



Installation Instructions — 1548-4006U Power Connection Kit with 1 End Seal (For use with 2806 Self-Regulating Heaters)

Kit Description : The 1548-4006U connection kit is used for making electrical connections for the 2806 self-regulating heaters. The kit contains the necessary components to make one power input connection and one end termination.

KIT CONTENTS

<u>QUANTITY</u>	<u>DESCRIPTION</u>
1	Connector Body
1	Connector Cap
1	Connector Gland Washer
1	Grommet
1	3/4" Locknut
1	Standoff Bracket
1	Shrink Sleeve 3/4" x 6"
1	Shrink Sleeve 1/8" x 2-1/2"
2	Shrink Sleeves 1/2" x 1-1/2"
2	Insulated Closed End Crimp Connectors
1	Roll of Fiberglass Tape
6	Caution Labels
1	Instruction Sheet
1	Ring Tongue Terminal
1	Grounding Screw

Additional Items Required But Not Supplied:

1	Weather Tight Junction Box, 3/4"
1	Pipe Strap
	Additional Fiberglass Tape or Nylon Cable Ties

Tools Required:

Crimping Tool
(SPC Technology Crimp Tool no. 8403-001)
Flat Head Screwdriver
Wire Stripper/Cutter
Utility Knife or Razor Blade
Heat Gun or Torch
Needle-nose Pliers
Measuring Tape

General Installation Instructions and Precautions

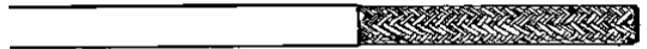
1. The 1996 National Electrical Code and the 1998 Canadian Electrical Code require that ground-fault equipment protection be used with these heating cable installations.

2. The 1996 NEC also requires posting of appropriate caution signs or markings at frequent intervals along electrically traced pipe. Six caution labels are provided in the installation kit. Additional labels may be purchased by contacting your heater sales representative.
3. The Canadian Electrical Code requires grounding of metal structures used for support of or on which the cable is installed, and that the heater not be installed closer than 13 mm to any exposed combustible surface.
4. Install cable at -40°C or above using a minimum bend radius of 1/4 inch.
5. After thermal insulation is complete, the insulation resistance of the entire branch circuit should be not less than 10 megohms.

Power Connection Instructions

A. Stripping Instructions

1. Overjacket Removal (for heaters with an overjacketed braid)
 - a. Score and remove 6" of the overjacket to expose the braid.



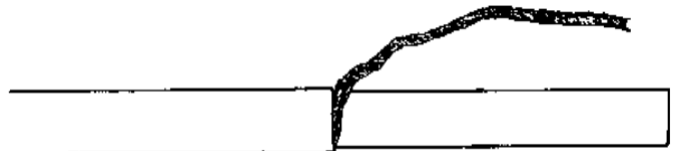
2. Braid Pigtail (for heaters with braid or overjacketed braid)
 - a. Push the braid back to loosen it. At about 6" from the heater's end, spread the braid strands apart to make an opening on one side of the heater, being careful not to break any of the strands.



- b. Bend the heater at the opening and pull the heater through the hole to remove the braid.

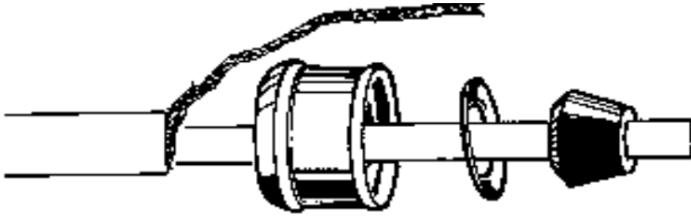


- c. Twist the braid into a pigtail. Trim the braid pigtail to remove the tapered end.



3. Conductor Stripping

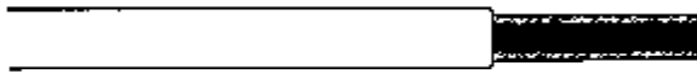
a. Insert the heater through the connector cap, gland washer, and grommet. Pull about 4" of the heater through the grommet.



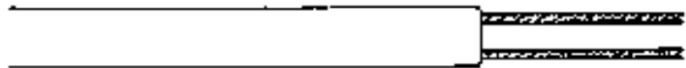
b. Score and remove 1-3/4 " of the jacket to expose the black core.



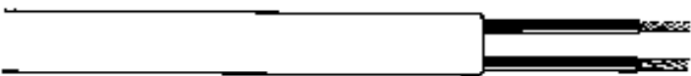
c. Shave the black conductive material from the bus wires along the edges of the core.



d. Pull the conductors away from the center core material and cut away the center core material.



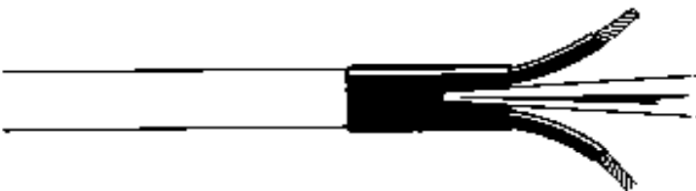
e. Cut the 1/8 " x 2-1/2 " long piece of shrink sleeve in half making two 1-1/4 " long pieces. Slide these 1/8 " x 1-1/4 " pieces of shrink sleeve over each bare bus wire and shrink with heat leaving the end 1/2 " of bus wire bare.



f. Slide a 1/2 " x 1-1/2 " shrink sleeve over the two bus wires so that 3/4 " covers the heater and 3/4 " covers the bus wires.

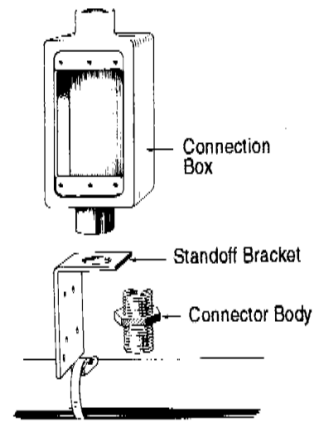


g. Apply heat to shrink the sleeve. While the sleeve is still hot, squeeze the shrink sleeve between the bus wires with needle nose pliers and hold until cool. If the sleeve does not remain visibly sealed when the pliers are removed, repeat this sealing step by reheating and squeezing the sleeve until cool.

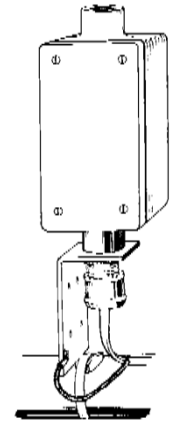


B. Power Connection

1. Fasten the standoff bracket to the pipe using a pipe strap. Insert the connector body through the bracket and attach the metal junction box to the connector body.



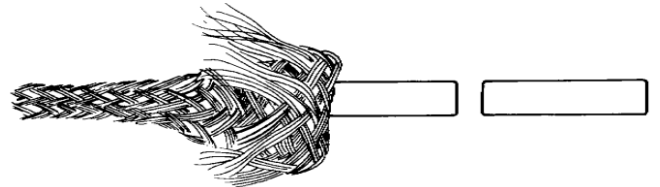
2. Insert the heater (the grommet, gland washer and connector washer should already be on the heater) through the connector body into the box and tighten the connector cap on the connector body. Use the ring tongue terminal to attach the braid pigtail to the standoff bracket with the grounding screw. Attach the bus wires (16 AWG) to 14 through 10 AWG power feed wires using the closed end crimp connectors.



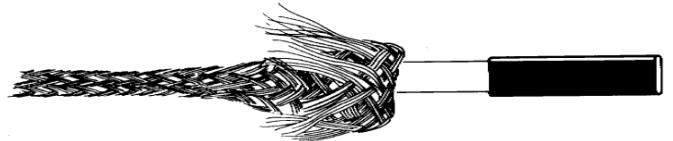
Heater End Termination

1. End Termination for heaters with braid.

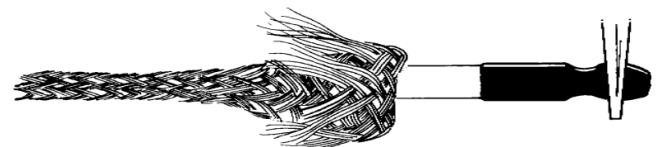
a. Slide the braid back from the end of the heater and cut about 1-1/2" squarely off the end of the heater, making sure the conductors are not in contact with each other.



b. Slide a 1/2 " x 1-1/2 " long piece of shrink sleeve over the end of the heater allowing 1" to cover the heater and 1/2" to extend beyond the end of the heater.



c. Apply heat to shrink the sleeve around the heater. While the sleeve is still hot, squeeze the open end of the sleeve with needle nose pliers and hold together until cool to seal the shrink sleeve end. If end does not remain visibly sealed when pliers are removed, repeat this sealing step. The end must remain visibly sealed when the pliers are removed.



d. Slide braid over sealed shrink sleeve and twist end of braid into a pigtail.

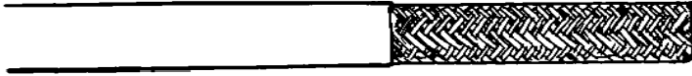


e. Slide the braid over sealed shrink sleeve and twist end of braid into a pigtail.



2. End Termination for heaters with overjacketed braid.

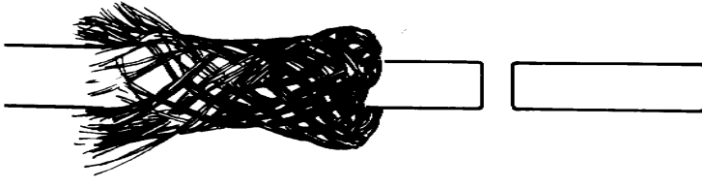
a. Score and remove 3" of the outer jacket from the end of the heater.



f. Slide the 3/4 " x 6" long piece of shrink sleeve over the braid so that 1/2 " extends out past the end of the pigtail.



b. Slide the braid back from the end of the heater and cut about 1-1/2 " squarely of the end of the heater, making sure the conductors are not in contact with each other.



g. Apply heat to shrink the sleeve around the heater and braid. While the sleeve is still hot, squeeze with needle nose pliers and hold together until cool to seal the shrink sleeve end. If end does not remain visibly sealed when pliers are removed, repeat this sealing step. The end must remain visibly sealed when the pliers are removed.



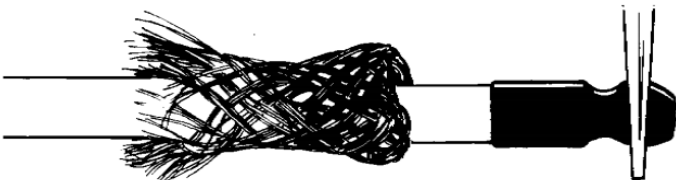
c. Slide a 1/2 " x 1-1/2 " long piece of shrink sleeve over the end of the heater allowing 1" to cover the heater and 1/2 " to extend beyond the end of the heater.



Securing Heater To Pipe

1. Secure heater to the pipe using fiberglass tape or nylon cable ties. Secure the heater at one foot intervals. Insulate the pipe.
2. Affix caution label in plain view near the pipe standoff assembly and at frequent intervals along the electrically heated pipe.

d. Apply heat to shrink the sleeve around the heater. While the sleeve is still hot, squeeze the open end of the sleeve with the needle nose pliers and hold together until cool to seal the shrink sleeve end. If end does not remain visibly sealed when pliers are removed, repeat this sealing step. The end must remain visibly sealed when the pliers are removed.



Product Data
2800 Family of Self-Regulating Heaters

Part Number	2803-1	2805-1	2806-1	2806-2
Thermal Output @ 40°F (W/ft)	3	5	6	6
Service Voltage (Volts)	120	120	120	240 *
Maximum Circuit Length (Feet)	150	125	250	450
Circuit Breaker Required for Max. Circuit and 40°F Start-Up (Amps)	10	10	30	30
Maximum Ambient Exposure Temperature (°F)185	185	185	185	

* 2806-2 heater may also use 208, 220 or 277 volts

**Circuit Breaker Sizing Versus Maximum
Circuit Length (Feet)**

	10 Amp	15 Amp	20 Amp	30 Amp	40 Amp
2803 If started at: 40° F	150	150	-	-	-
0°	110	150	-	-	-
-20°	100	150	-	-	-
2805 If started at: 40° F	125	125	-	-	-
0°	90	125	-	-	-
-20°	80	120	-	-	-
2806-1 If started at: 40° F	100	150	200	250	250
0°	65	100	130	190	250
-20°	55	85	115	170	225
2806-2 If started at: 40° F	175	270	360	450	450
0°	110	175	230	340	450
-20°	90	145	190	285	385

**Selection Guide
for 2800 Family of Self-Regulating Heaters**

(Minimum required heater rating at 40°F versus pipe size and insulation thickness)

Chart is based on 40°F Maintenance Temperature on Metal Pipes with Fiberglass Insulation;

for other applications consult your supplier.
0°F

Lowest Ambient Temperature		0°F		-20°F	
Insulation Thickness		1/2"	1"	1/2"	1"
Pipe / Tube Size					
1/2" / 3/4"		3 w/ft	3 w/ft	3 w/ft	3 w/ft
3/4" / 1"		3 w/ft	3 w/ft	5 w/ft	3 w/ft
1" / 1 1/4"		3 w/ft	3 w/ft	5 w/ft	3 w/ft
1 1/4" / 1 1/2"		3 w/ft	3 w/ft	5 w/ft	3 w/ft
1 1/2" / 2"		5 w/ft	3 w/ft	6 w/ft	5 w/ft
2" / 2 1/2"		5 w/ft	3 w/ft	(1.1)	5 w/ft
2 1/2" / 3"		5 w/ft	3 w/ft	(1.3)	5 w/ft
3" /		6 w/ft	5 w/ft	(1.5)	6 w/ft
4" /		(1.3)	5 w/ft	(2)	(1.1)
6" /		(2)	6 w/ft		(1.6)

Heaters are to be attached straight on pipe unless spiraling is indicated.

() Indicates spiral ratio (feet of heater per foot of pipe). Applies to last heater given in column.