



# Technical Data Sheet

## Waitsfield 8770 NG Conversion Kit

Assembly 97-56700

### KIT CONTENTS:

- 2 - main burner orifice, #45 (U.S.)
- 1 - valve orifice, adjustable
- 1 - valve conversion key
- 1 - conversion label 3300-656
- 1 - conversion label 3300-583
- 1 - warning label 3300-587
- 1 - installation manual

### TOOLS REQUIRED:

- 5/32" (4mm) hex key
- Flat-head screwdriver, 5/16" bit
- Flat-head screwdriver, 3/32" bit
- #2 Phillips screwdriver
- 7/16" wrench
- 1/4" wrench
- 1/2" wrench
- Manometer

#### **WARNING**

*This conversion kit must 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, explosion or production*

**CAUTION: FUEL CONVERSION PROCEDURE REQUIRES THE USE OF A MANOMETER DUE TO CONTROLLED PRESSURE ADJUSTMENTS. DO NOT ATTEMPT CONVERSION WITHOUT A MANOMETER.**

This Natural Gas (NG) fuel conversion kit is for use with the Hearthstone Waitsfield 8770 only. This kit is suitable for installations at elevations up to 4500 feet above sea level. It is not necessary to de-rate the Waitsfield 8770 at elevations above 2000 feet.

**Table is provided for reference during NG conversion procedure only. For full specifications, refer to main manual.**

Specification	NG
INPUT RATING (Btu/hr) 0-2000 ft	37,000
INPUT RATING (Btu/hr) 2000-4500 ft	37,000
ORIFICE SIZE (DMS) 0-2000 ft	45F/45R
ORIFICE SIZE (DMS) 2000-4500 ft	45F/45R
MANIFOLD PRESSURE - LO SETTING* (in.w.c./kPa)	1.2/0.30
MANIFOLD PRESSURE - HI SETTING (in.w.c./kPa)	3.4/0.85
INLET PRESSURE - MINIMUM (in.w.c./kPa)	5.0/1.25
INLET PRESSURE - MAXIMUM (in.w.c./kPa)	11.0/2.74
MINIMUM INPUT RATING LO SETTING* (Btu/hr)	18,000

\*Full burner (front and rear), minimum pressure setting.

### Instructions

**CAUTION: THE GAS SUPPLY SHALL BE SHUT OFF PRIOR TO DISCONNECTING THE ELECTRICAL POWER, BEFORE PROCEEDING WITH THE CONVERSION.**

LP conversion orifices are identified by size stamped on side of part. Ensure that orifice sizes are correct before installation.

*Note: Do NOT adjust and/or alter any components marked with tamper-indicating paint.*



**Figure 1 – Orifices, Marking Locations**

#### To Switch Pilot to LP Operation:

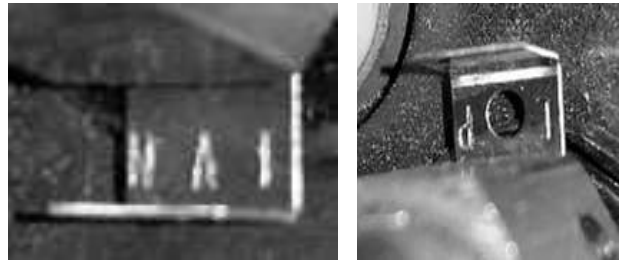
The pilot assembly in the Waitsfield 8770 is a slide convertible unit, requiring only a 7/16" open-end wrench for conversion. To convert pilot from LP to NG:

1. Open firebox and remove logs, burner, and pilot shield. Refer to Waitsfield 8770 main product manual for guidance.
2. Using the 7/16" wrench, grasp the pilot tower and turn counter-clockwise about 1/4 turn.



**Figure 2 – Loosening Pilot Tower**

3. Look at the front edge of the base of the pilot tower. You will see the NG/LP Pilot Orifice Gate protruding toward the rear of the pilot tower and the letters the letters "LP" will be visible on the upper horizontal surface, separated by a punched hole. Slide the gate forward in the Pilot Tower by pushing on the upturned edge by the "LP" lettering until the upturned edge is flush with the Pilot Tower surface. You will see the NG/LP Pilot Gate protruding from the front edge of the Pilot Tower and the letters "NAT" will be visible.



**Figure 3 – Pilot Orifice Gate, NG and LP**

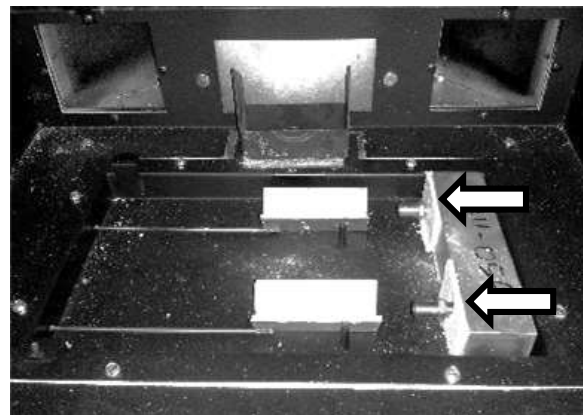
4. While holding the NG/LP Pilot Gate in the NG visible position, grasp the Pilot Tower with the 7/16" wrench and turn clockwise until the tower is snug. The Pilot Hood should be oriented such that one pilot flame is directed at the thermocouple and the other is facing the main burner (see Figure 4).



**Figure 4 – Correct Pilot Hood Orientation**

#### To Replace Main Burner Orifices:

Using a 1/2" socket or wrench, grasp orifice hoods and turn counter-clockwise until loose and remove. Replace with #45 orifices in front and rear, turning clockwise until snug.



**Figure 5 – Main Orifice Location**

Reinstall burner, pilot shield, and logs. Ensure that pilot, pilot shield and burner are properly positioned (see Figure 12). Reinstall front glass, and front and top cast.

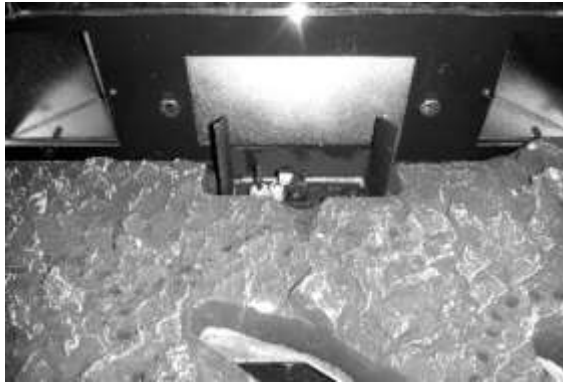


Figure 6 – Pilot, Shield, and Burner Position

#### To Convert the Valve to NG Operation:

- 1) Perform all other conversion procedures (pilot and burner orifices) **first**, before proceeding with valve conversion.
- 2) Remove the stove front access panel to expose valve system.
- 3) Locate the outlet pressure screw on front of valve (see figure 7)

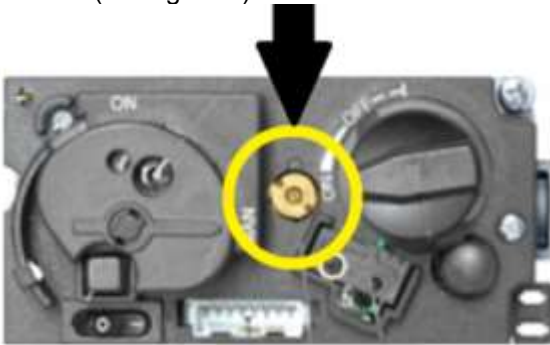


Figure 7 – Outlet Pressure Screw

- 4) Select a new, square bladed flat tip screwdriver large enough to span the entire head of the outlet pressure screw (see Figures 8 and 9).

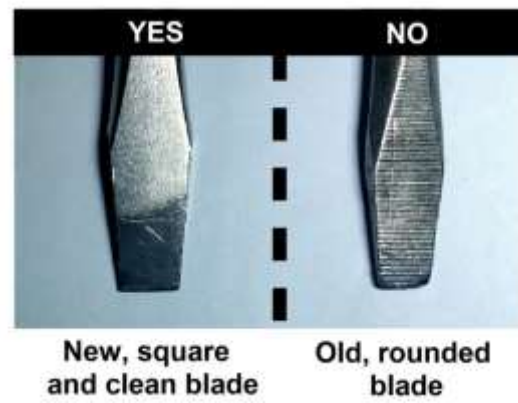


Figure 8 – Appropriate Bit Shape

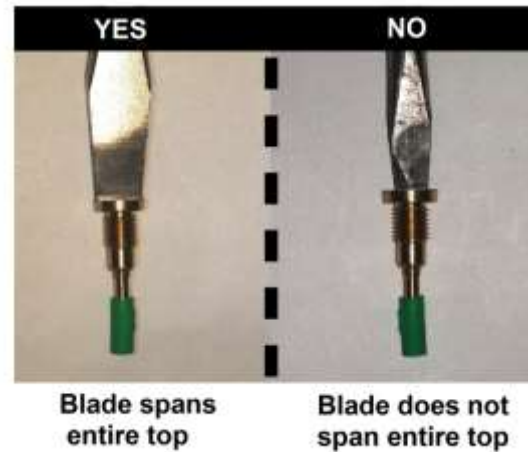


Figure 9 – Selecting Proper Driver Size

- 4) Turn the turn the outlet pressure screw housing counter-clockwise to remove (see Figure 10). **Be careful not to engage the small flat slot in the center of the screw itself but use only the larger slot of the screw housing to remove the unit. Do not strip the shoulders!**

Do not remove using small, center screw head. USE ONLY THE OUTER SLOTS.

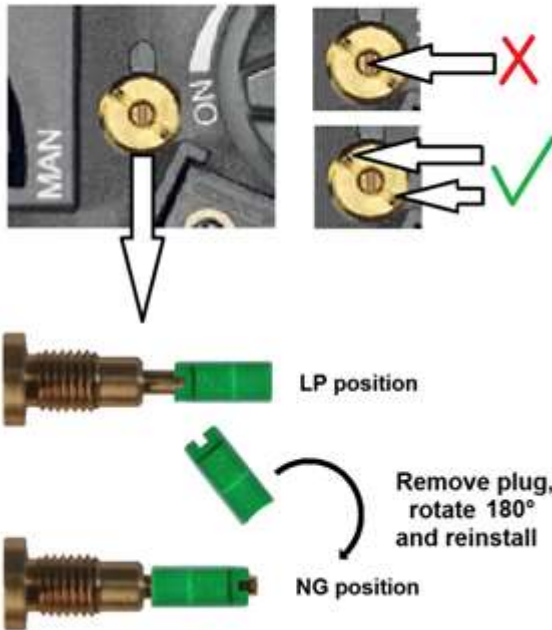


Figure 10 – Outlet Pressure Screw

- 5) With the screw assembly removed from the valve, grasp the plastic spacer on the screw end and gently pull to remove (use caution to not rotate the shaft to which the spacer is mounted). See Figure 10.
- 6) Rotate the spacer 180° and then slide it back onto the conversion plug until it snaps into place. The spacer is marked 'NG' at one end and 'LP' at the other. In NG configuration, 'NG' marking is closest to threads, and brass pin of conversion plug extends through spacer. In LP configuration, 'LP' marking is closest to threads, and spacer extends beyond end of conversion plug.
- 7) With spacer in correct position for the desired fuel type, reinstall the conversion plug by screwing it clockwise until snug. Be careful not to over tighten.

**The low pressure orifice must also be changed following the steps below.**

- 1) Loosen the front valve bracket screws with a 1/4" wrench, one per side (Figure 11).
- 2) By pushing down on the front of the valve and control system assembly, swing the system down to expose the low pressure orifice (Figure 12).

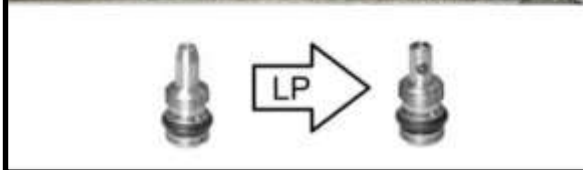


Figure 11 – Front Valve Mounting Bracket Screw (from left side of stove)



Figure 12 – Low Pressure Orifice Access, Valve System Tilted Down.

- 3) Remove the orifice using either the included flat blade conversion tool (first 500 stoves) or a 5/32" (8mm) hex wrench. It may be necessary to lightly pry the orifice out of the valve body after fully loosening due to the oring mounted to its top.
- 4) Insert adjustable low pressure orifice in the receptacle, press firmly with finger to compress o-ring and engage threads, and tighten halfway using hex wrench. **Do not fully tighten.**
- 5) Confirm that all other conversion procedures are complete, then **adjust valve pressure (see page 5).**



- 6) **When conversion is complete and pressures have been set**, grasp the underside of the valve system mounting bracket and swing it back up into original position.
- 7) Fully tighten the front valve bracket screws loosened in Step 1 and the valve is fully converted for NG use.

### Adjusting Gas Pressures:

Verify that inlet pressures are correct before adjusting valve pressures. Pressure taps are located on the side of the valve body as shown in the Owner's Manual.

To verify inlet pressure, with stove in operation, loosen threaded plug of inlet pressure tap and connect manometer. Retighten plug when finished. If inlet pressure is not within the acceptable range (see table, page 1), take steps to correct inlet pressure before proceeding with valve adjustments.

### To Adjust Valve Low Pressure:

**NOTE: THE MANIFOLD LOW PRESSURE MUST BE SET AT TIME OF CONVERSION.**

**CAUTION: OUTLET PRESSURE ADJUSTMENT REQUIRES THE USE OF A MANOMETER. DO NOT ATTEMPT TO ADJUST OUTLET PRESSURE WITHOUT A MANOMETER.**

**CAUTION: MANIFOLD PRESSURE SHOULD ONLY BE ADJUSTED BY AN AUTHORIZED SERVICE TECHNICIAN.**

1. Connect a manometer to the valve outlet pressure tap.
2. Light stove and place **full burner (front and rear)** in operation on low (fully turned down, minimum manifold pressure).
3. With hex wrench, tighten or loosen low pressure orifice to set minimum manifold pressure to **1.2 iwc (0.30 kPa)**.

### To Adjust Manifold High Pressure:

**CAUTION: THE VALVE MAXIMUM OUTLET PRESSURE SHOULD ONLY BE ADJUSTED BY AN AUTHORIZED SERVICE TECHNICIAN AND IS PRE-SET AT THE FACTORY.**

1. Light stove and place **full burner (front and rear)** in operation on high (fully turned up, maximum manifold pressure).
2. Confirm that maximum manifold pressure is **3.4 iwc (0.87 kPa)**. If pressure is correct, no further adjustment is required.
3. If adjustment is necessary, use 3/32" screwdriver to turn the small, central pressure regulator adjustment screw (see Figure 10) to adjust maximum manifold pressure.

**Note:** *Pressure regulator adjustment screw is marked with tamper-indicating paint. Pressure regulator adjustment screw must be adjusted by an authorized service technician. Do not adjust unless necessary.*

When adjustments are complete, remove manometer and close pressure tap(s) by turning the screw(s) fully clockwise until snug. Check all connections/pressure tap(s) for leaks.

### Checking for leaks:

#### To perform initial gas leak test:

1. Check carefully for gas leaks immediately after the conversion has been performed. **Do this before attempting to operate the appliance or other gas burning device.**
2. Use an approved non-corrosive leak detection fluid, or other approved leak detection method, around the diaphragm flanges, pipe connections, seal cap, and all other joints. Bubbles indicate a leak.
3. If no leakage is detected, proceed with the instructions listed below to light the main burner and perform a secondary leak check of the appliance gas supply system.
4. If a leak is detected, tighten pipe connections (including adapters) and retest.

#### To perform secondary leak test:

1. Light stove. With the main burner in operation, apply an approved leak test solution to all tubing, pipe connections, and adapters, and the valve inlet and outlet. Bubbles indicate a leak.
2. If no leak is detected, appliance is safe to use.
3. If a leak is detected, tighten pipe connections (including adapters) and retest.

**WARNING**  
Absolutely no leakage should occur, otherwise there is a danger of fire or explosion depending upon conditions. Never use if leakage is detected.

**If pilot adjustment is necessary, refer to the appropriate section of the Owner's Manual**

#### To verify input rate:

The approximate input rate of the converted Waitsfield may be checked as follows:

1. Ensure that no other gas appliances are in operation.
2. Place Waitsfield in operation on high, and allow to burn for 15 minutes.
3. Using residential gas meter, measure the time in seconds required for the Waitsfield to consume 1 cubic foot of gas.

4. The gas consumption of the Waitsfield in BTU per hour may be calculated as (3,600 x heating value of gas) ÷ seconds to consume 1 cubic foot. Use local gas supplier's heating value, or use 2,500 for LP or 1,012 for NG.

EXAMPLE: Using LP with a heating value of 2,500, and a time of 392 seconds (6 minutes 32 seconds):

$$(3,600 \times 2,500) \div 392 = 9,000,000 \div 392 = 22,959 \text{ BTU per hour}$$

**Note:** Waitsfield may operate safely up to 105% of its rated input, or 38,850 BTU per hour. If Waitsfield input is incorrect, it is necessary to adjust the gas supply pressure. Supply line/manifold gas line pressure adjustments must be performed by qualified service personnel. Do not attempt to complete any part of the installation or adjustment of this unit unless technically qualified to do so.

#### Conversion label placement:

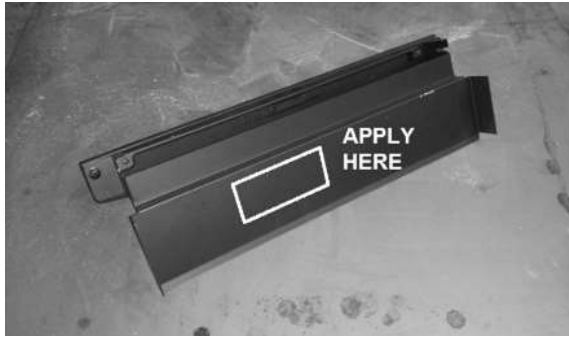
When fuel conversion is complete, fill out and apply included marking labels to the appliance as shown.

Fill out all fields on large rating plate conversion label 3300-656 (number in lower right corner) and place over field provided on stove lighting instruction tag (see Figure 14).



**Figure 14 – Rating Plate Conversion Label Location**

Fill out all fields on smaller ash lip conversion label 3300-593 and place on inside surface of ash lip (see Figure 15).



**Figure 15 – Rating Plate Conversion Label Location**

Place small valve warning label 3300-587 on or near valve body (see Figure 16).



**Figure 16 – Valve Warning Label Location**