

SFT 199 - Fuel Conversion to Propane (NG to LP) - P-802

Note

If converting from propane to natural gas, order the natural gas conversion parts kit (IBC Part # P-803) from your authorized IBC distributor.

Use the propane gas conversion parts kit if the fuel source at the site uses propane and the modulating tankless water heater has been set up to operate with natural gas. Check the rating plate on the tankless water heater to see which fuel source the particular appliance has been set up with.

Using this conversion kit, a qualified technician will need to:

1. Perform a fuel conversion.
2. Perform a combustion test.
3. Fill in the information required on the fuel conversion labels, and affix them to the appliance after the conversion is completed.

**Warning**

Disconnect power supply before any wiring/service is performed. Failure to do so could result in damage to appliance and/or electric shock. This conversion kit shall be installed by a qualified service agency in accordance with the manufacturer's instructions and all applicable codes and requirements of the authority having jurisdiction. If the information in these instructions is not followed exactly, a fire, an explosion or production of carbon monoxide may result causing property damage, personal injury or loss of life.

The qualified service agency is responsible for the proper installation of this kit. The installation is not proper and complete until the operation of the converted appliance is checked as specified in the manufacturer's instructions supplied with the kit.

The appliance will automatically de-rate the maximum input at a rate of approximately 2% per 1,000' above 4,500'. The gas valve's zero-governor will ensure that the gas-air mixture is not affected at altitude.

Included with the conversion kit:

Fuel Conversion Kit, NG to LP - Superflow SFT 199		
Part #	Description	Quantity
180-174	LP orifice # 535	1
150-175	Orifice O-ring 19x2	1
080-223	Rating plate overlay	1
080-107	Gas valve conversion label	1
080-244	Installer Identification label	1

Combustion Test Target Ranges

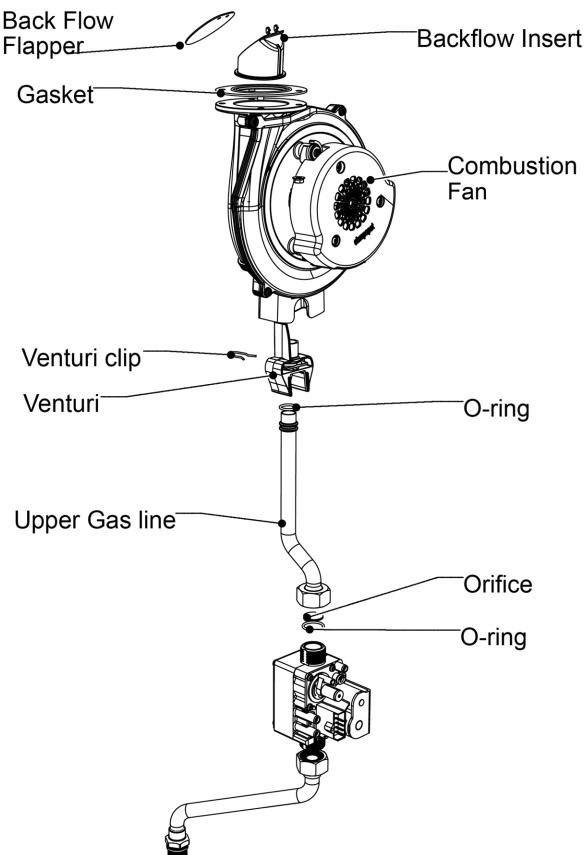


Figure 1 Gas valve and fan

The Low Fire (zero-offset) valve adjustment cap on the gas valve has been factory set. Do not adjust this screw in the field unless indicated in these instructions.

After converting the appliance to propane, a combustion (CO₂) reading must be taken by a qualified technician using properly functioning and calibrated combustion analyzing equipment and the results compared to the values in Table 1.

Propane	CO ₂ Value (%) at High Fire with front cover open	CO ₂ Value (%) at Low Fire with front cover open
Max. CO ₂ value	11.5%	Value at High Fire Minus - 0.3%
Min. CO ₂ value	9.8%	9.5%

Table 1 - CO₂ values at High and Low Fire

Fuel Conversion Instructions

You must be a qualified technician to perform a fuel conversion.

Model Number	Orifice Size
SFT 28-199	535

Table 2 - Propane Orifice Chart

To perform a fuel conversion:

1. Turn off the gas supply at the gas shut-off valve.
2. Disconnect the electrical power.
3. Disconnect the nut at the gas valve outlet (top of the gas valve), and remove the O-ring and orifice.
4. Insert the correct orifice into the O-ring, and re-install into the nut at the gas valve outlet (top of the gas valve), and then tighten the nut.
5. Restore the gas supply by opening the gas control valve.
6. Test for leaks by using an approved leak detection solution on all joints.
7. Power on the appliance.

Now, carefully follow the procedures on Combustion Testing and Adjustment.

Combustion testing and adjustment

Danger

A combustion test checks that the gas valve is operating properly in the field. To perform a combustion test, you must be a qualified, trained and licensed gas fitter. Making adjustments to the IBC gas valve without a properly calibrated gas combustion analyzer and by people who are not trained and experienced in its use is forbidden. Failure to use an analyzer can result in an immediate hazard.

Model Number	High Fire Input
SFT 28-199	199 MBH

Table 3 - Rated input of a converted appliance

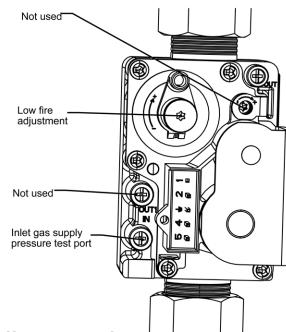
Normal ignition system sequence of operation:

The appliance's control, upon a call for DHW, turns on the combustion fan for a short pre-purge, then energizes the spark electrode and gas valve for a 5-second trial for ignition.

If the burner does not light, the process is repeated until the burner lights and flame is detected. After 4 unsuccessful trials for ignition, the appliance locks out and will need to be manually reset by pressing the Return Arrow  button.

To perform a combustion test and adjustment:

1. Turn off the appliance's gas shut-off valve.
2. With a Torx 15 screwdriver, open the inlet gas supply pressure test port by turning its screw 1 full turn counterclockwise.
3. Attach a manometer to the inlet pressure test port and turn on gas to appliance.
 - » Static manometer reading should be ideally 11" w.c. for propane.
 - » Minimum and maximum static pressure must be between 5" and 14" w.c. Monitor pressure throughout the commissioning (start-up) procedure. Pressure may drop up to 1" w.c. at high fire.
4. To set the appliance to high fire manually, create a large DHW demand for the appliance to heat.



Allow the appliance to ignite / run against a large load, to maintain high fire. To set the high-fire manually, press and hold the Service icon for two seconds. Then while holding the Service icon press the Plus button twice. "H" will show in the service display as the appliance enters high fire.

Note: Allow the appliance to operate at High Fire for 3 minutes to stabilize. (The appliance operates in manual mode for 10 minutes then switch back to the normal operating mode. To extend manual mode operation, press the **Service** and **Plus** buttons together twice while the appliance is operating in manual mode to reset the timer for 10 more minutes.) Do not make adjustments if the service display shows an "h".

5.
 - a. While in manual high fire, to confirm full maximum rating plate input (estimated):
 - i. Press  Service button for two seconds to enter the Information menu.
 - ii. Press  Plus button repeatedly until the right window indicates "F". The input is displayed in the Main window.
 - iii. Press  Flame button to return to the Service menu.
 - b. With a combustion analyzer probe in the flue gas test port, check the measured results against *Table 1* - High Fire.
 - c. If the results are outside the permitted range, check the inlet pressure, and confirm that the correct orifice and venturi are installed.
 6. Switch the appliance to low fire by pressing the Service button and Minus buttons at the same time. The appliance will drop to low fire. "L" will show in the service display.
 - a. Compare the readings with *Table 1* - Low Fire. If adjustment is necessary, remove the Low Fire Adjustment cap to reveal a Torx head screw.
 - b. Make tiny adjustments, typically less than 1/8th of a turn at a time. Turn the screw clockwise to increase CO₂ and counter-clockwise to reduce CO₂. If the target cannot be met, even after a half turn, contact the factory.
 - c. When finished, replace the Low Fire cap, and leave the manual mode by pressing + AND - simultaneously.
 7. Switch off the appliance by pressing the space above the dot.
 8. Turn off the gas at the appliance's gas shut-off valve.
 9. Remove the flue gas analyzer from the test port, and reinstall the test port cap.
 10. Remove the gas pressure manometer from the gas valve, and fully close the test port.
 11. Turn on the gas at the appliance's gas shut-off valve.
 12. Ensure there are no gas leaks before reinstalling the front cover.
 13. Turn on the appliance by pressing the space above the dot.

Completing and Affixing the Conversion Labels

1. Fill in the conversion labels (included in the kit) associated with the new fuel type.
2. Place the conversion labels onto the appliance as indicated on the next page.

Where to Place Conversion Labels on the Tankless Water Heater

