

LXi™ Complete Bronze Heat Exchanger Replacement Kits

⚠ WARNING

FOR YOUR SAFETY - This product must be installed and serviced by a contractor who is licensed and qualified in pool equipment by the jurisdiction in which the product will be installed where such state or local requirements exists. In the event no such state or local requirement exists, the installer or maintainer must be a professional with sufficient experience in pool equipment installation and maintenance so that all of the instructions in this manual can be followed exactly. Before installing this product, read and follow all warning notices and instructions that accompany this product. Failure to follow warning notices and instructions may result in property damage, personal injury, or death. Improper installation and/or operation can create carbon monoxide gas and flue gases which can cause serious injury, property damage, or death. For indoor installations, as an additional measure of safety, Zodiac Pool Systems, Inc. strongly recommends installation of suitable Carbon Monoxide detectors in the vicinity of this appliance and in any adjacent occupied spaces. Improper installation and/or operation will void the warranty.

These instructions are to be used with the following Zodiac® Replacement Kits:

R0500503-05--Heat Exchanger (Complete), Bronze, LXi Replacement Kit

⚠ WARNING

If the information in these instructions is not followed exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

This document gives instructions for replacing the heat exchanger in Zodiac LXi model pool/spa heaters with bronze headers. The instructions must be followed exactly.

These instructions were written with safety as the priority. Not following the written procedure or taking short cuts may increase the risk of personal injury. Read through the instructions completely before starting the procedure.

Before starting the procedure, use the parts list at the back of these instructions to identify the parts that are in your kit. If any parts are missing from the kit, please call your local Zodiac distributor for assistance. For technical assistance, please contact our technical support department at (800) 822-7933.

A. Removing the Heat Exchanger Assembly

⚠ WARNING SHOCK HAZARD!

Turn off all switches and the main breaker in the pool/spa heater electrical circuit before starting the replacement procedure. Failure to comply may cause a shock hazard resulting in severe personal injury or death.

1. Turn off the electrical power to the heater. Turn off the main gas supply to the heater at the meter or the manual gas cock outside the heater.
2. Be sure that the filter pump is OFF and that it will remain off during the entire procedure.

3. If the heater is below the surface level of the water in the pool or spa, be sure to close all shut-off valves between the heater and the pool.
4. Drain the heater by removing the drain plugs on the inlet/outlet header. See Figure 1.

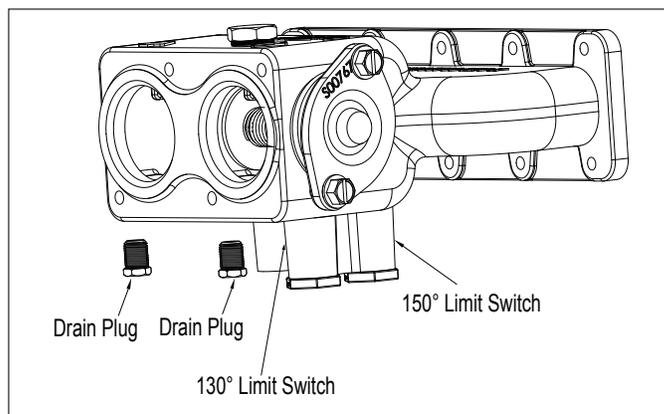


Figure 1. Draining the Heater

5. Remove the flanges from the header and disconnect the water supply from the heater.
6. Remove the heater front panel (door).
7. Disconnect the gas supply pipe from the gas valve and remove it from the heater.
8. Remove the two (2) hex head screws that hold the electric raceway in place (see Figure 4). One mounts the pressure switch bracket to the burner panel. The second one is located at the top left side of the raceway next to the bracket door support.

9. Slide the raceway to the right until the tabs release and the raceway drops down. See Figure 2.
10. Remove the four (4) wires (black, orange, blue and red) from the universal controller board, located in the upper left-hand corner of the terminal block, by loosening the four (4) screws. See Figure 2.
11. Remove the four (4) Phillips head screws that fasten the vent grill to the top. Remove the vent grill.
12. Remove the top by removing the three (3) hex head screws on each side. Remove the two (2) hex head screws located at the upper corners of the rear side panel and lift the top off the heater by lifting up on the rear of the top and pushing it toward the front of the heater. The top will slide off the heater.
13. Disconnect the blower wires from the power distribution board. Remove the connector from the board. See Figure 2.
14. Remove the five (5) hex head screws holding the blower to the air duct. Lift the blower off. See Figure 3.
15. Remove the 15 hex head screws holding the flue collector to the top of the combustion chamber. Remove the flue collector and set it aside. See Figure 4.
16. Disconnect the pressure switch tubing from the pressure switch fitting on the cap.
17. Remove the water pressure switch's copper tube from the header by first loosening the brass nut at the pressure fitting. Then carefully pull the tube out of the fitting. There should be about two (2) inches of tubing inside the header. Be careful not to create any kinks* in the tubing when handling it.

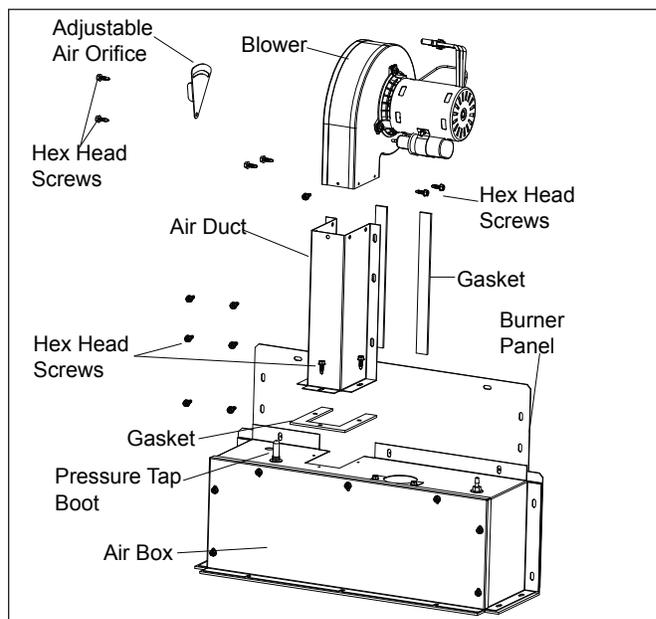


Figure 3. Removing Blower Assembly

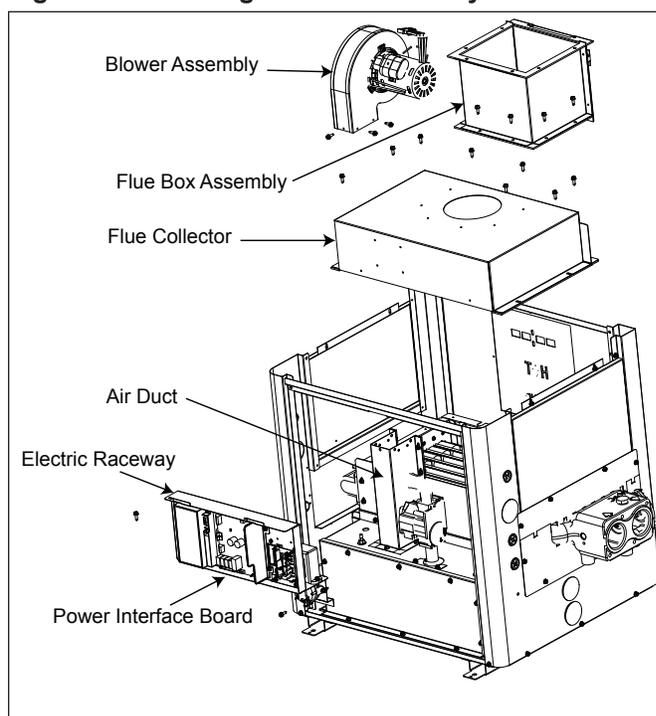


Figure 4. Removing Flue Collector

CAUTION
Do not "kink" the tubing. Kinking the tubing may result in poor heater operation.

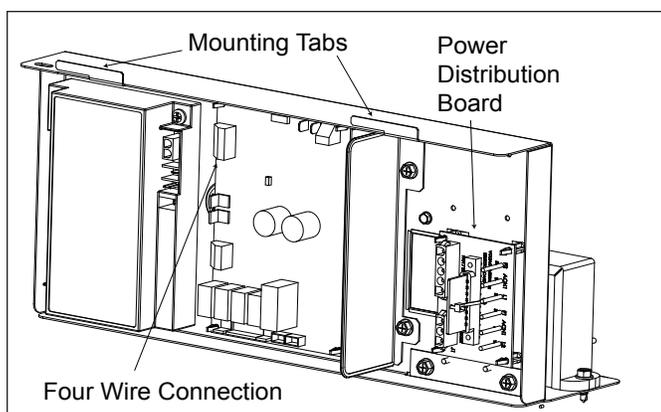


Figure 2. Mounting Tabs on Raceway

18. Remove the temperature sensor from the header by removing the retaining plug that holds the sensor in place. Move the sensor out of the way.
19. Remove the high limit switches from the header. To remove the switches, you must first remove the two (2) plugs and gaskets holding them in place. Move the switches out of the way. See Figure 5.
20. Remove the eight (8) hex head screws holding the inlet/outlet header side cover plates located on the inlet/outlet header side. Set the plates aside.
21. Remove the upper right side panel support by removing the two (2) hex screws holding it in place. Set it aside.

* The word "kink" is used to describe a tight curl, twist, or bend in a length of tubing.

22. Remove the upper left side panel support by removing the two (2) hex screws holding it in place. Set it aside.
23. Remove the flat return header side cover plate to expose the return header by removing the six (6) hex head screws, one in each corner.
24. Remove two (2) hex head screws from the right and left side burner panels. Remove two (2) hex head screws from the combustion chamber right and left sides. Remove hex head screws (five (5) for the 400 model and two (2) for the 250 and 300 models) from the back support bracket and back combustion chamber.

⚠ CAUTION

The heat exchanger is heavy. It may be necessary to have help lifting the heat exchanger to remove it from and replace it on the combustion chamber.

25. Lift the heat exchanger assembly off the combustion chamber and place it aside. To replace the entire heat exchanger assembly (R0500503, R0500504 or R0500505) follow the steps in Section C.

B. Replacing the Heat Exchanger Assembly

NOTE As the heater is reassembled, be sure to fill all gaps and voids with the silicone provided in the kit.

1. Install gaskets on the combustion chamber's left, right and back sides.
2. Install gaskets on the surface of both sides of the header assembly mounting brackets, which mount to the burner panel.
3. Carefully place the new heat exchanger assembly on top of the combustion chamber. Be sure that the heat exchanger is level and that the finned tubes fit between the front and rear combustion board of the combustion chamber.
4. Reinstall the end baffles on the heat exchanger. Set the baffle so that the flange fits completely over the insulation on the combustion chamber wall. Set the other baffle on the rear combustion chamber wall in the same manner.

C. Reassembling the Heater

NOTE As the heater is reassembled, be sure to fill all gaps and voids with the silicone provided in the kit.

1. Carefully reinstall the water pressure switch's copper tube into the fitting on the inlet/outlet header. Be careful not to "kink" the tubing. Insert the end of the tube into the fitting on the header. Tighten the nut onto the fitting one-half turn past hand tight.

CAUTION

Do not "kink" the tubing. Kinking the tubing will damage the tube and may result in poor heater operation.

2. Route the wires that attach to the high limit switches along the back to the right side of the heater. Reinstall the high limit switches. Be sure to install the 130°F switch into the front port on the return outlet port. The 150°F switch (with red marking on the face) is installed in the rear port of the outlet port. Install the retaining clips, sensor and hand-tighten the plugs. See Figure 5.

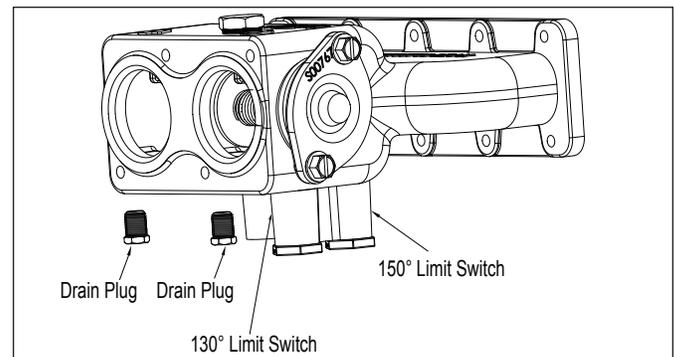


Figure 5. High Limit Switches

3. Route the wires that attach to the temperature sensor to the right side of the heater. Replace the temperature sensor gasket with the one provided in the kit. Reinstall the temperature sensor into the header and secure it in place with the new retaining sensor plug and clips. Hand tighten the sensor plug.
4. Bundle the wires near the control panel and fasten them with a wire tie. Ensure that the wires will not be subject to damage from any sharp or rough surfaces, and also from contact with any hot parts.
5. Reinstall the pressure switch tubing into the pressure switch fitting and torque to 4 ft-lbs.
6. Install gaskets on the header assembly top side brackets located on the left, right and top back panels.

7. Center the gasket on the back burner panel's two (2) top mounting slots. Attach the back burner panel and gasket to the flue collector using two (2) hex head screws.
8. Replace the flue collector so that the air duct is in the same position as it was before the heat exchanger removal. Be sure that the bottom of the flue collector lies flat on the top of the combustion chamber and that it covers all of the heat exchanger tubes. Replace the hex head screws to fasten the flue collector to the combustion chamber.

NOTE Assemble gaskets on the air duct bottom and sides.

9. Reassemble the blower and air duct to the flue collector. Be sure that the blower is seated properly on the air duct and fasten it to the flue collector with four (4) hex head screws. Secure the blower with five (5) hex head screws.
10. Plug the fan connector into the fan receptacle on the power distribution board through the slot in the control panel.
11. Place the upper right side support panel back into the corner caps on the right side of the heater. Secure with two (2) hex head screws.
12. Place the upper left side support panel back into the corner caps on the left side of the heater. Secure with two (2) hex head screws.
13. Install the flat return header side cover plate (removed from the left side of the heater) back onto the upper left side panel to cover the return header by replacing the six (6) hex head screws, one in each corner.
14. Reinstall the inlet/outlet header side bottom cover plate located under the inlet/outlet header. It is held in position with four (4) hex head screws, one in each corner.
15. Reinstall the left side top cover panel. Slide tabs over the bottom cover and hold it in place with four (4) hex head screws.
16. Install the gasket on all four (4) sides of the vent box top.
17. Replace the top. To position the top, place the top on the back and side caps and pull the top toward the front. The top will snap into the front support panel. Secure by installing two (2) hex head screws.
18. Position the vent grill over the exhaust vent. Replace the four (4) screws that fasten the vent grill to the top.

19. Place the raceway cover tabs into the slots in the door support and slide to the left.
20. Secure with one (1) of the hex head screws provided in the kit, mounting the raceway cover clearance hole to the door support mounting hole, in the left corner.
21. Secure with one (1) of the hex head screws provided in the kit, mounting the pressure switch slot to the burner panel mounting hole.
22. Reinstall the wires (black, orange, blue, and red) from the bezel to the universal controller board upper left hand corner terminal block. Secure by tightening all four (4) wires in the terminal block.
23. Reconnect the gas supply line to the gas valve. Turn on the main gas supply and check the connections for leaks.

⚠ WARNING

In order to avoid the risk of fire or explosion which could result in property damage, serious injury, or death, never test for gas leaks with an open flame. Always use a test leak solution or liquid soap solution to check for gas leaks at connections.

CAUTION

Some leak test solutions (including soap and water) may cause corrosion or stress cracking. Rinse the piping with water after testing.

24. Reconnect the water supply to the heater. Securely tighten the two bolts on each flange. Open any valves that may have been closed and start the filter pump to check the connection for leaks.
25. Turn on the power supply to the heater.
26. Replace the front panel (door).

D. Checking Temperature Rise

NOTE You need to check the temperature rise if you replaced the inlet/outlet header, but not if you only replaced the return header.

1. If the piping system has an external bypass valve, close it.
2. Turn the heater to the OFF position.
3. Remove the drain plug located on the return header of the heater and replace it with a Pete's Plug[®]. See Figure 6.
4. Insert a pocket thermometer through the Pete's Plug into the header. See Figure 6.
5. Start the filter pump.

6. After three (3) minutes, note and record the thermometer reading. This is the pool water temperature.
7. Record the temperature rise.
 - a. Start the heater.
 - b. Allow the heater to operate for five (5) minutes or more.
 - c. Note and record the thermometer reading.
 - d. Subtract the pool water temperature, recorded in step 6, from this reading. The difference is the temperature rise.
8. Refer to Table 1. If your measured temperature rise is within the range designated for your heater, skip steps 9 and 10.

**Table 1. Water Temperature Rise and Flow Rates
(Measured at Return Header)**

Model	Minimum Temp Rise °F (°C)	Maximum Temp Rise °F (°C)	Minimum Flow GPM (LPM)
LXi 250	8 (4)	11 (6)	30 (1.9)
LXi 300	10 (6)	13 (7)	30 (1.9)
LXi 400	13 (7)	17 (9)	30 (1.9)

9. If the temperature rise is too low and the flow is in excess of 125 GPM, install an external bypass. After installation—or if one already exists—open the external bypass valve gradually until the temperature range in Table 1 is achieved.

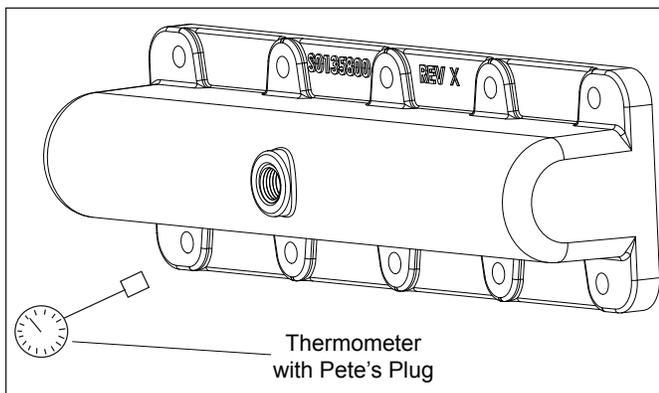


Figure 6. Check Temperature Rise

10. If it was necessary to adjust the external bypass as outlined in step 9, scribe a line on the bypass shaft and case to mark the correct adjustment position. Wire or remove the valve handle to prevent tampering.
11. If the temperature rise is too high, the water flow going through the heater may be inadequate.

NOTE The temperature rise is somewhat less when a heater is de-rated for installation at elevations significantly above sea level. For high elevation installations, reduce the numbers in Table 1 by 3% per 1000 feet above sea level.

11. Replace the front panel (door).
12. Set the user interface for normal operation.

E. Replacement Kit List

The following table is for your reference. To order additional parts, please contact your local Zodiac Distributor.

Parts List for Replacement Kits	
Description	R0500503, 04, 05
Heat Exchanger Assembly	1
Gasket, Ceramic Fiber, 1" Wide x 1/8" Thick, Roll	1
Screw, Hexhead, 10-16 x 5/8"	20
High-Temp Silicone, Tube	1
Instructions	1

NOTES

NOTES

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