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Waste Oil Heaters
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Product Instruction -- Top Suction Kit

Purpose

Save installation time and increase reliability when pumping fuel from the top of a tank. An EnergyLogic Top Suction Kit combines the fuel pick-up with a low fuel cut off switch.

Benefits

- Robust fuel pick-up system. Fewer joints mean less chance of vacuum leaks.
- Save time and unnecessary troubleshooting due to air in the fuel system. The low fuel cut off switch prevents loss of prime by shutting off your heater when you run low on fuel.
- Foot valve prevents oil from leaking back into the tank during long off cycles.
- Cost effective. Combines several functions within one simple product. Saves installation time and maintenance.
- Adjustable length will work with most tanks.
- Includes a wall mountable pump and filter head mounting bracket for a professional looking installation.

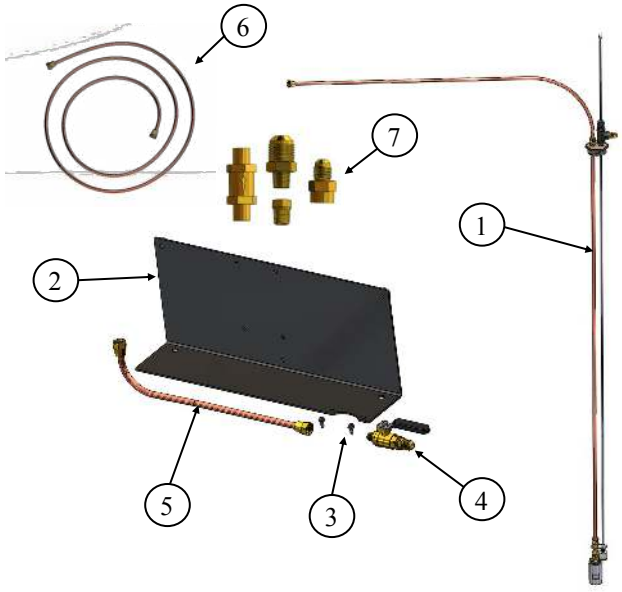
Application

- Two pick-up tube sizes available: 3/8” for use with Models 140 and 200 (Kit #: 05000165), and 1/2” for use with Model 350 and up (Kit #: 05000169).
  NOTE: If you are using a pump that is different than the ones shown in these instructions, contact the EnergyLogic Technical Service Department.
- Tank must have one 2” NPT top fitting available.
- A total of 8 feet of copper tube is provided - do not exceed this total suction run length.

Contents

Kit contains:

1. Lower Top Suction Assembly (with foot valve and float switch). Includes 8 feet of copper tubing.
2. Mounting Bracket (for pump and filter head).
3. 10-32UNF Screws (2) (to attach filter head to bracket).
4. Hand Valve with Flare Fitting.
5. Suction Copper Tube Assembly.
6. Copper Tubing for Bypass Return to Tank (5 Ft of 1/4-Inch Tubing).
7. Fittings Required to Modify Pump.

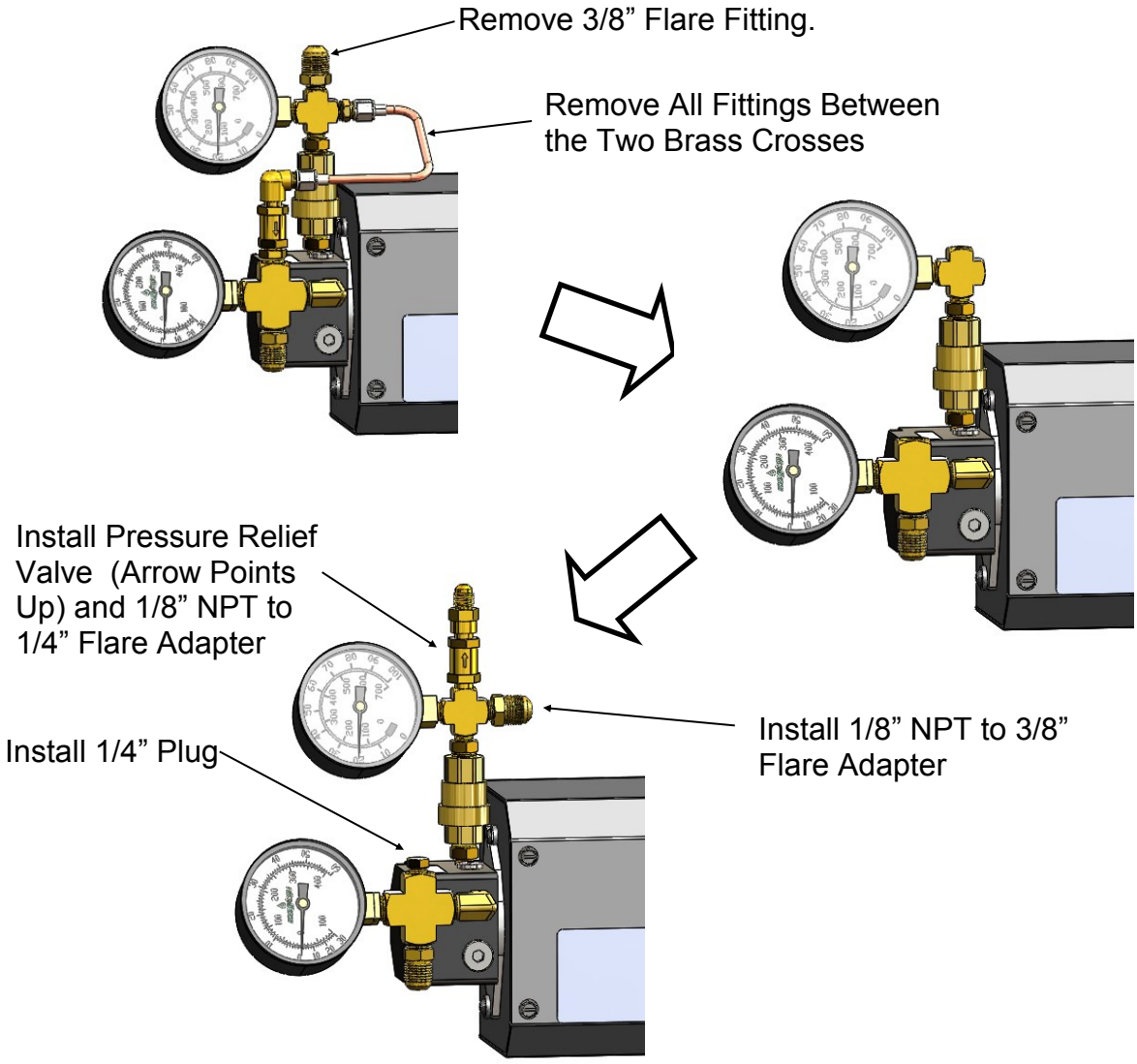


Installation Procedure

STEPS

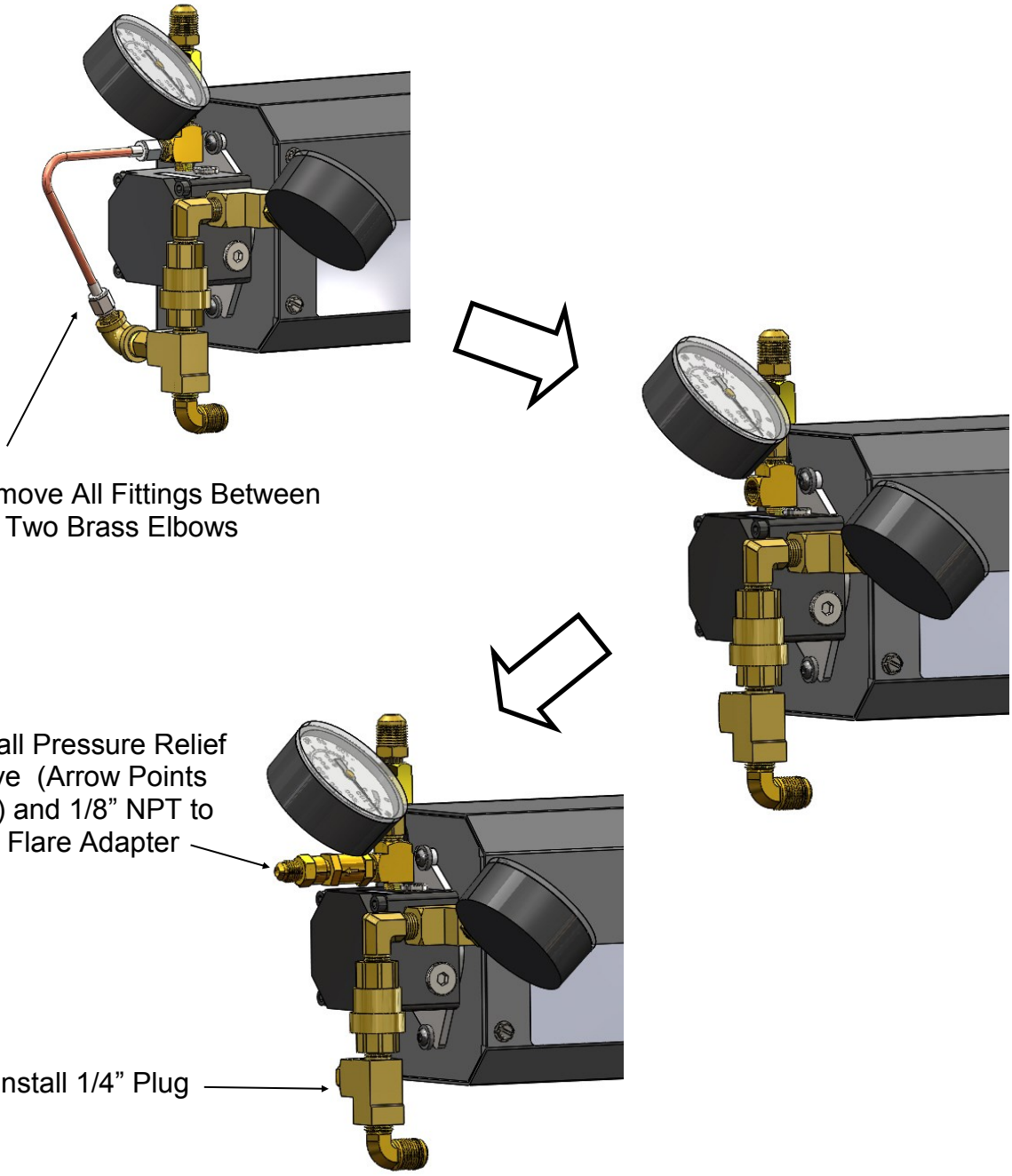
1. Unpack and check the contents according to the contents list (previous page). If missing parts, call EnergyLogic for support.
2. Modify the metering pump fittings per the illustrations below.
   NOTES:
   - When removing/installing a fitting, use a second wrench to prevent turning or breaking other fittings.
   - Use thread sealant on all pipe threads. Do NOT use Teflon tape.
   - Do NOT put thread sealant on flared copper tubing connections.
   - The copper should be flared with a standard 45 degree flaring tool.

FOR CURRENT MODELS: EL-140H, 200H, 200B, 350H, AND 375B



Installation Procedure

FOR PREVIOUS MODELS: EL-140H, 200H, 200B, 350H, AND 375B

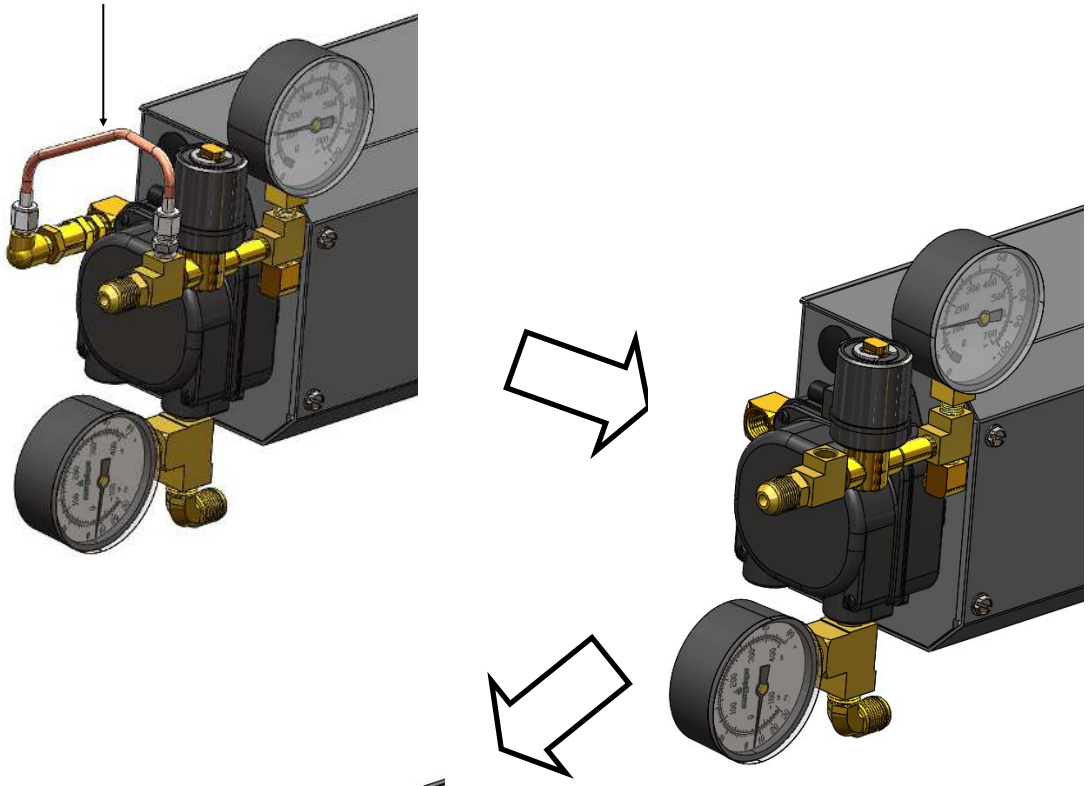


NOTE: When using this Top Suction Kit on an old style Pump Assembly, it will be necessary to straighten, cut, and re-flare the copper suction tube (Item 5).

STEPS Cont.

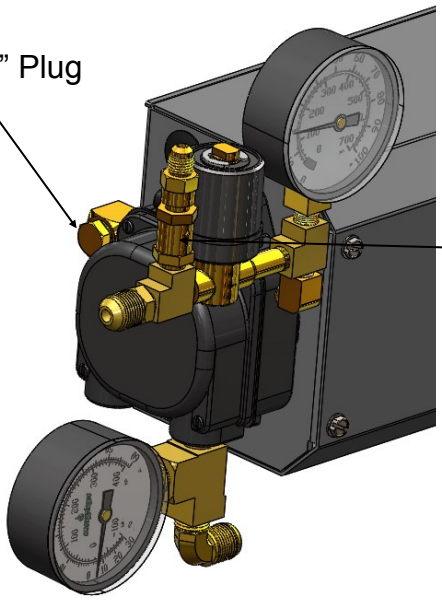
FOR MODEL: EL-500B

Remove All Fittings Between the Brass Street Tee and Elbow

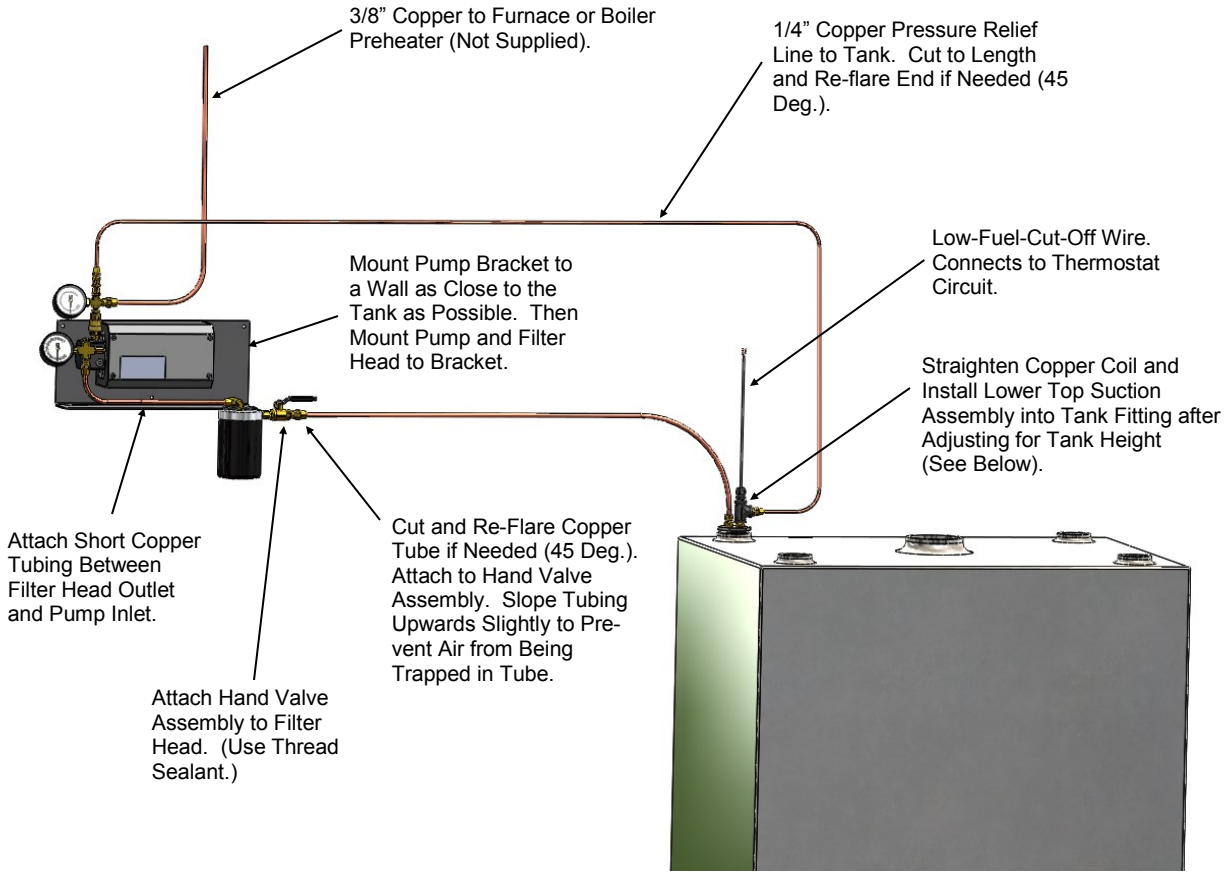


Install 1/4” Plug

Install Pressure Relief Valve (Arrow Points Up) and 1/8” NPT to 1/4” Flare Adapter

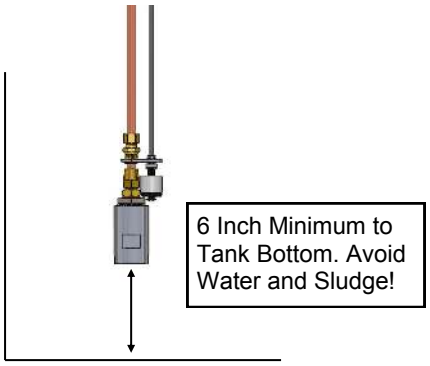


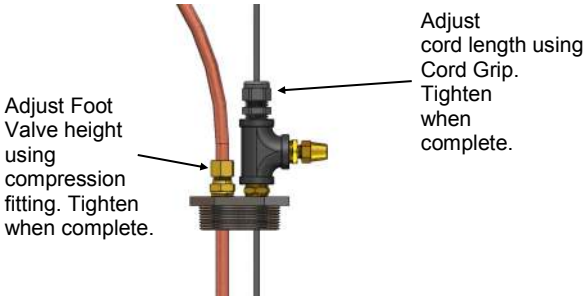
REFER TO FIGURE BELOW FOR REMAINING STEPS



STEPS Cont.

3. Being careful not to kink the copper line, unroll the Lower Top Suction Assembly and straighten the tubing so it will slide through the compression fitting.
4. Measure the tank height, and adjust the foot valve location so the valve will rest no closer than 6 inches (1 foot or more for tanks larger than 500 gallons) from the tank bottom. This is to avoid picking up water and contaminants.
5. Tighten the compression fitting to fix the position.
6. Adjust the cord for the float switch, so that it does not have too much slack.
7. Screw the Lower Top Suction Assembly into an available 2" NPT top fitting on the tank.
8. Route the copper tubing to where the pump is to be mounted on the wall.





STEPS Cont.

9. Mount the Pump Bracket to the wall near the tank, high enough so the copper will slope up from the top of the tank. There are three (3) non-threaded, mounting holes provided on the bracket. Use anchors as needed, depending on type of wall.
10. Mount the Metering Pump (cover removed) to the bracket using the four ¼ - 20 machine screws provided with the pump.
11. Mount the Filter Head Assembly to the bracket using the two screws provided with the Top Suction Kit. Do not tighten the screws yet – leave filter head loose for adjustment of copper tube in next step.
12. Attach the bent copper tube assembly (approx. 12 inches long) to the pump inlet and to the filter head outlet (do NOT use thread sealant on flare joints).
    NOTE: For the EL-500B model only, the copper tubing will need to be bent to fit, cut to length, and re-flared (45 Degree Flare).
13. Tighten the flare nuts (use a second wrench to prevent the mating fittings from turning).
14. Tighten the filter head screws.
15. Attach the hand valve assembly to the filter head inlet. Use thread sealant on the NPT joint to prevent vacuum leaks.
16. Route the copper tube from the Lower Top Suction Assembly to the hand valve assembly. If necessary, cut the tube to the proper length, and re-flare using a 45 degree flaring tool. Tighten the flare joint.
    NOTE: Route the line with an upward slope to prevent air entrapment (avoid loops, kinks and high points).
17. Install 3/8" O.D. (or larger) copper tubing (not provided with the kit) from the pump assembly to the preheater. Route the line with an upward slope towards the preheater as much as possible. Install a High-Point-Bleed Assembly (EL Part #: 14070240) at any peak to allow bleeding of the air from the tubing during priming.
18. Route the 1/4" O.D. copper tubing from the metering pump to the return fitting on the tank. Cut to length and re-flare if needed. Install the line and tighten the fittings.

Priming the EnergyLogic System

1. Make sure the used oil tank has adequate oil, with oil level above the low fuel cut off float switch.
2. Pre-fill the filter with non-synthetic ATF to speed the priming process. Make sure there is a film of oil on the gasket and then hand-tighten the filter.
3. Open the hand valve at the filter head inlet.
4. Refer to your EnergyLogic product manual on how to run the pump to prime the system to remove air, or check out the instructional videos on our website: www.energylogic.com.

If you have questions or need assistance, please contact NuEra's Technical Service Department at 800-347-9575.

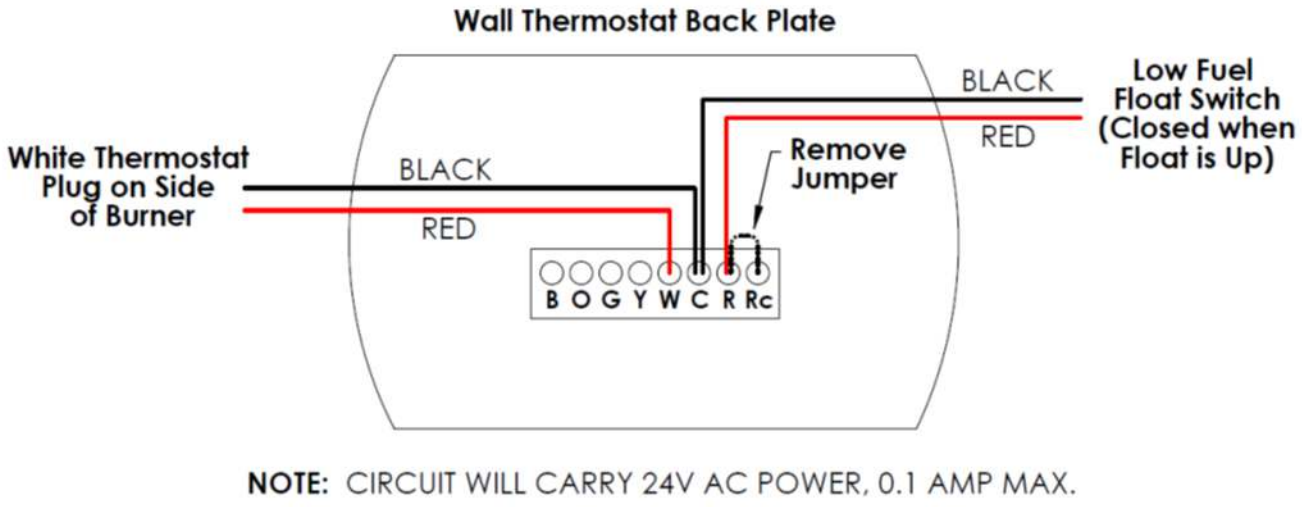
Low Fuel Cut Off Wiring Procedure

The Low Fuel Cutoff works by disconnecting the thermostat circuit when the float switch in the tank drops. This shuts off the furnace or boiler prior to air entering the fuel pump and tubing, so re-priming is not required when additional fuel is added to the tank.

ATTENTION!

Low Fuel Cutoff Switch (Float Switch) wiring should be performed according to all applicable national, state and local codes. Thermostat Circuit is 24VAC. Refer to Thermostat page in a Used-Oil Furnace or Used-Oil Boiler Manuals for installation procedure.

1. Route the thermostat wiring from the burner to the thermostat.
2. Route the low fuel cut off switch wiring to the thermostat.
3. Connect switch in series with the thermostat wiring (see the following diagram).
4. Note for Boilers: The wall thermostat, if used, is connected to the AquaSmart Aquastat. The float switch is wired directly to the white plug on the side of the burner wiring box. The diagram below does not apply.
5. Continuity of the switch wiring may be checked with a multi-meter. The switch circuit should be closed with the float in the up position and open with float in the down position.



Furnace Thermostat Wiring with Low Fuel Cutoff Switch