Installation Inside the Pipe

After Arctic Trace heat cable has been cut to length attach the waterproof end cap #305C as listed in these instructions and then test the cable per instructions.

Pull heat cable through pipe to be heat traced as you would any other electrical wire. Care should be taken to assure heat cable is not damaged by abrasions in the line. Do not place heat cable in any unsafe way such as valve closures, or any mechanical device that may cut or damage the cable.

Exit pipe from a 1/2" FNPT fitting (supplied by others) through 1/2" MNPT Pressure connector / strain relief #206C, as listed in these instructions. Run heat cable to a NEMA 4X junction box using #206C strain relief.

OR connect a pigtail or suitable flexible power cord as specified by the Project Engineers.

Power Connection

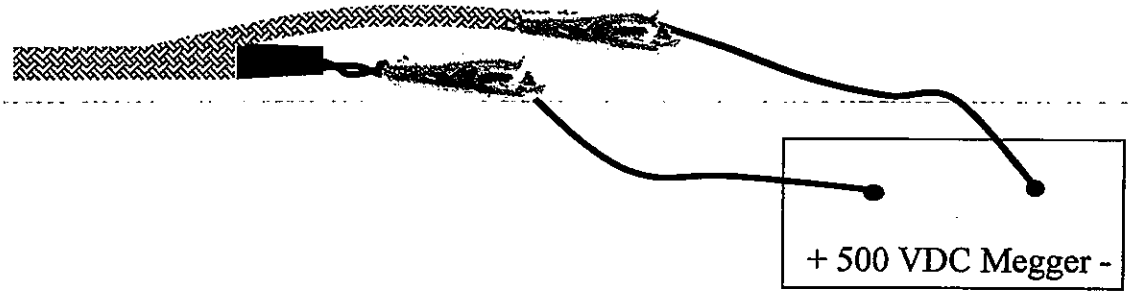
Before considering a connection to a voltage source, the circuit fabrication instruction for the specific cable type should have been carefully followed. Power connection, GFCI and pilot lights kits are available for various cable and should not be substituted, unless they conform to National, State, and Local Electrical Codes.

Before removing the cable from the reel, perform a dielectric resistance test with a 500 VDC meg-ohm meter (Megger) between the bus wires and ground. The minimum resistance reading should be 20 meg-ohms. Be sure all piping and equipment to be traced is completely installed and pressure tested. Equipment surfaces should be reasonably clean. Any loose scale, oil or rust should be removed.

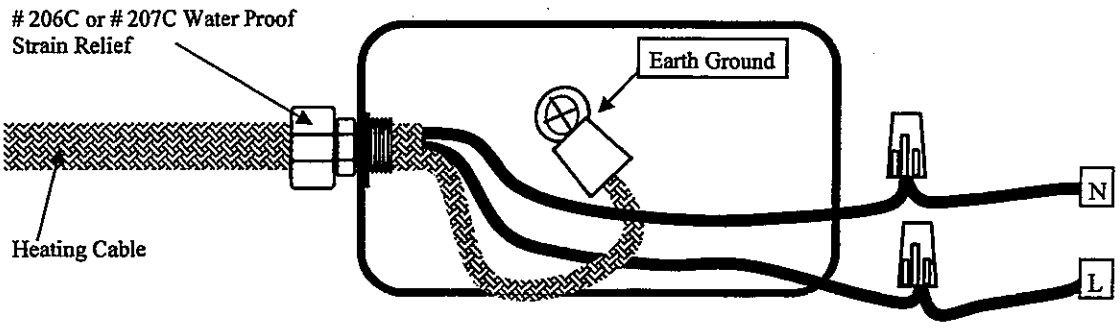
Heat cable must only be installed by a qualified electrician and all National, State, and Local Electrical Codes need to be followed.

Connect power with a suitable GFCI as required by National Electric Code.

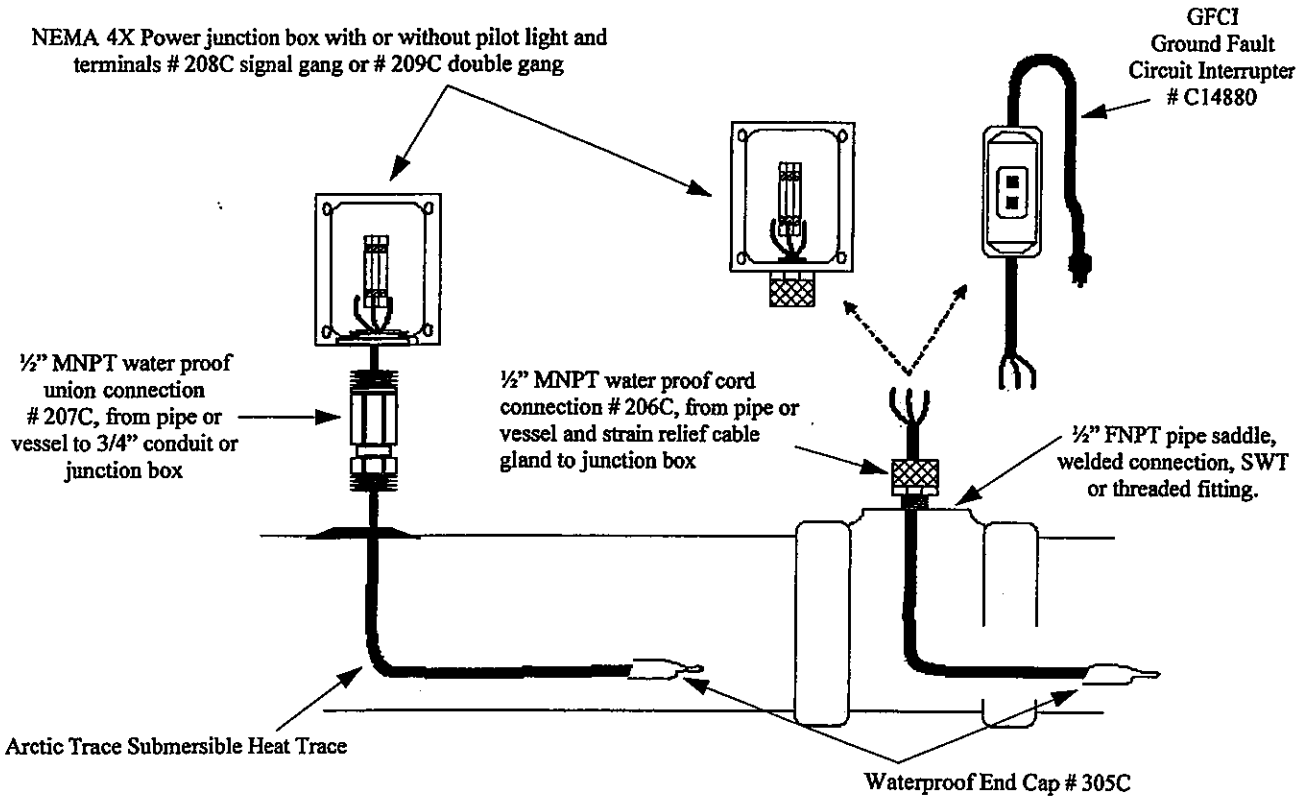
Dielectric Resistance Test



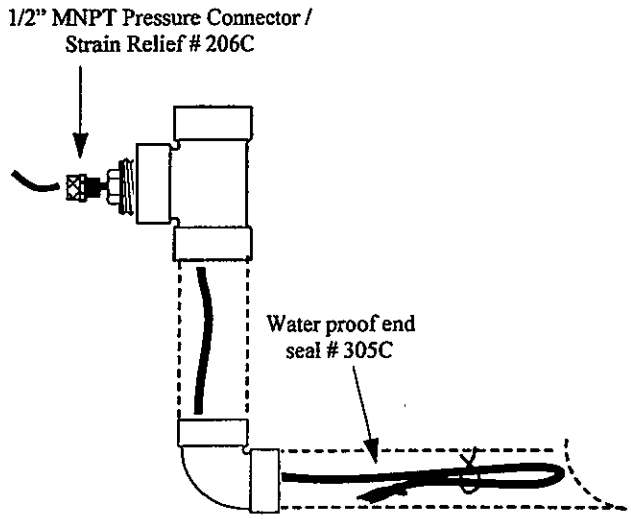
Power Connection

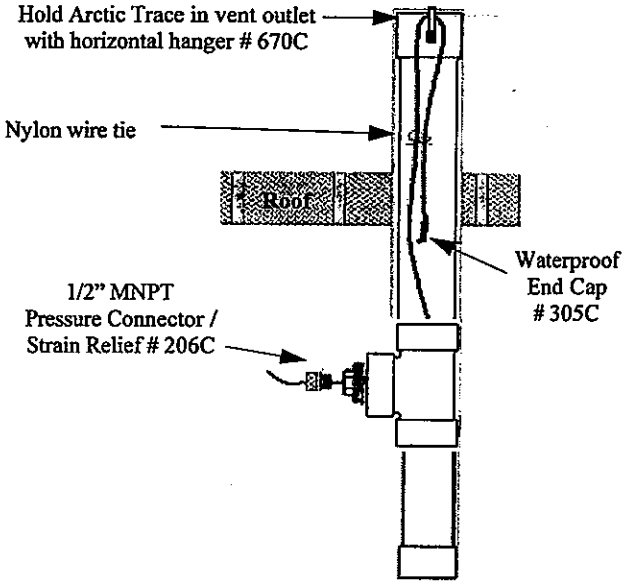


Arctic Trace Heat Cable Inside Pipe or Vessel



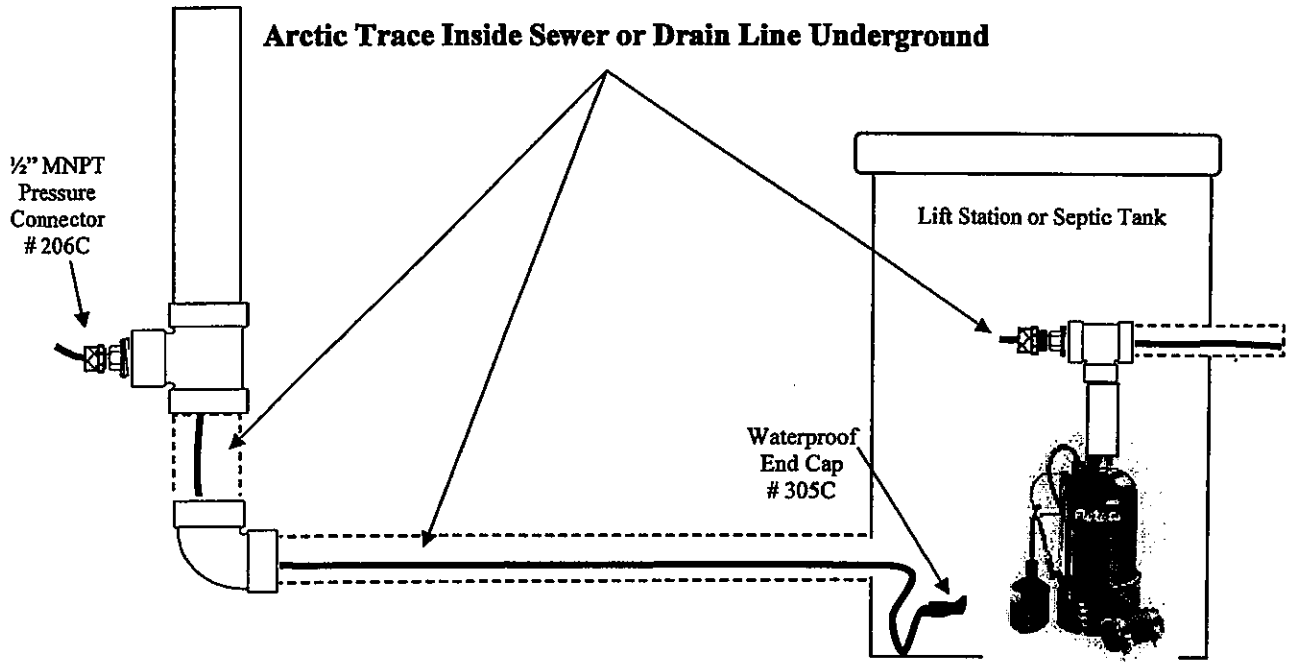
In drains and downspout to prevent freezing and in vent to prevent frost plugging



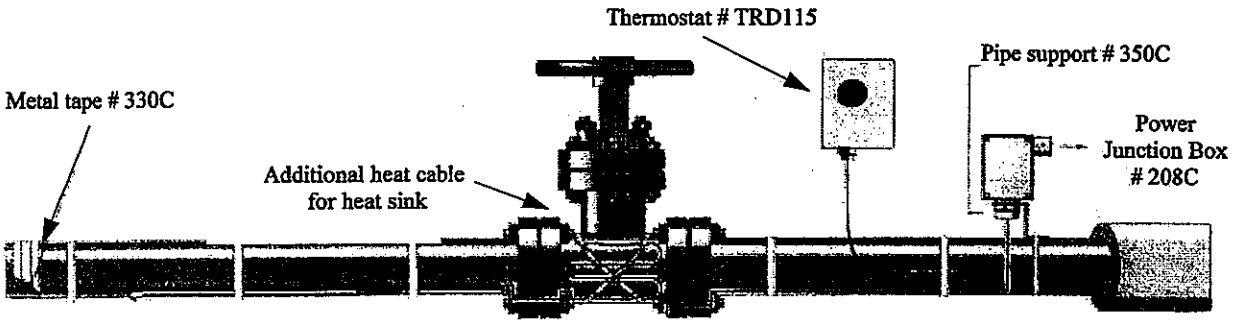


- Install cleanout with ½" female NPT connection.
- Loop Arctic Trace at the outlet of vent or drain pipe over itself for a minimum of a 3' loop.
- Hold loop in place with nylon wire ties on downspout application only.
- Push or pull Arctic Trace into position as shown in vent or drain pipe.
- Connect GFCI to heat cable and operate as needed to prevent vent freezing of vent opening.

Arctic Trace Inside Sewer or Drain Line Underground

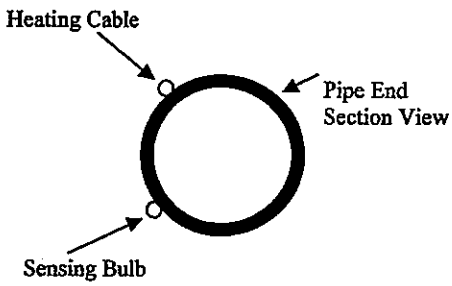


Arctic Trace Heat Cable Surface Mounted On Pipe or Vessel

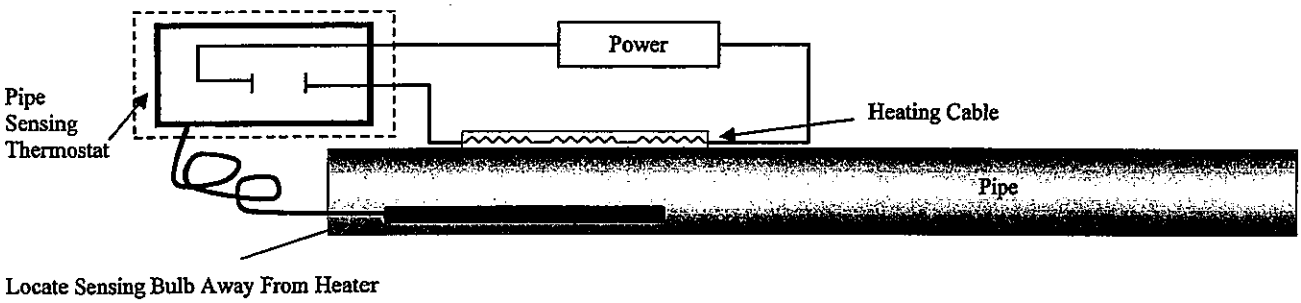


Installation on surface of pipe

Cable should be run straight or spiraled along pipe as required to provide for proper watt requirement output for the demand needed. Cable should be attached to pipe by the use of 2" metal tape # 330C allowing full heat transfer and equal heat distribution. Since surface mounting is not as efficient as inside the pipe mounting, additional cable must be applied to heat sinks like valves, pipe supports and flanges. When attaching temperature sensor, if required, attach to pipe with metal tape at 90° off set for multiple or single passes never on top or bottom of pipe.



Arctic Trace Heat Cable Control Option



Surface Mounting or Inside the Pipe or Vessel Installation
Hazardous Locations

Arctic Trace maybe installed inside pipe or vessel or on the pipe or vessel surface for freeze protection or viscosity control of process fluids or gases.

Arctic Trace Installation:

Cut the Arctic Trace cable to length and install on pipe or vessel surface or inside pipe or vessel. Refer to Arctic Trace installation instructions.

Power Connection:

Connect heat trace to power using a GUATU26C hazardous location power connection kit. Install as shown in Fig G for heat tracing application inside pipe or vessel. Install as shown in Fig H for heat tracing application on pipe or vessel surface.

Heat Trace End Seal:

Install #305C water proof end seal to any exposed heat trace end of line in accordance with end seal kit insulation. The kit will provide the required electrical insulation, braid coverage and stop and water liquid or gas infiltration into heating cable.

Code Compliance:

All wiring and safety devices need to be installed in accordance with State and Local codes.

Heat Trace wiring:

Power connection should be connected in the junction box using wire nuts and crimp ground

FIG F

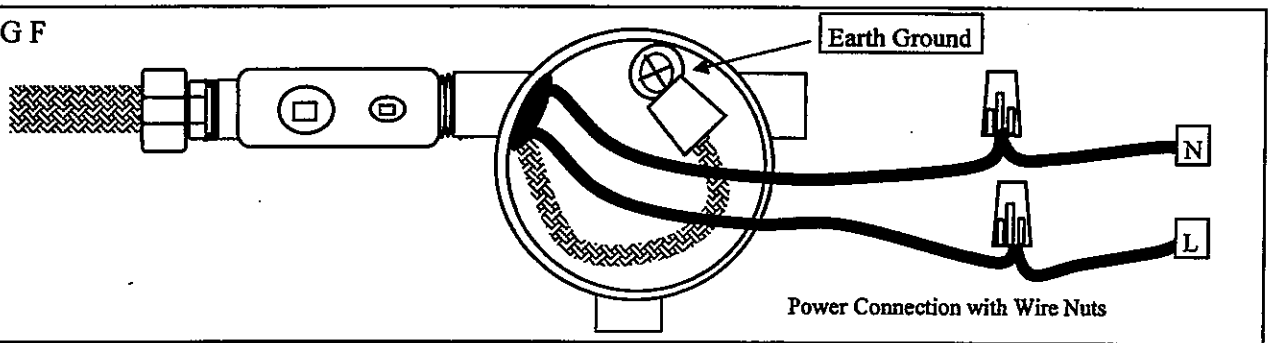


FIG G

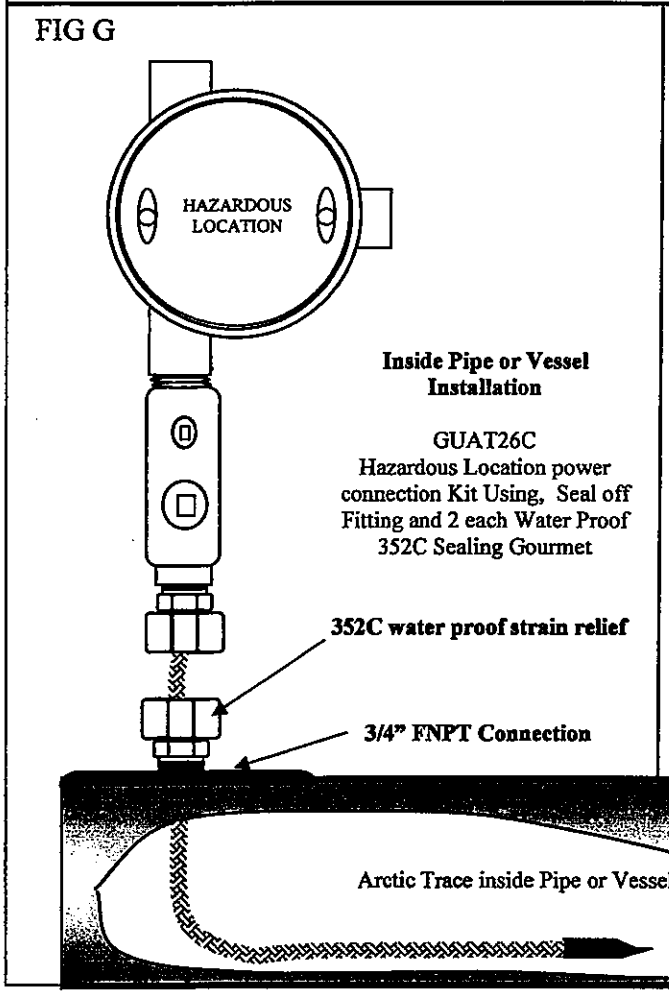
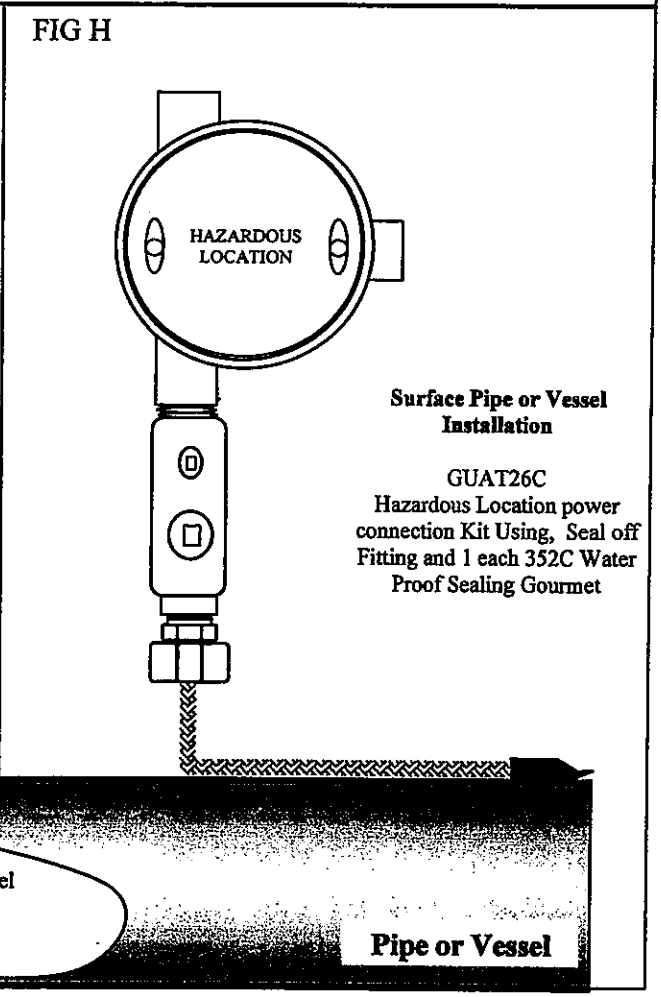
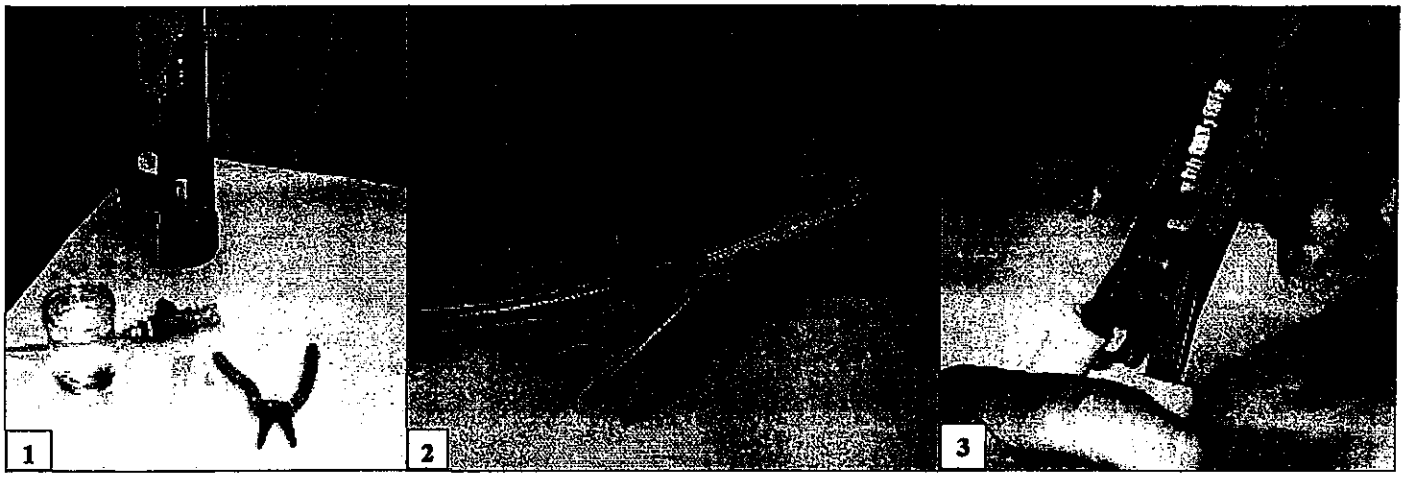


FIG H



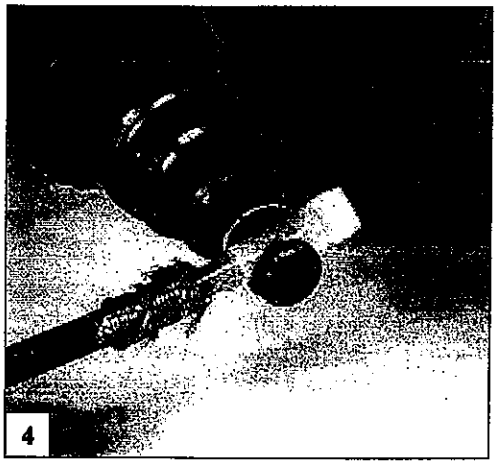
Instruction Sheet P/N 305C Tefzel End Cap

Package to include: 1 each Tefzel End Cap and 1 each Heat Shrink Braid Guard



1. Tools needed - High temperature hot air heat gun, sharp clean wire cutting tool, 25 psig shop air supply, # 206C or # 207C pressure connector.

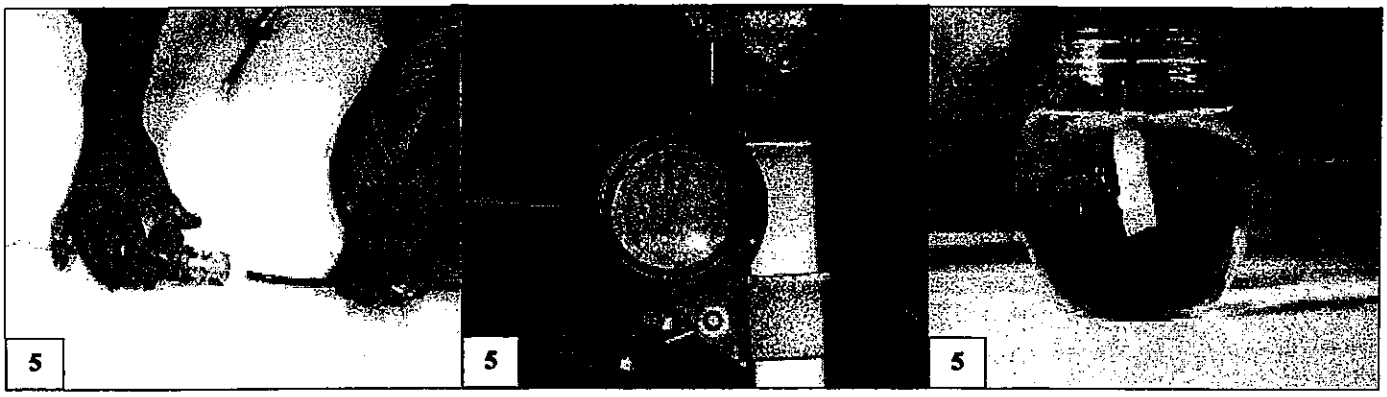
2. Cut the Arctic Trace heat trace to desired length. If your heater has an over jacket, with a sharp blade carefully remove 6" of TFE over jacket from end to be sealed. Take care not to cut or damage the braid during this operation.



3. Move the braid so that it does not interfere and cut heat trace 3" back at a 45° angle with using a sharp wire cutting tool. Inspect cut to insure that the carrier wires do not make contact. If they do, perform step 3 again

4. Place Tefzel End Cap over wire end to be sealed, hold metal braid away from operation, and heat with high temperature hot air heat gun # 907. Do not use open flame. As End Cap is heated it will turn transparent and wire color will show though clearly. Continue to move heat around the End Cap until all sides are uniform and cable coating begins to ooze out from open end of End Cap. Allow End Cap to cool before step 5.

5. End Cap integrity test should now be done by pressurizing opposite end of heat trace with 25 psig air supply using pressure connector # 206C or # 207C. Now submerging Tefzel End assembly in clean water. If no bubbles are present cap has been installed correctly. If bubbles are present repeat steps 2



6. Slip the metal braid back over End Cap so it extends about 1". Fold the excess braid back so when the braid guard is attached it will hold the braid in place at the end of the wire.

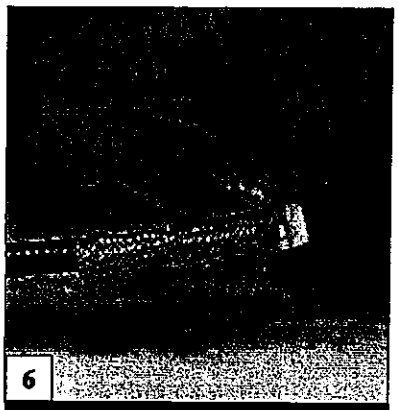
7. Place the braid guard over the end cap and metal braid. Heat shrink to braid guard until it firmly holds the braid in place.

8. An insulation resistance test is recommended between the 2 buss wires and the braid. Test wire with 500 VDC megger minimum acceptable should be 20 megohms per circuit tested. Do not use a megger with an excess of 2500 VDC. If test fails check for faulty end cap installation or any heating cable damage.

9. When wire passes electrical test it may then be installed. Take care not to damage End Cap during installation.

10. After installation check for a leak at wire termination point (beyond pressure fitting # 206C or # 207C) and replace End Cap if a leak is found allowing water to drip from inside of the wire.

11. If problem cannot be corrected do not use or connect wire to voltage.



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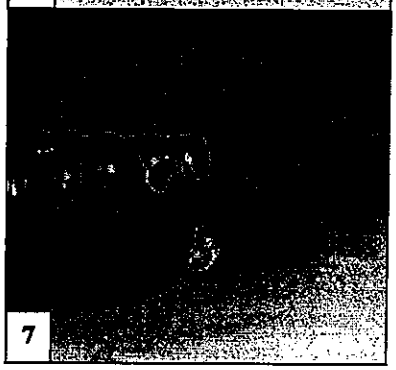
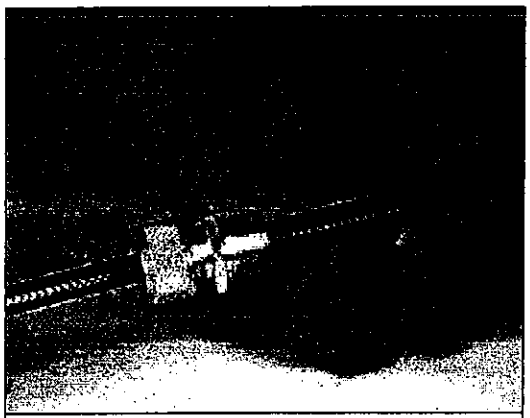
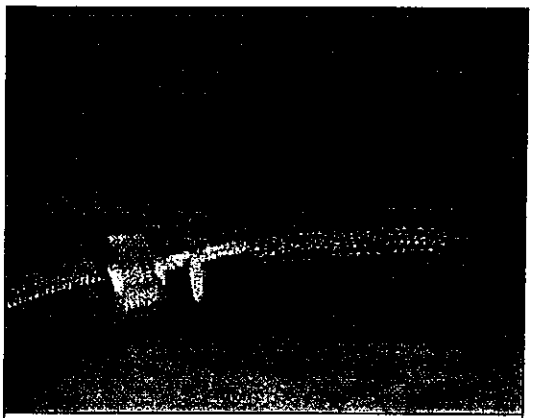


7

Proper placement of #206C or #207C pressure connector should be done as follows



Pressure connector placement for Drain, Waste and Vent applications not subject to back pressure may be placed over outer jacket or metal braid. **Refer to # 206C & # 207C Installation Instruction**



Pressure connector placement for pressurized lines subject to pressure. Over jacket should be removed so it will not touch the rubber sealing grommet. **Refer to # 206C & # 207C installation instruction**

Instruction Sheet P/N 206C/207C Pressure Connector / Strain Relief

1. Install Arctic Trace wire in water line with waterproof end cap # 305C. Install and test as manufacturer recommends. Leave 12" or more wire extending past wire insertion point.

2. Pull ground braid down along wire and cut off about 4" of wire under ground braid.

3. Pull ground braid back over end of wire making braid diameter as small as possible.

4. Disassemble pressure connector body and first slip male threaded body over braid and wire.

5. Slip rubber grommet tapered end first over braid and wire.

6. Spread pipe paste on connector body's MNPT threads and install in pipe opening 1/2" FNPT.

7. Massage in Teflon paste at the wire outlet making sure it extends about 2" on each side of wire.

8. Assemble connector body, rubber grommet, and cap, making sure Teflon paste is spread over wire braid area where grommet will seat on wire surface, and tighten securely.

9. Check for leak in liquid system and repeat if need be.

10. If connector leaks redo steps 4 through 8.

11. If leak cannot be corrected stop installation and call manufacturers.