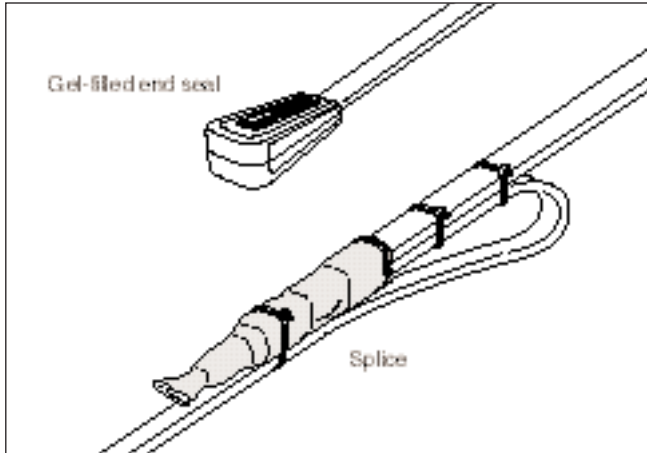


Installation Instructions



Tools and Materials Required

- Diagonal cutters
- Utility knife
- Crimp tools (Ideal 30-425 and T&B WT112M or WT2000)
- Heat gun or torch (Raychem H40 or equivalent)
- Hammer and nail (for roof and gutters only)
- WinterGard H904 kit (for downspout installations)
- Needle nose pliers
- Screwdriver

Description

The WinterGard H910 Splice and Tee Kit is for use with WinterGard self-regulating heating cables to make splice, tee, and end seal connections. The kit contains materials for one splice and one end seal, or one tee connection and one end seal. This kit does not provide a power connection; use an H900, H908, or H911 power connection kit for complete installation.

Applications

Use the H910 kit with the following WinterGard heating cables: H311, H611, H612, H621, and H622. All are designed for pipe freeze protection in dry locations, but H612 and H622 cables are designed for both wet and dry areas, as well as for roof and gutter de-icing. The cable type is printed on the outer jacket of the cable.

Installation and Support

The minimum installation temperature for this kit is 0°F (-18°C). See the WinterGard Application and Design Guide (H53585) or the H900, H908, or H911 installation instructions for design information. For additional technical support call Raychem at (800) 542-8936.

Approvals



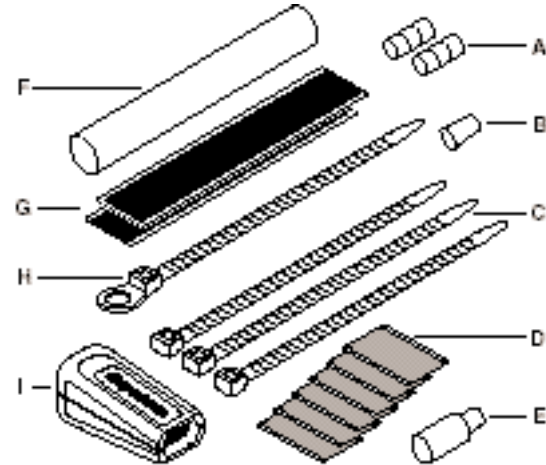
718K Pipe Heating Cable or
877Z De-icing and Snow
Melting Equipment



Desig. 3A, 3B, 3C, 2E

Kit Contents

Item	Qty	Description
A	2	Insulated wire bus crimps
B	1	Uninsulated braid crimp
C	3	Cable ties
D	6	Mastic strips
E	1	Heat-shrinkable cap
F	1	Heat-shrinkable tube (6" long, 1" in diameter)
G	2	Black cloth tapes (6" long)—for use with H311, H611, and H621
H	1	Clamp tie—for use with gutter/downspout applications
I	1	Gel-filled end seal—for tee connection only



WARNING:

These components are electrical devices. They must be installed correctly to ensure proper operation and to prevent shock or fire. Carefully follow all of the installation instructions and read these important warnings.

- To minimize the danger of fire from sustained electrical arcing if the heating cable is damaged or improperly installed, and to comply with the requirements of Raychem and the 1996 National Electrical Code, ground-fault equipment protection must be used on each heating cable branch circuit. Arcing may not be stopped by conventional circuit protection.
- Component approvals and performance are based on the use of specified parts only. Do not substitute parts or use vinyl electrical tape.
- The black heating-cable core is conductive and can short. It must be properly insulated and kept dry.

- Keep components and heating cable ends dry before and during installation.
- Damaged bus wires can overheat or short. Do not break braid or bus wire strands when scoring the jacket or core.
- Bus wires will short if they contact each other. Keep bus wires separated.
- Heat-damaged components can short. Use a heat gun or a torch with a soft, yellow, low-heat flame, not a blue focused flame. Keep the flame moving to avoid overheating, blistering, or charring the heat-shrinkable tubes. Avoid heating other components. Replace any damaged parts.
- Use only fire-resistant insulation materials such as fiberglass wrap.
- Leave these installation instructions with the user for future reference.

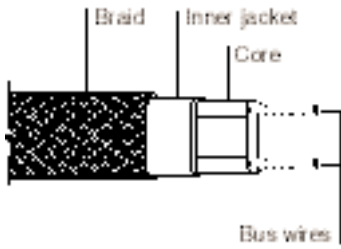
CAUTION:

Charring or burning the heat-shrinkable tubes in this kit will produce fumes that may cause eye, skin, nose and throat irritation. Consult Material Safety Data Sheet RAY/3122.

CHEMTREC 24-hour emergency telephone:
(800) 424-9300.

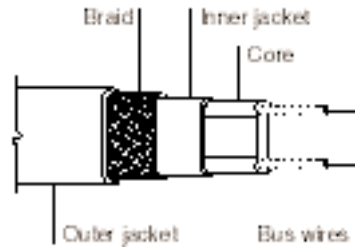
Nonemergency health and safety information:
(650) 361-4907.

1 Identify heating cable



WinterGard H311, H611, H621

Heating cables with braid but no outer jacket



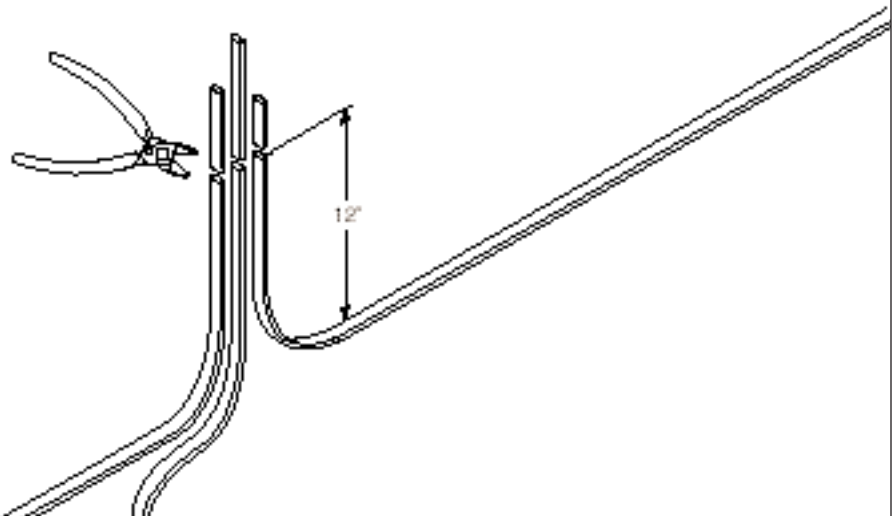
WinterGard H612, H622

Heating cables with both braid and outer jacket

Note: Illustrations generally show a heating cable with both braid and an outer jacket. Cables with no outer jacket will look slightly different.

2 For all heating cables

- Allow 12 inches of extra heating cable as shown. If necessary, trim cables evenly.



Note: Illustrations of the following instructions all show a tee connection. Perform splice connections the same way but use only two heating cable sections, not three as shown.

H612, H622

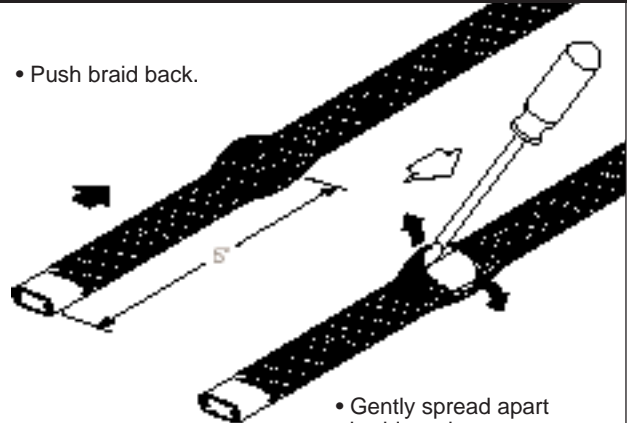
H311, H611, H621

3a For H612 and H622 heating cables only



- Lightly score completely around and then down outer jacket 2 inches from end.
- Bend heating cable to break jacket at score, then peel off outer jacket.

3b For H311, H611, and H621 heating cables only

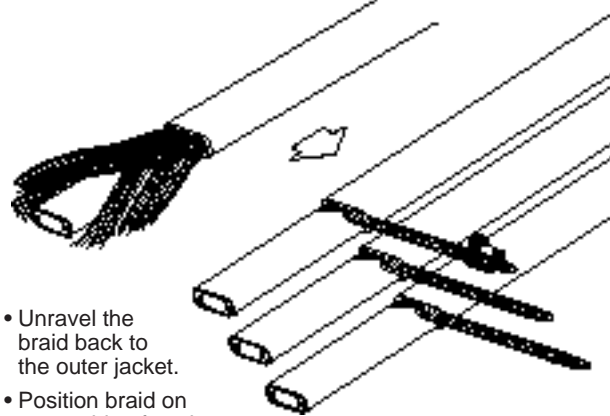


- Push braid back.

- Gently spread apart braid as shown.

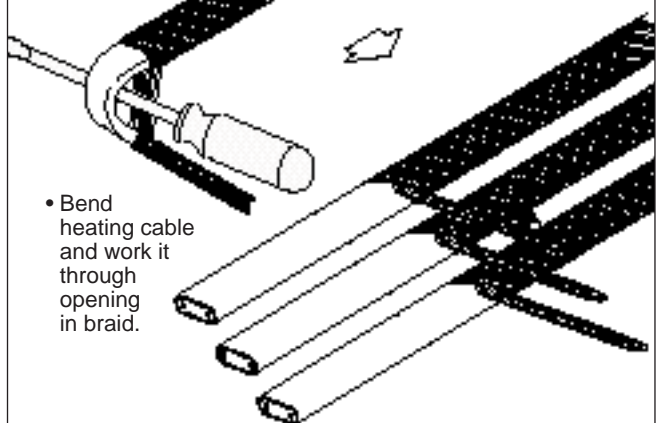
**Installation Instructions
H910 Splice and Tee Kit**

4a For H612 and H622 heating cables only



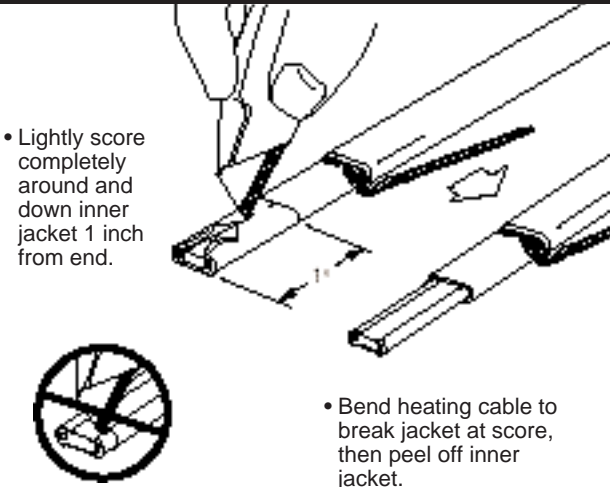
- Unravel the braid back to the outer jacket.
- Position braid on same side of each heating cable section.
- Straighten the braid and twist into a "pigtail."

4b For H311, H611, and H621 heating cables only



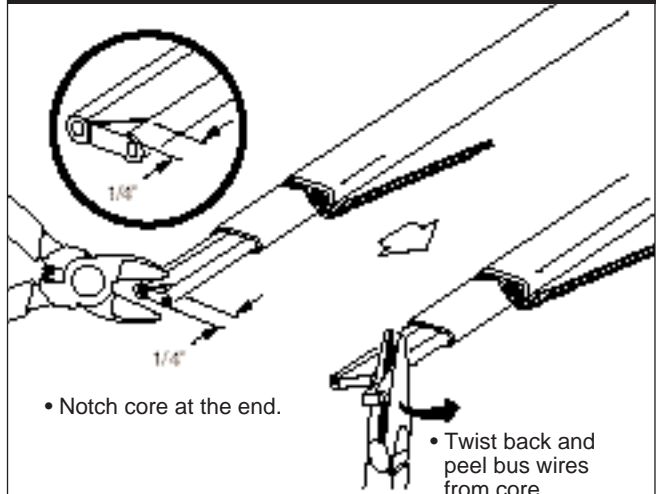
- Bend heating cable and work it through opening in braid.
- Position braid on same side of each heating cable section.
- Straighten the braid and twist into a "pigtail."

5 For all heating cables



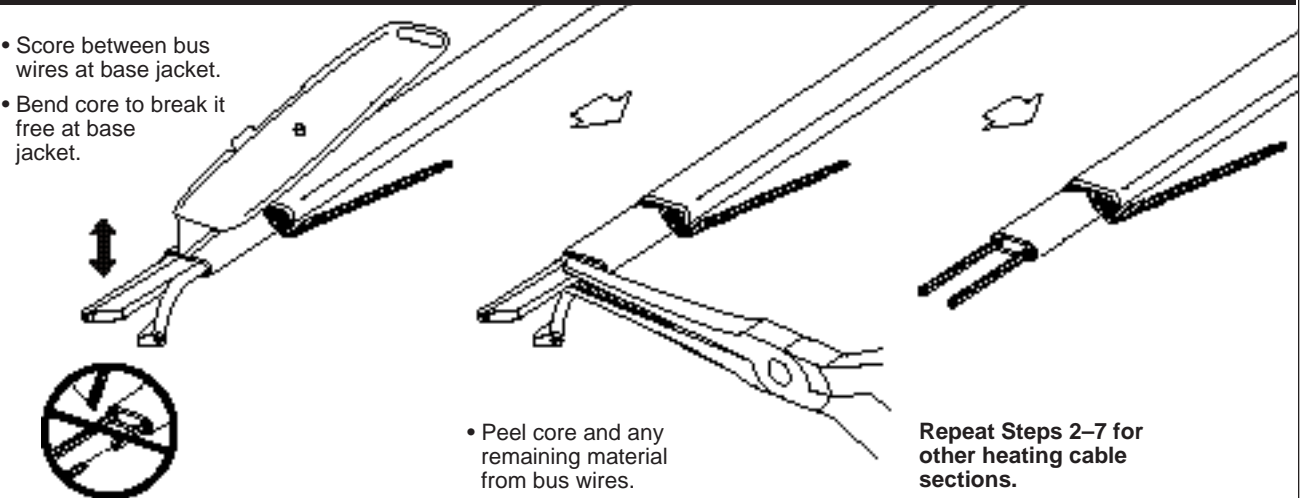
- Lightly score completely around and down inner jacket 1 inch from end.
- Bend heating cable to break jacket at score, then peel off inner jacket.

6 For all heating cables

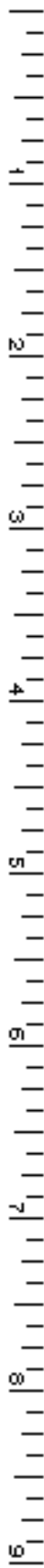


- Notch core at the end.
- Twist back and peel bus wires from core.

7 For all heating cables

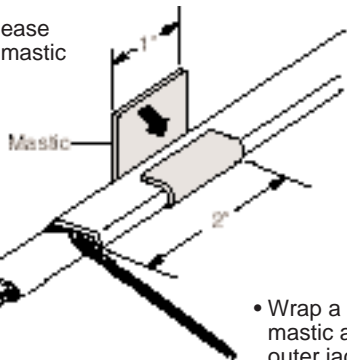


- Score between bus wires at base jacket.
- Bend core to break it free at base jacket.
- Peel core and any remaining material from bus wires.
- Repeat Steps 2-7 for other heating cable sections.



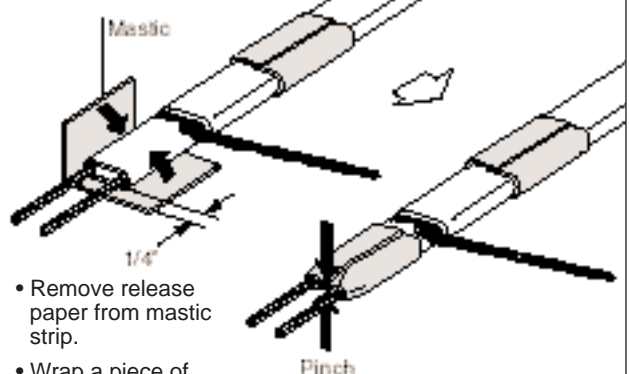
8 For H612 and H622 heating cables only

- Remove release paper from mastic strip.



- Wrap a piece of mastic around the outer jacket on each heating cable section.

9 For all heating cables

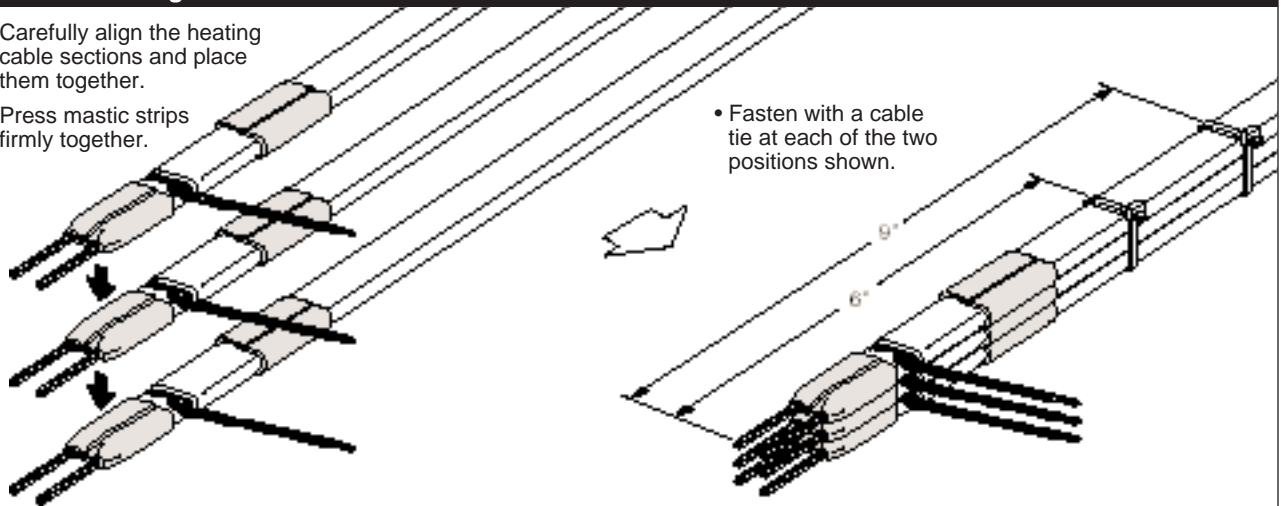


- Remove release paper from mastic strip.
- Wrap a piece of mastic around the end of each heating cable section and position as shown.

- Pinch the mastic in the center to completely seal the core at the end of each heating cable.

10 For all heating cables

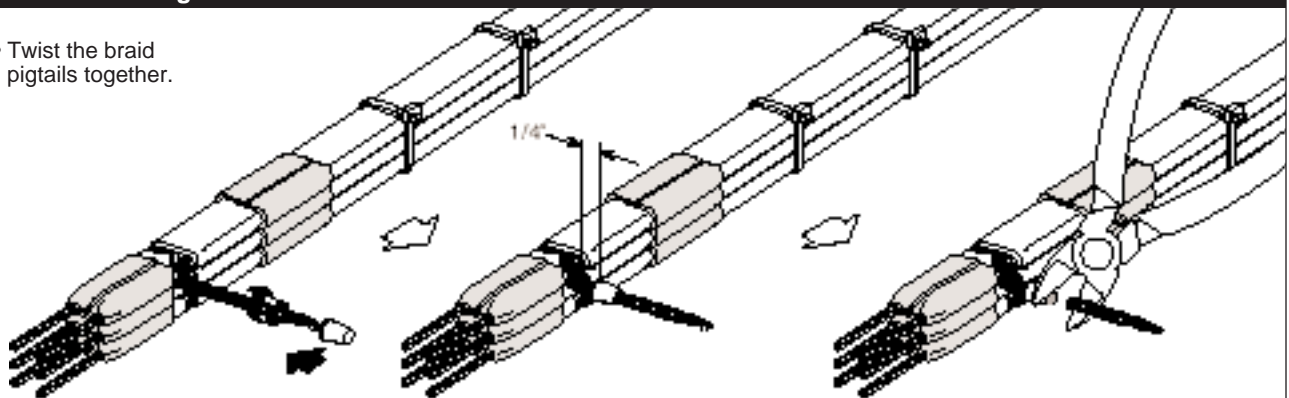
- Carefully align the heating cable sections and place them together.
- Press mastic strips firmly together.



- Fasten with a cable tie at each of the two positions shown.

11 For all heating cables

- Twist the braid pigtails together.

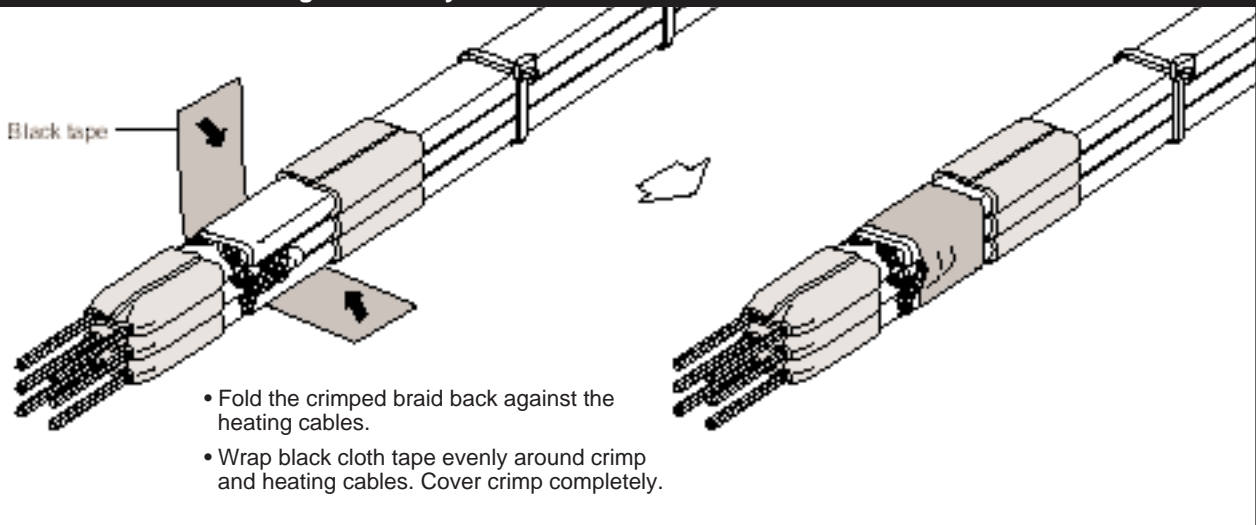


- Slide the insulated crimp over braid to within 1/4" of heating cable as shown.

- Crimp the braid, using the Ideal crimp tool.

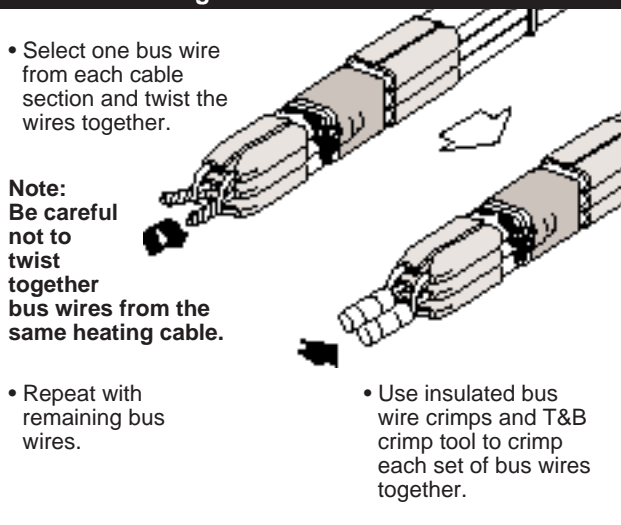
- Cut off the extra braid.

12 For H612 and H622 heating cables only



- Fold the crimped braid back against the heating cables.
- Wrap black cloth tape evenly around crimp and heating cables. Cover crimp completely.

13 For all heating cables



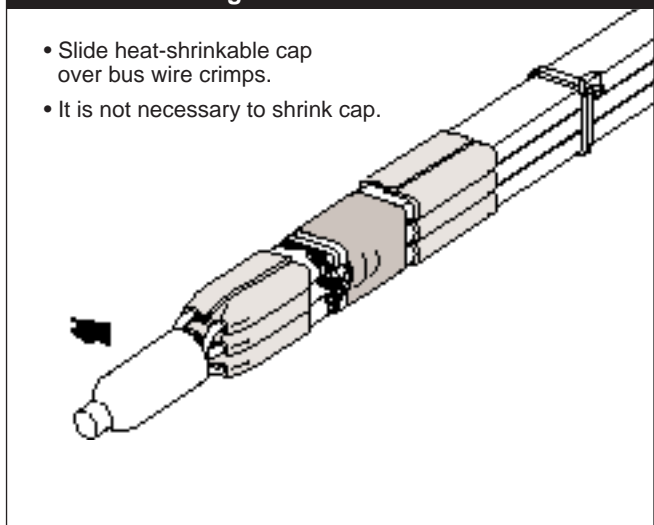
- Select one bus wire from each cable section and twist the wires together.

Note:
Be careful not to twist together bus wires from the same heating cable.

- Repeat with remaining bus wires.

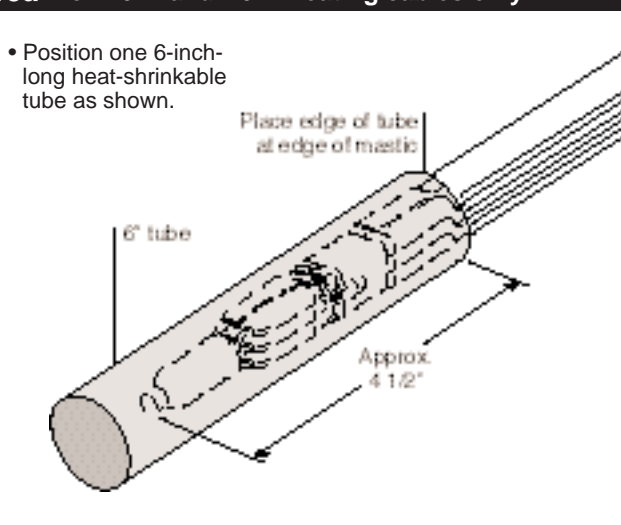
- Use insulated bus wire crimps and T&B crimp tool to crimp each set of bus wires together.

14 For all heating cables



- Slide heat-shrinkable cap over bus wire crimps.
- It is not necessary to shrink cap.

15a For H612 and H622 heating cables only



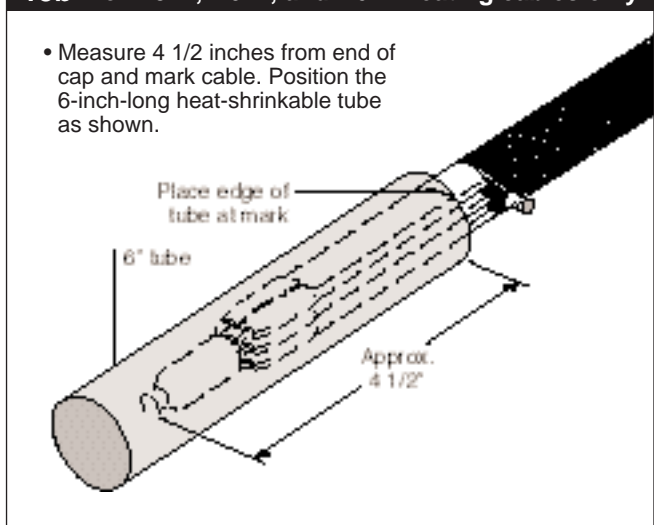
- Position one 6-inch-long heat-shrinkable tube as shown.

Place edge of tube at edge of mastic

6" tube

Approx. 4 1/2"

15b For H311, H611, and H621 heating cables only

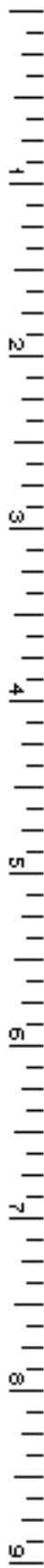


- Measure 4 1/2 inches from end of cap and mark cable. Position the 6-inch-long heat-shrinkable tube as shown.

Place edge of tube at mark

6" tube

Approx. 4 1/2"



**Installation Instructions
H910 Splice and Tee Kit**

16a For H612 and H622 heating cables only

- **Shrink the tube completely.** Start at end farthest from the cap and work toward the open end.
- **Keep heating after tube has shrunk,** to melt adhesive and mastic inside tube. **Total heating time should be about 5 minutes.**
- Immediately after shrinking, pinch the end of the tube with needle nose pliers until the end stays sealed; this normally takes 10 seconds.

Caution:
To avoid burns, allow heated sections to cool before touching.

16b For H311, H611, and H621 heating cables only

- **Shrink the tube completely.** Start at end farthest from the cap and work toward the open end.
- **Keep heating after tube has shrunk,** to melt adhesive and mastic inside tube. **Total heating time should be about 5 minutes.**
- Immediately after shrinking, pinch the end of the tube with needle nose pliers until the end stays sealed; this normally takes 10 seconds.

Caution:
To avoid burns, allow heated sections to cool before touching.

17a For all installations except gutter/downspout

- After the connection has cooled, fold over the connection and fasten it with the third cable tie.

17b For H612 and H622 gutter/downspout installations

- Secure heating cable with downspout hanger (H904).
- Fasten clamp tie to center of connection.
- Use a hammer, nail, and clamp tie to secure connection and keep it off the gutter bottom as shown.

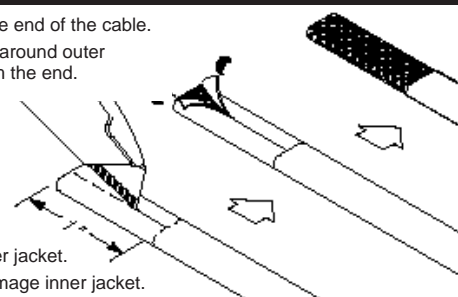
Installation Instructions

H910 End Seal (for tee connections only)

Note: The end seal is designed to be installed only once; it cannot be removed from the heating cable once installed. Do not use until ready for final installation.

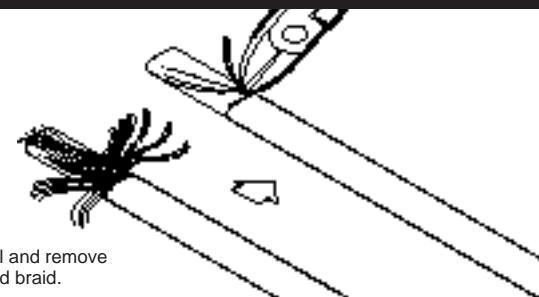
1 End Seal for H612 and H622

- Cleanly cut off the end of the cable.
- Score down and around outer jacket 1 inch from the end.



- Remove the outer jacket.
- Do not cut or damage inner jacket.

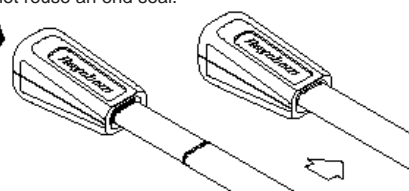
2



- Unravel and remove exposed braid.

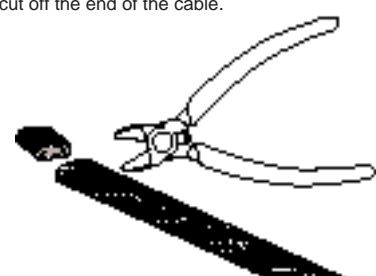
3

- Firmly push end seal onto the cable (at least 1 1/2 inches). Some gel may ooze out.
- Do not twist or try to remove the end seal during or after insertion. Do not reuse an end seal.



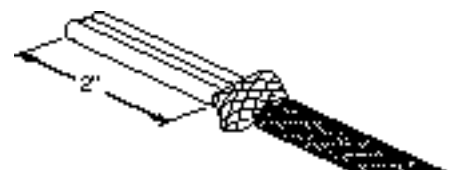
1 End Seal for H311, H611, and H621

- Cleanly cut off the end of the cable.



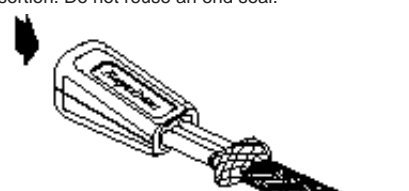
2

- Push the braid back 2 inches from the cable end.



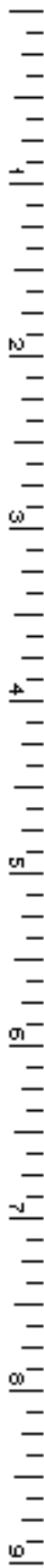
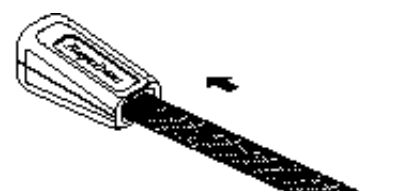
3

- Firmly push end seal onto the cable (at least 1 1/2 inches). Some gel may ooze out.
- Do not twist or try to remove the end seal during or after insertion. Do not reuse an end seal.



4

- Slide the braid up against the end seal and secure with the 6-inch length of tape provided.



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