

## Technical Data Sheet

### Installation of the Tudor Primary Air Upgrade Kit

91-86200 For Use On Tudors with Serial Numbers Below 1976

Date: 5/26/2005

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#### MATERIALS REQUIRED:

Identify Parts by Letter in Photo #1

- (1) 5120-019: Shutter Box -**A**
- (1) 5120-017: Shutter -**B**
- (1) 5120-015: Shutter Bracket -**C**
- (1) 5120-012: Bottom Shutter Plate - **D**
- (1) 5120-013: Top Shutter Plate - **E**
- (1) 3160-124: Orifice Gasket - **F**
- (1) 3160-123: Burner Gasket - **G**
- (1) 4200-0855: 10-24 Nut - **H**
- (2) 4500-3436: 10-24 x 3/8" (f) Pan Head Screws - **I**
- (1) 4500-2160: 10-24 x 1-1/4" Pan Head Screw - **J**
- (3) 4500-3435 8-32 x 3/8" (f) Pan Head Screws -**K**

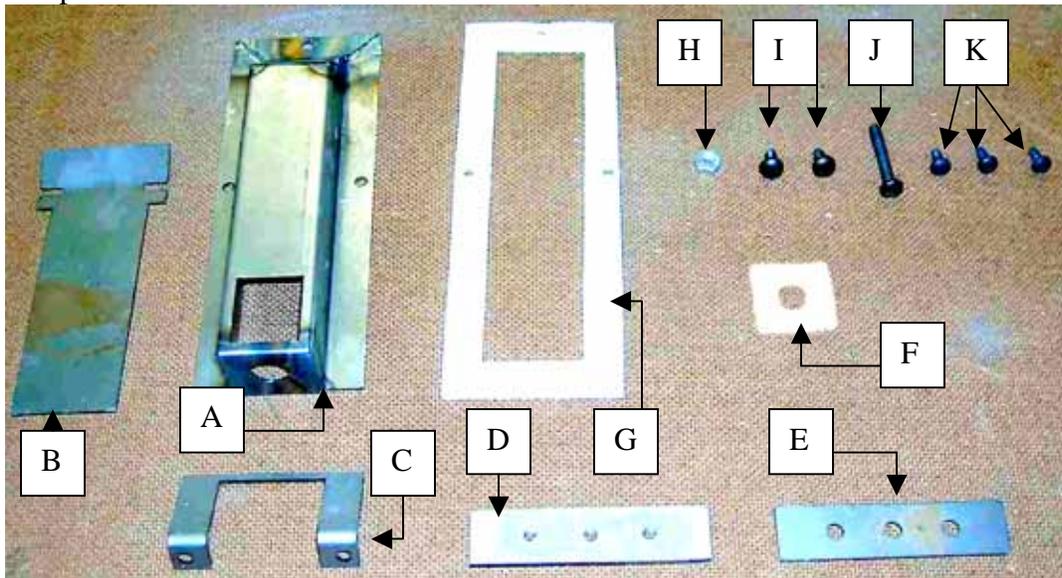
#### TOLLS REQUIRED

- Flat Screwdriver
- 5/16" Box Wrench
- Needle Nose Pliers
- 3/8" Box Wrench
- Phillips Screwdriver

**NOTE:** This shutter was designed to improve the flame aesthetics on the Natural Gas burning Tudor stove with serial numbers below 1976. It is factory installed on all Tudors with higher serial numbers.

**WARNING:** An authorized HearthStone dealer or qualified gas service technician should only service the Tudor gas stove.

**BEFORE YOU BEGIN:** Work on a cold stove. Turn off the stove and the gas supply to the stove at the shutoff valve. Lay out the parts and confirm that all are present in the kit. The kit components are shown in Photo #1.



**Photo #1**  
Kit Components

HearthStone Quality Home Heating Products  
317 Stafford Ave., Morrisville, VT 05661

(802) 888-5232

Web: [www.hearthstonestoves.com](http://www.hearthstonestoves.com)

(802) 888-7249 Fax

**PROCEDURE:**

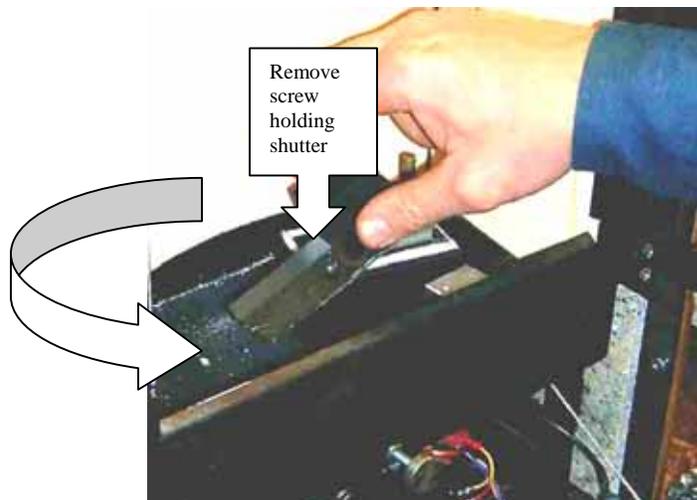
- 1) Open the doors and remove the front cast and glass assembly by grasping both sides of the front cast façade and lift it upward and then outward. Carefully set this piece aside, using care not to chip an enameled piece. Next, locate the two rotating clips above the glass panel. Using a flat screwdriver, rotate the clips up and out of the “locked” position. Tilt the glass forward and lift it off the stove. Set it aside where it will not be damaged.
- 2) Now you can carefully remove the logs and the burner to gain access to the air shutter. Handle the logs and burner with extreme care so as not break, chip, or rub off the coating (see Photo #2).



**Photo #2**  
With the logs removed,  
Gently lift the burner up  
and to the left to  
remove it.

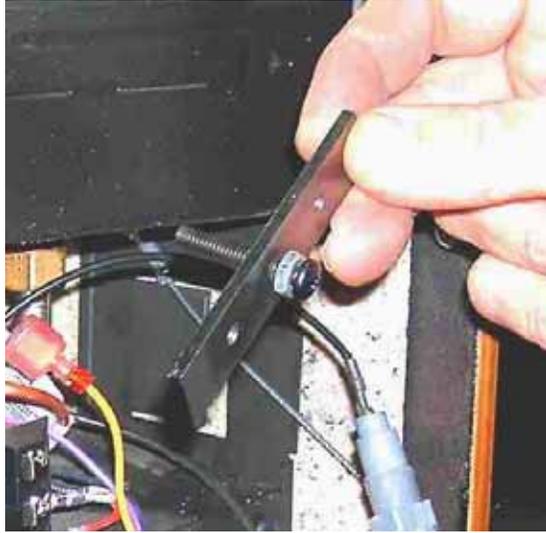
- 3) With a 5/16” box wrench, remove the lower plate adjustment screw and the original shutter (see Photo #3). These pieces can be discarded.

**Photo #3**  
Removing the  
original shutter.



- 4) Assemble the 10-24 x 1-1/4" screw, nut, and lower plate (see Photo #4). Turn the nut onto the screw and turn the screw into the threaded hole in the center of the plate.

**Photo #4**  
Assemble the  
lower plate.



- 5) Hold the lower plate with the screw threads up and through the slot in the bottom of the firebox so you can align the screw holes with the open slot in the firebox (see Photo #5).
- 6) Install the upper plate with the two 10-24 x 3/8" screws provide making sure that the center screw would still turn freely as you tighten the outer screws. After you have tightened the two retaining screws, turn the center screw down until it is approximately 1/2" above the bottom of the firebox (see Photo #6).



**Photo #5** – Lower plate held under the firebox



**Photo #6** –Upper plate installed inside the firebox

- 7) Remove the old primary air box and gasket from the bottom of the burner that was removed in step #2. Discard the box and gasket.

- 8) Install the new gasket and shutter box to the bottom of the burner by aligning the pieces and holding them together by turning in the end screw (8 – 32 x 3/8") as shown in Photo #7.

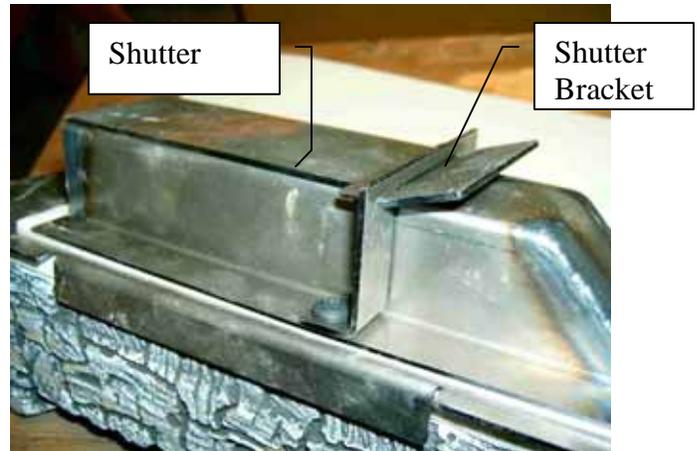


**Photo #7**  
Loosely install one of the three retaining screws here to hold the burner, gasket, and box together.

- 9) Assemble and install the shutter and shutter bracket as shown in Photo #8. Secure the assembly with the two remaining screws. Tighten all three screws.

**Photo #8**  
Installation of the shutter plate and shutter bracket.

Place the shutter onto the box as shown with the shutter bracket on top and secure with screws provided.



**Photo #9**  
Tighten all three screws



- 10) Using a pair of Needle-nose Pliers, bend the tab on the right side of the burner (See Photo #10) being careful not to damage the fragile ceramic burner.



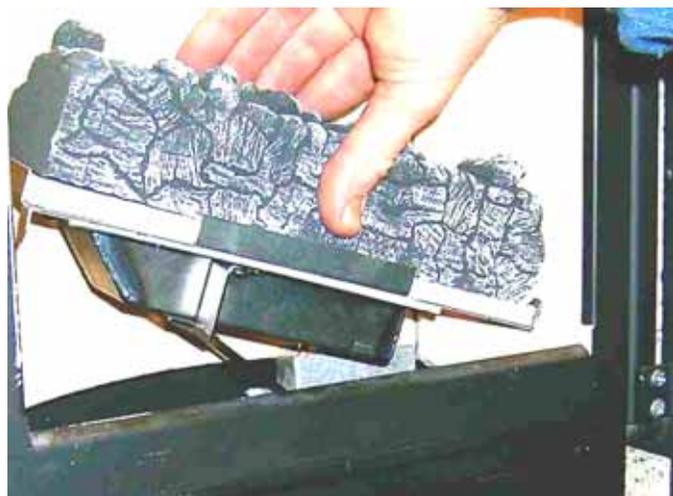
**Photo #10**  
Bend the tab  
up.

- 11) Place the white ceramic gasket onto the burner orifice in the stove (see Photo 11).

- 12) Reinstall the burner assembly by placing it into the firebox, close to its original position. Angle the right side down (see Photo 12) so that with some maneuvering the hole on the side of the air box will fit over the burner orifice. The orifice will fit inside the primary air box with the edge of the primary air box tight against the white ceramic gasket on the orifice. When properly placed, the burner will sit level and have a slight gap at the front lip of the firebox.



**Photo #11** - Place the white ceramic Gasket over the burner orifice.



**Photo #12** - Installing the converted burner assembly.

- 13) To adjust the primary air, turn the screw (accessible from above the valve) up to reduce the primary air and down to increase it. To adjust for Natural Gas, turn the screw until you see the burner move, indicating the shutter is fully closed. Turn the screw back to level the burner.
- 14) Carefully place the log set back into the firebox as described in the owner's manual.
- 15) Reinstall the glass assembly by lining up the two tabs on the bottom of the assembly with the two slots on the firebox. Slide the lower portion of the glass assembly into the slots and push the top in against the firebox. While holding it in this position, rotate the locking clips down into the closed or "locked" position. Reinstall the front façade by sliding the upper portion onto the lip of the top and tilting the bottom in flush with the glass assembly. It should then be snug in place. Make sure the glass assembly is properly secured to the firebox before turning the unit on. Be careful not to chip the enamel (if enameled) when installing the glass assembly or front cast.
- 16) Turn on the gas and follow the instructions on the valve access door for lighting the stove.
- 17) If necessary, fine-tune the shutter to achieve the proper flame. Starting with the shutter set as described in step 13, allow the burner to operate for about 15 minutes. Your flame should have yellow tips, but avoid dark orange flames that will produce soot. Make small adjustments to the shutter after the burner has operated for about 15 minutes.



**Photo #13**

Proper flame appearance:

1. The flame should not be dirty, smoky, sooty, or lick the top of the stove.
2. The flame should not lift up and off the ceramic burner.
3. Flames should not impinge heavily on the log set. They should "fit" through the pre-formed spaces designed in the log set.