

**Summary Report for Individual Task
052-204-2210
Secure Conductor to Insulator (Energized)
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 conductors need to be secured to insulators and after lines have been properly sagged [energized]), you are given appropriately sized clips and/or ties for the conductors , applicable climbing and rigging equipment, safety standing operating procedures (SOPs), the Lineman's and Cableman's Handbook (LCH), hot-line tools, a voltage detector, grounding equipment, applicable personal protective equipment (PPE), and insulating protective equipment. This task should not be trained in MOPP.

Standard: Secure a conductor to an insulator (energized) ensuring that all phases are level and the conductors are not stressed.

Special Condition: None

Safety Level: Medium

MOPP: Never

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| Task Statements |
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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, ALONG WITH THE ASSOCIATED HAZARDS. FAILURE TO COMPLY MAY CAUSE IMMEDIATE DEATH OR PERMANENT INJURY.
2. A VOLTAGE DETECTION TESTER SHOULD BE USED TO ENSURE THAT THE CABLE IS 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 IMMEDIATE DEATH OR PERMANENT INJURY.
3. DO NOT TOUCH EXPOSED ELECTRICAL CONNECTIONS WITHOUT THE PROPER PROTECTIVE GEAR WHEN THE POWER SOURCE IS CONNECTED TO THE FUSE. FAILURE TO COMPLY MAY CAUSE IMMEDIATE DEATH OR PERMANENT INJURY.
4. REMOVE ALL RINGS, NECKLACES, OTHER JEWELRY, AND LOOSE CLOTHING. FAILURE TO COMPLY MAY CAUSE IMMEDIATE DEATH OR PERMANENT INJURY.

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| WARNING |
| None |

CAUTION

None

Remarks: None

Notes: None

Performance Steps

1. Ensure that all PPE and hot-line equipment has been correctly tested and is fully mission capable.
2. Determine the best tie method for each location.
 - a. Use preformed tie wires, if available.

Note: Preformed tie wires are not one size fits all. They must match the application and conductor size.
 - b. Use armor rod ties, when applicable

Note: An armor rod tie is used to protect the conductors from damage due to vibration and is placed on the conductors the same way as preformed tie wires.
 - c. Use a top tie wire when the conductor is in the top groove of the insulator.
 - (1) Center the tie wire on the top of the insulator, pulling one end toward and one end away from you. Both sides of the tie wire should be of equal length and positioned under the conductor. Wrap both ends halfway around the insulator.
 - (2) Tighten both tie wires against the insulator and wrap 2 close wraps, 3 spaced wraps, and 2 more close wraps around the conductor.
 - (3) Bend the ends back, and cut off the excess tie wire.
 - d. Use a side tie wire when the conductor pulls against the side of the insulator.
 - (1) Center the tie wire on the back side of the insulator, pulling the ends toward you and forming a U. Both sides of the tie wire should be of equal length and positioned under the conductor.
 - (2) Tighten the tie wires against the insulator, and wrap 2 close wraps, 3 spaced wraps, and 2 more close wraps around the conductor.
 - (3) Bend the ends back, and cut off the excess tie wire.
3. Inspect the ties to ensure that the conductors remain secure.
4. Ensure that all PPE, hot-line equipment, climbing and rigging equipment, and tools are correctly 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. Ensured that all PPE and hot-line equipment had been correctly tested and was fully mission capable. | | | |
| 2. Determined the best tie method for each location. | | | |
| a. Used preformed tie wires, if available. | | | |
| b. Used armor rod ties, when applicable. | | | |
| c. Used a top tie wire when the conductor was in the top groove of the insulator. | | | |
| d. Used a side tie wire when the conductor pulled against the side of the insulator. | | | |
| 3. Inspected the ties to ensure that the conductors remained secure. | | | |
| 4. Ensured that all PPE, hot-line equipment, climbing and rigging equipment, and tools were correctly 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 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 5-811-1 | 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 |
|-------------|-------|-----------|--------|
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| 052-204-1203 | Perform Operator Preventive-Maintenance Checks and Services (PMCS) on a Bucket/Material Handler Truck | 052 - Engineer (Individual) | Reviewed |
| 052-204-1125 | Operate a Line Truck with Auxiliary Equipment | 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 |
| 052-204-1127 | Perform Groundman Duties | 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 |
| 052-204-1119 | 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 |
| 052-204-1202 | Maintain Rigging/Hoisting Equipment | 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 |

Supporting Individual Tasks :

| Task Number | Title | Proponent | Status |
|--------------|---|-----------------------------|--------------------|
| 052-204-1210 | Sag Single Phase and Three Phase Overhead Conductors | 052 - Engineer (Individual) | Analysis Completed |
| 052-204-1209 | String Single Phase and Three Phase Overhead Conductors | 052 - Engineer (Individual) | Analysis Completed |
| 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 |
| 052-204-1202 | Maintain Rigging/Hoisting Equipment | 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 |
| 052-204-1204 | Tie Rope Knots and Splices | 052 - Engineer (Individual) | Analysis Completed |

Supported Individual Tasks :

| Task Number | Title | Proponent | Status |
|--------------|--|-----------------------------|--------------------|
| 052-204-3015 | Supervise the Sagging of Overhead Conductors | 052 - Engineer (Individual) | Approved |
| 052-204-2217 | Manage a Power Line Crew | 052 - Engineer (Individual) | Analysis Completed |
| 052-204-2302 | Install Distribution System Protection and Equipment (Energized) | 052 - Engineer (Individual) | Analysis Completed |

Supported Collective Tasks :

| Task Number | Title | Proponent | Status |
|-------------|--|-----------------------------|----------|
| 05-3-5731 | Perform Electrical-Power, Distribution Equipment Organizational Maintenance Operations | 05 - Engineers (Collective) | Approved |

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| 05-3-5725 | Install Aerial Electrical Power Distribution Equipment | 05 - Engineers (Collective) | Approved |
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ICTL Data :

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