

# WELDING INSTRUCTIONS

## FOR ATTACHING CONNECTORS TO DRAIN CLEANING CABLES

(For Cup-type Connectors)

### WELDING –

#### If using MIG Welder:

.030 Wire Diameter  
L-56 Type  
17 Volts  
86 Amps

#### If using Electric Arc "Stick" Welder:

7018 Coated Electrode  
1/8" Diameter  
50 Volts  
125 Amps

1. Clean the outside surfaces of the cable thoroughly with solvent to remove grease and oil, and then with a wire wheel to remove soil and corrosion. The inside of the connector should be free of surface grease, oil, soil, and corrosion as well. Solvent should be type that does not leave an oily residue.

**WARNING: Do not clean the cable with a chlorinated hydrocarbon solvent like trichlorethylene and then weld. The electric arc in the presence of the solvent vapors will produce phosgene, a poisonous gas.**

2. Secure cable. Then place appropriate size cup-type connector over end of cable with one notch facing up.
3. Strike arc and hold so the weld penetrates the cable coil partway then puddles up to melt the walls of the notch.
4. When welding cup-type connector to 3/8" or 5/16" cables, continue the weld beyond the connector to include the next two coils of the cable.
5. When welding cup-type connector to 1/2" cable, weld each notch area and continue the weld approximately 90° around the base of the connector.
6. Stop when the puddle is about flush or a little above the surface of the connector.
7. Rotate cable and repeat on opposite side.
8. Cool the cable very slowly after welding. The simplest way to accomplish this is to insert the end of the cable into a bucket of lime or dry sand immediately after welding. Leave the end of the cable in the lime or sand until it is cool.
9. An alternate method of cooling is to wrap a wet cloth or a piece of felt around the cable as close as possible to your weld before you start to weld. This will prevent the high temperature in the welding area from spreading into the cable causing the cable to become brittle. Keep the wet cloth on until the connector has cooled. Do not quench.



3/8" or 5/16" cables



1/2" cable

### SILVER SOLDERING – (Very good, but more expensive)

Recommended: 1/16" alloy BAG-7 solder and La-Co regular soldering flux paste or equal

1. Clean the outside surfaces of the cable thoroughly with solvent to remove grease and oil, and then with a wire wheel to remove soil and corrosion. The inside of the connector should be free of surface grease, oil, soil, and corrosion as well. Solvent should be type that does not leave an oily residue.
2. Insert cable into connector and hold in place with one notch facing up.
3. Using solder manufacturer's recommendations and a suitable torch, heat cable with connector in place to 800° - 1000°F and flux thoroughly.
4. Continue heating to 1125° - 1295° and add silver solder until it flows into the space between the connector and outer surface of the cable coils.
5. Cool the cable very slowly after welding. The simplest way to accomplish this is to insert the end of the cable into a bucket of lime or dry sand immediately after welding. Leave the end of the cable in the lime or sand until it is cool.
6. An alternate method of cooling is to wrap a wet cloth or a piece of felt around the cable as close as possible to your weld before you start to weld. This will prevent the high temperature in the welding area from spreading into the cable causing the cable to become brittle. Keep the wet cloth on until the connector has cooled. Do not quench.

# WELDING INSTRUCTIONS

## FOR ATTACHING CONNECTORS TO DRAIN CLEANING CABLES

(For Butt-Weld Connectors)

### If using MIG Welder:

.030 Wire Diameter  
L-56 Type  
17 Volts  
86 Amps

### If using Electric Arc "Stick" Welder:

7018 Coated Electrode  
1/8" Diameter  
50 Volts  
125 Amps

1. Cut the cable with an abrasive saw or disc at 90°. If the cut is not square, make it square by grinding.
2. Clean the outside surfaces of the cable thoroughly with solvent to remove grease and oil, and then with a wire wheel to remove soil and corrosion. The connector should be free of surface grease, oil, soil, and corrosion as well. Solvent should be type that does not leave an oily residue.

**WARNING: Do not clean the cable with chlorinated hydrocarbon solvent like trichlorethylene and then weld. The electric arc in the presence of the solvent vapors will produce phosgene, a poisonous gas.**

3. Clamp the cable and connector individually into a piece of angle iron in a horizontal position. Do not clamp the connector tight enough to damage it particularly when it is hot.
4. If angle iron is not available, clamp the cable in a vise vertically with 1 to 2 inches of the cable extending upward. Hold the butt-weld connector (same diameter as cable) directly on top of the cable with the weld prep end down.
5. Strike the arc in the groove formed between the weld prep and the end coil of the cable.
6. Move forward when puddle is a little below or about flush with the surface of connector. Try to penetrate only halfway through the cable coil, except at end where the coil tapers to nothing and it's not possible to do so. Stop after welding about 1/4".
7. Make sure the connector is square with the cable and move 180° around the cable. Rotate the cable if necessary.
8. Now start welding. It's only necessary to weld in two or three spots. Remember not to penetrate more than halfway through the cable coil.
9. It is important that the weld fuses into **half** of the coil when the coil is at its full diameter, not less and not more. Use enough amperage to get good penetration.
10. The weld area will be red when welding is complete. Do not quench.
11. Cool the cable very slowly after welding. The simplest way to accomplish this is to insert the end of the cable into a bucket of lime or dry sand immediately after welding. Leave the end of the cable in the lime or sand until it is cool.
12. An alternate method of cooling is to wrap a wet cloth or a piece of felt around the cable as close as possible to your weld before you start to weld. This will prevent the high temperature in the welding area from spreading into the cable causing the cable to become brittle. Keep the wet cloth on until the connector has cooled. Do not quench.
13. The weld should be more or less flat, without a crown that could make travel through a power cable feed difficult. If necessary, grind flat, being careful not to touch cable.

