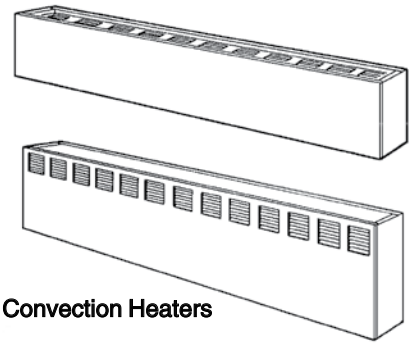
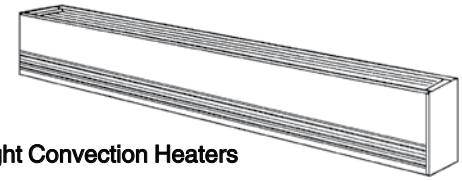
ASPEQ
HEATING GROUP

905, 909, & 912 Series
Sill Height Convectors



Commercial Sill Height Convection Heaters
(905 Series)



Architectural Sill Height Convection Heaters
(909 and 912 Series)

Installation, Operation & Maintenance Instructions

IMPORTANT INSTRUCTIONS

GENERAL

This heater is designed to provide years of efficient, trouble free operation as a primary or supplementary heat source for comfort heating in residential and commercial applications. 905, 909, and 912 Series convector heaters must be thermostatically controlled for efficient, safe operation. A thermostat is not provided with this heater. However, a single or double pole thermostat accessory is available for installation into this heater at your place of purchase, or the heater may be connected to any suitable wall mounted thermostat that will meet the electrical load requirements. Installation or use of this product in any manner not described herein will void the warranty and could result in injury, damage to property, or permanent damage to heater.

WARNING

WHEN USING ELECTRICAL APPLIANCES, BASIC PRECAUTIONS SHOULD ALWAYS BE FOLLOWED TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK, AND INJURY TO PERSONS, INCLUDING THE FOLLOWING:

1. Read all instructions before installing or using the heater.
2. A heater has hot and arcing or sparking parts inside. Do not use in areas where gasoline or flammable liquids are used or stored. Do not use in corrosive environment or any area where explosive materials are used or stored.
3. This heater is hot when in use. To avoid burns, do not let bare skin touch hot surfaces. Keep combustible materials, such as furniture, pillows, bedding, papers, clothes, and curtains away from heater.
4. To prevent a possible fire, do not block air intakes or exhaust in any manner.
5. Do not insert or allow foreign objects to enter any ventilation or exhaust opening as this may cause an electric shock or fire, or damage the heater.
6. Serious injury or death could result from electric shock. Make sure electrical power supply circuit coming to heater is disconnected at main disconnect or service panel before installing or servicing this heater.
7. **This heater is not for residential or household use.**

SAVE THESE INSTRUCTIONS

SPECIFICATIONS

Table A

905, 909 Series (H=5 1/2"; D=3")						
Length "L"	Watts per ft.	Total Watts	Amperage 120V	208V	240V	277V
28"	125	250	2.4	1.2	1.0	0.9
	188	375	3.1	1.8	1.6	1.4
	250	500	4.2	2.4	2.1	1.8
3'	125	375	3.1	1.8	1.6	1.4
	188	564	4.7	2.7	2.4	2.0
	250	750	6.2	3.6	3.1	2.7
4'	125	500	4.2	2.4	2.1	1.8
	188	750	6.2	3.6	3.1	2.7
	250	1000	8.3	4.8	4.2	3.6
5'	125	625	5.2	3.0	2.6	2.2
	188	940	7.8	4.5	3.9	3.4
	250	1250	10.4	6.0	5.2	4.5
6'	125	750	6.2	3.6	3.1	2.7
	188	1125	9.4	5.4	4.7	4.1
	250	1500	12.5	7.2	6.2	5.4
8'	125	1000	-	4.8	4.2	3.6
	188	1500	-	7.2	6.2	5.4
	250	2000	-	9.6	8.3	7.2
10'	125	1250	-	6.0	5.2	4.5
	188	1875	-	9.0	7.8	6.7
	250	2500	-	12.0	10.4	9.0

CLEARANCE CHART

For safe and efficient operation, maintain at least the following minimum clearances at all times:

Bottom of Heater to Finished Floor:

- **Front Inlet Models:**

  - May be installed on floor. However, for best performance, install bottom of heater approximately 3 inches (76 mm) off floor.

- **Bottom Inlet Models:**

  - 100-250 watts per foot – 1-3/4 inch (44 mm)
  - 375-750 watts per foot – 3 inches (76 mm)

NOTE: Up to ¾" thick floor covering, such as carpet, tiles, linoleum, etc. may be installed around and under the heater without adversely affecting the performance of the heaters.

Top of Heater to Ceiling (all models):

- Minimum 36 inches (914 mm)

Top of Heater to Bottom of Drapes Above Heater:

- Minimum 12 inches (305 mm)

IMPORTANT NOTE: Certain fabrics and vinyl materials (such as vinyl blinds) may become damaged by the heated air from the heater and should not be installed above the heater.

Front of Heater to Full Length Drapes in Front of Heater:

- Minimum between bottom of drapes and floor – 2-1/2 inches (64 mm)
- Minimum between top of drapes and ceiling – 1/2 inch (13 mm)
- Minimum between front of heater and nearest fold of drape – 2 inches (51 mm)

Top of Heater to Bottom of Window Sill:

- Minimum 12 inches (305 mm)

Table A (continued)

912 Series (H=7"; D=5")							
			Amperage				
			208V		240V		277V
Length "L"	Watts per ft.	Total Watts	1Ø	3Ø	1Ø	3Ø	1Ø
28"	125	250	1.2	-	1.0	-	0.9
	188	375	1.8	-	1.6	-	1.4
	250	500	2.4	-	2.1	-	1.8
	375	750	3.6	-	3.1	-	2.7
	500	1000	4.8	-	4.2	-	3.6
	564	1125	5.4	3.1	4.7	2.7	4.0
	625	1250	6.0	3.5	5.2	3.0	4.5
	750	1500	7.2	4.2	6.2	3.6	5.4
3'	125	375	1.8	-	1.6	-	1.4
	188	564	2.7	-	2.4	-	2.0
	250	750	3.6	-	3.1	-	2.7
	375	1125	5.4	-	4.7	-	4.0
	500	1500	7.2	-	6.2	-	5.4
	564	1690	8.1	4.7	7.4	4.3	6.1
	625	1875	9.0	5.2	7.8	4.5	6.7
	750	2250	11.0	6.5	9.4	5.4	8.1
4'	125	500	2.4	-	2.1	-	1.8
	188	750	3.6	-	3.1	-	2.7
	250	1000	4.8	-	4.2	-	3.6
	375	1500	7.2	-	6.2	-	5.4
	500	2000	9.6	-	8.3	-	7.2
	564	2250	10.8	6.2	9.4	5.4	8.0
	625	2500	12.0	6.9	10.4	6.0	9.0
	750	3000	14.4	8.3	12.5	7.2	10.8
5'	125	625	3.0	-	2.6	-	2.2
	188	940	4.5	-	3.9	-	3.4
	250	1250	6.0	-	5.2	-	4.5
	375	1875	9.0	-	7.8	-	6.7
	500	2500	12.0	-	10.4	-	9.0
	564	2820	13.5	7.8	11.8	6.8	10.2
	625	3125	15.0	8.7	13.0	7.5	11.3
	750	3750	18.0	10.4	15.6	9.0	13.5
6'	125	750	3.6	-	3.1	-	2.7
	188	1125	5.4	-	4.7	-	4.0
	250	1500	7.2	-	6.2	-	5.4
	375	2250	10.8	-	9.4	-	8.1
	500	3000	14.4	-	12.5	-	10.8
	564	3380	16.2	9.4	14.1	8.1	12.2
	625	3750	18.0	10.4	15.6	9.0	13.5
	750	4500	21.6	12.5	18.7	10.8	16.2
8'	125	1000	4.8	-	4.2	-	3.6
	188	1500	7.2	-	6.2	-	5.4
	250	2000	9.6	-	8.3	-	7.2
	375	3000	14.4	-	12.5	-	10.8
	500	4000	19.2	-	16.7	-	14.4
	564	4500	21.6	12.5	18.7	10.8	16.2
	625	5000	24.0	13.9	20.8	12.0	18.0
	750	6000	28.6	16.5	15.0	14.4	21.6
10'	125	1250	6.0	-	5.2	-	4.5
	188	1875	9.0	-	7.8	-	6.7
	250	2500	12.0	-	10.4	-	9.0
	375	3750	18.0	-	15.6	-	13.5
	500	5000	24.0	-	20.8	-	18.0
	564	5640	27.2	15.7	23.5	13.6	20.4
	625	6250	30.0	17.3	26.0	15.0	22.6
	750	7500	36.0	20.8	31.3	18.1	27.0

INSTALLATION INSTRUCTIONS

⚠ WARNING ⚠

TO REDUCE THE RISK OF FIRE AND ELECTRIC SHOCK OR INJURY TO PERSONS, OBSERVE THE FOLLOWING:

1. Serious injury or death could result from electric shock. Make sure electrical power supply circuit coming to heater is disconnected at main disconnect or service panel before installing this heater.
2. Wiring procedures and connections must be in accordance with the National Electrical Code (NEC) and local codes. Refer to Wiring Diagram on heater and Figure 8 as well as Tables B and C. Make sure all electrical connections are tight to prevent possible overheating. Use Copper Supply Wire Only.
3. Verify the electrical power supply voltage matches the voltage rating as printed on the heater nameplate.

CAUTION - Never connect a heater to a voltage greater than the nameplate voltage as this will damage the heater and could cause a fire.

4. Remove and discard foam packing material inside heater before installing or energizing the heater.
5. Do not install the heater against combustible low-density cellulose fiberboard surfaces, against or below vinyl wall coverings, or below any materials that may be damaged by heat such as vinyl or plastic blinds, curtains, etc. If heater must be installed against vinyl surfaces or surfaces that may be damaged by heat, Standoff Kits Cat. No. BIB-VVSO1 or BIB-VVSO2 must be used. Refer to installations instructions provided with these kits when installing.
6. Do not install heater below an electrical convenience receptacle (outlet).
7. **CAUTION** – Heater Operates at High Temperatures. Keep Electrical Cords (including telephone and computer cables), Drapes, and Other Furnishings Away From Heater. For efficient and safe operation, we recommend maintaining a minimum of 6 inches (152 mm) clearance above and in front of the heater at all times. See Clearances Chart for minimum clearance requirements.
8. To reduce the risk of fire, do not store or use gasoline or other flammable vapors or liquids in the vicinity of the heater.
9. Do not install heater upside down or in any position other than as shown in this manual.
10. Do not recess heater in wall or install heater inside any type enclosure (unless specifically approved by the manufacturer) as this will cause heater to overheat and could create a hazard.
11. When mounting heater, use care when drilling mounting holes and mounting heater to building structure to avoid damaging internal heater components. Be sure to loosen mounting screws 1/4 to 3/4 turn to allow for expansion and contraction.
12. Do not remove or bypass the safety limit control(s) as this could allow heater to become a fire hazard – see heater wiring diagram supplied with heater.
13. The factory installed wires inside wireway are used to connect the built-in controls. Limit the maximum current to no more than 35 amps for 905 and 909 series units and 45 amps for 912 series units. Refer to instructions and current capacity rating as provided with the accessory.

⚠ WARNING ⚠

14. Heaters that are not installed end to end must have end caps installed to cover exposed ends of heater. Heaters joined together must have appropriate filler sections or other approved assemblies (see Accessories Data listing on Page 8) installed to cover exposed openings between heaters.
15. All field wiring brought into the heater or any attached accessories must be rated at least 75 °C.
16. Do not allow objects to be placed on top of heater as they may be damaged or create a fire hazard.
17. Before energizing, make sure front cover is properly installed onto the back housing along the entire length of the heater – See Fig. 4. Do not operate heater without front cover installed.

Rough-in Wiring

1. Run branch circuit of proper voltage and wire size to location of left or right junction box as indicated on heater wiring diagram. Basic heaters are prewired and can be connected to branch circuit at either end. Heaters with controls are prewired for connection to branch circuit at one end only (refer to heater wiring diagram), however, heater can be wired from opposite end by running wire through heater wireway.
2. If it is necessary to run wires through the heater wireway, use Table B to size the field installed wiring.
3. The factory installed wires in the heater wireway can be loaded up to 35 amps in 905 and 909 series units, and up to 45 amps in, 912 series units. Refer to Table C and D for maximum length of heater run when the heaters are connected in parallel.

Table B. Sizing Field Installed Wiring

Copper wire size 75º C	Maximum no. of wires in wireway	Maximum allowable current		
		Up to 3 Conductors	4 to 6 Conductors	7 thru 9 Conductors
No. 12 AWG	9	11.5 amps	9.3 amps	8.1 amps
No. 10 AWG	8	17.4 amps	14.0 amps	12.1 amps
No. 8 AWG	4	24.0 amps	21.0 amps	–

Table C. Maximum Length of Heater Run (905-1Ø; 909-1Ø)

Watts/Ft. of the heaters	Maximum allowable length of heater run (feet)			
	120 Volts	208 Volts	240 Volts	277 Volts
125	33	58	67	77
188	22	38	44	51
250	16	29	33	38

Note: For mix of watt densities, calculate amp draw. Do not exceed values indicated in step 3 above.

Thermostat	24 amps @ 120-240 VAC 22 amps @ 277 VAC Pilot duty– 125 VAC (all voltages)
Transformer relay	
905 and 909 Series:	22 amps @ 120-240 VAC 19 amps @ 277 VAC
912 Series:	25 AMPS @ 120-240 VAC 22 AMPS @ 277 VAC
Power relay	25 amps @ 120-277 VAC- see wiring diagram on heater
Disconnect switch	20 amps @ 120-277 VAC

4. Standard 75ºC wiring must be used in junction boxes, wireways, blank sections, filler sections, and corner sections.

Room Layout

Refer to heating plans for exact room arrangements of heaters (with or without thermostat and/or relays and/or switches and accessories.)

Check the heater section dimensions and the additional wall length required for telescoping accessories (Figure 1) before starting wall-to-wall type installation. Be certain all heaters and accessories needed are at hand and are of correct finish.

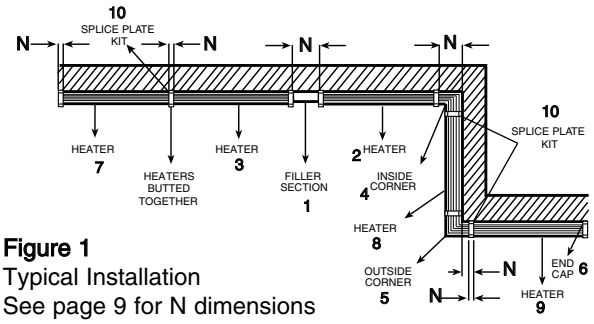


Figure 1
Typical Installation
See page 9 for N dimensions

Mounting Height

At correct height, draw a pencil line on the wall, level and/or parallel with the window sill. Minimum mounting heights above the floor shall be as follows:

Minimum Mounting Height Above Floor

Watts/Ft. Heater Length	Bottom Inlet/Front Inlet	
125, 188 and 250 Watts/Ft.	1-3/4"	0"
376, 500, 625, and 750 Watts/Ft.	3"	0"

Note: Up to 3/4" thick floor covering, such as carpet, tiles, linoleum, etc., may be installed around and under the heater without adversely affecting the performance of the heaters.

Installation of Single Unit

Note: For ease of installation, it is important that the sequence of operations indicated below be followed in order.

1. Remove front cover by removing mounting screws (Figure 2).
2. Remove appropriate electrical knockout from either junction box. See Figure 3 for location of knockouts.
3. Install end caps (must be purchased separately) on both ends of the heater housing. Refer to Figure 4 for details of end cap installation.

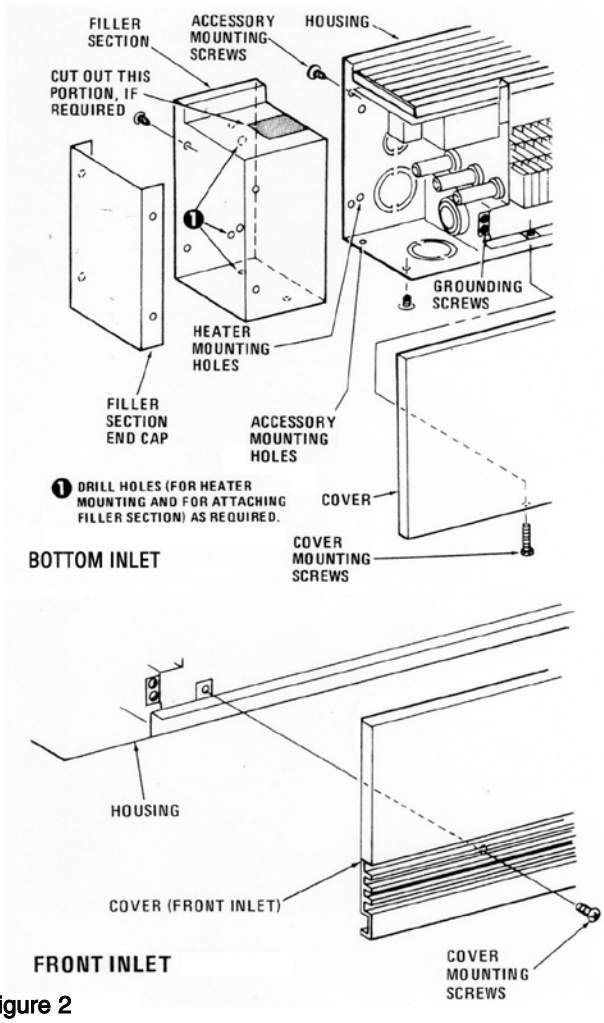


Figure 2

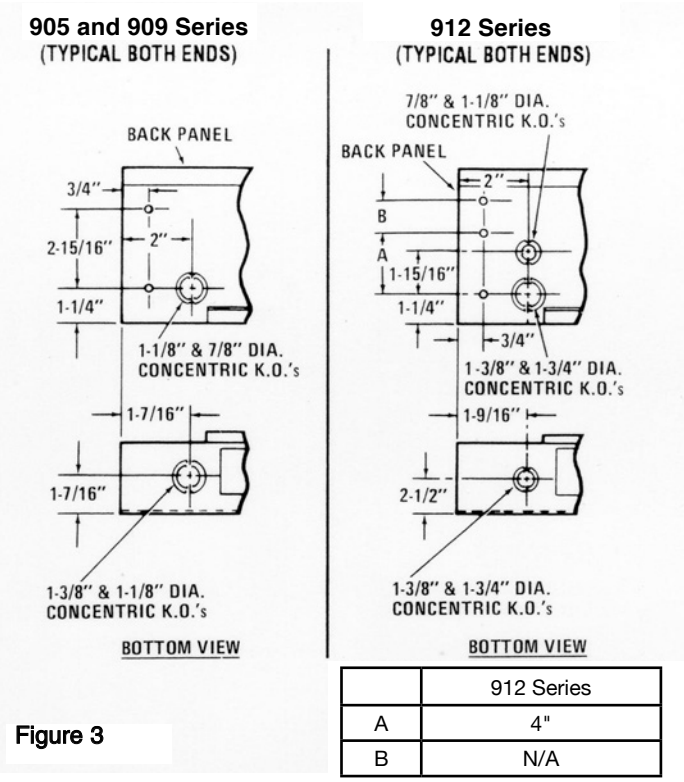


Figure 3

	912 Series
A	4"
B	N/A

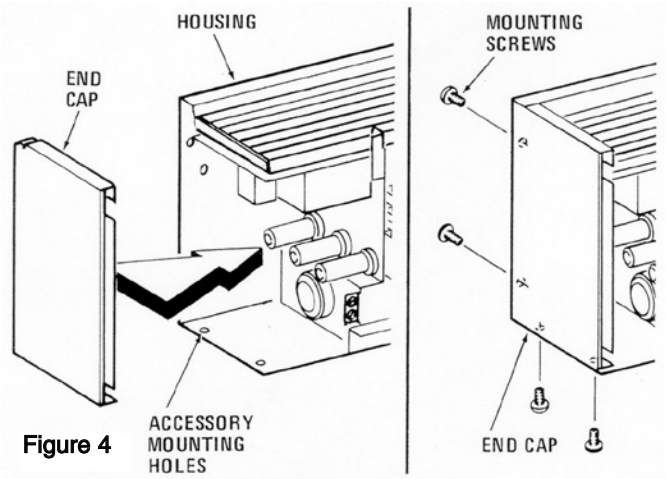


Figure 4

4. If filler section is desired to terminate the heater, install the filler section in the end of the heater and extend to desired length. Mark the mounting hole locations, remove the filler section and drill the required mounting holes. Install the filler section in the heater and the end cap on the filler section as shown in Figure 2.

Note: If a thermostat and/or disconnect switch are installed in the heater left junction box, it may be necessary to cut away a portion of the filler section to allow access to these controls (Figure 2).

5 Position heater housing on wall to check for evenness of wall. Do not draw the heater against an uneven wall surface. If an uneven wall is encountered, use shims to keep the heater housing straight.

6. Run proper size branch circuit to the junction box through the selected knockout.

7. Drill the required size mounting holes in the back of the heater housing and install the housing on the wall using screws, bolts or anchors (by installer) to suit the wall construction.

Note: Predrilled 1/4" diameter mounting holes are provided in each junction box. Additional mounting holes will have to be drilled in the housing to support the weight of long length heaters (6' and longer). Do not drill any additional holes in the junction boxes.

8. Tighten mounting screws and back off 1/4 to 3/4 turn to allow for expansion and contraction of the heater.

9. Following the wiring diagram secured to the heater, make electrical connections. Ground the heater using the ground screws provided (Figure 2).

10. Replace front cover and secure with mounting screws. (See Figure 2).

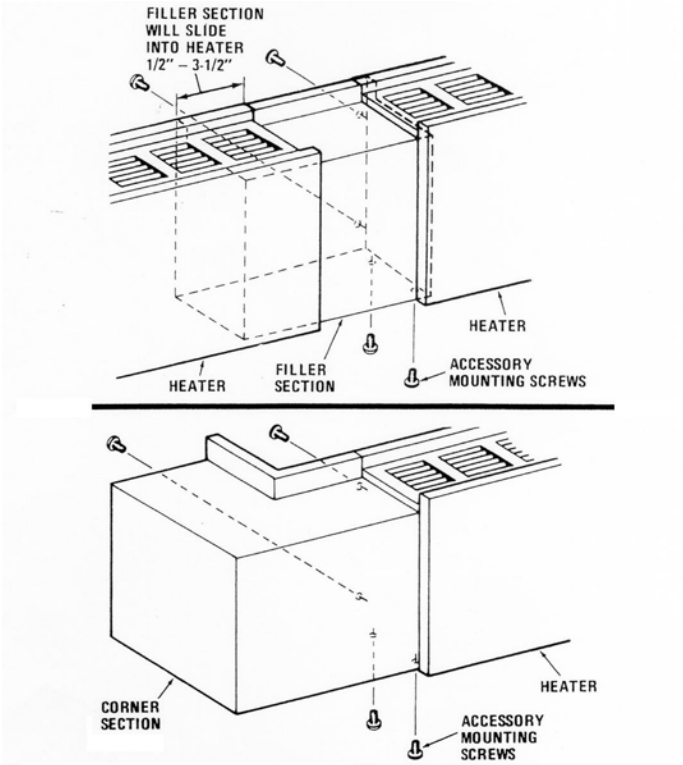


Figure 5

Installation of Multiple Wall to Wall Units

Note: For ease of installation, it is important that the sequence of operations indicated below be followed in order.

1. Remove all the front covers from the heaters by removing mounting screws (Figure 2).

2. Refer to wiring diagram for power supply entry and remove appropriate electrical knockout (Figure 3) from the heater in which power supply connections are to be made. The power supply may be brought in to the end of only one heater and the remaining heaters may be connected in parallel using the wireway. Use Table B to size the field installed wiring in the wireway.

3. If conduit cover (must be purchased separately) is desired, cut off the appropriate length and install to the wall.

4. If required by plan, install filler section (1, Figure 1) to either heater (2) or (3) by means of four #6 screws supplied with filler section. (Refer to Figure 5.) Discard filler section end cap in this application.

Note: Heaters may butt against each other, thus eliminating the filler piece, if so desired.

Note: If a heater has a disconnect switch and / or thermostat and is to have a filler section or a corner section at the left end, the section must be mounted to the heater since the thermostat or disconnect switch will prevent the section from telescoping into the heater.

5 If the wall run has inside or outside corners, install corner (4 and 5) to the heater (2 and 9) by means of four #6 screws supplied with corner section. (Refer to Figure 5).

6. Install end caps (6) on the outer end of the last heater(7) and (9) using four #6 screws supplied with end caps. (Refer to Figure 4 for details of end cap installation.)

7. Drill the required size mounting holes in all the heater housings.

Note: Predrilled 1/4" diameter mounting holes are provided in each junction box. These holes may be used only when no slip-in accessory is to be installed in that end of the heater (such as when heater(3 and 7) are butted together as shown in Figure 1). Additional mounting holes will have to be drilled in the housing to support the weight of long-length heaters (6' and longer). Do not drill any additional holes in junction boxes.

8. Check for evenness of wall. Do not draw the heaters against an uneven wall surface. If an uneven wall is encountered, use shims to keep the heater housing straight.
9. Run proper size branch circuit to the junction box through the selected knockout.
10. Mount the heater (2, Figure 1) on the wall using screws, bolts or anchors (by installer) to suit the wall construction.
11. Telescope the heater housing (3) over the filler section (1) by the desire amount and mount the housing to the wall.
12. Telescope the heater housing (8) over the corner section (4) by the desired amount and mount the housing to the wall.
13. Mount the remaining heaters as described above, making sure that the heaters with end caps are installed at the end of the run.
14. Blank sections, if any are installed in the same manner as the heaters.

Note: 75ºC field wiring may be run through the blank sections, filler sections and corner sections.

15. Control sections, if any, are installed in the same manner as heaters. Refer to wiring diagram on control sections for connecting the wiring to the heaters

Installation of Mullion to Mullion Units

The back of the heater housing contains no mounting holes (other than those at the ends) and therefore is ideal for installation in front of glass curtain walls. The housing back presents an attractive appearance when viewed from the outside through the glass wall.

Installation procedures are similar to those for wall-to-wall installation (Step Six) except for the following differences.

1. Attach the housing to the mullion using the mounting holes provided in the junction boxes as shown in Figure 6.
2. On horizontal mullion installation, install support brackets as shown in Figure 7.

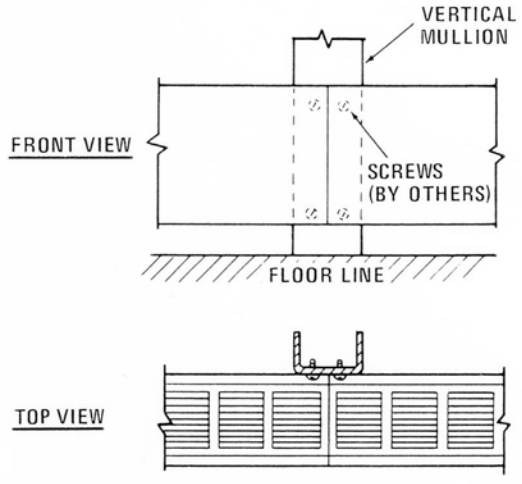


Figure 6

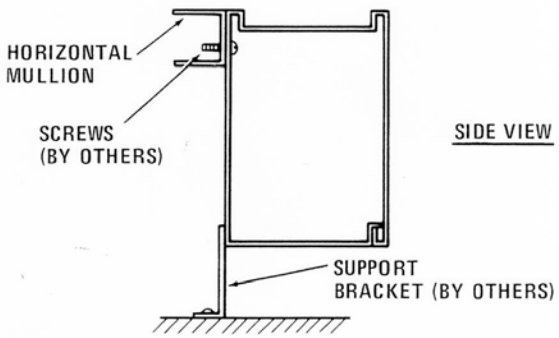


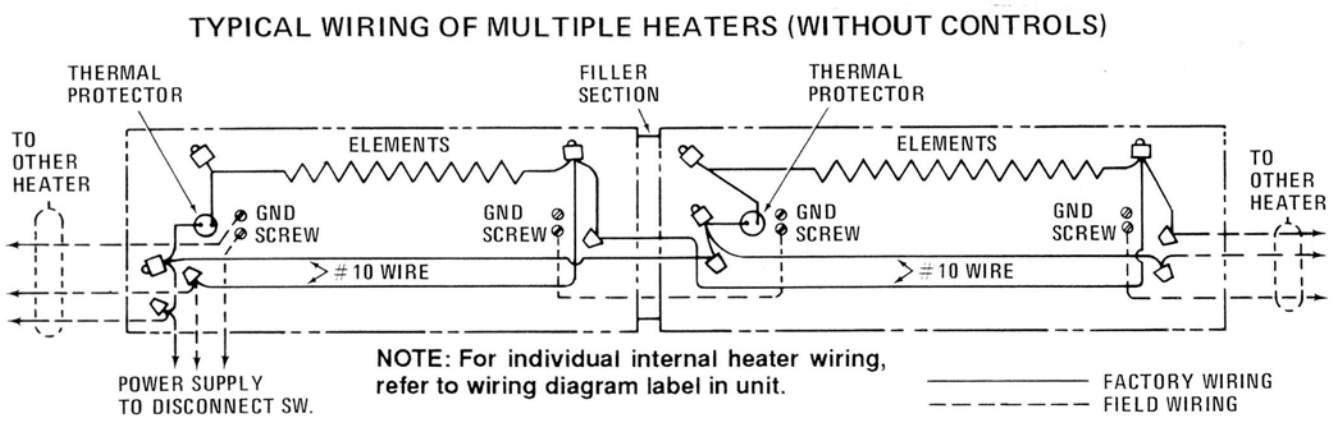
Figure 7

OPERATION INSTRUCTIONS

1. After heaters are completely assembled and installed, set thermostat or operating controls for NO HEAT and energize heater circuit (s). Verify the heaters are not producing heat.
2. Adjust thermostat or operating control to call for heat. Allow heater(s) to operate for a few minutes and verify the heaters are producing heat.
3. The thermostat or operating controls may be adjusted to cycle the heater(s) on and off to maintain the desired room temperature.

Note: If built-in thermostat is provided, rotation in the clockwise direction will allow heater to remain on MORE and will maintain a higher room ambient. Likewise, rotation in the counter-clockwise direction will result in the heater remaining on LESS and the room ambient will be lower. If remote thermostat or other types of controls are provided, refer to the instructions provided with these controls for proper operation.

Figure 8 - Wiring Diagram



MAINTENANCE INSTRUCTIONS

For efficient and safe operation and to extend the life of the heaters, they should be cleaned and inspected for damage at least annually (preferably at the beginning of the heat season) or more often in dirty environments. Other than cleaning, your heaters require no other preventative maintenance. The user and / or cleaning personnel can perform routine cleaning of the heater that may be done without disassembly of the heater. However, any cleaning or servicing that requires disassembly of the heater must be done by qualified service personnel.

⚠ WARNING ⚠

SERIOUS INJURY OR DEATH COULD RESULT FROM ELECTRIC SHOCK. MAKE SURE ELECTRICAL POWER SUPPLY CIRCUIT(S) COMING TO HEATER IS/ARE DISCONNECTED AT MAIN DISCONNECT OR SERVICE PANEL BEFORE CLEANING OR SERVICING THIS HEATER. ALLOW HEATER TO COOL BEFORE CLEANING TO PREVENT A POSSIBLE BURN.

NOTE: MORE THAN ONE POWER SOURCE MAY ENTER HEATER. BE SURE ALL POWER IS DISCONNECTED TO HEATER BEFORE CLEANING OR SERVICING.

1. Heater cabinet may be cleaned using a damp cloth to remove dust that may have accumulated on surfaces. Do not use harsh cleaners and waxes on surfaces since these could damage the finish or discolor in use.
2. A vacuum cleaner and /or compressed air may be used to remove dust and lint that may have accumulated inside heater around element fins. If heater must be disassembled for cleaning, use care when cleaning element fins to avoiding damaging fins.

CAUTION ⚠

FINS ARE SHARP AND MAY CAUSE CUTS SO AVOID CONTACT.

3. After cleaning and servicing, always reassemble replacing any hardware removed and check units to make sure they are operating properly.

LIMITED WARRANTY

All products manufactured by ASPEQ Heating Group are warranted against defects in workmanship and materials for one year from the date of purchase, except heating elements which are warranted against defects in workmanship and materials for five years from date of purchase. This warranty does not apply to damage from accident, misuse, or alteration; nor where the connected voltage is more than 5% above the nameplate voltage; nor to equipment improperly installed or wired or maintained in violation of the product's installation instructions. This warranty does not apply to refurbished products. All claims for warranty work must be accompanied by proof of the date of purchase.

The customer shall be responsible for all costs incurred in the removal or reinstallation of products, including labor costs, and shipping costs incurred to return products to ASPEQ Heating Group. Within the limitations of this warranty, inoperative units should be returned to ASPEQ Heating Group, and we will repair or replace, at our option, at no charge to you with return freight paid by ASPEQ. It is agreed that such repair or replacement is the exclusive remedy available from ASPEQ Heating Group.

THE ABOVE WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED, AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WHICH EXCEED THE AFORESAID EXPRESSED WARRANTIES ARE HEREBY DISCLAIMED AND EXCLUDED FROM THIS AGREEMENT. ASPEQ HEATING GROUP SHALL NOT BE LIABLE FOR CONSEQUENTIAL DAMAGES ARISING WITH RESPECT TO THE PRODUCT, WHETHER BASED UPON NEGLIGENCE, TORT, STRICT LIABILITY, OR CONTRACT.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion or limitation may not apply to you. This warranty gives you specific legal rights, and you may have other rights which vary from state to state.

Contact ASPEQ Heating Group in St Louis, MO, at 314-333-5550. Merchandise returned to the factory must be accompanied by a return authorization and service identification tag, both available from ASPEQ Heating Group. When requesting return authorization, include all catalog numbers shown on the products.

HOW TO OBTAIN WARRANTY SERVICE AND WARRANTY PARTS PLUS GENERAL INFORMATION

1. Warranty Service or Parts **314-333-5550**
2. General Product Information **www.aspeqheating.com**

Note: When obtaining service always have the following:
1. Model number of the product
2. Date of manufacture
3. Part number or description

ASPEQ
HEATING GROUP
St Louis, MO 63144 USA