CANADA REGION Assembly Instructions for the Field Attachable

HIGH-TEMPERATURE SAGD UNIVERSAL CONNECTOR (Lower Connector) for Flat Cable

HL-KIT
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• NOTE: When ambient temperature in assembly area is less than 70º F (21º C), the use of a cold weather installation kit is recommended. Please refer to the instructions in the cold weather kit and preheat the cable seal assembly, including the follower body and dielectric grease.

• Hold the cable up against the side of penetrator and mark the cable 1-½" to 1-¾" (38mm - 45mm) below the bottom of the penetrator. Cut the cable at this mark and proceed with installation of connector.
• Slide the split 2-piece flat armor adapter onto the flat cable. Loosen the two (2) cap screws as needed to allow the two pieces to drift over the cable armor. Place it down the cable out of the way, approximately 10" (250mm).

Note: The split 2-piece flat armor adapter is for #4 AWG cables only.
• Using the supplied cut gauge measure and mark the armor at 5-1/4" (133mm). Carefully remove the armor. Secure the armor in place by tightly wrapping two times with high-modulus tape.
• Slightly spread the three conductors and remove any tape and/or braid from each.
• Inspect for damage. If there is any damage, re-measure the armor and cut again.

Note: Re-check overall length. IF THE CABLE MUST BE RE-PREPPED, THE PRODUCTION TUBING LENGTH MAY NEED TO BE ADJUSTED.
• Using the supplied cut gauge measure and mark the lead sheath or barrier at 3' (76mm). Strip back the lead sheath or barrier from each conductor being careful not to cut or damage the primary insulation. Remove any burrs on lead.

• Inspect for damage. If there is any damage, start again from the beginning.
• Using the supplied cut gauge measure and mark the conductor insulation at the 5/8" (16mm) insulation line. Strip back the conductor insulation on each leg.
• Pencil or taper the ends of the copper conductors, then lightly abrade and clean.

Note: Clean hands – keep connector clean.
• Using the supplied cut gauge, measure back 1-¾" (45mm) from the end of each conductor and mark.

• Using the supplied high-modulus tape, begin taping each leg starting at the armor cut using a 50% overlap and half stretch on the tape. Stop taping at the 1-¾" (45mm) tapeline mark, making sure to end with the tape straight up and down with the 1-¾" (45mm) tapeline mark. Then wrap back towards the armor cut. Be sure to cover all exposed lead.

• Cut and remove any excess tape.

Note: Always apply high-modulus tape as instructed even if lead jacket or barrier is not present.
- Slide minor body onto cable and up to armor adapter.
• Carefully bend each leg so that they form a triangle that the seals will fit over. The two outside conductors should be bent downwards and center one upwards. DO NOT STRESS OR CRACK LEAD OR BARRIER.

• The legs must be bent equally. This can be checked by making sure that the lead cuts, insulation cuts and conductor ends of each leg are even with each other.

• Clean conductor thoroughly before proceeding.
- Using the supplied dielectric grease, lightly coat the face of the black cable seal.
- Insert flat side of grey secondary seal into the recessed face of the black cable seal.

Note: Clean hands – keep all components free from moisture, dust and debris.
Note: In cold weather, the following steps should be performed quickly with pre-heated seals. If the seals are not warm to the touch, reheat in cold weather kit.
• Holding the black and grey cable seal assembly, slide the follower with wave springs back over the three legs of the cable seal. Orient the wave springs as depicted.

Note: Clean hands – keep connector clean.
• NOTE: In cold weather, the following steps should be performed quickly with pre-heated seals. If the seals are not warm to the touch, reheat in cold weather kit.

• Apply a light coat of dielectric grease on each conductor.

• Slide the seal assembly onto the three conductors until the nose of the grey secondary seal is even with insulation cut.

• Using a pen or marker, place a witness mark on the high-modulus tape just behind the cable seal.

Note 1: Make sure “legs” on seal are not turned under.
Note 2: Clean hands – keep connector clean.
• Clean exposed copper conductors and three (3) Gator Gripp®-S* contacts with contact cleaner.

• Push each Gator Gripp®-S* contact onto each conductor until it stops and is in contact with the primary conductor insulation. The contacts should fit on snugly and not have any play in them.

• If the Gator Gripp®-S* contact will not freely slide onto the conductor, one may install a cap screw as shown, and gently tap the head of the screw until the contact is firmly seated. Then remove the screws and set aside.

Note 1: Clean hands – keep connector clean.
Note 2: Do not attempt to adjust the legs once the Gator Gripp®-S* contacts are in place. Lateral forces on the Gator Gripp®-S* contacts may cause them to become loose on the conductor.
• Using a 5/64" Allen wrench, tighten each 8/32 x 3/32" set screw until the screws engage the cable conductor, then tighten an additional 1/4-turn.

• The set screws should sit below the surface diameter of the contact when fully engaged.
• NOTE: The witness mark behind the cable seal is a critical guide for proper connector assembly. There should NEVER be a gap between the mark and the back of the cable seal. If there is, the components have moved forward from their proper location. STOP and reposition cable seals and contacts in their proper location. Failure to do so will result in improper assembly and the contact pins will not be fully engaged with the copper conductor.
- Lightly lubricate O.D. of cable seal assembly with the supplied dielectric grease.
• Use heater kit to warm seals and cable.
• Position nose of cable seal assembly to touch back of Gator Gripp®-S* contacts
• Double check to make sure all the conductors are still aligned.
• While holding the follower and cable seal assembly securely, slide major body assembly onto the three (3) Gator Gripp®-S* contacts and the cable seal assembly until they bottom out. If the cable seal is warm and pliable the major body should slide over the cable seal using slight to moderate force.
• Ensure the mark placed on the high-modulus tape is still visible and the seal has not moved from its original location.

Caution: Do not use the cap screws to pull the major body onto the cable seal assembly. Doing so will slide the Gator Gripp®-S* contacts off of the conductor before the Gator Gripp®-S* contacts can “bite” (grip) onto the conductor. Gator Gripp®-S* contacts must be seated into the female terminal. Note: Clean hands – keep connector clean.
• Insert the three (3) 8/32 x 1-1/4" long socket head cap screws into the front end of the major body assembly and begin tightening with supplied Allen wrench.

• Alternate tightening each screw until all are tightened as tightly as possible. Approximately 20 ft/lb is the required torque.

• If the major body is being pulled side-to-side as screws are tightened, it was not properly seated onto the contacts. Never use the screws to pull the major body onto the cable.

Note: Major body assembly should be square to the cable.
• Holding the major body securely, slide the minor body up and thread it onto the major body until it shoulders out.
• Slide the armor adapter up and into the back of the minor body until it shoulders and stops.
• Secure the armor adapter in place with the two (2) cap screws within the armor adapter.
• Secure the minor body onto the armor adapter with the four (4) set screws in the minor body.
• Use a marker to place a witness mark on the cable armor just behind the armor adapter.

Note: During handling and connecting of the high temperature lower connector, do not put any strain on the cable entering the connector body.
• Using the supplied dielectric grease, lightly grease the O.D. of each nose on the grommet and insert it into the nose of the connector.
• Install protective plastic cap until ready to install.
• Assembly is now complete.

Note 1: If at any point the witness mark moves more than 1/16" (1.5mm) from original position, STOP, disassemble, and begin again starting on page 13.
Note 2: Clean hands – keep connector clean.
Note 3: Do not forget to install the grommet.
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