

M5-1

Labor shall be based on the following:

Construction

- Connection of the jumper to Hot Line Clamp and clamp to stirrup – See appropriate M5-23 specification for stirrup details

Removal

- Remove Hot Line Clamp and associated jumper
- All Removed Material shall be returned to the District Storeroom in which the project is located

Replacement

- Removal of Hot Line Clamp and jumper
- Install new jumper to Hot Line Clamp and clamp to stirrup – See appropriate M5-23 specification for stirrup details
- All Removed Material shall be returned to the District Storeroom in which the project is located

M5-2

Labor shall be based on the following:

Construction

- Install pole top pin and insulator in accordance to the Construction Specification Drawing – Note if used as a jumper support on the side of the pole, mounting holes may have to be drilled
- Tie in conductor

Removal

- Untie conductor from insulator
- Remove pole top pin and insulator
- All Removed Material shall be returned to the District Storeroom in which the project is located

Replacement

- Untie conductor, remove pole top pin and insulator
- Install new pole top pin and insulator, retie conductor– Note if used as a jumper support on the side of the pole, mounting holes may have to be drilled
- Labor and Temporary Material needed to support conductors during replacement in existing line (i.e. “buddy arms”, cover up, switching to de-energize line, etc)
- All Removed Material shall be returned to the District Storeroom in which the project is located

M5-3

Labor shall be based on the following:

Construction

- Install insulator on pin – may require installing a pin adaptor
- Tie conductor to Insulator

Removal

- Untie conductor from insulator
- Remove insulator from pin
- All Removed Material shall be returned to the District Storeroom in which the project is located

Replacement

- Untie conductor and remove insulator
- Replace with new insulator and retie conductor to insulator – may require installing a pin adaptor
- Labor and Temporary Material needed to support conductors during replacement in an existing line (i.e. “buddy arms”, cover up, switching to de-energize, etc.)
- All Removed Material shall be returned to the District Storeroom in which the project is located

M5-4

Labor shall be based on the following:

Construction

- Install jumper pin in accordance to the Construction Specification Drawing – Note jumper pin is a double arming bolt w/adapter and pin insulator
- Drilling a hole may be required to install jumper pin in proper location
- Tie conductor to insulator

Removal

- Untie jumper from insulator
- Remove jumper pin and associated Hardware
- All Removed Material shall be returned to the District Storeroom in which the project is located

Replacement

- Labor and Temporary Material needed to replacement jumper pin in an existing line (i.e. “buddy arms”, cover up, switching to de-energize, etc.)
- Untie jumper from insulator
- Remove jumper pin and associated Hardware
- Install new jumper pin and associated Hardware
- Tie conductor to insulator
- All Removed Material shall be returned to the District Storeroom in which the project is located

M5-5

Labor shall be based on the following:

Construction

- Install crossarm pin and insulator in accordance to the Construction Specification Drawing for the primary unit specified
- Tie conductor to insulator
- Drilling a mounting hole in crossarm may be required

Removal

- Untie conductor from insulator
- Remove crossarm pin and insulator
- All Removed Material shall be returned to the District Storeroom in which the project is located

Replacement

- Labor and Temporary Material needed to replace crossarm pin and insulator in an existing line (i.e. "buddy arms", cover up, switching to de-energize, etc.)
- Untie conductor from insulator
- Remove crossarm pin and insulator
- Install new crossarm pin and insulator in accordance to the construction Specification Drawing for the primary unit specified
- Retie conductor to insulator
- All Removed Material shall be returned to the District Storeroom in which the project is located

M5-6/VM5-6/ZM5-6,UM5-6/VUM5-6

Labor shall be based on the following:

Construction

- Install lightning arrester to appropriate attachment point
- Installation of all wildlife guards
- Connect a jumper to the phase conductor, using a hot line camp to a stirrup, and to the line side of lightning arrester. Then connect a jumper from the bottom of the lightning arrester to pole ground
- M5-6 is a 10kV arrester, VM5-6 is an 18kV arrester, ZM5-6 is a kV arrester is a 287kV arrester, Um5-6 is a 10kV Riser class arrester, VUM5-6 is an 18kV Riser class arrester.

Removal

- Remove jumper from the phase conductor, typically attached by a hot line clamp to a stirrup, and jumper from the bottom of the arrester to the pole ground. Then remove the lightning arrester.
- All Removed Material shall be returned to the District Storeroom in which the project is located

Replacement

- Remove jumpers from lightning arrester and remove lightning arrester
- Install new lightning arrester and reconnect jumpers to lightning arrester
- Installation of all wildlife guards
- All Removed Material shall be returned to the District Storeroom in which the project is located

M5-6/VM5-6/ZM5-6/UM5-6/VUM5-6

Labor shall be based on the following:

Construction

- Install lightning arrester to appropriate attachment point
- Installation of all wildlife guards
- Connect a jumper to the phase conductor, using a hot line camp to a stirrup, and to the line side of lightning arrester. Then connect a jumper from the bottom of the lightning arrester to pole ground
- M5-6 is a 10kV arrester, VM5-6 is an 18kV arrester, ZM5-6 is a 27kV arrester, UM5-6 is a 10kV Riser class arrester, VUM5-6 is an 18kV Riser class arrester.

Removal

- Remove jumper from the phase conductor, typically attached by a hot line clamp to a stirrup, and jumper from the bottom of the arrester to the pole ground. Then remove the lightning arrester.
- All Removed Material shall be returned to the District Storeroom in which the project is located

Replacement

- Remove jumpers from lightning arrester and remove lightning arrester
- Install new lightning arrester and reconnect jumpers to lightning arrester
- Installation of all wildlife guards
- All Removed Material shall be returned to the District Storeroom in which the project is located

M5-7

Labor shall be based on the following:

Construction

- Install clamp type crossarm pin and insulator in accordance to the Construction Specification Drawing for the primary unit specified
- Tie conductor to insulator

Removal

- Untie conductor from insulator
- Remove clamp type crossarm pin and insulator
- All Removed Material shall be returned to the District Storeroom in which the project is located

Replacement

- Labor and Temporary Material needed to replace clamp type crossarm pin and insulator in an existing line (i.e. "buddy arms", cover up, switching to de-energize, etc.)
- Untie conductor from insulator
- Remove clamp type crossarm pin and insulator
- Install new clamp type crossarm pin and insulator in accordance to the Construction Specification Drawing for the primary unit specified
- Retie conductor to insulator
- All Removed Material shall be returned to the District Storeroom in which the project is located

M5-12

Labor shall be based on the following:

Construction

- Install Crossarm Brace in accordance to Specification Drawing – Note the crossarm brace attaches to pole with a lag screw and mounts on the side of a crossarm with a machine bolt

Removal

- Remove Crossarm Brace and associated Hardware
- All Removed Material shall be returned to the District Storeroom in which the project is located

Replacement

- Any labor and temporary material needed as required for working on existing line (i.e. cover ups, buddy arms, switching to de-energize line, etc.)
- Remove Crossarm Brace and associated hardware
- Mount new Crossarm Brace with associated hardware
- All Removed Material shall be returned to the District Storeroom in which the project is located

M5-13

Labor shall be based on the following:

Construction

- Install Heavy Duty Crossarm Brace in accordance to Construction Specification Drawing – Note HD Crossarm Brace is attached to a pole and crossarm with a machine bolt and mounts on the bottom side of crossarm

Removal

- Remove Heavy Duty Crossarm Brace and associated hardware
- All Removed Material shall be returned to the District Storeroom in which the project is located

Replacement

- Any labor and temporary material needed as required for working on existing line (i.e. cover ups, buddy arms, switching to de-energize line, etc.)
- Remove Existing Crossarm Brace and associated hardware
- Install new Heavy Duty Crossarm Brace with associated hardware— Note HD Crossarm Brace is attached to a pole and crossarm with a machine bolt and mounts on the bottom side of crossarm
- All Removed Material shall be returned to the District Storeroom in which the project is located

M5-15/M5-16/M5-16-18

Labor shall be based on the following:

Construction

- Install Crossarm in accordance to the Construction Specification Drawing – Note: if a standard wood crossarm is used a crossarm protector is required. Alternative would be a specially treated wood crossarm or a fiberglass crossarm. Verify type of crossarm specified for the project.
 - M5-15 is a eight foot crossarm
 - M5-16 is a ten foot crossarm
 - M5-16-18 is a eighteen foot crossarm
- Mount with machine bolt, square washers, nut and lock nut – 18' arm would take a ten foot and one eight foot protector and is some cases the protector needs to be installed upside down.

Removal

- Remove Crossarm and associated Hardware
- If crossarm has a crossarm protector this needs to be removed from crossarm
- All Removed Material shall be returned to the District Storeroom in which the project is located

Replacement

- Labor and Temporary Material needed to support conductors during replacement in the existing line (i.e. "buddy arms", switching to de-energize line, etc.)
- Remove crossarm and associated hardware – If crossarm has a crossarm protector this needs to be removed from crossarm
- Mount new Crossarm with associated hardware – Note: if a standard wood crossarm is used a crossarm protector is required. Alternative would be a specially treated wood crossarm or a fiberglass crossarm. Verify type of crossarm specified for the project.
 - M5-15 is a eight foot crossarm
 - M5-16 is a ten foot crossarm
 - M5-16-18 is a eighteen foot crossarm
- Mount with machine bolt, square washers, nut and lock nut – 18' arm would take a ten foot and one eight foot protector and is some cases the protector needs to be installed upside down.
- All Removed Material shall be returned to the District Storeroom in which the project is located

M5-18

Labor shall be based on the following:

Construction

- Assemble Split Bolt as shown in the Construction Specification Drawing – It will be installed in the predrilled hole six inches down from top of pole

Removal

- Remove Split Bolt
- All Removed Material shall be returned to the District Storeroom in which the project is located

Replacement

- Any labor and temporary material needed as required for working on existing line (i.e. cover ups, buddy arms, switching to de-energize line, etc.)
- Remove existing Split Bolt and replace with new Split Bolt assembled as shown in the Construction Specification Drawing– It will be installed in the predrilled hole six inches down from top of pole
- All Removed Material shall be returned to the District Storeroom in which the project is located

M5-18 alt

Labor shall be based on the following:

Construction

- Assemble Split Bolt as shown in the Construction Specification Drawing
- Split Bolt will be installed in the predrilled hole six inches down from top of pole unless pole is not predrilled or it is used in the existing framing which will require the hole to be drilled

Removal

- Remove Split Bolt
- All Removed Material shall be returned to the District Storeroom in which the project is located

Replacement

- Any labor and temporary material needed as required for working on existing line (i.e. cover ups, buddy arms, switching to de-energize line, etc.)
- Remove existing Split Bolt and replace with new Split Bolt and assemble as shown on the Construction specification Drawing
- Split Bolt will be installed in the predrilled hole six inches down from top of pole unless pole is not predrilled or it is used in the existing framing which will require the hole to be drilled
- All Removed Material shall be returned to the District Storeroom in which the project is located

M5-20

Labor shall be based on the following:

Construction

- Attach to appropriate structure attachment point and attach the conductor shoe
- See appropriate M41or M42 specification for conductor shoe requirements

Removal

- Detach conductor shoe from insulator – separate removal specification
- Detach insulator from structure attachment point
- All Removed Material shall be returned to the District Storeroom in which the project is located

Replacement

- Any labor and temporary material needed as required for working on existing line (i.e. cover ups, buddy arms, switching to de-energize line, etc.)
- Detach conductor shoe from insulator and remove insulator from the structure attachment point
- Install new insulator to the structure attachment point along with reattachment of conductor shoe
- See appropriate M41or M42 specification for conductor shoe requirements
- All Removed Material shall be returned to the District Storeroom in which the project is located

M5-21

Labor shall be based on the following:

Construction

- Attach insulator link to appropriate structure attachment point and insulator attachment point (i.e. eye bolt, Polymer Insulator)

Removal

- Detach insulator link from structure and insulator attachment points (i.e. eye bolt, Polymer Insulator)
- All Removed Material shall be returned to the District Storeroom in which the project is located

Replacement

- Any labor and temporary material needed as required for working on existing line (i.e. cover ups, buddy arms, switching to de-energize line, etc.)
- Detach insulator link from insulator and structure attachment points (i.e. eye bolt, Polymer Insulator)
- Reattach insulator link to structure and insulator attachment points (i.e. eye bolt, Polymer Insulator)
- All Removed Material shall be returned to the District Storeroom in which the project is located

M5-23'S

Labor shall be based on the following:

Construction

- Attach stirrup, clamp-on or shoot-on, to specified conductor

Removal

- Detach stirrup, clamp-on or shoot-on, from conductor – Hot line clamp and jumper removed prior on separate removal
- All Removed Material shall be returned to the District Storeroom in which the project is located

Replacement

- Any labor and temporary material needed as required for working on existing line (i.e. cover ups, switching to de-energize line, etc.)
- Remove hotline clamp with jumper from stirrup
- Detach stirrup, clamp-on or shoot-on, then attach new replacement stirrup
- Reconnect hotline clamp with jumper to new stirrup
- All Removed Material shall be returned to the District Storeroom in which the project is located