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Fire Tube Style Heat Exchanger Detailed Cleaning Instructions

⚠ WARNING

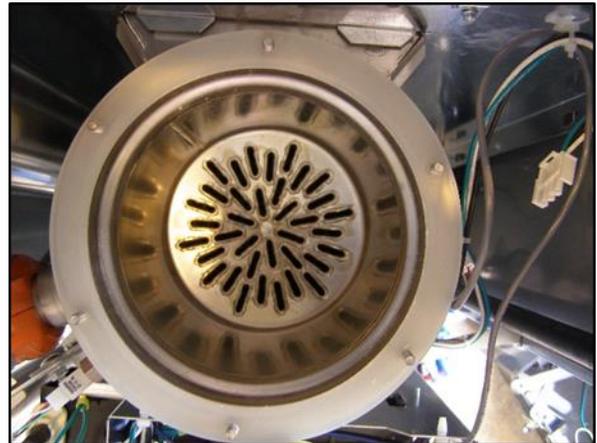
This boiler must be serviced by a qualified heating technician. Failure to properly maintain or service this appliance may result in property damage, serious injury to occupants or, death.

Applicable Boilers:

- Tft60-399
- Vmax110(P)-153(P)
- FTV110(C), 150(C),190(C)

Tools Required

- Pliers
- Phillips #2 screwdriver
- Flat Screwdriver
- 1/4" nut driver or wrench
- 5/16" nut driver or wrench (8mm Wrench Optional)
- 10mm wrench
- 1/2" Wrench
- 7/16" Wrench
- 9/16" Wrench
- Pipe wrench
- Torx T25, Torx T20 Screwdriver
- Adjustable wrench
- Household white vinegar
- Stiff bristle nonmetallic scrub brush (Cleaning kit 85259)



New Combustion Chamber (Tft/Vmax Shown)



Dirty Combustion Chamber (Tft/Vmax Shown)

NOTICE

Read these instructions through before beginning your cleaning procedure

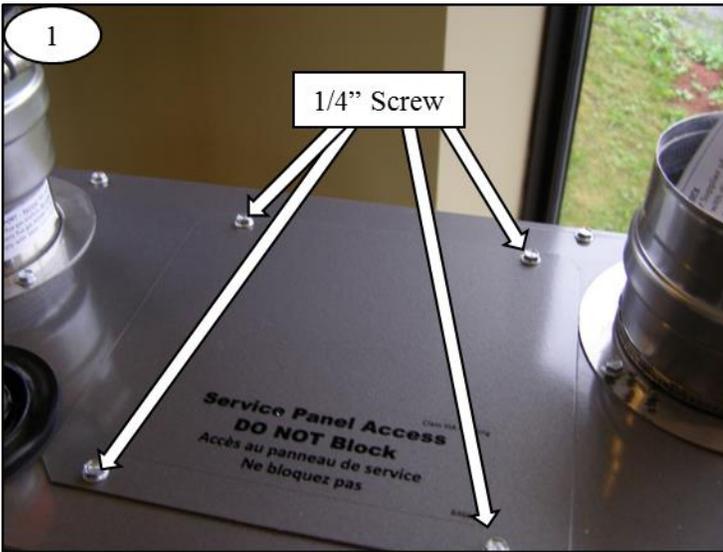
⚠ WARNING

Allowing any trinity boiler to operate with a dirty combustion chamber will not only adversely affect the operation of the boiler but will also void the warranty. Failure to clean the combustion chamber on a frequency that matches the needs of the application may result in fire, property damage, or death.



Boiler Cleaning Kit Part Number 85259(optional)

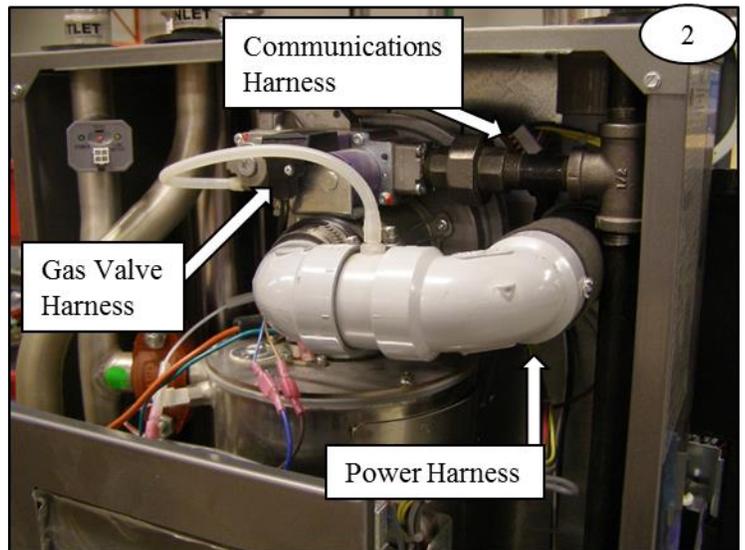
Disassembly Instructions (TFT 60-110 used for reference pictures)

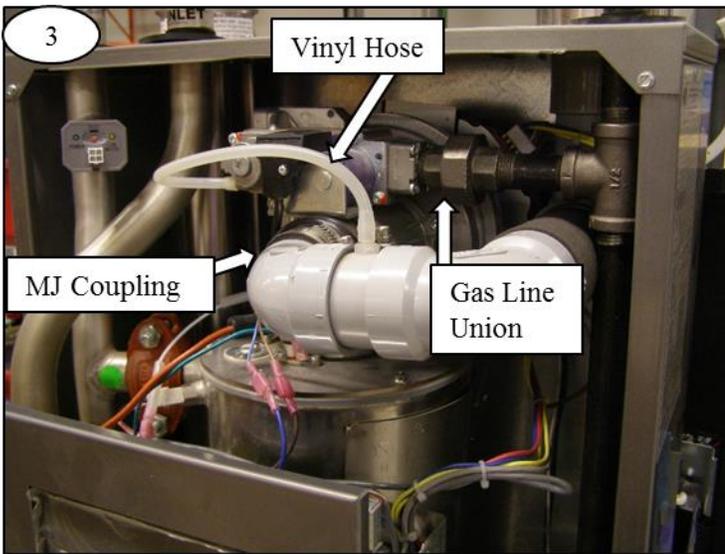


- Turn off power and gas to the boiler.
- Remove top service panel.
- Remove condensate drain from bottom of boiler.

NOTICE Note the location of the wiring and tubing prior to disassembly.

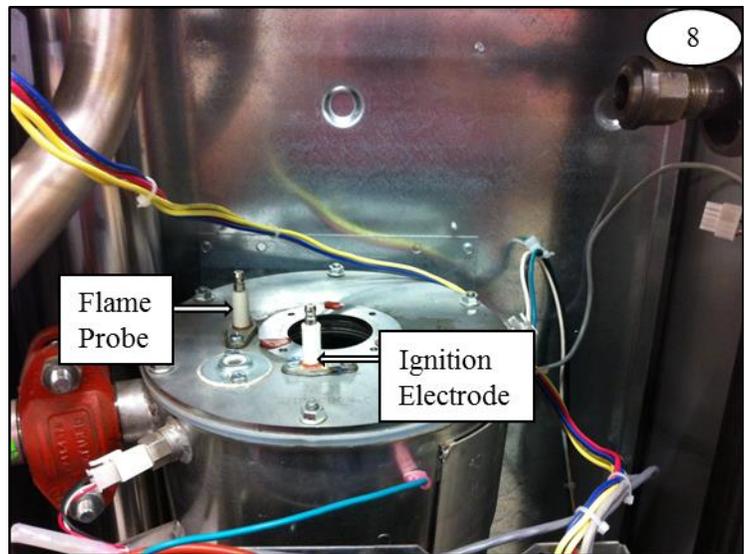
- Disconnect the wiring harnesses on the blower motor, flame rod igniter and gas valve.





- Detach the vinyl hose from the gas valve.
- Loosen the MJ coupling and remove the air inlet assembly from the Venturi of the gas valve.
- Disconnect the gas line (gas line union beside the gas valve).

- Detach the gas valve and Venturi assembly from the blower motor.
- Remove the blower motor and gasket.
- Remove the flame probe and ignition electrode.
- Remove the burner plate and burner plate gasket
- Remove the burner plate ceramic disk.



NOTICE

A screw driver with an 8” or 10” blade will be required to remove the rear screws on the blower motor on **older** Tft and Vmax models. Newer Models and FTV models will require a 5/16” or 8mm Wrench.

NOTICE

The burner plate and gasket will only fit on the heat exchanger in one position.



- Photograph or document the condition of the combustion chamber.
- Record the duration from installation to the first cleaning, as this will aid in developing a cleaning schedule.
- Use a vacuum with a high efficiency filter to remove any loose debris or dust, refer to Refractory Ceramic Fibers in the Installation and Operations Manual.
- Place a bucket under the condensate drain.

- Wet the inside of the combustion chamber with water. Use a garden hose with a trigger nozzle to direct pressurized water through the fire tubes.
- Water should pass through the fire tubes in the heat exchanger and exit via the condensate drain.
- Use dry rags or plastic to protect electrical components from being damaged by dripping or spraying water.
- Allow water to drain through the condensate drain.

- Use Brush from Cleaning kit, a stiff nylon brush, or other non-metallic brush to loosen the incrustations and any other contaminants that remain on the surface and openings of the fire tubes.
- Continue scrubbing and rinsing with clean water until the water runs clear from the condensate drain.
- Soak the combustion chamber with household white vinegar and allow it to sit for 5-10 minutes.
- Scrub the chamber again and then thoroughly flush the combustion chamber with plenty of clean water.

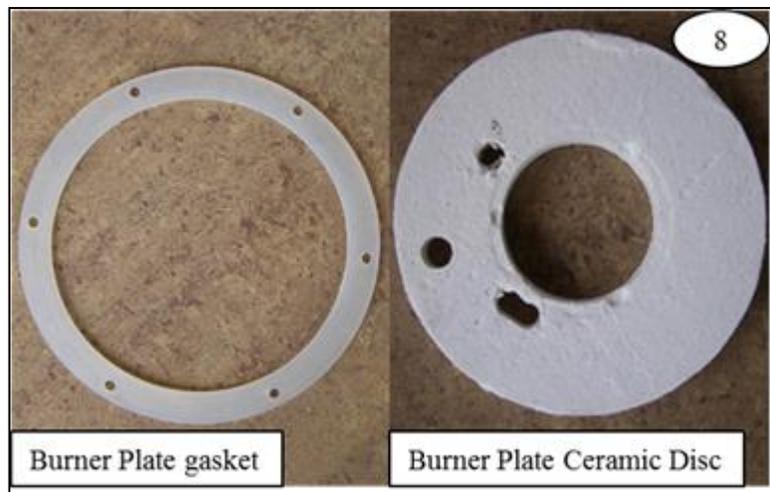




- Clean the condensate trap.
- Use dry rags for oily or sticky residue. Re-install the trap and pre-charge it with water.

NOTICE Ensure that the ball in the condensate trap is floating freely prior to leaving the job site. Failure to do so may result in boiler malfunction causing property damage.

- Inspect the burner plate ceramic disc and the burner plate gasket for wear and damage.
- Replace any worn or damaged components.



- Reassemble in reverse order.
- Torque the nuts on the burner plate to 48 in. lb. (4 ft. lb.)
- If torque wrench is not available tighten the burner plate nuts until the burner plate gasket bulges slightly.

Burner Plate Gasket ±Do not over-tighten the burner plate nuts. This could result in gasket failure and a gas leak. This may result in fire, property damage, or death.

- After reassembly perform the following check for leaks:
- With gas turned off disconnect the communications harness (5pin connector) from the blower motor. This will cause the blower motor to run at high speed.
- Then temporarily block the exhaust vent.
- Use a mixture of soap and water to check for leaks throughout the boiler assembly.
- Confirm there are no leaks, then, remove the blockage from the exhaust vent. And reconnect the communication wire harness to the blower.
- Check for proper operation including smooth ignition.
- Perform a combustion analysis (refer to the Installation and Operations Manual).

Parts for Service: Refer to the parts list in the Installation and Operations Manual