

# INSTALLATION INSTRUCTIONS

## RETURN HEADER & RETAINER GROUP REPLACEMENT FOR ALL RP2100 HEATERS MODELS 185-405 WITH POLYMER HEADERSS

### **⚠ WARNING**

These instructions are for use by qualified personnel specifically trained and experienced in the installation of this type of heating equipment and related system components. Installation and service personnel may be required to be licensed in some states. Persons not qualified shall not attempt to install this equipment nor attempt repairs according to these instructions.

### **⚠ WARNING**

Make sure water, gas, and power have been turned OFF before making any repairs or servicing this equipment. Make sure the heat exchanger is not under any pressure before attempting to service this part. Allow the appliance to cool before attempting this installation.

### **⚠ DANGER**

**SHOCK HAZARD:** Make sure the electrical power to the unit is disconnected to avoid damage to components, potential serious personal injury or death.

### **⚠ CAUTION**

Refer to the second part of this instruction if the header has been deformed or damaged by heat.

**SCOPE:** This kit includes replacement components and detailed installation instructions for all Polymer Return Header assemblies and Retainer kits used in Raypak RP2100 series heaters.

### **RAYPAK INCLUDED PARTS:**

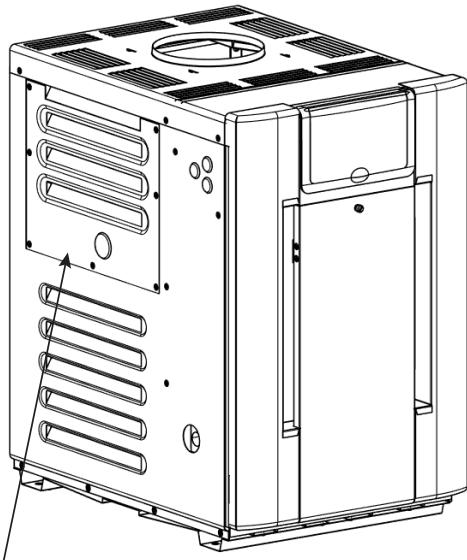
Kit Number	Description	Qty.
006707F	Polymer Return Header	1
	Header O-Ring	1
	Refractory Retainer Assemblies with Insulation	2
	Front Refractory Support Brackets	2
	Rear Refractory Support Brackets	2

### **TOOLS REQUIRED:**

Description
• Slotted & Phillips Head Screwdrivers
• Silicone Lubricant
• Torque Wrench (if available)
• Adjustable Wrench
• 5/16" Nut Driver

## REPLACEMENT IF THE HEADER HAS NOT BEEN DAMAGED FROM EXCESSIVE HEAT:

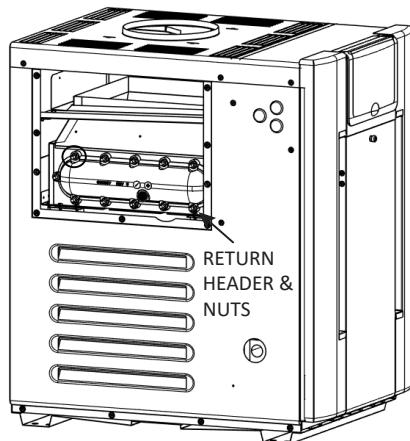
1. Turn off the power to the heater.
2. Turn off the gas to the heater.
3. Turn off the power to the pool pump(s).
4. Isolate the water connections to the heater.
5. Allow the heater to cool down before proceeding.
6. Locate the service panel opposite from the inlet-outlet connections (See **Figure 1**).



The Return Header is located behind this removable panel on the opposite side of the heater from the water inlet/outlet.

**Figure 1. Return Header Panel Removal**

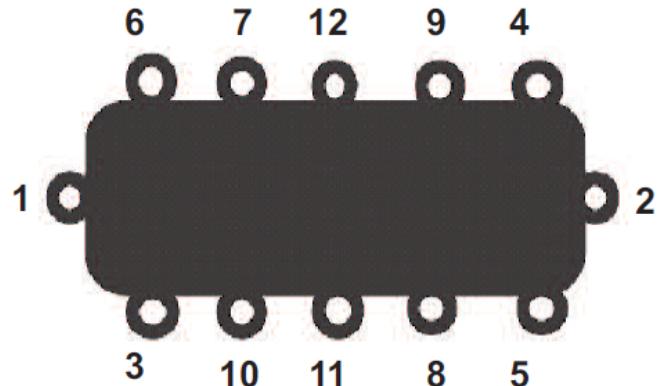
7. Remove the Phillips head perimeter screws that hold the service panel in place.
8. Remove the twelve (12) 7/16" hex head nuts that secure the return header (See **Figure 2**).



**Figure 2. Service Panel Removal for Header**

9. Remove the original rear (return) header.
10. Clean the tube sheet of any debris, sealant, and any remains of the old gasket.
11. The supplied perimeter gasket that is installed in the groove of the header needs to be seated properly and lubricated with any silicone based lubricant.
12. Install the replacement header in place of the old header.
13. Re-Install the twelve (12) 7/16" hex head nuts that secure the header to the tube sheet.
14. Follow the torque pattern (and tightening specifications) when tightening the nuts onto the stud bolts (See **Figure 3**).

**NOTE:** Bolts shall be tightened following the sequence shown in Figure 3, in ascending numerical order. Apply a torque of 7 ft-lb ( $\pm 0.5$  ft-lb). For field service conditions where a torque wrench is not available, tighten the nuts to a firm hand-tight condition, then apply an additional 1/2 turn using a standard wrench.



**Figure 3. Torque Tightening Pattern**

15. Reinstall the Phillips head perimeter screws and the service panel.
16. Reverse Step 4 through Step 1 to restart heater.

## REPLACEMENT IF THE HEADER HAS BEEN DAMAGED FROM EXCESSIVE HEAT:

**SCOPE:** This kit is designed to improve the reliability of the RP2100 pool/spa heater with polymer headers. This kit will provide an improved combustion chamber seal. Hot flue gasses will not leak past the combustion chamber and components that are exterior and above the combustion chamber. This kit should be provided whenever the heat exchanger, tube bundle, refractory or headers are replaced or serviced. It affects models prior to June, 2000 (serial numbers 0006000000 and lower).

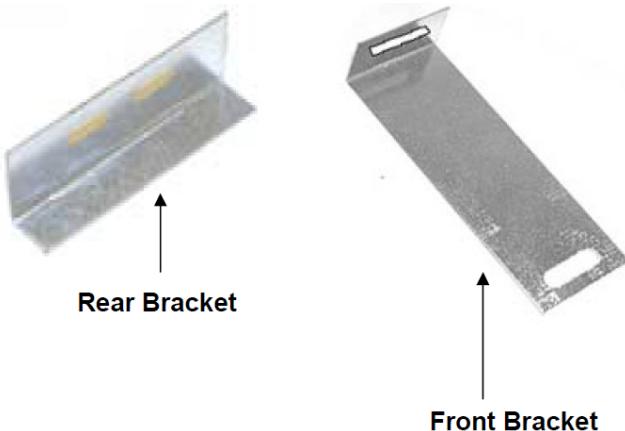


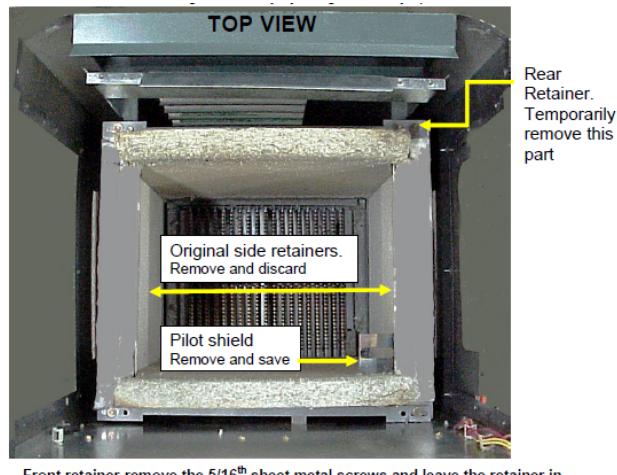
Figure 4. Front and Rear Bracket



Figure 5. Refractory Retainer Assembly

1. Turn off the power to the heater.
2. Turn off the gas to the heater.
3. Turn off the power to the pool pump(s).
4. Isolate the water connections to the heater.
5. Allow the heater to cool down before proceeding.
6. Disconnect the inlet and outlet plumbing connections to the heater.

7. Remove the top of the heater.
8. Remove the upper and lower access panels above and below the inlet-outlet header.
9. Mark the wires and connections, then disconnect the wires that are attached to the auto-reset limits and the pressure switch, all of which are mounted onto the front (inlet-outlet) header.
10. Remove the temperature sensor from the well in the side of the inlet-outlet header. (it may be an electronic thermistor or a mechanical device, depending on the model.
11. Remove the heat exchanger assembly by lifting it carefully up and out of the cabinet (See Figure 6).



Front retainer-remove the 5/16<sup>th</sup> sheet metal screws and leave the retainer in place.

Figure 6. Remove Heat Exchanger Assembly

12. Remove the rear refractory retainer without removing the front retainer (See Figure 7).
13. Remove the 5/16" sheet metal screws that are provided to keep the front retainer in place.
14. Remove the stainless steel pilot shield and save it for re-use.
15. Select one new retainer and carefully peel back the insulation to expose the holes below (See Figure 7).



Figure 7. Retainer Hole Locations



Figure 8. Remove Rear Retainer

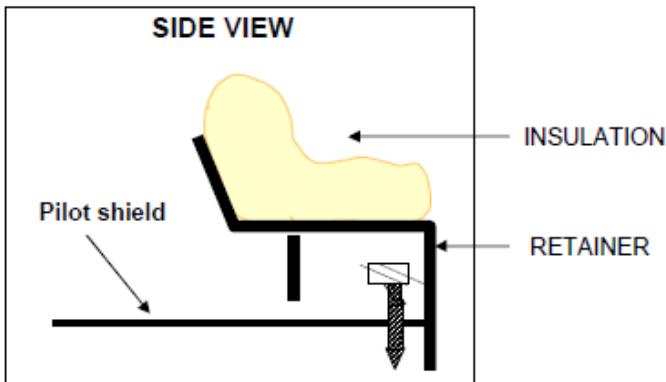


Figure 9. Assembly Side-View

16. Using the two 5/16" screws, attach the pilot shield to the retainer assembly (See **Figure 9**).
17. Lay the insulation back onto the retainer, covering the screws.
18. Remove the front retainer. Make sure to have the pilot shield aligned with the front right corner above the pilot (See **Figure 10**).

19. Using 2 (5/16") sheet metal screws, attach the pilot shield to the retainer assembly.
20. Lay insulation back in place over the sheet metal screws.
21. Install new refractory retainer on top of refractory. Make sure that the retainer with pilot shield is located in the front right corner above the pilot.

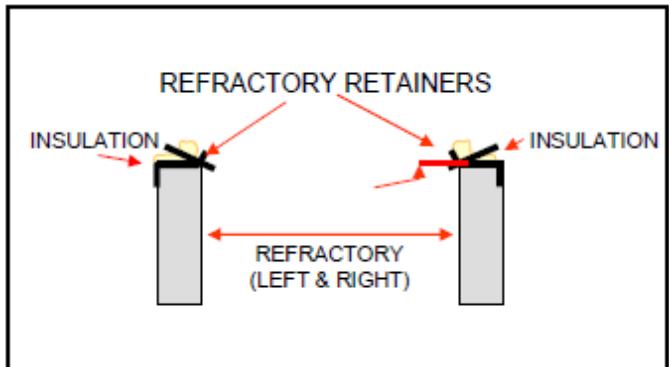


Figure 10. Refractory Retainer View

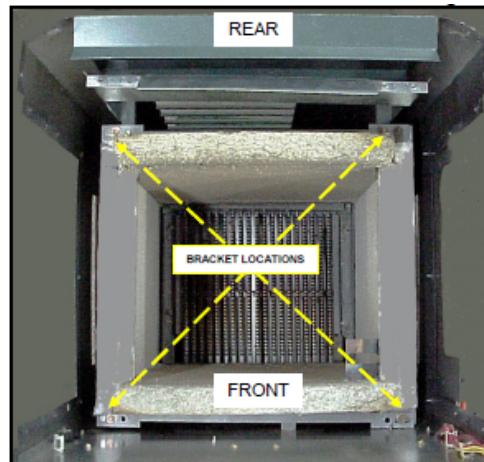


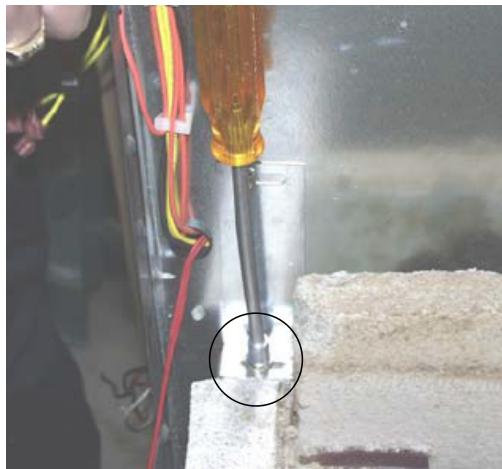
Figure 11. Bracket Locations

22. Install front bracket by removing the existing 5/16" hex head sheet metal screw from the back of the sheet metal wall (See **Figure 12**).



Figure 12. Right Front Corner View

23. Position the front bracket at the top of the retainer assembly. Align holes on bottom and sides. Install screws into holes snuggly. However, do not tighten them down yet (See **Figure 13**).
24. Repeat process on the left front corner.

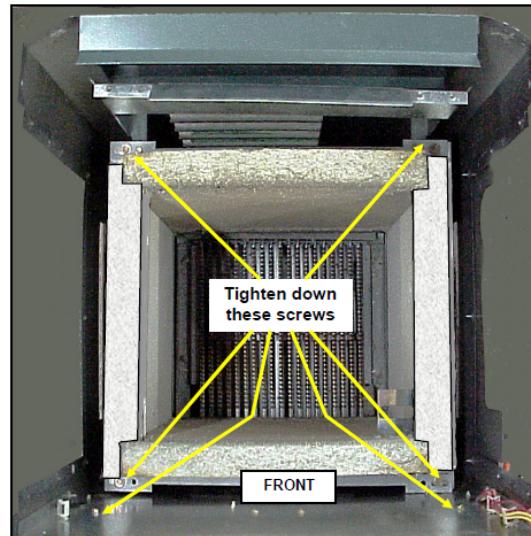


**Figure 13. Position Front Bracket**



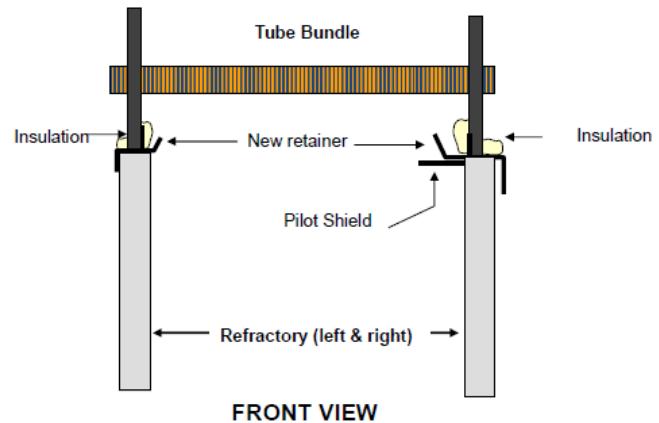
**Figure 14. Tighten Rear Right Corner**

25. Snug up all four corners of the refractory brackets to the refractory and tighten. Pull the refractory inward to eliminate corner gaps (See **Figure 15**).



**Figure 15. Tighten all Screws**

26. Carefully lay the heat exchanger in place so as not to damage the insulation (See **Figure 16**).



**Figure 16. Install Heat Exchanger**

27. Check the heat exchanger positioning to ensure correct seal between refractory front to back as well as from side to side. Also check for gaps in the insulation sealing surfaces.
28. Re-install top on heater.
29. Reverse steps 1 through 14 on the first part of the instruction to replace the rear header.