

NELSON™ HEAT TRACING SYSTEMS

ALT-BC STANDARD POWER CONNECTION KIT

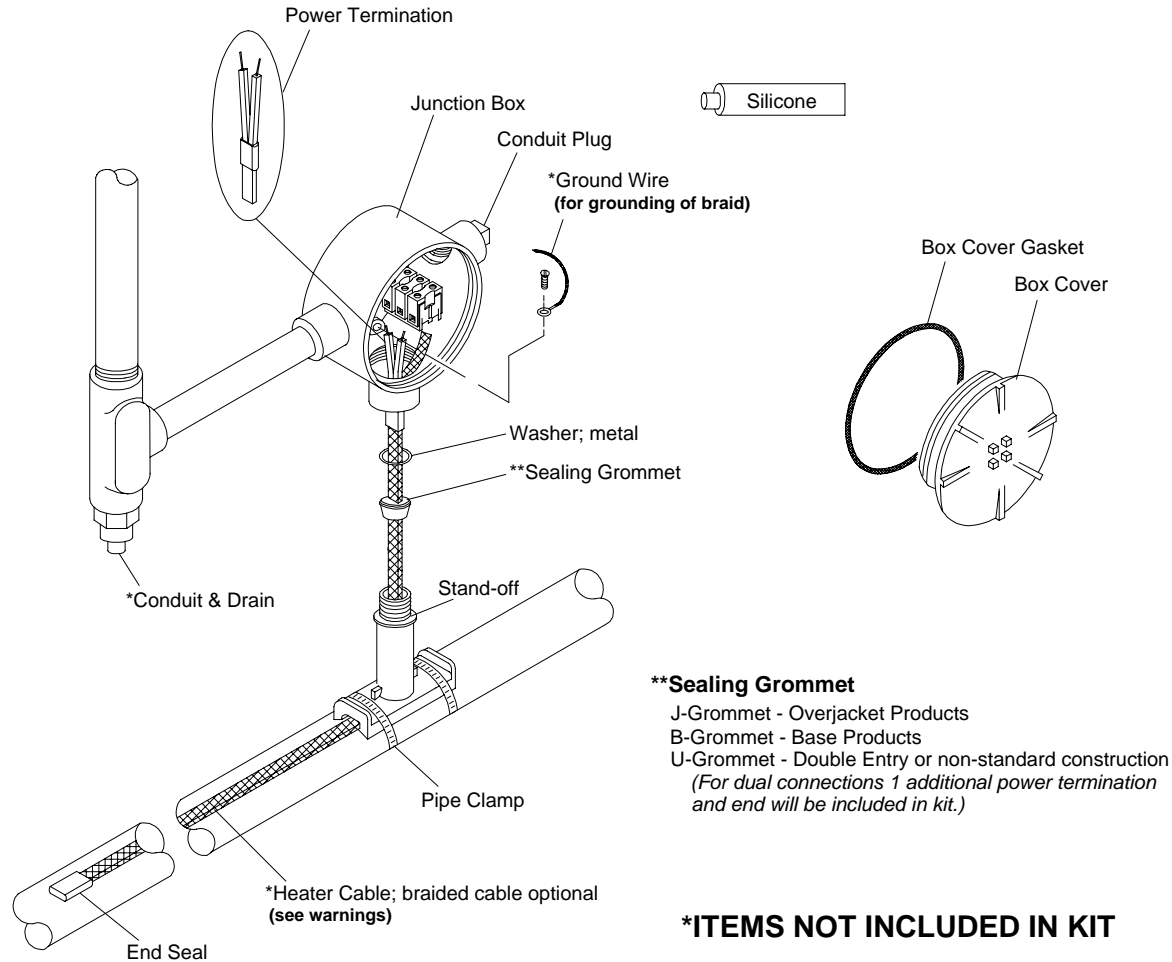
INSTALLATION INSTRUCTIONS

DESCRIPTION

The ALT-BC Standard Power Connection Kit is constructed of cast aluminum for use with all versions of Nelson Heat Tracing Systems' LT, CLT, HLT and NC heater cables. Compatible for use with any vendor's heater cables smaller than 11mm (0.44") diameter.

KIT CONTENTS

| | |
|-------------------|---------------------|
| 1 Junction Box | 1 Power Termination |
| 1 Label | 1 Washer |
| 1 Terminal Block | 1 Ground Screw |
| 1 Conduit Plug | 1 End Seal |
| 1 Sealing Grommet | 1 Tube of Silicone |
| 1 Stand-off | 2 Pipe Clamps |



Note: This detail shows Braided "CB" Product only. For Overjacket "J" or "JT" Products, see diagram on sheet 8.

⚠ WARNINGS:

- 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 the junction box, electrical connections should be moisture proofed by use of a coating or sealant.

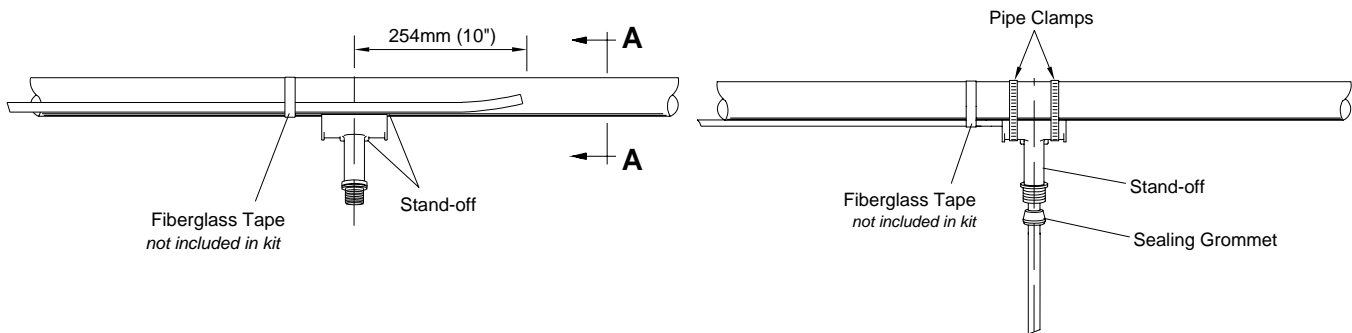
STAND-OFF POSITIONING

Section View A A

(recommend installing at the
4 or 8 o'clock positions.)



⚠ WARNING:
Do not place pipe clamps
over the heater cable.



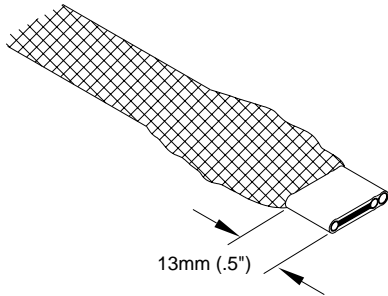
- 1 Mark pipe where stand-off will be mounted. See drawing above.
- 2 Push heater cable through bottom opening of stand-off.
- 3 Place stand-off on pipe and fasten with pipe clamps included.
- 4 Slide the sealing grommet over the heater cable and position inside stand-off opening:

For Braided “CB” Products only:

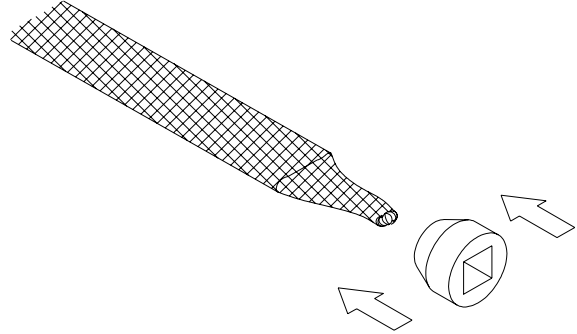
See “Sealing Grommet Installation for Braided “CB” Products” on sheet 3.

- 5 Apply silicone around the heater cable on top of the sealing grommet and fill any voids in sealing grommet.
- 6 Prepare heater cable for power termination:
for Braided “CB” Products, see sheet 3.
for Overjacket “J” or “JT” Products, see sheet 4.
- 7 Terminate heater cable, see sheet 7.

SEALING GROMMET INSTALLATION FOR BRAIDED “CB” PRODUCTS

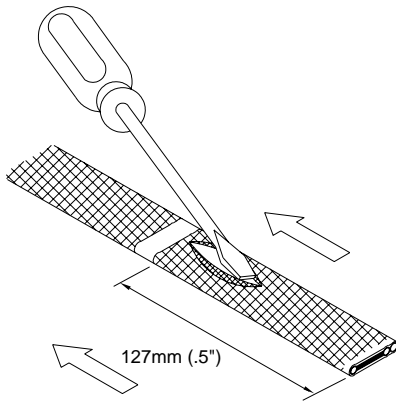


- 1 Slide braid back, allowing at least 13mm (.5”) of heater cable exposed.
- 2 Cut and remove the exposed heater cable.

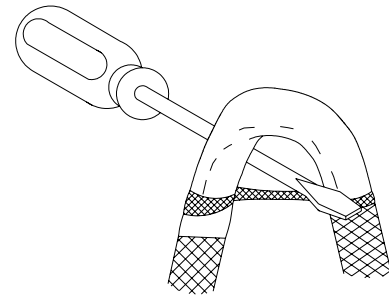


- 3 Slide braid back over heater cable and twist excess braid into a pigtail.
- 4 Slide the sealing grommet over the heater cable and position inside stand-off opening.
- 5 Continue with step 5 on sheet 2.

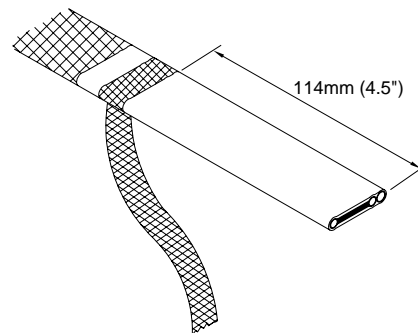
BRAIDED “CB” PRODUCTS



- 1 Secure heater cable braid with fiberglass tape, allowing 127mm (5”) of cable for stripping.
- 2 Slide braid back towards the fiberglass tape creating a bulge.
- 3 At the bulge, separate the braid to make an opening.



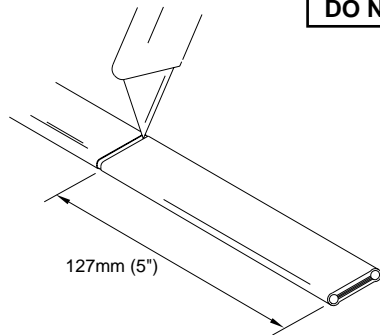
- 4 Bend heater cable and work it through the braid opening.



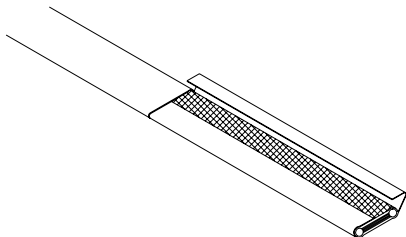
- 5 Pull the braid tight.
- 6 Proceed to “LT, CLT & HLT Products” on sheet 5.

OVERJACKET PRODUCTS

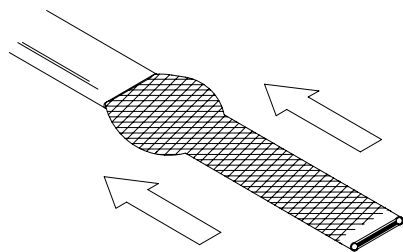
⚠ WARNING:
DO NOT CUT BRAID



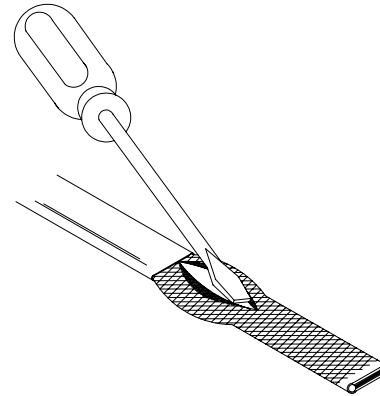
- ❶ Lightly cut around heater overjacket 127mm (5") from the end. Bend cable to break overjacket.
- ❷ Lightly cut overjacket up the center between first cut mark and the cable end. Bend cable to break overjacket.



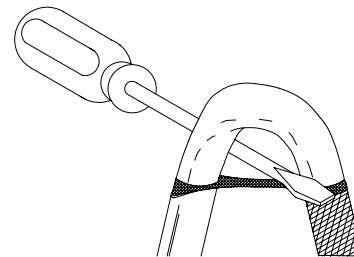
- ❸ Remove overjacket from heater cable.



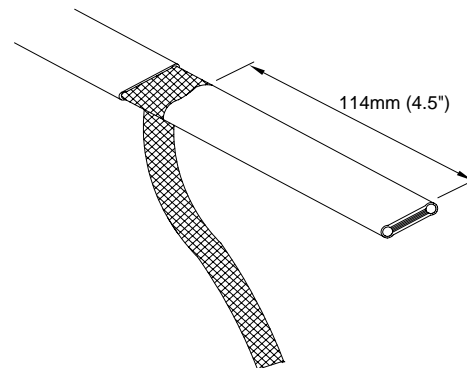
- ❹ Move braid back toward the overjacket, creating a bulge.



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



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



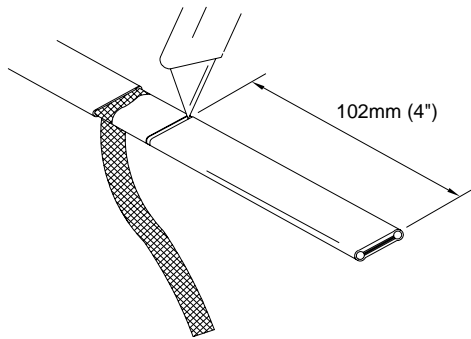
- ❼ Pull the braid tight.
- ❽ Proceed to "LT, CLT & HLT Products" on sheet 5.

NELSON™ HEAT TRACING SYSTEMS ALT-BC STANDARD POWER CONNECTION KIT

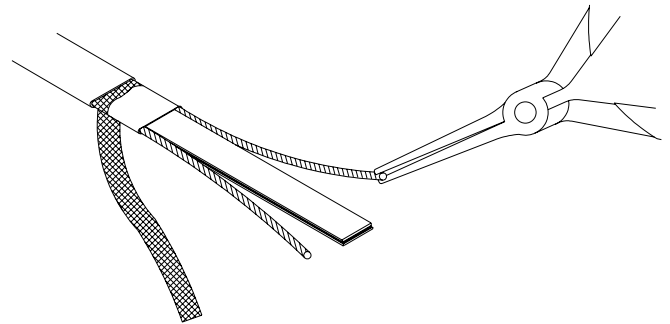
INSTALLATION INSTRUCTIONS

FOR ALL NELSON LT, CLT & HLT PRODUCTS

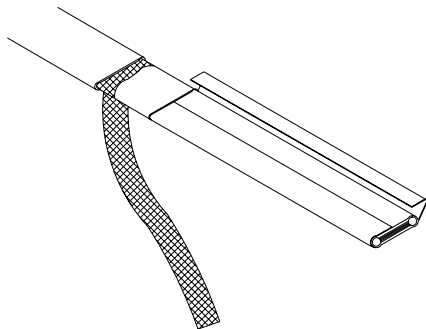
(See sheet 6 for an alternate stripping method for HLT products.)



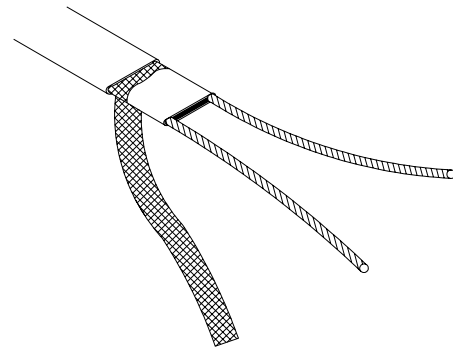
- 1 Lightly cut around cable outer jacket 102mm (4") from the end. Bend cable to break outer jacket.
- 2 Lightly cut the outer jacket up the center between the first cut mark & the cable end. Bend cable to break outer jacket.



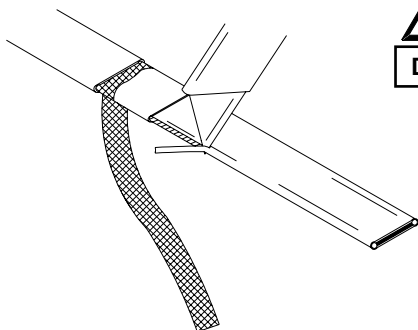
- 5 Starting at the end, pull each bus wire away from the core material.
- 6 Remove exposed core material.



- 3 Remove the jacket from the heater cable.



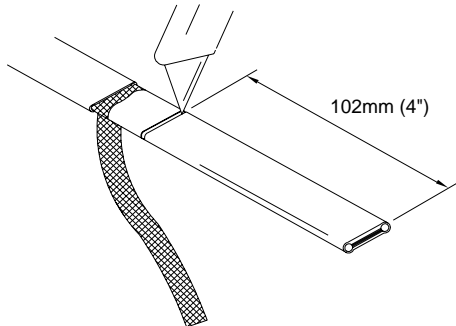
- 7 Cut 6mm (0.25") off the end of each bus wire.
- 8 Proceed to "Power Termination" on sheet 7.



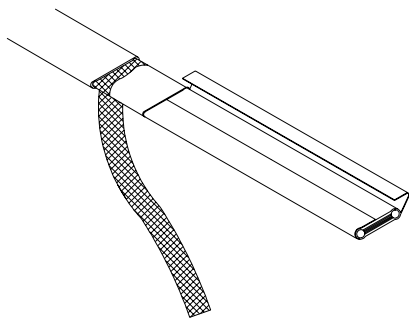
⚠ WARNING:
DO NOT CUT BUS WIRES

- 4 Shave the core material from the outside of each bus wire.

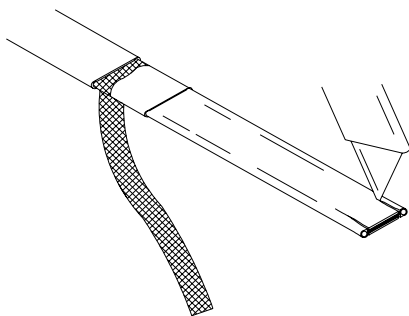
HLT PRODUCTS ALTERNATE STRIPPING METHOD



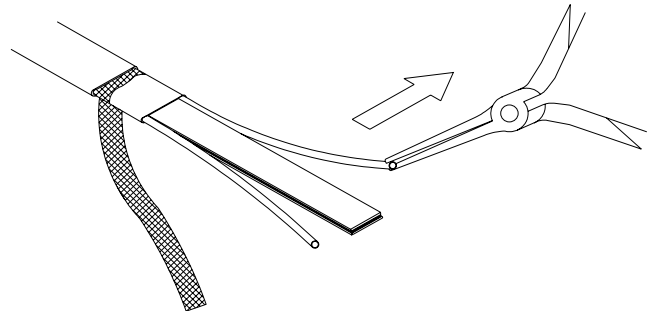
- 1 Lightly cut around cable outer jacket 102mm (4") from the end. Bend cable to break outer jacket.
- 2 Lightly cut the outer jacket up the center between the first cut mark & the cable end. Bend cable to break outer jacket.



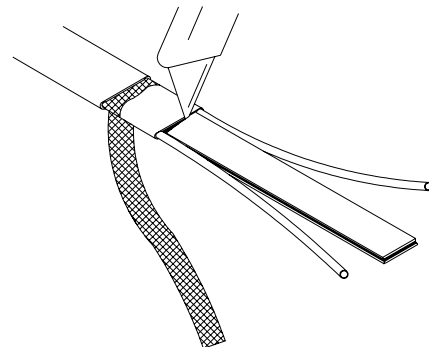
- 3 Remove the jacket from the heater cable.



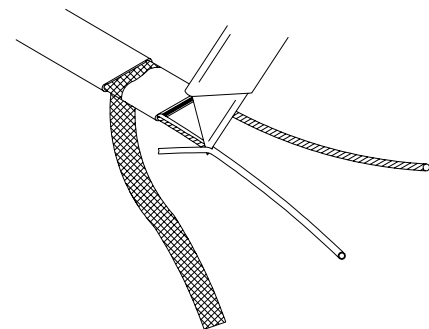
- 4 Make a cut inside each bus wire.



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



- 6 Remove the exposed core material.

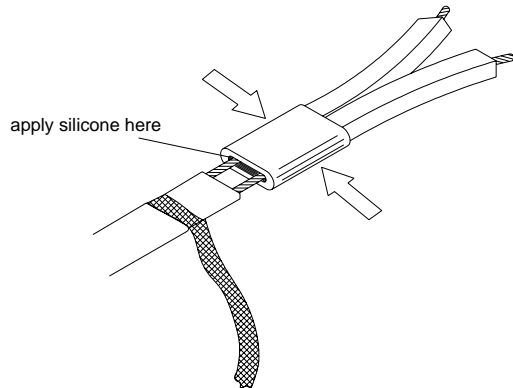


- 7 Remove the remaining core material off the outside of each bus wire.
- 8 Cut 6mm (0.25") off the end of each bus wire.
- 9 Proceed to "Power Termination" on sheet 7.

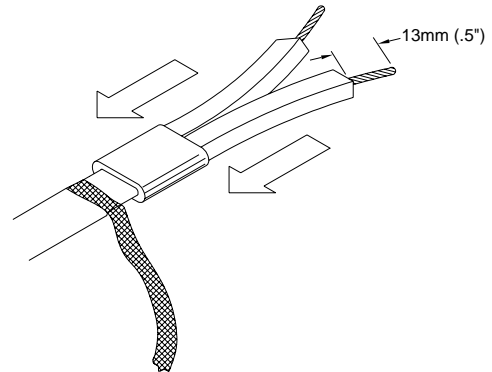
POWER TERMINATION

⚠ WARNING:

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

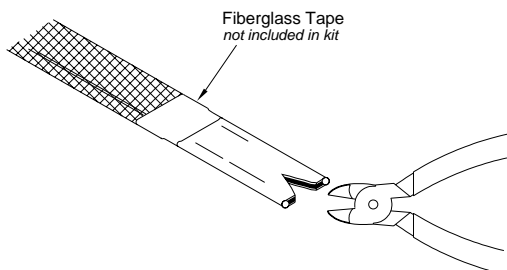


- 1 Insert bus wires into power termination.
- 2 Squeeze power termination opening and fill with silicone.

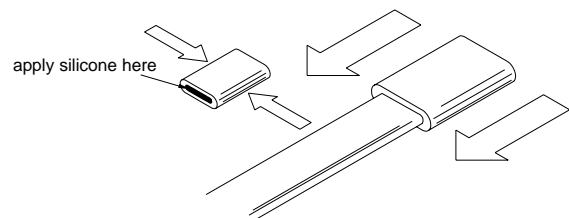


- 3 Push power termination to overlap jacket.
- 4 The silicone will set up in about 30 minutes with a complete cure after 24 hours.
- 5 Proceed to "Power Termination" on sheet 8.

END SEAL



- 1 **Braided "CB" Products only:**
Cut braid back 25mm (1") & tape in place with fiberglass tape.
- 2 **Overjacket "J" or "JT" Products only:**
Remove 13mm (0.5") of overjacket exposing the braid, then remove the 13mm (0.5") of exposed braid.
- 2 Make a 10mm (0.4") cut at the end of the heater cable.

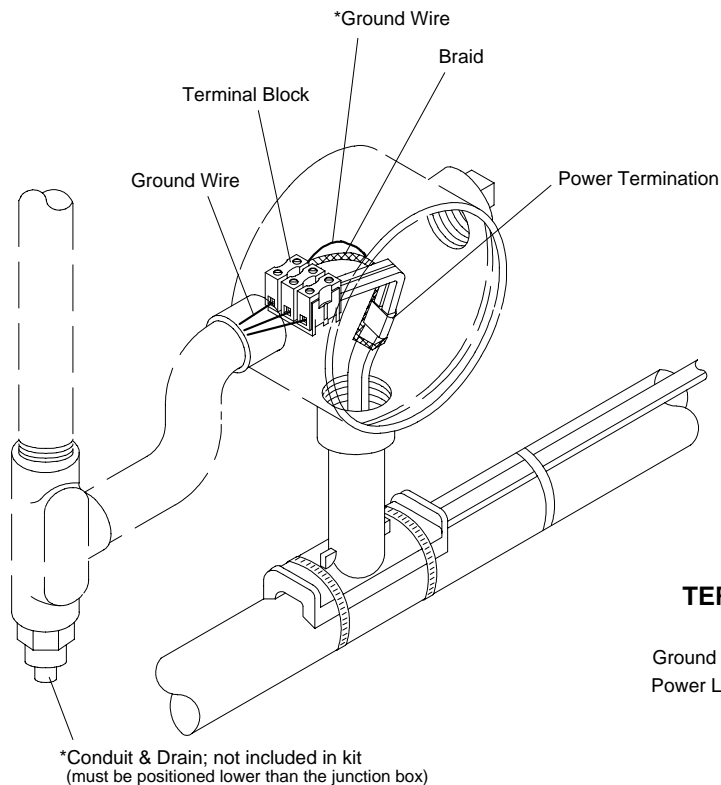


- 3 Squeeze end seal and fill with silicone.
 - 4 Push end seal over the heater cable.
- Overjacket "J" or "JT" Products only:**
The end seal should overlap the overjacket.
- 5 The silicone will set up in about 30 minutes with a complete cure after 24 hours.
 - 6 Proceed to "Power Connection" on sheet 8

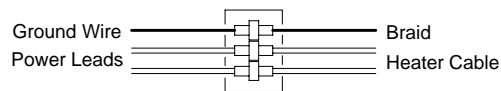
⚠ WARNING:

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

POWER CONNECTION



TERMINAL BLOCK CONNECTION



Note: This detail shows Overjacket “J” or “JT” Products. For Braided “CB” Products, see diagram on sheet 1.

- ❶ Slide washer over heater cable and position at the sealing grommet.
- ❷ Secure junction box onto stand-off until tightly fitted. **DO NOT OVER TIGHTEN.**
- ❸ Connect the power wiring and heater cable to terminal block.
- ❹ Connect ground wire to terminal block inside junction box using the ground screw. *See diagram on sheet 1.*
- ❺ Connect ground wire and braid to terminal block. *See diagram above.*
- ❻ **For Overjacket J or JT Products only:**
Apply silicone at point braid leaves the overjacket.
- ❼ Push all wires, cable and terminal block inside junction box.
- ❽ Install box cover gasket and box cover onto junction box.
- ❾ Apply label to the smooth side of junction; fill-in the Voltage, Catalog No. & Wattage blocks on the label with the actual field installed data.

Nelson Heat Tracing Systems products are supplied with a limited warranty. Complete Terms and Conditions may be found on Nelson's website at www.nelsonheaters.com.

NELSON™ HEAT TRACING SYSTEMS

ALT-BCL STANDARD POWER CONNECTION KIT

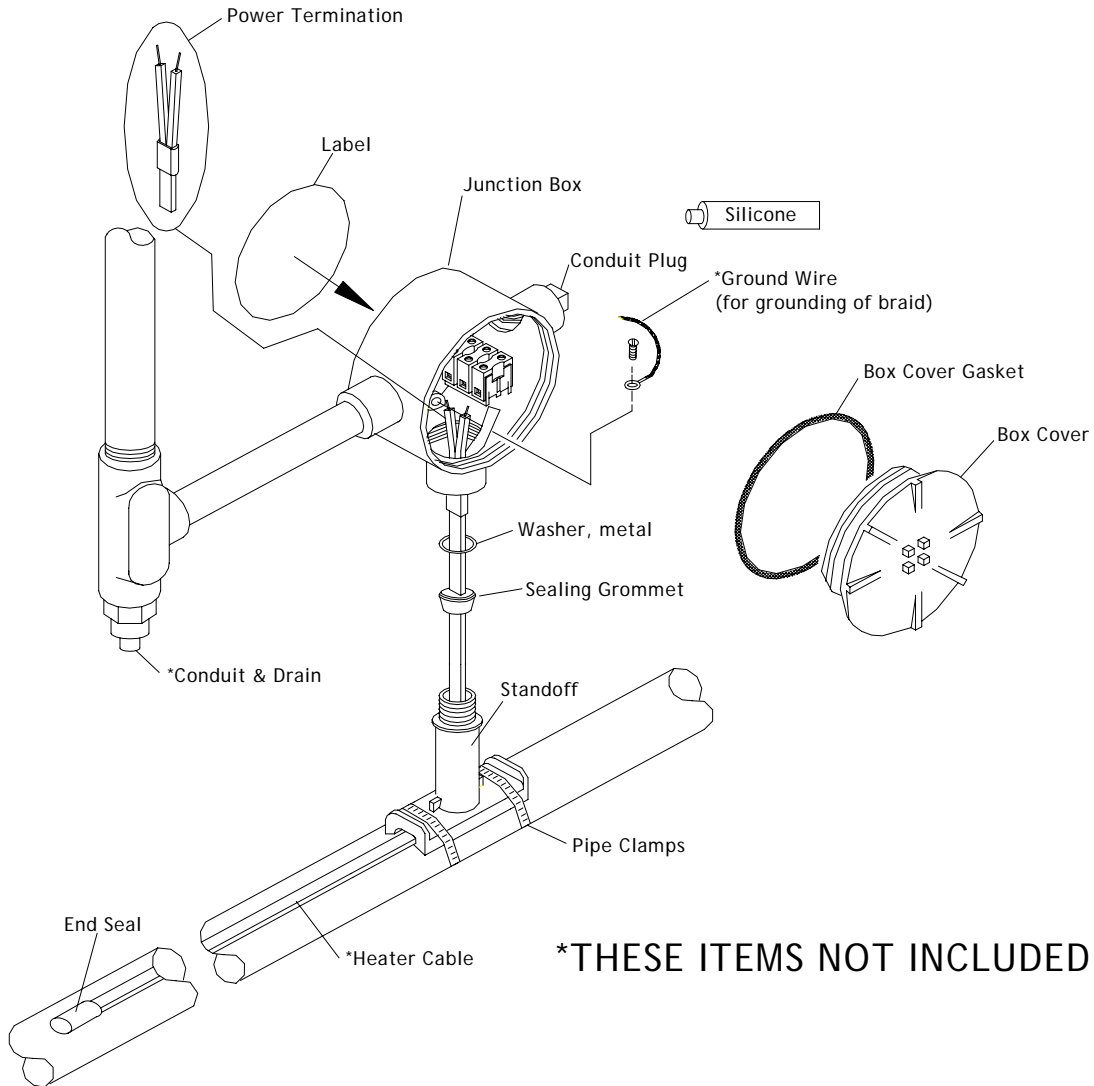
INSTALLATION INSTRUCTIONS

DESCRIPTION

The ALT-BCL Standard Power Connection Kit is constructed of cast aluminum for use with Nelson Heat Tracing Systems' LLT heater cables.

KIT CONTENTS

| | |
|-------------------|---------------------|
| 1 Junction Box | 1 Power Termination |
| 1 Label | 1 Washer |
| 1 Terminal Block | 1 Ground Screw |
| 1 Conduit Plug | 1 End Seal |
| 1 Sealing Grommet | 2 Tubes of Silicone |
| 1 Stand-off | 2 Pipe Clamps |



***THESE ITEMS NOT INCLUDED IN KIT.**

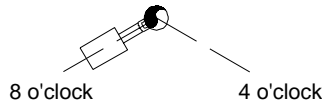
WARNINGS:

- 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 the junction box, electrical connections should be moisture proofed by use of a coating or sealant.

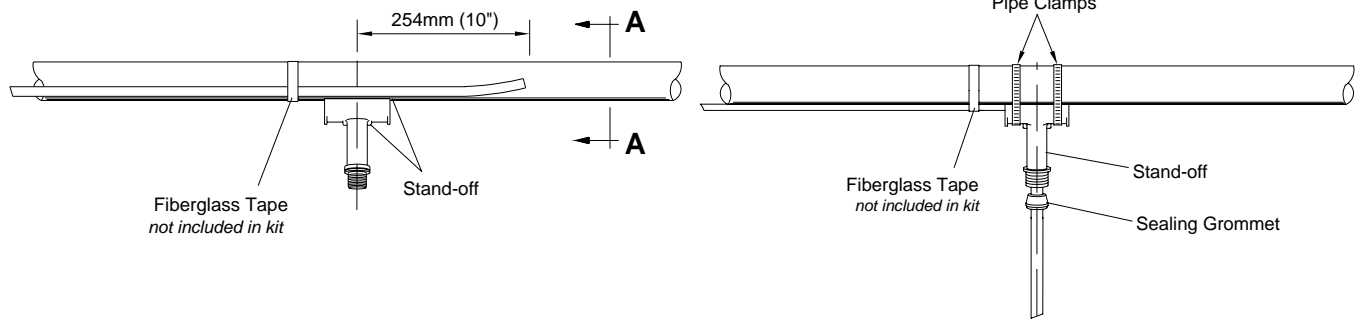
STAND-OFF POSITIONING

Section View A A

(recommend installing at the
4 or 8 o'clock positions.)



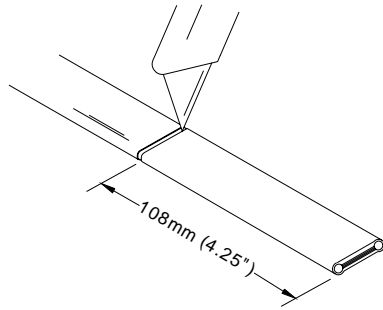
⚠ WARNING:
Do not place pipe clamps
over the heater cable.



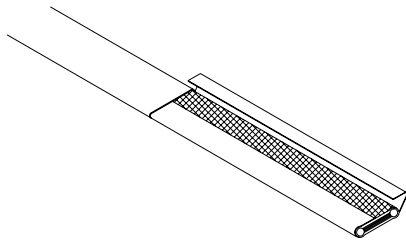
- ➊ Mark pipe where stand-off will be mounted. See drawing above.
- ➋ Push heater cable through bottom opening of stand-off.
- ➌ Place stand-off on pipe and fasten with pipe clamps included.
- ➍ Slide the sealing grommet over the heater cable and position inside stand-off opening:
- ➎ Apply silicone around the heater cable on top of the sealing grommet and fill any voids in sealing grommet.
- ➏ Prepare heater cable for power termination:
See sheet 3.
- ➐ Terminate heater cable, see sheet 5.

OVERJACKET STRIPPING PROCEDURES

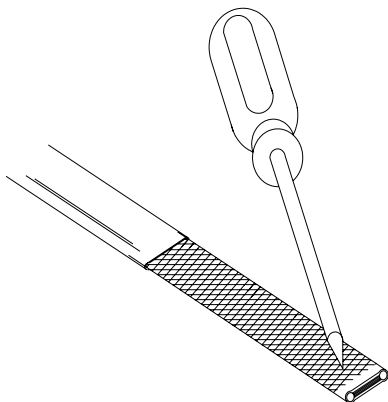
⚠ WARNING:
DO NOT CUT BRAID



- 1 Lightly cut around heater overjacket 127mm (5") from the end. Bend cable to break the overjacket.
- 2 Lightly cut overjacket up the center between first cut mark and the cable end. Bend cable to break

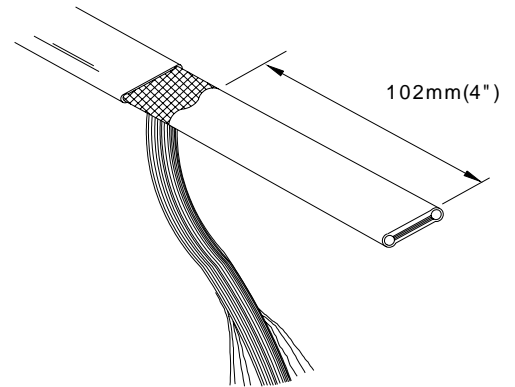


- 3 Remove overjacket from heater cable.



- 4 Using an awl or other sharp pointed device, unravel the braid from the cable. Even though most of the

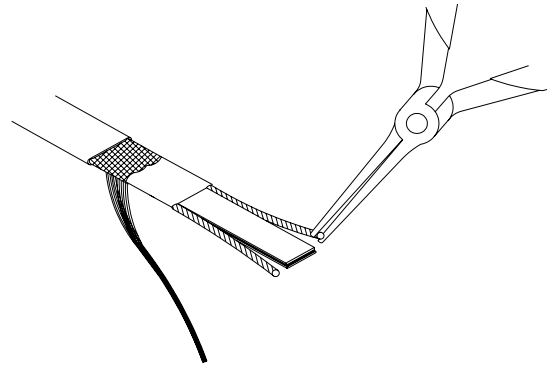
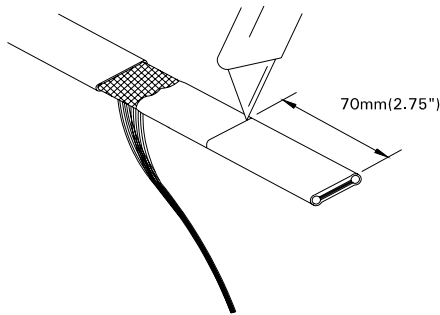
outer jacket will be removed in a subsequent operation do not puncture it with the awl.



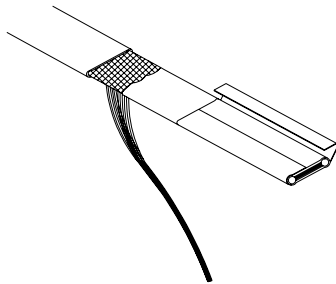
- 5 After the braid has been unraveled so that it looks similar to the illustration above pull it tight and twist the loose wires together.
- 6 Proceed to "Outer Jacket Stripping Procedures", sheet 4.

OUTER JACKET STRIPPING PROCEDURES

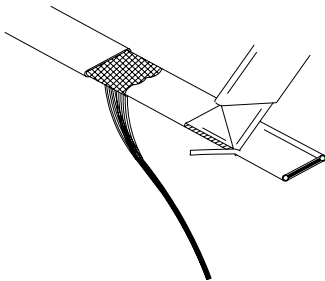
- 1 Lightly cut around heater outer jacket 102mm (4") from the end. Bend cable to break outer jacket.



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



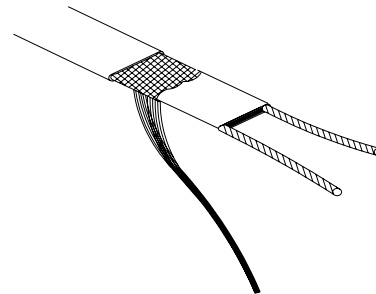
- 3 Remove jacket from the heater cable.



- 4 Shave core material from the outside of each bus wire.

- 5 Starting at the end, pull each bus wire away from the core material. Do not disturb the "lay" of the wire stranding. Failure to comply will prevent installation of the power termination boot.

- 6 Remove exposed core material.



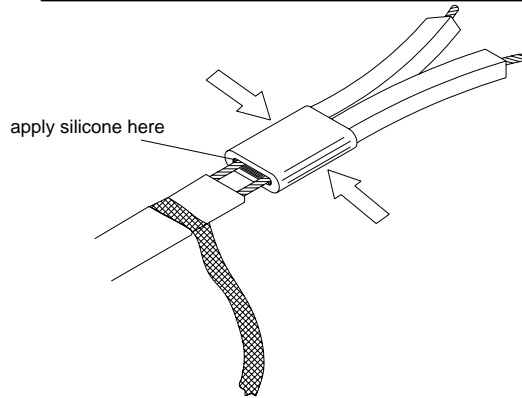
- 7 Proceed to "Power Termination Procedures", sheet 5.

⚠ WARNING:
DO NOT CUT BUS WIRES

POWER TERMINATION

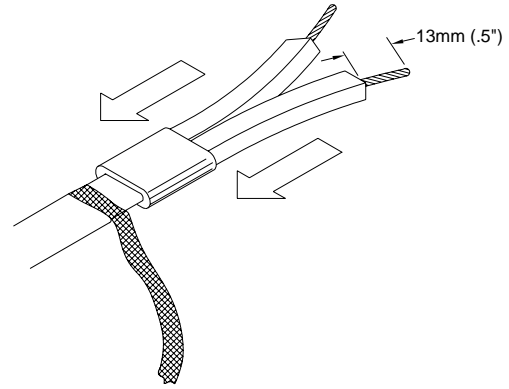
⚠ WARNING:

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



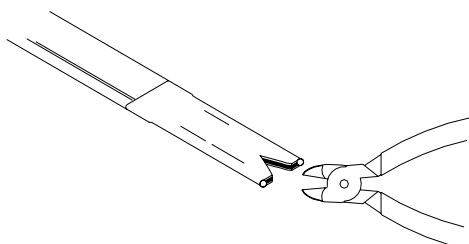
- 1 Before installing the boot, slightly cock the end of each wire away from the other and apply a small amount of silicone to the open end of the boot.
- 2 Insert bus wires into power termination (boot).

- 3 Squeeze power termination opening and fill with silicone.

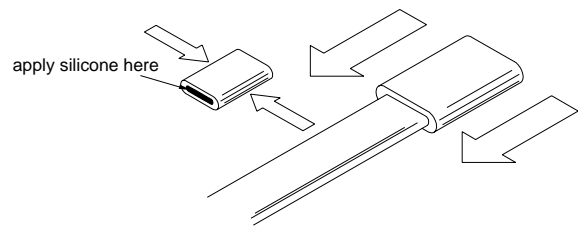


- 4 Push power termination to overlap jacket.
- 5 The silicone will set up in about 30 minutes with a complete cure after 24 hours.
- 6 Proceed to "Power Connection" on sheet 8.

END SEAL



- 1 Remove 13mm (0.5") of overjacket exposing the braid, then remove the 13mm (0.5") of exposed braid.
- 2 Make a 5mm (0.2") cut at the end of the heater cable, as shown above.

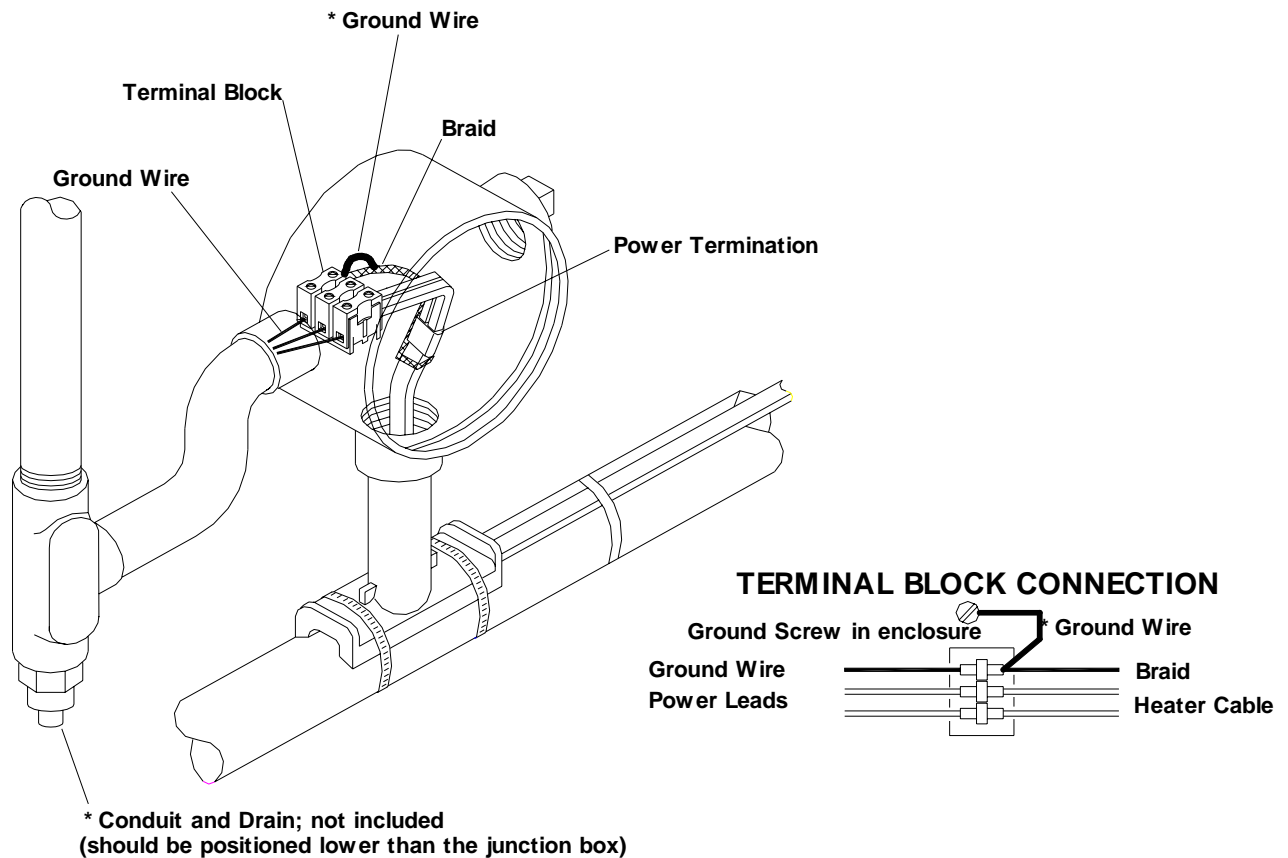


- 3 Squeeze end seal and fill with silicone.
- 4 Push end seal over the heater cable. The end seal should overlap the overjacket.
- 5 The silicone will set up in about 30 minutes with a complete cure after 24 hours.
- 6 Proceed to "Power Connection" on sheet 8

⚠ WARNING:

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

POWER CONNECTION



- 1 Slide washer over heater cable and position at the sealing grommet.
- 2 Secure junction box onto stand-off until tightly fitted. **DO NOT OVER TIGHTEN.**
- 3 Connect the power wiring and heater cable to terminal block.
- 4 Connect ground wire to terminal block inside junction box using the ground screw. *See diagram on sheet 1.*
- 5 Connect ground wire and braid to terminal block. *See diagram above.*
- 6 Apply silicone at point braid leaves the overjacket.
- 7 Push all wires, cable and terminal block inside junction box.
- 8 Install box cover gasket and box cover onto junction box.
- 9 Apply label to the smooth side of junction; fill-in the Voltage, Catalog No. & Wattage blocks on the label with the actual field installed data.

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NELSON™ HEAT TRACING SYSTEMS

ALT-BS SPLICE CONNECTION KIT

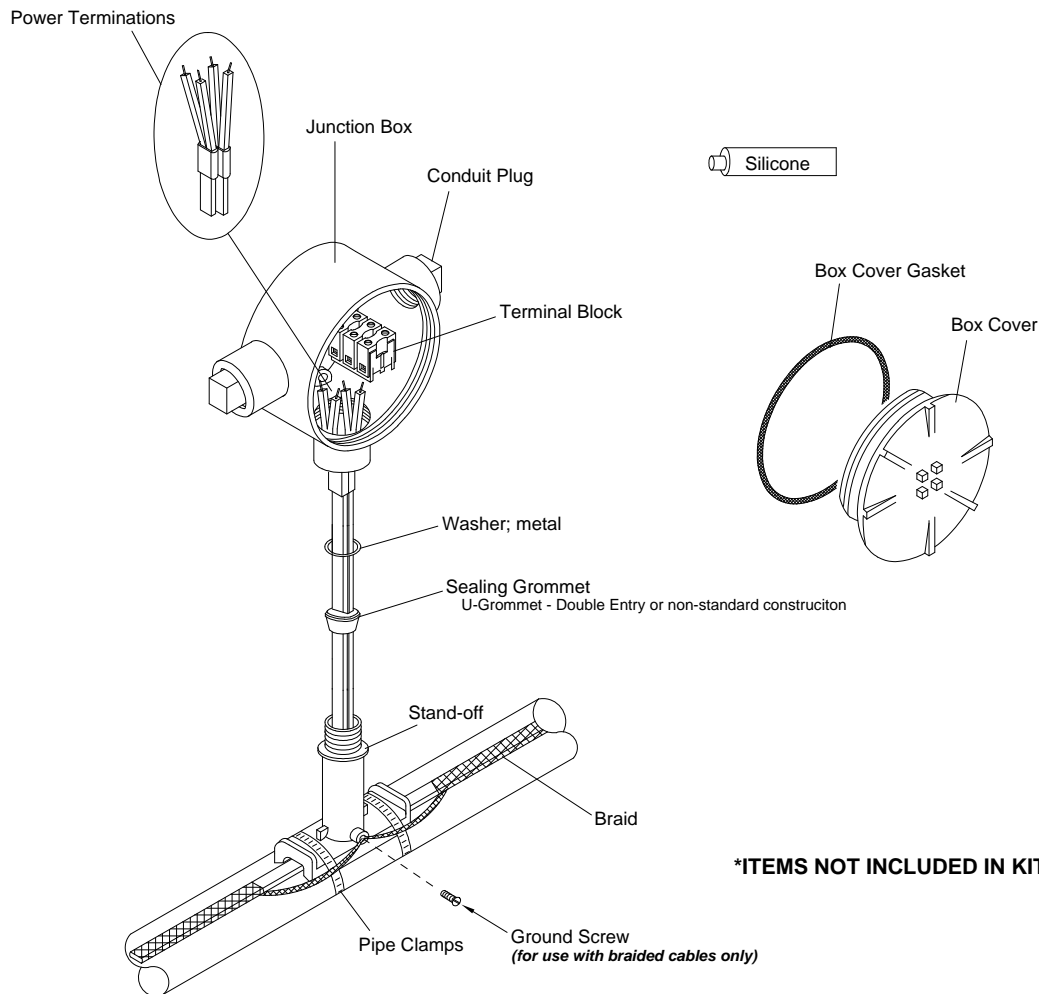
INSTALLATION INSTRUCTIONS

DESCRIPTION

The ALT-BS Splice Connection Kit is constructed of cast aluminum for use with all versions of Nelson Heat Tracing Systems' LT, CLT, HLT and NC heater cables. Compatible for use with any vendor's heater cables smaller than 11mm (0.44") diameter. Minimum installation temperature -40°C (-40°F).

KIT CONTENTS

| | |
|-------------------|----------------------|
| 1 Junction Box | 2 Power Terminations |
| 1 Terminal Block | 1 Washer |
| 2 Conduit Plugs | 1 Ground Screw |
| 1 Sealing Grommet | 1 Tube of Silicone |
| 1 Stand-off | 2 Pipe Clamps |



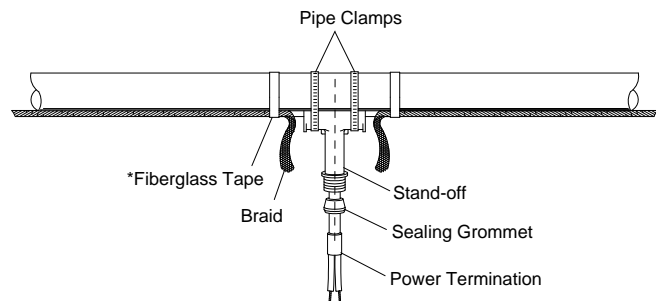
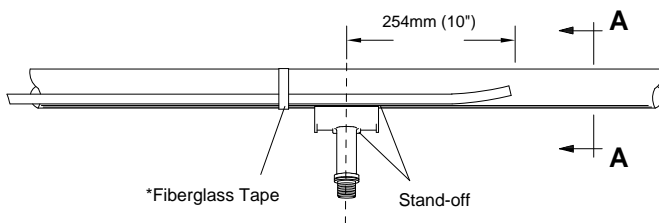
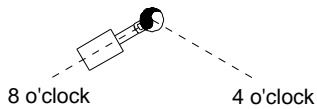
Note: This detail shows external grounding of braid. For internal grounding of braid (*overjacket products*), see sheet 8.

⚠ WARNINGS:

- Canadian Div. 2 Hazardous installations must use internal ground connection of braid. See sheet 8.
- 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.

STAND-OFF POSITIONING

Section View A A (recommend installing at the 4 or 8 o'clock positions.)



WARNING:

**Do not place pipe clamps
over the heater cable.**

*ITEMS NOT INCLUDED IN KIT

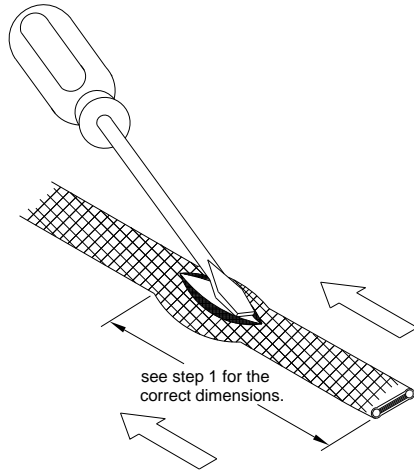
- 1 Mark pipe where stand-off will be mounted.
- 2 For External Braid Connection - CB Products only:
 - Remove braid from heater cables, back to the point the cables leave the pipe. See Sheet 3.
 - Proceed to step 3 below.

For Internal Braid Connection - CB, J or JT Products:

Proceed to step 3 below.

- 3 Push heater cable through the bottom opening of stand-off.
- 4 Place stand-off on pipe and fasten with pipe clamps.
- 5 Slide the sealing grommet over heater cable and position inside stand-off opening.
- 6 Apply silicone around the heater cable on top of the sealing grommet and fill any voids in sealing grommet.
- 7 Prepare heater cable for power termination:
 - for braided products, see sheet 3.
 - for overjacket products, see sheet 4.
 - for base products, see sheet 5.
- 8 Terminate heater cable, see sheet 7.

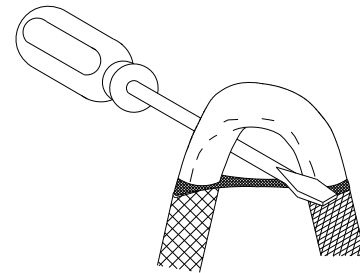
BRAIDED PRODUCTS



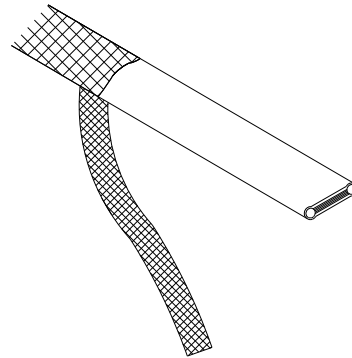
- 1 For External Braid Connection:**
Move braid back 305mm (12") to create a bulge.

For Internal Braid Connection:
Move braid back 127mm (5") to create a bulge.

- 2** At the bulge, separate the braid to make an opening.

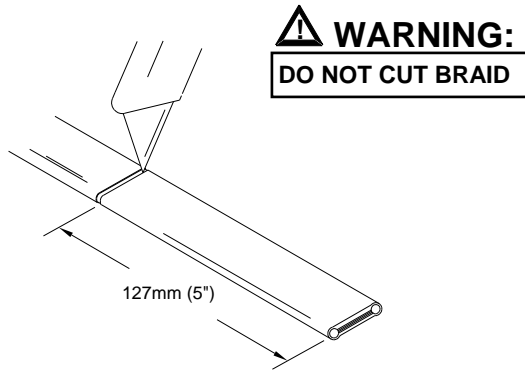


- 3** While bending the heater cable, work it through the braid opening.

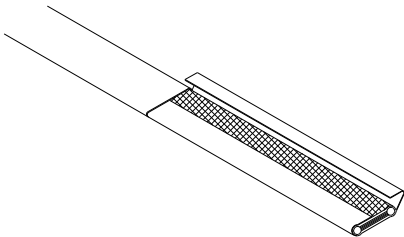


- 4** Pull the braid tight.
5 Proceed to "LT, CLT & HLT Products", sheet 5.

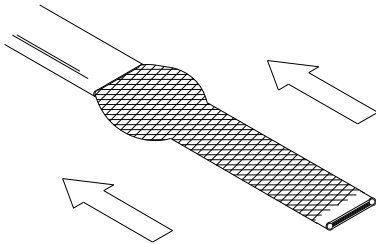
OVERJACKET PRODUCTS



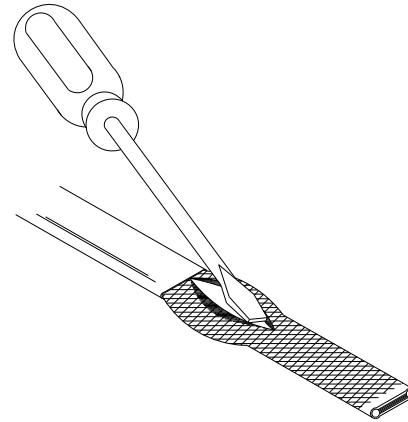
- 1 Lightly cut around heater overjacket 127mm (5") from the end. Bend cable to break overjacket.
- 2 Lightly cut overjacket up the center between first cut mark and the cable end. Bend cable to break overjacket.



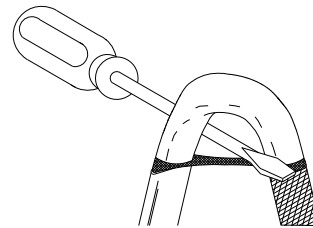
- 3 Remove overjacket from heater cable.



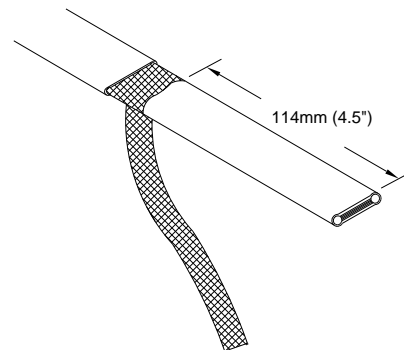
- 4 Move braid back toward the overjacket, creating a bulge.



- 5 At the bulge, separate the braid to make an opening.



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



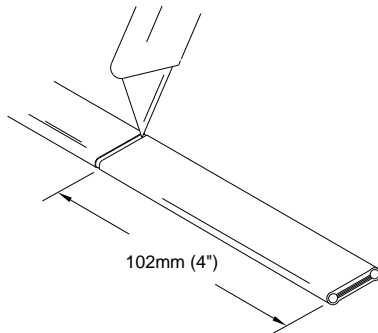
- 7 Pull the braid tight.
- 8 Proceed to "LT, CLT & HLT Products", sheet 5.

NELSON™ HEAT TRACING SYSTEMS

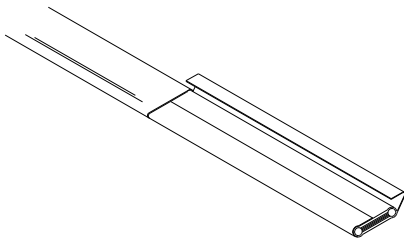
ALT-BS SPLICE CONNECTION KIT

INSTALLATION INSTRUCTIONS

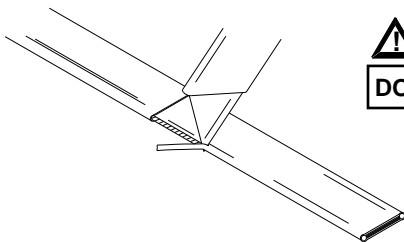
FOR ALL NELSON LT, CLT & HLT PRODUCTS
(See sheet 6 for an alternate method of HLT products)



- 1 Lightly cut around heater outer jacket 102mm (4") from the end. Bend cable to break outer jacket.
- 2 Lightly cut the outer jacket up the center between the first cut mark & the cable end. Bend cable to break outer jacket.

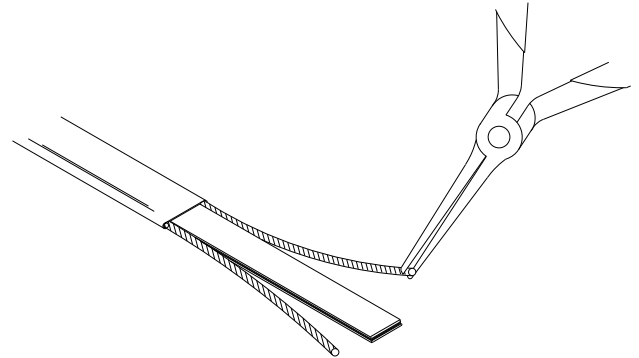


- 3 Remove the jacket from the heater cable.

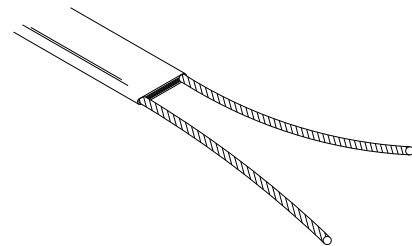


- 4 Shave the core material from the outside of each bus wire.

⚠ WARNING:
DO NOT CUT BUS WIRES



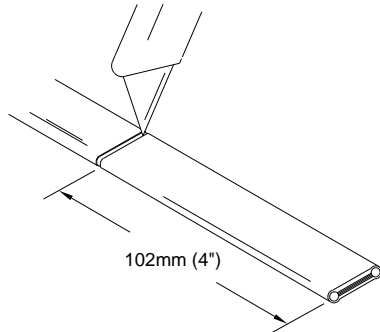
- 5 Starting at the end, pull each bus wire away from the core.
- 6 Remove exposed core material.



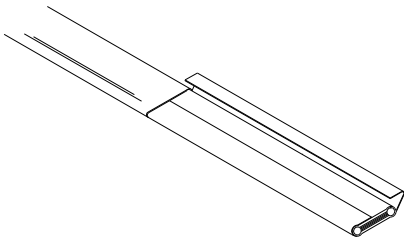
- 7 Cut 6mm (0.25") off the end of each bus wire.
- 8 Proceed to "Power Termination", sheet 7.

ALT-BS SPLICE CONNECTION KIT

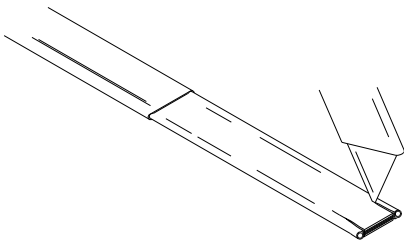
HLT PRODUCTS ALTERNATE METHOD



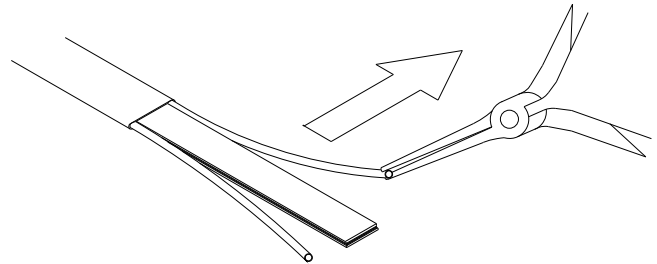
- 1 Lightly cut around heater outer jacket 102mm (4") from the end. Bend cable to break outer jacket.
- 2 Lightly cut the outer jacket up the center between the first cut mark & the cable end. Bend cable to break outer jacket.



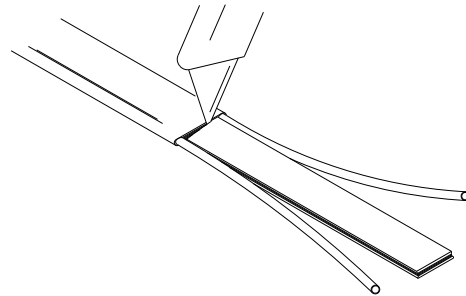
- 3 Remove the jacket from the heater cable.



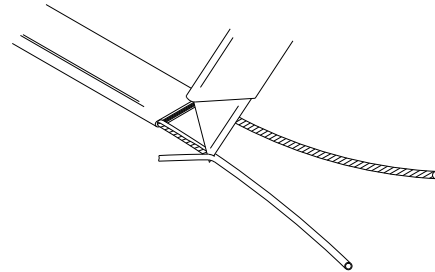
- 4 Make a cut inside each bus wire.



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



- 6 Remove the exposed core material.

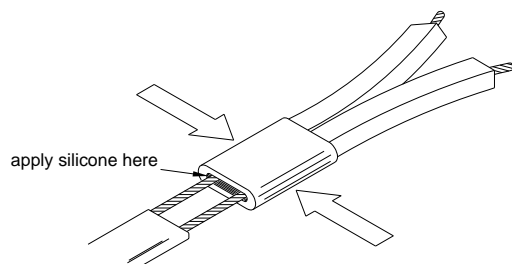


- 7 Remove the remaining core material from the outside of each bus wire.
- 8 Cut 6mm (0.25") off the end of each bus wire.
- 9 Proceed to "Power Termination", sheet 7.

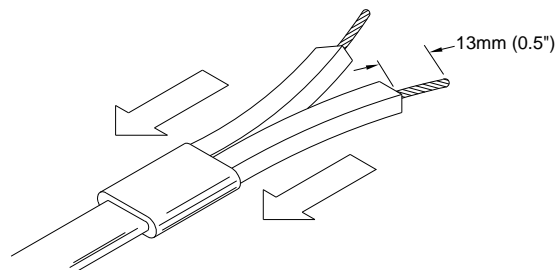
POWER TERMINATION

WARNINGS:

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

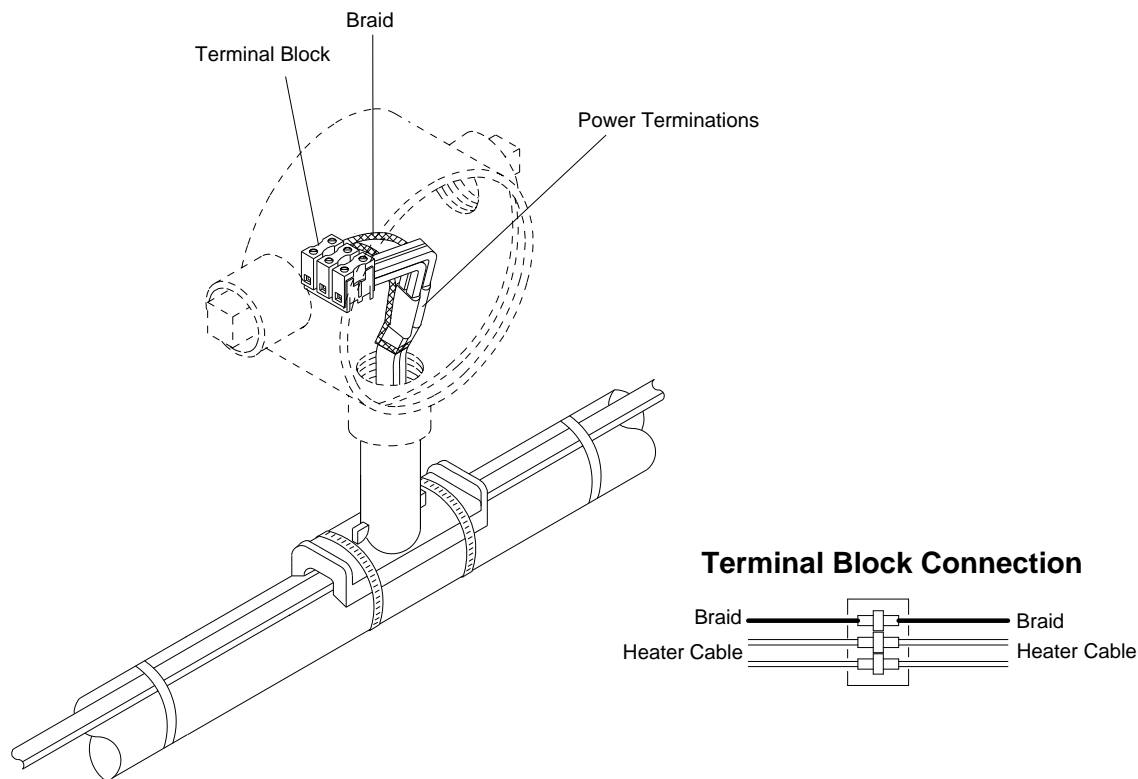


- 1 Insert bus wires into power termination.
- 2 Squeeze power termination opening and fill with silicone.



- 3 Push power termination to overlap jacket.
- 4 Proceed to "Power Termination", sheet 8.

POWER CONNECTION



Note: This detail shows internal grounding of braid.

- ❶ Slide washer over heater cable and position at the sealing grommet.
- ❷ Secure junction box onto stand-off until tightly fitted. **DO NOT OVER TIGHTEN.**
- ❸ Connect bus and power wiring to the terminal block. *See diagram above.*
- ❹ Ground connection:
For External Ground Connected Heaters:
Connect braid from both heater cables to the stand-off using the ground screw. *See diagram on sheet 1.*

For Internal Ground Connected Heaters:
Connect braid from both heater cables to the terminal block. *See diagram above.*
- ❺ **For Overjacket J or JT Products only:**
Apply silicone at point braid leaves the overjacket.
- ❻ Push all wires, both heater cables and terminal block inside junction box.
- ❼ Install box cover gasket and box cover onto junction box.

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NELSON™ HEAT TRACING SYSTEMS

ALT-BY TEE SPLICE CONNECTION KIT

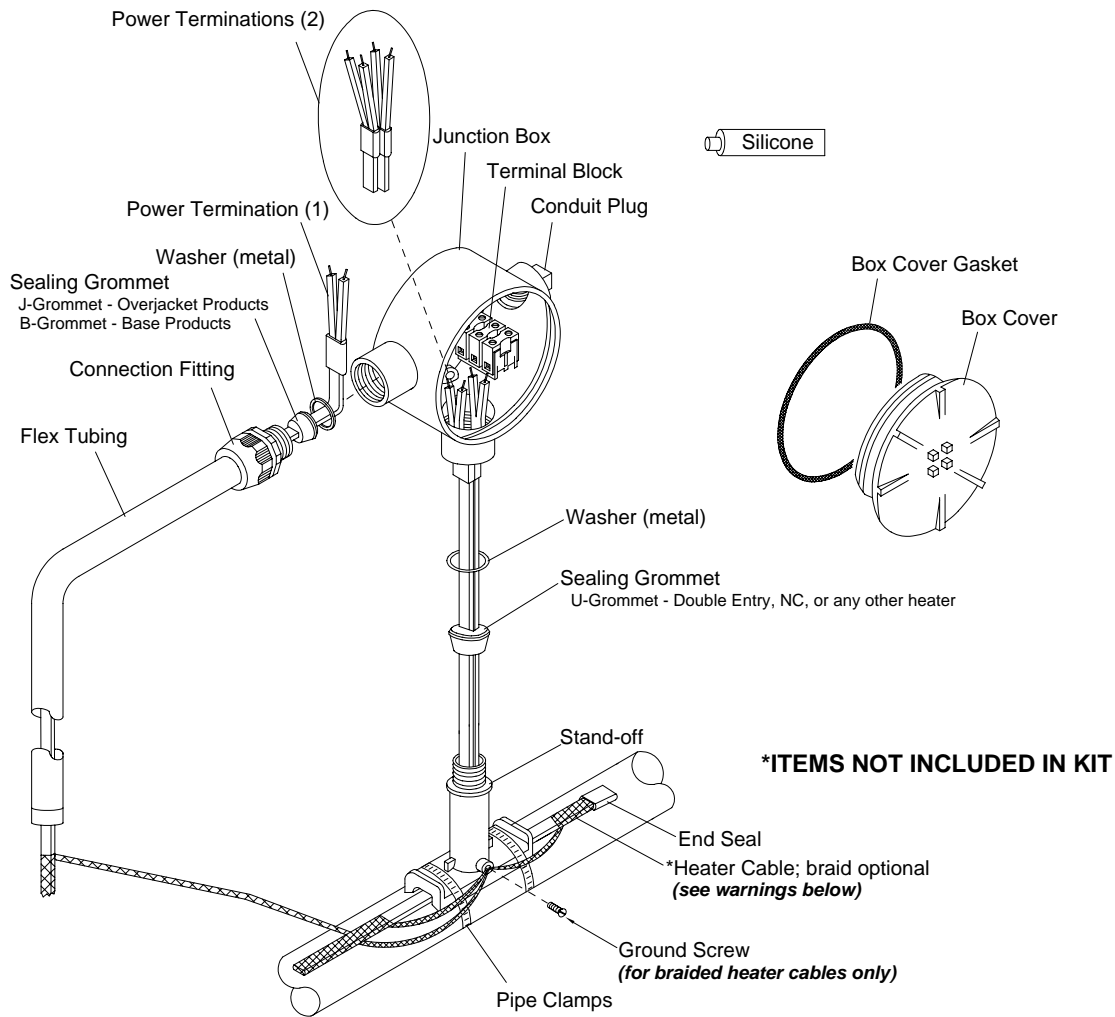
INSTALLATION INSTRUCTIONS

DESCRIPTION

The ALT-BY Tee Splice Connection Kit is constructed of cast aluminum for use with all versions of Nelson Heat Tracing Systems' LT, CLT, HLT and NC heater cables. Compatible for use with any vendor's heater cables smaller than 11mm (0.44") diameter.

KIT CONTENTS

- | | |
|----------------------|----------------------|
| 1 Junction Box | 3 Power Terminations |
| 1 Terminal Block | 2 Washers |
| 1 Conduit Plug | 1 Ground Screw |
| 2 Sealing Grommets | 2 End Seals |
| 1 Stand-off | 1 Tube of Silicone |
| 1 Flex Tubing | 2 Pipe Clamps |
| 1 Connection Fitting | |



Note: This detail shows external grounding of braid. For internal ground of braid (*overjacket products*), see sheet 8.

⚠ WARNINGS:

- Canadian Div. 2 Hazardous installations must use internal ground connection of braid. See sheet 8.
- 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 connection box, electrical connection should be moisture proofed by use of a coating or sealant.

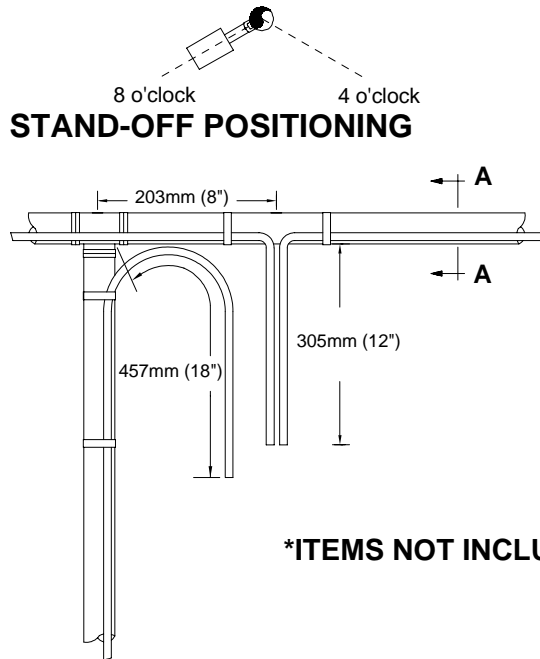
NELSON™ HEAT TRACING SYSTEMS

ALT-BY TEE SPLICE CONNECTION KIT

INSTALLATION INSTRUCTIONS

Section View A A

(recommend installing at the
4 or 8 o'clock positions.)

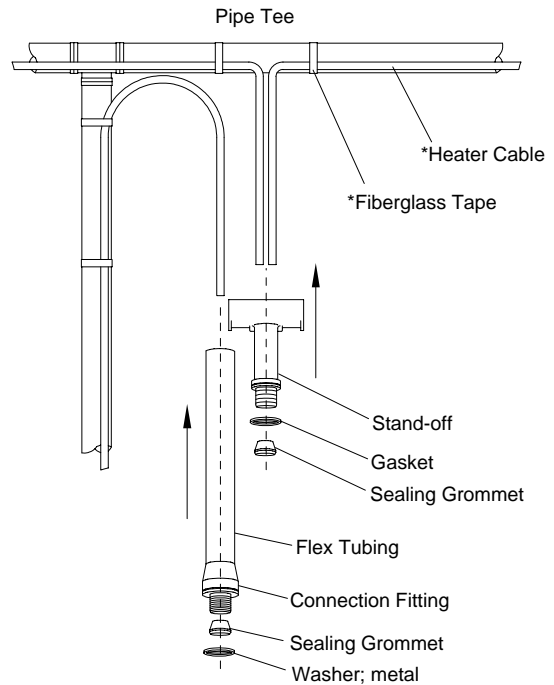


STAND-OFF POSITIONING

***ITEMS NOT INCLUDED IN KIT**

⚠ WARNING:

**Do not place pipe clamps
over the heater cable.**



① Cut heater cables to lengths shown.

② **External Braid Connection - CB Products only:**

- Remove braid from heater cables, back to the point the cables leave the pipe. See Sheet 3.
- Proceed to step 3 below.

Internal Braid Connection - CB, J or JT Products:

Proceed to step 3 below.

- ③ Push the two 305mm (12") heater cables through the bottom opening of stand-off.
- ④ Place stand-off on pipe and fasten with pipe clamps.
- ⑤ Slide the large opening sealing grommet over the two heater cables and position inside stand-off opening.

⑥ Apply silicone around heater cables on top of the sealing grommet and fill any voids in sealing grommet.

⑦ Install flex tubing assembly over the 457mm (18") heater cable and tape at pipe tee with fiberglass tape (*not included in kit*).

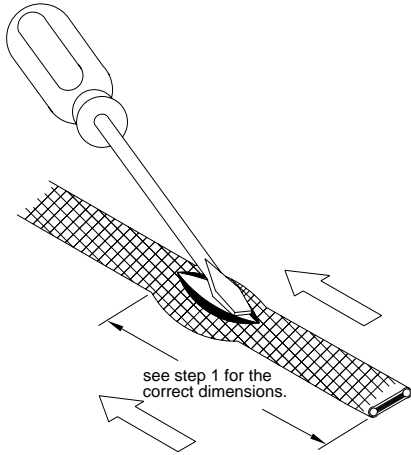
⑧ Slide the gasket and small opening sealing grommet over the single heater cable and position inside connection fitting.

⑨ Apply silicone around heater cable at top of the sealing grommet and fill any voids in sealing grommet.

⑩ Prepare heater cables for power termination: for braided products, see sheet 3. for overjacket products, see sheet 4. for base products, see sheet 5.

⑪ Terminate heater cables, see sheet 7.

BRAIDED PRODUCTS

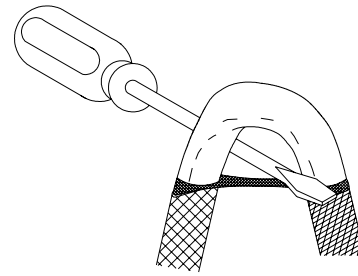


- 1 For External Braid Connection:**
For heater cable going through the flex tubing -
move braid back 457mm (18") to create a bulge.

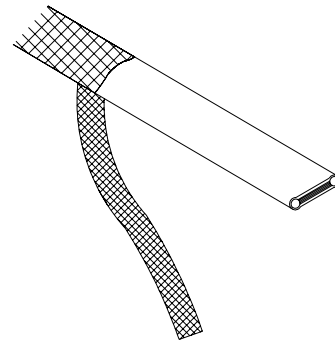
For heater cables going through the stand-off -
move braid back 305mm (12") to create a bulge.

For Internal Braid Connection:
Move braid back 127mm (5") to create a bulge.

- 2** At the bulge, separate the braid to make an opening.

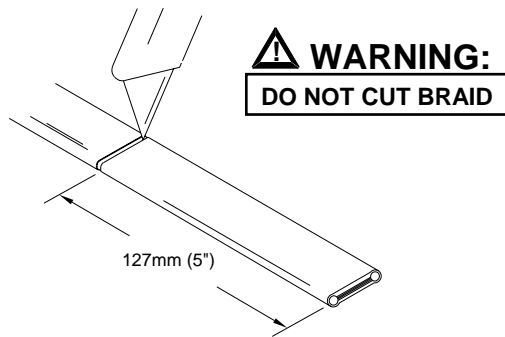


- 3** While bending the heater cable, work it through the braid opening.

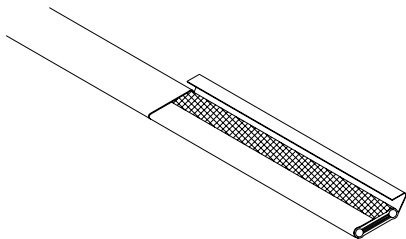


- 4** Pull the braid tight.
5 Proceed to "LT, CLT & HLT Products", sheet 5.

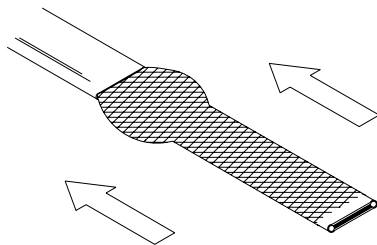
OVERJACKET PRODUCTS



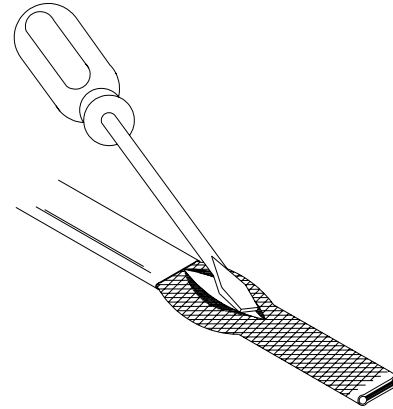
- 1 Lightly cut around heater overjacket 127mm (5") from the end. Bend cable to break overjacket.
- 2 Lightly cut overjacket up the center between first cut mark and the cable end. Bend cable to break overjacket.



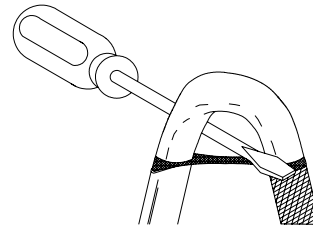
- 3 Remove overjacket from heater cable.



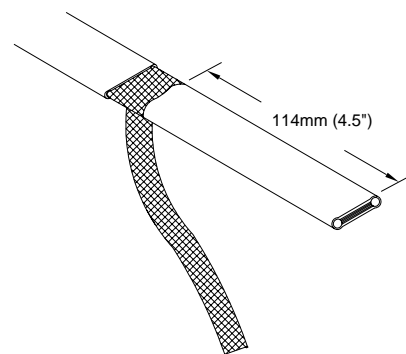
- 4 Move braid back toward the overjacket, creating a bulge.



- 5 At the bulge, separate the braid to make an opening.



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



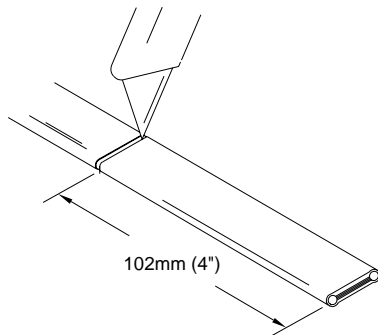
- 7 Pull the braid tight.
- 8 Proceed to "LT, CLT & HLT Products", sheet 5.

NELSON™ HEAT TRACING SYSTEMS

ALT-BY TEE SPLICE CONNECTION KIT

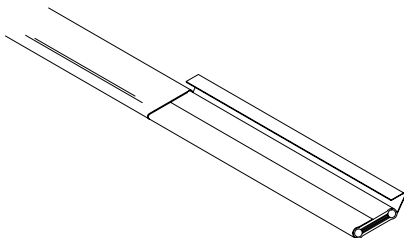
INSTALLATION INSTRUCTIONS

FOR ALL NELSON LT, CLT & HLT PRODUCTS
(See sheet 6 for an alternate method of HLT products.)

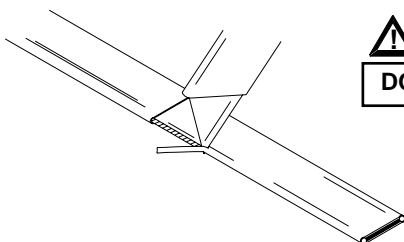


1 Lightly cut around heater outer jacket 102mm (4") from the end. Bend cable to break outer jacket.

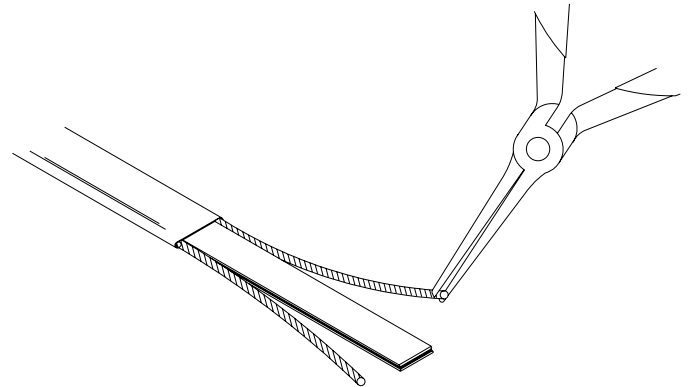
2 Lightly cut the outer jacket up the center between the first cut mark & the cable end. Bend cable to break outer jacket.



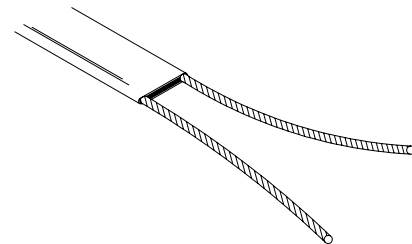
3 Remove the jacket from the heater cable.



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



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



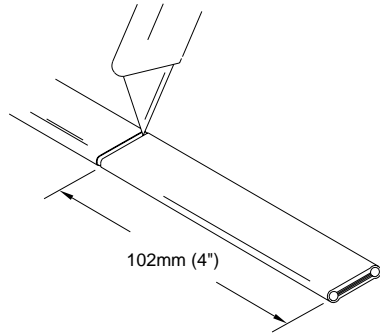
6 Remove exposed core material.

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

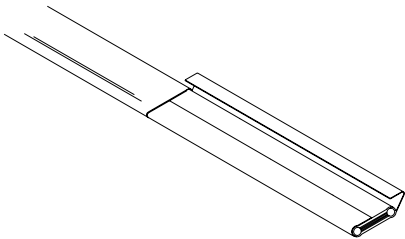
8 Proceed to "Power Termination", sheet 7.

⚠ WARNING:
DO NOT CUT BUS WIRES.

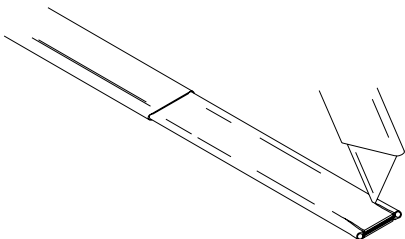
HLT PRODUCTS ALTERNATE METHOD



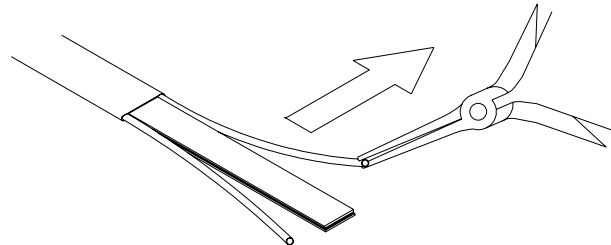
- 1 Lightly cut around heater outer jacket 102mm (4") from the end. Bend cable to break outer jacket.
- 2 Lightly cut the outer jacket up the center between the first cut mark & the cable end. Bend cable to break outer jacket.



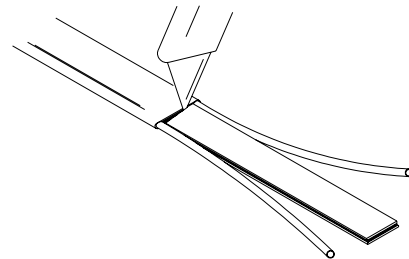
- 3 Remove the jacket from the heater cable.



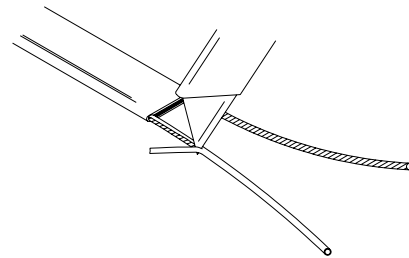
- 4 Make a cut inside each bus wire.



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



- 6 Remove exposed core material.

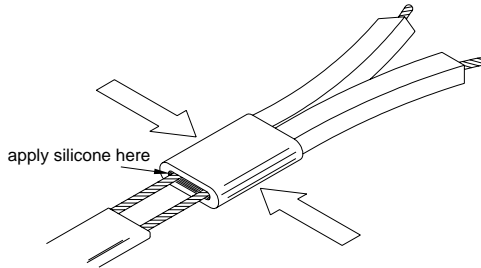


- 7 Remove the remaining core material off the outside of each bus wire.
- 8 Cut 6mm (0.25") off the end of each bus wire.
- 9 Proceed to "Power Termination", sheet 7.

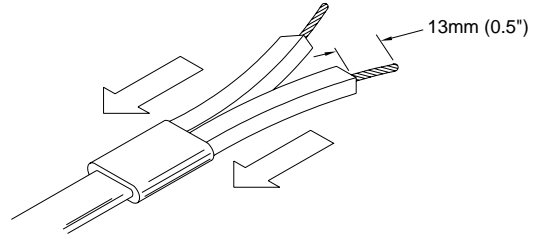
POWER TERMINATION

⚠ WARNINGS:

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

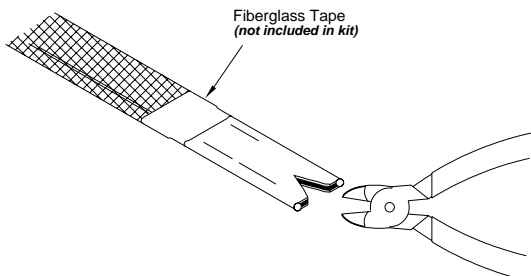


- 1 Insert bus wires into power termination.
- 2 Squeeze power termination opening and fill with silicone.



- 3 Push power termination to overlap jacket.
- 4 At this point, if you're installing the end seal, see the "End Seal" section below. Otherwise, proceed to "Power Connection", sheet 8.

END SEAL

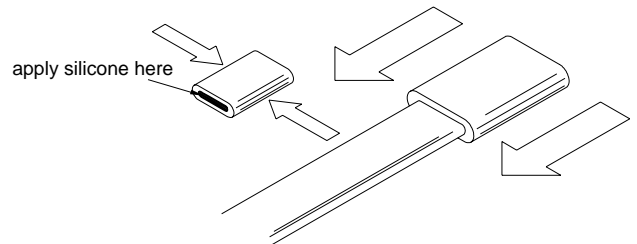


- 1 **Braided Products:**
Cut braid back 25mm (1") & tape in place with fiberglass tape; *not included in kit*.

Overjacket Products:

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

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



- 3 Squeeze end seal and fill with silicone.
- 4 Push end seal over the heater cable.

Overjacket Products:

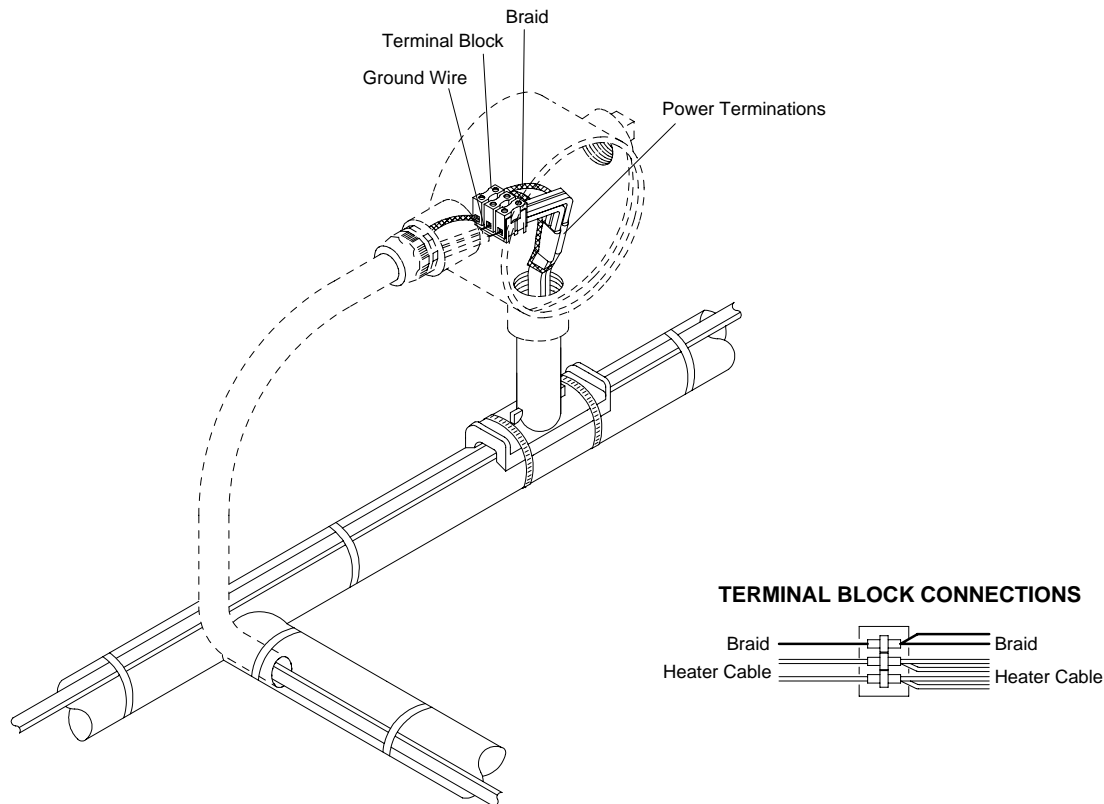
The end seal should overlap the overjacket.

- 5 The silicone will set up in about 30 minutes with a complete cure after 24 hours.
- 6 Proceed to "Power Connection", sheet 8.

⚠ WARNINGS:

- 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



Note: This detail shows internal grounding of braid.

- ❶ Slide washer over the two heater cables and position at the sealing grommet.
- ❷ Secure junction box onto stand-off until tightly fitted. **DO NOT OVER TIGHTEN.**
- ❸ Secure the flex tubing assembly onto the junction box. *(Braid if present, should be separated from the heater cable in a pigtail as it leaves the sealing grommet entering the enclosure.)*
- ❹ Ground Connection:
For External Ground Connected Heaters:
Connect ground braid from all three heater cables together using the ground screw. *See diagram on sheet 1.*
For Internal Ground Connected Heaters:
Connect ground braid and ground wire from all heater cables to the terminal block. *See diagram above.*
- ❺ **For Overjacket J or JT Products only:**
Apply Silicone at point braid leaves the overjacket.
- ❻ Push all wires, cables and the terminal block inside junction box.
- ❼ Place box cover and box cover gasket onto the junction box.

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NELSON™ HEAT TRACING SYSTEMS

ALT-L SERIES END OF CIRCUIT LIGHT KIT

INSTALLATION INSTRUCTIONS

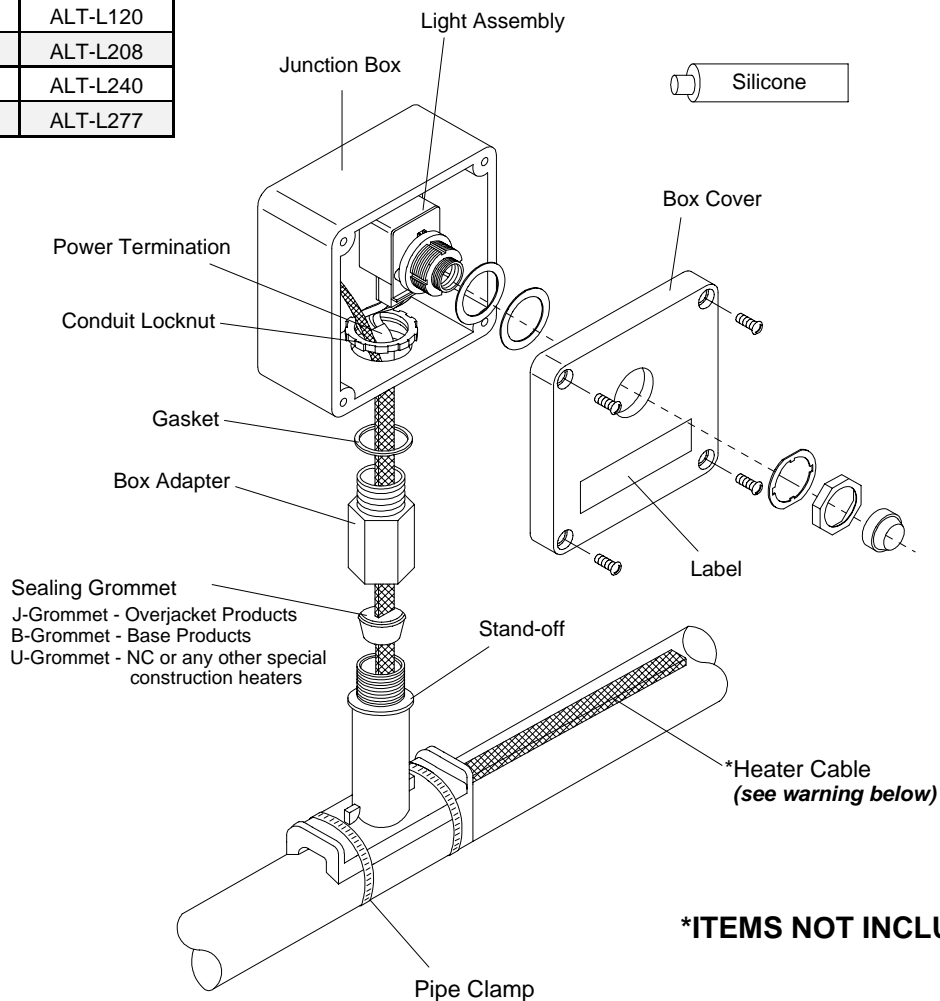
DESCRIPTION

The ALT-L Series End of Circuit Light Kit is constructed of aluminum. For use with all versions of LT, CLT, HLT and NC heater cables. Compatible for use with any vendor's heater cables smaller than 11mm (.44") diameter.

KIT CONTENTS

- | | |
|-------------------|------------------------|
| 1 Junction Box | 1 Power Termination |
| 1 Conduit Locknut | 1 Box Adapter |
| 1 Sealing Grommet | 1 Gasket |
| 1 Stand-off | 1 Tube of Silicone |
| 1 Ground Screw | 2 Pipe Clamps |
| 1 Light Assembly | 1 Piece of Shrink Tube |
| 1 Caution Label | |

| Voltage | Kit Cat. # |
|---------|------------|
| 120V | ALT-L120 |
| 208V | ALT-L208 |
| 240V | ALT-L240 |
| 277V | ALT-L277 |

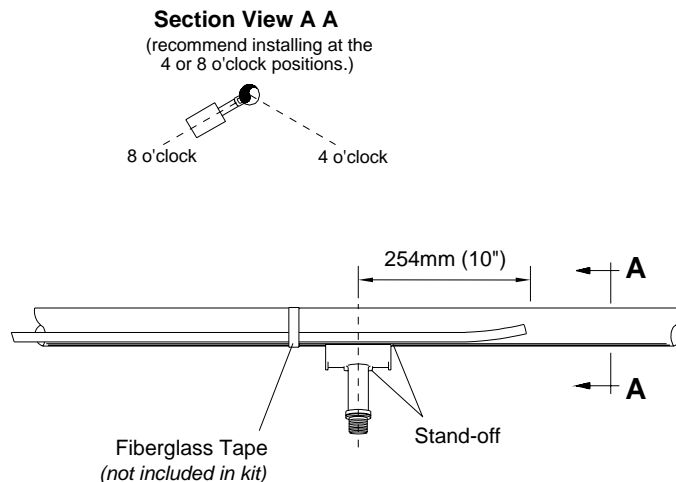


Note: For internal grounding of braid see sheet 8.

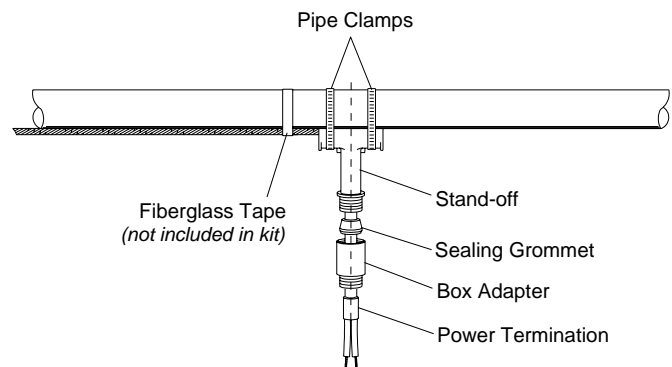
⚠ WARNING:

Article 427-22 of the National Electrical Code requires that all heaters shall have metal coverings and be provided with branch circuit ground-fault protection.

STAND-OFF POSITIONING

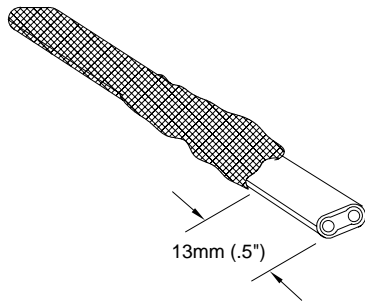


⚠ WARNING:
Do not place pipe clamps
over the heater cable.

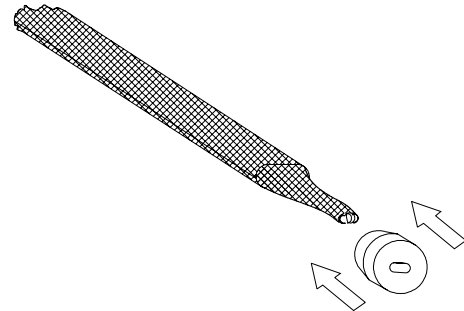


- ❶ Mark pipe where stand-off will be mounted.
- ❷ Push heater cable through bottom opening of stand-off.
- ❸ Slide the sealing grommet over the heater cable and position inside stand-off opening:
for Braided "CB" Products:
See "Grommet Installation for Braided "CB" Products", sheet 3.
for Overjacket "J" or "JT" Products
Proceed with step 4 below.
- ❹ Apply silicone around the heater cable on top of the sealing grommet and fill any voids in sealing grommet.
- ❺ Slide the box adapter over the heater cable and tighten securely to stand-off.
- ❻ Prepare heater cable for power termination:
for Braided "CB" Products, see sheet 3.
for Overjacket "J" or "JT" Products, see sheet 4.
- ❼ Terminate heater cable, see sheet 7.

SEALING GROMMET INSTALLATION FOR BRAIDED “CB” PRODUCTS

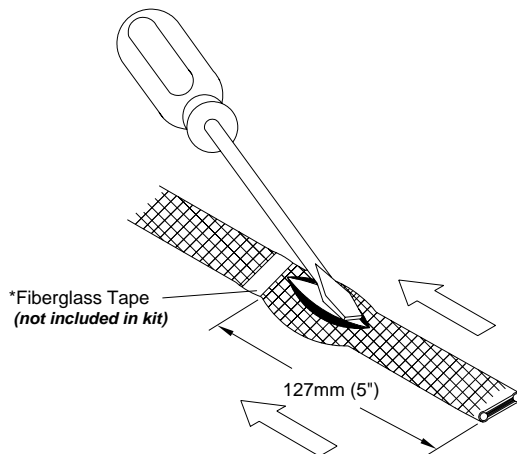


- 1 Slide braid back, allowing at least 13mm (.5”) of heater cable exposed.
- 2 Cut and remove 13mm (.5”) of heater cable.

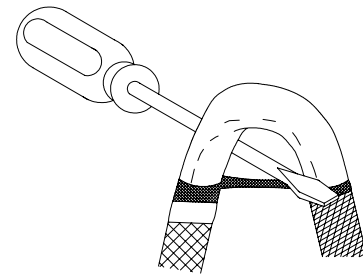


- 3 Slide braid back over heater cable and twist excess braid into a pigtail.
- 4 Slide the sealing grommet over the heater cable and position inside stand-off opening.
- 5 Continue with step 4 on sheet 2.

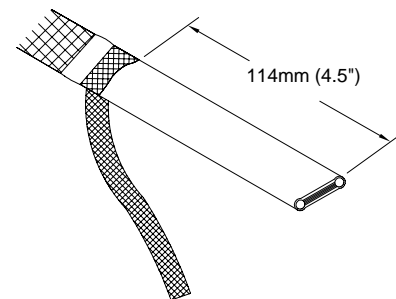
BRAIDED “CB” PRODUCTS



- 1 Secure cable braid with fiberglass tape.
- 2 Slide braid back 127mm (5”) to create a bulge.
- 3 At the bulge, separate the braid to make an opening.

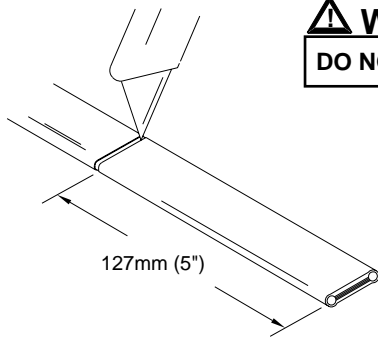


- 4 While bending the heater cable, work it through the braid opening.



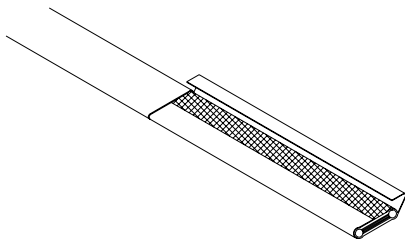
- 5 Pull the braid tight,
- 6 Proceed to “LT, CLT & HLT Products”, sheet 5

OVERJACKET "J" or "JT" PRODUCTS

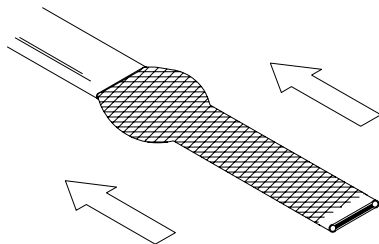


⚠ WARNING:
DO NOT CUT BRAID

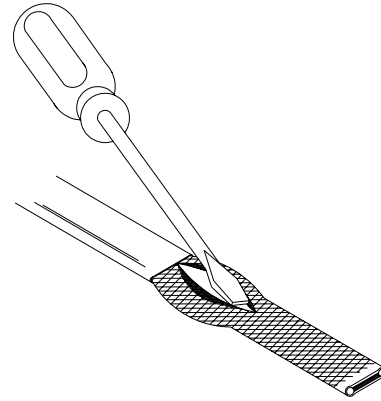
- 1 Lightly cut around cable overjacket 127mm (5") from the end. Bend cable to break the overjacket.
- 2 Lightly cut overjacket up the center between first cut mark and the cable end. Bend cable to break the overjacket.



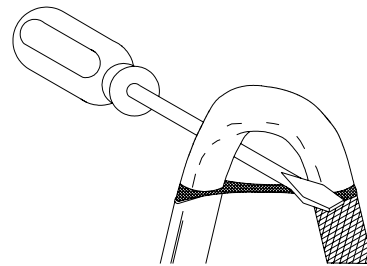
- 3 Remove overjacket from heater cable.



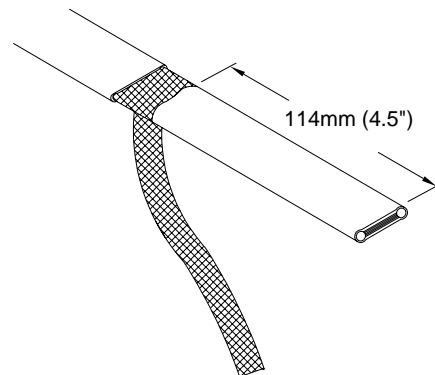
- 4 Move braid back toward the overjacket, creating a bulge.



- 5 At the bulge, separate the braid to make an opening.



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



- 7 Pull the braid tight.
- 8 Proceed to "LT, CLT & HLT Products", sheet 5.

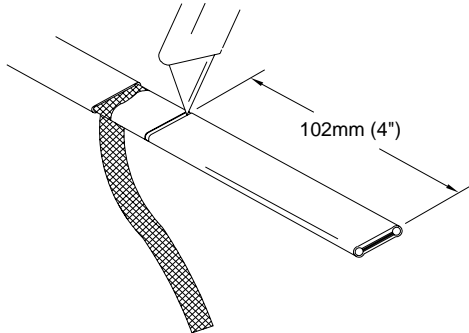
NELSON™ HEAT TRACING SYSTEMS

ALT-L SERIES END OF CIRCUIT LIGHT KIT

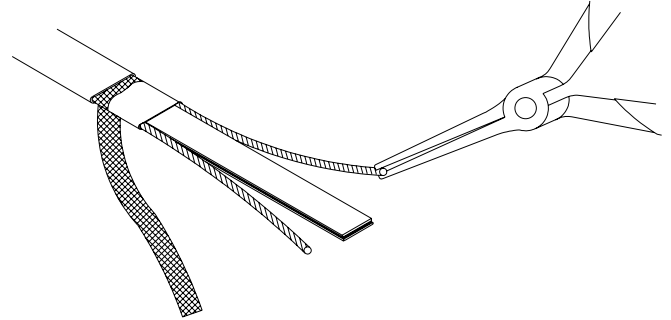
INSTALLATION INSTRUCTIONS

FOR ALL NELSON LT, CLT & HLT PRODUCTS

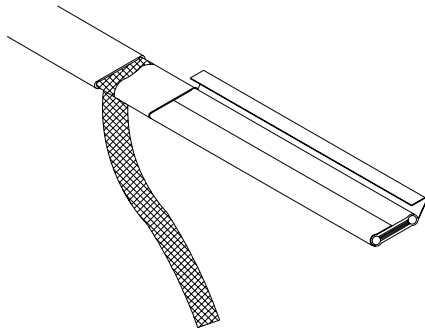
(See sheet 6 for an alternate stripping method for HLT products.)



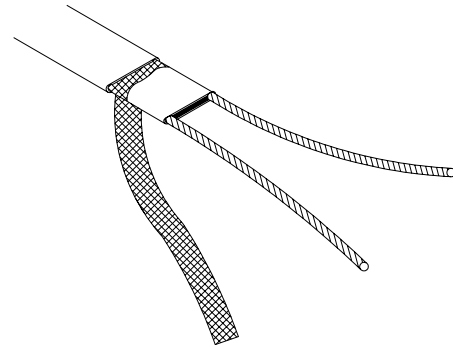
- 1 Lightly cut around cable outer jacket 102mm (4") from the end. Bend cable to break outer jacket.
- 2 Lightly cut the outer jacket up the center between the first cut mark & the cable end. Bend cable to break outer jacket.



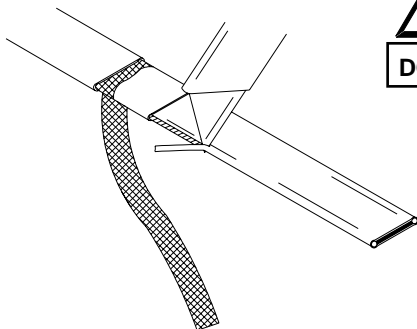
- 5 Starting at the end, pull each bus wire away from the core material.
- 6 Remove exposed core material.



- 3 Remove the jacket from the heater cable.



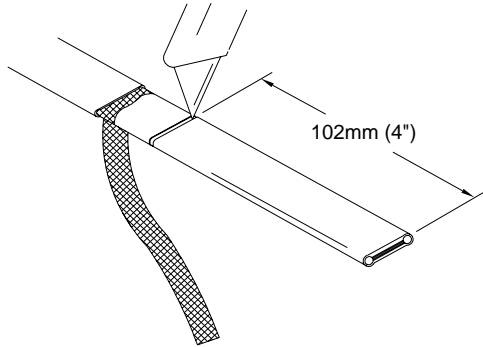
- 7 Cut 6mm (0.25") off the end of each bus wire.
- 8 Proceed to "Power Termination", sheet 7.



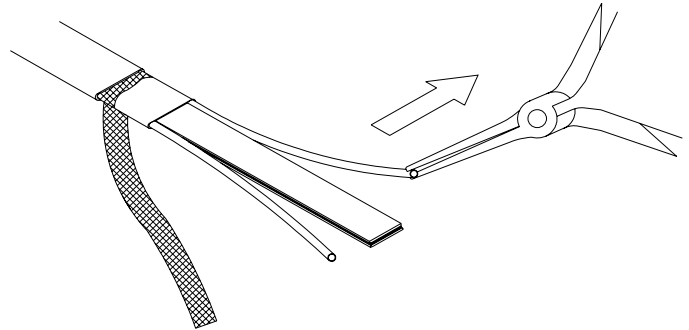
⚠ WARNING:
DO NOT CUT BUS WIRES

- 4 Shave the core material from the outside of each bus wire.

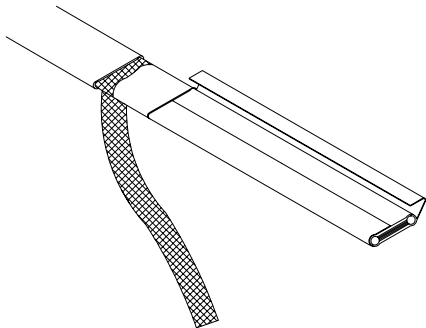
HLT PRODUCTS ALTERNATE STRIPPING METHOD



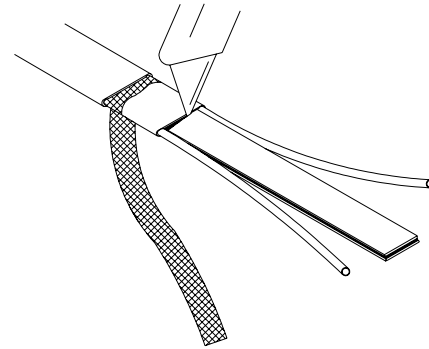
- 1 Lightly cut around cable outer jacket 102mm (4") from the end. Bend cable to break outer jacket.
- 2 Lightly cut the outer jacket up the center between the first cut mark & the cable end. Bend cable to break outer jacket.



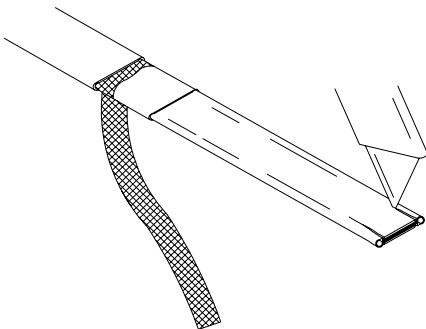
- 5 Starting at the end, in the same plane as the cable, pull each bus wire away from the core material.



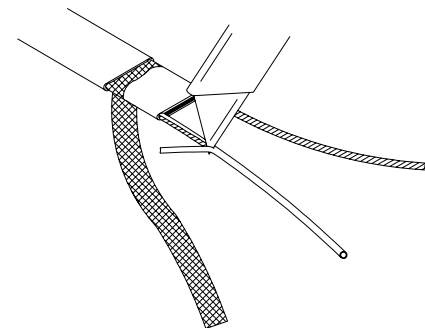
- 3 Remove the jacket from the heater cable.



- 6 Remove the exposed core material.



- 4 Make a cut inside each bus wire.

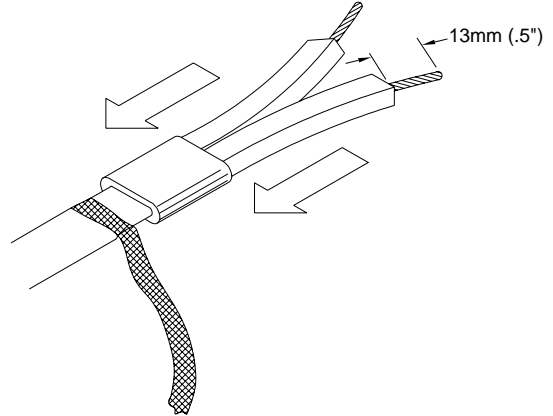
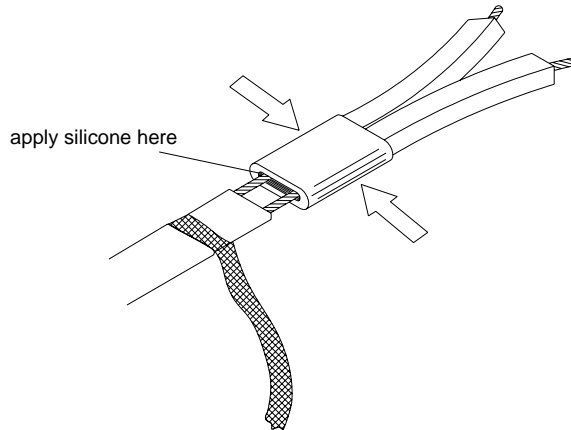


- 7 Remove the remaining core material off the outside of each bus wire.
- 8 Cut 6mm (0.25") off the end of each bus wire.
- 9 Proceed to "Power Termination", sheet 7.

POWER TERMINATION

⚠ WARNING:

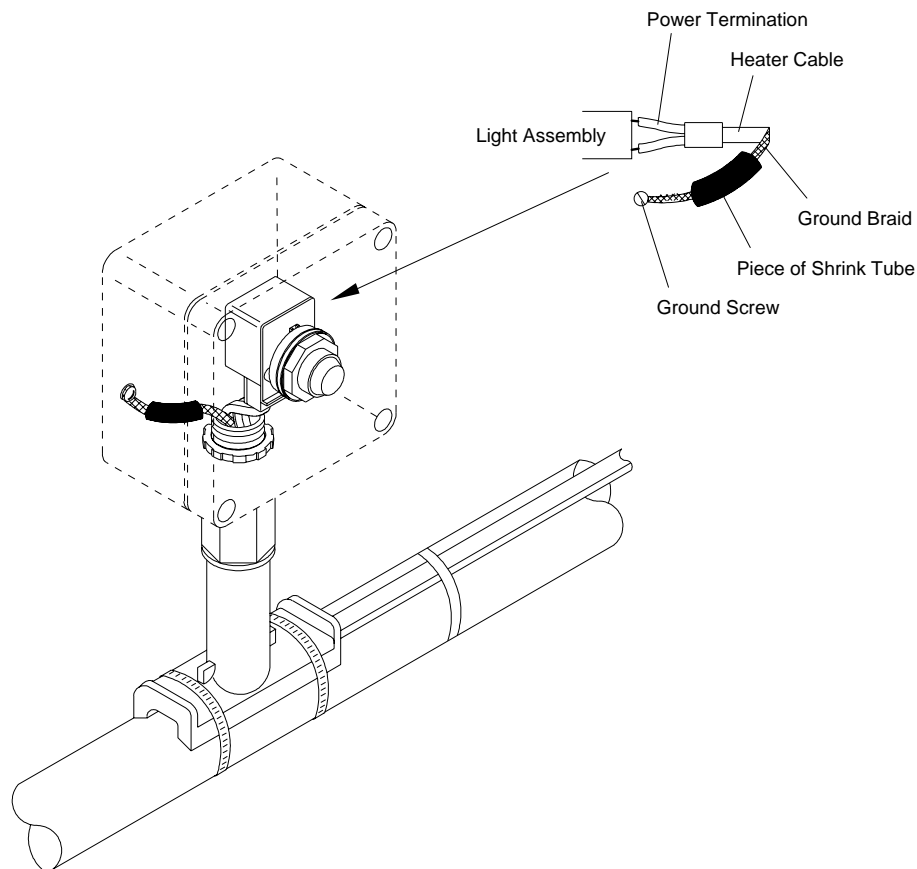
Bus wires must not touch or cross while inserting into power termination.



- 1 Insert bus wires into power termination.
- 2 Squeeze power termination opening and fill with silicone.

- 3 Push power termination to overlap jacket.
- 4 The silicone will set up in about 30 minutes with a complete cure after 24 hours.
- 5 Proceed to "Electrical Connection", sheet 8.

ELECTRICAL CONNECTION



Note: This detail shows internal grounding of braid.

- 1 Place gasket onto the box adapter.
- 2 Position junction box onto the box adapter and secure it with the conduit locknut.
- 3 Place the two black compensating gaskets onto the light assembly base.
- 4 Insert power wires into screw connection of light assembly.
- 5 Slide piece of shrink tube over ground braid.
- 6 Connect ground braid to the ground screw inside the junction box. **See diagram above.**
- 7 Place the box cover onto the light assembly then install the clear trim washer and secure it with the ring nut.
- 8 Secure the box cover onto the junction box.

Nelson Heat Tracing Systems products are supplied with a limited warranty. Complete Terms and Conditions may be found on Nelson's website at www.nelsonheaters.com.

NELSON™ HEAT TRACING SYSTEMS

ALT-LP POWER CONNECTION KIT WITHOUT ENCLOSURE

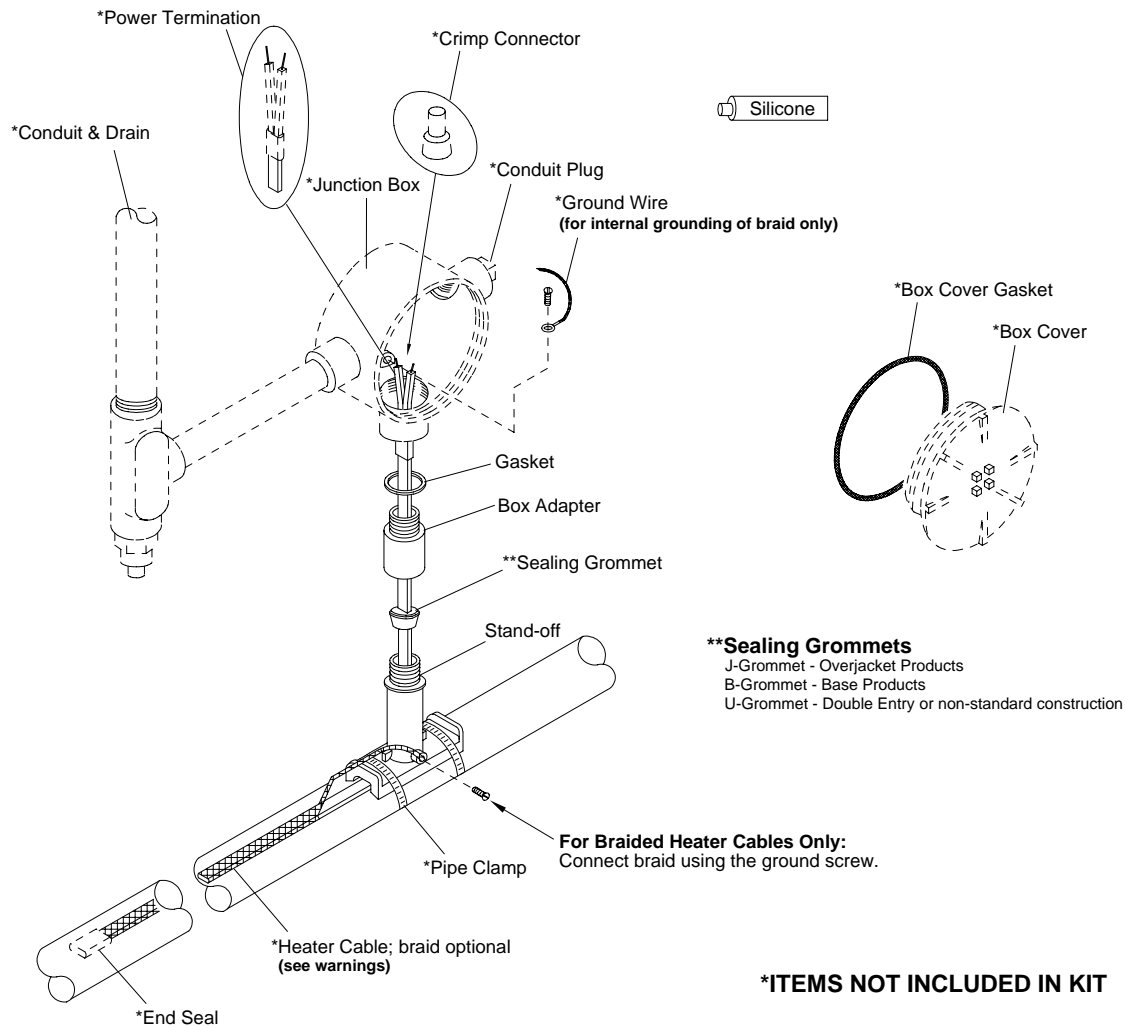
INSTALLATION INSTRUCTIONS

DESCRIPTION

The ALT-LP Power Connection Kit without Enclosure is constructed of cast aluminum for use with all versions of Nelson Heat Tracing Systems' LT, HLT & NC heater cables. Compatible for use with any vendor's heater cables smaller than 11mm (0.44") diameter.

KIT CONTENTS

| | |
|-------------------|--------------------|
| 1 Sealing Grommet | 1 Gasket |
| 1 Stand-off | 1 Tube of Silicone |
| 1 Ground Screw | 1 Box Adapter |
| 1 Conduit Locknut | |



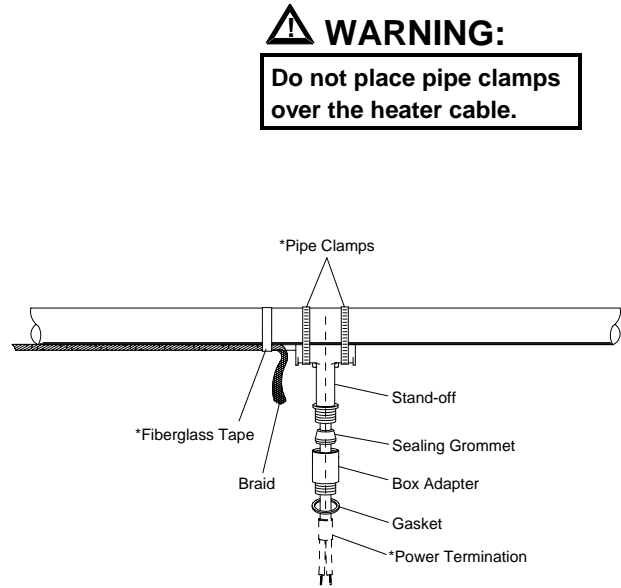
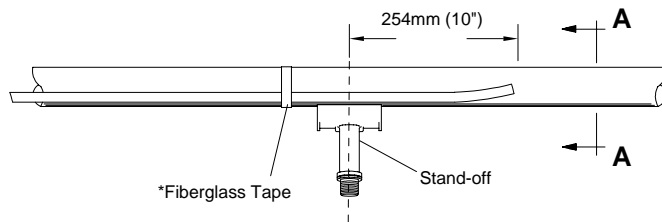
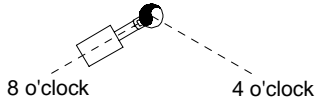
Note: This detail shows external grounding of braid. For internal grounding of braid (*overjacket products*), connect to ground screw inside of junction box.

⚠ WARNINGS:

- Canadian Div. 2 Hazardous installations must use internal 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.

STAND-OFF POSITIONING

Section View A A
(recommend installing at the
4 or 8 o'clock positions)



⚠ WARNING:
Do not place pipe clamps
over the heater cable.

***ITEMS NOT INCLUDED IN KIT.**

- 1 Mark pipe where stand-off will be mounted.
- 2 **For External Braid Connection - CB Products only:**
 - Remove braid from heater cables, back to the point the cables leave the pipe.
 - Proceed to step 3 below.
- 3 **For Internal Braid Connection - CB, J or JT Products:**
 - Proceed to step 3 below.
- 3 Push heater cable through the bottom opening of stand-off.
- 4 Place stand-off on pipe and fasten with pipe clamps.
- 5 Slide the sealing grommet over heater cable and position inside stand-off opening.
- 6 Apply silicone around the cable on top of the sealing grommet and fill any voids in sealing grommet.
- 7 Prepare heater cable for power termination using an approved termination kit.

Nelson Heat Tracing Systems products are supplied with a limited warranty. Complete Terms and Conditions may be found on Nelson's website at www.nelsonheaters.com.

NELSON™ HEAT TRACING SYSTEMS

ALT-LPM POWER CONNECTION KIT WITHOUT ENCLOSURE

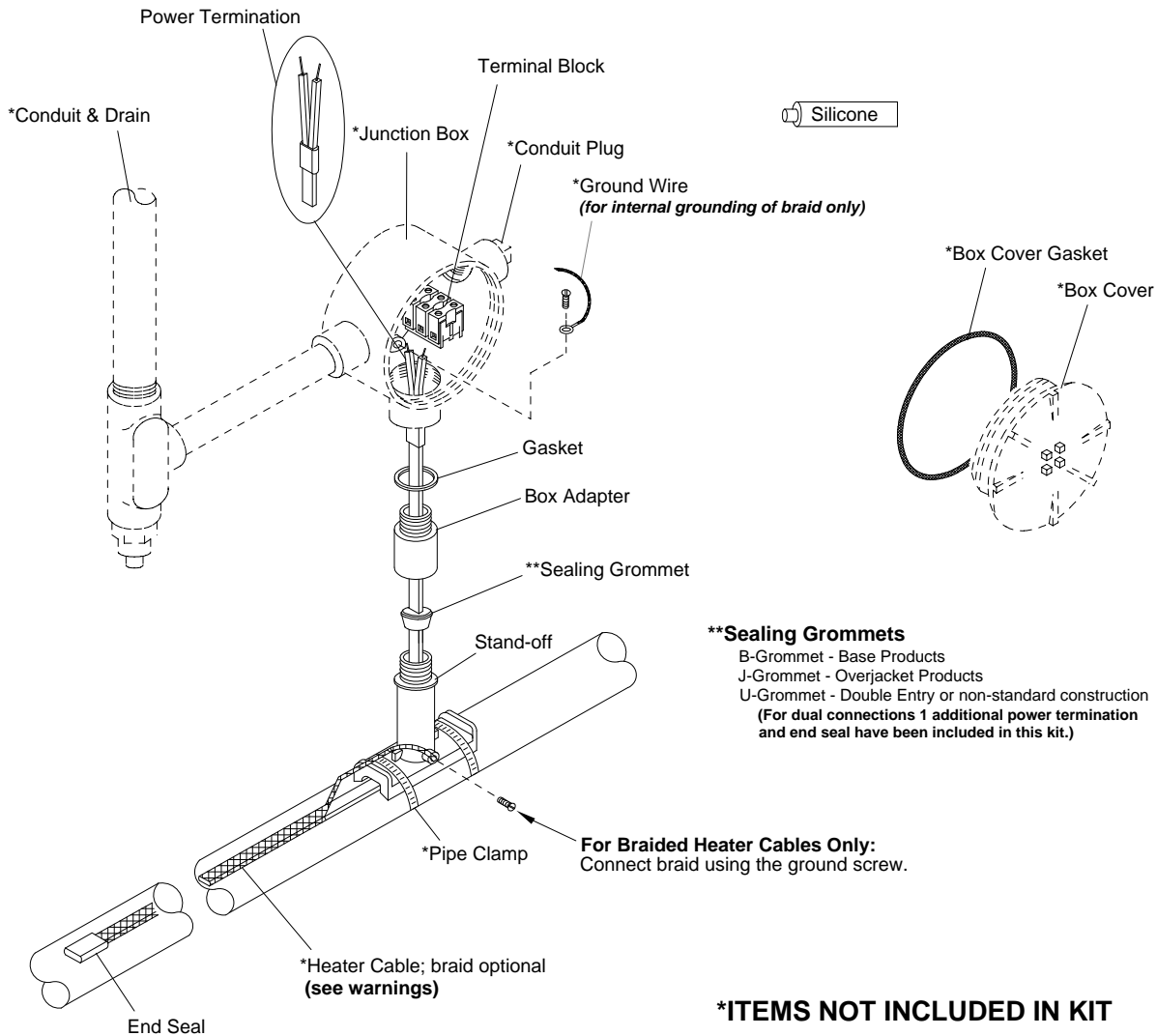
INSTALLATION INSTRUCTIONS

DESCRIPTION

The ALT-LPM Power Connection Kit without Enclosure is constructed of cast aluminum for use with all versions of Nelson Heat Tracing Systems' LT, HLT & NC heater cables. Compatible for use with any vendor's heater cables smaller than 11mm (0.44") diameter. Minimum installation temperature -40°C (-40°F).

KIT CONTENTS

- | | |
|-------------------|---------------------|
| 1 Sealing Grommet | 1 Power Termination |
| 1 Stand-off | 1 Terminal Block |
| 1 End Seal | 1 Gasket |
| 1 Ground Screw | 1 Tube of Silicone |
| 1 Conduit Locknut | 1 Box Adapter |



Note: This detail shows external grounding of braid. For internal grounding of braid

⚠️ WARNINGS:

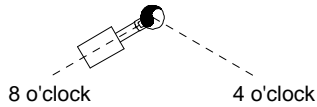
- Canadian Div. 2 Hazardous installations must use internal ground connection of braid. *See sheet 8.*
- Article 427 of the National Electric Code requires that all heaters shall have metal coverings and be provided with branch circuit ground-fault protection.
- If nuisance tripping of ground fault breakers occurs due to condensation in junction box, electrical connections should be moisture proofed by use of a coating or sealant.

(overjacket products), see sheet 8.

STAND-OFF POSITIONING

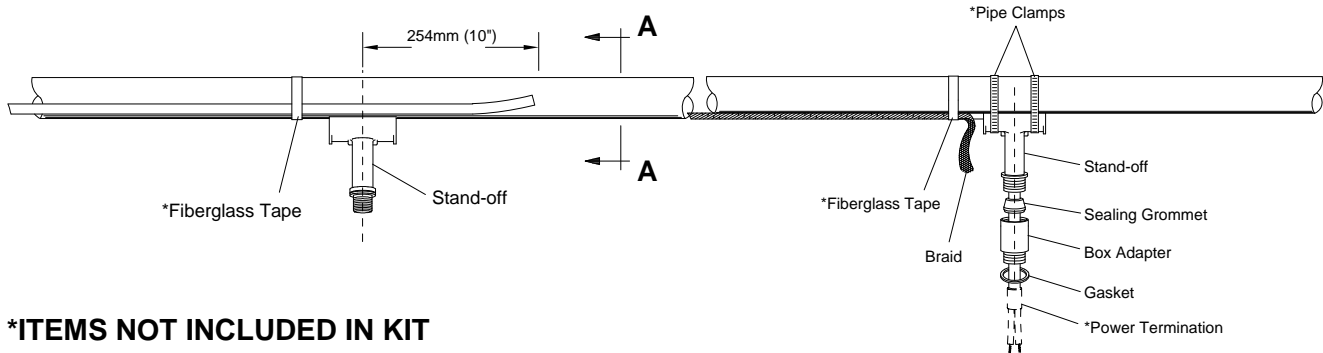
Section View A A

(recommend installing at the
4 or 8 o'clock positions)



⚠ WARNING:

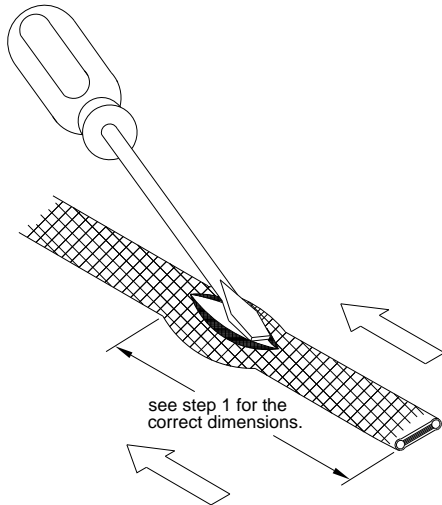
Do not place pipe clamps
over the heater cable.



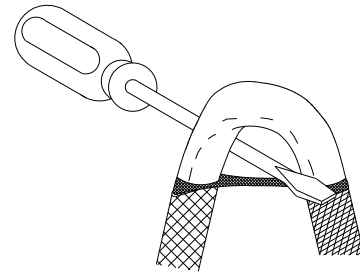
*ITEMS NOT INCLUDED IN KIT

1. Mark pipe where stand-off will be mounted.
2. **For External Braid Connection - CB Products only:**
 - Remove braid from heater cables, back to the point the cables leave the pipe. See Sheet 3.
 - Proceed to step 3 below.
- For Internal Braid Connection - CB, J or JT Products:**
 - Proceed to step 3 below.
3. Push heater cable through the bottom opening of stand-off.
4. Place stand-off on pipe and fasten with pipe clamps.
5. Slide the sealing grommet over heater cable and position inside stand-off opening.
6. Apply silicone around the heater cable on top of the sealing grommet and fill any voids in sealing grommet.
7. Slide the box adapter over the heater cable and tighten securely to stand-off.
8. Prepare heater cable for power termination:
 - for braided products, see sheet 3.
 - for overjacket products, see sheet 4.
 - for base products, see sheet 5.
9. Terminate heater cable, see sheet 7.

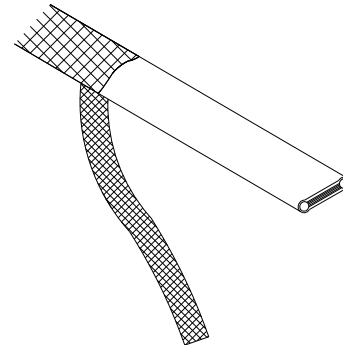
BRAIDED PRODUCTS
(for external braid connection only)



- 1) **For External Braid Connection:**
Move braid back 305mm (12") to create a bulge.
- 2) **For Internal Braid Connection:**
Move braid back 127mm (5") to create a bulge.
- 3) At the bulge, separate the braid to make an opening.

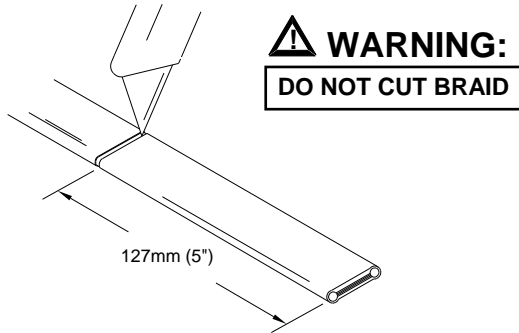


- 4) While bending the heater cable, work it through the braid opening.

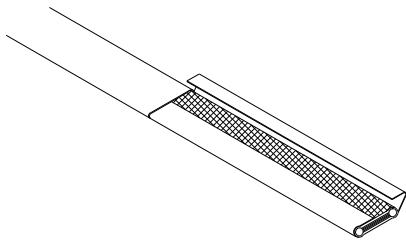


- 5) Pull the braid tight.
- 6) Proceed to "Base LT & HLT Products", sheet 5.

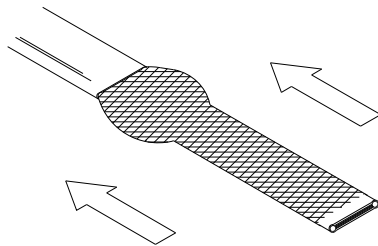
OVERJACKET PRODUCTS



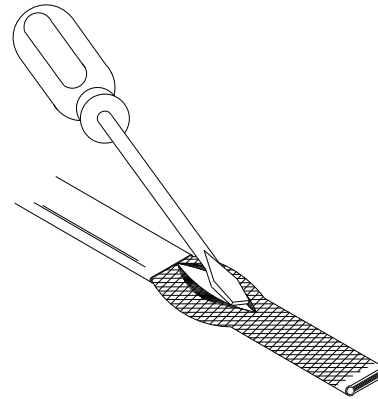
- 1) Lightly cut around heater overjacket 127mm (5") from the end. Bend cable to break overjacket.
- 2) Lightly cut overjacket up the center between first cut mark and the cable end. Bend cable to break overjacket.



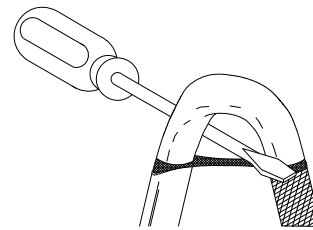
- 3) Remove overjacket from heater cable.



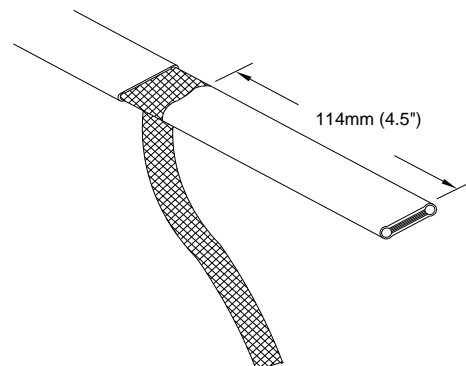
- 4) Move braid back toward the overjacket, creating a bulge.



- 5) At the bulge, separate the braid to make an opening.

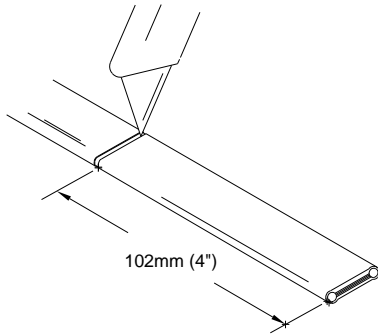


- 6) While bending the heater cable, work it through the braid opening.

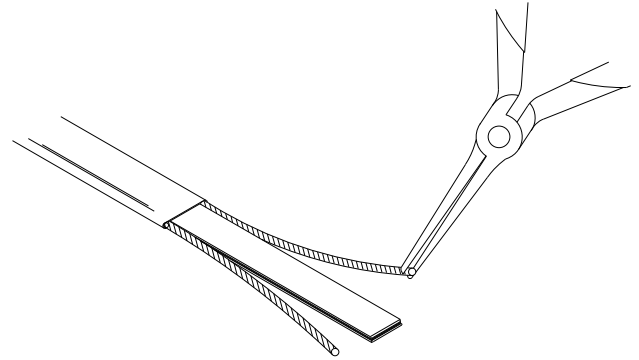


- 7) Pull the braid tight.
- 8) Proceed to "LT, CLT & HLT Products", sheet 5.

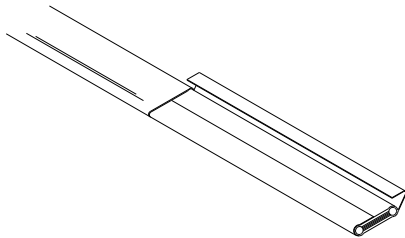
FOR ALL NELSON LT, CLT & HLT PRODUCTS (See sheet 6 for an alternate method of HLT products.)



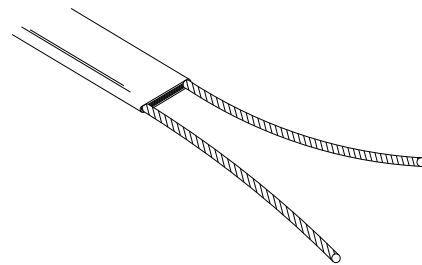
- 1) Lightly cut around heater outer jacket 102mm (4") from the end. Bend cable to break outer jacket.
- 2) Lightly cut the outer jacket up the center between the first cut mark & the cable end. Bend cable to break outer jacket.



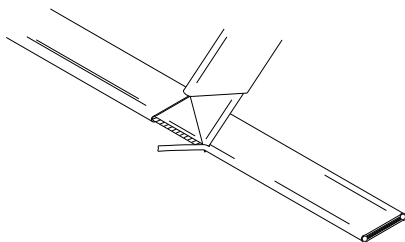
- 5) Starting at the end, pull each bus wire away from the core material.
- 6) Remove exposed core material.



- 3) Remove the jacket from the heater cable.



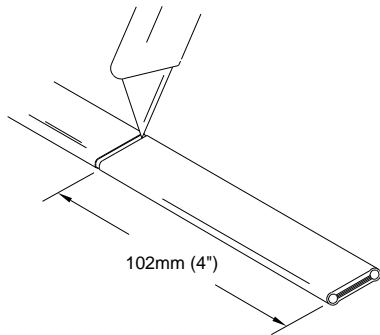
- 7) Cut 6mm (0.25") off the end of each bus wire.
- 8) Proceed to "Power Termination", sheet 7.



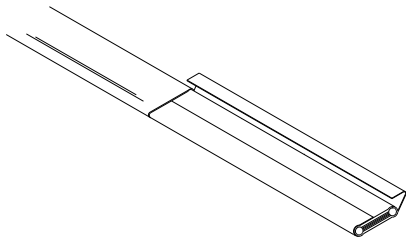
- 4) Shave the core material from the outside of each bus wire.

⚠ WARNING:
DO NOT CUT BUS WIRES.

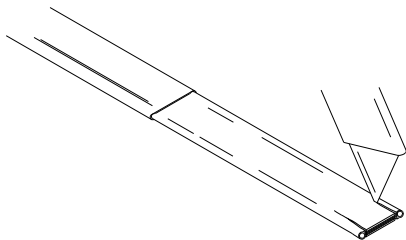
HLT PRODUCTS
ALTERNATE METHOD



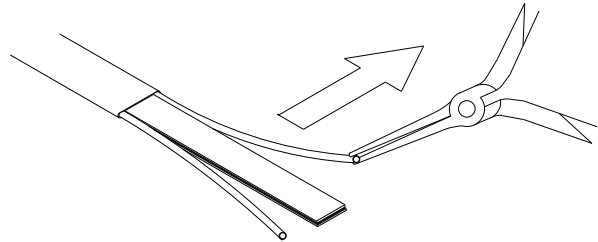
- 1) Lightly cut around heater outer jacket 102mm (4") from the end. Bend cable to break outer jacket.
- 2) Lightly cut the outer jacket up the center between the first cut mark & the cable end. Bend cable to break outer jacket.



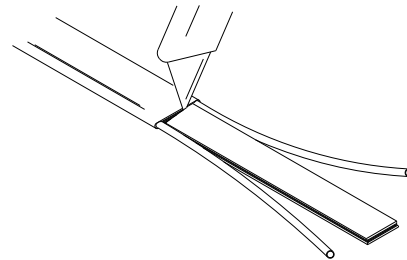
- 3) Remove the jacket from the heater cable.



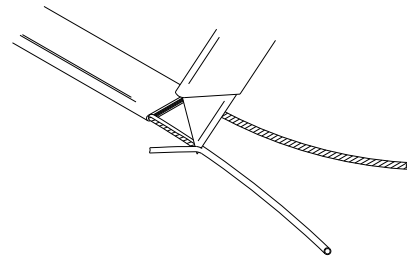
- 4) Make a cut inside each bus wire.



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



- 6) Remove exposed core material.

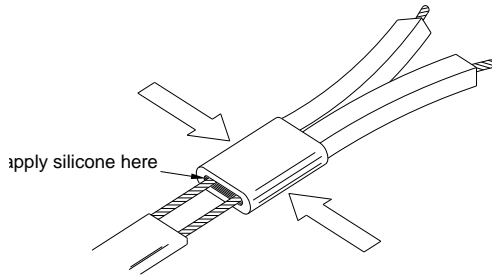


- 7) Remove the remaining core material off the outside of each bus wire.
- 8) Cut 6mm (0.25") off the end of each bus wire.
- 9) Proceed to "Power Termination", sheet 7.

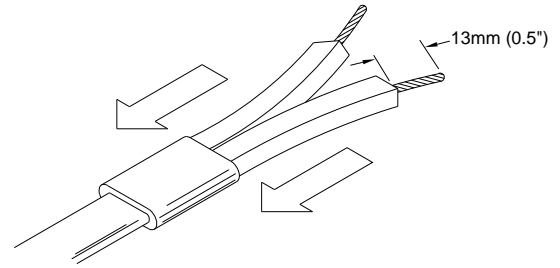
POWER TERMINATION

⚠ 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.

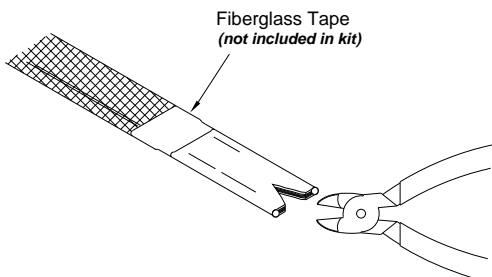


- 1) Insert bus wires into power termination.
- 2) Squeeze power termination opening and fill with silicone.



- 3) Push power termination to overlap jacket.
- 4) At this point, if you're installing the end seal, see the "End Seal" section below. Otherwise, proceed to "Power Connection", sheet 8.

END SEAL

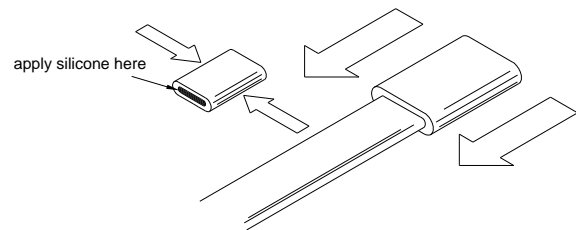


- 1) **For Braided Products:**
Cut braid back 25mm (1") & tape in place with fiberglass tape.

For Overjacket Products:

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

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



- 3) Squeeze the end seal and fill with silicone.
- 4) Push end seal over the heater cable.

For Overjacket Products:

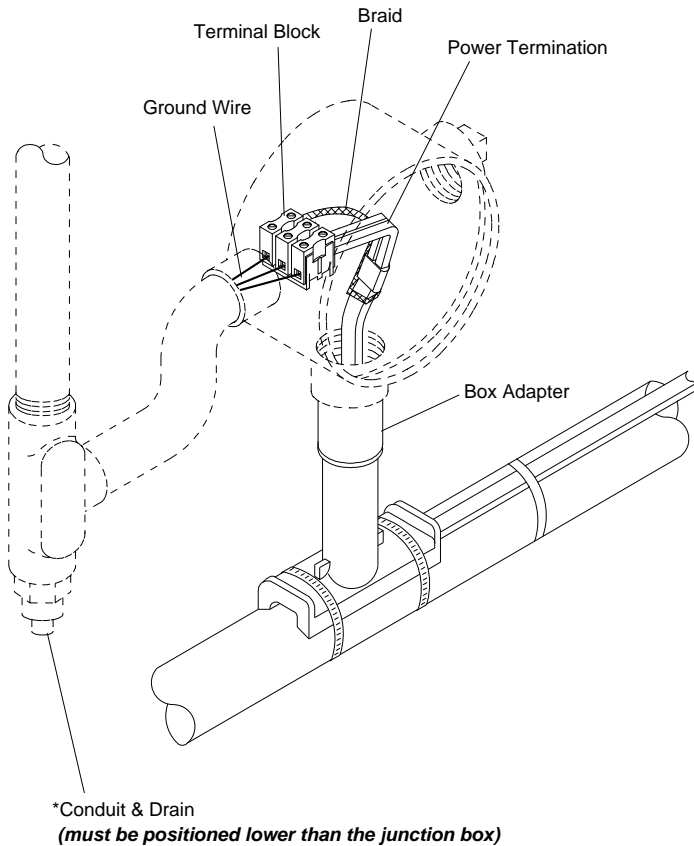
The end seal should overlap the overjacket.

- 5) The silicone will set up in about 30 minutes with a complete cure after 24 hours.
- 6) Proceed to "Power Connection", sheet 8.

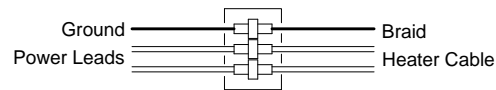
⚠ WARNINGS:

- 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



TERMINAL BLOCK CONNECTION



Note: This detail shows internal grounding of braid.

1. Place gasket on box adapter.
2. Secure junction box onto box adapter until tightly fitted. **DO NOT OVER TIGHTEN.**
3. Connect the power wiring and heater cable to terminal block.
4. Ground Connection:
 - For External Ground Connected Heaters:**
 - Connect ground braid to stand-off using the ground screw. *See diagram on sheet 1.*
 - For Internal Ground Connected Heaters:**
 - Connect ground wire to terminal block inside junction box using the ground screw. *See diagram on sheet 1.*
 - Connect ground wire and braid to terminal block. *See diagram above.*
5. **For Overjacket J or JT Products only:**
Apply silicone at point braid leaves the overjacket.
6. Push all wires and heater cable inside junction box.
7. Install box cover gasket and box cover onto junction box.

Nelson Heat Tracing Systems products are supplied with a limited warranty. Complete Terms and Conditions may be found on Nelson's website at www.nelsonheaters.com.