

Training and Evaluation Outline Report

Status: Approved

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Task Number: 05-PLT-5724

Task Title: Install Expedient, Surface-Laid, Electrical-Power Distribution Equipment

Distribution Restriction: Approved for public release; distribution is unlimited.

Destruction Notice: None

Foreign Disclosure: FD1 - This training product has been reviewed by the training developers in coordination with the Fort Leonard Wood, MSCoE foreign disclosure officer. This training product can be used to instruct international military students from all approved countries without restrictions.

Supporting Reference(s):

Step Number	Reference ID	Reference Name	Required	Primary
	AFH 10-222	Guide to Contingency Electrical Power System Installation, Volume 5.	Yes	No
	AR 385-10	The Army Safety Program http://www.apd.army.mil/pdf/files/r385_10.pdf	Yes	No
	ATP 5-19 (Change 001 09/08/2014 78 Pages)	RISK MANAGEMENT http://armypubs.army.mil/doctrine/DR_pubs/dr_a/pdf/atp5_19.pdf	Yes	No
	EM 385-1-1	Safety and Health Requirements.	Yes	No
	ER 385-1-31	Safety & Occupational Health. The Control of Hazardous Energy (Safe Clearance).	Yes	No
	NESCR®	National Electrical Safety Code. 2012 Edition	Yes	No
	NETA?	Maintenance Testing Specifications for Electrical Power Distribution Equipment & Systems. 2007	Yes	No
	NFPA 70	National Electrical Code	Yes	No
	NFPA 70E	Standard for Electrical Safety Requirements for Employee Workplaces. 2004	Yes	No
	TM 3-34.45	ENGINEER PRIME POWER OPERATIONS	Yes	No
	TM 5-302-4	ARMY FACILITIES COMPONENTS SYSTEM: DESIGN (S&I, USAEDH, ATTN: HNDED-FD, HUNTSVILLE, AL 35807-4301)	Yes	No
	TM 5-682	Facilities Engineering: Electrical Facilities Safety.	Yes	Yes

Conditions: The element is directed to install an expedient, surface-laid, electrical-power distribution system in support of operations. The element has all Personal Protective Equipment (PPE), required tools and equipment, and personnel assigned by Table of Organization and Equipment (TOE). The Bill of Materials (BOM), wiring diagrams and construction plans and specifications are provided. Work site security is provided by the supported unit.

Note: The Commander must still determine at what level of training they would want the element to perform. Crawl, walk or run. This can only be determined after consideration as to the units training level.

The Commander prior to evaluating an element in the conduct of the task must determine if it will be conducted in a Live, Virtual, or Constructive environment, additionally it must also be determined which condition as described below that the element will conduct the task. The selection made for this task is at a trained level of proficiency. The commander must determine which of the environments below will best suit the unit and the proficiency level at which the unit is. When conducting crawl or walk level training units should not increase the intensity until the unit has achieved the standards and then unit trainers should include variables that increase proficiency in all conditions.

Note: The condition statement for this task is written assuming the highest training conditions reflected on the Task Proficiency matrix required for the evaluated unit to receive a "fully trained" (T) rating.

Note: Condition terms definitions:

Dynamic Operational Environment: Three or more operational and two or more mission variables change during the execution of the assessed task. Operational variables and threat Tactics, Techniques, and Procedures (TTPs) for assigned counter-tasks change in response to the execution of Blue Forces (BLUFOR) tasks.

Complex Operational Environment: Changes to four or more operational variables impact the chosen friendly COA/mission. Brigade and higher units require all eight operational variables of Political, Military, Economic, Social, Infrastructure, Information, Physical environment, and Time (PMESII-PT) to be replicated in varying degrees based on the task being trained.

Single threat: Regular, irregular, criminal or terrorist forces are present.

Hybrid threat: Diverse and dynamic combination of regular forces, irregular forces, and/or criminal elements all unified to achieve mutually benefiting effects.

This task should not be trained in MOPP 4.

Standards: The element installs the distribution system in a manner consistent with the mission requirements, the system design criteria, and the approved procedures for installing surface-laid distribution systems and equipment.

Note: Leaders are defined as the Commander, Executive Officer, First Sergeant, Operations Sergeant, Platoon Leaders, Platoon Sergeants, Squad Leaders, and Team Leaders

Live Fire Required: No

Objective Task Evaluation Criteria Matrix:

Plan and Prepare		Execute					Assess		
Operational Environment	Squad & Platoon	Training Environment (LW/C)	Training/Authorized % of Leaders Present at	% of Soldiers Present at	External Eval	% Performance Measures 'GO'	% Critical Performance Measures 'GO'	% Leader Performance Measures 'GO'	Task Assessment
Dynamic (Single Threat)	Night	IAW unit CATS statement.	>=85%	>=80%	Yes	>=91%	All	>=90%	T
	Day		75-84%			80-90%		80-89%	T-
Static (Single Threat)	Night		65-74%	75-79%	No	65-79%	<All	<=79%	P
	Day		60-64%	60-74%		51-64%			P-
				<=59%		<=59%	<=50%	U	

Remarks: None

Notes: All required references and technical manuals will be provided by the local command.

Safety Risk: Medium

Task Statements

Cue: None

DANGER

1. THIS TASK SHOULD ONLY BE PERFORMED BY QUALIFIED PERSONNEL WHO ARE KNOWLEDGEABLE IN THE INSTALLATION, OPERATION, AND MAINTENANCE OF MEDIUM-VOLTAGE ELECTRICAL POWER GENERATION EQUIPMENT AND ITS ASSOCIATED HAZARDS. FAILURE TO COMPLY MAY CAUSE PERMANENT INJURY OR DEATH.
2. REMOVE RINGS, NECKLACES, OTHER JEWELRY AND LOOSE CLOTHING. FAILURE TO COMPLY MAY CAUSE PERMANENT INJURY OR DEATH.
3. DO NOT OPERATE THE GENERATOR SET UNLESS IT HAS BEEN PROPERLY GROUNDED. FAILURE TO COMPLY MAY CAUSE PERMANENT INJURY OR DEATH.

Leaders have an inherent responsibility to conduct Risk Management to ensure the safety of all Soldiers and promote mission accomplishment.

WARNING

Risk management is the Army's primary decision-making process to identify hazards, reduce risk, and prevent both accidental and tactical loss. All Soldiers have the responsibility to learn and understand the risks associated with this task.

CAUTION

NOISE LEVELS IN EXCESS OF 85 DECIBELS EXIST WITHIN A 50-FOOT RADIUS OF OPERATING EQUIPMENT. ALWAYS WEAR SINGLE HEARING PROTECTION WITHIN A 50-FOOT RADIUS OF OPERATING EQUIPMENT. FAILURE TO COMPLY MAY CAUSE INJURY.

Identifying hazards and controlling risks across the full spectrum of Army functions, operations and activities is the responsibility of all Soldiers.

Performance Steps and Measures

NOTE: Assess task proficiency using the task evaluation criteria matrix.

NOTE: Asterisks (*) indicate leader steps; plus signs (+) indicate critical steps.

STEP/MEASURE	GO	NO-GO	N/A
+* 1. The element leader performs construction management functions.			
+ a. Verifies the BOM for the project.			
+ b. Prepares the Critical Path Method (CPM) diagram for the project.			
+ c. Directs element to inventory BOM.			
+ d. Assembles work crews and assigns responsibilities.			
+ e. Coordinates nonorganic construction support from higher Headquarters (HQ).			
+* 2. The element leader develops and implements a work site safety plan.			
+ a. Produces a risk assessment matrix.			
+ b. Assigns a work site safety Non-Commissioned Officer (NCO).			
+ c. Conducts a work project safety briefing, reviewing the following requirements:			
(1) Wearing PPE and clothing.			
(2) Using ground guides for vehicles and materials handling equipment.			
(3) Using correct hand-and-arm signals to communicate boom, hook, or fork movement for materials handling equipment.			
(4) Safe clearance procedures.			
+ d. The element inspects the following items for safety and serviceability:			
(1) Individual safety and protective equipment.			
(2) Cable handling and laying equipment.			
(3) Rigging equipment.			
* 3. The element leader verifies the cable right-of-way selection.			
+ 4. The element installs the distribution system.			
+ a. Conducts a preinstallation inspection and testing of system electrical equipment.			
+ b. Places the system hardware, materials, and equipment along the right-of-way required for completion of a system installation.			
+ c. The power plant electrical crew installs expedient distribution system substation equipment.			
(1) Prepares a temporary mounting pad for substation equipment.			
(2) Positions the substation equipment on the pad.			
+ d. The power plant electrical crew installs surface-laid distribution system cables.			
(1) Lays out the power cables.			
(2) Performs a power cable acceptance test.			
(3) Splices the power cables.			
(4) Terminates the power cables.			
(5) Connects the power cables into the system.			
(6) Performs a power cable continuity test.			
(7) Installs the distribution system equipment grounds.			
+ e. The power plant electrical crew installs the expedient, surface-laid distribution system and the equipment protective barriers.			
+ 5. The element performs the distribution system after-installation inspection and acceptance testing.			
+ a. Reviews the data from the cable acceptance test and verifies power cable serviceability.			
+ b. Inspects the splices and the terminations for serviceability.			
+ c. Ensures the phase sequencing of the power cables.			
+ d. Ensures the servicing and proper setup of substation equipment.			
+ e. Makes necessary corrections and repairs.			
+ 6. The element prepares an expedient distribution system according to the as-built diagram.			
+* 7. The element leader supervises the installation of expedient, surface-laid electrical-power distribution equipment.			
+ a. Enforces work site safety.			
+ b. Manages the CPM and makes changes required.			
+ c. Provides technical expertise and guidance.			
+ d. Conducts Quality Assurance (QA) and Quality Control (QC) inspections.			
+ e. Conducts an After Action Review (AAR).			
+ f. Submits reports to higher HQ In Accordance With (IAW) unit Standing Operating Procedure (SOP).			

TASK PERFORMANCE / EVALUATION SUMMARY BLOCK							
ITERATION	1	2	3	4	5	M	TOTAL
TOTAL PERFORMANCE MEASURES EVALUATED							
TOTAL PERFORMANCE MEASURES GO							
TRAINING STATUS GO/NO-GO							

ITERATION: 1 2 3 4 5 M

COMMANDER/LEADER ASSESSMENT: T P U

Mission(s) supported: None

MOPP 4: Never

MOPP 4 Statement: None

NVG: Never

NVG Statement: None

Prerequisite Collective Task(s):

Step Number	Task Number	Title	Proponent	Status
	05-CO-5750	Provide Prime Power Support	05 - Engineers (Collective)	Approved

Supporting Collective Task(s):

Step Number	Task Number	Title	Proponent	Status
	05-CO-0018	Conduct Report Procedures	05 - Engineers (Collective)	Approved
	05-PLT-5725	Install Aerial Electrical Power Distribution Equipment	05 - Engineers (Collective)	Approved
	05-PLT-5729	Operate Power Generation and Distribution Equipment	05 - Engineers (Collective)	Approved
	71-CO-5100	Conduct Troop Leading Procedures for Companies	71 - Combined Arms (Collective)	Approved
1.	05-CO-5250	Perform Construction Operations	05 - Engineers (Collective)	Approved
7.	05-CO-5001	Perform Project Management	05 - Engineers (Collective)	Approved

OPFOR Task(s):

Task Number	Title	Status
71-CO-8502	OPFOR Execute an Ambush	Approved
71-CO-9004	OPFOR Reconnaissance Attack (Company and below)	Approved

Supporting Individual Task(s):

Step Number	Task Number	Title	Proponent	Status
	052-204-1108	Inspect Safety Equipment	052 - Engineer (Individual)	Approved
	052-204-1117	Inspect Hot-Line Equipment	052 - Engineer (Individual)	Approved
	052-204-1119	Perform Operator Preventive-Maintenance Checks and Services (PMCS) on a Line Truck With Auxiliary Equipment	052 - Engineer (Individual)	Approved
	052-204-1120	Install a Grounding Set	052 - Engineer (Individual)	Approved
	052-204-1122	Install Distribution Equipment (De-energized)	052 - Engineer (Individual)	Approved
	052-204-1125	Operate a Line Truck with Auxiliary Equipment	052 - Engineer (Individual)	Approved
	052-204-1202	Maintain Rigging/Hoisting Equipment	052 - Engineer (Individual)	Approved
	052-204-1204	Tie Rope Knots and Splices	052 - Engineer (Individual)	Approved
	052-204-1213	Splice a Medium-Voltage URD Power Cable	052 - Engineer (Individual)	Approved
	052-204-1214	Terminate a Medium-Voltage URD Power Cable	052 - Engineer (Individual)	Approved
	052-204-2207	Conduct a Safety Briefing	052 - Engineer (Individual)	Approved
	052-204-2208	Conduct a Safety Inspection	052 - Engineer (Individual)	Approved
	052-204-2209	Install Distribution Equipment (Energized)	052 - Engineer (Individual)	Approved
	052-204-2211	Develop a Bill of Materials (BOM) List	052 - Engineer (Individual)	Approved
	052-204-2212	Energize an Electrical Distribution System	052 - Engineer (Individual)	Approved
	052-204-2213	Locate an Underground Cable and/or Fault	052 - Engineer (Individual)	Approved
	052-204-2215	Perform an Insulation-Resistance Test	052 - Engineer (Individual)	Approved
	052-204-2216	Perform Maintenance on Electrical Distribution Equipment	052 - Engineer (Individual)	Approved
	052-204-2217	Manage a Power Line Crew	052 - Engineer (Individual)	Approved
	052-204-2301	Perform Switching, Blocking and Tagging Procedures	052 - Engineer (Individual)	Approved
	052-204-2302	Install Distribution System Protection and Equipment (Energized)	052 - Engineer (Individual)	Approved
	052-204-2303	Perform Primary Voltage Live-Line Testing	052 - Engineer (Individual)	Approved
	052-204-2304	Perform Secondary Voltage Live-Line Testing	052 - Engineer (Individual)	Approved
	052-204-2305	Trouble Shoot Primary/Secondary Voltage Systems	052 - Engineer (Individual)	Approved
	052-204-2309	Design Underground Electrical Distribution System	052 - Engineer (Individual)	Approved
	052-206-2115	Service a Distribution Transformer	052 - Engineer (Individual)	Approved
	052-206-2119	Perform an Insulation Resistance Test to Determine the Condition of the Insulation	052 - Engineer (Individual)	Approved
	052-206-2136	Perform an Insulation Resistance Test	052 - Engineer (Individual)	Approved
	052-206-3101	Produce an Electrical Schematic	052 - Engineer (Individual)	Approved
	052-207-2126	Produce an Electronic Schematic	052 - Engineer (Individual)	Approved
	052-210-1101	Manage Risk Management of Power Generation Systems	052 - Engineer (Individual)	Approved
	052-210-1102	Develop a Power Plant Safety SOP	052 - Engineer (Individual)	Approved
	052-210-1103	Manage Installation of a Medium Voltage Non-Aerial Air Switch	052 - Engineer (Individual)	Approved
	052-210-1105	Manage the Installation of Distribution Equipment	052 - Engineer (Individual)	Approved
	052-210-1110	Manage Load Assessment	052 - Engineer (Individual)	Approved
	052-210-1117	Design a Temporary Medium Voltage Distribution System	052 - Engineer (Individual)	Approved
	052-210-1138	Manage the Installation of Expedient, Surface-Laid, Electrical-Power Distribution Equipment	052 - Engineer (Individual)	Approved
	052-210-1144	Manage Disaster Relief Operations	052 - Engineer (Individual)	Approved
	052-239-3001	Prepare a Bill of Materials	052 - Engineer (Individual)	Approved
	052-239-3030	Read Construction Prints	052 - Engineer (Individual)	Approved
	052-244-2105	Rescue a Victim From a Non-aerial Electrical Conductor	052 - Engineer (Individual)	Approved
	052-244-2144	Read a Schematic	052 - Engineer (Individual)	Approved
	052-244-3113	Supervise the Maintenance of Distribution Equipment	052 - Engineer (Individual)	Approved
	052-244-3114	Supervise an Automatic Transfer Switch (ATS) Service	052 - Engineer (Individual)	Approved
	052-244-4205	Perform Electrical Project Management	052 - Engineer (Individual)	Approved
	052-244-4206	Perform Quality Assurance (QA) and/or Quality Control (QC) Responsibilities	052 - Engineer (Individual)	Approved
	052-244-4209	Perform Quality Assurance (QA) and/or Quality Control (QC) Duties	052 - Engineer (Individual)	Approved
	052-244-4210	Supervise a Power Plant Installation	052 - Engineer (Individual)	Approved
	052-244-4211	Conduct Contract Officer's Technical Representative (COTR) Operations	052 - Engineer (Individual)	Approved

Supporting Drill(s): None

Supported AUTL/UJTL Task(s):

Task ID	Title
ART 4.1.7.4	Supply Mobile Electric Power

TADSS

TADSS ID	Title	Product Type	Quantity
No TADSS specified			

Equipment (LIN)

LIN	Nomenclature	Qty
No equipment specified		

Materiel Items (NSN)

NSN	LIN	Title	Qty
No materiel items specified			

Environment: Environmental protection is not just the law but the right thing to do. It is a continual process and starts with deliberate planning. Always be alert to ways to protect our environment during training and missions. In doing so, you will contribute to the sustainment of our training resources while protecting people and the environment from harmful effects. Refer to the current Environmental Considerations manual and the current GTA Environmental-related Risk Assessment card. .

Safety: In a training environment, leaders must perform a risk assessment in accordance with ATP 5-19, Risk Management. Leaders will complete the current Deliberate Risk Assessment Worksheet in accordance with the TRADOC Safety Officer during the planning and completion of each task and sub-task by assessing mission, enemy, terrain and weather, troops and support available-time available and civil considerations, (METT-TC). Note: During MOPP training, leaders must ensure personnel are monitored for potential heat injury. Local policies and procedures must be followed during times of increased heat category in order to avoid heat related injury. Consider the MOPP work/rest cycles and water replacement guidelines IAW FM 3-11.4, Multiservice Tactics, Techniques, and Procedures for Nuclear, Biological, and Chemical (NBC) Protection, FM 3-11.5, Multiservice Tactics, Techniques, and Procedures for Chemical, Biological, Radiological, and Nuclear Decontamination. .