Report Date: 27 Sep 2013

Summary Report for Individual Task
052-204-1120
Install a Grounding Set
Status: Approved

Condition: As a Power Line Distribution Specialist in a tactical or nontactical environment when a grounding set needs to be installed, you are given electrical construction prints, applicable climbing and rigging equipment (and/or a Bucket/Material Handler Truck), hot-line tools, a voltage detector, a lockout and tagout kit, the Lineman's and Cableman's Handbook (LCH), and the applicable personal protective equipment (PPE). This task should not be trained in MOPP.

Standard: Install a grounding set by electrically connecting conductors to the ground. Ensure that conductors are at the same electrical potential using the provided grounding and test equipment.

Special Condition: None

Safety Level: Low

MOPP: Never

Task Statements

Cue: None

DANGER

THIS TASK SHOULD ONLY BE PERFORMED BY QUALIFIED PERSONNEL KNOWLEDGEABLE IN THE INSTALLATION, OPERATION, AND MAINTENANCE OF MEDIUM-VOLTAGE ELECTRICAL POWER GENERATION EQUIPMENT AND THE ASSOCIATED HAZARDS. FAILURE TO COMPLY MAY CAUSE PERMANENT INJURY OR DEATH. 2. A VOLTAGE DETECTOR SHOULD BE USED TO ENSURE THAT CABLES ARE NOT ENERGIZED. MATERIAL (SUCH AS A LEAD SHEATH THAT ACTS AS A SHIELD) MUST NOT BE BETWEEN THE VOLTAGE DETECTOR AND THE CONDUCTORS OF THE CIRCUIT BEING TESTED. FAILURE TO TEST CABLES MAY CAUSE PERMANENT INJURY OR DEATH. 3. ALL SYSTEMS ARE CONSIDERED ENERGIZED UNTIL THE ENERGY SOURCE IS REMOVED, LOCKED OUT (WHEN POSSIBLE), TAGGED OUT, AND GROUNDED. WHEN ENERGY-ISOLATING DEVICES CANNOT BE PHYSICALLY LOCKED OUT, USE TAGOUT PROCEDURES. FAILURE TO COMPLY MAY CAUSE PERMANENT INJURY OR DEATH.

WARNING

None

CAUTION

None

Remarks: Waiting on equipment to be installed on TDC

Notes: None

Performance Steps

1. Inspect tools and equipment for serviceability.

2. Perform switching, blocking and tagging procedures.

3. Test phases to ensure that they are isolated and that there is no voltage present.

   Note: Ensure to test voltage detector prior too and after testing the system.

4. Connect one end of the grounding conductor to an established ground (usually the grounded neutral conductor).

   Note: The preferred method is a driven ground rod at the work site connected to the neutral conductor to provide additional protection.

5. Install a grounding cluster block on the pole below the work area if work is to be performed on a wooden pole.

   Note: Ensure that the grounding cluster is physically and electrically connected to the established ground before moving to the next step.

6. Connect the other end of the grounding conductor, using a hot-line tool, to the bottom conductor on vertical constructions or the closest conductor on horizontal constructions.

7. Install grounds or jumpers from a grounded conductor to the ungrounded conductor in sequence until all conductors are grounded and short-circuited together.

8. Double-check connections to ensure that they are clean and tight.

9. Ensure that all parts of the grounding circuit have adequate current-carrying capacity for the distribution system to be grounded.

   Note: Check ground size to ensure it matches a possible system fault current.

10. Remove the grounds (when work is complete) in the exact reverse sequence of installation, ensuring that established ground connection removal was last.

WARNING

BEFORE THE LOCKOUT OR TAGOUT DEVICES ARE REMOVED AND ELECTRIC CIRCUITS OR EQUIPMENT ARE REENERGIZED, APPROPRIATE TESTS AND VISUAL INSPECTIONS MUST BE CONDUCTED BY AUTHORIZED PERSONNEL (THE INSTALLER). THE INSTALLER WILL VERIFY THAT TOOLS; MECHANICAL RESTRAINTS; AND ELECTRICAL JUMPERS, SHORTS, AND GROUNDS HAVE BEEN REMOVED. THE ENTIRE WORK AREA IS INSPECTED AND NONESSENTIAL ITEMS ARE REMOVED FROM THE SYSTEM. FAILURE TO COMPLY MAY CAUSE IMMEDIATE INJURY OR EQUIPMENT DAMAGE.

11. Close out switching, blocking and tagging procedures by removing blocking and tagging devices.

12. Ensure that the items listed in the conditions are properly cleaned and stored.

(Asterisks indicates a leader performance step.)

Evaluation Preparation: Provide the Soldier with all the items listed in the conditions. Give the Soldier a safety briefing before starting the test, and ensure that all safety precautions are followed. Prepare the testing area and equipment in advance to ensure that the task standards can be met.

PERFORMANCE MEASURES	GO	NO-GO	N/A
1. Inspected tools and equipment for serviceability.			
2. Performed switching, blocking and tagging procedures.			
3. Tested phases to ensure that they were isolated and that there was no voltage present.			
4. Connected one end of the grounding conductor to an established ground (usually the grounded neutral conductor).			
5. Installed a grounding cluster block on the pole below the work area if work was performed on a wooden pole.			
6. Connected the other end of the grounding conductor, using a hot-line tool, to the bottom conductor on vertical constructions or the closest conductor on horizontal constructions.			
7. Installed grounds or jumpers from a grounded conductor to the ungrounded conductor in sequence until all conductors were grounded and short-circuited together.			
8. Double-checked connections to ensure that they were clean and tight.			
9. Ensured that all parts of the grounding circuit had adequate current-carrying capacity for the distribution system to be grounded.			
10. Removed the grounds (when work was completed) in the exact reverse sequence of installation, ensuring that established ground connection removal was last.			
11. Closed out switching, blocking and tagging procedures by removing blocking and tagging devices.			
12. Ensured that the items listed in the conditions were properly cleaned and stored.			

Supporting Reference(s):

Step Number	Reference ID	Reference Name	Required	Primary
	EM 385-1-1	Safety and Health Requirements.	No	No
	LCH	The Lineman's and Cableman's Handbook, 11th Edition, McGraw-Hill. 2007	Yes	No
	TM 5-684	Facilities Engineering - Electrical Exterior Facilities. NAVFAC MO-200/AFJMAN 32-1082.	No	No
	TM 5-811-3	Electrical Design: Lightning and Static Electricity Protection. AFM 88-9, Chap 3.	No	No

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 FM 3-34.5 Environmental Considerations and GTA 05-08-002 ENVIRONMENTAL-RELATED RISK ASSESSMENT. 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 FM 3-34.5 Environmental Considerations and GTA 05-08-002 ENVIRONMENTAL-RELATED RISK ASSESSMENT.

For classroom instruction:
No major environmental impact, training entirely of an administrative or classroom nature, with little or no environmental impact on the environment, equipment or personnel. [32 CFR Part 651, Appendix B, Section II, (i)(2)]

For practical exercises and demonstrations:
Instructors should complete a risk assessment before conducting training, operations, or logistical activities. Risk assessments assist instructors in identifying potential environmental hazards, develops controls, make risk decisions, implement controls, and ensure proper supervision and evaluation. FM 3-100.4, Environmental Considerations in Military Operations.

Safety: In a training environment, leaders must perform a risk assessment in accordance with FM 5-19, Composite Risk

Management. Leaders will complete a DA Form 7566 COMPOSITE RISK MANAGEMENT WORKSHEET 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. In a training environment, leaders must perform a risk assessment in accordance with FM 5-19, Composite Risk Management. Leaders will complete a DA Form 7566 COMPOSITE RISK MANAGEMENT WORKSHEET 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, NBC Protection, FM 3-11.5, CBRN Decontamination.

Prerequisite Individual Tasks :

Task Number	Title	Proponent	Status
052-204-1203	Perform Operator Preventive-Maintenance Checks and Services (PMCS) on a Bucket/Material Handler Truck	052 - Engineer (Individual)	Reviewed
052-204-1117	Inspect Hot-Line Equipment	052 - Engineer (Individual)	Reviewed
052-204-1114	Rescue an Injured Victim From a Utility Pole	052 - Engineer (Individual)	Reviewed
052-204-1124	Climb a Utility Pole	052 - Engineer (Individual)	Approved
052-204-1116	Rescue an Injured Victim From an Aerial-Bucket Truck	052 - Engineer (Individual)	Reviewed
052-204-1108	Inspect Safety Equipment	052 - Engineer (Individual)	Reviewed
052-204-1212	Operate a Bucket/Material Handler Truck	052 - Engineer (Individual)	Analysis Completed

Supporting Individual Tasks :

Task Number	Title	Proponent	Status
052-204-1203	Perform Operator Preventive-Maintenance Checks and Services (PMCS) on a Bucket/Material Handler Truck	052 - Engineer (Individual)	Reviewed
052-204-1117	Inspect Hot-Line Equipment	052 - Engineer (Individual)	Reviewed
052-204-1127	Perform Groundman Duties	052 - Engineer (Individual)	Reviewed
052-204-1116	Rescue an Injured Victim From an Aerial-Bucket Truck	052 - Engineer (Individual)	Reviewed
052-204-1113	Prepare a Manhole for Safe Entry	052 - Engineer (Individual)	Reviewed
052-204-1202	Maintain Rigging/Hoisting Equipment	052 - Engineer (Individual)	Reviewed
052-204-2301	Perform Switching, Blocking and Tagging Procedures	052 - Engineer (Individual)	Reviewed
052-204-1212	Operate a Bucket/Material Handler Truck	052 - Engineer (Individual)	Analysis Completed
052-204-1204	Tie Rope Knots and Splices	052 - Engineer (Individual)	Analysis Completed
052-204-1123	Secure Conductor to Insulator (De-energized)	052 - Engineer (Individual)	Reviewed

Supported Individual Tasks :

Task Number	Title	Proponent	Status
052-204-2213	Locate an Underground Cable and/or Fault	052 - Engineer (Individual)	Reviewed
052-204-1215	Splice a Medium-Voltage Overhead Power Cable	052 - Engineer (Individual)	Reviewed
052-204-2307	Supervise the Installation of a Utility Pole Line	052 - Engineer (Individual)	Analysis Completed

052-204-2216	Perform Maintenance on Electrical Distribution Equipment	052 - Engineer (Individual)	Reviewed
052-204-2301	Perform Switching, Blocking and Tagging Procedures	052 - Engineer (Individual)	Reviewed
052-204-1211	Install Distribution System Protection and Equipment (De-energized)	052 - Engineer (Individual)	Reviewed
052-204-2305	Trouble Shoot Primary/Secondary Voltage Systems	052 - Engineer (Individual)	Analysis Completed
052-204-2217	Manage a Power Line Crew	052 - Engineer (Individual)	Analysis Completed
052-204-2218	Supervise the Installation of Underground Cable	052 - Engineer (Individual)	Approved
052-204-1123	Secure Conductor to Insulator (De-energized)	052 - Engineer (Individual)	Reviewed
052-204-1126	Perform Crossarm Change Out (With Conductors)	052 - Engineer (Individual)	Reviewed
052-204-1205	Install Underground Cable	052 - Engineer (Individual)	Analysis Completed
052-204-1209	String Single Phase and Three Phase Overhead Conductors	052 - Engineer (Individual)	Analysis Completed
052-204-1210	Sag Single Phase and Three Phase Overhead Conductors	052 - Engineer (Individual)	Analysis Completed
052-204-1213	Splice a Medium-Voltage URD Power Cable	052 - Engineer (Individual)	Reviewed
052-204-1214	Terminate a Medium-Voltage URD Power Cable	052 - Engineer (Individual)	Approved

Supported Collective Tasks :

Task Number	Title	Proponent	Status
05-3-5725	Install Aerial Electrical Power Distribution Equipment	05 - Engineers (Collective)	Approved
05-3-5707	Perform Nonorganic Power Generation System Maintenance Operations	05 - Engineers (Collective)	Approved
05-3-5730	Perform Electrical-Power Generation Equipment Organizational Maintenance Operations	05 - Engineers (Collective)	Approved
05-3-5700	Created from Template: Install Nonstandard Low-Voltage, Electrical-Power Distribution Equipment	05 - Engineers (Collective)	Analysis
05-3-5704	Created from Template: Perform Nonorganic Equipment Power Distribution Maintenance Operations	05 - Engineers (Collective)	Analysis
05-3-5705	Retrieve Electrical-Power Generation and Distribution Equipment	05 - Engineers (Collective)	Approved
05-3-5703	Perform Electrical Safety Systems Testing and Maintenance	05 - Engineers (Collective)	Approved
05-3-5701	Install Low-Voltage, Electrical-Power Distribution Equipment	05 - Engineers (Collective)	Approved
05-3-5731	Perform Electrical-Power, Distribution Equipment Organizational Maintenance Operations	05 - Engineers (Collective)	Approved
05-3-5733	Perform Power Plant and Distribution Equipment Shipment	05 - Engineers (Collective)	Approved
05-3-5729	Operate Power Generation and Distribution Equipment	05 - Engineers (Collective)	Approved
05-3-5724	Install Expedient, Surface-Laid, Electrical-Power Distribution Equipment	05 - Engineers (Collective)	Approved
05-3-5702	Install Underground Electrical-Power Distribution Equipment	05 - Engineers (Collective)	Approved

05-3-5700	Install Nonstandard Low-Voltage, Electrical-Power Distribution Equipment	05 - Engineers (Collective)	Approved
05-3-5732	Conduct Electrical-Power Generation Equipment Intermediate Maintenance Operations	05 - Engineers (Collective)	Approved
05-3-5727	Install Underground Distribution Equipment	05 - Engineers (Collective)	Approved
05-3-5728	Assess Power Generation Systems for Damage	05 - Engineers (Collective)	Approved
05-3-5704	Perform Nonorganic Equipment Power Distribution Maintenance Operations	05 - Engineers (Collective)	Approved
05-3-5723	Install Prime Power Generation Equipment	05 - Engineers (Collective)	Approved
05-3-5702	Created from Template: Install Underground Electrical-Power Distribution Equipment	05 - Engineers (Collective)	Analysis
05-3-5700	Created from Template: Install Nonstandard Low-Voltage, Electrical-Power Distribution Equipment	05 - Engineers (Collective)	Analysis
05-3-5701	Created from Template: Install Low-Voltage, Electrical-Power Distribution Equipment	05 - Engineers (Collective)	Analysis

ICTL Data :

ICTL Title	Personnel Type	MOS Data
MOS 12Q10 ICTL	Enlisted	MOS: 12Q, Skill Level: SL1