectives to better reflect the level of training required by the field at this skill level. There were no elements of training deleted during this U&TW.

3.2. Five-Level Upgrade Training Requirements. The 5-level CDC was revised to update equipment and procedures to reflect what is actually in use in the field. Additionally, a few tasks were realigned from the 7-level to 5-level CDCs to better agree with normal career field progression.

3.3. Seven-Level Upgrade Training Requirements. The 7-level CDC was updated to reflect changes in equipment and procedures taking place in the field. The Process Review will be also be added to the 7-level CDC.

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. Higher Education and Advanced Certification Opportunities. Higher education and advanced certification is a personal choice that is encouraged for the professional development of the entire Enlisted Force. Listed below are some current opportunities:

4.1. Community College of the Air Force (CCAF) Academic Programs. Enrollment in CCAF occurs upon completion of basic military training (BMT). CCAF provides the opportunity to obtain an Associates in Applied Sciences Degree.

4.1.1. 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

4.1.2. 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 initial skills resident training at Keesler AFB satisfies all or part of the technical education requirement.

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

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

4.1.5. 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*.

4.1.6. Program Elective (15 Semester Hours): Satisfied with applicable Technical Education; Leadership, Management, and Military Studies; or General Education subjects and 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 for this specialty.

4.2. AETC Instructor. Individuals desiring to become an AETC Instructor should be actively pursuing an associate's degree. Special duty assignment requires an AETC Instructor candidate to have a CCAF degree or be within one year of completion (45 semester hours). A degreed faculty is necessary to maintain accreditation through the Southern Association of Colleges and Schools.

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

4.4. 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.

4.5. The Electronic Systems Technology (4VHP). This program applies to AFSC 2P0X1.

5. Career Field Path. The career path is shown in Table 5.1.

5.1. Enlisted Career Path. Table 5.1 identifies career milestones for the 2P0X1 Air Force Specialty.

Table 5.1. Enlisted Career Path				
EDUCATION AND TRAINING REQUIREMENTS	GRADE REQUIREMENTS			
	Rank	Average Sew-On	Earliest Sew-On	High Year Of Tenure (HYT)
BASIC MILITARY TRAINING SCHOOL				
APPRENTICE TECHNICAL SCHOOL (3-Skill Level)	Amn	6 months		
	A1C	16 months		
UPGRADE TO JOURNEYMAN (5-Skill Level). - Minimum 12 months on-the-job training. - Complete all 5-level core tasks. - Complete appropriate CDC	Amn	6 months		
	A1C	16 months		
	SrA	3 years	28 months	8 Years
PHASE 1 EPME: AIRMAN LEADERSHIP SCHOOL (ALS) - At least 3 years but no more than 6 years TIS - Must complete and pass Phase 1 to be eligible to enroll in Phase 2 (NCOA) EPME. - Considered Basic and Comprehensive PME				
TRAINER - Qualified and certified to perform task to be trained. - Complete the Air Force Training Course (AFTC).				
UPGRADE TO CRAFTSMAN (7-Skill Level) - Minimum rank of SSgt. - Complete all 5- and 7-level core tasks on one MDS - 12 months OJT. - Complete appropriate CDC	SSgt	7.5 years	3 years	15 Years
	TSgt	12.5 years	5 years	20 Years

<p>PHASE 2 EPME: NONCOMMISSIONED OFFICER ACADEMY (NCOA)</p> <ul style="list-style-type: none"> - At least 7 years, but no more than 12 years TIS - Basic: Airmen must complete and pass Phase 2 via Distance Learning (DL) within one year of enrollment - Comprehensive (resident): <ul style="list-style-type: none"> - Must meet minimum requirements, TIS eligibility, and selected for targeted development: <ol style="list-style-type: none"> 1. TSgts 2. TSgt-selects 3. Non-selects to TSgt across AFSCs, from highest WAPS score descending 				
<p>PHASE 3 EPME: USAF SENIOR NCO ACADEMY (SNCOA)</p> <ul style="list-style-type: none"> -At least 12 years , but no more than 18 years -Basic: Airmen must complete and pass Phase 3 via DL within one year of enrollment. - Comprehensive (resident): <ul style="list-style-type: none"> - Must complete and pass Phase 3, 13-18 years TIS eligibility, and selected for targeted development: <ol style="list-style-type: none"> 1. All SMSgts 2. SMSgt-selects 3. Non-selects to SMSgt across AFSCs, from highest WAPS score descending 	<p>MSgt SMSgt</p>	<p>16 years 19.2 years</p>	<p>8 years 11 years</p>	<p>24 years 26 Years</p>

Table 5.1. Enlisted Career Path				
EDUCATION AND TRAINING REQUIREMENTS	GRADE REQUIREMENTS			
	Rank	Average Sew-On	Earliest Sew-On	High Year Of Tenure (HYT)
<p>UPGRADE TO SUPERINTENDENT (9-Skill Level) - Minimum rank of SMSgt.</p>	CMSgt	21.5 years	14 years	30 Years
<p>CMSGT LEADERSHIP COURSE</p> <ul style="list-style-type: none"> - Basic EPME - Facilitated distance learning - CMSGts who do not complete will be ineligible for reenlistment and will not be offered Senior Leader Development opportunities. 				

SECTION C - SKILL LEVEL TRAINING REQUIREMENTS

1. Purpose. Skill level training requirements in this specialty 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 specific task and knowledge training requirements are identified in the STS at Part II, Section A and B of this CFETP.

2. Specialty Qualification.

2.1. Apprentice Level Training.

2.1.1. Specialty Qualification.

2.1.1.1. Knowledge. Knowledge is mandatory of: electrical, mechanical, physics, optics, and thermal principles; mathematics, and number systems; operating principles, use, care, and repair of TMDE and laboratory standards; analysis and interpretation of technical data, including block, schematic, wiring, and logic diagrams; troubleshooting techniques; metrology program, calibration traceability, metrology techniques, laboratory practices, software, and computer operations principles; use of hand tools; procedures for training, supply, maintenance data collection, QP, command certification, equipment scheduling, production, and materiel control; facility requirements; and support equipment management.

2.1.1.2. Education. Completion of high school or general education development equivalency is mandatory for entry into this specialty. Courses in electronics, physics, trigonometry, algebra, and technical or vocational training in electronics and instrumentation are 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. See attachment 4 of AFECD for additional entry requirements.

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 E3ABR2P031 0B1D Precision Measurement Equipment Laboratory Apprentice. Completion will result in award of the 3-level.

2.2. Journeyman Level Training.

2.2.1. Specialty Qualification.

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, 12 months OJT, and completion of all core tasks.

2.3. Craftsman Level Training.

2.3.1. Specialty Qualification.

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. Same as required for entry into AFSC 2P031.

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.

2.3.3. Implementation. Upgrade to the 7-level will require completion of all AF core tasks, 7-level CDCs, and 12 months OJT as a SSgt selectee/SSgt

2.4. Superintendent Level Training.

2.4.1. Specialty Qualification.

2.4.1.1. Knowledge. In addition to 7-level qualifications, an individual must possess knowledge of concepts and principles in Air and Space Expeditionary Force 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 logistics systems to resolve problems; interservice and interdepartmental support agreements; reimbursement procedures; and AFMETCAL interaction.

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

2.4.2. Training Sources/Resources. Same as required for entry into AFSC 2P031.

2.4.3. Implementation. The 9-level will be awarded after promotion to SMSgt. The 9-level will be awarded after completing MAJCOM requirements, unit OJT, and promotion to SMSgt. Resident graduation of the Senior NCO Academy is a prerequisite for SMSgt sew-on.

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.

2.1. Constraints. There are no constraints in starting the new E3ABR2P031 0B1D apprentice course.

3. Five-Level Training.

3.1. Constraints. New training requirements listed in CTS E3AZR2P051-0A1D will be implemented 120 days after receipt of new equipment. A course resource estimate (CRE) has been routed reflecting the resource constraints for course E3AZR2P051-0A1D supplemental course which are: NIDA Trainer Digital Troubleshooting Kit and NIDA Trainer software license agreement. All other assets required for new training are on hand to include: NIDA Trainer (130E), Digital Multimeter (70/73 III), Function Generator (BK 4001) and Oscilloscope (DPO2012).

There is no impact to manpower. However, it is important to note that the current course is family grouped with the PMEL Apprentice course (E3ABR2P031 0B1D). We are currently working to justify a change to the family group to include only the PMEL Supplemental courses (E3AZR2P051 0A1C, E3AZR2P051 0T1C and E8AUR2P051 0P1A). If the request is approved the course may gain an instructor requirement. This requirement will be transferred from the TACAN course (E3AZR2P051 0T1C) scheduled for discontinuation and will be identified in the Advanced Calibration course training plan.

Once the CRE is approved and assets attained a course training plan (CTP) will be completed within the time frame stated above to bring training online. The OPR for CTP 335 TRS 2P0X1 Training Manger (TM), currently MSgt Antonio R. Washington, and can be reached at: 335trs.ttr@us.af.mil or DSN: 597-0153

4. Seven-Level Training.

4.1. Constraints. None

SECTION E – TRANSITIONAL TRAINING GUIDE- There are no transitional requirements, this area is reserved.

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 first class beginning 141006 and graduating 150413.

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

2.1. Lists in the column 1 (Task, Knowledge, and Technical Reference) the most common tasks, knowledge, and Technical References (TR) necessary for Airmen to perform duties in the 3-, 5-, and 7-skill level. Number task statements sequentially i.e., 1.1, 1.2, and 2.1 Column 2 (Core Tasks) identifies, by asterisk (*), specialty-wide training requirements. These are based on an analysis of the duties in AFECDD. All 3-Level training items are wartime course objectives.

2.2. Provides certification for OJT. Column 3 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. (As a minimum, use the following column designators: Training Complete, Certifier Initials.) When two codes are used in column 4a, 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. Shows formal training and correspondence course requirements. Column 4 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.

2.4. 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.

2.5. Document and certify completion of training IAW AFI 36-2201, Chapter 6 and the approved automated training management system guides. Supervisors, trainers, and trainees must ensure all training documentation is contained within an Airman's Individual Training Plan (ITP).

2.6. Is a guide for development of promotion tests used in the Weighted Airman Promotion System (WAPS). Specialty Knowledge Tests (SKTs) are developed at the AETC Airman Advancement Division, 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 Enlisted Promotions References and Requirements Catalog (EPRRC). Individual responsibilities are in Chapter 1 of AFI 36-2605, AF Military Personnel Testing System.

3. Proficiency Code Keys. Attachment 1 contains the proficiency code key used to indicate level of training and knowledge provided by resident training and CDCs.

4. Recommendations. Comments and recommendations are invited concerning the quality of AETC Training. A Customer Service Information Line (CSIL) has been installed for the supervisors' convenience. For a quick response to concerns call our CSIL at DSN 597-4566, or fax us at DSN 597-3790 or e-mail us at 81trg.tget@us.af.mil. Reference this CFETP/STS and identify the specific area of concern (paragraph, training standard element, etc.

BY THE ORDER OF THE SECRETARY OF THE AIR FORCE

OFFICIAL

JUDITH A. FEDDER
Lieutenant General, USAF
DCS/Logistics, Installations & Mission Support

7 Attachments

1. Qualitative Requirements
2. Training Requirements, Common
3. Training Requirements, Electronic Principles
4. Course Objective List
5. Support Materials
6. Training Course Index
7. MAJCOM Unique Requirements

This Block Is For Identification Purposes Only		
Name Of Trainee		
Printed Name (Last, First, Middle Initial)	Initials (Written)	SSAN
Printed Name Of Certifying Official And Written Initials		
<i>N/I</i>	<i>N/I</i>	
<i>N/I</i>	<i>N/I</i>	
<i>N/I</i>	<i>N/I</i>	
<i>N/I</i>	<i>N/I</i>	
<i>N/I</i>	<i>N/I</i>	
<i>N/I</i>	<i>N/I</i>	
<i>N/I</i>	<i>N/I</i>	
<i>N/I</i>	<i>N/I</i>	
<i>N/I</i>	<i>N/I</i>	

QUALITATIVE REQUIREMENTS

Behavioral Statement STS Coding System	
Code	Definition
K	Subject Knowledge Training - The verb selection identifies the individual's ability to identify facts, state principles, analyze, or evaluate the subject
P	Performance Training - Identifies that the individual has performed the task to the satisfaction of the course; however, the individual may not be capable of meeting the filed requirements for speed and accuracy.
pk	Performance Knowledge Training - The verb selection identifies the individual's ability to relate simple facts, procedures, operating principles, and operational theory for the task.
-	No training provided in the course or CDC.
X	Training is required but not provided due to limitations in resources.
Each STS element is written as a behavioral statement. The detail of the statement and verb selection reflects the level of training provided by resident training and career development courses.	

1. Tasks, Knowledge And Technical References	2. Core Tasks			3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)						
	A	B	C	A	B	C	D	E	A		B		C		
	3 Level	5 Level	7 Level	Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	3 Skill Level (1) Course	3 Skill Level (2) CDC	5 Skill Level (1) Course	5 Skill Level (2) CDC	7 Skill Level (1) Course	7 Skill Level (2) CDC	
1 CAREER LADDER PROGRESSION															
1.1 Progression in career ladder 2P0X1 TR: AFMAN 36-2108, AFI36-2618			*							-	-	-	A	-	-
1.2 Duties of AFSCs 2P031/51/71			*							-	-	-	A	-	-
2 SECURITY TR: AFI 10-701, AFI 10-1101, AFI 31-401															
* 2.1 Specific OPSEC vulnerabilities of AFSC 2P0X1			*							A	-	-	B	-	-
2.2 Physical Security TR: AFD 31-1										-	-	-	A	-	-
3 AF OCCUPATIONAL SAFETY AND HEALTH (AFOSH) PROGRAM TR: AFI 91-203, AFI 91-301; TO 31-1-141-1, TOs 00-25-232, 00-25-234															
* 3.1 Hazards of AFSC 2P0X1 TR: AFOSH Std 161-21; AFI 91-203 other applicable safety directives										A	-	-	A	-	-
* 3.2 Risk Management TR: AFI 90-802, TO 00-25-232, TO 00-25-234										A	-	-	A	-	A
4 HAZARDOUS MATERIALS AND WASTE HANDLING ACCORDING TO ENVIRONMENTAL STANDARDS TR: AFI 32-7042, AFPAM 32-7043, AFI 32-7086, AFI 91-203															
* 4.1 Types of hazardous materials/fluids										A	-	-	B	-	-
* 4.2 Handling procedures										A	-	-	B	-	-
* 4.3 Storage and labeling										A	-	-	B	-	-
4.4 Proper disposal										-	-	-	B	-	-
4.5 Hazardous spills cleanup										-	-	-	B	-	-
5 PUBLICATIONS AND FORMS															
5.1 Maintain										-	-	-	-	-	-
5.1.1 Electronic Technical Information Management System (ETIMS), E-tools TR: TO 00-5-1										-	-	-	-	-	-
5.1.2 TO Libraries TR: TO 00-5-1										-	-	-	-	-	-
5.1.3 Time Compliance Technical Orders (TCTOs) TR: TO 00-5-15										-	-	-	-	-	-
* 5.2 Use indexes to locate publication numbers and titles TR: TO 00-5-1		*								2b	-	-	-	-	-
* 5.3 Use technical information to maintain TMDE TR: Applicable TMDE TOs; Commercial Publications		*								2b	-	-	b	-	-
* 5.4 Research supply data, (supply catalogs, or federal logistics [FEDLOG], or WebFLIS/stock control documents TR: Applicable Supply Publications; MIL-SPECs; Applicable TOs;		*								2b	-	-	-	-	-

1. Tasks, Knowledge And Technical References	2. Core Tasks			3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)					
	A	B	C	A	B	C	D	E	A		B		C	
	3 Level	5 Level	7 Level	Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	3 Skill Level (1) Course	3 Skill Level (2) CDC	5 Skill Level (1) Course	5 Skill Level (2) CDC	7 Skill Level (1) Course	7 Skill Level (2) CDC
D.A.T.A. Series														
* 5.5 Draft TO improvement reports (AFTO Form 22) TR: TO 00-5-1		*							b	-	-	b	-	-
5.6 Complete calibration and correction charts TR: TO 00-20-14		*							-	-	-	-	-	-
* 5.7 Complete TMDE documentation forms TR: TO 00-20-14		*							2b	-	-	-	-	-
* 5.8 AF Form 2005 TR: AFMAN 23-122, AFH 23-123 Vol II Part 1									A	-	-	-	-	-
5.9 Draft Deficiency Reports TR: TO 00-35D-54			*						-	-	-	-	-	a
* 5.10 Equipment Condition Forms and Tags TR: TO 00-20-3		*							B	-	-	-	-	-
* 5.11 Use 33K-1-100-1, 33K-1-100-2, CMS, AFCAV		*							2b	-	-	-	-	-
6 SUPERVISION														
6.1 Conduct initial evaluations for newly assigned personnel TR: AFI 36-2201									-	-	-	-	-	-
6.2 Initiate extension requests for TMDE calibrations TR: TO 00-20-14									-	-	-	-	-	-
6.3 Schedule TR: AFI 21-101, other applicable directives									-	-	-	-	-	-
6.3.1 Work assignments									-	-	-	-	-	-
6.3.2 Work priorities									-	-	-	-	-	-
6.3.3 Other activities (ancillary training, staff meetings and leave time)									-	-	-	-	-	-
6.4 Assign TR: AFI 21-101									-	-	-	-	-	-
6.4.1 Maintenance and repair work									-	-	-	-	-	-
6.4.2 Personnel to positions									-	-	-	-	-	-
6.5 Unit Manning Document, Unit Personnel Management Rosters, and Air Force Manpower Standards TR: AFI 38-201; AFMS 23-11; AFPAM 38-208			*						-	-	-	-	-	B
6.6 USAF Graduate Evaluation Program TR: AFI 36-2201; AFMAN 38-208									-	-	-	B	-	-
6.7 Maintenance Complex Organization									-	-	-	-	-	A
6.8 Interpret TR: TO 00-20-14									-	-	-	-	-	-
6.8.1 Root Cause Analysis			*						-	-	-	-	-	-
6.8.2 Trend Analysis			*						-	-	-	-	-	-
7 TRAINING TR: AFI 36-2201; AFMAN 36-2247														

1. Tasks, Knowledge And Technical References	2. Core Tasks			3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)					
	A	B	C	A	B	C	D	E	A		B		C	
	3 Level	5 Level	7 Level	Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	3 Skill Level		5 Skill Level		7 Skill Level	
									(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
7.1 Training Program responsibilities									-	-	-	-	-	-
7.1.1 Evaluate training requirements									-	-	-	-	-	-
7.1.2 Develop training program									-	-	-	-	-	-
7.2 Supervise Training									-	-	-	-	-	-
7.2.1 Document training									-	-	-	-	-	-
7.2.2 Schedule training									-	-	-	-	-	-
7.3 OJT trainer responsibilities									-	-	-	-	-	-
7.3.1 Prepare training plans and teaching outlines									-	-	-	-	-	-
7.3.2 Conduct training									-	-	-	a	-	-
7.3.3 Provide feedback to supervisor and trainee									-	-	-	-	-	-
8 QUALITY PROGRAM TR: AFI 21-101; TO 00-20-14; 00-5-1/3														
8.1 Evaluate									-	-	-	-	-	-
8.1.1 TO improvement reports									-	-	-	-	-	-
8.1.2 Draft calibration procedures									-	-	-	-	-	-
8.1.3 Calibration responsibility determination reports									-	-	-	-	-	-
8.2 Conduct									-	-	-	-	-	-
8.2.1 QP briefings for newly assigned personnel									-	-	-	-	-	-
8.2.2 On-site PMEL or QP inspection visits									-	-	-	-	-	-
8.2.3 Quality reviews									-	-	-	-	-	b
8.2.4 Root cause analysis									-	-	-	-	-	b
8.2.5 Trend analysis									-	-	-	-	-	b
8.2.6 Process Reviews									-	-	-	-	-	b
8.3 Coordinate deficiency reports with appropriate agencies									-	-	-	-	-	-
8.4 Compile QP data for monthly records, reports, and logs									-	-	-	-	-	-
8.5 Maintain environmental charts and logs									-	-	-	-	-	-
9 PRODUCTION CONTROL TR: AFI 21-101; TO 00-20-14														
9.1 Perform acceptance or receiving inspections of incoming TMDE, including validating part number, documentation, and condition									-	-	-	-	-	-
* 9.2 Schedule equipment into and out of the laboratory TR: AFCSM 21-303V2		*							2b	-	-	-	-	-
9.3 Maintain equipment schedules TR: AFCSM 21-303V2									-	-	-	-	-	-
9.4 Maintain Master TMDE Database			*						-	-	-	-	-	-
9.5 Conduct TMDE coordinator training TR: AFI 21-101; TO 00-20-14									-	-	-	-	-	-
9.6 Ship TMDE TR: AFI 24-203									-	-	-	-	-	-
10 SUPPLY AND EQUIPMENT TR: AFH 23-123; AFI 23-101, AFI 64-117; AFMAN 23-122														

1. Tasks, Knowledge And Technical References	2. Core Tasks			3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)					
	A	B	C	A	B	C	D	E	A		B		C	
	3 Level	5 Level	7 Level	Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	3 Skill Level (1) Course	3 Skill Level (2) CDC	5 Skill Level (1) Course	5 Skill Level (2) CDC	7 Skill Level (1) Course	7 Skill Level (2) CDC
10.1 Certify status of reparable, serviceable, or condemned parts for TMDE									-	-	-	-	-	-
10.2 Coordinate									-	-	-	-	-	-
10.2.1 Government card purchases TR: AFI 64-117									-	-	-	-	-	-
10.2.2 Requisition of equipment									-	-	-	-	-	-
10.2.3 Technical assistance requirements with AFMETCAL, manufacturers, or other PMELs									-	-	-	-	-	-
10.2.4 Turn-in of excess or surplus property with base or other agencies									-	-	-	-	-	-
10.2.5 Supply transactions									-	-	-	-	-	a
10.3 Maintain									-	-	-	-	-	-
10.3.1 Equipment Liaison Office (ELO) accounts									-	-	-	-	-	a
10.3.2 Organizational equipment or supply records									-	-	-	-	-	-
10.3.3 Equipment support plans TR: TO 00-20-14									-	-	-	-	-	a
10.3.4 Transportable field calibration units (TFCUs)/Portable Automatic Test Equipment Calibrator (PATEC) configuration									-	-	-	-	-	-
* 10.4 Bench Stock TR: AFH 23-123									A	-	-	-	-	-
10.5 Validate									-	-	-	-	-	-
10.5.1 Due-In From Maintenance (DIFM) transactions TR: TO 00-20-3									-	-	-	-	-	-
10.5.2 Supply transaction listing rosters									-	-	-	-	-	-
10.5.3 Mission capability (MICAP) conditions									-	-	-	-	-	a
10.5.4 SMR codes TR: TR: TO 00-25-195									-	-	-	a	-	-
11 MANAGEMENT TR: AFCSM 21-303V2; TO 00-20-2, 33K-1-100-1/2														
* 11.1 Maintenance Data Collection System Function									A	-	-	-	-	-
11.2 PMEL Automated Management System (PAMS)									-	-	-	-	-	-
* 11.2.1 Use		*							2b	-	-	-	-	-
11.2.2 Print reports									-	-	-	-	-	-
11.2.3 Management systems									-	-	-	-	-	-
11.3 Environmental conditions (LabEMS) TR: TO 00-20-14									-	-	-	-	-	B
11.4 Laboratory evaluation program TR: TR: TO 00-20-14; AFI 21-113									-	-	-	-	-	B
11.5 TMDE support agreements TR: AFI 25-201; TO 00-20-14; AFI 65-601V1									-	-	-	-	-	B

1. Tasks, Knowledge And Technical References	2. Core Tasks			3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)					
	A	B	C	A	B	C	D	E	A		B		C	
	3 Level	5 Level	7 Level	Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	3 Skill Level (1) Course	3 Skill Level (2) CDC	5 Skill Level (1) Course	5 Skill Level (2) CDC	7 Skill Level (1) Course	7 Skill Level (2) CDC
11.6 Budget TR: AFI 65-601 V1									-	-	-	-	-	A
11.7 Administer Management System TR: TO 00-20-14									-	-	-	-	-	-
11.8 DIFM/Depot Level Repairables (DLR) TR: AFI 23-101 Ch 4; AFH 23-123 Vol 2 Part 1; AFMAN 23-122, Ch 4; TO 00-20-3									-	-	-	A	-	-
11.9 Fraud Waste and Abuse/Zero Overpricing TR: AFI 90-301; AFI 23-101									-	-	-	-	-	-
11.10 PMEL Facility Design Requirements TR: AFMAN 32-1094; TO 00-20-14; AFMAN 32-1084									-	-	-	-	-	-
11.11 Reimbursements TR: AFI 25-201; AFI 65-601 V1									-	-	-	-	-	a
11.12 Preventive Maintenance Inspections TR: TO 00-20-1									-	-	-	-	-	-
11.13 Air Force Inspection System (AFIS)									-	-	-	-	-	A
11.14 Mobility Program									-	-	-	-	-	B
12 LABORATORY PRACTICES														
* 12.1 Policies and Procedures TR: AFI 21-113; TO 00-20-14									A	-	-	B	-	-
* 12.2 Surface Mount Technology (SMT) TR: TO 00-25-234									A	-	-	-	-	-
* 12.3 Cable and Connectors TR: TO 31-10-14; TO 33A1-13-579-1		*							A	-	-	B	-	-
* 12.4 Tools TR: TO 32-1-2; TO 32-1-101; TO 32-1-151; TO 32-1-201									A	-	-	-	-	-
12.5 Exchange Standards TR: 33K-2-11			*						-	-	-	-	-	-
12.6 Proficiency Testing Measurement Assurance Program (PT/MAP) TR: AFI 23-101 Ch 5, Sec 5B; AFH 23-123 Vol 2 Part 1, Sec 5B; AFMAN 23-122, Ch 5, Sec 5B; TO 00-20-14			*						-	-	-	-	-	-
* 12.7 Substitution of TMDE standards TR: TO 00-20-14; TO 33K-1-100-1/2; TO 33K-1-101-CD-1		*							B	-	-	B	-	-
13 JOB RELATED FUNDAMENTALS TR: TO 31-1-141 Series, TO 33A6-4-15-1; Applicable Commercial Manuals														
13.1 Perform Mathematical Calculations and Conversions									-	-	-	-	-	-
* 13.1.1 Power Ratios, Decibels, and dBms									B	-	-	B	-	-
13.1.2 Head Pressure									-	-	-	B	-	-
13.1.3 Trigonometric applications									-	-	-	B	-	-
13.1.4 Absolute, gage, and differential pressures									-	-	-	B	-	-

1. Tasks, Knowledge And Technical References	2. Core Tasks			3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)					
	A	B	C	A	B	C	D	E	A		B		C	
	3 Level	5 Level	7 Level	Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	3 Skill Level (1) Course	(2) CDC	5 Skill Level (1) Course	(2) CDC	7 Skill Level (1) Course	(2) CDC
* 13.1.5 Percents of modulations									B	-	-	-	-	-
13.1.6 Specific gravity of fluids, solids, and gases									-	-	-	B	-	-
13.1.7 Volume, mass and area									-	-	-	B	-	-
13.1.8 Degrees, minutes and seconds conversions									-	-	-	B	-	-
13.1.9 Mass conversions									-	-	-	B	-	-
* 13.1.10 Metric/English unit conversions									B	-	-	-	-	-
* 13.1.11 Pressure conversions									B	-	-	B	-	-
* 13.1.12 Thermocouple millivolt to temperature conversions									B	-	-	B	-	-
* 13.1.13 Error, correction, and correction factors		*							B	-	-	B	-	-
* 13.1.14 Gross, systematic and random errors									B	-	-	B	-	-
* 13.1.15 Interpolating readings, charts, and graphs		*							B	-	-	B	-	-
* 13.1.16 Frequency, Time, and Data Domains									A	-	-	-	-	-
* 13.1.17 Frequency Synthesis									A	-	-	B	-	-
* 13.1.18 Tolerances using equipment specifications		*							B	-	-	B	-	-
13.2 Analysis of measurement results									-	-	-	-	-	-
13.2.1 Microwave measurements, power, attenuation, and voltage standing wave ratios (VSWR)									-	-	-	B	-	-
13.2.2 Phase noise measurements (PNMs)									-	-	-	B	-	-
13.2.3 Signals using data-domain TMDE									-	-	-	-	-	-
* 13.2.4 Uncertainty principles TR: ANSI/NCSS Z-540-3, ISO 17025									B	-	-	-	-	-
13.2.5 Flow calibrations									-	-	-	-	-	-
13.3 General maintenance practices TR: TO 00-25-234									-	-	-	-	-	-
13.3.1 Design or fabricate specialized TMDE test devices, loads, cables, adapters, or test fixtures									-	-	-	-	-	-
13.3.2 Identify or recycle recoverable precious metals									-	-	-	-	-	-
* 13.3.3 Inspect TMDE for loose, foreign or missing objects		*							2b	-	-	-	-	-
* 13.3.4 Inspect or replace common electrical hardware, power plugs or fuses TR: TO 33-1-32		*							2b	-	-	-	-	-
* 13.3.5 Perform preventive maintenance inspections (PMIs)									b	-	-	-	-	-
13.3.6 Perform time compliance technical order (TCTO) process									-	-	-	-	-	a
13.3.7 Solder and Desolder									-	-	-	-	-	-
* 13.3.7.1 Terminal Connection									2b	-	-	-	-	-

1. Tasks, Knowledge And Technical References	2. Core Tasks			3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)					
	A	B	C	A	B	C	D	E	A		B		C	
	3 Level	5 Level	7 Level	Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	3 Skill Level (1) Course	(2) CDC	5 Skill Level (1) Course	(2) CDC	7 Skill Level (1) Course	(2) CDC
* 13.3.7.2 Printed Circuit Board (PCB)									2b	-	-	-	-	-
* 13.3.7.3 Multi-pin Connector									2b	-	-	-	-	-
13.3.8 Assemble Solderless Connectors									-	-	-	-	-	-
* 13.3.8.1 Crimped Connection									2b	-	-	-	-	-
* 13.3.8.2 Coaxial Connector									2b	-	-	-	-	-
* 13.3.8.3 Multi-pin Connector									2b	-	-	-	-	-
13.4 Infrared TR: Specific Equipment TO and /or Commercial Data									-	-	-	-	-	-
* 13.5 Temperature TR: NAVAIR 17-35QAL-2									B	-	-	B	-	-
* 13.6 Humidity TR: NAVAIR 17-35QAL-2									B	-	-	B	-	-
* 13.7 Pressure TR: TO 33-1-19									B	-	-	B	-	-
* 13.8 Vacuum TR: TO 33-1-19									B	-	-	B	-	-
13.9 Vibration TR: TO 33A1-11-39-1(AF75E) Comm Data (9610)									-	-	-	B	-	-
13.10 Force TR: NAVAIR 17-35QAL-2									-	-	-	B	-	-
* 13.11 Torque TR: TO 31B14-3-1-101									B	-	-	B	-	-
* 13.12 Linear Measurement TR: TO 32-1-101; TO 32-1-201									B	-	-	B	-	-
13.13 Angular Measurement TR: TO 32-1-101; TO 32-1-201									-	-	-	B	-	-
* 13.14 Mass and Weight TR: NAVAIR 17-35QAL-2									B	-	-	B	-	-
13.15 Flow TR: NAVAIR 17-35QAL-2									-	-	-	B	-	-
13.16 Density TR: NAVAIR 17-35QAL-2									-	-	-	B	-	-
13.17 Viscosity TR: NAVAIR 17-35QAL-2									-	-	-	-	-	-
13.18 Optics TR: NAVAIR 17-35QAL-9									-	-	-	B	-	-
13.19 Rotary Motion TR: NAVAIR 17-35QAL-2									-	-	-	B	-	-
13.20 Sound TR: TO 33A1-7-206-1 (1551-C); TO 33D7-45-22-1 (2290-9159)									-	-	-	-	-	-
13.21 Spectrum Analysis TR: Specific Equipment TO and/or Commercial Data (HP - 150 Series App Notes)									-	-	-	A	-	B
13.22 ILS/VOR TR: TO 33A1-3-504-1									-	-	-	B	-	-
* 13.23 Troubleshooting Theory									B	-	-	B	-	-
13.24 TACAN									-	-	-	-	-	A

1. Tasks, Knowledge And Technical References	2. Core Tasks			3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)					
	A	B	C	A	B	C	D	E	A		B		C	
	3 Level	5 Level	7 Level	Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
13.25 IFF									-	-	-	-	-	A
13.26 Resistance TR: TO 33A1-12-689-1									-	-	-	B	-	-
13.27 Pulse TR: IEEE STD 181-2003									-	-	-	A	-	-
13.28 High Frequency Synthesis TR: TO 33A1-8-1035-1									-	-	-	A	-	B
13.29 Distortion TR: TO 33A1-5-269-11									-	-	-	B	-	-
13.30 Attenuation TR: TO 33A1-7-59-1, TO 33A1-7-177-1									-	-	-	A	-	-
13.31 Equipment Theory									-	-	-	-	-	-
13.31.1 Voltage Divider TR: TO 33AA22-32-1 (720A); Comm Data (752A)									-	-	-	B	-	-
13.31.2 Meter Calibrator TR: TOs 33A1-12-1362-1 (5700A), 33A1-12-1366-1 (5725A)									-	-	-	A	-	B
13.31.3 Multimeters TR: TO 33A1-12-1215-1 8840A/AF,(34410A)									-	-	-	B	-	-
13.31.4 Function Generator TR: TO 33A1-8-877-1									-	-	-	B	-	-
13.31.5 Oscilloscope Calibrator TR: 33D7-45-111-1									-	-	-	B	-	-
13.31.6 Measuring Receiver TR: Comm Data; N5530S and 8902									-	-	-	A	-	B
13.31.7 Crystal Detector TR: TO 33A1-5-330-1 (423A)									-	-	-	A	-	-
13.31.8 Scales									-	-	-	-	-	-
13.31.8.1 Personnel weighing scales TR: (NIST) Handbook 44									-	-	-	A	-	-
13.31.8.2 Aircraft weighing scales TR: Intercomp Comm data									-	-	-	A	-	-
14 AC/DC ELECTRICAL MEASUREMENT STANDARDS/TMDE TR: TO 33K-1-100-1/2; TO 33K Series														
14.1 Resistance TR: TO 33AA6-13-1(240C); TO 33A1-12-450-1(RS925); TO 33A1-12-689-1 (DB-62); TO 33A1-12-1090-1(242E); Comm Data (SR 1060, 6625AF)														
* 14.1.1 Use		*							2b	-	-	-	-	b
14.1.2 Align									-	-	-	-	-	-
14.1.3 Troubleshoot/Repair									-	-	-	-	-	-
14.1.4 Calibrate			*						-	-	-	-	-	-
14.2 Resistance Measuring System														
14.2.1 Use			*						-	-	-	-	-	a
14.2.2 Align									-	-	-	-	-	-
14.2.3 Troubleshoot/Repair									-	-	-	-	-	-
14.2.4 Calibrate									-	-	-	-	-	-

1. Tasks, Knowledge And Technical References	2. Core Tasks			3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)					
	A	B	C	A	B	C	D	E	A		B		C	
	3 Level	5 Level	7 Level	Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	3 Skill Level (1) Course	3 Skill Level (2) CDC	5 Skill Level (1) Course	5 Skill Level (2) CDC	7 Skill Level (1) Course	7 Skill Level (2) CDC
14.3 Capacitance TR: TO 33A1-12-500-1 (1419A); Comm Data (SS-32, 16380A, 16380C)														
14.3.1 Use		*							-	-	-	a	-	-
14.3.2 Troubleshoot/Repair									-	-	-	-	-	-
14.3.3 Calibrate									-	-	-	-	-	-
14.4 Inductance TR: TO 33A1-1-12-445-1(1482L)														
14.4.1 Use									-	-	-	-	-	-
14.4.2 Troubleshoot/Repair									-	-	-	-	-	-
14.4.3 Calibrate									-	-	-	-	-	-
* 14.5 DC Voltage Divider TR: TO 33AA22-36-1 (720A); Comm Data (752A)		*												
* 14.5.1 Use		*							2b	-	-	-	-	-
14.5.2 Align									-	-	-	-	-	-
14.5.3 Troubleshoot/Repair									-	-	-	-	-	-
14.5.4 Calibrate									-	-	-	-	-	-
14.6 AC Ratio Transformer/Divider TR: TO 33AA22-8-21 (RT5, RT20A); TO 33AA22-15-1(DT72A)														
14.6.1 Use		*							-	-	-	-	-	-
14.6.2 Troubleshoot/Repair									-	-	-	-	-	-
14.6.3 Calibrate									-	-	-	-	-	-
14.7 Capacitance Bridges TR: Comm Data (1621)														
14.7.1 Use									-	-	-	a	-	-
14.7.2 Align									-	-	-	-	-	-
14.7.3 Troubleshoot/Repair									-	-	-	-	-	-
14.7.4 Calibrate									-	-	-	-	-	-
14.8 Kelvin-ratio Bridges TR: TO 33A1-6-153-1 (240C)														
14.8.1 Use									-	-	-	-	-	-
14.8.2 Align									-	-	-	-	-	-
14.8.3 Troubleshoot/Repair									-	-	-	-	-	-
14.8.4 Calibrate									-	-	-	-	-	-
14.9 DC Voltage Standards TR: TO 33D9-39-63-12 (5440B)														
14.9.1 Use TR: Comm Data (5440B)									-	-	-	-	-	-
14.9.2 Align									-	-	-	-	-	-
14.9.3 Troubleshoot/Repair									-	-	-	-	-	-
14.9.4 Calibrate									-	-	-	-	-	-
14.10 AC Voltage Standards TR: TO 33D7-2-54-1 (5205A); TO 33D7- 45-51-1 (5200A); TO 33D7-45-101 (4708)														
14.10.1 Use TR: 33D7-45-51-1 (5200A)									-	-	-	-	-	-
14.10.2 Align									-	-	-	-	-	-
14.10.3 Troubleshoot/Repair									-	-	-	-	-	-
14.10.4 Calibrate									-	-	-	-	-	-

1. Tasks, Knowledge And Technical References	2. Core Tasks			3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)					
	A	B	C	A	B	C	D	E	A		B		C	
	3 Level	5 Level	7 Level	Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	3 Skill Level (1) Course	3 Skill Level (2) CDC	5 Skill Level (1) Course	5 Skill Level (2) CDC	7 Skill Level (1) Course	7 Skill Level (2) CDC
14.11 Power Supply TR: TO 33AA17-110-1 (6202B); TO 35C1-2-177 (6267A); TO 33DA11-75-1 (6434B)														
14.11.1 Use									-	-	-	-	-	-
14.11.2 Align									-	-	-	-	-	-
14.11.3 Troubleshoot/Repair									-	-	-	-	-	-
14.11.4 Calibrate									-	-	-	-	-	-
14.12 Instrument/Electronic Calibrator TR: TOs 33A1-12-1381-8 (5700A), 33A1-2-304-1 (5725A), 33D2-3-27-11 (5320A); Comm Data (5500A/5520A, 5720A)														
* 14.12.1 Use		*							2b	-	-	-	-	-
14.12.2 Align									-	-	-	-	-	-
14.12.3 Troubleshoot/Repair									-	-	-	-	-	-
14.12.4 Calibrate			*						-	-	-	-	-	-
14.13 Analog Passive Multimeter TR: TO 33A1-12-773 (260-AFP1); TO 33A1-12-1187-1 (260-6XLP)														
* 14.13.1 Use									2b	-	-	-	-	-
* 14.13.2 Align									2b	-	-	-	-	-
* 14.13.3 Troubleshoot/Repair									2b	-	-	-	-	-
* 14.13.4 Calibrate									2b	-	-	-	-	-
14.14 High Accuracy Digital Multimeter TR: TOs 33A1-12-1350 (3458A), 33D9-57-119 (8506A), 33A1-12-1386-1 (8508A)														
* 14.14.1 Use		*							2b	-	-	B	-	-
14.14.2 Align									-	-	-	-	-	-
14.14.3 Troubleshoot/Repair									-	-	-	-	-	-
14.14.4 Calibrate			*						-	-	-	-	-	-
14.15 Digital Multimeter TR: TO 33A1-12-1215-1 (8840A/AF), 33A1-12-103-1 (34401A); Comm Data (77 Series, 87 Series)									-					
* 14.15.1 Use		*							2b	-	-	-	-	-
* 14.15.2 Align									2b	-	-	-	-	-
* 14.15.3 Troubleshoot/Repair									b	-	-	-	-	-
* 14.15.4 Calibrate		*							2b	-	-	-	-	-
14.16 Capacitor/Inductor Analyzer TR: Comm Data (LC53, LC75, 1689-9751)														
14.16.1 Use									-	-	-	-	-	-
14.16.2 Align									-	-	-	-	-	-
14.16.4 Troubleshoot/Repair									-	-	-	-	-	-
14.16.3 Calibrate									-	-	-	-	-	-
14.17 Conductivity Meter TR: TO 33C2-90-1 (1152)														
14.17.1 Use									-	-	-	-	-	-
14.17.2 Align									-	-	-	-	-	-
14.17.3 Troubleshoot/Repair									-	-	-	-	-	-
14.17.4 Calibrate									-	-	-	-	-	-

1. Tasks, Knowledge And Technical References	2. Core Tasks			3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)					
	A	B	C	A	B	C	D	E	A		B		C	
	3 Level	5 Level	7 Level	Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	3 Skill Level (1) Course	3 Skill Level (2) CDC	5 Skill Level (1) Course	5 Skill Level (2) CDC	7 Skill Level (1) Course	7 Skill Level (2) CDC
14.18 High Resistance TMDE TR: TO 33A1-12-234-1 (544B); Comm Data (RX-1LM, 6500A, 6517A/AF, 100-H-AF)														
14.18.1 Use									-	-	-	-	-	-
14.18.2 Align									-	-	-	-	-	-
14.18.3 Troubleshoot/Repair									-	-	-	-	-	-
14.18.4 Calibrate									-	-	-	-	-	-
14.19 High Voltage TMDE TR: TO 33A1-12-120 (MD1); 33A1-12-1053-1 (HD 103); TO 33D7-6-315 (ANALM187A); Comm Data (ESMOO, DB40-05)														
14.19.1 Use									-	-	-	-	-	-
14.19.2 Align									-	-	-	-	-	-
14.19.3 Troubleshoot/Repair									-	-	-	-	-	-
14.19.4 Calibrate									-	-	-	-	-	-
14.20 Generator Detector TR: TO 33A1-12-925 (8019)); TO 33D7-22-33 (1238)														
14.20.1 Use									-	-	-	-	-	-
14.20.2 Align									-	-	-	-	-	-
14.20.3 Troubleshoot/Repair									-	-	-	-	-	-
14.20.4 Calibrate									-	-	-	-	-	-
14.21 AC/DC Transfer Standard														
14.21.1 Use		*							-	-	-	a	-	-
14.22 Phase Standard TR: TO 33A1-5-496- (650); TO 33A1-8-822-1 (411); Comm Data (5000/6000, 5500-2)														
14.22.1 Use									-	-	-	a	-	-
14.22.2 Align									-	-	-	-	-	-
14.22.3 Troubleshoot/Repair									-	-	-	-	-	-
14.22.4 Calibrate									-	-	-	-	-	-
14.23 Null Detector TR: TO 33A1-6-115-1 (845); Comm Data (AVM 100)														
14.23.1 Use			*						-	-	-	a	-	-
14.23.2 Align									-	-	-	-	-	-
14.23.3 Troubleshoot/Repair									-	-	-	-	-	-
14.23.4 Calibrate									-	-	-	-	-	-
14.24 Differential Voltmeter TR: TOs 33A1-12-804-11 (931B), 33A1-12-792-11 (887AB)														
14.24.1 Use									-	-	-	-	-	-
14.24.2 Align									-	-	-	-	-	-
14.24.3 Troubleshoot/Repair									-	-	-	-	-	-
14.24.4 Calibrate									-	-	-	-	-	-
14.25 Clamp-on Voltmeter/Ammeter TR: TO 33A1-12-212 (633VA1)														
14.25.1 Use									-	-	-	-	-	-
14.25.2 Align									-	-	-	-	-	-
14.25.3 Troubleshoot/Repair									-	-	-	-	-	-

1. Tasks, Knowledge And Technical References	2. Core Tasks			3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)					
	A	B	C	A	B	C	D	E	A		B		C	
	3 Level	5 Level	7 Level	Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	3 Skill Level (1) Course	(2) CDC	5 Skill Level (1) Course	(2) CDC	7 Skill Level (1) Course	(2) CDC
14.25.4 Calibrate									-	-	-	a	-	-
14.26 Ohmmeter TR: TO 33D5-14-52-1 (620A-4)														
14.26.1 Use									-	-	-	-	-	-
14.26.2 Align									-	-	-	-	-	-
14.26.3 Troubleshoot/Repair									-	-	-	-	-	-
14.26.4 Calibrate									-	-	-	-	-	-
14.27 AC Analog Voltmeter TR: TO 33A1-12-349-31 (400E); TO 33A1-12-643-1 (3400A); TO 33A1-12-1094-1														
* 14.27.1 Use									2b	-	-	-	-	-
* 14.27.2 Align									2b	-	-	-	-	-
14.27.3 Troubleshoot/Repair									-	-	-	-	-	-
* 14.27.4 Calibrate									2b	-	-	-	-	-
14.28 RF Millivoltmeter TR: TO 33A1-12-949-1 (92A-S2); TO 33A1-12-1097-1 (MV823A1)														
14.28.1 Use									-	-	-	-	-	-
14.28.2 Align									-	-	-	-	-	-
14.28.3 Troubleshoot/Repair									-	-	-	-	-	-
14.28.4 Calibrate									-	-	-	-	-	-
14.29 Phase-angle Voltmeter TR: TO 33A1-12-755-1(129880-()); TO 33A1-12-967-(244RS); Comm Data (GS3940())														
14.29.1 Use									-	-	-	-	-	-
14.29.2 Align									-	-	-	-	-	-
14.29.3 Troubleshoot/Repair									-	-	-	-	-	-
14.29.4 Calibrate									-	-	-	-	-	-
14.30 High-voltage Probe/Divider TR: TO 33AA22-31-1 (80F-15); Comm Data (2900A, 80E10, 80K9())														
* 14.30.1 Use									b	-	-	-	-	-
14.30.2 Align									-	-	-	-	-	-
14.30.3 Troubleshoot/Repair									-	-	-	-	-	-
14.30.4 Calibrate									-	-	-	-	-	-
14.31 AC/DC Current Shunt TR: Comm Data (A45/AF, HCF-1AF, 9211, A40B/AF)														
14.31.1 Use			*						-	-	-	-	-	-
14.31.2 Calibrate									-	-	-	-	-	-
14.32 DC Reference Standard TR: TO 33A112-327-1 (9152-4); TO 33A1-12-1385-1 (734A/AF)														
14.32.1 Use			*						-	-	-	-	-	-
14.32.2 Intercompare			*						-	-	-	-	-	a
14.33 Transconductance Amplifier TR: TO 33A1-2-276-1(1620A); Comm Data (8100, 5220)														
14.33.1 Use									-	-	-	-	-	-
14.33.2 Align									-	-	-	-	-	-
14.33.3 Troubleshoot/Repair									-	-	-	-	-	-

1. Tasks, Knowledge And Technical References	2. Core Tasks			3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)					
	A	B	C	A	B	C	D	E	A		B		C	
	3 Level	5 Level	7 Level	Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	3 Skill Level		5 Skill Level		7 Skill Level	
									(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
14.33.4 Calibrate									-	-	-	-	-	-
14.34 Electric Load TR: TO 33DA22-31-11 (EL750())														
14.34.1 Use									-	-	-	-	-	-
14.34.2 Align									-	-	-	-	-	-
14.34.3 Troubleshoot/Repair									-	-	-	-	-	-
14.34.4 Calibrate									-	-	-	-	-	-
14.35 Analog Active Voltmeter TR: 33A1-12-848-1 (427A)														
14.35.1 Use									-	-	-	-	-	-
14.35.2 Align									-	-	-	-	-	-
14.35.3 Troubleshoot/Repair									-	-	-	-	-	-
14.35.4 Calibrate									-	-	-	-	-	-
15 TIME, TIME DOMAIN, FREQUENCY, FREQUENCY DOMAIN, DATA DOMAIN AND WAVEFORM ANALYSIS STANDARDS/TMDE TR: TOs 33K-1-100-1/-2, 33K3 Series														
15.1 Time Domain Reflectometer TR: TO 33A1-4-73 (1502); TO 33A-1- 12 -1155-1 (1503)									-	-	-	-	-	-
15.1.1 Use	*	*	*						-	-	-	-	-	-
15.1.2 Align									-	-	-	-	-	-
15.1.3 Troubleshoot/Repair									-	-	-	-	-	-
15.1.4 Calibrate									-	-	-	-	-	-
15.2 Function Generator TR: TOs 33A1-8-840 (142S527), 33A1-8-877-1 (3325A)									-	-	-	-	-	-
* 15.2.1 Use		*							2b	-	-	-	-	-
* 15.2.2 Align									b	-	-	-	-	-
* 15.2.3 Troubleshoot/Repair									b	-	-	-	-	-
* 15.2.4 Calibrate									2b	-	-	-	-	-
15.3 Pulse TMDE TR: TO 33A1-8-152-1(8551); 33A1-8- 394-1(214A); TO 33A1-8-886- 1(214B); TO 33A1-8-934-1(8112A)									-	-	-	-	-	-
* 15.3.1 Use		*							2b	-	-	-	-	-
15.3.2 Align									-	-	-	-	-	-
15.3.3 Troubleshoot/Repair									-	-	-	-	-	-
15.3.4 Calibrate									-	-	-	-	-	-
15.4 Oscilloscope Calibration System TR: TO 33A1-8-119-1(CG5011); 33D7-45-111-1(9500B/3200AF)									-	-	-	-	-	-
* 15.4.1 Use		*							2b	-	-	-	-	-
15.4.2 Align									-	-	-	-	-	-
15.4.3 Troubleshoot/Repair									-	-	-	-	-	-
15.4.4 Calibrate			*						-	-	-	-	-	-
15.5 Standard Sampling System TR: TOs 33A1-13-687-2 (11801B/C); 33A1-10-315-8-1 (SD-24); Comm Data (067-1413-00, 86100C w/86117A)									-	-	-	-	-	-

1. Tasks, Knowledge And Technical References	2. Core Tasks			3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)					
	A	B	C	A	B	C	D	E	A		B		C	
	3 Level	5 Level	7 Level	Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	3 Skill Level (1) Course	(2) CDC	5 Skill Level (1) Course	(2) CDC	7 Skill Level (1) Course	(2) CDC
15.5.1 Use			*						-	-	-	-	-	a
15.5.2 Align									-	-	-	-	-	-
15.5.3 Troubleshoot/Repair									-	-	-	-	-	-
15.5.4 Calibrate									-	-	-	-	-	-
15.6 Signal Generator/Low Frequency Synthesizer TR: TOs 33A1-8-760-31 (8640B), 33A1-8-895-1 (3335A); Comm Data (9640A/AF); 33A1-8-1081-1 (9610A/AF)									-	-	-	-	-	-
* 15.6.1 Use		*							2b	-	-	-	-	-
* 15.6.2 Align									2b	-	-	-	-	-
* 15.6.3 Troubleshoot/Repair									b	-	-	-	-	-
* 15.6.4 Calibrate		*							2b	-	-	-	-	-
15.7 High Frequency Synthesizer TR: TOs 33A1-8-1059 (8673()); Comm Data (MG3693B(), 68000); Comm Data (E8257D)									-	-	-	-	-	-
* 15.7.1 Use		*							2b	-	-	-	-	-
15.7.2 Align									-	-	-	-	-	-
15.7.3 Troubleshoot/Repair									-	-	-	-	-	-
15.7.4 Calibrate			*						-	-	-	-	-	-
15.8 Feedthrough Load TR: Comm Data									-	-	-	-	-	-
* 15.8.1 Use		*							2b	-	-	-	-	-
15.8.2 Calibrate									-	-	-	-	-	-
15.9 Audio/Distortion Analyzer TR: TOs 33A1-5-503-1(TS4048), 33A1-13-722-1 (8903B)		*							-	-	-	-	-	-
* 15.9.1 Use		*							2b	-	-	-	-	-
* 15.9.2 Align									2b	-	-	-	-	-
* 15.9.3 Troubleshoot/Repair									b	-	-	-	-	-
* 15.9.4 Calibrate									2b	-	-	-	-	-
15.10 Spectrum Analyzer TR: TOs 33A1-13-658-2 (8563()), 33D7-10-129-1 (8566A), (E-Series P/Ns) Comm Data		*							-	-	-	-	-	-
* 15.10.1 Use		*							2b	-	-	-	-	-
15.10.2 Align									-	-	-	-	-	-
15.10.3 Troubleshoot/Repair									-	-	-	-	-	-
15.10.4 Calibrate			*						-	-	-	-	-	-
15.11 Precise Frequency TR: Comm Data (1083B)		*							-	-	-	-	-	-
* 15.11.1 Use		*							2b	-	-	b	-	-
15.11.2 Align									-	-	-	-	-	-
15.11.3 Troubleshoot/Repair									-	-	-	-	-	-
15.12 RF/Microwave Power Amplifiers TR: TO 33A1-2-90 (495A); 33A1-2-223-1 (8447E); TO 33A1-2-229 (8447A); Comm data (5150F, 5349B)									-	-	-	-	-	-
15.12.1 Use									-	-	-	-	-	-
15.12.2 Align									-	-	-	-	-	-

1. Tasks, Knowledge And Technical References	2. Core Tasks			3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)					
	A	B	C	A	B	C	D	E	A		B		C	
	3 Level	5 Level	7 Level	Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	3 Skill Level (1) Course	3 Skill Level (2) CDC	5 Skill Level (1) Course	5 Skill Level (2) CDC	7 Skill Level (1) Course	7 Skill Level (2) CDC
15.12.3 Troubleshoot/Repair									-	-	-	-	-	-
15.12.4 Calibrate									-	-	-	-	-	-
15.13 Comb Generator TR: TO 33A1-5-251(8406A)									-	-	-	-	-	-
15.13.1 Use									-	-	-	-	-	-
15.13.2 Align									-	-	-	-	-	-
15.13.3 Troubleshoot/Repair									-	-	-	-	-	-
15.13.4 Calibrate									-	-	-	-	-	-
15.14 Electronic Counter/Timer TR: TOs 33A1-10-287-1 (1992()), 33A1-10-310-2(53132A); Comm Data (PM6654C/AC)									-	-	-	-	-	-
* 15.14.1 Use		*							2b	-	-	b	-	-
15.14.2 Align									-	-	-	-	-	-
* 15.14.3 Troubleshoot/Repair									b	-	-	-	-	-
* 15.14.4 Calibrate		*							2b	-	-	-	-	-
15.15 Pulse Counter TR: 33A1-10-293 (548())									-	-	-	-	-	-
15.15.1 Use									-	-	-	-	-	-
15.15.2 Align									-	-	-	-	-	-
15.15.3 Troubleshoot/Repair									-	-	-	-	-	-
15.15.4 Calibrate									-	-	-	-	-	-
15.16 Vector Voltmeter TR: TO 33A1-12-1386-1(8405A)									-	-	-	-	-	-
15.16.1 Use									-	-	-	-	-	-
15.16.2 Align									-	-	-	-	-	-
15.16.3 Troubleshoot/Repair									-	-	-	-	-	-
15.16.4 Calibrate									-	-	-	-	-	-
15.17 Thermal Voltage Converters TR: Comm Data (11000 Series)									-	-	-	-	-	-
* 15.17.1 Use		*							2b	-	-	b	-	-
15.17.2 Calibrate									-	-	-	-	-	-
15.18 Oscilloscope, Analog/Digital, Waveform, Digitizing TR: TOs 33A1-13-591-2 (2246); Comm Data (TDS 2014, TDS 5000); 33A1-5-43-11 (LC584AL)									-	-	-	-	-	-
* 15.18.1 Use		*							2b	-	-	b	-	-
* 15.18.2 Align									2b	-	-	-	-	-
* 15.18.3 Troubleshoot/Repair									b	-	-	-	-	-
* 15.18.4 Calibrate									2b	-	-	-	-	-
15.19 Balancer Analyzer TR: Comm Data (8500-C, 9935-2, 9000 Series)									-	-	-	-	-	-
15.19.1 Use									-	-	-	-	-	-
15.19.2 Align									-	-	-	-	-	-
15.19.3 Calibrate									-	-	-	-	-	-
15.20 AM/FM Test Source TR: TO 33A1-8-1121-1 (11715A)									-	-	-	-	-	-
15.20.1 Use									-	-	-	-	-	-
15.20.2 Align									-	-	-	-	-	-
15.20.3 Troubleshoot/Repair									-	-	-	-	-	-

1. Tasks, Knowledge And Technical References	2. Core Tasks			3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)					
	A	B	C	A	B	C	D	E	A		B		C	
	3 Level	5 Level	7 Level	Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	3 Skill Level (1) Course	3 Skill Level (2) CDC	5 Skill Level (1) Course	5 Skill Level (2) CDC	7 Skill Level (1) Course	7 Skill Level (2) CDC
15.20.4 Calibrate									-	-	-	-	-	-
16 MICROWAVE MEASUREMENT STANDARDS/TMDE TR: TO 33K-1-100-1/-2, TO 33K Series; Comm Data														
16.1 Attenuator TR: TO 33AA36-10-1 (8491); TO 33AA36-33-1(8496)									-	-	-	-	-	-
* 16.1.1 Use		*							2b	-	-	-	-	-
16.1.2 Calibrate		*							-	-	-	-	-	-
16.2 Waveguide/Coaxial Directional Coupler TR: TO 33A1-12-1230-1(1852()); TO 33D7-13-17-1(752); 33DA100-5-1(779())									-	-	-	-	-	-
16.2.1 Use									-	-	-	a	-	-
16.2.2 Calibrate									-	-	-	-	-	-
16.3 Thermistor Mount/Power Sensor TR: TO 33A1-9-47 (478A); TO 33A1-9-52 (8778A); TO 33A1-9-54-1 (GIL360); TO 33A1-7-270 (8481A/H); Comm Data (E-Series)									-	-	-	-	-	-
* 16.3.1 Use		*							2b	-	-	b	-	-
16.3.2 Troubleshoot/Repair									-	-	-	-	-	-
16.3.3 Calibrate		*							-	-	-	-	-	-
16.4 Power Meter TR: TO 33A1-7-205- (432A); TO 33A1-7-261-1 (436A); Comm Data (437, 438, E Series, 1830A)		*							-	-	-	-	-	-
* 16.4.1 Use		*							2b	-	-	b	-	-
* 16.4.2 Align									2b	-	-	-	-	-
* 16.4.3 Troubleshoot/Repair		*							b	-	-	-	-	-
* 16.4.4 Calibrate		*							2b	-	-	-	-	-
16.5 Termination TR: TO 33AA7-67-1 (914A/B); TO 33AA7-78-1 (905A)									-	-	-	-	-	-
* 16.5.1 Use									A	-	-	-	-	a
16.5.2 Calibrate									-	-	-	-	-	-
16.6 Noise Source TR: TO 33A-1-6-168-1 (346B)									-	-	-	-	-	-
16.6.1 Use									-	-	-	-	-	-
16.6.2 Calibrate									-	-	-	-	-	-
16.7 Power Divider/Power Splitter TR: TOs 33K4-4-597-1 (1506A), 33K4-4-510-1 (11667A)									-	-	-	-	-	-
16.7.1 Use									-	-	-	-	-	-
16.7.2 Calibrate									-	-	-	-	-	-
16.8 Measuring Receiver TR: TO 33A1-10-296- (8902())									-	-	-	-	-	-
16.8.1 Use									-	-	-	-	-	-
16.8.2 Align									-	-	-	-	-	-
16.8.3 Troubleshoot/Repair									-	-	-	-	-	-
16.8.4 Calibrate									-	-	-	-	-	-

1. Tasks, Knowledge And Technical References	2. Core Tasks			3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)					
	A	B	C	A	B	C	D	E	A		B		C	
	3 Level	5 Level	7 Level	Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	3 Skill Level (1) Course	3 Skill Level (2) CDC	5 Skill Level (1) Course	5 Skill Level (2) CDC	7 Skill Level (1) Course	7 Skill Level (2) CDC
16.9 Detector TR: TO 33A-1-5-330-1 (423A)									-	-	-	-	-	-
* 16.9.1 Use									2b	-	-	-	-	-
16.9.2 Troubleshoot/Repair									-	-	-	-	-	-
16.10 Network Analyzer TR: TO 33D7-10--64 (8411A); TO 33D7-10-186-(85100);TO 33D7-20-45 (8410B), 33D7-10-182 (8757 ())									-	-	-	-	-	-
16.10.1 Use									-	-	-	-	-	-
16.10.2 Align									-	-	-	-	-	-
16.10.3 Troubleshoot/Repair									-	-	-	-	-	-
16.10.4 Calibrate									-	-	-	-	-	-
16.11 Swept Frequency Generator TR: TO 33A1-8-1054-12-1 (8340B); Comm data (8643)									-	-	-	-	-	-
16.11.1 Use									-	-	-	-	-	b
16.11.2 Align									-	-	-	-	-	-
16.11.3 Troubleshoot/Repair									-	-	-	-	-	-
16.11.4 Calibrate									-	-	-	-	-	-
16.12 RF Wattmeter TR: TO 33A-1-5-317 (TS1171AU)									-	-	-	-	-	-
16.12.1 Use									-	-	-	-	-	-
16.12.2 Align									-	-	-	-	-	-
16.12.3 Troubleshoot/Repair									-	-	-	-	-	-
16.12.4 Calibrate									-	-	-	-	-	-
16.13 Wattmeter calibrator TR: TO 33A1-2-268 (SSPAO240-22/6140)									-	-	-	-	-	-
16.13.1 Use									-	-	-	-	-	-
16.13.2 Troubleshoot/Repair									-	-	-	-	-	-
16.14 Use Power Standard TR: TOs 33A1-12-1230-1 (1852()); Comm Data (4421A300)									-	-	-	-	-	-
16.15 Peak Power Calibrator TR: Comm Data (2760)									-	-	-	-	-	-
16.15.1 Use									-	-	-	-	-	-
16.15.2 Align									-	-	-	-	-	-
16.15.3 Troubleshoot/Repair									-	-	-	-	-	-
16.15.4 Calibrate									-	-	-	-	-	-
16.16 Power Meter Calibrator TR: TO 33A1-7-226 (8477A); TO 33D7-45-76-1 (11683A)									-	-	-	-	-	-
* 16.16.1 Use									2b	-	-	-	-	-
16.16.2 Align									-	-	-	-	-	-
16.16.3 Troubleshoot/Repair									-	-	-	-	-	-
16.16.4 Calibrate									-	-	-	-	-	-
16.17 RF Peak Power Meter TR: TO 33A1-7-263-11 (1018B); 33A1-7-299 (8501/8502); Comm Data (4400)									-	-	-	-	-	-
16.17.1 Use									-	-	-	-	-	a
16.17.2 Align									-	-	-	-	-	-
16.17.3 Troubleshoot/Repair									-	-	-	-	-	-
16.17.4 Calibrate									-	-	-	-	-	-

1. Tasks, Knowledge And Technical References	2. Core Tasks			3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)						
	A	B	C	A	B	C	D	E	A		B		C		
	3 Level	5 Level	7 Level	Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	3 Skill Level (1) Course	3 Skill Level (2) CDC	5 Skill Level (1) Course	5 Skill Level (2) CDC	7 Skill Level (1) Course	7 Skill Level (2) CDC	
16.18 Power Measurement Calibration System TR: Comm Data (PMCS)										-	-	-	-	-	-
16.18.1 Use		*								-	-	-	-	-	-
16.18.2 Align										-	-	-	-	-	-
16.18.3 Troubleshoot/Repair										-	-	-	-	-	-
16.18.4 Calibrate										-	-	-	-	-	-
16.19 Phase Noise Measurement System TR: Comm Data (3048MS, E5504B)										-	-	-	-	-	-
16.19.1 Use			*							-	-	-	-	-	a
16.19.2 Align										-	-	-	-	-	-
16.19.3 Troubleshoot/Repair										-	-	-	-	-	-
16.19.4 Calibrate										-	-	-	-	-	-
16.20 Use Waveguide Mount Coupler Set TR: Comm Data (WGMC8-40)										-	-	-	-	-	-
16.21 Use Power Measurement Standard TR: PM2										-	-	-	-	-	-
16.22 Microwave Measurement Receiver/System (MMR/MMS) TR: Comm Data (8902(), N5530SE())										-	-	-	-	-	-
* 16.22.1 Use		*								2b	-	-	-	-	-
16.22.2 Align										-	-	-	-	-	-
16.22.3 Troubleshoot/Repair										-	-	-	-	-	-
16.22.4 Calibrate		*								-	-	-	-	-	-
17 PHYSICAL MEASUREMENT STANDARDS/TMDE TR: TO 33K-100-1/2; TO 33K Series, TO 32-1-201															
17.1 Linear Standards TR: Comm Data (88, GG0635)										-	-	-	-	-	-
* 17.1.1 Use		*								2b	-	-	-	-	-
17.1.2 Calibrate										-	-	-	-	-	-
17.2 Electronic Height Gages TR: Comm Data (212534, 715, 812-())										-	-	-	-	-	-
17.2.1 Use			*							-	-	-	-	-	a
17.2.2 Align										-	-	-	-	-	-
17.2.3 Troubleshoot/Repair										-	-	-	-	-	-
17.2.4 Calibrate										-	-	-	-	-	-
17.3 Supermicrometers TR: Comm Data (2000, Model B, 828, U302556)										-	-	-	-	-	-
17.3.1 Use										-	-	-	-	-	-
17.3.2 Align										-	-	-	-	-	-
17.3.3 Troubleshoot/Repair										-	-	-	-	-	-
17.3.4 Calibrate										-	-	-	-	-	-
17.4 Linear Measuring TMDE TR: Comm Data (T436(), 02-085())										-	-	-	-	-	-
* 17.4.1 Use										2b	-	-	-	-	-
17.4.2 Align										-	-	-	-	-	-
17.4.3 Troubleshoot/Repair										-	-	-	-	-	-
* 17.4.4 Calibrate		*								2b	-	-	-	-	-
17.5 Angular Standards TR: Comm Data (88, 16AA,										-	-	-	-	-	-

1. Tasks, Knowledge And Technical References	2. Core Tasks			3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)					
	A	B	C	A	B	C	D	E	A		B		C	
	3 Level	5 Level	7 Level	Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	3 Skill Level (1) Course	3 Skill Level (2) CDC	5 Skill Level (1) Course	5 Skill Level (2) CDC	7 Skill Level (1) Course	7 Skill Level (2) CDC
S1D23054, 9194, 9195)														
17.5.1 Use									-	-	-	-	-	a
17.5.2 Troubleshoot/Repair									-	-	-	-	-	-
17.5.3 Calibrate									-	-	-	-	-	-
17.6 Angular Measuring TMDE TR: TO 33D9-57-27-1(TB 107A); Comm Data (EMD-832P-50)									-	-	-	-	-	-
17.6.1 Use									-	-	-	-	-	a
17.6.2 Align									-	-	-	-	-	-
17.6.3 Troubleshoot/Repair									-	-	-	-	-	-
17.6.4 Calibrate									-	-	-	-	-	-
17.7 Levels, other than optical levels TR: Comm Data (199)									-	-	-	-	-	-
17.7.1 Use									-	-	-	-	-	-
17.7.2 Align									-	-	-	-	-	-
17.7.3 Troubleshoot/Repair									-	-	-	-	-	-
17.7.4 Calibrate									-	-	-	-	-	-
17.8 Temperature Standards TR: TO 33C3-16-1(3.5B-67248); 33K- 1-104; Comm Data (CS77, PRTs, 5303, 5309, 9210 w/5901)									-	-	-	-	-	-
* 17.8.1 Use		*							b	-	-	-	-	-
17.8.2 Align									-	-	-	-	-	-
17.8.3 Troubleshoot/Repair									-	-	-	-	-	-
17.8.4 Calibrate									-	-	-	-	-	-
17.9 Portable Dry Well Temperature Calibrator TR: Comm Data (9143-A-P; 3605-1- 101)									-	-	-	-	-	-
17.9.1 Use									-	-	-	-	-	-
17.9.2 Calibrate									-	-	-	-	-	-
17.10 Temperature Measuring TMDE TR: TO: 33A1-9-100-1-WA-1 (TTI-7-R); Comm Data (77)									-	-	-	-	-	-
* 17.10.1 Use									b	-	-	-	-	-
17.10.2 Align									-	-	-	-	-	-
17.10.3 Troubleshoot/Repair									-	-	-	-	-	-
* 17.10.4 Calibrate		*							b	-	-	-	-	-
17.11 Humidity Standards TR: TO: 33C3-59-1-WA-1 (2500S and 2500ST); Comm Data (2500)									-	-	-	-	-	-
17.11.1 Use		*							-	-	-	A	-	-
17.11.2 Align									-	-	-	-	-	-
17.11.3 Troubleshoot/Repair									-	-	-	-	-	-
17.11.4 Calibrate			*						-	-	-	-	-	-
17.12 Humidity Measuring TMDE TR: Comm Data (2626S, CT485)									-	-	-	-	-	-
17.12.1 Use		*							-	-	-	a	-	-
17.12.2 Align									-	-	-	-	-	-
17.12.3 Troubleshoot/Repair									-	-	-	-	-	-
17.12.4 Calibrate									-	-	-	-	-	-
17.13 Use Vacuum Standards									-	-	-	-	-	-
17.14 Use High Vacuum Pumping Systems			*						-	-	-	-	b	-

1. Tasks, Knowledge And Technical References	2. Core Tasks			3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)					
	A	B	C	A	B	C	D	E	A		B		C	
	3 Level	5 Level	7 Level	Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	3 Skill Level (1) Course	(2) CDC	5 Skill Level (1) Course	(2) CDC	7 Skill Level (1) Course	(2) CDC
17.15 Vacuum Gages TR: Comm Data (GV3, VT6)									-	-	-	-	-	-
17.15.1 Use									-	-	-	-	-	b
17.15.2 Align									-	-	-	-	-	-
17.15.3 Troubleshoot/Repair									-	-	-	-	-	-
17.15.4 Calibrate									-	-	-	-	-	-
17.16 Pneumatic Pressure Standards TR: Comm Data (3682, PPC2AF, ADC2500)									-	-	-	-	-	-
17.16.1 Use		*							-	-	-	a	-	-
17.16.2 Align									-	-	-	-	-	-
17.16.3 Troubleshoot/Repair									-	-	-	-	-	-
17.16.4 Calibrate			*						-	-	-	-	-	-
17.17 Hydraulic Pressure Standards TR: TO 33A6-4-7-11 (E-DWT-10000-AF); Comm Data (10-10525, HGC-30000-AF)									-	-	-	-	-	-
* 17.17.1 Use		*							2b	-	-	-	-	-
17.17.2 Align									-	-	-	-	-	-
17.17.3 Troubleshoot/Repair									-	-	-	-	-	-
17.17.4 Calibrate									-	-	-	-	-	-
17.18 Primary Pressure Standards TR: TO 33A6-4-15-1 (120X); Comm Data (2465-601-58500, PG7601)									-	-	-	-	-	-
17.18.1 Use			*						-	-	-	-	-	b
17.18.2 Align									-	-	-	-	-	-
17.18.3 Troubleshoot/Repair									-	-	-	-	-	-
17.18.4 Calibrate									-	-	-	-	-	-
17.19 Pneumatic Pressure Gages									-	-	-	-	-	-
17.19.1 Use									-	-	-	-	-	-
17.19.2 Align		*							-	-	-	-	-	-
17.19.3 Troubleshoot/Repair									-	-	-	-	-	-
17.19.4 Calibrate		*							-	-	-	-	-	-
17.20 Hydraulic Pressure Gages									-	-	-	-	-	-
* 17.20.1 Use									2b	-	-	-	-	-
17.20.2 Align		*							-	-	-	-	-	-
17.20.3 Troubleshoot/Repair									-	-	-	-	-	-
* 17.20.4 Calibrate		*							2b	-	-	-	-	-
17.21 Pressure Measuring TMDE/Transducers TR: Comm Data (* Series)									-	-	-	-	-	-
17.21.1 Use									-	-	-	-	-	-
17.21.2 Align									-	-	-	-	-	-
17.21.3 Troubleshoot/Repair									-	-	-	-	-	-
17.21.4 Calibrate									-	-	-	-	-	-
17.22 Mass and Weight Standards TR: Comm Data (1100, S1, MMS)									-	-	-	-	-	-
* 17.22.1 Use		*							2b	-	-	-	-	-
17.22.2 Calibrate									-	-	-	-	-	-
17.23 Scales TR: Comm Data (400 Series, 6437)									-	-	-	-	-	-
* 17.23.1 Use									2b	-	-	-	-	-

1. Tasks, Knowledge And Technical References	2. Core Tasks			3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)					
	A	B	C	A	B	C	D	E	A		B		C	
	3 Level	5 Level	7 Level	Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	3 Skill Level (1) Course	3 Skill Level (2) CDC	5 Skill Level (1) Course	5 Skill Level (2) CDC	7 Skill Level (1) Course	7 Skill Level (2) CDC
17.23.2 Align									-	-	-	-	-	-
17.23.3 Troubleshoot/Repair									-	-	-	-	-	-
* 17.23.4 Calibrate									2b	-	-	-	-	-
17.24 Precision/Analytical Balances TR: Comm Data (PM 30000K, MT5, AT Series,MSU225S-000-DU)									-	-	-	-	-	-
17.24.1 Use									-	-	-	-	-	-
17.24.2 Align									-	-	-	-	-	-
17.24.3 Troubleshoot/Repair									-	-	-	-	-	-
17.24.4 Calibrate									-	-	-	-	-	-
17.25 Tachometer Standards TR: Comm Data (230440-1,H8224-837837)									-	-	-	-	-	-
17.25.1 Use									-	-	-	a	-	-
17.25.2 Align									-	-	-	-	-	-
17.25.3 Troubleshoot/Repair									-	-	-	-	-	-
17.25.4 Calibrate									-	-	-	-	-	-
17.26 Tachometer Measuring TMDE TR: TO 33D2-6-102									-	-	-	-	-	-
17.26.1 Use									-	-	-	-	-	-
17.26.2 Align									-	-	-	-	-	-
17.26.3 Troubleshoot/Repair									-	-	-	-	-	-
17.26.4 Calibrate									-	-	-	-	-	-
17.27 Torque Standards TR: Comm Data (CDI2000, CDT 2400, TTS250AFK)									-	-	-	-	-	-
* 17.27.1 Use		*							2b	-	-	-	-	-
17.27.2 Align									-	-	-	-	-	b
17.27.3 Troubleshoot/Repair									-	-	-	-	-	-
17.27.4 Calibrate			*						-	-	-	-	-	b
17.28 Torque TMDE TR: TO 32B14-3-1-101; TO 32B14-3-4-4									-	-	-	-	-	-
* 17.28.1 Use									2b	-	-	-	-	-
17.28.2 Align		*							-	-	-	-	-	-
17.28.3 Troubleshoot/Repair									-	-	-	-	-	-
* 17.28.4 Calibrate		*							2b	-	-	-	-	-
17.29 Tensiometers TR: TO 33A3-3-2-1 (C Series, T5 Series, 1973TYPE8, 1973TYPE9)									-	-	-	-	-	-
17.29.1 Use									-	-	-	-	-	-
17.29.2 Align									-	-	-	-	-	-
17.29.3 Troubleshoot/Repair									-	-	-	-	-	-
17.29.4 Calibrate									-	-	-	-	-	-
17.30 Use Tensiometer Standard TR: Comm Data (7740000)									-	-	-	-	-	-
17.31 Use Force Standards TR: TO 33C2-75 (800260); Comm Data (DMP40)									-	-	-	-	-	-
17.32 Force Measuring TMDE TR: TO 35B2-2-2(C1); Comm Data (ANC60,AC 30-60, MD400, PT300)									-	-	-	-	-	-
17.32.1 Use									-	-	-	-	-	-

1. Tasks, Knowledge And Technical References	2. Core Tasks			3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)					
	A	B	C	A	B	C	D	E	A		B		C	
	3 Level	5 Level	7 Level	Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	3 Skill Level (1) Course	3 Skill Level (2) CDC	5 Skill Level (1) Course	5 Skill Level (2) CDC	7 Skill Level (1) Course	7 Skill Level (2) CDC
17.32.2 Align									-	-	-	-	-	-
17.32.3 Troubleshoot/Repair									-	-	-	a	-	-
17.32.4 Calibrate		*							-	-	-	-	-	-
17.33 Electronic Leveling System TR: Comm Data (EMD-832P-50-W1)									-	-	-	-	-	-
17.33.1 Use									-	-	-	-	-	-
17.33.2 Align									-	-	-	-	-	-
17.33.3 Troubleshoot/Repair									-	-	-	-	-	-
17.33.4 Calibrate									-	-	-	-	-	-
17.34 Surface plates TR: TO 33A19-51-1 (GGGP463)									-	-	-	-	-	-
17.34.1 Use		*							-	-	-	B	-	-
17.34.2 Calibrate									-	-	-	-	-	-
17.35 Vibration Standards/Pickups TR: TO 33A1-11-39-1 (AF75()); Comm Data (9610)									-	-	-	-	-	-
17.35.1 Use									-	-	-	-	-	-
17.35.2 Align									-	-	-	-	-	-
17.35.3 Troubleshoot/Repair									-	-	-	-	-	-
17.35.4 Calibrate									-	-	-	-	-	-
17.36 Vibration TMDE TR: TO 33A1-11-39-1; Comm Data (33A1-11-39-1 (PBS4100, 4-128-2251)									-	-	-	-	-	-
17.36.1 Use									-	-	-	-	-	-
17.36.2 Align									-	-	-	-	-	-
17.36.3 Troubleshoot/Repair									-	-	-	-	-	-
17.36.4 Calibrate									-	-	-	-	-	-
17.37 Flow Standards TR: Comm Data (FCS-3A-SS-C, FCS-10A, EF3946-FTS)									-	-	-	-	-	-
17.37.1 Use									-	-	-	-	-	B
17.37.2 Align									-	-	-	-	-	-
17.37.3 Troubleshoot/Repair									-	-	-	-	-	-
17.37.4 Calibrate									-	-	-	-	-	-
17.38 Flow TMDE TR: Comm Data (31TA2073-1-(), QAF-24-VWR-1SC)									-	-	-	-	-	-
17.38.1 Use									-	-	-	-	-	-
17.38.2 Align									-	-	-	-	-	-
17.38.3 Troubleshoot/Repair									-	-	-	-	-	-
17.38.4 Calibrate									-	-	-	-	-	-
17.39 Thermocouple Junctions/Calibrators TR: Comm Data (CJ Series, Xitron 2000M, AN6520-4A110, 1140B)									-	-	-	-	-	-
17.39.1 Use		*							-	-	-	-	-	-
17.39.2 Align									-	-	-	-	-	-
17.39.3 Troubleshoot/Repair									-	-	-	-	-	-
17.39.4 Calibrate									-	-	-	-	-	-
17.40 Oxygen TMDE TR: TO 15X-1-102; TO 37C11-1-1									-	-	-	-	-	-
17.40.1 Inspect									-	-	-	b	-	-
17.40.2 Calibrate									-	-	-	-	-	-

1. Tasks, Knowledge And Technical References	2. Core Tasks			3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)						
	A	B	C	A	B	C	D	E	A		B		C		
	3 Level	5 Level	7 Level	Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	3 Skill Level (1) Course	3 Skill Level (2) CDC	5 Skill Level (1) Course	5 Skill Level (2) CDC	7 Skill Level (1) Course	7 Skill Level (2) CDC	
17.41 Boresight Fixtures, other than optical boresight fixtures TR: TO 33DA21-239-1(16A75029-()); TO 33DA21-244-1 (16A74029()); TO 33DA21-272-1(16A75055()); TO 33DA21-295-1(16A75062())										-	-	-	-	-	-
17.41.1 Use										-	-	-	-	-	-
17.41.2 Align										-	-	-	-	-	-
17.41.3 Troubleshoot/Repair										-	-	-	-	-	-
17.41.4 Calibrate										-	-	-	-	-	-
17.42 Small Arms Gages TR: Comm Data (7319994 Series)										-	-	-	-	-	-
17.42.1 Calibrate										-	-	-	-	-	-
17.43 Roundness Machine TR: TO: 33K6-4-3629-1 (GT 50)										-	-	-	-	-	-
17.43.1 Use										-	-	-	-	-	-
17.43.2 Calibrate										-	-	-	-	-	-
17.44 Dial Indicator Calibrator TR: Comm Data (Optimar 100, 400B-5)										-	-	-	-	-	-
17.44.1 Use										-	-	-	-	-	-
17.44.2 Align										-	-	-	-	-	-
17.44.3 Troubleshoot/Repair										-	-	-	-	-	-
17.44.4 Calibrate										-	-	-	-	-	-
18 OPTICAL STANDARDS/TMDE															
18.1 Collimators/Autocollimators TR: Comm Data (714010, D600, TA Series)										-	-	-	-	-	-
18.1.1 Use										-	-	-	-	-	-
18.1.2 Align										-	-	-	-	-	-
18.1.3 Troubleshoot/Repair										-	-	-	-	-	-
18.1.4 Calibrate										-	-	-	-	-	-
18.2 Optical Refractors/Mirrors TR: TO 33B4-8-9-1(2120665); Comm Data (D616,290)										-	-	-	-	-	-
18.2.1 Use										-	-	-	-	-	-
18.2.2 Calibrate										-	-	-	-	-	-
18.3 Optical Clinometer TR: Comm Data (143/43)										-	-	-	-	-	-
18.3.1 Use										-	-	-	-	-	-
18.3.2 Align										-	-	-	-	-	-
18.3.3 Troubleshoot/Repair										-	-	-	-	-	-
18.3.4 Calibrate										-	-	-	-	-	-
18.4 Optical Comparators TR: Comm Data (EPIC30)										-	-	-	-	-	-
18.4.1 Use										-	-	-	-	-	-
18.4.2 Align										-	-	-	-	-	-
18.4.3 Troubleshoot/Repair										-	-	-	-	-	-
18.4.4 Calibrate										-	-	-	-	-	-
18.5 Optical Micrometer TR: Comm Data (71-1112)										-	-	-	-	-	-
18.5.1 Use										-	-	-	-	-	-
18.5.2 Calibrate										-	-	-	-	-	-
18.6 Optical Flats and parallels										-	-	-	-	-	-

1. Tasks, Knowledge And Technical References	2. Core Tasks			3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)					
	A	B	C	A	B	C	D	E	A		B		C	
	3 Level	5 Level	7 Level	Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	3 Skill Level (1) Course	(2) CDC	5 Skill Level (1) Course	(2) CDC	7 Skill Level (1) Course	(2) CDC
TR: Comm Data (D617)														
* 18.6.1 Use		*							2b	-	-	b	-	-
18.6.2 Calibrate									-	-	-	-	-	-
18.7 Theodolites, Transits, Optical and Surveying Levels TR: TO 49A8-4-1(T-2); Comm Data (D626, 75(), TSeries, DT220)									-	-	-	-	-	-
18.7.1 Use									-	-	-	-	-	-
18.7.2 Align									-	-	-	-	-	-
18.7.3 Troubleshoot/Repair									-	-	-	-	-	-
18.7.4 Calibrate									-	-	-	-	-	-
18.8 Short Range Calibrator TR: Comm Data (714010, D600, 270BN)									-	-	-	-	-	-
18.8.1 Use									-	-	-	-	-	-
18.8.2 Align									-	-	-	-	-	-
18.8.3 Troubleshoot/Repair									-	-	-	-	-	-
18.8.4 Calibrate									-	-	-	-	-	-
19 F-15 TMDE TR: Specific Equipment TO and /or Comm Data														
19.1 Control Stick Boost and Pitch Controller (CSBPC) TR: TO 33D2-5-71-1(68D30002-1001); TO 33D2-5-76-1 (68D300041-1001)									-	-	-	-	-	-
19.1.1 Align/Troubleshoot/Repair									-	-	-	-	-	-
19.1.2 Calibrate									-	-	-	-	-	-
19.2 Gun Control Test Set TR: TO 33D5-12-209-1 (68D150015-1001)									-	-	-	-	-	-
19.2.1 Align/Troubleshoot/Repair									-	-	-	-	-	-
19.2.2 Calibrate									-	-	-	-	-	-
19.3 Instrument Landing System (ILS) Test Set TR: TO 33D2-6-207-11 (1993142)									-	-	-	-	-	-
19.3.1 Align/Troubleshoot/Repair									-	-	-	-	-	-
19.3.2 Calibrate									-	-	-	-	-	-
19.4 Input/Output Simulator TR: TO 33D7-8-101 (68D040040-1001)									-	-	-	-	-	-
19.4.1 Use									-	-	-	-	-	-
19.4.2 Troubleshoot/Repair									-	-	-	-	-	-
19.5 Magnetic Azimuth Detector Simulator TR: TO 33D2-8359-1 (2128940)									-	-	-	-	-	-
19.5.1 Align/Troubleshoot/Repair									-	-	-	-	-	-
19.5.2 Calibrate									-	-	-	-	-	-
19.6 Microwave Noise Analyzer TR: TO 33A1-8-792-..3,4 (65704())									-	-	-	-	-	-
19.6.1 Align/Troubleshoot/Repair									-	-	-	-	-	-
19.6.2 Calibrate									-	-	-	-	-	-
19.7 Microwave Synthesizer System (MSS)									-	-	-	-	-	-

1. Tasks, Knowledge And Technical References	2. Core Tasks			3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)					
	A	B	C	A	B	C	D	E	A		B		C	
	3 Level	5 Level	7 Level	Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	3 Skill Level		5 Skill Level		7 Skill Level	
									(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
TR: TO 33DA52-17-1 (WJ1221-23)														
19.7.1 Align/Troubleshoot/Repair									-	-	-	-	-	-
19.7.2 Calibrate									-	-	-	-	-	-
19.8 Modulated Microwave Source (Watkins-Johnson) TR: TO 33A1-8-795-1 (157S409)									-	-	-	-	-	-
19.8.1 Use									-	-	-	-	-	-
19.8.2 Align/Troubleshoot/Repair									-	-	-	-	-	-
19.8.3 Calibrate									-	-	-	-	-	-
19.9 Programmable Waveform Generator TR: TO 33A1-8-795-1 (157S409)									-	-	-	-	-	-
19.9.1 Align/Troubleshoot/Repair									-	-	-	-	-	-
19.9.2 Calibrate									-	-	-	-	-	-
19.10 RF Measurement/Stimuli Drawers TR: TO 33A1-5-417-1 (661004())									-	-	-	-	-	-
19.10.1 Align/Troubleshoot/Repair									-	-	-	-	-	-
19.10.2 Calibrate									-	-	-	-	-	-
19.11 Sampling Waveform Digitizing System (SWDS)									-	-	-	-	-	-
19.11.1 Align/Troubleshoot/Repair									-	-	-	-	-	-
19.12 Supervisory Control System Test Set TR: TO 33D4-6-521-1 (PWA50105())									-	-	-	-	-	-
19.12.1 Align/Troubleshoot/Repair									-	-	-	-	-	-
19.12.2 Calibrate									-	-	-	-	-	-
19.13 Suppressed Carrier Modulator TR: TO 33D7-3-160-8-9-1 (2129664())									-	-	-	-	-	-
19.13.1 Align/Troubleshoot/Repair									-	-	-	-	-	-
19.13.2 Calibrate TR:									-	-	-	-	-	-
19.14 TEWS Intermediate Support System (TISS) TR: TO 33D7-38-251-1 (ANALM-246)									-	-	-	-	-	-
19.14.1 Align/Troubleshoot/Repair									-	-	-	-	-	-
19.15 Transfer Function Analyzer TR: TO 33D7-10-79-1 (1993219); TO 33D7-10-153-1(3594971())									-	-	-	-	-	-
19.15.1 Align/Troubleshoot/Repair									-	-	-	-	-	-
19.15.2 Calibrate									-	-	-	-	-	-
19.16 Waveguide Interlocks TR: TO 33D7-35-58-1 (2142433-1)									-	-	-	-	-	-
19.16.1 Align									-	-	-	-	-	-
19.16.2 Calibrate									-	-	-	-	-	-
19.17 X-Band Signal Source TR: TO 33A1-8-718-4 (2129570-())									-	-	-	-	-	-
19.17.1 Align/Troubleshoot/Repair									-	-	-	-	-	-
19.17.2 Calibrate									-	-	-	-	-	-
19.18 Weapons Control Test Set TR: TO 33D5-3-46-1(AE24T-171); TO33D5-16-72-1(AE24T-169); TO 33D5-30-4-1(AE24T-170)									-	-	-	-	-	-
19.18.1 Align/Troubleshoot/Repair									-	-	-	-	-	-
19.19 Weapons Firing Test Set Stray Voltage Detector									-	-	-	-	-	-

1. Tasks, Knowledge And Technical References	2. Core Tasks			3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)					
	A	B	C	A	B	C	D	E	A		B		C	
	3 Level	5 Level	7 Level	Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	3 Skill Level (1) Course	3 Skill Level (2) CDC	5 Skill Level (1) Course	5 Skill Level (2) CDC	7 Skill Level (1) Course	7 Skill Level (2) CDC
TR: TO 33D5-3-46-1 (AE24T171, ANAWM57)														
19.19.1 Align/Troubleshoot/Repair									-	-	-	-	-	-
19.19.2 Calibrate									-	-	-	-	-	-
19.20 Ignition Test Set TR: TO 33D4-6-515-1 (A/E24T-116)									-	-	-	-	-	-
19.20.1 Align/Troubleshoot/Repair									-	-	-	-	-	-
19.20.2 Calibrate									-	-	-	-	-	-
19.21 IFSS Signal Generator TR: TO 33A1-8-717-1 (1992604)									-	-	-	-	-	-
19.21.1 Align/Troubleshoot/Repair									-	-	-	-	-	-
19.21.2 Calibrate									-	-	-	-	-	-
19.22 Mach Simulator TR: TO 33D4-6-518-1 (AE24T-137)									-	-	-	-	-	-
19.22.1 Use									-	-	-	-	-	-
19.22.2 Align/Troubleshoot/Repair									-	-	-	-	-	-
19.23 Walk-around Test Set TR: TO 33D7-13-88-1 (AN/ALM-231)									-	-	-	-	-	-
19.23.1 Align/Troubleshoot/Repair									-	-	-	-	-	-
19.23.2 Calibrate									-	-	-	-	-	-
19.24 Temperature Control Unit TR: TO 33C3-25-1 (70323-1)									-	-	-	-	-	-
19.24.1 Align/Troubleshoot/Repair									-	-	-	-	-	-
19.24.2 Calibrate									-	-	-	-	-	-
19.25 Phase Sensitive Converter TR: TO 33D7-17-47-1 (1997006())									-	-	-	-	-	-
19.25.1 Align/Troubleshoot/Repair									-	-	-	-	-	-
19.25.2 Calibrate									-	-	-	-	-	-
19.26 AM/FM Signal Generator TR: TO 33A1-8-755-1 (1993120())									-	-	-	-	-	-
19.26.1 Align/Troubleshoot/Repair									-	-	-	-	-	-
19.26.2 Calibrate									-	-	-	-	-	-
19.27 X-Band Signal Generator TR: TO 33A1-8-722-1 (1993126-())									-	-	-	-	-	-
19.27.1 Align/Troubleshoot/Repair									-	-	-	-	-	-
19.27.2 Calibrate									-	-	-	-	-	-
19.28 Precision Synchro Signal Converter (PSSC) TR: TO 33D7-17-74-1 (3597141-), AN/GSM-231)									-	-	-	-	-	-
19.28.1 Align/Troubleshoot/Repair									-	-	-	-	-	-
19.28.2 Calibrate									-	-	-	-	-	-
19.29 Secondary Power System Test Set TR: TO 33D7-38-129-1 (68D170009-1001, AN/ASM-651)									-	-	-	-	-	-
19.29.1 Align/Troubleshoot/Repair									-	-	-	-	-	-
19.29.2 Calibrate									-	-	-	-	-	-
19.30 Microwave Signal Generator TR: TO 33A1-8-720-4 (1993213())									-	-	-	-	-	-
19.30.1 Align/Troubleshoot/Repair									-	-	-	-	-	-
19.30.2 Calibrate									-	-	-	-	-	-
19.31 Fuel Systems TMDE TR: TO 33D-1-101 (68D290049-10001,									-	-	-	-	-	-

1. Tasks, Knowledge And Technical References	2. Core Tasks			3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)					
	A	B	C	A	B	C	D	E	A		B		C	
	3 Level	5 Level	7 Level	Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	3 Skill Level		5 Skill Level		7 Skill Level	
									(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
68D29007-1007, 68D290056-1003)														
19.31.1 Align/Troubleshoot/Repair									-	-	-	-	-	-
19.31.2 Calibrate									-	-	-	-	-	-
19.32 Xmitter Pulse Generator TR: TO 33A1-8-719-1 (1993215-1)									-	-	-	-	-	-
19.32.1 Align/Troubleshoot/Repair									-	-	-	-	-	-
19.32.2 Calibrate									-	-	-	-	-	-
19.33 Data Link Simulator TR: TO 33D7-88-14-1 (3499500-100, ANGJM59)									-	-	-	-	-	-
19.33.1 Align/Troubleshoot/Repair									-	-	-	-	-	-
19.33.2 Calibrate									-	-	-	-	-	-
19.34 TISS Standard Mismatch Equipment TR: TO 33D7-50-1193-1-1 (C280- 112/113/192/193)									-	-	-	-	-	-
19.34.1 Align									-	-	-	-	-	-
19.34.2 Calibrate									-	-	-	-	-	-
19.35 Microwave Signal Switching Unit (MSSU) TR: TO 33DA86-57-1 (6406804-1)									-	-	-	-	-	-
19.35.1 Align/Troubleshoot/Repair									-	-	-	-	-	-
19.35.2 Calibrate									-	-	-	-	-	-
19.36 Special Test Station Support Equipment Low Noise Test System TR: Comm Data (8780A-K21)									-	-	-	-	-	-
19.36.1 Use									-	-	-	-	-	-
19.36.2 Align/Troubleshoot/Repair									-	-	-	-	-	-
19.36.3 Calibrate									-	-	-	-	-	-
19.37 Flight Director Test Set TR: TO 33D3-4-150-1 (662-0846-001, 980L1-1A)									-	-	-	-	-	-
19.37.1 Use									-	-	-	-	-	-
19.37.2 Align									-	-	-	-	-	-
19.37.3 Calibrate									-	-	-	-	-	-
19.38 Electronic Test Set TR: TO 33D7-38-215-2 (AN/USN-603)									-	-	-	-	-	-
19.38.1 Align/Troubleshoot/Repair									-	-	-	-	-	-
19.39 AFCS System Test Set TR: TO 33D3-9-166-1 (AN/ASM-497)									-	-	-	-	-	-
19.39.1 Align/Troubleshoot/Repair									-	-	-	-	-	-
20 F-15E PECULIAR ITEMS TR: Specific Equipment TO and /or Comm Data														
20.1 STORES Management/Fire Control Subsystem TR: TO 33D5-63-5-1 (AE24T-197); TO 33D5-12-231-1 (AE24T-198)									-	-	-	-	-	-
20.1.1 Align/Troubleshoot/Repair									-	-	-	-	-	-
20.2 RF Power Test Set TR: TO 33D5-12-152-1- (TS2059AWM18)									-	-	-	-	-	-
20.2.1 Align/Troubleshoot/Repair									-	-	-	-	-	-
20.2.2 Calibrate									-	-	-	-	-	-

1. Tasks, Knowledge And Technical References	2. Core Tasks			3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)						
	A	B	C	A	B	C	D	E	A		B		C		
	3 Level	5 Level	7 Level	Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	3 Skill Level	5 Skill Level	7 Skill Level	(1) Course	(2) CDC	(1) Course	(2) CDC
									(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC	
20.3 Calibration Module TR: TO33D7-33-247-1 (654334-1)									-	-	-	-	-	-	
20.3.1 Align/Troubleshoot/Repair									-	-	-	-	-	-	
20.3.2 Calibrate									-	-	-	-	-	-	
20.4 Remote Map reader PIU TR: TO 33D7-50-1297-1 (A05G052-1)									-	-	-	-	-	-	
20.4.1 Align/Troubleshoot/Repair									-	-	-	-	-	-	
20.4.2 Calibrate									-	-	-	-	-	-	
20.5 Air Inlet Control PIU TR: TO 33D7-50-1439-1 (A05G0529-1)									-	-	-	-	-	-	
20.5.1 Align/Troubleshoot/Repair									-	-	-	-	-	-	
20.5.2 Calibrate									-	-	-	-	-	-	
20.6 Air Data Computer TR: TO 3D7-50-1426-1(A05G0530-1)									-	-	-	-	-	-	
20.6.1 Align/Troubleshoot/Repair									-	-	-	-	-	-	
20.6.2 Calibrate									-	-	-	-	-	-	
20.7 UHF Receiver-Transmitter PIU TR: TO 33D7-50-1474-1 (A05G0531-1)									-	-	-	-	-	-	
20.7.1 Align/Troubleshoot/Repair									-	-	-	-	-	-	
20.7.2 Calibrate									-	-	-	-	-	-	
20.8 IFF Receiver-Transmitter PIU TR: TO 33D7-50-1401-1 (A05G0533-1)									-	-	-	-	-	-	
20.8.1 Align/Troubleshoot/Repair									-	-	-	-	-	-	
20.8.2 Calibrate									-	-	-	-	-	-	
20.9 TACAN Unit PIU TR: TO 33D7-50-1400-1 (A06G2869-1)									-	-	-	-	-	-	
20.9.1 Align/Troubleshoot/Repair									-	-	-	-	-	-	
20.9.2 Calibrate									-	-	-	-	-	-	
20.10 ILS Unit PIU TR: TO 33D7-50-1341-1 (A05G0535-1)									-	-	-	-	-	-	
20.10.1 Align/Troubleshoot/Repair									-	-	-	-	-	-	
20.10.2 Calibrate									-	-	-	-	-	-	
20.11 Antenna Noise Analyzer TR: TO 33D7-10-76-1 (1992518-4)									-	-	-	-	-	-	
20.11.1 Align/Troubleshoot/Repair									-	-	-	-	-	-	
20.11.2 Calibrate									-	-	-	-	-	-	
20.12 Guided Missile Launcher Test Set TR: TO 33D9-45-34-1 (AE24T-140)									-	-	-	-	-	-	
20.12.1 Align/Troubleshoot/Repair									-	-	-	-	-	-	
20.12.2 Calibrate									-	-	-	-	-	-	
20.13 Armament System Test Set TR: TO 33D5-12-208-1 (AN/AWM-72)									-	-	-	-	-	-	
20.13.1 Align/Troubleshoot/Repair									-	-	-	-	-	-	
20.14 Coolant Processing Unit TR: TO 33D7-35-58-2 (3598386-3)									-	-	-	-	-	-	
20.14.1 Align/Troubleshoot/Repair									-	-	-	-	-	-	
20.14.2 Calibrate									-	-	-	-	-	-	
20.15 Microwave Interfaces TR: Comm Data (6457373-1)									-	-	-	-	-	-	

1. Tasks, Knowledge And Technical References	2. Core Tasks			3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)						
	A	B	C	A	B	C	D	E	A		B		C		
	3 Level	5 Level	7 Level	Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	3 Skill Level	5 Skill Level	7 Skill Level	(1) Course	(2) CDC	(1) Course	(2) CDC
									(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC	
20.15.1 Align/Troubleshoot/Repair									-	-	-	-	-	-	
20.15.2 Calibrate									-	-	-	-	-	-	
21 F-16 TMDE TR: Specific Equipment TO and /or Comm Data															
21.1 Avionics Multiplexers (AMUX) TR: TO 33D7-45-73-1 (624-)									-	-	-	-	-	-	
21.1.1 Align/Troubleshoot/Repair									-	-	-	-	-	-	
21.1.2 Calibrate									-	-	-	-	-	-	
21.2 Emergency Power Unit (EPU) Test Set TR: TO 33D7-38-102-1 (912476-())									-	-	-	-	-	-	
21.2.1 Align/Troubleshoot/Repair									-	-	-	-	-	-	
21.2.2 Calibrate									-	-	-	-	-	-	
21.3 Permissive Action Link/Unique Signal Generator Multiplexer (PAL/USG/MUX) TR: TO 33D7-45-60-1 (568-())									-	-	-	-	-	-	
21.3.1 Align/Troubleshoot/Repair									-	-	-	-	-	-	
21.4 Preload Armament Circuit Test Set TR: TO 33D5-3-47-1 (16U75060-())									-	-	-	-	-	-	
21.4.1 Align/Troubleshoot/Repair									-	-	-	-	-	-	
21.4.2 Calibrate									-	-	-	-	-	-	
21.5 STORES Management System (SMS) Breakout Box TR: TO 33D7-45-59-1 (16UE75517-())									-	-	-	-	-	-	
21.5.1 Align/Troubleshoot/Repair									-	-	-	-	-	-	
21.5.2 Calibrate									-	-	-	-	-	-	
21.6 STORES Management System (SMS) TR: TOs 33D5-63-3-1 (16U75501-()), 33D5-63-23-1 (SST)									-	-	-	-	-	-	
21.6.1 Align/Troubleshoot/Repair									-	-	-	-	-	-	
21.6.2 Calibrate									-	-	-	-	-	-	
21.7 STORES Release Equipment (SRE) TR: TOs 33D5-63-2-1 (16U75500-()), 33D5-63-23-1 (SST)									-	-	-	-	-	-	
21.7.1 Align/Troubleshoot/Repair									-	-	-	-	-	-	
21.7.2 Calibrate									-	-	-	-	-	-	
21.8 Electrical Engine Test Set TR: TO 33D2-3-98-1 (729900)									-	-	-	-	-	-	
21.8.1 Align/Troubleshoot/Repair									-	-	-	-	-	-	
21.8.2 Calibrate									-	-	-	-	-	-	
21.9 Brake Pressure Test Set TR: TO 33D2-23-25-1 (11971D100, AF13024LM1, 91-284-6525, 900RTM14A25-1)									-	-	-	-	-	-	
21.9.1 Align/Troubleshoot/Repair									-	-	-	-	-	-	
21.9.2 Calibrate									-	-	-	-	-	-	
21.10 EPU Sensing Monitor TR: TO 33D7-86-26-1 (16U42554-1)									-	-	-	-	-	-	
21.10.1 Align/Troubleshoot/Repair									-	-	-	-	-	-	
21.10.2 Calibrate									-	-	-	-	-	-	
21.11 Display Monitor									-	-	-	-	-	-	

1. Tasks, Knowledge And Technical References	2. Core Tasks			3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)						
	A	B	C	A	B	C	D	E	A		B		C		
	3 Level	5 Level	7 Level	Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	3 Skill Level (1) Course	(2) CDC	5 Skill Level (1) Course	(2) CDC	7 Skill Level (1) Course	(2) CDC	
TR: TO 33D7-38-103-1 (7953A77-())															
21.11.1 Troubleshoot/Repair										-	-	-	-	-	-
21.12 Service Life Monitor Test Set TR: TO 33D7-38-103-1 (7953877-())										-	-	-	-	-	-
21.12.1 Align/Troubleshoot/Repair										-	-	-	-	-	-
21.12.2 Calibrate										-	-	-	-	-	-
21.13 Engine Warning Test Set TR: TO 33D2-19-12-1 (16U23510-())										-	-	-	-	-	-
21.13.1 Align/Troubleshoot/Repair										-	-	-	-	-	-
21.13.2 Calibrate										-	-	-	-	-	-
21.14 INU Battery Tester TS TR: TO 35C3-2-82-1 (16U74512-())										-	-	-	-	-	-
21.14.1 Use										-	-	-	-	-	-
21.14.2 Align/Troubleshoot/Repair										-	-	-	-	-	-
21.14.3 Calibrate										-	-	-	-	-	-
22 SPECIAL TMDE TR: 33K-1-100-1, 33K Series															
22.1 Combustible/Toxic Gas Alarms/Analyzers TR: TR: Com Data (PGM-50Series), TO 11H5-35-1 (514M)										-	-	-	-	-	-
22.1.1 Align/Troubleshoot/Repair										-	-	-	-	-	-
22.1.2 Calibrate										-	-	-	-	-	-
22.2 TACAN Test Set TR: TR: TO 33D2-8-382-1 (AN/ARM-188); TO 33D2-8-382-11(TR-100)										-	-	-	-	-	-
22.2.1 Align/Troubleshoot/Repair										-	-	-	-	-	-
22.2.2 Calibrate										-	-	-	-	-	-
22.3 ILS/VOR Standards TR: Comm Data (5401, CIVS, ZIFOR)										-	-	-	-	-	-
22.3.1 Use										-	-	-	-	-	-
22.3.2 Align/Troubleshoot/Repair										-	-	-	-	-	-
22.3.3 Calibrate										-	-	-	-	-	-
22.4 ILS/VOR Test Sets TR: TR: TO 33A1-3-504 (622-2211-002); TO 33D7-71-52-1 (AN/ARM-201)										-	-	-	-	-	-
22.4.1 Align/Troubleshoot/Repair										-	-	-	-	-	-
22.4.2 Calibrate										-	-	-	-	-	-
22.5 IFF/SIF Transponder Test Set TR: TR: TO 33A1-3-358-31 (TS-4330/UPM); Com data (01-1045-70); Comm Data AN/APM480); TO 33D7-13-245-1 (FT1000-14A)										-	-	-	-	-	-
22.5.1 Align/Troubleshoot/Repair										-	-	-	-	-	-
22.5.2 Calibrate										-	-	-	-	-	-
22.6 Engine Trim Boxes, JetCal Test Set TR: TR: TO 33D3-21 (281069-1); TO 33D4-6-555-4 (BH112JB40); TO 33D7-3-175-11 (H301-())										-	-	-	-	-	-
22.6.1 Align/Troubleshoot/Repair										-	-	-	-	-	-
22.6.2 Calibrate										-	-	-	-	-	-
22.7 Aircraft Engine Test Stand, Test										-	-	-	-	-	-

1. Tasks, Knowledge And Technical References	2. Core Tasks			3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)					
	A	B	C	A	B	C	D	E	A		B		C	
	3 Level	5 Level	7 Level	Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	3 Skill Level		5 Skill Level		7 Skill Level	
									(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
Stand Calibration Trailer TR: TR: TO 00-25-238; TO 33D4-6-212-44 (AM37T-20, AM 37T-21); TO 33D4-6-680-1 (A/M99T2)														
22.7.1 Use									-	-	-	-	-	-
22.7.2 Align/Troubleshoot/Repair									-	-	-	-	-	-
22.7.3 Calibrate									-	-	-	-	-	-
22.8 Munitions Test Set TR: TO 33D5-24-14-2 (AN/GJM-55); Comm Data (AN/GJM-64)									-	-	-	-	-	-
22.8.1 Align/Troubleshoot/Repair									-	-	-	-	-	-
22.8.2 Calibrate									-	-	-	-	-	-
22.9 Air Data/Environmental Test Sets TR: TR: TO 33D2-39-26-1 (TTU415()); TO 33D7-3-60-() (TTU205())									-	-	-	-	-	-
22.9.1 Use									-	-	-	-	-	-
22.9.2 Align/Troubleshoot/Repair									-	-	-	-	-	-
22.9.3 Calibrate									-	-	-	-	-	-
22.10 Radio Test Set/Telecommunications Service Monitor TR: TR: 33A1-12-1420-1 (TS-4317-1) (TS-4317/GRM), 33D7-4-87-1 (2947)									-	-	-	-	-	-
22.10.1 Align/Troubleshoot/Repair									-	-	-	-	-	-
22.10.2 Calibrate									-	-	-	-	-	-
22.11 Telecommunication TMDE TR: TR: TO 33A1-3-120-1 (AM-48); TO 33A1-13-505-1 (3551A)									-	-	-	-	-	-
22.11.1 Align/Troubleshoot/Repair									-	-	-	-	-	-
22.11.2 Calibrate									-	-	-	-	-	-
22.12 Missile Guidance TMDE TR: TO 33D5-12-187-1 (AN/ASM-184)V2); TO 33D9-54-62-1 (AN/DSM-157), 33D9-61-39-1 (AN/DSM-129); Comm Data (TS4044(), AN/DSM-162))									-	-	-	-	-	-
22.12.1 Use									-	-	-	-	-	-
22.12.2 Align/Troubleshoot/Repair									-	-	-	-	-	-
22.12.3 Calibrate									-	-	-	-	-	-
22.13 Doppler radar TMDE/Radar Guns TR: Comm Data (K-15, KR10SP, S900-12)									-	-	-	-	-	-
22.13.1 Use									-	-	-	-	-	-
22.13.2 Troubleshoot/Repair									-	-	-	-	-	-
22.13.3 Calibrate									-	-	-	-	-	-
22.14 Sound Calibration System TR: Comm Data (U9801, QC-10)									-	-	-	-	-	-
22.14.1 Use									-	-	-	-	-	-
22.14.2 Align/Troubleshoot/Repair									-	-	-	-	-	-
22.14.3 Calibrate									-	-	-	-	-	-
22.15 Sound/Audio TMDE TR: Comm Data (9DB310, DB3100, MK ())									-	-	-	-	-	-
22.15.1 Use									-	-	-	-	-	-
22.15.2 Align/Troubleshoot/Repair									-	-	-	-	-	-

1. Tasks, Knowledge And Technical References	2. Core Tasks			3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)					
	A	B	C	A	B	C	D	E	A		B		C	
	3 Level	5 Level	7 Level	Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	3 Skill Level (1) Course	(2) CDC	5 Skill Level (1) Course	(2) CDC	7 Skill Level (1) Course	(2) CDC
22.15.3 Calibrate										-	-	-	-	-
22.16 Infrared Target Simulator TMDE TR: TO 33D9-14-70-1 (SM787DSM)										-	-	-	-	-
22.16.1 Align/Troubleshoot/Repair										-	-	-	-	-
22.16.2 Calibrate										-	-	-	-	-
22.17 Interrogator/Transponder Electronic Warfare Systems TMDE TR: TO 33D7-8-115-1 (AN/APM-427); Comm Data (AN/PLM-4)										-	-	-	-	-
22.17.1 Use										-	-	-	-	-
22.17.2 Align/Troubleshoot/Repair										-	-	-	-	-
22.17.3 Calibrate										-	-	-	-	-
22.18 LANTIRN Support Equipment TR: TO 33D7-45-90-8-1 (AN/AAM82)										-	-	-	-	-
22.18.1 Use										-	-	-	-	-
22.18.2 Align/Troubleshoot/Repair										-	-	-	-	-
22.19 Countermeasures Test Set TR: TO 33D7-13-75 (AN/ALM-177()); TO 33D7-13-288-1 (AN/ALM-177()); Comm Data (AN/ALM-233C)										-	-	-	-	-
22.19.1 Use										-	-	-	-	-
22.19.2 Align/Troubleshoot/Repair										-	-	-	-	-
22.19.3 Calibrate										-	-	-	-	-
22.20 Angle Position Indicator TR: TO 33AA45-7 (8300()); TO 33D7-20-72-1 (545A)										-	-	-	-	-
22.20.1 Use										-	-	-	-	-
22.20.2 Align/Troubleshoot/Repair										-	-	-	-	-
22.20.3 Calibrate										-	-	-	-	-
22.21 Synchro/Resolver Standard TR: TO 33D2-8-302 (A202A5); TO 33D7-8-98-1 (530S741)										-	-	-	-	-
22.21.1 Use										-	-	-	-	-
22.21.2 Align/Troubleshoot/Repair										-	-	-	-	-
22.21.3 Calibrate										-	-	-	-	-
22.22 Fuel Quantity Test Sets TR: TO 33D2-3-86 (GTF6), PSD(-)										-	-	-	-	-
22.22.1 Align/Troubleshoot/Repair										-	-	-	-	-
22.22.2 Calibrate										-	-	-	-	-
22.23 RF Transmission Line Test Set TR: TR: 33A1-5-516-1 (8949101-50)										-	-	-	-	-
22.23.1 Use										-	-	-	-	-
22.23.2 Align/Troubleshoot/Repair										-	-	-	-	-
22.23.3 Calibrate										-	-	-	-	-
22.24 Oxygen Regulator Field Tester TR: TO 33D2-10-55-1 (31TA655-2); TO 33D2-10-67-1 (3300223-6001)										-	-	-	-	-
22.24.1 Align/Troubleshoot/Repair										-	-	-	-	-
22.24.2 Calibrate										-	-	-	-	-
22.25 Safety Analyzer TR: Comm Data (431F, 501PR)										-	-	-	-	-

1. Tasks, Knowledge And Technical References	2. Core Tasks			3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)					
	A	B	C	A	B	C	D	E	A		B		C	
	3 Level	5 Level	7 Level	Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	3 Skill Level		5 Skill Level		7 Skill Level	
									(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
22.25.1 Align/Troubleshoot/Repair									-	-	-	-	-	-
22.25.2 Calibrate									-	-	-	-	-	-
22.26 Radar Test Sets TR: TO 33D7-44-225-(AN/UPM-145)									-	-	-	-	-	-
22.26.1 Align/Troubleshoot/Repair									-	-	-	-	-	-
22.26.2 Calibrate									-	-	-	-	-	-
22.27 Aircraft Electrical Wiring Test Sets TR: TR: TO 33D7-50-633-1 (AN/USM-430)									-	-	-	-	-	-
22.27.1 Align/Troubleshoot/Repair									-	-	-	-	-	-
22.27.2 Calibrate									-	-	-	-	-	-
22.28 Night Vision Test Sets TR: TR: Comm Data (ANV -126-085-CAL), 33B4-10-5-1 (ANV-20-20), 33B4-10-6-1 (ANV -126-())									-	-	-	-	-	-
22.28.1 Align/Troubleshoot/Repair									-	-	-	-	-	-
22.28.2 Calibrate									-	-	-	-	-	-
22.29 Vector Network Analyzer TR: Comm Data (SM4515)									-	-	-	-	-	-
22.29.1 Use									-	-	-	-	-	-
22.29.2 Align/Troubleshoot/Repair									-	-	-	-	-	-
22.29.3 Calibrate									-	-	-	-	-	-
22.30 Digital Barometer/Altimeter Set TR: TR: TO 31M1-2GM-61/31M1-2GM-/31M1-2GM-64/31M1-2GM-7162 (ML658GM)									-	-	-	-	-	-
22.30.1 Align/Troubleshoot/Repair									-	-	-	-	-	-
22.30.2 Calibrate									-	-	-	-	-	-
22.31 Manside Test Set TR: TO 33D2-10-68-1 (F278-5700-1; Comm Data (TTU529E)									-	-	-	-	-	-
22.31.1 Align/Troubleshoot/Repair									-	-	-	-	-	-
22.31.2 Calibrate									-	-	-	-	-	-
22.32 Portable Balancing System TR: TR: TO 32A1-16-1/32A1-16-11-1 (PBS4100)									-	-	-	-	-	-
22.32.1 Align									-	-	-	-	-	-
22.32.2 Troubleshoot/Repair									-	-	-	-	-	-
22.32.3 Calibrate									-	-	-	-	-	-
22.33 Common Munition Test Set TR: CMBRE									-	-	-	-	-	-
22.33.1 Align									-	-	-	-	-	-
22.33.2 Troubleshoot/Repair									-	-	-	-	-	-
22.33.3 Calibrate									-	-	-	-	-	-
22.34 Laser Guided Bomb Test Set TR: TR: Comm Data (200535434-30), TO 33D5-24-24-3/33D5-24-24-4 (TTU595/E)									-	-	-	-	-	-
22.34.1 Calibrate									-	-	-	-	-	-
22.35 Laser Detecting Test Set TR: Comm Data (200535534-10), (TTU-604 A/E)									-	-	-	-	-	-
22.35.1 Use									-	-	-	-	-	-
22.36 Joint Service Mask Leakage Tester									-	-	-	-	-	-

1. Tasks, Knowledge And Technical References	2. Core Tasks			3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)					
	A	B	C	A	B	C	D	E	A		B		C	
	3 Level	5 Level	7 Level	Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	3 Skill Level		5 Skill Level		7 Skill Level	
									(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
Calibration Set TR: Comm Data (JSMLT-V109)														
22.36.1 Use									-	-	-	-	-	-
22.37 Joint Service Mask Leakage Tester TR: Comm Data (JSMLT)									-	-	-	-	-	-
22.37.1 Calibrate									-	-	-	-	-	-
22.38 Oscilloscope Plug-in Units TR: Comm Data (DA1855A)									-	-	-	-	-	-
22.38.1 Use									-	-	-	-	-	-
22.38.2 Align									-	-	-	-	-	-
22.38.3 Troubleshoot/Repair									-	-	-	-	-	-
22.38.4 Calibrate									-	-	-	-	-	-
22.39 Oscilloscope calibration Fixture Plug-in Units TR: TO 33DA21-326-1 (067-0587-02)									-	-	-	-	-	-
22.39.1 Use									-	-	-	-	-	-
22.39.2 Align									-	-	-	-	-	-
22.39.3 Troubleshoot/Repair									-	-	-	-	-	-
22.39.4 Calibrate									-	-	-	-	-	-
22.40 Selective Level Voltmeter TR: TO 33A1-5-467-1 (3586())									-	-	-	-	-	-
22.40.1 Use									-	-	-	-	-	-
22.40.2 Align									-	-	-	-	-	-
22.40.3 Troubleshoot/Repair									-	-	-	-	-	-
22.40.4 Calibrate									-	-	-	-	-	-
22.41 SWR Meter TR: TO 33A1-6-33 (415B/E)									-	-	-	-	-	-
22.41.1 Use									-	-	-	-	-	-
22.41.2 Align									-	-	-	-	-	-
22.41.3 Troubleshoot/Repair									-	-	-	-	-	-
22.41.4 Calibrate									-	-	-	-	-	-
22.42 Noise Source Calibration System TR: TO 33A1-6-164(8970B), N8975									-	-	-	-	-	-
22.42.1 Use									-	-	-	-	-	-
22.42.2 Calibrate									-	-	-	-	-	-
22.43 Photometric Calibration System TR: Comm Data (BHSPMS-1)									-	-	-	-	-	-
22.43.1 Use									-	-	-	-	-	-
22.43.2 Calibrate									-	-	-	-	-	-
22.44 Spectral Radiance Standards TR: Comm Data (RS-3, RS-10 (), RS-11())									-	-	-	-	-	-
22.44.1 Use									-	-	-	-	-	-
22.44.2 Calibrate									-	-	-	-	-	-
22.45 Fiber Optics Calibration System TR: Comm Data (FOSC1, FOCUS, 81623B-E01, 81655A-E02)									-	-	-	-	-	-
22.45.1 Use									-	-	-	-	-	-
22.45.2 Calibrate									-	-	-	-	-	-
22.46 Fiber Optic TMDE TR: TO 33DA122-6-21 (81655A-E02); Comm Data (OF 150, OF152, TD 1000())									-	-	-	-	-	-
22.46.1 Use									-	-	-	-	-	-

1. Tasks, Knowledge And Technical References	2. Core Tasks			3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)					
	A	B	C	A	B	C	D	E	A		B		C	
	3 Level	5 Level	7 Level	Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	3 Skill Level (1) Course	(2) CDC	5 Skill Level (1) Course	(2) CDC	7 Skill Level (1) Course	(2) CDC
22.46.2 Align										-	-	-	-	-
22.46.3 Troubleshoot/Repair										-	-	-	-	-
22.46.4 Calibrate										-	-	-	-	-
22.47 Gage Block Comparator TR: Comm Data (130B Series)										-	-	-	-	-
22.47.1 Use										-	-	-	-	-
22.47.2 Align										-	-	-	-	-
22.47.3 Troubleshoot/Repair										-	-	-	-	-
22.47.4 Calibrate										-	-	-	-	-
22.48 Chemical Agent Alarm Systems TR: TO 33D5-6-7-3 (M140)										-	-	-	-	-
22.48.1 Align										-	-	-	-	-
22.48.2 Troubleshoot/Repair										-	-	-	-	-
22.48.3 Calibrate										-	-	-	-	-
22.49 LASER Measurement System TR: Comm Data (5528, ML10)										-	-	-	-	-
22.49.1 Use										-	-	-	-	-
22.49.2 Calibrate										-	-	-	-	-
22.50 LASER measuring TMDE TR: Comm Data (Zygo 1202B)										-	-	-	-	-
22.50.1 Use										-	-	-	-	-
22.50.2 Align										-	-	-	-	-
22.50.3 Troubleshoot/Repair										-	-	-	-	-
22.50.4 Calibrate										-	-	-	-	-
22.51 Heads-up-display (HUD) Alignment Equipment TR: Comm Data (587-102001-21)										-	-	-	-	-
22.51.1 Use										-	-	-	-	-
22.51.2 Align										-	-	-	-	-
22.51.3 Troubleshoot/Repair										-	-	-	-	-
22.51.4 Calibrate										-	-	-	-	-
22.52 Joint Combined Aircrew System Tester (JCAST)/ Combined Aircrew System Tester TR: TO (6213100)										-	-	-	-	-
22.52.1 Align/Troubleshoot/Repair										-	-	-	-	-
22.52.2 Calibrate										-	-	-	-	-
23 ELECTRONICS SUPPORT SUBJECTS														
* 23.1 Safety										B	-	-	-	-
* 23.2 First Aid										A	-	-	-	-
23.3 Electrostatic Discharge (ESD) Control										B	-	-	-	-
* 23.4 Electromagnetic Effects (EMP/EMI)										B	-	-	-	-
23.5 Metric Notation										-	-	-	-	-
* 23.5.1 Calculate Powers of Ten										B	-	-	-	-
* 23.5.2 Electrical Prefixes										B	-	-	-	-
24 BASIC CIRCUITS														
24.1 Direct Current (DC)										-	-	-	-	-
* 24.1.1 Theory										B	-	-	-	-
* 24.1.2 Calculations										B	-	-	-	-

1. Tasks, Knowledge And Technical References	2. Core Tasks			3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)					
	A	B	C	A	B	C	D	E	A		B		C	
	3 Level	5 Level	7 Level	Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	3 Skill Level (1) Course	(2) CDC	5 Skill Level (1) Course	(2) CDC	7 Skill Level (1) Course	(2) CDC
24.2 Alternating Current (AC)									-	-	-	-	-	-
* 24.2.1 Theory									B	-	-	-	-	-
* 24.2.2 Calculations									B	-	-	-	-	-
25 BASIC CIRCUIT COMPONENTS														
25.1 Resistors									-	-	-	-	-	-
* 25.1.1 Theory									B	-	-	-	-	-
* 25.1.2 Color Code									B	-	-	-	-	-
* 25.1.3 Troubleshoot (Calculate and measure)									2b	-	-	-	-	-
25.2 Inductors									-	-	-	-	-	-
* 25.2.1 Theory									B	-	-	-	-	-
* 25.2.2 Troubleshoot									2b	-	-	-	-	-
25.3 Capacitors									-	-	-	-	-	-
* 25.3.1 Theory									B	-	-	-	-	-
* 25.3.2 Troubleshoot									2b	-	-	-	-	-
25.4 Resistive-Capacitive-Inductive (RCL) Circuits Theory									-	-	-	-	-	-
* 25.4.1 Basic									B	-	-	-	-	-
* 25.4.2 Resonant									B	-	-	-	-	-
* 25.4.3 Frequency Sensitive Filter									B	-	-	-	-	-
26 ELECTROMAGNETIC DEVICES														
26.1 Transformers									-	-	-	-	-	-
* 26.1.1 Theory									B	-	-	-	-	-
* 26.1.2 Troubleshoot									2b	-	-	-	-	-
26.2 Relays and Solenoids									-	-	-	-	-	-
* 26.2.1 Theory									B	-	-	-	-	-
* 26.2.2 Troubleshoot Relay									2b	-	-	-	-	-
26.3 Synchro/Servo									-	-	-	-	-	-
* 26.3.1 Theory									A	-	-	-	-	-
26.4 Transducer									-	-	-	-	-	-
* 26.4.1 Theory									B	-	-	-	-	-
27 SOLID STATE DEVICES														
27.1 Diodes									-	-	-	-	-	-
* 27.1.1 Theory									B	-	-	-	-	-
* 27.1.2 Troubleshoot									2b	-	-	-	-	-
27.2 Transistors									-	-	-	-	-	-
* 27.2.1 Theory									B	-	-	-	-	-
* 27.2.2 Troubleshoot									2b	-	-	-	-	-
27.3 Special Purpose Device Theory									-	-	-	-	-	-
* 27.3.1 Zener Diode									B	-	-	-	-	-
* 27.3.2 Light Emitting Diode (LED)									B	-	-	-	-	-
* 27.3.3 Field Effect Transistors (FETs), MOSFETs, JFETs									B	-	-	-	-	-
* 27.3.4 Integrated Circuits (IC)									B	-	-	-	-	-
* 27.3.5 Operational Amplifiers									B	-	-	-	-	-
28 TRANSISTOR AMPLIFIER CIRCUITS														
* 28.1 Theory									B	-	-	-	-	-
* 28.2 Stabilization									B	-	-	-	-	-
* 28.3 Coupling									B	-	-	-	-	-
29 POWER SUPPLY CIRCUITS														
29.1 Theory									-	-	-	-	-	-

1. Tasks, Knowledge And Technical References	2. Core Tasks			3. Certification For OJT					4. Proficiency Codes Used To Indicate Training/Information Provided (See Note)					
	A	B	C	A	B	C	D	E	A		B		C	
	3 Level	5 Level	7 Level	Tng Start	Tng Complete	Trainee Initials	Trainer Initials	Certifier Initials	3 Skill Level		5 Skill Level		7 Skill Level	
									(1) Course	(2) CDC	(1) Course	(2) CDC	(1) Course	(2) CDC
* 29.1.1 Rectifiers									B	-	-	-	-	-
* 29.1.2 Filters									B	-	-	-	-	-
* 29.1.3 Voltage Regulators									B	-	-	-	-	-
* 29.2 Troubleshoot Power Supply									2b	-	-	-	-	-
30 WAVE GENERATING CIRCUITS														
30.1 Theory									-	-	-	-	-	-
* 30.1.1 Oscillators									B	-	-	-	-	-
* 30.1.2 Multivibrators									B	-	-	-	-	-
* 30.1.3 Waveshaping Circuits									B	-	-	-	-	-
31 DIGITAL NUMBERING SYSTEMS														
31.1 Conversions									-	-	-	-	-	-
* 31.1.1 Binary									A	-	-	-	-	-
* 31.1.2 Hexadecimal									A	-	-	-	-	-
* 31.1.3 Binary Coded Decimal									A	-	-	-	-	-
* 31.2 Hexadecimal Math Operations									A	-	-	-	-	-
32 DIGITAL LOGIC CIRCUITS														
32.1 Theory									-	-	-	-	-	-
* 32.1.1 Gates									B	-	-	-	-	-
* 32.1.2 Flip Flops									B	-	-	-	-	-
* 32.1.3 Digital to Analog (D/A) and Analog to Digital (A/D) Converters Theory									B	-	-	-	-	-
33 BASIC COMMUNICATIONS THEORY														
* 33.1 Antenna									A	-	-	-	-	-
* 33.2 Transmission Lines									A	-	-	-	-	-
* 33.3 Data Bus									A	-	-	-	-	-
* 33.4 Waveguide									A	-	-	-	-	-
* 33.5 Fiber Optics									A	-	-	-	-	-
33.6 Transmitters									-	-	-	-	-	-
* 33.6.1 Frequency Modulation (FM)									B	-	-	-	-	-
* 33.6.2 Amplitude Modulation (AM)									B	-	-	-	-	-
33.7 Receivers									-	-	-	-	-	-
* 33.7.1 Frequency Modulation (FM)									B	-	-	-	-	-
* 33.7.2 Amplitude Modulation (AM)									B	-	-	-	-	-
33.8 AM Receiver Signals									-	-	-	-	-	-
* 33.8.1 Measure Radio Frequency (RF)									1a	-	-	-	-	-
* 33.8.2 Measure Intermediate Frequency (IF)									1a	-	-	-	-	-
* 33.8.3 Measure Local Oscillator (LO) Output									1a	-	-	-	-	-
* 33.8.4 Monitor Audio Frequency (AF)									1a	-	-	-	-	-

Note: BLK #4: Columns (1) & (2) can be relabeled to meet CF Requirements; i.e., 2 phase 3 skill level course, 5 lvl QTPs.

Section B - COURSE OBJECTIVE LIST

1. Introduction. Each proficiency coded STS task or knowledge item taught at the technical school is measured through the use of an objective. An objective is a written instruction for the student so he or she knows what is expected of them to successfully complete training on each task. Each objective is comprised of a condition, behavior, and standard that states what is expected of the student for each task. The condition is the setting in which the training takes place (i.e. TOs, type of equipment, etc). The behavior is the observable portion of the objective (i.e. perform an operational check). The standard is the level of performance that is measured to ensure the STS proficiency code level is attained (i.e. “with no more than two instructor assists”). AETC course objectives and associated information are published in the Plan of Instruction (POI) for each of the courses identified in Section D, below, Training Course Index.

2. 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.

3. 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.

4. Proficiency Level. 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.

Section C - SUPPORT MATERIAL

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 2PXXX 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. For further information on the following courses, contact the OPR at:

335 TRS/TRR
709 Meadows Drive, Ste 253B
Keesler AFB, MS 39534-2237
DSN 597-5381

2. Air Force In-Residence Courses.

COURSE NUMBER	USER	TITLE	LOCATION	USER
E3ABR2P031	0B1D AF	Precision Measurement Equipment Laboratory (PMEL) Apprentice	Keesler AFB	AF, FMS
E8AZR2P051	0P1B AF	Physical Measurement and Calibration Journeyman	Keesler AFB	AF, FMS
E3AZR2P051	0A1C AF	Advanced Calibration, Measurement, and Diagnostics	Keesler AFB	AF, FMS
E3AZR2P051	0T1C AF	TACAN/DOD AIMS Diagnostic Principles	Keesler AFB	AF, FMS

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

<http://www.au.af.mil/au/afiadl/>. For further information on the following courses, contact the OPR at:

335 TRS/UODA
709 Meadows Drive, Ste 255
Keesler AFB, MS 39534-2237
Email: cdc2p0x1@keesler.af.mil

COURSE NUMBER	USER	TITLE	LOCATION	USER
2P051A		Precision Measurement and Calibration Journeyman	AFIADL	AF
2P051B		Precision Measurement and Calibration Journeyman	AFIADL	AF
2P071		Precision Measurement and Calibration Craftsman	AFIADL	AF

4. Exportable Courses.

COURSE NUMBER	TITLE	LOCATION
J6AZWXXXXX 0G1A	Air Force T.O. System (Gen.)	ADL
J6AZWXXXXX 0A1A	Air Force T.O. System (Adv.)	ADL
J6AZW2AX5X 0F1A	IMDS for Flight Line	ADL
J6AZW2AX5X 0S1A	IMDS for Supervisors	ADL

Type 6 courses are hosted by the Advanced Distributed Learning System (ADLS) site at <https://aetc.csd.disa.mil>

5. Training Detachment (TD) Courses: There are currently no applicable TD courses.

Section E- MAJCOM Unique Requirements.

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