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82926 / 84022

Ti400,Lx300-400 HX ASSEMBLY

c/w Burner

Applicable Boiler Models

- Ti400 (kit 82926)
- Lx300 (kit 84022)
- Lx400 (kit 82926)

Kit Contents

- 82926 or 84022 Heat Exchanger Assembly
- 81873-2 service indicator switch **(with Pn#82926 only)**
- 24" high temperature wires (2)
- 14" Orange wire
- 86669 Lx300-400 heat exchanger mounting plate

Tools Required

- Phillips #2 screwdriver (short)
- 1/4" nut driver or wrench
- 5/16" nut driver or wrench
- 7/16" wrench
- 10mm wrench
- Pipe wrench
- Torx T25 Screwdriver
- Torx T20 Screwdriver
- Saw for removing venting
- Adjustable wrench

Disassembly Instructions

- 1) Turn off power and gas to the boiler
- 2) Drain the boiler: using a wet/dry vacuum will help remove excess water.
- 3) Remove the supply and return pipes and the gas line from the boiler.
- 4) Remove the air intake and exhaust from the boiler.
- 5) Remove the stainless steel flue adapter by pulling up on it and rocking it side to side.
- 6) Remove all field wiring, from the boiler; mark the wires to ensure proper re-attachment.
- 7) **Lx boilers only**, remove the display and display housing as an assembly. **Refer to Figure 2**
- 8) Remove the condensate drain from the bottom of the heat exchanger.
- 9) **Lx boilers only**: Disconnect the metallic tubing between the blower and high-vent pressure switch. Loosen the compression fitting at the High-Vent Pressure Switch and blower. **IMPORTANT** Support the brass fitting on the blower with a 1/2" wrench while loosening the compression fitting nut with a 9/16" wrench. Remove the tubing assembly from the boiler and set it aside it will be reused during reassembly.

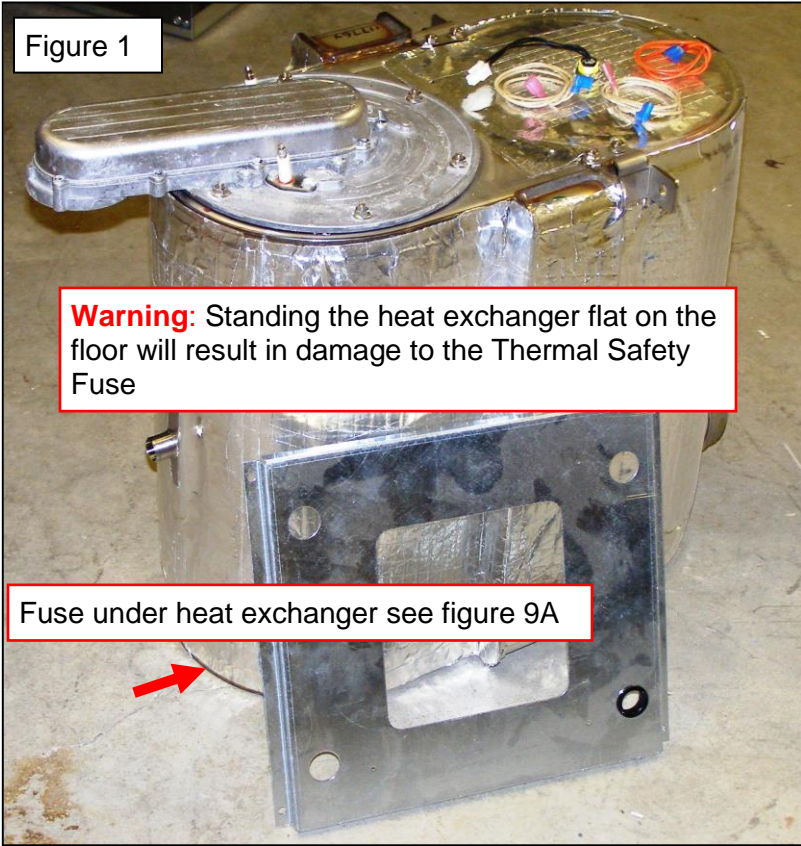


Figure 1

Warning: Standing the heat exchanger flat on the floor will result in damage to the Thermal Safety Fuse

Fuse under heat exchanger see figure 9A



WARNING **Metalic Air Switch Tubing** – The metalic air switch tubing contains air and fuel while the burner is operating. Failure to properly secure this tubing and test for leaks may result in gas leakage which could result in serious injury or death.

- 10) Remove the Left and Right hand jacket sides. For Lx boilers remove the retaining screws and pull up on the sides to remove them. **Refer to Figure 4**
- 11) Remove all plugs, and electrical connectors from the burner door, gas valve, blower motor, air switch, and all the sensors attached to the heat exchanger.
- 12) **Ti 400 only**, remove the boiler control panel as an assembly **Refer to Figure 3**
- 13) Remove the air inlet from the venturi. **Refer to Figure 3 or 4**
- 14) Remove the burner door, blower, and gas valve as an assembly. Transfer the blower and gas valve to the new burner door during re-assembly.



WARNING **Refractory Ceramic Fibers (RFC)** - Read handling instructions and warnings. **Pages 6 and 7**

- 15) Remove the air vent assembly from the heat exchanger. **NOTE:** Lx boilers have an air vent and water pressure switch, remove the entire assembly. Set these parts aside they will be used during re-assembly.
- 16) Lay the boiler on its back and remove the upper and lower heat exchanger supports. **Refer to Figures 5 and 6**
- 17) Remove all the sensors from the heat exchanger and set them aside, these will be used during reassembly.
- 18) Remove the nuts, bolts, and lock washers from the side heat exchanger supports. **Refer to Figures 7 and 8**
- 19) Remove the heat exchanger by lifting it straight up. It is recommended that a helper assist with removing and installing heat exchangers due to its weight. **Note:** Lx boilers equipped with a Thermal Safety Fuse (**Figure 9A**) will have wires attached under the heat exchanger, remove these prior to fully removing the heat exchanger.
- 20) **Lx boilers only:** Lx boilers not originally equipped with a Thermal Safety Fuse must be updated to include one. Start by removing the old heat exchanger mounting plate and replacing it with the provided one so that the wire grommet is in the lower right corner. Fish the blue flag connectors on the supplied high temperature wires through the wire grommet into the center of the opening in the mounting plate. **Refer to Figure 9.**
NOTE: For Ti400 boilers remove the Thermal Safety Fuse and dispose of it. **Refer to Figure 9A**
- 21) **Lx boilers only:** Your new heat exchanger is equipped with a Thermal Safety Fuse on the back; this fuse must have the two 24" wire extensions added to it. Attach the blue flag connectors to the thermal fuse when reinstalling the heat exchanger. **Refer to Figures 9 and 9A**
- 22) **Ti400 boilers only:** remove the Thermal Safety Fuse and dispose of it. **Refer to Figure 9A.** Install the Ti400 Service Indicator Switch per the instructions on page 6.
- 23) **Lx400 only:** Remove the brass plug from the rear sensor port under the boiler inlet connections and move it to the middle port next to the boiler outlet. **Refer to Figure 9B**
- 24) Re-assemble the boiler in the reverse order.
- 25) Perform the **Reset Safety Thermostat** wiring change; see instructions on **pages 5 and 6.**

NOTICE

Leakage: Failure to properly seal the boiler piping when reinstalling the heat exchanger will result in leakage which may cause property damage.

WARNING

Flue gas leakage: Failure to properly insert the flue adapter into the flue box on top of the heat exchanger during reassembly will result in flue gas leakage which may result in serious injury or death.

WARNING

Safety limits: Failure to correctly install and wire the safety limits on the replacement heat exchanger may result in a boiler malfunction causing serious injury or death.

Figure 2: Lx display housing assembly



Figure 3: Ti400 control panel

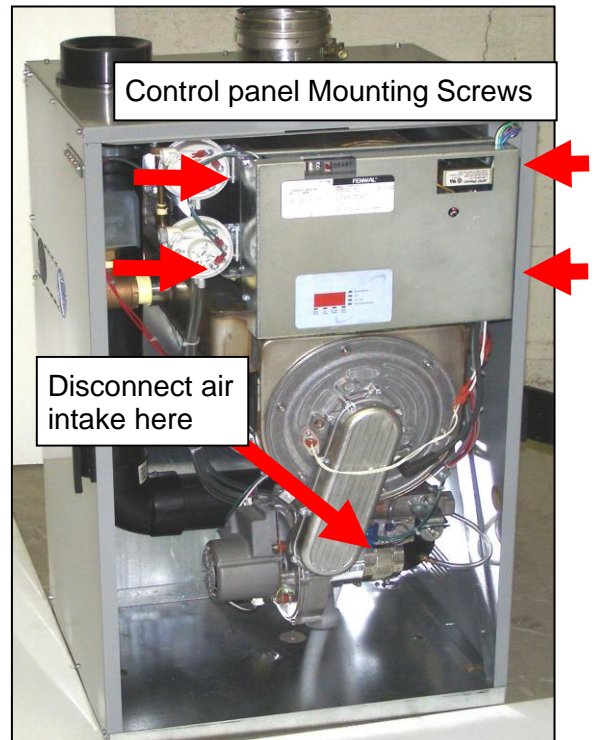


Figure 4: Lx300-399

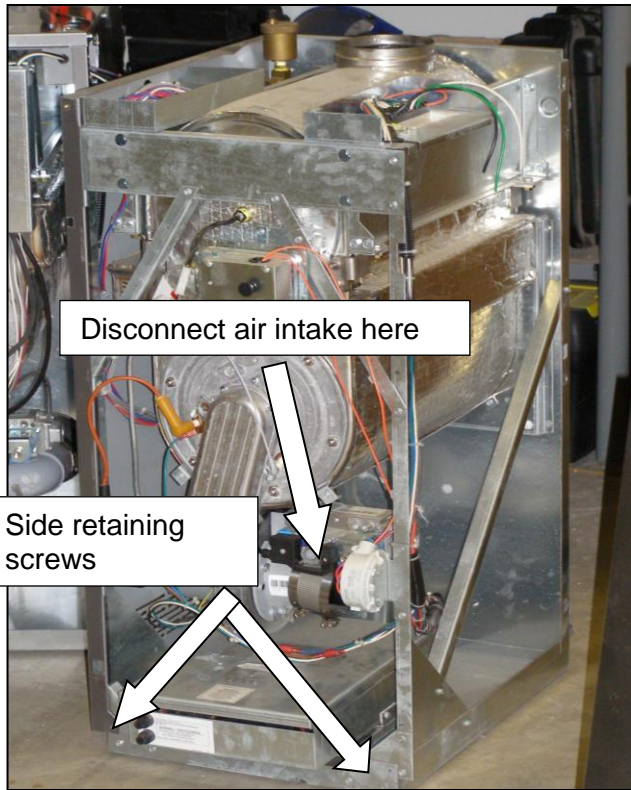


Figure 5: Ti400 hold down brackets/supports

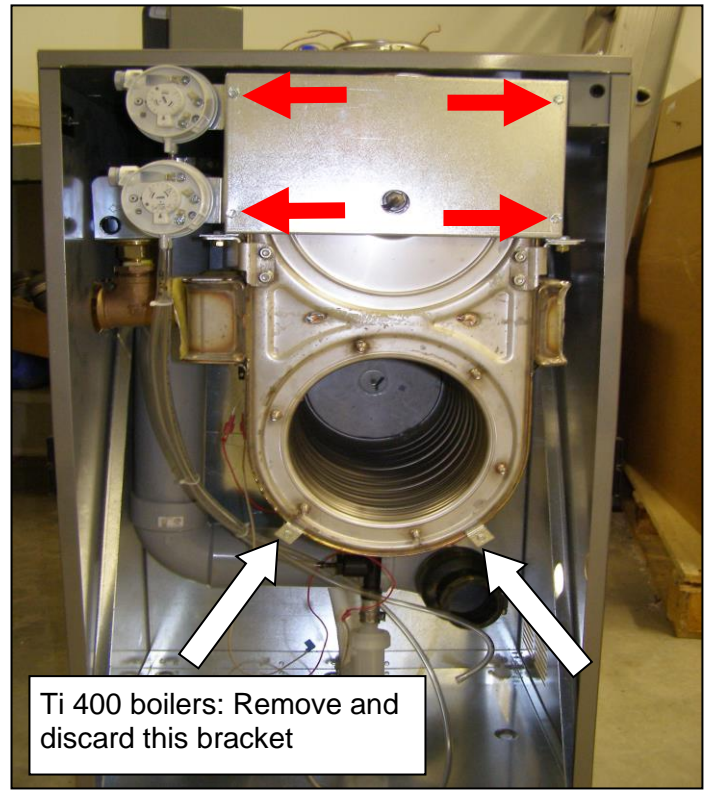


Figure 6: Lx300-399 hold down brackets



Figure 7: Ti400 heat exchanger side mounts

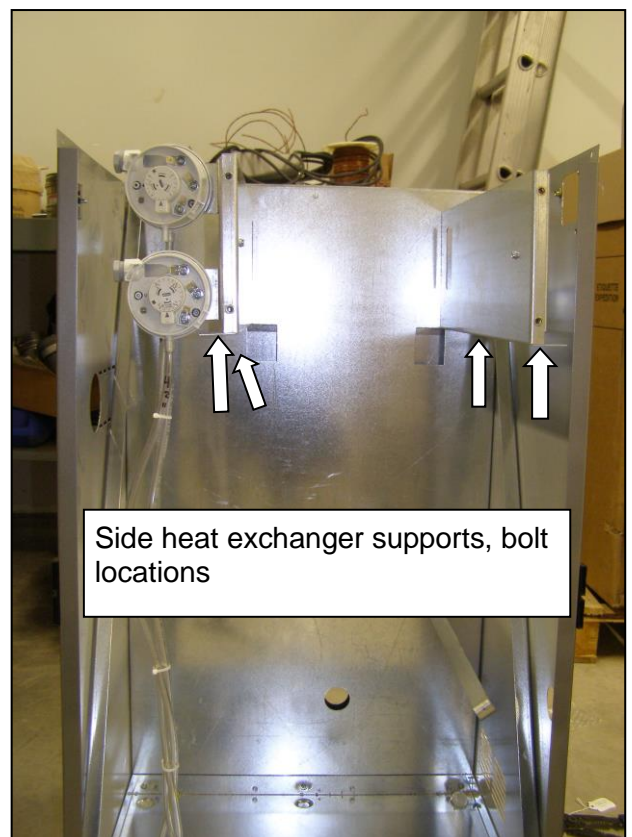


Figure 8 : Lx300-400 heat exchanger side mounts

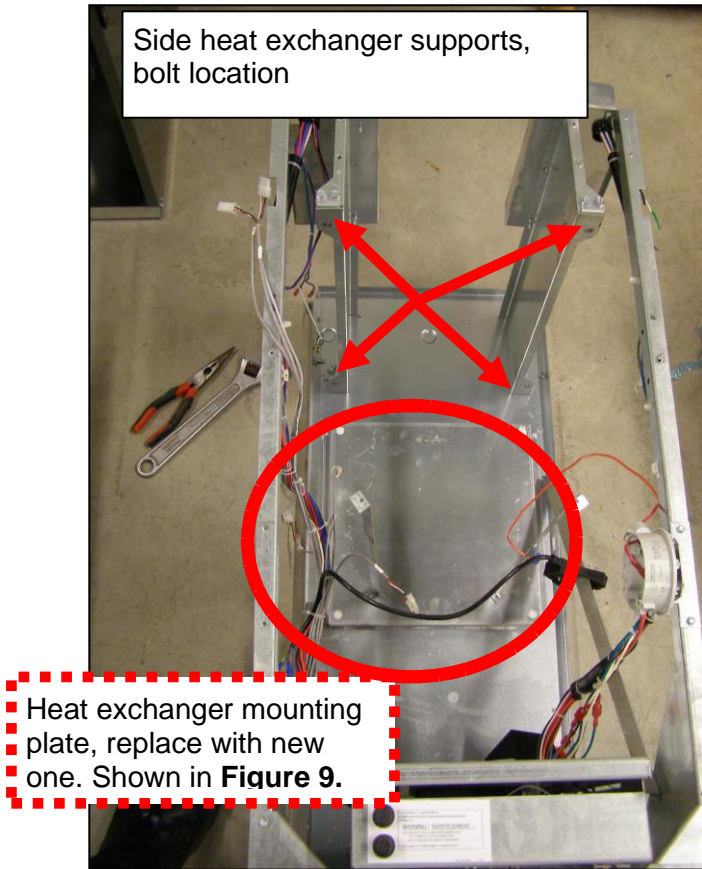
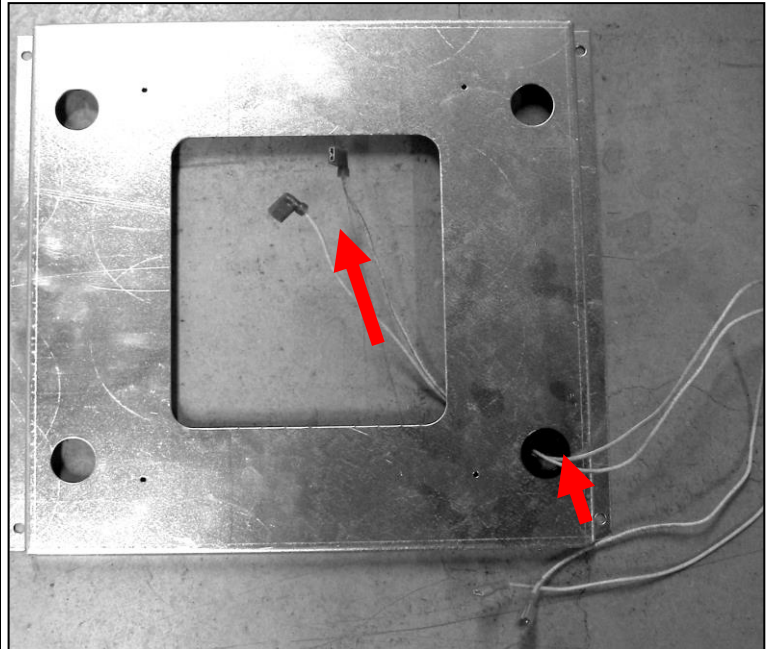


Figure 9: Lx boiler mounting plate with cut out and wire grommet



Install the heat exchanger mounting plate with the wire grommet in the lower right corner, and pull the blue flag connectors through the wire grommet and up into the cut out for the thermal fuse.

Figure 9A: Thermal Safety Fuse

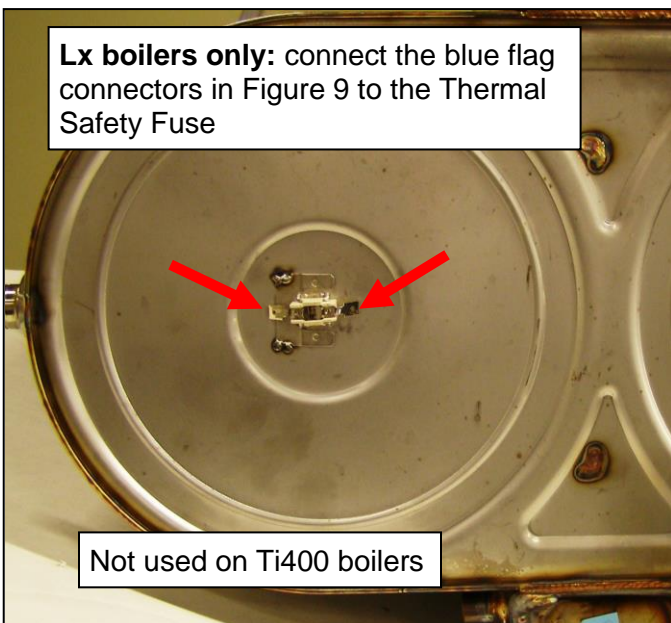
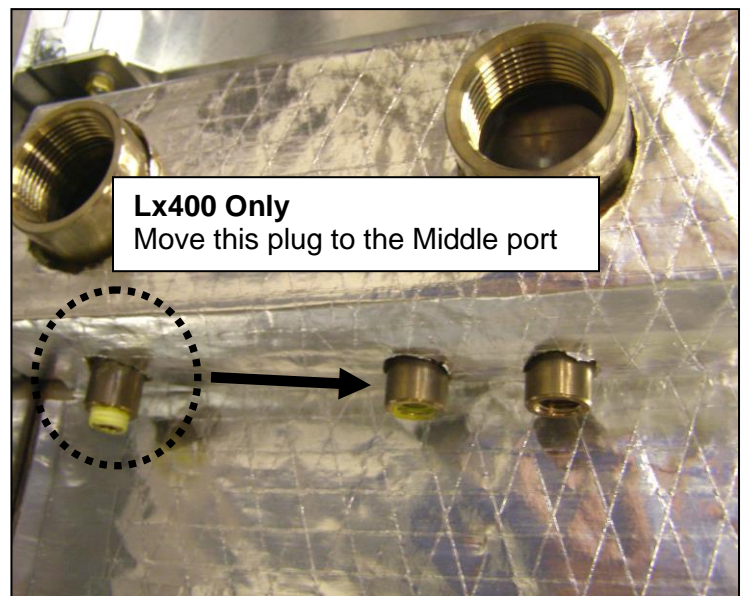


Figure 9B: Lx400 Inlet/Outlet water connections



Reset Safety Thermostat Installation Instructions:

The new heat exchanger will have the Reset Safety Thermostat installed on the burner door. Follow the wiring instructions below to complete the heat exchanger replacement. Boilers **originally** equipped with the Reset Safety Thermostat do not require any modification.

Lx boilers:

- 1) Remove the cover from the high vent pressure switch, and remove the right hand electrical connector. **See Figures 11 and 12**
- 2) Connect the wire that was removed from the high vent pressure switch to the Safety Reset Thermostat. **See Figures 12 and 13**
- 3) Connect the 14" orange wire provided, to the Safety Reset Thermostat, then pull the other end through the high vent pressure switch wire grommet and connect it to the high vent pressure switch. **See Figures 12 and 13**
- 4) Reinstall the high vent pressure switch cover.

Figure 11

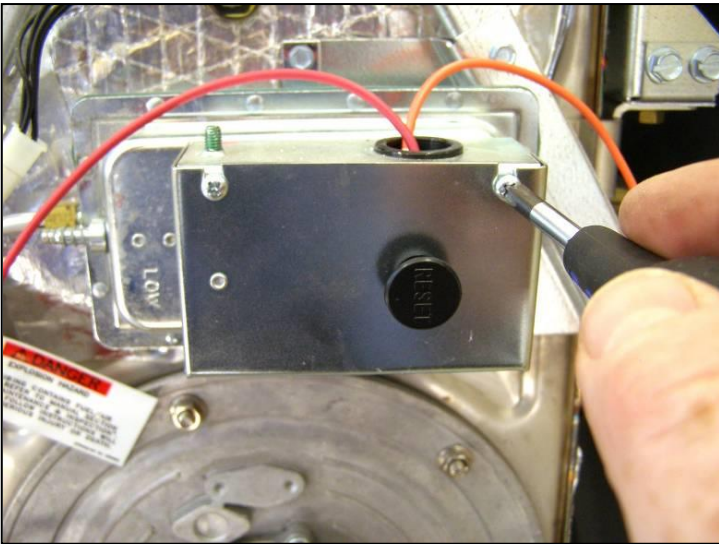


Figure 12

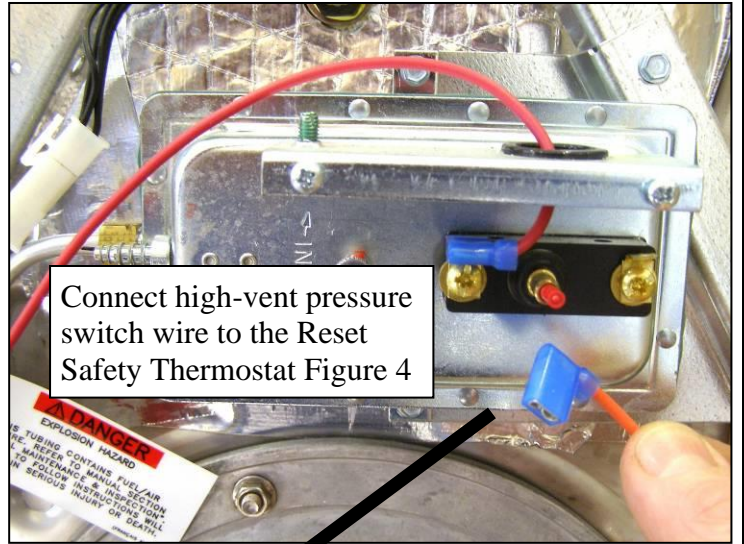
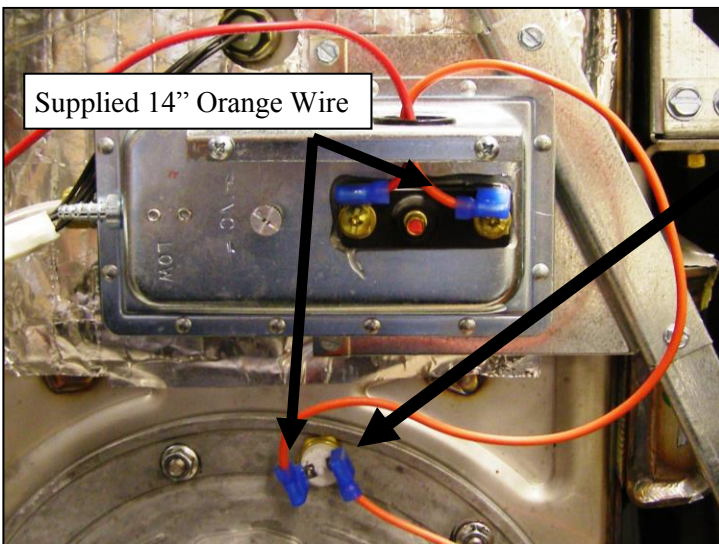


Figure 13



Ti400 Boilers

- 1) Attach the supplied 24" high temperature wires to the Reset Safety Thermostat using the blue flag connectors. **See Figure 14.**
- 2) Unplug one of the quick-connect wiring connections of the high temperature limit switch (closer to the back of the boiler) and connect the two 24" high temperature wire leads from the Reset Safety Thermostat. **See Figures 15 and 16.**

Figure 14

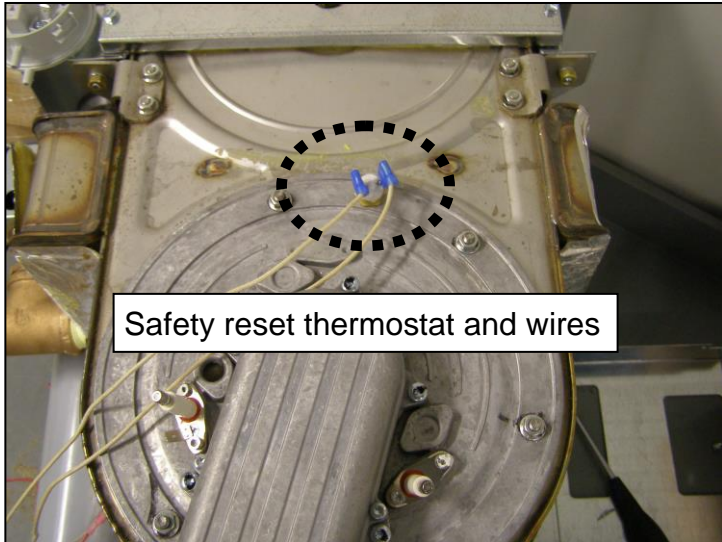


Figure 15

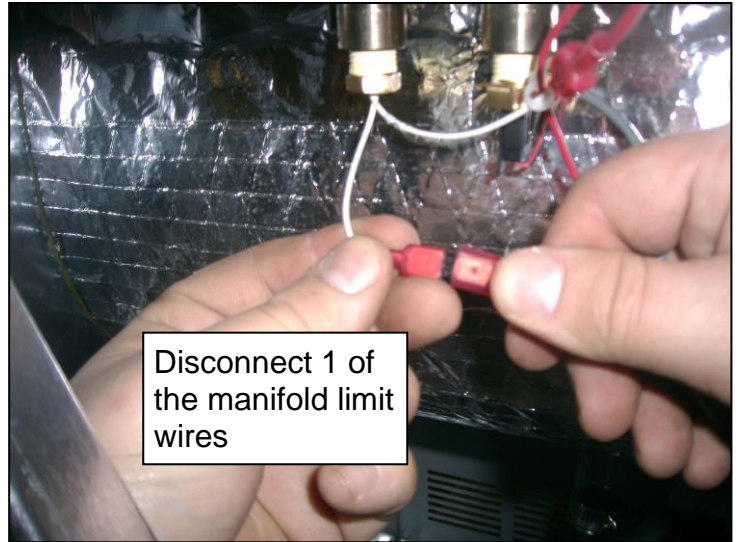
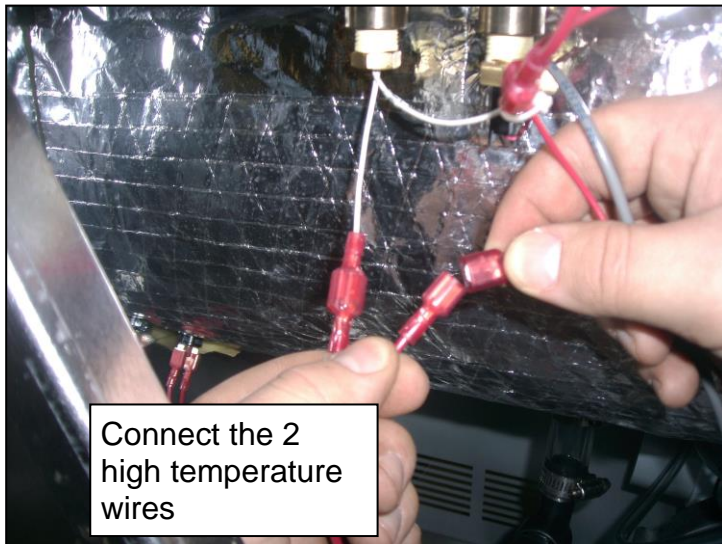


Figure 16



Refractory Ceramic Fibers (RFC)

IMPORTANT **Personal Protective Equipment Recommended** - Read the following warnings and handling instructions carefully before commencing any service work in the combustion chamber. The insulating material on the inside of the burner door and at the back of the combustion chamber contain *Refractory Ceramic Fibers* and should not be handled without personal protective equipment.

WARNING **Potential Carcinogen** - Use of *Refractory Ceramic Fibers* in high temperature applications (above 1000°C) can result in the formation of Crystalline Silica (cristobalite), a respirable silica dust. Repeated airborne exposure to crystalline silica dust may result in chronic lung infections, acute respiratory

illness, or death. Crystalline silica is listed as a (potential) occupational carcinogen by the following regulatory organizations: International Agency for Research on Cancer (IARC), Canadian Centre for Occupational Health and Safety (CCOHS), Occupational Safety and Health Administration (OSHA), and National Institute for Occupational Safety and Health (NIOSH). Failure to comply with handling instructions in Table 16-1 may result in serious injury or death.

WARNING **Crystalline Silica** - Certain components confined in the combustion chamber may contain this potential carcinogen. Improper installation, adjustment, alteration, service or maintenance can cause property damage, serious injury (exposure to hazardous materials) or death. Refer to Table 16-1 for handling instruction and recommended personal protective equipment. Installation and service must be performed by a qualified installer, service agency or the gas supplier (who must read and follow the supplied instructions before installing, servicing, or removing this appliance. This appliance contains materials that have been identified as carcinogenic, or possibly carcinogenic, to humans).

Table 17-1 Handling Instructions for Refractory Ceramic Fibers (RCF)

Reduce the Risk of Exposure	Precautions and Recommended Personal Protective Equipment
Avoid contact with skin and eyes	<ul style="list-style-type: none"> Wear long-sleeved clothing, gloves, and safety goggles or glasses.
Avoid breathing in silica dust	<ul style="list-style-type: none"> Wear a respirator with a N95-rated filter efficiency or better. ¹ Use water to reduce airborne dust levels when cleaning the combustion chamber. Do not dry sweep silica dust. Pre-wet or use a vacuum with a high efficiency filter.
Avoid transferring contamination	<ul style="list-style-type: none"> When installing or removing RCFs, place the material in a sealable plastic bag. Remove contaminated clothing after use. Store in sealable container until cleaned. Wash contaminated clothing separately from other laundry.
First Aid Measures	<p>If irritation persists after implementing first aid measures consult a physician.</p> <ul style="list-style-type: none"> Skin - Wash with soap and water. Eyes - Do not rub eyes; flush with water immediately. Inhalation – Breathe in fresh air; drink water, sneeze or cough to clear irritated passage ways.

Notes:

¹ Respirator recommendations based on CCOHS and OSHA requirements at the time this document was written. Consult your local regulatory authority regarding current requirements for respirators, personal protective equipment, handling, and disposal of RCFs.

For more information on Refractory Ceramic Fibers, the risks, recommended handling procedures and acceptable disposal practices contact the organization(s) listed below:

Canada (CCOHS): Telephone directory listing under Government Blue Pages Canada—Health and Safety—Canadian Centre for Occupational Health and Safety; or website <http://www.ccohs.ca>.

United States (OSHA): Telephone directory listing under United States Government—Department of Labor—Occupational Safety and Health Administration; or website <http://www.osha.gov>.