

Rinnai

CONVERSION & PRESSURE SETTING PROCEDURE

RINNAI ENERGYSAVER RHFE-1004FA

(UNITS MANUFACTURED PRIOR TO FEBRUARY 2000)

RHFE-1004FA ENERGYSAVER CONVERSION PRIOR TO FEB. 2000 PRODUCTION

The conversion shall be carried out in accordance with the requirements of the provincial authorities having jurisdiction and in accordance with the requirements of the CAN1-B149.1 and .2 installation code. The appliance shall only be converted to a gas for which it has been approved. Conversions shall be done by a qualified technician. Front panel must be removed to access internal parts. Conversion parts are included in the carton box. Disconnect electricity, shut off gas to the unit. Locate orifices at burner end of gas tubes.

1. Remove (2) screws that hold the front panel in place.
2. Pull panel forward from the top of unit out about three inches. Reach inside electrical compartment and unplug the indicator lamp assembly. Then lift panel up and set it off the unit. Next remove both side panels.
3. Remove all three gas tubes from the unit. Be careful not to lose the "O" rings on each end of the gas tubes. Always ensure there is an "O" ring in each port of the gas valve and in each of the orifices before reinstalling gas tubes.
4. Replace all three burner orifices with the proper size required for gas type being used. See below for orifice part numbers and proper sizes.

Propane gas units use:

- (1ea.) Part #1004F-2036-1 orifice for the low fire burner, orifice size 0.047" (1.20 mm).
(2ea.) Part #1004F-2031-1 orifice for the high fire burner, orifice size 0.037" (0.95 mm).

Natural gas units use:

- (1ea.) Part #1004F-2036-2 orifice for the low fire burner, orifice size 0.077" (1.95 mm).
(2ea.) Part #1004F-2031-2 orifice for the high fire burner, orifice size 0.071" (1.80 mm).

The low fire orifice has a longer shoulder than the high fire orifices. When converting products, please ensure you follow instructions in detail. **YOU MUST READJUST MANIFOLD GAS PRESSURE** on the appliance following manufacturer's instructions and replace all three burner orifices and reset air shutters. Failure to follow the manufacturer's instructions may result in damage to the unit. If you have not been properly trained on converting this product, please do not proceed. Contact a qualified service agency to perform conversion.

5. **Propane gas unit air shutter settings:**
Loosen set screw on air adjustment rods. Adjust all three air shutters to 100% air, no notches will be showing on the rods when adjusted correctly. The air rods can be found directly under each gas line at the combustion chamber. Retighten set screw once adjustments have been made.

Natural gas unit air shutter settings:

Loosen set screw on air adjustment rods. Adjust the right rear and left hand air shutters to 100% air, no notches will be showing on the rods when adjusted correctly. Adjust the right front air shutters to where (3) notches are showing. This is 70% air. The air rods can be found directly under each gas line at the combustion chamber. Retighten set screw once adjustments have been made.

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6. Ensure all three gas tubes have been re-installed and tighten. Leak test all gas tube connections to ensure "O"rings were reinstalled and all fittings have been retightened.
7. Gas pressure **MUST** be readjusted when converting from one gas type to the other. Follow the procedure below when setting pressures.
 1. Turn the appliance to the off position.
 2. Remove test point screw 1/8 NPT tap with 3/16 Allen wrench and connect manometer pressure gauge.
 3. When unit completely stops operating, press the "SW1" test switch at the top of the PC board until it beeps.
 4. Select the correct gas type code to appear on the LED display using "▲" (up) and "▼" (down) buttons. Current selected gas type code will be indicated. See below for descriptions.

L1: Propane gas units at normal altitude.

L2: Propane gas units at high altitude.

A1: Natural gas units at normal altitude.

A2: Natural gas units at high altitude.

5. After selecting the appropriate gas setting above, press the "SW1" test button to record the gas type code into memory. The LED will then display the Flue Block Function. Set this function to the appropriate code by using the "▲" and "▼" buttons. See below for correct setting. Please confirm that "F1" appears on the LED display for models.

F0: Set Flue Block Function to OFF for Australian model units.

F1: Set Flue Block Function to ON for all American models.

6. Press the "SW1" test button to enter the Flue Block Function ON into memory.
7. Next the Temperature Classification code will appear on the LED display. Again using the "▲" and "▼" buttons you can select a Fahrenheit or Celsius readout. See below for examples.

°F = American models

°C = All other models

8. After selecting °F press the "SW1" test button to enter your selection into memory.

THE LED DISPLAY TURNS BLANK AND THE UNIT RETURNS TO THE NORMAL OFF MODE. YOU ARE NOW READY TO PROGRAM IN YOUR CORRECT LOW FIRE AND HIGH FIRE GAS PRESSURE SETTING. FOLLOW PROCEDURE BELOW FOR SETTING THE MANIFOLD GAS PRESSURE. DO NOT ADJUST GAS PRESSURE ON THIS APPLIANCE USING THE APPLIANCE REGULATOR SCREW.

9. With your manometer gauge zeroed and connected, press the ON/OFF button and operate furnace.
10. Press the "SW1" test switch located in the upper right hand corner of the PC board. "78" or 7/ will be displayed on the indicator LED.
11. Press the "SW1" switch again and change to Low pressure mode. "PL" will be indicated on the display.
12. Record your pressure reading on your manometer. If the Low fire pressure needs adjusting, this can be achieved by pressing the "▼" button to decrease the pressure or the "▲" button to increase the pressure. Set unit to correct pressure as shown below, for gas type unit is operating on.

Low fire pressure at normal altitude is 4.3", (110 mm) water column on propane gas .

Low fire pressure at high altitude is 4.3", (110 mm) water column on propane gas.

Low fire pressure at normal altitude is 2.0", (50 mm) water column on natural gas

Low fire pressure at high altitude is 2.0", (50 mm) water column on natural gas.

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13. Press the Economy button, the LED will then display "18" indicating the low pressure has been recorded into memory.
14. Next press the "SW1" switch twice. This puts you into the high fire mode. "PH" will be indicated on the LED. Adjust the high fire pressure using the "▲" button to increase the pressure and the "▼" button to decrease the pressure.
15. Adjust the high fire pressure using the "▲" to increase the pressure and the "▼" button to decrease the pressure as listed below:

High fire pressure at normal altitude is 10.1", (257 mm) water column on propane gas.
High fire pressure at high altitude is 7.3", (186 mm) water column on propane gas.
High fire pressure at normal altitude is 3.7", (94 mm) water column on natural gas.
High fire pressure at high altitude is 2.7", (68mm) water column on natural gas.
16. Press the Economy button to enter the high fire pressure into memory. The LED display will indicate "78".
17. Press the On/Off button again. The LED display turns blank and the unit returns to the normal off mode.
18. Reconfirm all pressure settings before putting said unit back into operation. Next, disconnect your manometer from the unit and reinstall the 1/8" test port plug. Leak test all connections once the conversion process has been completed.

NOTE: THE REGULATOR HAS BEEN FACTORY PRE-SET. IF THE PRESSURE IS INCORRECT, CHECK THE SUPPLY PRESSURE FIRST, BEFORE MAKING ANY ADJUSTMENTS TO THE APPLIANCE. ALSO, IF THE LOW CONTROL PRESSURE CANNOT BE OBTAINED IN STEP 12, ADJUST THE ADJUSTMENT SCREW ON THE PROPORTIONAL VALVE TO ROUGHLY SET PRESSURE AND THEN RECHECK BOTH THE LOW AND HIGH FIRE PRESSURES. SEE STEP 12 FOR LOW FIRE PRESSURE AND STEP 15 FOR HIGH FIRE PRESSURE.

INLET GAS SUPPLY	MAXIMUM	MINIMUM
Natural gas- inches W.C.	10.5"	5"
Propane/LP gas - inches W.C.	13"	11"