NELSON™ HEAT TRACING SYSTEMS

PLT-TB-P TUBE BUNDLE POWER CONNECTION KIT

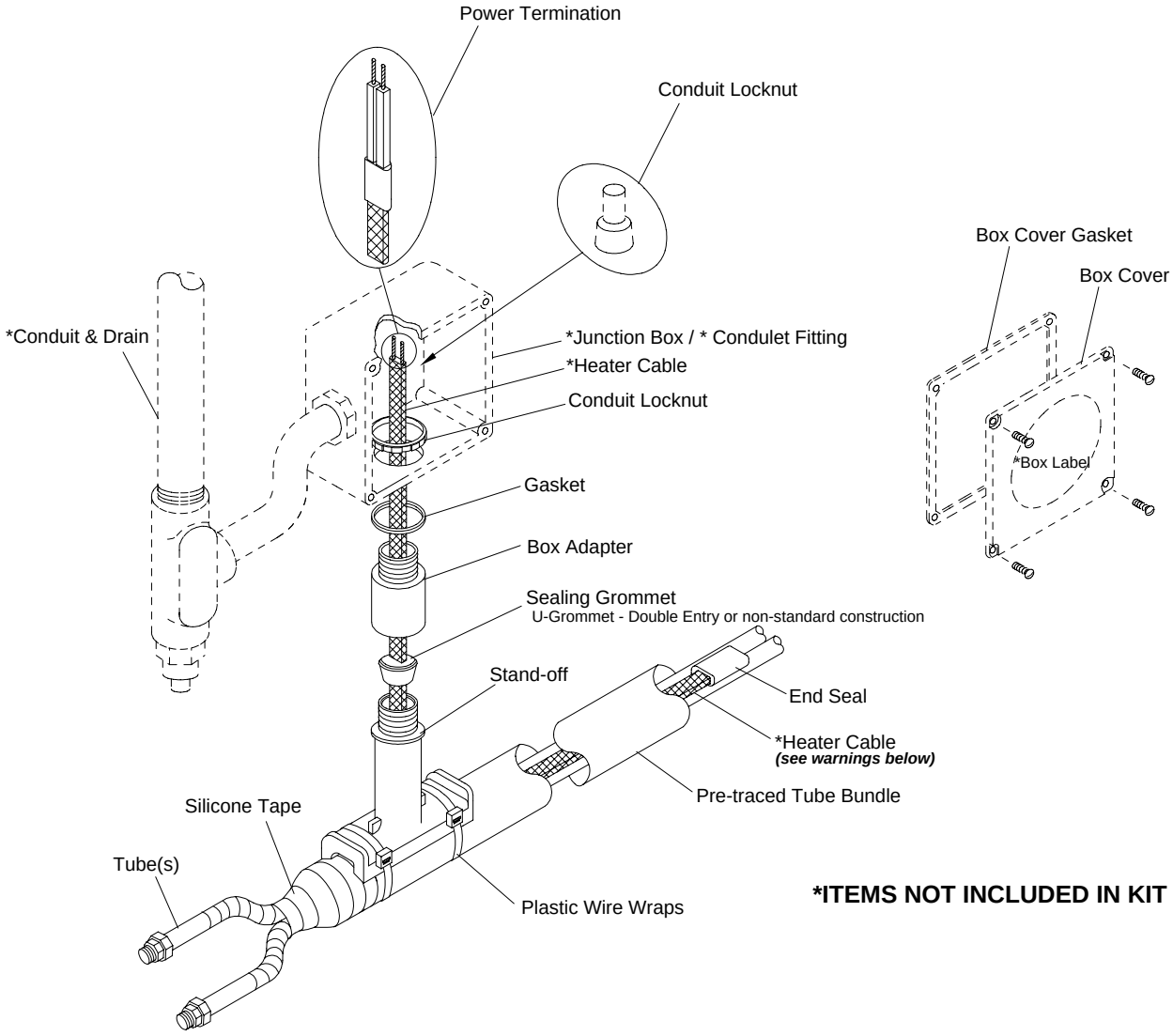
INSTALLATION INSTRUCTIONS

DESCRIPTION

The PLT-TB-P Tube Bundle Power Connection Kit is for use with all versions of Nelson Heat Tracing Systems' Pre-traced Tube Bundles.

KIT CONTENTS

1	Conduit Locknut	2	Power Terminations
1	Sealing Grommet	1	Box Adapter
1	Stand-off	1	Gasket
2	End Seals	4'	Silicone Tape
1	Tube of Silicone	2	Plastic Wire Wraps



***ITEMS NOT INCLUDED IN KIT**

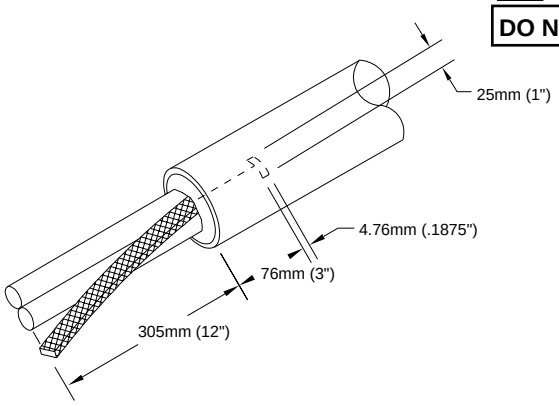
Installation Note: Pre-traced tube bundle should be supported as required.

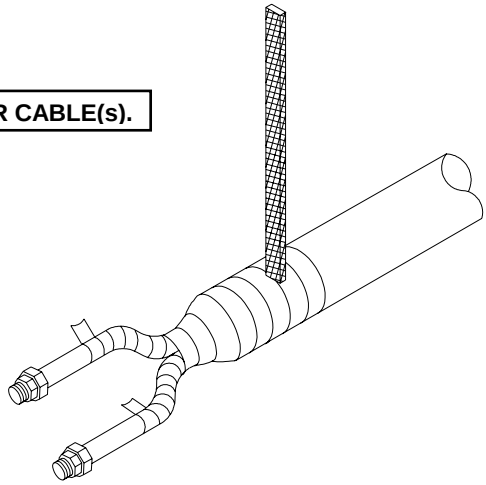
⚠ WARNING:

- **Canadian Division 2 Hazardous installations must use ground connection of braid.**
- **Article 427 of the National Electric Code requires that all heaters shall have metal coverings and be provided with branch circuit ground-fault protection.**
- **If nuisance tripping of ground fault breakers occurs due to condensation in junction box, electrical connections should be moisture proofed by use of a coating or sealant.**

TUBE BUNDLE PREPARATION

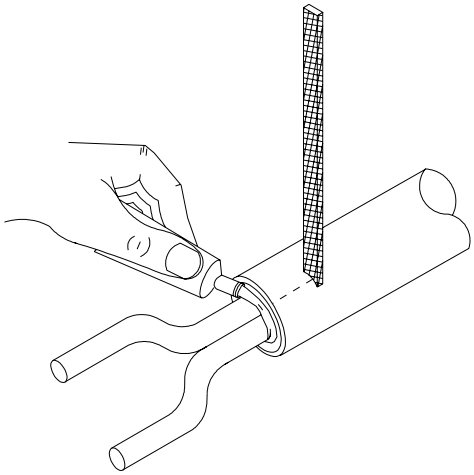
⚠ WARNING:
DO NOT CUT HEATER CABLE(s).





❶ Remove installation a minimum of 305mm (12”) from the end of the tube(s).

❷ Cut through insulation / outer covering 76mm (3”) back. Then, create an opening by cutting a 25mm (1”) x 4.76mm (.1875”) slit.



❸ Pull heater cable(s) through 25mm (1”) x 4.76mm (.1875”) slit. See diagram above.

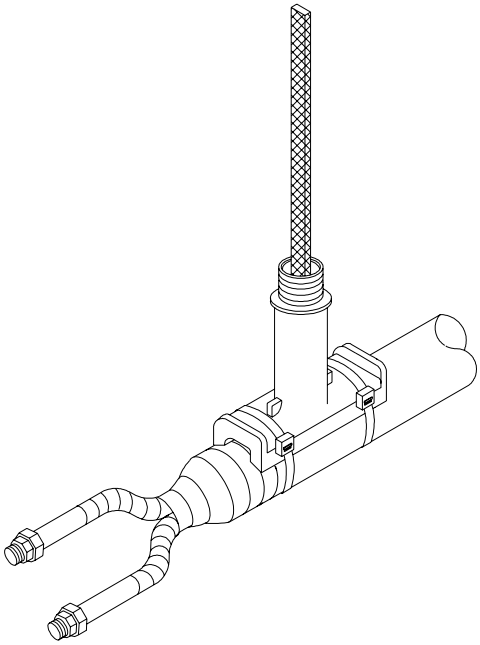
Note: If additional heater cable is required, refer to “Additional Heater Cable Installation”, sheet 10.

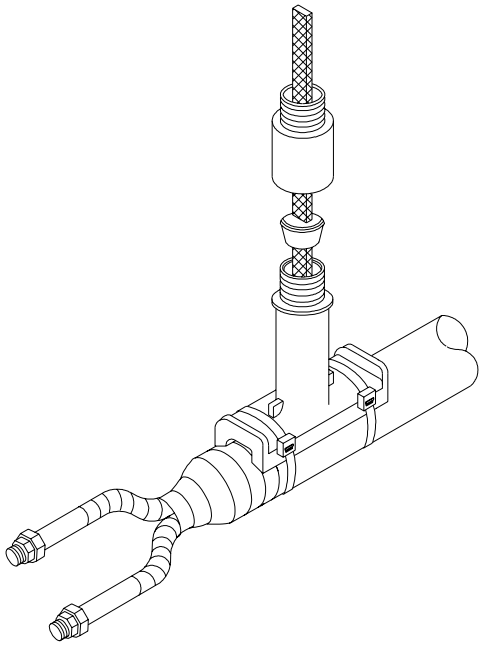
❹ Apply silicone to the tube bundle insulation surface and around heater cable(s).

❺ Wrap the end of the tube bundle with silicone tape. Start a minimum of 63mm (2.5”) over the outer jacket. Continue wrapping tube(s) and heater cable(s). Overlap 50%.

❻ Proceed to *“Tube Bundle Preparation”,* sheet 3.

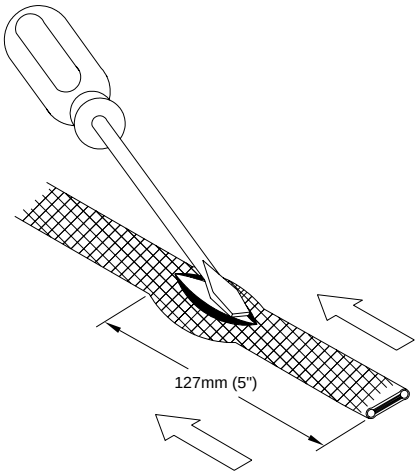
STAND-OFF INSTALLATION





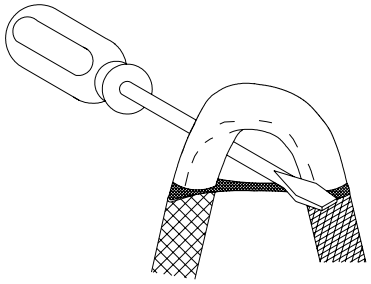
1. Push heater cable(s) through bottom opening of stand-off.
2. Place stand-off onto the tube bundle and fasten securely with plastic wire wraps.
3. Slide sealing grommet over heater cable and position inside stand-off opening.
4. Apply silicone around the heater cable(s) on top of the sealing grommet and fill any voids in sealing grommet.
5. Slide box adapter over the heater cable(s) and tighten securely to stand-off.
6. Prepare heater cable(s) for power termination:
   for braided products, see sheet 4.
   for overjacket products, see sheet 5.
7. Terminate heater cable(s), see sheet 8.

BRAIDED PRODUCTS

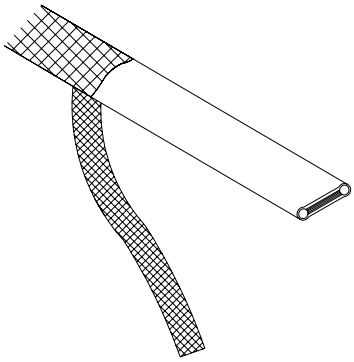


❶ Move braid back 127mm (5”) to create a bulge.

❷ At the bulge, separate the braid to make an opening.



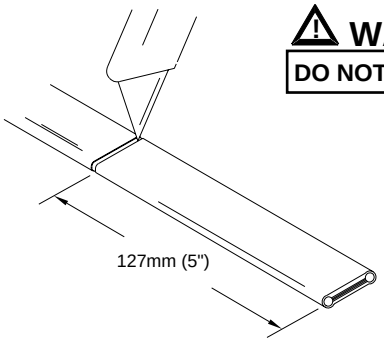
❸ While bending the heater cable, work it through the braid opening.



❹ Pull the braid tight.

❺ Proceed to *“Base Products”,* sheet 6.

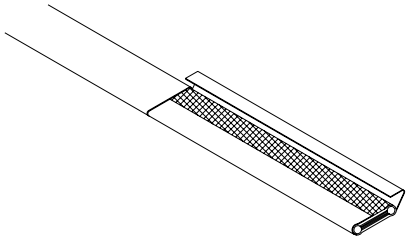
OVERJACKET PRODUCTS



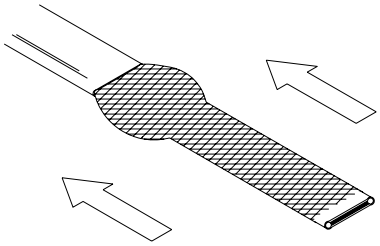
⚠ WARNING:
DO NOT CUT BRAID.

❶ Lightly cut around heater overjacket 127mm (5") from end of cable. Bend cable to break overjacket.

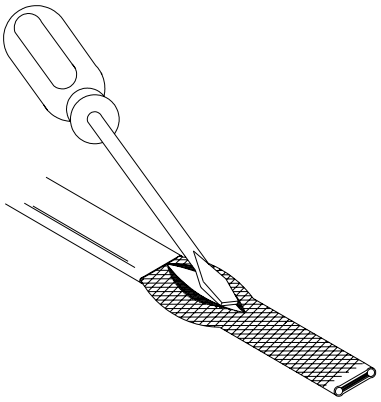
❷ Lightly cut overjacket up the center between first the cut mark and cable end. Bend cable to break overjacket.



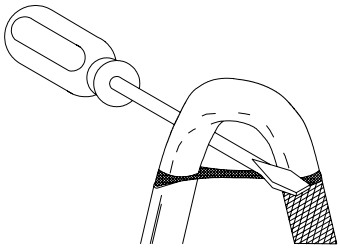
❸ Remove overjacket from heater cable.



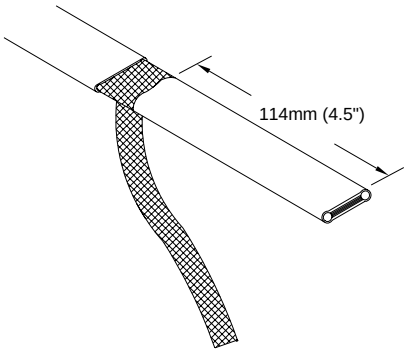
❹ Move braid back toward the overjacket, creating a bulge.



❺ At the bulge, separate the braid to make an opening.



❻ While bending the heater cable, work it through the braid opening.

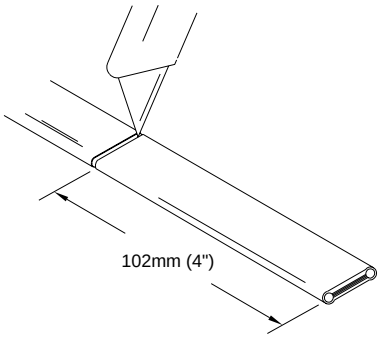


❼ Pull the braid tight.

❽ Proceed to *"Base Products",* sheet 5.

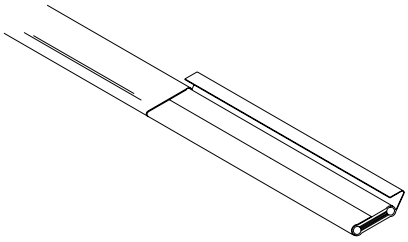
BASE LT, CLT & HLT PRODUCTS

(See sheet 7 for an alternate method of HLT products.)

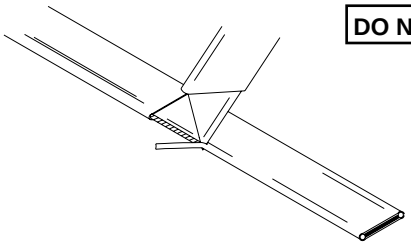


❶ Lightly cut around heater outer jacket 102mm (4") from the end. Bend cable to break outer jacket.

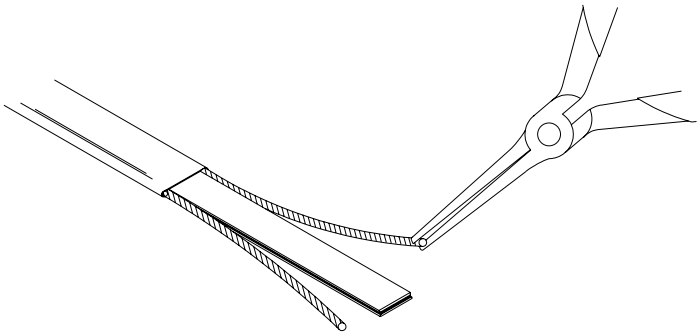
❷ Lightly cut the outer jacket up the center between the first cut mark & the cable end. Bend cable to break outer jacket.



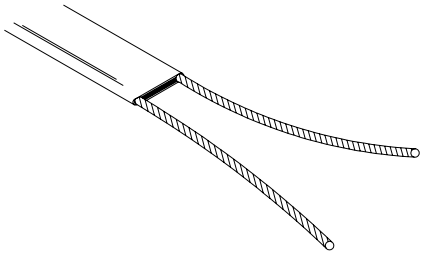
❸ Remove the jacket from the heater cable.



❹ Shave the core material from the outside of each bus wire.



❺ Starting at the end, pull each bus wire away from the core material.



❻ Remove exposed core material.

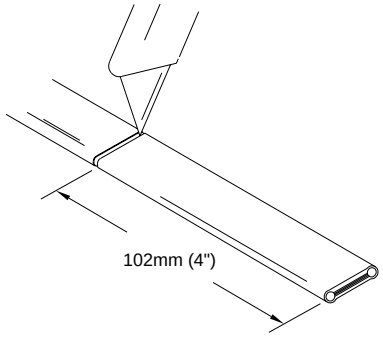
❼ Cut 6mm (0.25") off the end of each bus wire.

❽ Proceed to *"Power Termination",* sheet 8.

⚠ WARNING:

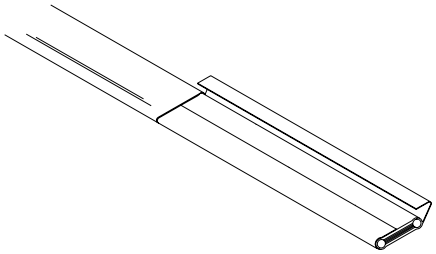
DO NOT CUT BUS WIRES.

HLT PRODUCTS
ALTERNATE METHOD

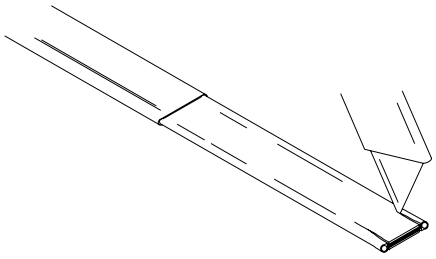


❶ Lightly cut around heater outer jacket 102mm (4") from the end. Bend cable to break outer jacket.

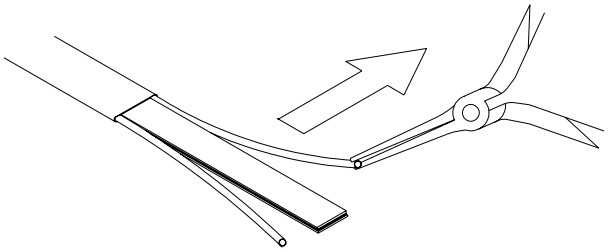
❷ Lightly cut the outer jacket up the center between the first cut mark & the cable end. Bend cable to break outer jacket.



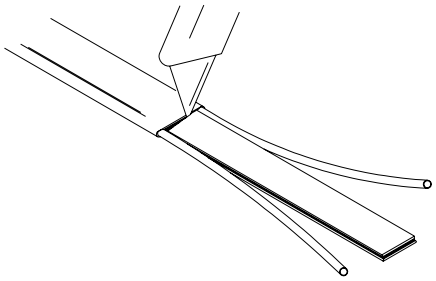
❸ Remove the jacket from the heater cable.



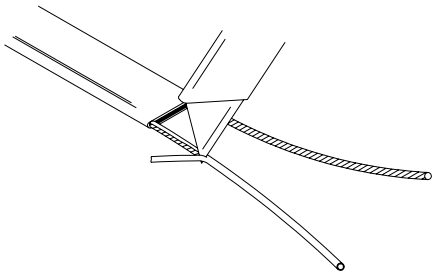
❹ Make a cut inside each bus wire.



❺ Starting at the end, in the same plane as the cable, pull each bus wire away from the core material.



❻ Remove exposed core material.



❼ Remove the remaining core material off the outside of each bus wire.

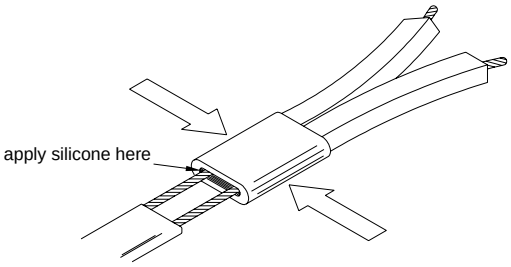
❽ Cut 6mm (0.25") off the end of each bus wire.

❾ Proceed to *"Power Termination",* sheet 8.

POWER TERMINATION

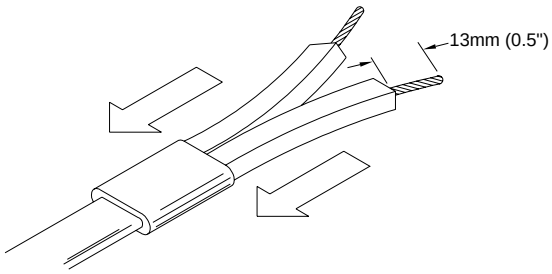
⚠ WARNINGS:

- **Bus wires must not touch or cross while inserting into power termination / end seal.**
- **Only power terminations / end seals specifically approved for the vendor's style and type of heater cable must be used.**



❶ Insert bus wires into power termination.

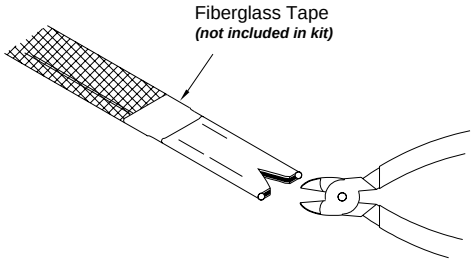
❷ Squeeze power termination opening and fill with silicone.



❸ Push power termination to overlap jacket.

❹ At this point, if you're installing the end seal, see *"End Seal"* section below. Otherwise, proceed to *"Power Connection",* sheet 9.

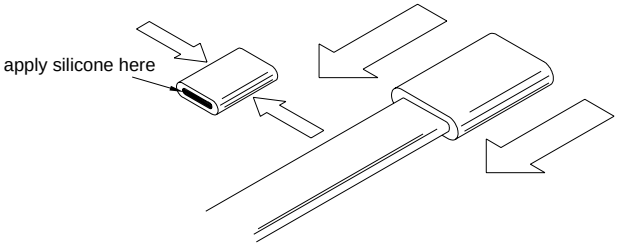
END SEAL



❶ **Braided Products:**
Cut braid back 25mm (1") & tape in place with fiberglass tape**. *(Fiberglass Tape is not included in kit).***

Overjacket Products:
Remove 13mm (0.5") of overjacket exposing the braid, then remove the 13mm (0.5") of exposed braid.

❷ Make a 10mm (0.4") cut at the end of the heater cable.



❸ Squeeze the end seal and fill with silicone.

❹ Push end seal over the heater cable.

Overjacket Products:
The end seal should overlap the overjacket.

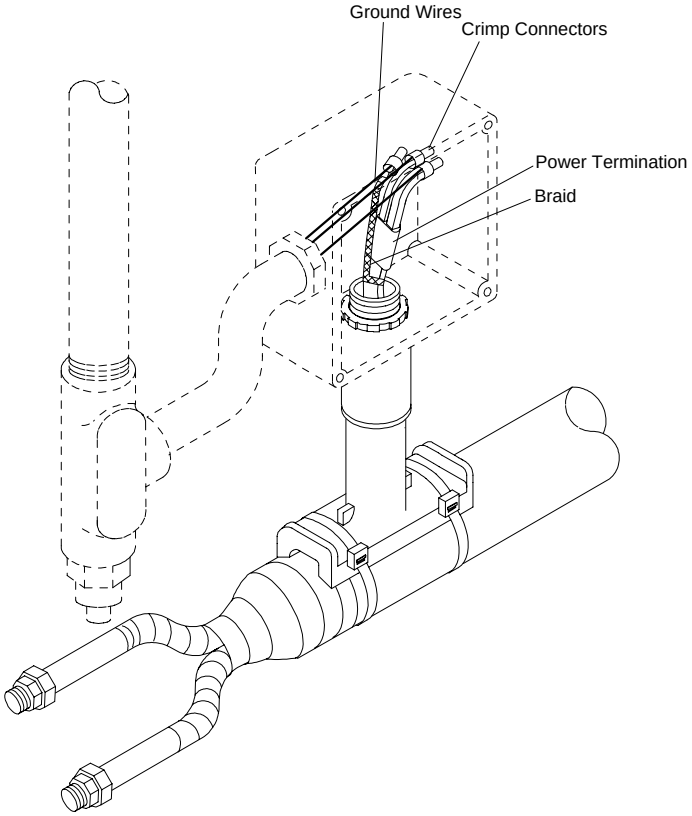
❺ The silicone will set up in about 30 minutes with a complete cure after 24 hours.

❻ Proceed to *"Power Connection",* sheet 9.

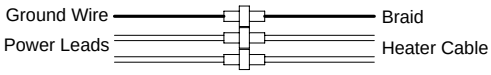
⚠ WARNING:

- **Do not megger or hi-pot until silicone is completely cured.**
- **Braid must be kept away from bus wires or shorting will occur.**

POWER CONNECTION

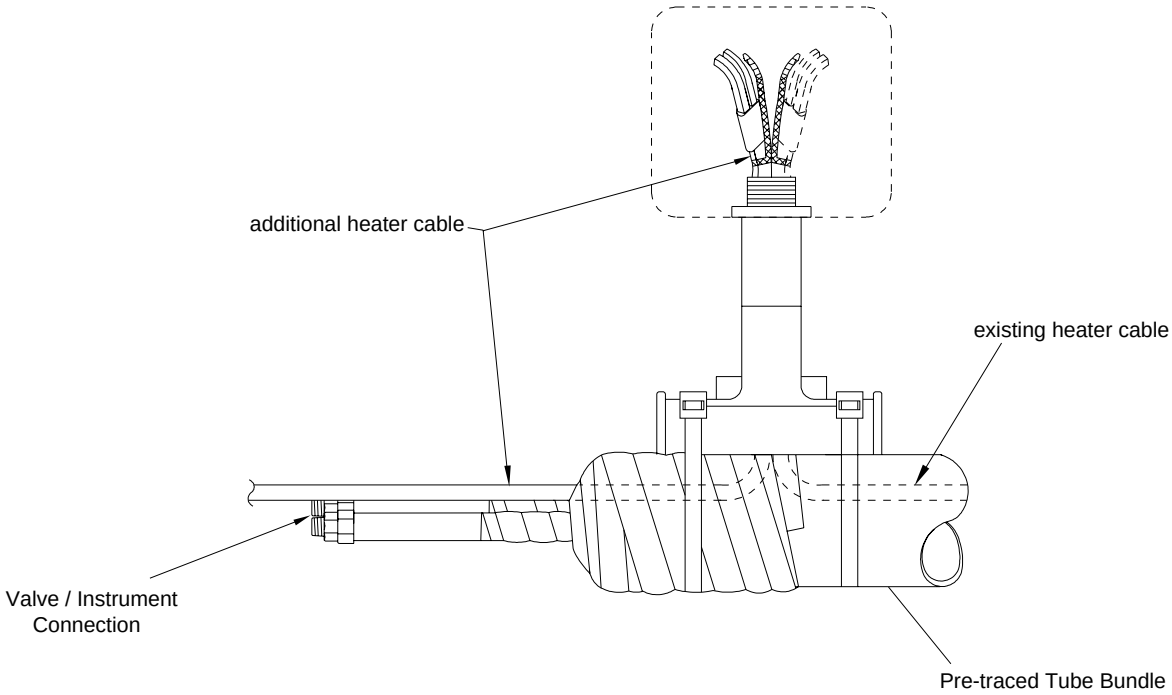


Wiring Connection
(three wire electrical system)



1. Place gasket on box adapter.
2. Position junction box on box adapter and secure it with the conduit locknut.
3. Connect bus and power wiring together using crimp connectors. ***See diagram above.***
4. Connect ground wire and braid together using a crimp connector. ***See diagram above.***
5. **For Overjacket J or JT Products Only:**
   Apply silicone at point braid leaves the overjacket.
6. Push all wires and cable inside junction box.
7. Place the box cover and box cover gasket onto the junction box.

ADDITIONAL HEATER CABLE INSTALLATION



1. Additional heater cable may be added at the termination kit to provide heat to an instrument, valve and additional tubing.
2. Additional heater cable section must be installed before applying the silicone tape.
3. Wrap the end of the tube bundle with silicone tape. Start a minimum of 63mm (2.5”) over the outer jacket. Continue wrapping tube(s) and additional heater cable as it exits the tube bundle insulation. Overlap 50%.