

Report Date: 02 Oct 2013

**Summary Report for Individual Task
052-204-2216
Perform Maintenance on Electrical Distribution Equipment
Status: Approved**

DISTRIBUTION RESTRICTION: Approved for public release; distribution is unlimited.

DESTRUCTION NOTICE: None

Condition: As a Power Line Distribution Supervisor in a tactical or nontactical environment when maintenance must be performed on electrical distribution equipment, you are given electrical one-line diagrams for the distribution equipment, applicable climbing and rigging equipment, hot-line tools, an electrician's tool kit, a voltage detector, a lockout and tagout kit, grounding equipment, safety standing operating procedures (SOPs), the applicable manufacturer's literature or industry standards, the Lineman's and Cableman's Handbook (LCH), the applicable personal protective equipment (PPE), electrical construction prints, wiring diagrams, and insulating protective equipment. This task should not be trained in MOPP.

Standard: Perform maintenance on electrical distribution equipment by inspecting and testing as specified in the applicable manufacturer's literature. Reinstall or repair equipment based on the test results.

Special Condition: None

Safety Level: Low

MOPP: Never

Task Statements

Cue: None

DANGER

1. THIS TASK SHOULD ONLY BE PERFORMED BY QUALIFIED PERSONNEL KNOWLEDGEABLE IN THE INSTALLATION AND MAINTENANCE OF ELECTRICAL DISTRIBUTION SYSTEMS AND POWER EQUIPMENT AND THE ASSOCIATED HAZARDS. FAILURE TO COMPLY MAY CAUSE PERMANENT INJURY OR DEATH.

2. A VOLTAGE DETECTOR SHOULD BE USED TO ENSURE THAT THE CABLES ARE NOT ENERGIZED. MATERIAL (SUCH AS A LEAD SHEATH THAT ACTS AS A SHIELD) MUST NOT BE BETWEEN THE TESTER AND THE CONDUCTORS OF THE CIRCUIT BEING TESTED. FAILURE TO TEST THE CABLES MAY CAUSE PERMANENT INJURY OR DEATH.

3. REMOVE RINGS, NECKLACES, OTHER JEWELRY, AND LOOSE CLOTHING. FAILURE TO COMPLY MAY CAUSE PERMANENT INJURY OR DEATH.

4. DO NOT TOUCH EXPOSED ELECTRICAL CONNECTIONS WHEN A SOURCE OF POWER IS CONNECTED TO THE DISTRIBUTION SYSTEM. FAILURE TO COMPLY MAY CAUSE PERMANENT INJURY OR DEATH.

5. THIS TASK SHOULD ONLY BE PERFORMED ON EQUIPMENT THAT DOES NOT CONTAIN POLYCHLORINATED BIPHENYL (PCB). FAILURE TO COMPLY MAY CAUSE SKIN AILMENTS, REPRODUCTIVE DISORDERS, LIVER DISEASE, AND OTHER ADVERSE HEALTH CONDITIONS RESULTING IN PERMANENT INJURY OR DEATH.

6. DO NOT EXCEED THE MAXIMUM VOLTAGE STIPULATED FOR SPECIFIC TESTS. FAILURE TO COMPLY WITH RATED VOLTAGES MAY CAUSE EQUIPMENT DAMAGE AND RESULT IN PERMANENT INJURY OR DEATH.

7. THE INSULATION TESTER PRODUCES A HIGH VOLTAGE. TO AVOID PERSONAL INJURY DURING THE TEST, DO NOT TOUCH THE CABLE BEING TESTED OR THE TEST LEADS. ALWAYS REMOVE THE POWER, AND DISCHARGE AND GROUND THE CIRCUIT FOR TWICE THE AMOUNT OF TIME THAT IT WAS TESTED BEFORE HANDLING. FAILURE TO COMPLY MAY CAUSE PERMANENT INJURY OR DEATH.

WARNING

HEATERS IN THE ENCLOSURE MAY CAUSE SERIOUS BURNS EVEN AFTER THE POWER HAS BEEN REMOVED. CONTACT WITH HEATERS MAY CAUSE IMMEDIATE PERSONAL INJURY.

CAUTION

None

Remarks: None

Notes: Conduct tests as specified in the manufacturer's literature or industry standards.

Performance Steps

1. Review danger, warning, and caution notices before proceeding.
2. Review the manufacturer's literature, electrical construction prints, and wiring diagrams.
3. Ensure that PPE is correctly tested and fully mission-capable.
4. Inspect tools and testing equipment for serviceability.
5. Perform switching, blocking and tagging procedures.
6. Ascend the pole to the required height if necessary.
7. Test the phases to ensure that there is no voltage present.
8. Install personal protective grounds.
9. Perform maintenance on electrical distribution equipment by inspecting and testing it according to the applicable manufacturer's literature.
10. Record the inspection and test results.
11. Repair or replace equipment based on the inspection and test results.
12. Remove personal protective grounds.
13. Close out switching, blocking and tagging procedures by removing blocking and tagging devices and performing switching operations.
14. Perform a functions check on the electrical distribution system.
15. 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 the items in the conditions. Give the Soldier a safety briefing before starting the test, and ensure that all safety precautions are followed. Prepare testing area and equipment in advance to ensure that the task standards can be met.

PERFORMANCE MEASURES	GO	NO-GO	N/A
1. Reviewed danger, warning, and caution notices before proceeding.			
2. Reviewed the manufacturer's literature, electrical construction prints, and wiring diagrams.			
3. Ensured that PPE was correctly tested and fully mission-capable.			
4. Inspected tools and testing equipment for serviceability.			
5. Performed switching, blocking and tagging procedures.			
6. Ascended the pole to the required height if necessary.			
7. Tested the phases to ensure that there was no voltage present.			
8. Installed personal protective grounds.			
9. Performed maintenance on electrical distribution equipment by inspecting and testing it according to the applicable manufacturer's literature.			
10. Recorded the inspection and test results.			
11. Repaired or replaced equipment based on the inspection and test results.			
12. Removed personal protective grounds.			
13. Closed out switching, blocking and tagging procedures by removing blocking and tagging devices and performing switching operations.			
14. Performed a functions check on the electrical distribution system.			
15. 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
	ER 385-1-31	Safety & Occupational Health. The Control of Hazardous Energy (Safe Clearance).	No	No
	FM 5-412	PROJECT MANAGEMENT	No	No
	LCH	The Lineman's and Cableman's Handbook, 11th Edition, McGraw-Hill. 2007	Yes	No
	NETA™	Maintenance Testing Specifications for Electrical Power Distribution Equipment & Systems. 2007	No	No
	TM 3-34.45	ENGINEER PRIME POWER OPERATIONS	No	No
	TM 5-682	Facilities Engineering: Electrical Facilities Safety.	No	No
	TM 5-684	Facilities Engineering - Electrical Exterior Facilities. NAVFAC MO-200/AFJMAN 32-1082.	No	No
	TM 5-686	Power Transformer Maintenance and Acceptance Testing.	No	No
	TM 5-811-1	Electric Power Supply and Distribution {AFJMAN 32-1080}	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.

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. Everyone is responsible for safety. A thorough risk assessment must be completed prior to every mission or operation.

Prerequisite Individual Tasks :

Task Number	Title	Proponent	Status
052-204-1115	Rescue an Injured Victim From a Manhole	052 - Engineer (Individual)	Reviewed
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
052-204-1108	Inspect Safety Equipment	052 - Engineer (Individual)	Reviewed
052-204-1124	Climb a Utility Pole	052 - Engineer (Individual)	Approved
052-204-1120	Install a Grounding Set	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)	Reviewed
052-204-1201	Maintain Climbing Equipment	052 - Engineer (Individual)	Reviewed
052-204-1125	Operate a Line Truck with Auxiliary Equipment	052 - Engineer (Individual)	Reviewed
052-204-1128	Interpret an Electrical One-Line Diagram	052 - Engineer (Individual)	Reviewed
052-204-1114	Rescue an Injured Victim From a Utility Pole	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
052-204-1212	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
052-204-1214	Terminate a Medium-Voltage URD Power Cable	052 - Engineer (Individual)	Approved
052-204-1117	Inspect Hot-Line Equipment	052 - Engineer (Individual)	Reviewed
052-204-1120	Install a Grounding Set	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)	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
052-204-2304	Perform Secondary Voltage Live-Line Testing	052 - Engineer (Individual)	Analysis Completed

052-204-2213	Locate an Underground Cable and/or Fault	052 - Engineer (Individual)	Approved
052-204-1206	Use a Line Truck with Trailer to Load and Unload Poles	052 - Engineer (Individual)	Approved
052-204-2306	Supervise the installation of a Utility Pole	052 - Engineer (Individual)	Analysis Completed
052-204-1209	String 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
052-204-2303	Perform Primary Voltage Live-Line Testing	052 - Engineer (Individual)	Analysis Completed
052-204-1215	Splice a Medium-Voltage Overhead Power Cable	052 - Engineer (Individual)	Reviewed
052-204-1125	Operate a Line Truck with Auxiliary Equipment	052 - Engineer (Individual)	Reviewed
052-302-7104	Direct Installation of Theater of Operation (T/O) Electrical Equipment / Fixtures	052 - Engineer (Individual)	Approved
052-204-2207	Conduct a Safety Briefing	052 - Engineer (Individual)	Reviewed
052-204-1205	Install Underground Cable	052 - Engineer (Individual)	Analysis Completed
052-204-2208	Conduct a Safety Inspection	052 - Engineer (Individual)	Approved
052-204-1116	Rescue an Injured Victim From an Aerial-Bucket Truck	052 - Engineer (Individual)	Reviewed
052-204-2211	Develop a Bill of Materials (BOM) List	052 - Engineer (Individual)	Reviewed
052-204-1113	Prepare a Manhole for Safe Entry	052 - Engineer (Individual)	Reviewed
052-204-1126	Perform Crossarm Change Out (With Conductors)	052 - Engineer (Individual)	Reviewed
052-204-1212	Operate a Bucket/Material Handler Truck	052 - Engineer (Individual)	Analysis Completed
052-204-1211	Install Distribution System Protection and Equipment (De-energized)	052 - Engineer (Individual)	Approved
052-204-1204	Tie Rope Knots and Splices	052 - Engineer (Individual)	Analysis Completed

Supported Individual Tasks :

Task Number	Title	Proponent	Status
052-204-2304	Perform Secondary Voltage Live-Line Testing	052 - Engineer (Individual)	Analysis Completed
052-204-2217	Manage a Power Line Crew	052 - Engineer (Individual)	Analysis Completed

Supported Collective Tasks :

Task Number	Title	Proponent	Status
05-3-5701	Created from Template: Install Low-Voltage, Electrical-Power Distribution Equipment	05 - Engineers (Collective)	Analysis
05-3-5704	Perform Nonorganic Equipment Power Distribution Maintenance Operations	05 - Engineers (Collective)	Approved
05-3-5727	Install Underground Distribution Equipment	05 - Engineers (Collective)	Approved
05-3-5702	Install Underground Electrical-Power Distribution Equipment	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

05-3-5700	Created from Template: Install Nonstandard Low-Voltage, Electrical-Power Distribution Equipment	05 - Engineers (Collective)	Analysis
05-3-5700	Install Nonstandard Low-Voltage, Electrical-Power Distribution Equipment	05 - Engineers (Collective)	Approved
05-3-5724	Install Expedient, Surface-Laid, Electrical-Power Distribution Equipment	05 - Engineers (Collective)	Approved
05-3-5702	Created from Template: Install Underground Electrical-Power Distribution Equipment	05 - Engineers (Collective)	Analysis
05-3-5731	Perform Electrical-Power, Distribution Equipment Organizational Maintenance Operations	05 - Engineers (Collective)	Approved
05-3-5701	Install Low-Voltage, Electrical-Power Distribution Equipment	05 - Engineers (Collective)	Approved
05-3-5703	Perform Electrical Safety Systems Testing and Maintenance	05 - Engineers (Collective)	Approved
05-3-5728	Assess Power Generation Systems for Damage	05 - Engineers (Collective)	Approved
05-3-5725	Install Aerial Electrical Power Distribution Equipment	05 - Engineers (Collective)	Approved

ICTL Data :

ICTL Title	Personnel Type	MOS Data
12Q20, Power Line Distribution Specialist, skill level 2	Enlisted	MOS: 12Q, Skill Level: SL2