

**Summary Report for Individual Task**  
**052-204-1215**  
**Splice a Medium-Voltage Overhead Power Cable**  
**Status: Approved**

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

DESTRUCTION NOTICE: None

**Condition:** As a Power Line Distribution Specialist in a tactical or nontactical environment during an initial installation of cables where power cables must be joined or a power cable is damaged beyond repair, you are given an applicable splice kit with instructions, applicable tools specified in the splice kit instructions, an electrician's tool kit, a lockout and tagout kit, grounding equipment, a megohmmeter test set, a voltage detector, applicable manufacturer's literature, applicable personal protective equipment, Bucket/Material handler Truck and/or applicable climbing and rigging equipment, four conductor grips, strap hoist, universal sticks with attachments, and resistor sticks for overhead splices. This task should not be trained in MOPP.

**Standard:** Splice a medium-voltage power cable so that the splice meets the rating of the original cable and does not create an electrical hazard to personnel or equipment. Ensure that the cable is capable of transmitting the maximum electrical load without excessive heating and is at the full mechanical strength of the conductors.

**Special Condition:** None

**Safety Level:** Low

**MOPP:** Never

|                        |
|------------------------|
| <b>Task Statements</b> |
|------------------------|

**Cue:** None

## DANGER

A VOLTAGE DETECTOR SHOULD BE USED TO ENSURE THAT CABLES ARE NOT ENERGIZED. MATERIALS (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 COMPLY MAY CAUSE PERMANENT INJURY OR DEATH.

## WARNING

1. THE SPLICER'S TOOLS, HANDS, AND SPLICING MATERIALS MUST BE KEPT CLEAN DURING CONSTRUCTION. FAILURE TO COMPLY MAY CAUSE IMMEDIATE PERSONAL INJURY OR EQUIPMENT DAMAGE.
2. EMPLOY EVERY RESOURCE TO PREVENT MOISTURE (DRIPPINGS, CONDENSATION, and PERSPIRATION) FROM ENTERING THE JOINT INSULATION. FAILURE TO COMPLY MAY CAUSE IMMEDIATE PERSONAL INJURY OR EQUIPMENT DAMAGE.

## CAUTION

None

**Remarks:** None

**Notes:** There are several types of splicing kits available for use with medium-voltage power cables. Each kit contains specific instructions on how to make the splice. Always follow the manufacturer's guidelines for the particular kit used.



## **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 DISTRIBUTION EQUIPMENT AND ITS 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 DETECTOR AND THE CONDUCTORS OF THE CIRCUIT BEING TESTED. FAILURE TO COMPLY MAY CAUSE PERMANENT INJURY OR DEATH.
3. ALL SYSTEMS ARE CONSIDERED ENERGIZED UNTIL THE ENERGY SOURCE IS REMOVED, LOCKED OUT (WHEN POSSIBLE), AND TAGGED OUT. WHEN ENERGY-ISOLATING DEVICES CANNOT BE PHYSICALLY LOCKED OUT, USE TAGOUT PROCEDURES. FAILURE TO COMPLY MAY CAUSE PERMANENT INJURY OR DEATH.

1. Perform switching, blocking and tagging procedures.

Note: 1) Authorized personnel applying lockout and tagout devices are also for ensuring the control of residual energy and for placing, tagging, and removing protective grounds.

- 2) Safe clearances must be used for electrical work performed on de-energized lines and for equipment operating over 600 volts.

2. Inspect the splice kit.

- a. Use the correct splice kit for the cable.
- b. Inventory the kit to ensure that all components/parts are present.

3. Prepare the cable, and splice it according to the manufacturer's literature.

- a. Measure and mark the cable.

Note: If the two cables do not have enough length to be spliced, an additional length of cable will be needed.

- b. Inspect the cable for carbon particles, and remove those that are found.
- c. Inspect the cable jacket for nicks, and remove those that are found.

4. Align cables so that the ends of the conductors conjoin squarely.

- a. Ensure that cuts are squarely made and leave a smooth edge.
- b. Ensure all cables are proper length to make connection.

5. Splice overhead, medium-voltage cables.

- a. Use the automatic sleeve splice.

(1) Rig as necessary.

(2) Trim to the desired length.

(3) Clean and insert conductors into the sleeve ends.

b. Use the compression sleeve splice.

(1) Rig as necessary.

(2) Trim to the desired length.

(3) Clean and insert conductors into the sleeve ends.

(4) Crimp the sleeve using a compression tool.

c. Use the western union splice.

(1) Rig as necessary.

(2) Trim to the desired length.

(3) Clean and wrap the conductors.

6. Clean surfaces with an approved solvent to remove carbon dust and residue.

Note:

7. Ensure that overhead conductors are resagged.

8. Test the splice to ensure that it meets the cable rating.

## WARNING

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

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

(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. Performed switching, blocking and tagging procedures.   |    |       |     |
| 2. Inspected the splice kit.   |    |       |     |
| 3. Prepared the cable and spliced it according to the manufacturer's literature.   |    |       |     |
| 4. Aligned cables so that the ends of the conductors conjoined squarely.   |    |       |     |
| 5. Spliced overhead, medium-voltage cables.  |    |       |     |
| 6. Applied the connector using the correct compression tool.   |    |       |     |
| 7. Cleaned surfaces with an approved solvent to remove carbon dust and residue.  |    |       |     |
| 8. Ensured that overhead conductors were resagged.   |    |       |     |
| 9. Tested the splice to ensure that it met the cable rating.   |    |       |     |
| 10. Closed out switching, blocking and tagging procedures by performing switching and removing blocking and tagging devices. |    |       |     |

**Supporting Reference(s):**

| Step Number | Reference ID | Reference Name   | Required | Primary |
|-------------|--------------|--|----------|---------|
|             | EM 385-1-1   | Safety and Health Requirements.  | No       | No      |
|             | FM 5-412     | PROJECT MANAGEMENT   | No       | No      |
|             | LCH          | The Lineman's and Cableman's Handbook, 11th Edition, McGraw-Hill. 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.

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 :**

| <b>Task Number</b> | <b>Title</b>  | <b>Proponent</b>            | <b>Status</b>      |
|--------------------|---|-----------------------------|--------------------|
| 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           |
| 052-204-1128       | Interpret an Electrical One-Line Diagram  | 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           |
| 052-204-1120       | 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           |
| 052-204-1202       | 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 :**

| <b>Task Number</b> | <b>Title</b>  | <b>Proponent</b>            | <b>Status</b>      |
|--------------------|---|-----------------------------|--------------------|
| 052-204-1210       | Sag 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           |
| 052-204-2303       | Perform Primary Voltage Live-Line Testing   | 052 - Engineer (Individual) | Analysis Completed |
| 052-204-1117       | Inspect Hot-Line Equipment  | 052 - Engineer (Individual) | Reviewed           |
| 052-204-1116       | Rescue an Injured Victim From an Aerial-Bucket Truck  | 052 - Engineer (Individual) | Reviewed           |
| 052-204-1120       | Install a Grounding Set   | 052 - Engineer (Individual) | Approved           |
| 052-204-1113       | Prepare a Manhole for Safe Entry  | 052 - Engineer (Individual) | Reviewed           |
| 052-204-1202       | Maintain Rigging/Hoisting Equipment   | 052 - Engineer (Individual) | Reviewed           |

|              |   |                             |                    |
|--------------|---|-----------------------------|--------------------|
| 052-204-1212 | 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             |
|--------------|---|-----------------------------|--------------------|
| 052-204-2212 | Energize an Electrical Distribution System                          | 052 - Engineer (Individual) | Reviewed           |
| 052-204-1121 | Install High-Intensity Lights and Ballasts                          | 052 - Engineer (Individual) | Analysis Completed |
| 052-204-1211 | Install Distribution System Protection and Equipment (De-energized) | 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           |
| 052-204-2216 | Perform Maintenance on Electrical Distribution Equipment            | 052 - Engineer (Individual) | Approved           |
| 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 |
| 052-204-3016 | Supervise the Stringing of Overhead Conductors                      | 052 - Engineer (Individual) | Approved           |

**Supported Collective Tasks :**

| Task Number | Title   | Proponent                   | Status   |
|-------------|---|-----------------------------|----------|
| 05-3-5700   | Install Nonstandard Low-Voltage, Electrical-Power Distribution Equipment                        | 05 - Engineers (Collective) | Approved |
| 05-3-5704   | Perform Nonorganic Equipment Power Distribution Maintenance Operations                          | 05 - Engineers (Collective) | Approved |
| 05-3-5700   | Created from Template: Install Nonstandard Low-Voltage, Electrical-Power Distribution Equipment | 05 - Engineers (Collective) | Analysis |
| 05-3-5731   | Perform Electrical-Power, Distribution Equipment Organizational Maintenance Operations          | 05 - Engineers (Collective) | Approved |
| 05-3-5729   | Operate Power Generation and Distribution Equipment   | 05 - Engineers (Collective) | Approved |
| 05-3-5700   | Created from Template: Install Nonstandard Low-Voltage, Electrical-Power Distribution Equipment | 05 - Engineers (Collective) | Analysis |
| 05-3-5725   | Install Aerial Electrical Power Distribution Equipment  | 05 - Engineers (Collective) | Approved |
| 05-3-5704   | Created from Template: Perform Nonorganic Equipment Power Distribution Maintenance Operations   | 05 - Engineers (Collective) | Analysis |

**ICTL Data :**

| ICTL Title   | Personnel Type | MOS Data                   |
|--|----------------|----------------------------|
| 12Q10, Power Line Distribution Specialist, skill level 1 | Enlisted       | MOS: 12Q, Skill Level: SL1 |