REFERENCE:

HhC 3240 Field Conversion, Propane Gas to Natural Gas.

DISTRIBUTION:

Authorized Service Providers.

APPLICATION:

All Propane Gas HhC 3240 ovens with only Natural Gas available at the location.

ANNOUNCEMENT:

All HhC 3240 ovens are gas type specific. The ovens will operate on both natural gas and propane (LPG) gas, but minor adjustments must be made to the orifice size, gas pressure, and combustion air to make the change from one to the other. The following steps illustrate a field gas conversion from propane gas to natural gas.

PART REQUIRED:

HHC-3007 - HhC 3240 Propane Gas to Natural Gas Conversion Service Kit, contains:

- Natural gas orifice w/ flex connector hose
- Field Service Bulletin, FSB10072
- “NAT” label for rating plate

TOOLS REQUIRED:

Phillips screwdriver
7/8” open-end wrench (x2) or equivalent
Gas leak detector soap solution (or equivalent leak test method)
Digital manometer able to register pressures as low as 0.1” W.C. (T.C. P/N HHC-3001)
Muti-meter able to register DC micro amps

Converting the HhC 3240 from Propane Gas to Natural Gas:

1. Replace the orifice
   a. Ensure the oven is in the “Oven Off” mode.
   b. Disconnect the electrical and gas supplies
   c. Remove the rear cooling fan tube and the burner compartment cover. Locate the burner orifice (Figure 1, page 2).
1. Replace the orifice (continued).

d. Remove the yellow propane gas orifice (P/N 103633) and install the blue natural gas orifice (P/N 103628). Confirm final connections are secure.

2. Program the Combustion Motor Speed Controller (Emerson brand)

   a. Reconnect electrical and gas supplies.

   b. Press the key and use the and keys to navigate to parameter P01.

   c. Press the key and use the and keys to adjust parameter P01 to 00.0.

   d. Press the key and use the and keys to navigate to parameter P02.

   e. Press the key. Use the and keys to adjust P02 to 69.0.

   NOTE: This setting is the same for both the 90-degree and the in-line burner configurations.

   f. Press the key to exit the program mode. Close the left end bell.
3. Ensure Proper Oven Operation

A leak test must be performed on all previously altered gas connections. TurboChef suggests using a soapy water solution; however, follow local safety codes and regulations pertaining to gas leak testing. Local codes are the prevailing authority.

a. Turn on the gas supply.

b. Confirm proper gas pressures, connect the digital manometer and observe operation. Burner must light smoothly. Leak test all connections.

NOTE: Operating Gas Pressures: (the same pressures for both propane and natural gas) are:
- 3.5” W.C. @ 100% flame, 0.1” W.C. @ low flame. The only exception is I2L type gas for which the 100% flame pressure is 4.0’ W.C. This gas type is used in certain parts of Europe. Check with the gas supplier in the area to confirm.

Proper procedures for gas pressure testing are outlined in the service manual P/N HHC-6652. An abbreviated version is attached in this Field Service Bulletin on pages 4 and 5.

c. Ensure proper micro amps are present on the flame sensor during operation.

1. In the Off or Cooling Down mode, remove the flame signal wire from the GND terminal of the ignition module.
2. Connect a multi-meter able to read DC micro amps in series with the flame signal wire and the GND terminal. (Figure 3)
3. Select a cooking profile to activate the Warming Up mode and observe the meter.

NOTE: Readings must register between 3 and 10 micro amps. If reading is significantly lower than 3, remove the burner assembly and inspect or replace the flame sensor assembly.

d. Replace burner compartment cover and rear cooling fan tube.

e. Select a cooking profile and ensure the oven reaches the set temperature. Perform a test cook to confirm proper operation.

4. Apply the “NAT” Label

Apply the “NAT” label to the rating plate located on the oven’s back panel. Place the label over the gas type originally engraved as “LP.”
Gas Setup

A digital manometer that will read 0.10” WC (2.54 mmH₂O, 0.249 mb) must be used to properly set all pressures. If the minimum pressure is not set correctly, the oven temperature will slowly rise in stand-by mode and eventually cause cooking issues as well as trip the high limit temperature switch. Digital manometers (HHC-3001) are available through TurboChef; call 800.90TURBO (+1 214-379-6000) for pricing and availability.

Reading the Incoming Gas Pressure (Static)

1. Ensure the oven and all the equipment in the piping system are off (pilot lights are acceptable).
2. Remove the burner compartment cover and cooling fan tube.
3. Remove the screw from the upper tap of the gas valve.
4. Attach the digital manometer to the upper tap of the gas valve (Figure 4). This tap will show the incoming pressure before the internal regulator of the gas valve.
5. The pressures must be no less than 6” W.C. (152.4 mmH₂O, 14.94 mb) and no more than 14” W.C. (350.6 mmH₂O, 34.87 mb). Otherwise, severe damage to the equipment can occur.
6. Reattach the screw to the upper tap of the gas valve.

Reading the Gas Pressure at 100% Flame

1. Ensure the oven is on.
2. Select a cooking profile.
3. Remove the screw from the lower tap of the gas valve.
4. During warmup (both fan speeds are at 65% and the oven is at 100% flame), attach the manometer to the lower tap of the gas valve (Figure 4).
5. Verify that the maximum operating pressure is 3.5” W.C. (88.9 mmH₂O, 8.71 mb), unless operating I₂L gas.

NOTE: I₂L gas requires a pressure of 4” W.C. (101.6 mmH₂O, 9.96 mb).
6. If not, use an 8mm nut driver to adjust the 8mm nut (Figure 4) until the manometer reads 3.5” W.C. (88.9 mmH₂O, 8.71 mb), unless operating I₂L gas, as noted above (turn clockwise to increase the pressure, counterclockwise to decrease the pressure).
7. Reattach the screw to the lower tap of the gas valve.
Reading the Gas Pressure at Minimum Flame

1. Remove either the red or white wire (Figure 4).
2. Attach the electric manometer to the lower tap of the gas valve (Figure 4).
3. Verify that the minimum operating pressure is 0.10” W.C. (2.54 mmH₂O, 0.249 mb).
4. If not, use a 5mm nut driver to adjust the 5mm nut until the electric manometer reads 0.10” W.C. (2.54 mmH₂O, 0.249 mb) (turn clockwise to increase the pressure, counterclockwise to decrease the pressure).
5. Reconnect the wire you removed.
6. If adjustments were made, re-check 100% flame pressure (see adjacent procedure).

Reading the Operating Gas Pressure

1. Ensure the oven is on.
2. Select a cooking profile.
3. Remove the screw from the upper tap of the gas valve.
4. During warmup (both fan speeds are at 65% and the oven is at 100% flame), attach the manometer to the upper tap of the gas valve (Figure 4).
5. Ensure that the pressure is no less than 6” W.C. (152.4 mmH₂O, 14.94 mb)and no more than 14” W.C. (350.6 mmH₂O, 34.87 mb).
6. Reattach the screw to the upper tap of the gas valve.

Confirming Proper Closure of all Taps

Additional testing may be required - always adhere to local gas codes and required methods of leakage testing in the immediate location (refer to the regulations in force in the country in which the appliance is being installed). The prevailing authority is the local code (or regulations).

1. Turn on the gas supply.
2. Spray all gas connections with a soap solution.
   - If growing soap bubbles are observed, a leak is present. Immediately shut off the gas supply.
   - If no growth occurs, the connections are intact. Turn off the gas supply.