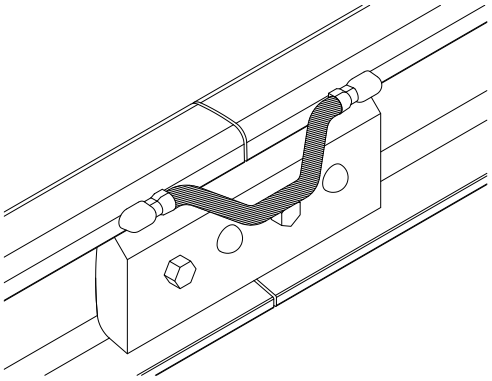
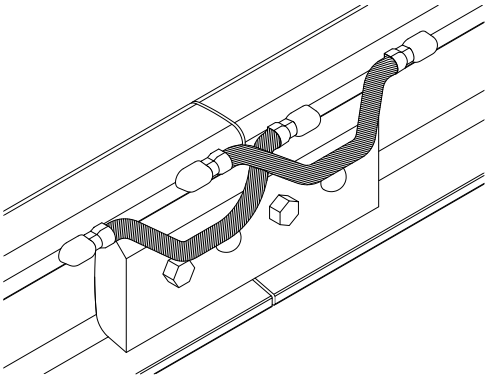
Lightning Protection • Grounding Equipment

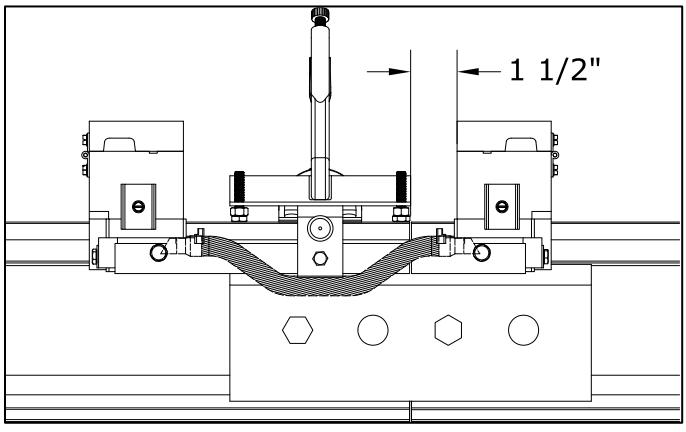
INSTRUCTIONS FOR ULTRAWELD® GROUNDING CONNECTIONS
CABLE TO HEAD OF RAIL



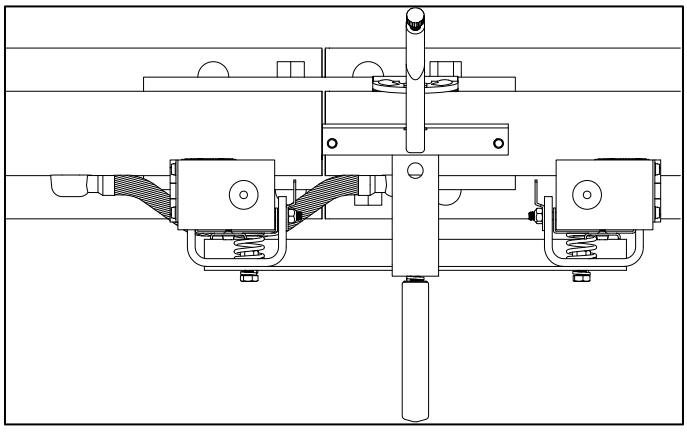


WELDING PROCEDURE

1. See reverse side of this page for specific instruction for preparation of bonds and rail surfaces.
2. Check mold tag for material to be welded and proper cartridge size to use. Weld metal part numbers must end in "R" for connections directly to the rail.
3. Ensure all surfaces and conductors are clean, dry, and are the proper sizes for the mold's application.
4. Dry the molds and rail surface by heating to approximately 250°F with a propane torch or other suitable device.
5. Position the bond in the mold with the flat surface visible to rest against the rail head. Pull bond terminal flush with inside of bond clip to correctly position the terminal in the mold cavity.
6. While holding the conductor in place, engage the frame or clamp onto the rail to secure the mold in place. ***For double bonding see section / diagrams below.***
7. Before igniting, verify conductor positioning and that mold is closed completely.
8. Insert UltraShot® cartridge into mold, close the lid and attach a Drone® cord lead to the cartridge igniter. A double lead part, DRONECORDR, is also available.
9. Ensure the igniter is inserted fully into Drone® cord lead.
10. Start the reaction process by pressing both buttons on the controller.
11. Wait approximately 30 seconds before removing mold assembly to allow connection to completely solidify. Pull assembly horizontally away from the rail to avoid damaging the mold.
12. Clean the mold with a natural bristle brush or soft cloth prior to making next connection.



FIRST WELDING POSITION



SECOND WELDING POSITION

DOUBLE BONDING

1. Align the right edge of the clamping bar of the welder frame with the joint. The same position can be achieved by positioning the left edge of the corresponding mold 1-1/2" from the edge of the joint. See the "First Welding Position" diagram above.
2. Use the adjustment screws to position the molds as low as possible on the head of the rail to allow clearance for the second bond.
3. After completion of the first pair of welds, hammer cable down toward the splice bar to allow additional clearance for the second bond. Avoid damaging the cable strands.
4. Position the mold in the center of the first bond connection, raise the welder assembly using adjustment screws if necessary, and complete second bond installation. See the "Second Welding Position" diagram above.

WARNING: Do not attempt to make an exothermic connection until you have thoroughly read and understood the instructions that accompany all of the various components of the system and have been factory trained and certified by an authorized trainer.

GENERAL SAFETY INSTRUCTIONS

1. Always wear proper clothing, safety glasses and gloves when exothermic welding.
2. Only weld items mold is designed for.
3. Do not use excessively worn or broken molds which could cause leakage of molten weld metal.
4. Ensure that all components to be welded fit into the mold properly and that the mold will close tightly.
5. Do not alter molds or accessories without factory authorization.
6. Avoid breathing concentrations of smoke, as it may be hazardous to your health.
7. Avoid contact with hot materials.
8. Remove or protect fire hazards in the welding area.
9. Avoid moisture and contaminants in the mold and materials being welded. Contact of molten weld metal with moisture or contaminants may cause weld metal to spew out of mold.

PREPARATION OF BOND

1. Bond terminal ends must be bright, clean and dry.
2. Bonds that are saturated with oil or grease must be cleaned.
3. Bond-ends may be cleaned by burning off contaminants with a torch (gasoline blow torch, butane torch, acetylene torch).
4. After burning off oil or grease, a wire brush should be used to remove residue from bond-ends. Bonds with moisture must be dried out. Use a hand torch.
5. Bond-ends must be clean and free of corrosion. Use #CCBRSH1, Card Cloth Brush or #CCBRSH2, Cable Cleaning Brush.

PREPARATION OF RAIL

1. Surface to be welded must be bright clean and dry.
2. Remove all oil, grease or pitch coatings with a solvent or torch.
3. Remove rust and mill scale with Grinder / Harger grinding wheel, #GRDWL
4. Heat the rail with a torch to drive off moisture.

SAFETY AND PRECAUTIONS

CAUTION: Grinding and cleaning must not be performed more than 2 hours prior to bonding. If the time lapse exceeds this requirement, sufficient contaminating oxidation may develop requiring additional preparation. Failure to observe this may result in a less than optimal bond.

WARNING: The rail and mold must be warmed to drive off moisture. Failure to observe this may result in molten weld metal spewing with the potential for serious burn injury, and a less than optimal bond with excessive porosity.

WARNING: Re-welding near an earlier bond is strictly forbidden unless within the confines of a joint or splice bar! Failure to observe this may result in a rail break leading to property damage, injury, or death.