INSTRUCTIONS FOR TERMINATING .322 EM CABLE

Breaking strength for .322 EM Cable: 11,600 lbs.

THESE INSTRUCTIONS ARE DESIGNED TO TEACH SOMEONE TO TERMINATE .322 WIRE USING A CTD POURED TERMINATION. THE TERMINATION IS DESIGNED TO HOLD THE WIRE UNTIL DESTRUCTION.

TIPS:

- Before starting termination, cut off a small sample (6-12”) from sample of wire. This piece will be used for the e-kink test so it’s important to mark the sample with the correct NSF number.

- Most samples of wire received are under 15 meters so you will want to cut a piece to fit the test bed, terminate both ends and save the rest of the sample in case another test is needed. Make sure both the sample to be tested and the remaining length are tagged with the NSF number. For .322 cable, you have the option to wrap one end around the capstan in the test bed if the sample is at least 15 meters although this is not the preferred method since the cable could slip on the capstan causing a break.

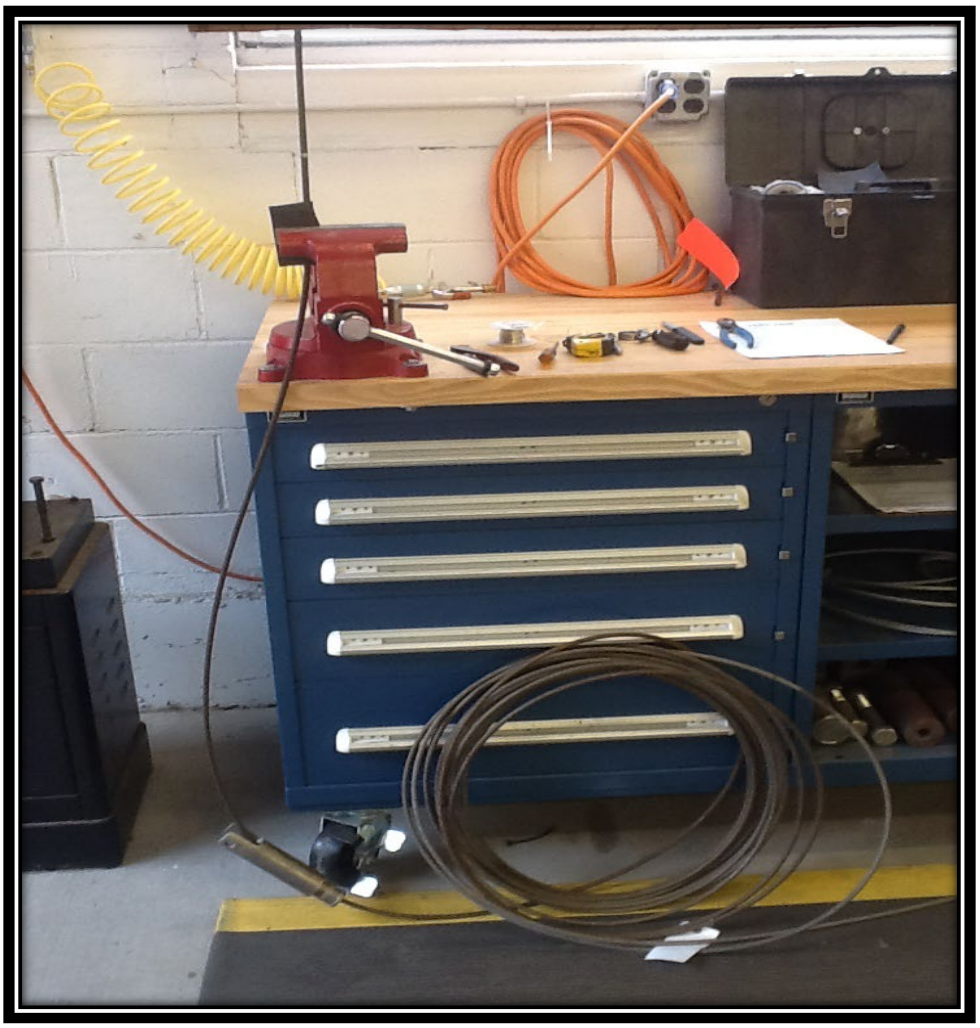
TOOLS AND SUPPLIES NEEDED TO TERMINATE .322 WIRE:

- Wire samples (clearly labeled)
- Vise
- Heat gun
- Safety glasses & gloves
- Sandpaper
- #18 buss wire
- 1-2 pucks of Cerrobend
- 7” tie wraps
- Plas-duc putty
- Tape measure
- Black marker
- Degreaser
- Funnel
- Wire cutters
- Sharp knife
- Small flathead screwdriver
- Socket head handle
- Hot pot to heat Cerrobend
- Piece of neoprene
- CTD termination with adapter plug

1. Slide onto the cable the adapter plug (if used), then the stainless-steel termination fitting, making sure the adapter plug will fit into the end of the termination where the wire comes out of the termination.

CTD termination with adapter plug

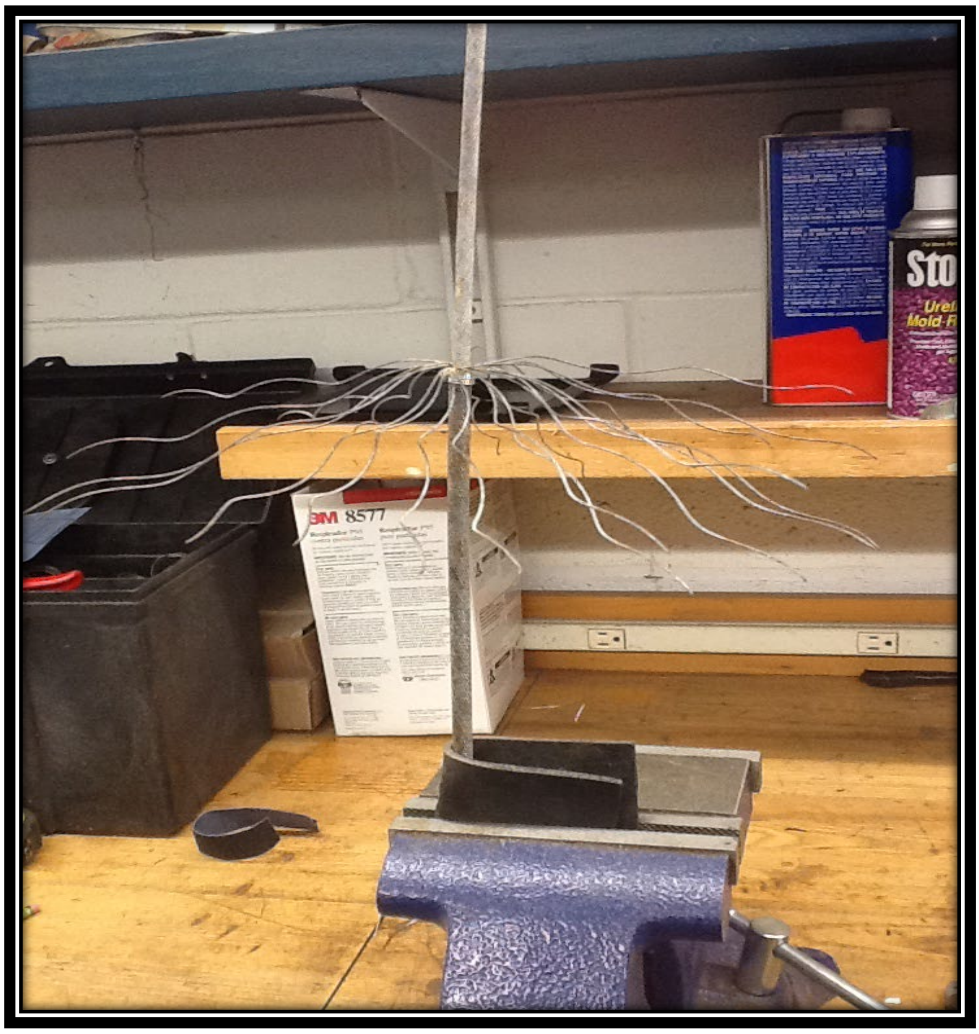
If there isn't an adapter plug, plas-duc putty can be used before pouring the Cerrobend. Orient the stainless fitting such that the attachment bale is pointing toward the bitter end of the cable. Allow adapter plug and termination to slide down the cable and out of the way while preparing the wire. You can slide the adapter plug in the termination so it fits tightly. Place the end of the wire to be terminated in the vise with a piece of neoprene around it to protect the wire in the vise.



2. Wrap a seizing on the CTD wire approximately 7” from the end of the cable using 18 AWG buss wire. Wrap the buss wire around the cable 5-6 times, twist ends together so the seizing is tight and cut leaving ½” which should be bent around cable so it doesn’t stick out. If twisting the wire around your fingers (with gloves on) is difficult, try the solution below. Take two small pieces of plastic piping (pvc), drill a hole through the pvc and attach wire. Now you have 2 handles to hold on top.

.322 cable seized with buss wire

3. Working with the outer layer of 22 armor wires, unwind each individual wire from the cable. Use a small flat head screwdriver to help separate the wires and gently fold the wires over the buss wire being careful not to bend the wire. If the wire is rusty, you may need to sand each wire with fine emery cloth to remove any corrosion/contamination. It is important to unwind the wires evenly as they are being brought over the buss wire to form the “birdcage” so the wire is evenly distributed around. If sample has a greasy residue on it, use a cloth with degreaser on each individual wire to remove the residue.



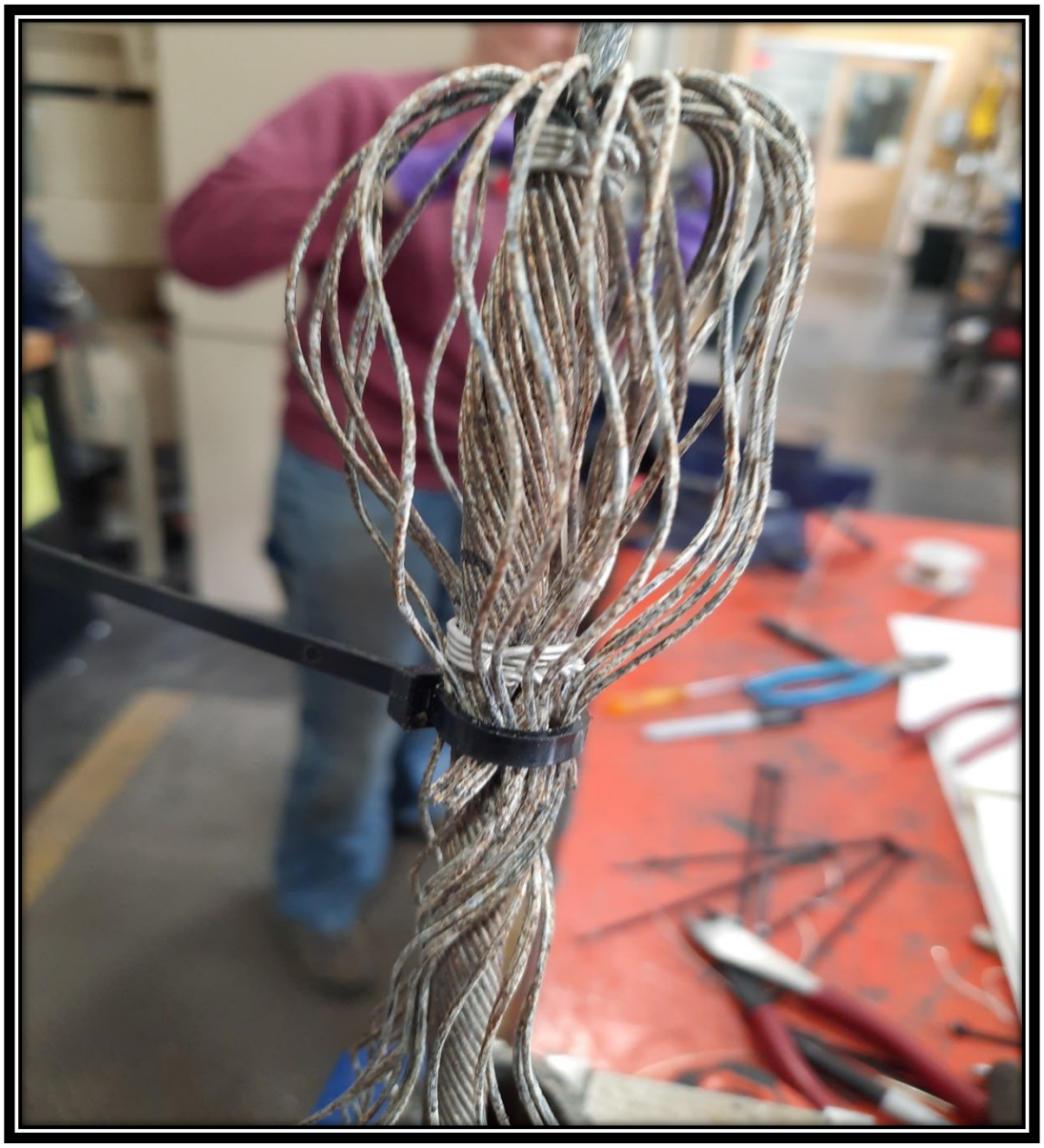
Outer layer of wires unwound and separated ready to be brought down over seizing to form first birdcage

4. Mark the cable with marker 2” below the buss wire. Gathering the outer layer of armor wires, form the first “birdcage” by folding the individual wires back to the intact cable, being careful not to bend the wires. Holding the birdcaged wires with one hand, wrap around a tie-wrap and secure at the 2” mark. Make this birdcage structure as low profile as possible since it has to fit inside the termination body.

Outer layer of armor wires folded over seizing to form first birdcage

5. Using the buss wire, wrap a seizing just above the tie-wrap 5-6 times to hold the wires in place. Cut off the tie-wrap and trim excess wire to ½" below seizing. The goal here is to have every wire separated from each other and evenly distributed around the cable so the Cerrobend that is used to hold the birdcage in the termination will be around all the wires.

6. Working with the inner layer of 16 armor wires, repeat the same process as with the outer wires. Underneath the inner layer of wires, is a manufacturers tag. Cut the tag off and keep it if the piece you find has a length marker or our unique order number printed on the tag. Each marker appears every half meter so you may not have a tag with the length printed on it. Gently fold the 7" long wires over the first birdcage. Apply a tie-wrap around the wires below the first seizing allowing enough room for the seizing to be wrapped around the birdcage but be below the first seizing.



Second layer of armor brought over the first birdcage

7. Using buss wire, wrap seizing 5-6 times just above the tie-wrap to hold the inner armor wires in place. Cut off the tie-wrap and trim excess wire to ½" below the seizing. When terminating wire to break it, we don't save the electrical conductor in the center of the cable.

8. After the birdcage is done, remove cable from vise and sandblast thoroughly. Return cable to vise, blow clean with air, spray degreaser over birdcage termination and spray with air hose again to remove any grit left from sandblaster. Sandblasting is a very important part of the termination process. Sometimes the cable has to be sandblasted a second time to remove any dirt or rust.

Cable ready to be pulled into termination

9. Place the termination body in vise on its side, parallel with the floor and carefully pull the cable so that the birdcage is pulled into the termination body. A firm pull may be needed to seat the birdcage all the way into the termination body. Top of the birdcage should be fully inside termination so when Cerrobend is poured, wire will be covered.

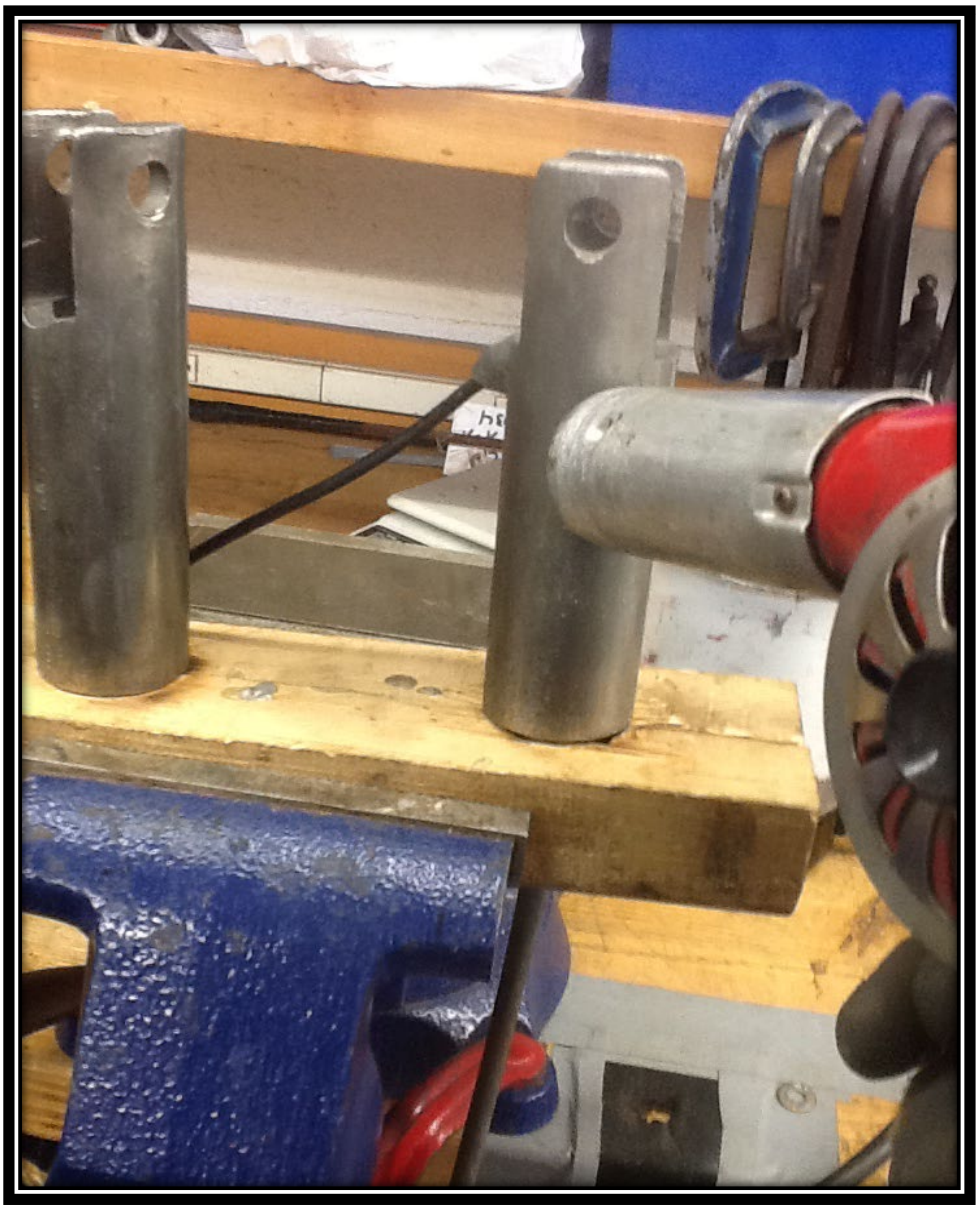
Birdcage being pulled into termination body

10. Take some plas-duc putty, commonly known as “monkey dung”, and form it around the end of the CTD termination where the cable exits to prevent any Cerrobend from running out of the termination. The monkey dung also helps center the cable if a plug is not used. Mount the termination is a vise so the ears of the bale are facing up.

CTD terminations ready to be poured

11. Melt 1 disk of Cerrobend, (1 disk can be used for 2 terminations) in a hot pot. If you melt more than you can use, pour left over molten Cerrobend in a muffin pan to form a new disk. Cool completely and store in sealed container.

12. While the Cerrobend is melting, heat up the outside of the termination body with a heat gun, so when the molten Cerrobend is poured into the termination body it will cool evenly. Use the putty to block the hole on the side of the termination where the electrical conductor can be fed through out of the termination body.



Heating the termination body will allow Cerrobend it to cool evenly

13. Once the Cerrobend has melted, pour molten Cerrobend into the termination body using a funnel until it reaches the top. Tap the side of the termination body to help air bubbles rise to the top. As the Cerrobend cools, the center will sink slightly, this is normal. Let sit at least an hour to overnight then sample is ready to be tested.

Pour molten Cerrobend into termination body using a funnel