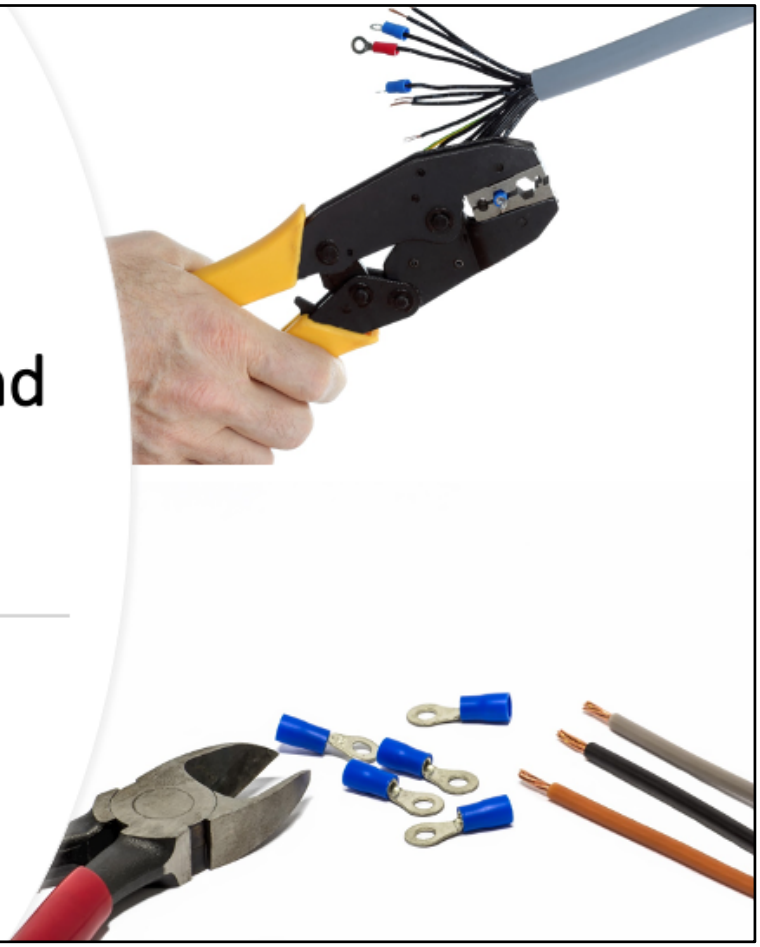
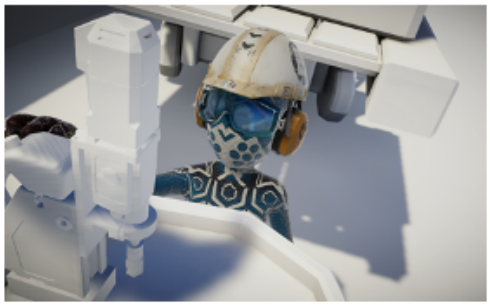
Cable Preparation and Termination

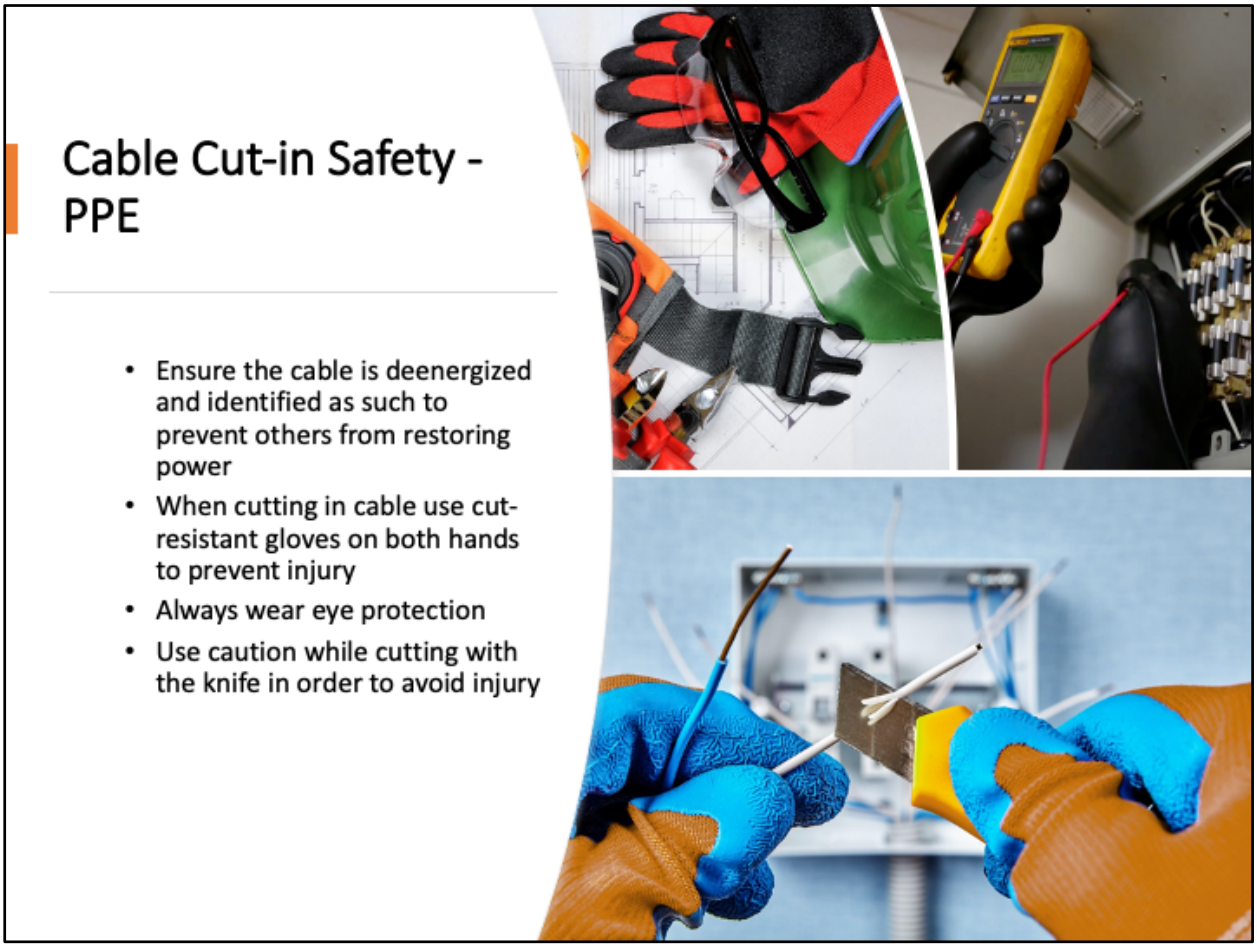


- In this lesson you will become familiar with some basic safety procedures observed in cable preparation and termination, gain an understanding cable cut-in techniques and methods, and learn about the tools normally used.

Cable Cut-in Safety



Cable cutting and stripping requires the use of very sharp tools that could easily cause injury. It is very important to work with care and wear appropriate personal protective gear such as cut resistant gloves on both hands.



•As electricians, you must always know whether equipment is energized. You may have heard “familiarity breeds contempt.” Do not allow your familiarity with electrical systems and equipment to make you careless. NEVER cut into a live cable.

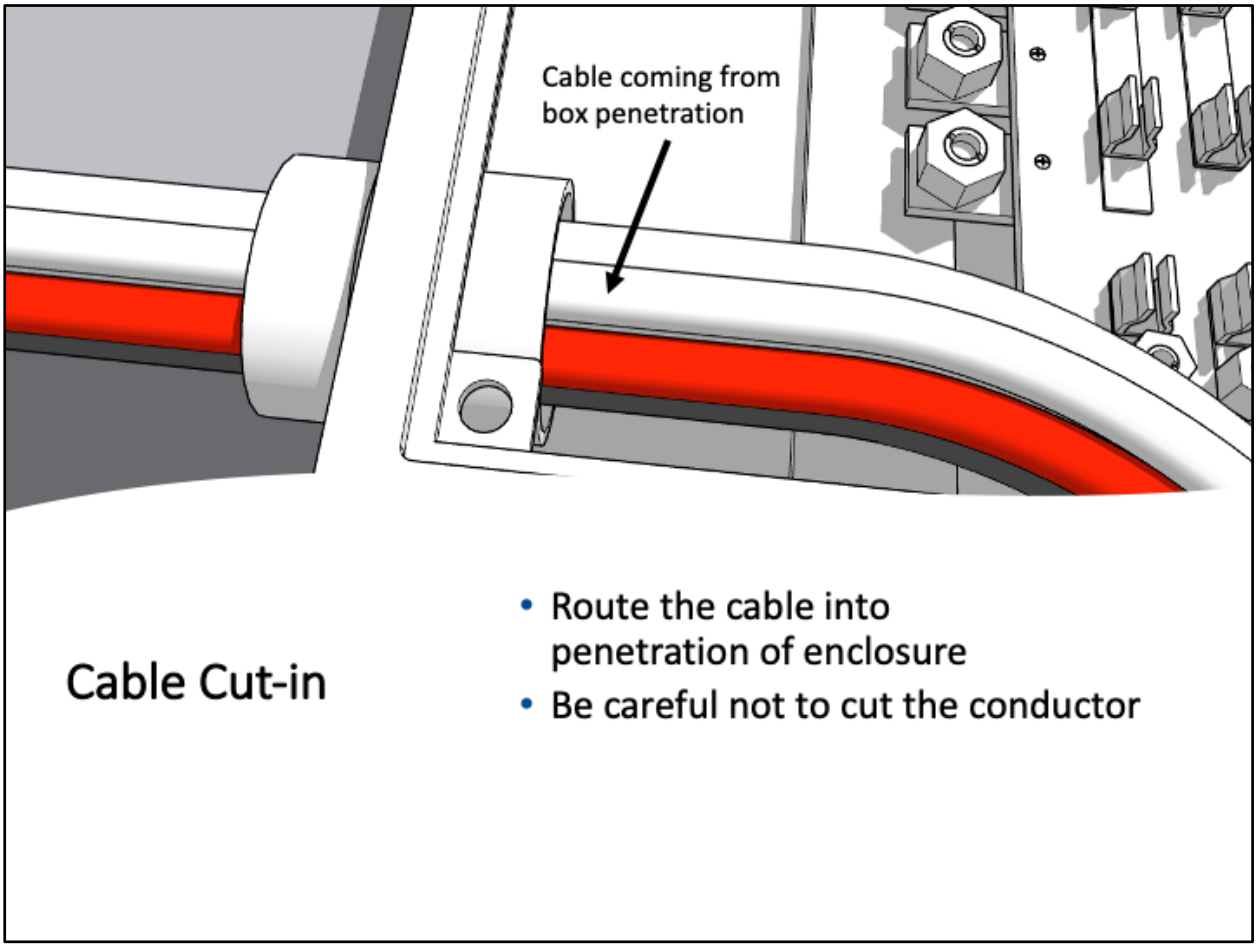
•Wear cut resistant gloves on both hands and always ensure you have a good grip on both the tool and the cable. Cut cable pieces away from the cut site. Always wear eye protection.

Tools Used For Cutting-In Cable

- Utility knife (Razor blade knife)
- Cable Jacket Slitter
  - Issued through the meter shop
  - Adjustable cutting tip

Basic cable cutting requires tools to remove the cable outer jacket, remove the insulation, and access the conductor.

These include utility knives, sometimes called razor blade knives, cable sllitters, and pliers.



Cable Cut-in refers to bringing a cable into or through an enclosure. First, mark the cable in the location where the jacket must be cut, usually about 1/8 inch from the penetration point.

Be careful not to cut or damage the conductor.

Removing the Cable Jacket

- Cut-resistant gloves on both hands and safety glasses are required
- Cut around the cable jacket radially approximately 1/8" from the planned penetration
- Slit the cable jacket lengthwise from the radial cut to the end of the cable
- Do not completely penetrate the cable jacket as damage to the conductors is possible
- Flex the cable to split the cable jacket and remove the cut piece
- Clean the conductors, removing any remaining insulation, wrapping, or filler material
- Wipe the conductors clean

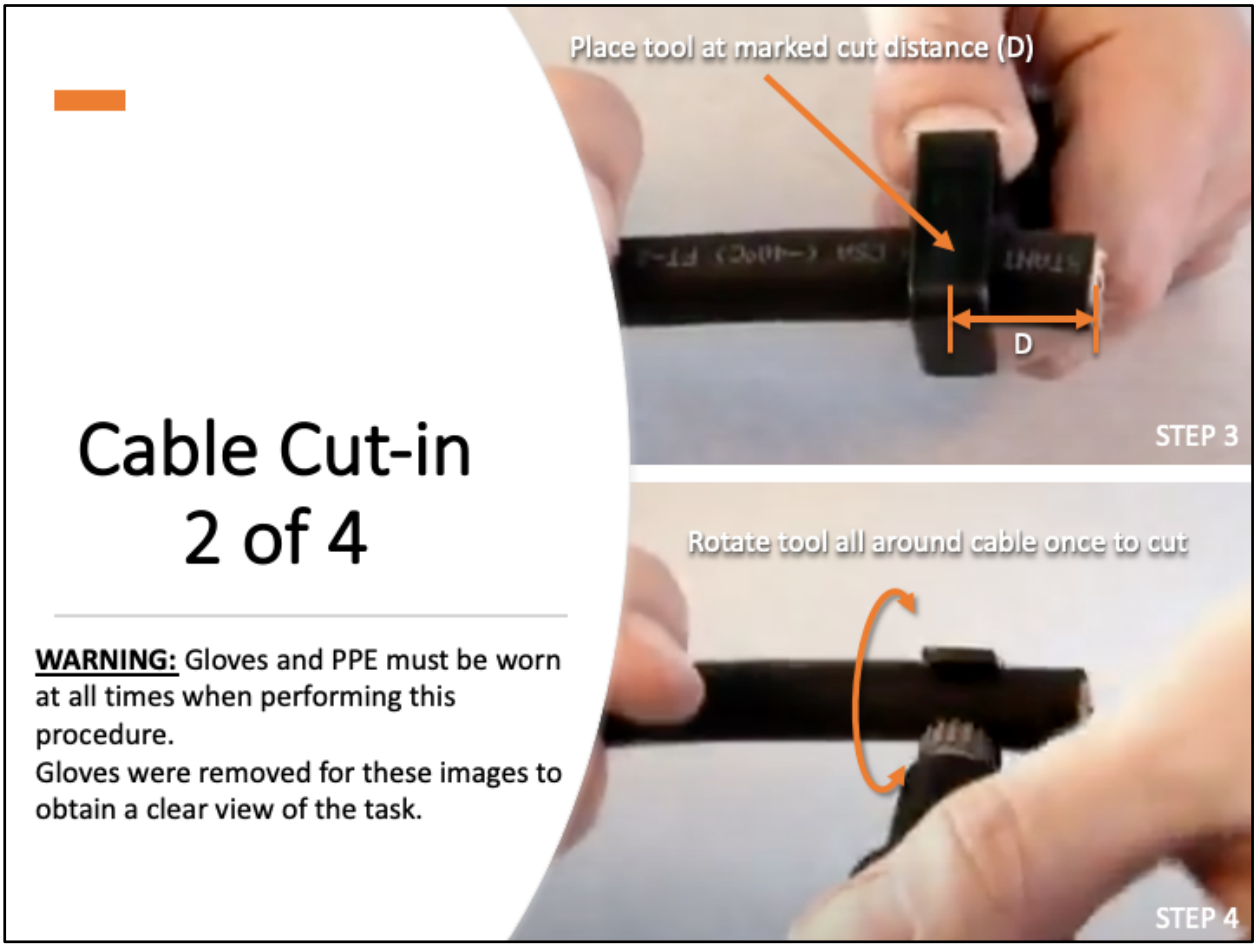
Personal protection equipment is essential when cutting cable. The tools used can easily and quickly cause personal injury.

When removing the cable jacket, first cut around the cable at a point approximately 1/8 inch from where the cable will penetrate. Cut deep enough to stop just short of the conductors to avoid damaging the conductors.

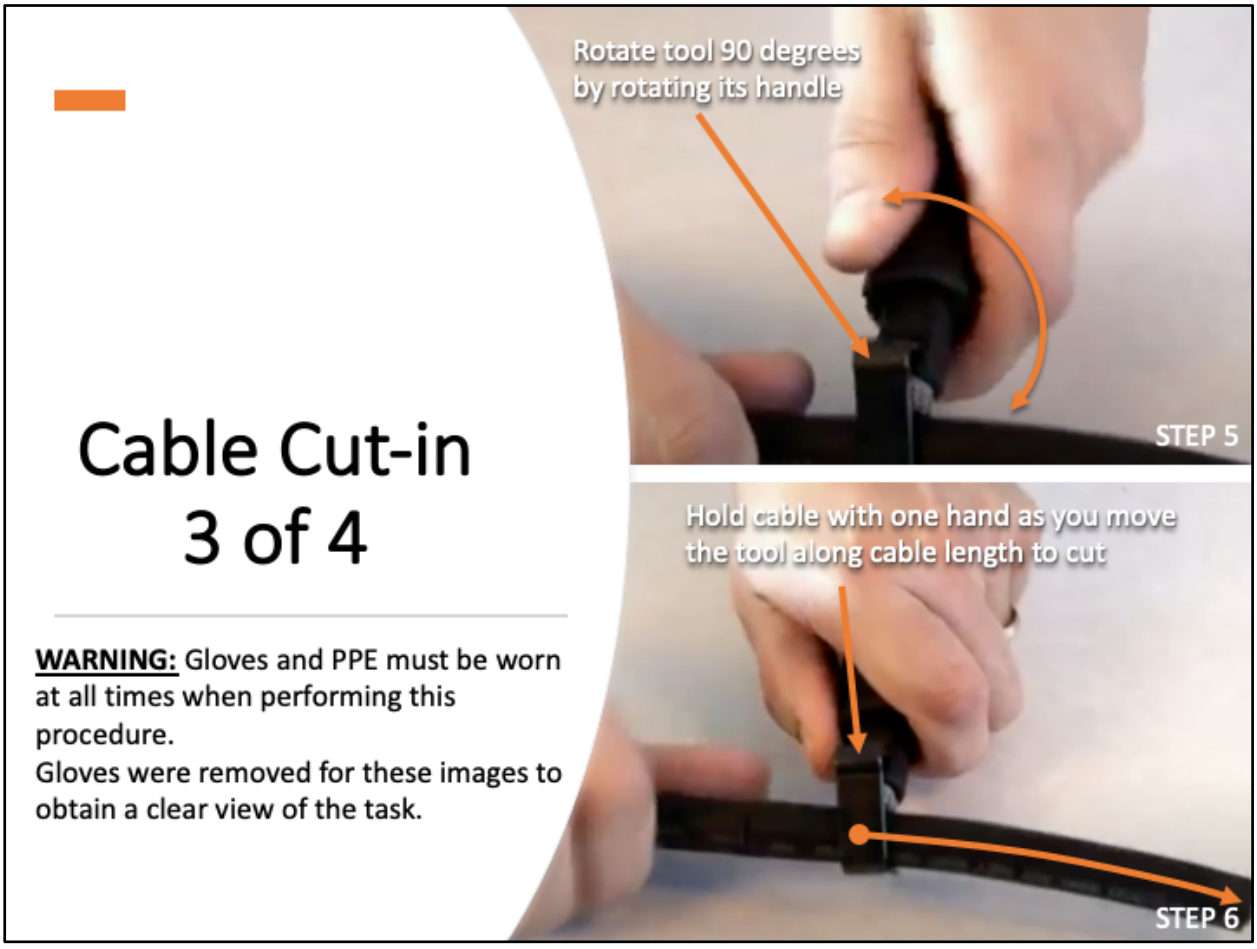
Next, cut a lengthwise slit in the cable from the first radial cut to the end of the cable. Flex the cable to break the jacket where the two cuts were made and allow it to be pulled free of the conductors.

Clean the conductors, removing any remaining insulation, plastic wrapping, or filler material, then wipe the conductors clean with a rag.

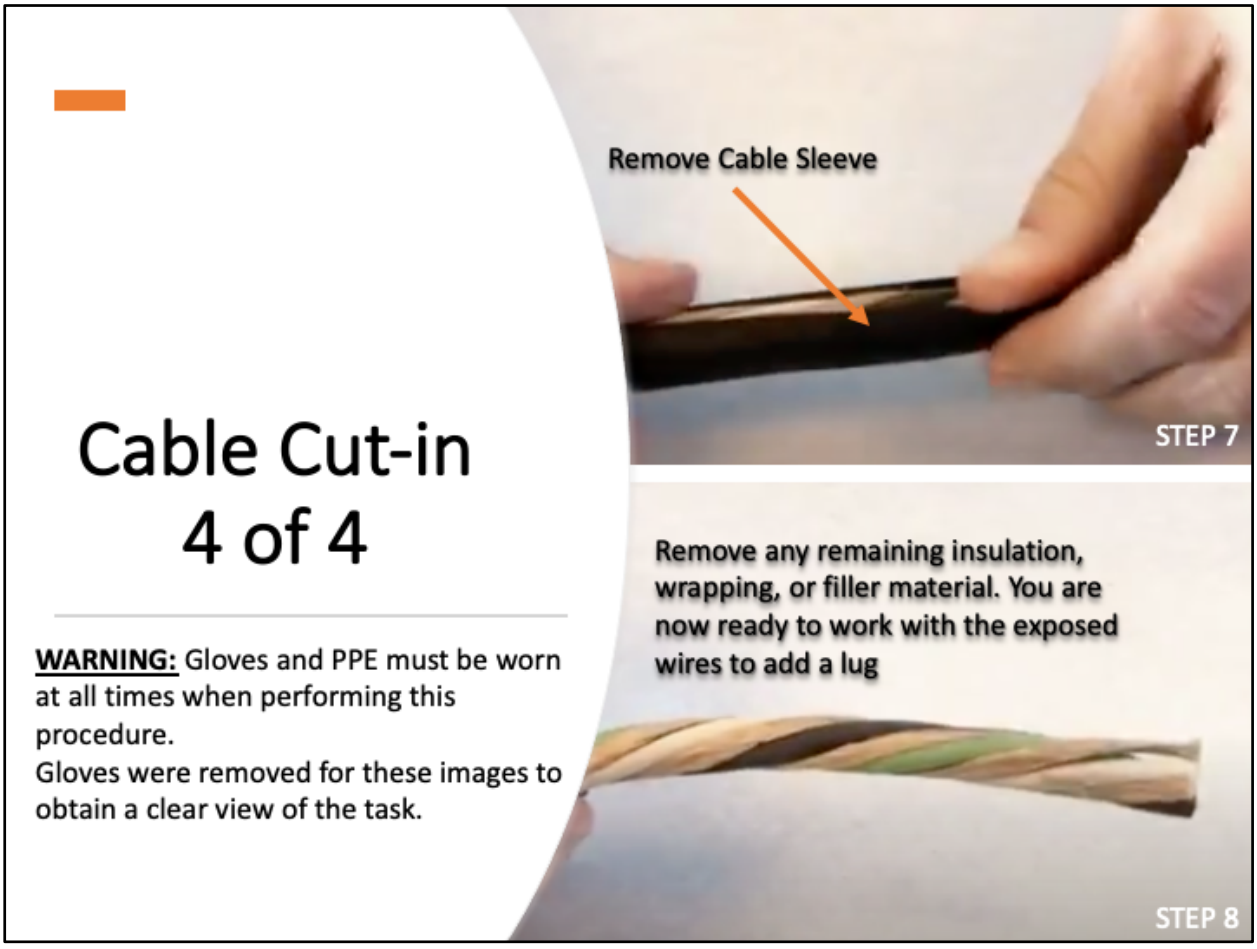
Adjust the cutting blade depth to ensure it does not cut all the way through the insulation and into the conductor itself. Ensure that you wear the proper gloves and other PPE to prevent injury. Gloves are removed in this and the next few slides to provide a better picture of the tools and conductors.



Place the cutting tool perpendicular to the cable at the previously marked location for insulation removal and then rotate the cutting blade all the way around the cable.



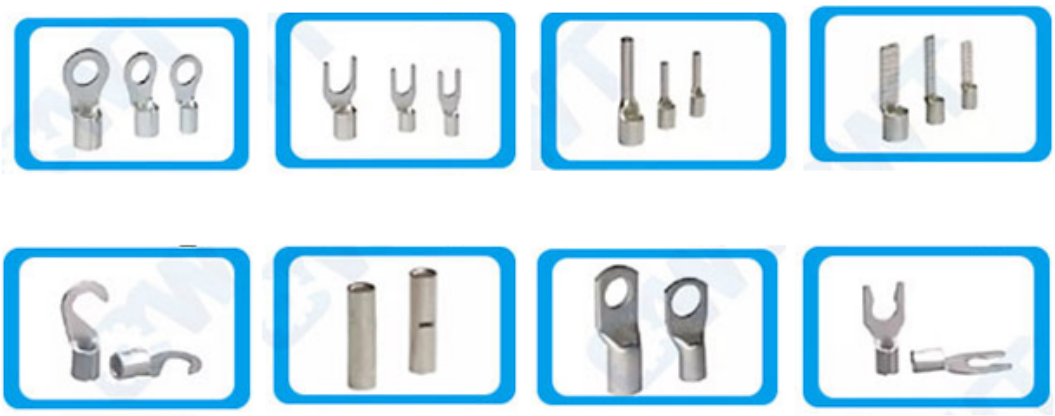
After you have cut all the way around the insulation, rotate the cutting blade and cut the sleeve lengthwise to the end of the cable.



Carefully separate the sleeve at the lengthwise cut and remove it from the conductor. Remove any remaining insulation, wrapper, and filler to expose the bare conductor.

Next, let’s talk about how to install cable lugs.

Lugs And Splice Types



This graphic provide examples of the many connection types you may encounter.

Always use the proper tool when removing conductor insulation. Do not be tempted to save time by using wire cutters or a knife!

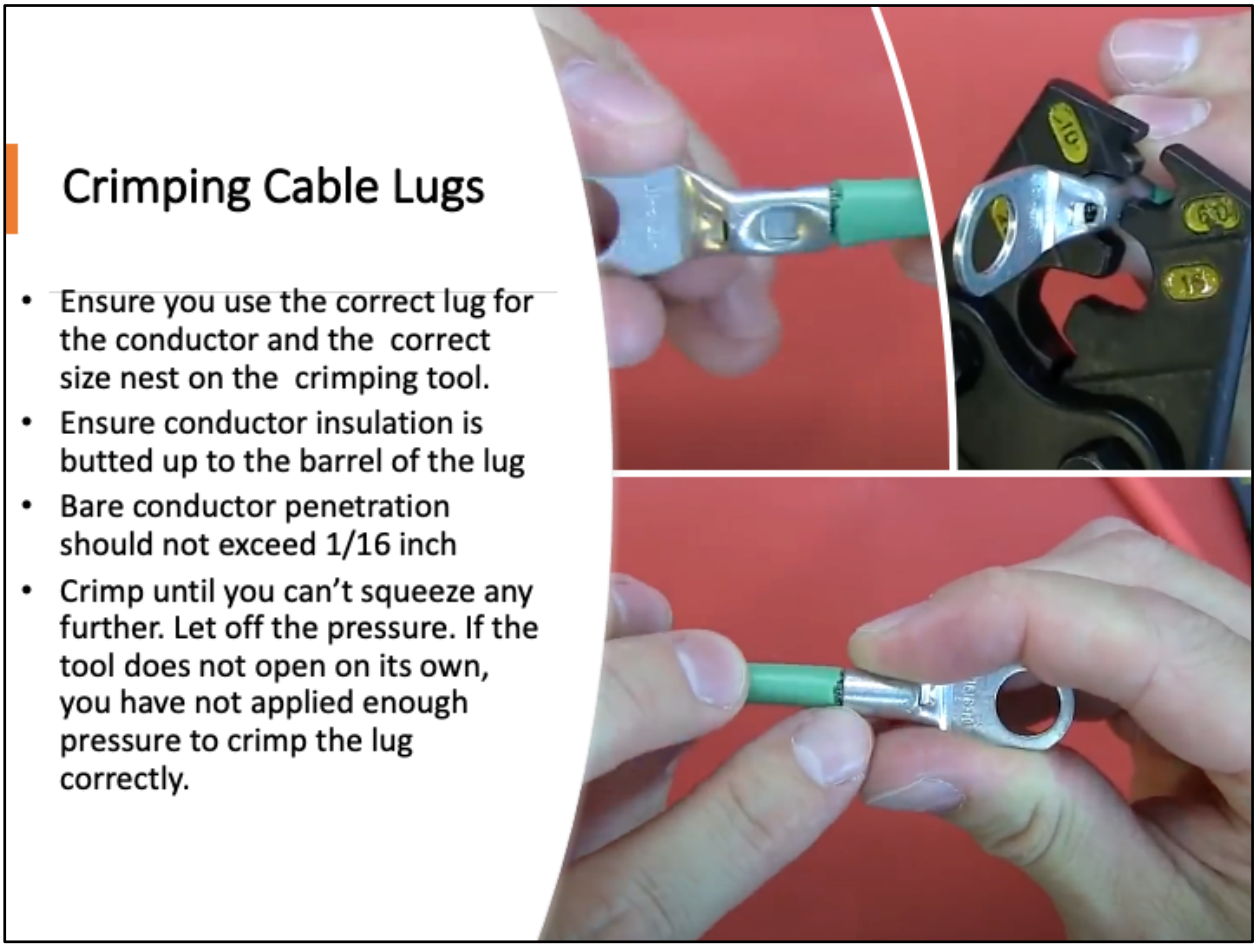
Also, ensure you select the correct size hole on the wire stripper to avoid cutting too deeply and damaging the conductor.

After cutting the insulation, remove it by pulling it straight off the conductor with the jaws of the wire strippers held perpendicular to the cable. Twisting to remove the insulation or holding your wire strippers at an angle can damage the conductor.

Cable Lugging Tools

- Choose the correct lug for the conductor and the matching tool for the lug.
- Work practices may require the crimping tool be calibrated. If so, ensure calibration is current.
- Line the lug with the seam facing up and centered in the crimping tool.

You must be careful to use the correct lug for the conductor and the matching size nest on the crimping tool.



Ensure you have the correct lug for the conductor and the correct crimping tool. Remember, some crimping tools must be calibrated. If required, make sure calibration is current before using the tool.

Do not strip too much insulation from the cable. Insulation should butt up to the barrel of the lug. The bare conductor should not protrude past the lug barrel by more than 1/16 inch.

Insert the bare conductor into the center of the lug barrel, then using the correct size nest, crimp until you cannot squeeze the crimping tool handles more. When the correct crimping pressure has been applied, the tool handles should open on their own. If handles do not open, more crimping pressure is needed.

Review

After this lesson, you should know:

- What does it mean to “cut in” a cable?
- What tools are used and what should tool inspections are needed?
- What are the steps to correctly cut in cable?
- How do you properly strip insulation from conductors? What tools are needed?
- How do you select and connect lugs?
- What safety precautions are required?

During this lesson, you should have learned what it means to “cut-in” a cable and the basics of proper cable cut, insulation, stripping, and lug selection and connection. You should also know the steps and equipment needed to safely complete the job.