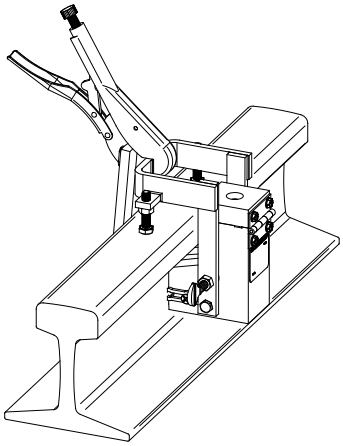
HARGER®

ULTRAWELD®

INSTRUCTIONS FOR ULTRAWELD® GROUNDING CONNECTIONS
SIGNAL BOND TO WEB OF RAIL



INSTALLED MOLD AND FRAME

1. See reverse side of this page for preparation of bond-ends, rail surfaces, and safety precautions.
2. Install frame on the mold.
3. Prior to locking the mold to the rail web: Place bond-end into the mold. See Figure 1.
4. While holding the signal bond in place, engage the frame or clamp onto the rail to secure the mold in place. The weld shall be performed on the web of the rail, at or near the neutral axis of the rail. For additional installation requirements, refer to Chapter 4 of AREMA's *Manual for Railway Engineering*.
5. Pull bond out of mold cavity until the end of the bond terminal is flush with the inside of the bond clip. This will properly align the bond in the mold for welding. See Figure 2.
6. Follow the steps outlined on the reverse side of this sheet for welding instructions.

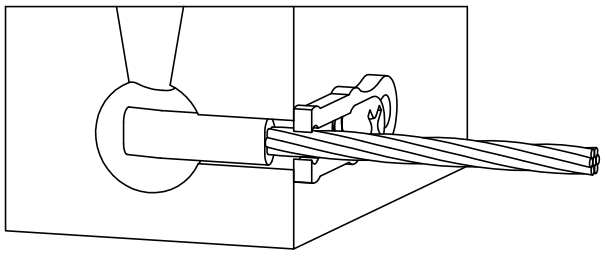


FIGURE 1

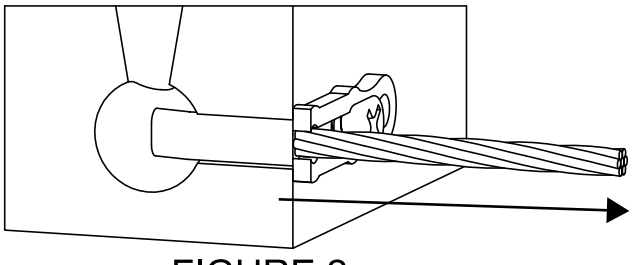


FIGURE 2

INSTRUCTIONS FOR ULTRAWELD® GROUNDING CONNECTIONS
SIGNAL BOND TO WEB OF RAIL

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 SIGNAL BOND

1. Signal bond must be bright, clean and dry.
2. Signal bond that is saturated with oil or grease must be cleaned.
3. Signal bond may be cleaned by burning it off 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. Wet cable must be dried out. Use a hand torch.
5. Signal Bond 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 rust and mill scale with coarse file or grinder.
3. Remove oil, grease or pitch coatings with a solvent or torch.
4. Galvanizing should be removed from surfaces to be welded.

WELDING PROCEDURE

1. Check mold tag for material to be welded and proper cartridge size to use.
2. Ensure all surfaces and conductors are clean, dry, and are the proper sizes for the mold's application.
3. Molds can be dried by heating to approximately 250°F and may be dried with a hand operated torch.
4. Position mold onto conductor(s). See front of this sheet for positioning of conductors in mold. If required, lock mold with handle clamps or fame.
5. Before igniting, verify conductor positioning and that mold is closed completely.
6. Insert UltraShot® cartridge into mold, close the lid and attach a Drone® cord lead to the cartridge igniter.
7. Ensure the igniter is inserted fully into Drone® cord lead.
8. Start the reaction process by pressing both buttons on the controller.
9. Wait approximately 30 seconds before opening mold to allow connection to completely solidify.
10. Clean the mold with a natural bristle brush or soft cloth prior to making next connection. On horizontally split molds, use an appropriately sized mold cleaning spade to remove slag from tap hole.

DO NOT USE A WIRE BRUSH TO CLEAN MOLD

SAFETY AND PRECAUTIONS

WARNING: Back-to-back bonding of web connections is strictly forbidden! Failure to observe this may result in a rail break leading to property damage, injury, or death.

WARNING: The location of the bond is very important! Rail track connection web bonds must be made at the neutral axis of the rail. Failure to observe this may result in a rail break leading to property damage, injury, or death. **Track connection bonding shall not be performed on or near the head outside the confines of the rail joint bar, or to the base of the rail.**

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 web bond is strictly forbidden! Failure to observe this may result in a rail break leading to property damage, injury, or death.