

**ELECTRICAL POWER PRODUCTION  
POWERED SUPPORT SYSTEMS MECHANIC**  
**Wage Grade Series**  
**5378**



**CAREER FIELD EDUCATION AND TRAINING PLAN**

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**CAREER FIELD EDUCATION AND TRAINING PLAN****ELECTRICAL POWER PRODUCTION  
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OPR: Civil Engineer Functional Advisory Council Wage Grade Panel  
Certified by: Dave Perkins and Darryl Parks, Wage Grade Panel  
Chairs

## PREFACE

This Career Field Education and Training Plan (CFETP) is a comprehensive education and training document that identifies life-cycle education/training requirements and training support resources for the Electrical Power Production/Powered Support Systems Mechanic Wage Grade series. The CFETP will provide wage grade personnel with a clear career path to success and instill rigor in all aspects of our Job Series training.

The CFETP consists of two parts used by the supervisor to plan, manage, and control training within the job series.

Part I provides information necessary for overall management of the job series.

- Section A provides general information about how the CFETP will be used.
- Section B identifies job series field progression information, duties and responsibilities, training strategies, and the job series path.

Part II includes the following:

- Section A identifies the Group Series Training Standard (GSTS) to include duties, tasks, and technical references to support civilian Wage Grade training programs.
- Section B identifies available support materials.
- Section C identifies a training course index supervisors can use to determine resources available to support training. Included here are both mandatory and optional courses, and exportable courseware.

***Note: At unit level, supervisors and trainers must use Part II to identify, plan, and conduct training commensurate with the overall goals of this guide.***

Using guidance provided in the CFETP will ensure individuals in these wage grade series receive effective and efficient training at the appropriate point in their careers. This plan will enable us to train today's work force for tomorrow's jobs. At the unit level, supervisors and trainers must use Part II to identify, plan, and conduct training commensurate with the overall goals of this guide.

## ABBREVIATIONS/TERMS EXPLAINED

**Advanced Distributive Learning (ADL).** Anytime, anyplace learning within DoD consisting of instructional modules comprised of sharable content objectives in an Internet/Intranet environment.

**Air Force Civilian Career Field Manager (AFCCFM).** An individual on the Air Staff charged with the responsibility for overseeing all training and career field management aspects of an Air Force series or group of series.

**Air Force Civil Engineer Center (AFCEC).** The focal point for all Civil Engineer training development. All Force Development Managers (FDM) are located at AFCEC.

**Air Force Institute of Technology (AFIT).** Provides vital, relevant, and connected education that enables Airmen to be ready engineers and great leaders who know how to build sustainable installations to last while leading the change for the Civil Engineer career field. Course list can be accessed at <http://www.afit.edu/cess/index.cfm>.

**Air Force Training Record (AFTR).** Electronic training data base to document training and access is located at the [CE-VLC](#).

**Air Force Wage Grade Series Qualification Standard (AFWGSQS).** A comprehensive task list that describes a particular series or duty position. Used by supervisors to document task qualifications. The tasks on the AFJQS are common to all persons serving in the described duty position.

**Air Force Qualification Training Package (AFQTP).** An instructional package designed for use as a training resource to qualify, or aid qualification, in a duty position or program, or on a piece of equipment. AFQTPs identify the Air Force's standardized method for performing the task. The AFQTP may be printed (paper-based), computer-based, in other audiovisual media formats, or all three.

**Career Development Course (CDC).** Self-paced, correspondence course published to provide the information necessary to satisfy the career knowledge component of on-the-job training (OJT). These courses are developed from references identified in the CFETP correlating with mandatory knowledge items listed in the Air Force Enlisted Classification Directory (AFECD). CDCs will contain information on basic principles, techniques, and procedures common to an AFSC. They do not contain information on specific equipment or tasks unless best illustrating a procedure or technique having utility to the entire AFSC.

**CE Portal.** The one-stop for all things Civil Engineering. Contains link to CE Force Development and Civilian Development Resource Center/Wage Grade Training Assets at: <https://cs2.eis.af.mil/sites/10041/Pages/default.aspx>.

**Civil Engineer Virtual Learning Center (CE-VLC).** Anytime, anyplace learning within the Civil Engineer Community consisting of instructional modules and skill-level awarding course material specific to the AFSC.

**Commercial Off The Shelf (COTS).** Commercially-procured training products.

**Computer-Based Training (CBT).** A self-paced stand-alone computer product used to deliver interactive subject and task knowledge.

**Distance Learning (DL).** Includes Video Tele-seminar (VTS), Video Tele-training (VTT), and CBT. Formal courses that a training wing or a contractor develops for export to a field location (in place of resident training) for trainees to complete without the on-site support of the formal school instructor. For instance, courses are offered by Air Force Institute of Technology, Air University, and Training Detachment.

**Duty Position Tasks.** Tasks identified by the workcenter supervisor as critical and common training tasks needed for the duty position and mission accomplishment.

**Enlisted Professional Military Education (EPME).** EPME provides a continuum of learning through progressive courses concentrated on developing airmanship and war-fighting skills. EPME plays a vital role in preparing Airmen for increased supervision, leadership, and management challenges. The three levels of Air Force EPME are Airman Leadership School, Noncommissioned Officer Academy and Air Force Senior Noncommissioned Officer Academy. EPME is available to Wage Grade civilians.

**Functional Advisory Council Wage Grade Panel.** The Wage Grade Panel is one of the three panels that make up the Civil Engineer Functional Advisory Council (FAC). The Wage Grade Panel charter is to work issues, develop policy, and provide recommendations to the FAC on matters related to civilian wage grade requirements. The Wage Grade Panel works through the FAC, in service to the CE Total Force community.

**Just-in-Time (JIT) Training.** Training required just prior to a selected deployment or tasking that delivers training necessary for mission accomplishment. It is typically predicated on hard-to-obtain contingency skill.

**On-the-Job Training (OJT).** Hands-on, over-the-shoulder training conducted to certify personnel in job qualification (duty position certification) training.

**Proficiency Training.** Additional training, either in-residence, advanced/supplemental training courses, or on-the-job training provided to personnel to increase their skills and knowledge beyond the minimum.

**Regional Training Site (RTS).** Total Force training centers managed by the Air National Guard.

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

**Wage Grade Series Training.** A mix of formal training (technical school) and informal training (on-the-job) to maintain and enhance wage grade series specific technical skills.

**Group Series Training Standard (GSTS).** Describes skills and knowledge that Airmen in a particular job series need on the job and for future career development opportunities. It further serves as the overall training requirements for a Wage Series taught in the resident and nonresident courses.

**Total Force.** All collective Air Force components (Active Duty, Reserve, Guard, and Civilian elements) of the United States Air Force.

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

## PART I

### SECTION A - GENERAL INFORMATION

**A1. Purpose:** This CFETP provides a formalized tool for supervisors and managers of civilian wage grade employees to ensure required knowledge and skill levels are achieved, documented, and maintained. The CFETP also indicates training opportunities and methods for employee to gain leadership and management experience for career development.

A1.1. The CFETP has several purposes:

A1.1.1. Serves as a management tool to plan, manage, conduct, and evaluate a wage grade series training program. It is used to help supervisors identify training at the appropriate point in an individual's career.

A1.1.2. Identifies task and knowledge training requirements for this wage grade series and recommends education/training throughout each phase of an individual's career.

A1.1.3. Lists training courses available in this wage grade series and identifies sources of training and the delivery methods. It is used as a tool for collecting and demonstrating the need for training resources.

**A2. Uses.** Managers and supervisors may use the plan at all levels to ensure comprehensive and cohesive training programs are available for each individual in the wage grade series.

A2.1. Wage Grade Panel of the Functional Advisory Council 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 Air Force Civil Engineer Center Force Development Division (AFCEC/COF) to develop acquisition strategies for obtaining resources needed to provide the identified training.

A2.2. The Wage Grade Panel will ensure their training programs complement the CFETP training requirements and identify requirements that can be satisfied by OJT, resident training, contract training, or exportable courses.

A2.3. Supervisors guide each individual through completion of training specified in this plan.

A2.4. Each individual completes training requirements specified in this plan. The list of courses in Part II of this CFETP will be used as a reference to support training.

**A3. Coordination and Approval.** The Wage Grade Panel Chairs are the approval authority for the CFETP. The Wage Grade Panel will identify and coordinate on wage grade series training requirements. Using the list of courses in Part II, they will eliminate duplicate training.

**PART I****SECTION B - WAGE GRADE SERIES PROGRESSION AND INFORMATION**

**B1. Series Descriptions.** See each individual's Core Personnel Document for the description.

B1.1. Wage Grade Series Summary. To install, operate, inspect, maintain, and repair electrical power production equipment and associated components, electrical distribution equipment, diesel, gasoline, and/or multi-fuel engines, and aircraft arresting barriers.

**B2. Skill and Career Progression.** Adequate training for progression from the apprentice to the mechanic level, and possibly into a supervisory position play an important role in the Air Force's ability to accomplish its mission. It is essential everyone involved in training do their part to participate in, plan, manage, and conduct effective training. The guidance provided in this part of the CFETP will identify viable training at appropriate points in an individual's career.

B2.1. Apprentice/Helper (A/H).

B2.1.1. Upon completion of initial skills training, an employee may work with a trainer to enhance their knowledge and skills to perform at the highest attainable level within their series.

B2.1.2. Utilize the Career Development Course (CDC) and other exportable courses for subject and task fundamentals in the series.

B2.1.3. Encourage apprentice/helpers to continue academic education and begin EPME by enrolling in Airman Leadership School either in-residence or by correspondence course.

B2.2. Journeyman (J).

B2.2.1. Journeymen may continue to advance their skills by completing additional training. Upon completing training, they may be assigned job positions such as team leader, trainer, or task certifier. Journeymen can pursue leadership training and skills in order to qualify for potential advancement to Work Leader or Work Supervisor positions.

B2.2.1. Encourage journeyman to enroll in the Noncommissioned Officer Academy (NCOA) either in-residence or by correspondence course.

B2.3. Craftsman (C).

B2.3.1. Craftsmen may continue to advance their skills by completing additional training. They may be assigned job positions such as team leader, trainer, or task certifier. Craftsmen are encouraged to pursue leadership training and skills in order to qualify for potential advancement to Work Leader or Work Supervisor positions.

B2.3.2. Encourage craftsmen to continue academic education and complete Noncommissioned Officer Academy (NCOA) either in-residence or by correspondence course.

B2.3.3. A Master Craftsman is typically graded higher than WG-10 where skills, knowledge and abilities require higher technical abilities than standard craftsmen. They are duty/location specific



**PART I**

and not for all job series.

**B2.4. Work Leader (WL).**

B2.4.1. A Work Leader can be expected to perform limited functions of a First Line Supervisor or act as a Team Lead.

B2.4.2. Completion of AFIT Civilian Supervisors Course (WMGT 571) is highly encouraged.

B2.4.3. Should pursue increased knowledge of budget, manpower, resources, and personnel management.

B2.4.4. Recommend pursuit of additional higher education and completion of courses outside of their job series for career broadening opportunities.

B2.4.5. Encourage Work Leader to continue academic education and complete Noncommissioned Officer Academy (NCOA) either in-residence or by correspondence course.

**B2.5. First Line Supervisor.**

B2.5.1. A supervisor can be expected to fill positions such as the Element Chief or Special Projects Supervisor.

B2.5.2. Completion of AFIT Civilian Supervisors Course (WMGT 571) is highly encouraged.

B2.5.3. Should pursue increased knowledge of budget, manpower, resources, and personnel management.

B2.5.4. Recommend pursuit of additional higher education and completion of courses outside of their job series for career broadening opportunities.

B2.5.5. Encourage supervisors to continue academic education and complete Senior Noncommissioned Officer Academy (SNCOA) by correspondence.

**B3. Correspondence Course Directions.** Nonresident attendance for professional military education courses is accomplished through the Air Force Portal.

B3.1. Login to the AF Portal (<https://www.my.af.mil/>).

B3.2. Copy and paste the URL <https://www.my.af.mil/aurepmprod/auportal/welcome.AirUniversity> into your browser.

B3.3. Create an account and/or login.

B3.4. Once logged in, "Distance Learning" on the left hand side.

B3.5. Select the appropriate course.

PART I

B4. Wage Grade Career Field Pyramid.

Figure 1.



## PART II

### SECTION A - GROUP SERIES TRAINING STANDARD

**A1. Purpose.** The CFETP is designed to be a tool for supervisors to use in assessing the skill level of current and new employees. The CFETP may be used to document training and proficiency of the employee on associated task/s by the supervisor or certified trainer.

**A1.1. Column 1 (*Tasks, Knowledge, and Technical References*).** Lists the most common tasks, knowledge, and supporting technical references (TR) necessary for Airmen to perform duties in the Apprentice, Journeyman, Craftsman, and Supervisor level.

**A1.2. Column 2 (*Tasks and Proficiency Codes*).** Identifies duty position tasks (series training requirements) with a proficiency code and indicates training requirements. It shows the proficiency to be demonstrated on the job by the employee as a result of training on the task, knowledge and the career knowledge provided by formal courses, CDC, distance learning (DL) web-based training (WBT) and AFQTPs. CDC listing maintained by the unit education and training manager for current CDC listings.

**A1.3. Column 3 (*Certification of Training*).** Used to record completion of tasks and knowledge training requirements. Task certification requires the task to be trained by a trainer designated by the supervisor. The trainer can be either civilian or military. Use the automated training record application to document individual qualifications. The training start and completion date are documented, the task is signed by the trainee and either the workcenter supervisor, a Master Sergeant (or above) or the unit training manager. This action will complete the task certification.

***Note: The “trainer” signing the record MUST be the workcenter supervisor, work leader, a Master Sergeant (or above) or the Unit Training Manager. This person does not necessarily train the task, but will ensure the training is conducted by a qualified trainer prior to completing task certification.***

***Note: If a workcenter supervisor, work leader, a Master Sergeant (or above) or the unit training manager are not available in a shop or unit to certify a task, the Operations Flight deputy commander will designate a certifier within the flight and grant the UTM role in AFTR so as to certify training tasks in AFTR. This person does not necessarily train the task, but will ensure the training is conducted by a qualified trainer prior to completing task certification.***

**A1.4. Qualitative Requirements.** Contains the proficiency code key used to indicate the level of training and knowledge provided by WBT, resident training and career development courses.

**A1.5. Job Qualification Standard (JQS).** The Group Series Training Standard (GSTS) becomes the JQS for OJT when entries are made in the GSTS. For OJT, the tasks in Column 1 are trained and qualified to the go/no go level. “Go” means the individual can perform the task without assistance and meets local requirements for accuracy, timeliness, and correct use of procedures. AFQTPs, when available, shall be used to identify Air Force standardized procedures. When used as a JQS, the following requirements apply:

## PART II

A1.5.1. **Documentation.** Document and certify completion of training.

A1.6. **Transcribing from previous versions to the new CFETP.** Most items should transcribe automatically during the update of the new CFETP if AFTR is used to document training and certifications. The supervisor must conduct a review of the new GSTS to identify any new duty position tasks and add those tasks to their duty positions.

A1.6.1. **Previous training certification not listed.** If previous training certification is not listed in the individual record, select the parent task to be transcribed, check the task title(s) block, and click on the transcribe button. Enter the date of the original certification and sign off the task(s). The trainee will then sign off the task(s) to finalize the transcription of previous training certification.

A1.6.2. **Transcribing external training certification.** If a trainee attended a formal training course and received appropriate accreditation, select the 623 III section of the user's automated training record and locate the course title in the master task list, then enter the completion date. If the course title is not listed, contact the UTM to have it loaded from the master catalog. If it is not listed in the master catalog contact the Force Development Manager at AFCEC to have it loaded in the master catalog. Update MyBiz with additional training certificates through the self-certification process.

A1.6.3. **Training Standard.** Tasks are trained and certified to the "go" level. Go means the individual can perform the task without assistance and meets the local requirements for accuracy, timeliness, and correct use of procedures. AFQTPs, when available, shall be used to identify Air Force standardized procedures.

**A2. Recommendations.** This training plan is a living document. Comments and recommended changes are welcome. Recommendations for changes must be coordinated through the FDM and Functional Advisory Council (FAC) Wage Grade Panel for adjudication.

## SECTION B - SUPPORT MATERIAL

### B1. Air Force Qualification Training Packages.

B1.1. For a complete list of up-to-date AFQTPs applicable to the series, go to [CE-VLC](#).

B1.2. The UTM or supervisor can download paper-based AFQTP's. Paper-based AFQTP's can be found on the [CE-VLC](#) under the Library link and then by selecting Resources.

B1.2.1. In addition to the paper-based AFQTPs there are web-based courses or assessments developed for certain tasks that are available on the [CE-VLC](#) under the Course List link and Group Series topic area.

B1.3. CDC listings are maintained by the unit education and training manager for current CDC listings.

**PART II****SECTION C – EDUCATION AND TRAINING COURSE INDEX**

**C1. Purpose.** This section of the CFETP identifies training courses available for the power production series. Refer to Education and Training Course Announcements (ETCA) web site for information on the Air Force in-residence and mobile courses. The web site address is <https://etca.randolph.af.mil/>.

J3AZR3E052 00CB - Contingency Power Generation

J3AZR3E052 00TB - Troubleshooting Power Production Equipment

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Wage Grade Panel Co-Chair

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Wage Grade Panel Co-Chair

Attachments:

1. Qualitative Requirements (Proficiency Code Key)
2. Wage Grade Series Training Standard (STS)
3. Locally Developed Training Supplement

# Attachment 1

<b><i>This Block Is For Identification Purposes Only</i></b>		
<b>Name Of Trainee</b>		
<b>Printed Name (Last, First, Middle Initial)</b>	<b>Initials (Written)</b>	
<b>Printed Name Of Trainer/Training Official And Written Initials</b>		
N/I	N/I	
N/I	N/I	
N/I	N/I	
N/I	N/I	
N/I	N/I	
N/I	N/I	
N/I	N/I	
N/I	N/I	
<b>Explanations</b>  # - This mark is used to indicate training is provided in a formal course.		

Behavioral Statement GSTS 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 trainer/certifier; however, the individual may not be capable of meeting the field requirements for speed and accuracy.
pk	Performance Knowledge Training - The verb selection identifies the individual's ability to relate advanced facts, procedures, operating principles, and operational theory for the task.
-	Assumes element knowledge and/or proficiency at the higher level

## Attachment 2

1. Tasks, Knowledge and Technical References	2. Duty Position Tasks and Proficiency Codes				3. Certification of Training			
	A/H	J	C/WL	S	Trng Strt	Trng Com	Trne Init	Trnr Init

<b>1. CIVIL ENGINEER (CE) CORE CONCEPTS COURSE TR:</b> CE Virtual Learning Center (CE-VLC); AFDD 2-4-2; AFIs 10-209, 10-210, 10-211, 32-1022, 36-2101, 38-101, 51-903; Enlisted Classification Directory; AF PAM 32-1004 Vol 1-6; War Mobilization Plan (WMP) 1,								
<b>1.1</b> Civil Engineer (CE) 3/5 Level Core Concepts Course	K	-	-	-				
<b>1.2</b> Civil Engineer (CE) 7 Level Core Concepts Course			K	-				
<b>2. COMMUNICATIONS TR:</b> AFI 32-1043, 33-106; AFJMAN 24-306								
<b>2.1.</b> Use radios	P	pk	-	-				
<b>2.2.</b> Use hand signals	P	pk	-	-				
<b>2.3.</b> Identify airdrome signals	P	pk	-	-				
<b>3. AFS SPECIFIC SAFETY STANDARD TR:</b> AFIs 32-1064, 91-203; American Red Cross Adult CPR Handbook, American Heart Association; UFC 3-560-01; NFPA 70E								
<b>3.1.</b> Electrical safety standards for AFS	K	-	pk	-				
<b>3.2</b> Remove victim from energized circuits	pk	-	-	-				
<b>3.3.</b> First aid for electrical shock:								
<b>3.3.1.</b> Principles	K	-	-	-				
<b>3.3.2.</b> Procedures	pk	-	-	-				
<b>3.4.</b> Arc Flash Safety	K	-	-	-				
<b>3.5.</b> Perform cardiopulmonary resuscitation (CPR)	pk	-	-	-				
<b>3.6.</b> Manual lifting awareness	pk	-	-	-				
<b>4. AFSC SPECIFIC PUBLICATIONS TR:</b> T.O. 00-5-1								
<b>4.1.</b> Technical Order system	K	-	-	-				
<b>4.2.</b> Use technical orders		P	pk	-				
<b>4.3.</b> Technical order improvement reporting			pk	-				
<b>4.4.</b> Acquire technical orders			pk	-				
<b>4.5.</b> AFSC Technical Publications		K	-	-				
<b>5. ELECTRICAL POWER PRODUCTION TOOLS AND TEST EQUIPMENT TR:</b> TOs 32, 33, 34, 35, 38 Series								
<b>5.1.</b> Use hand tools	P	pk	-	-				
<b>5.2.</b> Specialized tools	P	pk	-	-				
<b>5.3.</b> Use precision measurement equipment:								
<b>5.3.1.</b> Torque handle/wrench	P	pk	-	-				
<b>5.3.2.</b> Micrometer	P	pk	-	-				
<b>5.3.3.</b> Depth gauge	P	pk	-	-				

## Attachment 2

1. Tasks, Knowledge and Technical References	2. Duty Position Tasks and Proficiency Codes				3. Certification of Training			
	A/H	J	C/WL	S	Trng Strt	Trng Com	Trne Init	Trnr Init

<b>5.4. Use engine performance test devices:</b>								
<b>5.4.1. Hand-held tachometer</b>	P	pk	-	-				
<b>5.5. Use electrical test equipment:</b>								
<b>5.5.1. Multimeter</b>	K	P	pk	-				
<b>5.5.2. Earth Resistance tester</b>	K	P	pk	-				
<b>5.5.3. Clamp-on ammeter</b>	K	P	pk	-				
<b>5.5.4. Megohmmeter</b>	K	P	pk	-				
<b>5.5.5. Battery load tester</b>	K	P	pk	-				
<b>5.5.6. Phase rotation meter</b>	K	P	pk	-				
<b>5.5.7. Power Analyzer</b>	K	P	pk	-				
<b>6. GENERAL POWER PRODUCTION TASKS</b> TR: AFI 32-1062; TOs 32, 33, 34, 35, 38 Series; applicable manufacturer's manuals								
<b>6.1. Principles of corrosion control</b>		K	-	-				
<b>6.2. Types of engine pre-heating devices</b>		K	-	-				
<b>6.3. Load Banks:</b>								
<b>6.3.1. Components and theory of operation</b>	K	-	-	-				
<b>6.3.2. Inspect</b>	P	-	pk	-				
<b>6.3.3. Connect cables</b>	P	-	pk	-				
<b>6.3.4. Configure for proper voltage</b>	P	-	pk	-				
<b>6.3.5. Operate</b>	P	-	pk	-				
<b>6.3.6. Troubleshoot</b>	P	-	pk	-				
<b>6.3.7. Replace components</b>	P	-	pk	-				
<b>6.4. Battery Chargers:</b>								
<b>6.4.1. Components and theory of operation</b>	K	-	-	-				
<b>6.4.2. Inspect</b>		P	pk	-				
<b>6.4.3. Adjust</b>		P	pk	-				
<b>6.4.4. Troubleshoot</b>		P	pk	-				
<b>6.4.5. Replace components</b>		P	pk	-				
<b>6.5. Perform soldering</b>		P	pk	-				
<b>7. ELECTRICAL FUNDAMENTALS</b> TO 31-1-141 Series; applicable manufacturer's manuals								
<b>7.1. Basic electrical concepts and terms</b>	K	-	-	-				
<b>7.2. Fundamentals of DC</b>	K	-	-	-				
<b>7.3. Fundamentals of AC</b>	K	-	-	-				
<b>7.4. Wiring Diagrams:</b>								
<b>7.4.1. Types</b>		K	-	-				
<b>7.4.2. Electrical components and symbols</b>		K	-	-				
<b>7.4.3. Interpret wiring diagrams</b>			pk	-				
<b>7.4.4. Use wiring diagrams</b>		P	pk	-				
<b>7.5. Principles of operation of components:</b>								
<b>7.5.1. Diodes</b>		K	-	-				



## Attachment 2

1. Tasks, Knowledge and Technical References	2. Duty Position Tasks and Proficiency Codes				3. Certification of Training			
	A/H	J	C/WL	S	Trng	Trng	Trne	Trnr
					Strt	Com	Init	Init

7.5.2. Inductors		K	-	-				
7.5.3. Capacitors		K	-	-				
7.5.4. Resistors		K	-	-				
7.6. Test electrical components:								
7.6.1. Inductors		P	pk	-				
7.6.2. Capacitors		P	pk	-				
7.6.3. Resistor		P	pk	-				
<b>8. GENERATOR SET GROUNDING FUNDAMENTALS</b> TR: AFI 32-1065; NFPA 70, 77; UFC 3-560-01; IEEE Standard 142 - Recommended Practice for Grounding of Industrial and Commercial Power Systems								
8.1. Grounding principles:								
8.1.1 Static	K	-	-	-				
8.1.2. Equipment	K	-	-	-				
8.2. Install equipment grounds	P	-	pk	-				
8.3. Test grounds		P	pk	-				
8.4. Troubleshoot grounds		P	pk	-				
<b>9. ENGINE FUNDAMENTALS</b> TR: TOs 35, 38 Series; applicable manufacturer's manuals								
9. Gasoline engines:								
9.1.1. Components and theory of operation	K	-	-	-				
9.1.2. Engine malfunctions		P	pk	-				
9.1.3. Perform engine tune-up		P	pk	-				
9.2. Diesel engines:								
9.2.1. Components and theory of operation:								
9.2.1.1 Two Cycle	K	-	-	-				
9.2.1.2. Four Cycle	K	-	-	-				
9.2.2. Engine malfunctions		K	-	-				
9.2.3. Inspect:								
9.2.3.1. Camshaft			pk	-				
9.2.3.2. Vibration damper			pk	-				
9.2.3.3. Timing gears			pk	-				
9.2.3.4. Cylinder head			pk	-				
9.2.3.5. Intake and exhaust valves			pk	-				
9.2.3.6. Engine block			pk	-				
9.2.4. Replace:								
9.2.4.1. Camshaft			pk	-				
9.2.4.2. Vibration damper			pk	-				
9.2.4.3. Timing gears			pk	-				
9.2.4.4. Cylinder head			pk	-				
9.2.4.5. Intake and exhaust valves			pk	-				
9.2.4.6. Valve Spring assemblies			pk	-				

## Attachment 2

1. Tasks, Knowledge and Technical References	2. Duty Position Tasks and Proficiency Codes				3. Certification of Training			
	A/H	J	C/WL	S	Trng	Trng	Trne	Trnr
					Strt	Com	Init	Init

9.2.4.7. Engine seals/gaskets			pk	-				
9.2.5 Adjust:								
9.2.5.1. Camshaft			pk	-				
9.2.5.2. Intake and exhaust valves			pk	-				
<b>10. ENGINE DC ELECTRICAL SYSTEM</b> TR: AFI 32-1062; TO 35C2-3, 38G1 Series; applicable manufacturer's manuals								
10.1. Components and theory of operation	K	-	-	-				
10.2. Troubleshoot		P	pk	-				
10.3. Inspect:								
10.3.1. Battery charging alternator		P	pk	-				
10.3.2. Starter motor		P	pk	-				
10.3.3. Starter solenoid		P	pk	-				
10.4. Replace:								
10.4.1. Battery charging alternator		P	pk	-				
10.4.2. Starter motor		P	pk	-				
10.4.3. Starter solenoid		P	pk	-				
10.5. Batteries:								
10.5.1. Types	K	-	-	-				
10.5.2. Maintain		P	pk	-				
10.5.3. Replace		pk	-	-				
<b>11. ENGINE LUBRICATION SYSTEM</b> TR: AFI 32-1062; TOs 32, 33, 34, 35, 38 Series								
11.1. Components and theory of operation	K	-	-	-				
11.2. Troubleshoot		P	pk	-				
11.3. Replace components:								
11.3.1. Oil pump			pk	-				
11.3.2. Oil cooler			pk	-				
11.3.3. Sending devices		P	pk	-				
11.3.4. Protective devices		P	pk	-				
11.4. Service engine lubrication system		P	pk	-				
11.5. Test lube oil		P	pk	-				
<b>11. FUEL SYSTEMS</b> TR: NFPA 30, 70; AFIs 32-1062, 32-204; TOs 32, 33, 34, 35, 38 Series; applicable manufacturer's manuals								
11.1. Gasoline:								
11.1.1. Components and theory of operation	K	-	-	-				
11.1.2. Troubleshoot		P	pk	-				
11.1.3. Inspect:								
11.1.3.1. Fuel pump		P	pk	-				
11.1.3.2. Filters/strainers		P	pk	-				
11.1.3.3. Carburetors		P	pk	-				
11.1.4. Replace:								
11.1.4.1. Fuel pump		P	pk	-				
11.1.4.2. Filters/strainers		P	pk	-				

## Attachment 2

1. Tasks, Knowledge and Technical References	2. Duty Position Tasks and Proficiency Codes				3. Certification of Training			
	A/H	J	C/WL	S	Trng	Trng	Trne	Trnr
					Strt	Com	Init	Init

<b>11.1.4.3. Carburetors</b>		P	pk	-				
<b>11.1.5. Adjust carburetors</b>		P	pk	-				
<b>11.2. Diesel:</b>								
<b>11.2.1. Types, components and theory of operation</b>	K	-	-	-				
<b>11.2.2. Troubleshoot</b>		P	pk	-				
<b>11.2.3. Inspect:</b>								
<b>11.2.3.1. Fuel transfer pumps</b>		P	pk	-				
<b>11.2.3.2. Fuel injection pumps</b>		P	pk	-				
<b>11.2.3.3. Filters/strainers</b>		P	pk	-				
<b>11.2.4. Replace:</b>								
<b>11.2.4.1. Fuel transfer pumps</b>		P	pk	-				
<b>11.2.4.2. Fuel injection pumps</b>		P	pk	-				
<b>11.2.4.3. Filters/strainers</b>		P	pk	-				
<b>11.2.4.4. Injectors</b>		P	pk	-				
<b>11.2.4.5. Sending units</b>		P	pk	-				
<b>11.2.4.6. Protective devices</b>		P	pk	-				
<b>11.2.5. Prime and bleed</b>		P	pk	-				
<b>11.2.6. Time fuel injection pumps</b>		P	pk	-				
<b>11.2.7. Test fuel for water content</b>		P	pk	-				
<b>12. ENGINE COOLING SYSTEM</b> TR: AFI 32-1062; TOs 35, 38 Series								
<b>12.1. Components and theory of operation</b>	K	-	-	-				
<b>12.2. Troubleshoot</b>		P	pk	-				
<b>12.3. Inspect:</b>								
<b>12.3.1. Water pump</b>		P	pk	-				
<b>12.3.2. Radiator</b>		P	pk	-				
<b>12.3.3. Hoses</b>		P	pk	-				
<b>12.3.4. Drive belts</b>		P	pk	-				
<b>12.3.5. Heater</b>		P	pk	-				
<b>12.3.6. Sending units</b>		P	pk	-				
<b>12.3.7. Protective devices</b>		P	pk	-				
<b>12.3.8. Filters</b>		P	pk	-				
<b>12.4. Replace:</b>								
<b>12.4.1. Water pump</b>		P	pk	-				
<b>12.4.2. Thermostat</b>		P	pk	-				
<b>12.4.3. Radiator</b>		P	pk	-				
<b>12.4.4. Hoses</b>		P	pk	-				
<b>12.4.5. Drive belts</b>		P	pk	-				
<b>12.4.6. Heater</b>		P	pk	-				

## Attachment 2

1. Tasks, Knowledge and Technical References	2. Duty Position Tasks and Proficiency Codes				3. Certification of Training			
	A/H	J	C/WL	S	Trng	Trng	Trne	Trnr
					Strt	Com	Init	Init

<b>12.4.7. Sending units</b>		P	pk	-				
<b>12.4.8. Protective devices</b>		P	pk	-				
<b>12.4.9. Filters</b>		P	pk	-				
<b>12.5. Maintain:</b>								
<b>12.5.1. Service</b>		P	pk	-				
<b>12.5.2. Flush</b>		P	pk	-				
<b>12.5.3. Test Antifreeze</b>		P	pk	-				
<b>12.5.4. Coolant additives</b>		P	pk	-				
<b>13. ENGINE GOVERNOR SYSTEMS</b> TR: AFI 32-1062; TOs 35, 38 Series								
<b>13.1. Electronic Governors:</b>								
<b>13.1.1. Components and theory of operation</b>	K	-	-	-				
<b>13.1.2. Troubleshoot</b>		P	pk	-				
<b>13.1.3. Inspect:</b>								
<b>13.1.3.1. Control module</b>		P	pk	-				
<b>13.1.3.2. Actuator</b>		P	pk	-				
<b>13.1.3.3. Magnetic pickup</b>		P	pk	-				
<b>13.1.4. Replace:</b>								
<b>13.1.4.1. Control module</b>		P	pk	-				
<b>13.1.4.2. Actuator</b>		P	pk	-				
<b>13.1.4.3. Magnetic pickup</b>		P	pk	-				
<b>13.1.5. Test over speed trip devices</b>		P	pk	-				
<b>13.1.6. Adjust:</b>								
<b>13.1.6.1. Droop</b>		P	pk	-				
<b>13.1.6.2. Gain</b>		P	pk	-				
<b>13.1.6.3. Idle</b>		P	pk	-				
<b>13.1.6.4. Run</b>		P	pk	-				
<b>14. INTAKE AND EXHAUST SYSTEMS</b> TR: AFI 32-1062; TOs 35, 38 Series; Applicable manufacturer's manuals								
<b>14.1. Components and theory of operation</b>	K	-	-	-				
<b>14.2. Troubleshoot</b>		P	pk	-				
<b>14.3. Inspect:</b>								
<b>14.3.1. Air cleaner/filter</b>		P	pk	-				
<b>14.3.2. Turbocharger</b>		P	pk	-				
<b>14.3.3. Aftercooler</b>		P	pk	-				
<b>14.3.4. Intake manifold</b>		P	pk	-				
<b>14.3.5. Exhaust manifold</b>		P	pk	-				
<b>14.3.6. Expansion joint</b>		P	pk	-				
<b>14.3.7. Muffler</b>		P	pk	-				

## Attachment 2

1. Tasks, Knowledge and Technical References	2. Duty Position Tasks and Proficiency Codes				3. Certification of Training			
	A/H	J	C/WL	S	Trng	Trng	Trne	Trnr
					Strt	Com	Init	Init

<b>14.4. Replace:</b>								
<b>14.4.1.</b> Air cleaner/filter		P	pk	-				
<b>14.4.2.</b> Turbocharger		P	pk	-				
<b>14.4.3.</b> Aftercooler		P	pk	-				
<b>14.4.4.</b> Intake manifold		P	pk	-				
<b>14.4.5.</b> Exhaust manifold		P	pk	-				
<b>14.4.6.</b> Expansion joint		P	pk	-				
<b>14.4.7.</b> Muffler		P	pk	-				
<b>15. AC GENERATING SYSTEM</b> TR: UFC 3-550-07; AFI 32-1062; TOs 35, 38 Series; applicable manufacture's manuals								
<b>15.1. Alternator:</b>								
<b>15.1.1.</b> Components and theory of operation	K	-	-	-				
<b>15.1.2.</b> Test		P	pk	-				
<b>15.1.3. Inspect:</b>								
<b>15.1.3.1.</b> Rectifier assembly		P	pk	-				
<b>15.1.3.2.</b> Surge suppressor		P	pk	-				
<b>15.1.3.3.</b> Windings		P	pk	-				
<b>15.1.4. Replace:</b>								
<b>15.1.4.1.</b> Rectifier assembly		P	pk	-				
<b>15.1.4.2.</b> Surge suppressor		P	pk	-				
<b>15.1.4.3.</b> Alternator assembly		P	pk	-				
<b>15.2. Controls:</b>								
<b>15.2.1.</b> Components and theory of operation	K	-	-	-				
<b>15.2.2.</b> Troubleshoot		P	pk	-				
<b>15.2.3. Inspect:</b>								
<b>15.2.3.1.</b> Voltage regulator		P	pk	-				
<b>15.2.3.2.</b> Exciter		P	pk	-				
<b>15.2.3.3.</b> Transformers		P	pk	-				
<b>15.2.3.4.</b> Control panel components		P	pk	-				
<b>15.2.4. Replace:</b>								
<b>15.2.4.1.</b> Voltage regulator		P	pk	-				
<b>15.2.4.2.</b> Exciter		P	pk	-				
<b>15.2.4.3.</b> Transformers		P	pk	-				
<b>15.2.4.4.</b> Control panel components		P	pk	-				
<b>15.3. Protective devices:</b>								
<b>15.3.1.</b> Components and theory of operation	K	-	-	-				
<b>15.3.2. Inspect:</b>								
<b>15.3.2.1.</b> Circuit breakers		P	pk	-				
<b>15.3.2.2.</b> Relays		P	pk	-				

## Attachment 2

1. Tasks, Knowledge and Technical References	2. Duty Position Tasks and Proficiency Codes				3. Certification of Training			
	A/H	J	C/WL	S	Trng	Trng	Trne	Trnr
					Strt	Com	Init	Init
<b>15.3.2.3. Fuses</b>		P	pk	-				
<b>15.3.2.4. Diodes</b>		P	pk	-				
<b>15.3.3. Test:</b>								
<b>15.3.3.1. Circuit breakers</b>		P	pk	-				
<b>15.3.3.2. Relays</b>		P	pk	-				
<b>15.3.3.3. Fuses</b>		P	pk	-				
<b>15.3.3.4. Diodes</b>		P	pk	-				
<b>15.3.4. Replace:</b>								
<b>15.3.4.1. Circuit breakers</b>		P	pk	-				
<b>15.3.4.2. Relays</b>		P	pk	-				
<b>15.3.4.3. Fuses</b>		P	pk	-				
<b>15.3.4.4. Diodes</b>		P	pk	-				
<b>16. STANDBY GENERATOR SET</b> T: AFI 32-1062; applicable manufacturer's manuals								
<b>16.1. Perform:</b>								
<b>16.1.1. Pre-operational inspection</b>		P	pk	-				
<b>16.1.2. Operational inspection</b>		P	pk	-				
<b>16.1.3. Post-operational inspection</b>		P	pk	-				
<b>16.1.4. Unit operation</b>		P	pk	-				
<b>16.1.5. Periodic Inspections and Preventative Maintenance:</b>								
<b>16.1.5.1. Semi-monthly</b>	P	-	pk	-				
<b>16.1.5.2. Monthly</b>	P	-	pk	-				
<b>16.1.5.3. Quarterly</b>	P	-	pk	-				
<b>16.1.5.4. Semi-annual</b>	P	-	pk	-				
<b>16.1.5.5. Annual</b>	P	-	pk	-				
<b>16.1.6. Emergency shutdown</b>	P	-	pk	-				
<b>16.2 Annotate generator set maintenance/operating record</b>	P	-	pk	-				
<b>16.3. Calculate:</b>								
<b>16.3.1. kW load</b>		P	pk	-				
<b>16.3.2. Amperage load</b>		P	pk	-				
<b>16.3.3. Facility power requirements</b>		P	pk	-				
<b>16.3.4. Fuel requirements</b>		P	pk	-				
<b>17. AUTOMATIC TRANSFER SWITCHES</b> TR: UFC 3-520-01, 3-540-01; NFPA 110, 111; AFI 32-1062; applicable manufacturer's manuals								
<b>17.1. Components and theory of operation</b>	K	-	-	-				
<b>17.2. Inspect</b>		P	pk	-				

## Attachment 2

1. Tasks, Knowledge and Technical References	2. Duty Position Tasks and Proficiency Codes				3. Certification of Training			
	A/H	J	C/WL	S	Trng	Trng	Trne	Trnr
					Strt	Com	Init	Init

<b>17.3. Test</b>		P	pk	-				
<b>17.4. Adjust</b>		P	pk	-				
<b>17.5. Troubleshoot</b>		P	pk	-				
<b>17.6. Replace components</b>		P	pk	-				
<b>17.7. Configure with computer software</b>		P	pk	-				
<b>17.8. Determine compatibility between transfer switch, generator and electrical service</b>		P	pk	-				
<b>17.9. Install</b>		P	pk	-				
<b>18. AIRCRAFT ARRESTING SYSTEMS</b> TR: TO 35E8-2 Series; AFI 32-1043; FC 3-260-18F								
<b>18.1. MA-1A and E5 Barrier; Components, theory of operation and configuration</b>	K	-	-	-				
<b>18.2. BAK-14 Support System; Components, theory of operation and configuration</b>	K	-	-	-				
<b>18.3. BAK-15 Aircraft Arresting System; Components, theory of operation and configuration</b>	K	-	-	-				
<b>18.4. Textile Brake Aircraft Arresting System; Components, theory of operation and configuration</b>	K	-	-	-				
<b>18.5. Type H Support System; Components, theory of operation and configuration</b>	K	-	-	-				
<b>18.6. BAK-12 Aircraft Arresting System:</b>								
<b>18.6.1. Components, theory of operation and configuration</b>	K	-	-	-				
<b>18.6.2. Troubleshoot:</b>								
<b>18.6.2.1. Brake assembly</b>		P	pk	-				
<b>18.6.2.2. Rewind system</b>		P	pk	-				
<b>18.6.2.3. Hydraulic system</b>		P	pk	-				
<b>18.6.3. Perform periodic inspection and preventative maintenance:</b>								
<b>18.6.3.1. Daily</b>	P	-	pk	-				
<b>18.6.3.2. Weekly</b>	P	-	pk	-				
<b>18.6.3.3. Monthly</b>	P	-	pk	-				
<b>18.6.3.4. Quarterly</b>	P	-	pk	-				
<b>18.6.3.5. Semi-annual</b>	P	-	pk	-				
<b>18.6.3.6. After arrestment</b>	P	-	pk	-				
<b>18.6.4. Determine tape replacement using regime chart</b>		P	pk	-				
<b>18.6.5. Replace components of:</b>								
<b>18.6.5.1. Rewind system</b>		P	pk	-				
<b>18.6.5.2. Hydraulic system</b>		P	pk	-				

## Attachment 2

1. Tasks, Knowledge and Technical References	2. Duty Position Tasks and Proficiency Codes				3. Certification of Training			
	A/H	J	C/WL	S	Trng Strt	Trng Com	Trne Init	Trnr Init

<b>19. AFSC SPECIFIC EXPEDITIONARY REPSONSIBILITIES</b> TR: AFIs 10-209, 10-210, 10-211, 32-1062, 32-1065; NEC; TOs 35C and 35E Series; ARMY TMs 10-8340-207-14, 10-450-200-12; WMP-1, CE Sup; AFPAM 10-219								
<b>19.1. Generators:</b>								
<b>19.1.1. 200 kW or less:</b>								
<b>19.1.1.1. Construction features and components</b>		K	pk	-				
<b>19.1.1.2. Set up generator for connection to load:</b>								
<b>19.1.1.2.1. Position generator</b>		P	pk	-				
<b>19.1.1.2.2. Connect generator to ground</b>		P	pk	-				
<b>19.1.1.2.3. Configure for proper voltage</b>		P	pk	-				
<b>19.1.1.2.4. Cables:</b>								
<b>19.1.1.2.4.1. Selection</b>		P	pk	-				
<b>19.1.1.2.4.2. Phase identification</b>		P	pk	-				
<b>19.1.1.2.4.3. Connect</b>		P	pk	-				
<b>19.1.1.2.5. Check phase rotation</b>		P	pk	-				
<b>19.1.1.3. Perform:</b>								
<b>19.1.1.3.1. Pre-operational inspection</b>		P	pk	-				
<b>19.1.1.3.2. Operational inspection</b>		P	pk	-				
<b>19.1.1.3.3. Post-operational inspection</b>		P	pk	-				
<b>19.1.1.3.4. Single unit operation</b>		P	pk	-				
<b>19.1.1.3.5. Parallel unit operation</b>		P	pk	-				
<b>19.1.1.3.6. Scheduled inspections</b>		P	pk	-				
<b>19.1.1.4. Test generator set using load bank</b>		P	pk	-				
<b>19.1.1.5. Disconnect generator from load</b>		P	pk	-				
<b>19.1.1.6. Troubleshoot:</b>								
<b>19.1.1.6.1. Engine system</b>		P	pk	-				
<b>19.1.1.6.2. Electrical system</b>		P	pk	-				
<b>19.2. Telescopic floodlight set</b> TR: 35F5-5-21-1; AFPAM 10-219, Vol 5								
<b>19.2.1. Install</b>		P	pk	-				
<b>19.2.2. Inspect</b>		P	pk	-				
<b>19.2.3. Operate</b>		P	pk	-				
<b>19.2.4. Troubleshoot</b>		P	pk	-				
<b>19.2.5. Maintain</b>		P	pk	-				
<b>20. CIVILIAN SUPERVISION REQUIREMENTS</b>								
<b>20.1. Civilian Supervisor Course</b>				X				
<b>20.2. WMGT 571 Course</b>				X				



Attachment 2

1. Tasks, Knowledge and Technical References	2. Duty Position Tasks and Proficiency Codes				3. Certification of Training			
	A/ H	J	C/WL	S	Trng  Strt	Trng  Com	Trne  Init	Trnr  Init

<b>ANY ADDITIONAL REQUIREMENTS CAN BE ADDED HERE</b>								
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## Attachment 3

### Locally Developed Training Supplement