

HAZARD INTENSITY LEVELS

1. **DANGER:** Failure to comply will result in severe personal injury or death and/or property damage.
2. **WARNING:** Failure to comply could result in severe personal injury or death and/or property damage.
3. **CAUTION:** Failure to comply could result in minor personal injury and/or property damage.

REZNOR *Thomas&Betts*



OPTION ED1 BURNER AIR SHUTTERS

INSTALLATION FORM RGM 434/436-AS-A
Obsoletes Form 434/436-AS-1

APPLIES TO: Models F, FE, B, and BE

WARNING: Failure to install and/or adjust air shutters according to directions could cause property damage, personal injury and/or death.

WARNING: Improper installation, adjustment, alteration, service, or maintenance can cause property damage, injury or death. Read the installation, operation, and maintenance instructions thoroughly before installing or servicing this equipment.

OPTION DESCRIPTION AND APPLICATION

Air shutters are designed and should be used only to control the flow of **excess** primary air to the main burners. Excess flow of primary air is evident when main burner ignition is difficult or delays and/or burner resonance is heard. Air shutters should not be installed unless these conditions are present. Improper use of air shutters can cause such problems as soot, smoke, and excess carbon monoxide generation.

When installed according to these instructions, the air shutters in this option package are designed to restrict primary air flow equally to all burners. The air shutters are also equipped with a

fixed stop to limit the amount of adjustment and restriction of primary air. Under no conditions should these stops be removed.

For your safety, follow these installation procedures:

- Install the air shutters according to the instructions.
- Check to be certain that no part of the shutters restrict flow from the orifice jets.
- Adjust the shutters to eliminate the problem condition. Close the air shutters no more than is necessary to eliminate the problem.

The burner air shutter option packages include the following components (See Figure 1):

HEATER SIZES	25		50		75		100		125		250		300		400	
	Qty	P/N	Qty	P/N	Qty	P/N	Qty	P/N	Qty	P/N	Qty	P/N	Qty	P/N	Qty	P/N
Option Package P/N		98476		98477		98478		98479		98480		98481		98482		98483
Air Shutter Assembly	1	98277	1	98278	1	98279	1	98280	1	98281	1	98282	1	98283	1	98284
Sheet Metal Screw, #10 x 3/4" long	2	20859	2	20859	2	20859	2	20859	2	20859	2	20859	2	20859	2	20859
Spacer, 1/4" diameter x 7/16" long	2	98872	2	98872	2	98872	2	98872	2	98872	2	98872	2	98872	2	98872

Figure 1 - Air Shutter Assembly Option



INSTALLATION INSTRUCTIONS

Installation should be done by a qualified service agency in accordance with the instructions on this sheet and in compliance with all codes and requirements of authorities having jurisdiction.

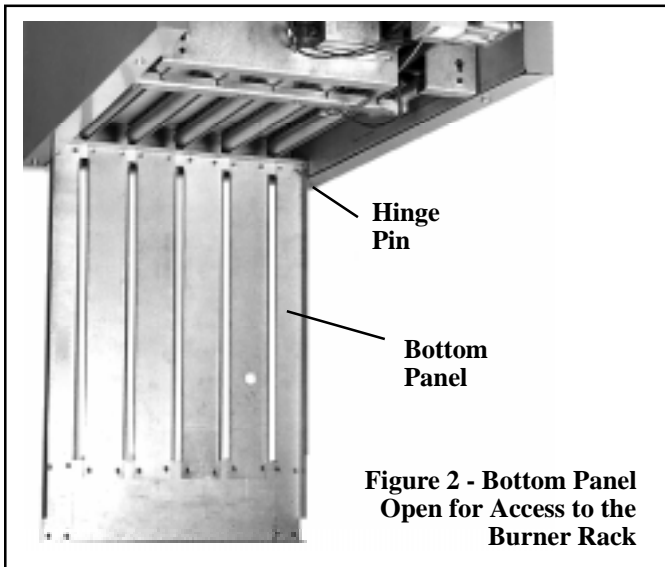
Tools Required: 5/16" Nut Driver, Slotted Screwdriver

1. If the heater is installed, turn off the gas and the electrical power.
2. **Remove the Burner Rack**

In order to install the air shutter assembly, the burner rack must be removed from the heater. Follow these instructions to remove the burner rack.

- a) Remove the two sheet metal screws located at the rear of the bottom access panel, allowing the bottom panel to hinge down from the front. Push in one of the hinge pins located at the front of the bottom panel (inside), and completely remove the bottom panel (See Figure 2.)

INSTALLATION INSTRUCTIONS (cont'd)



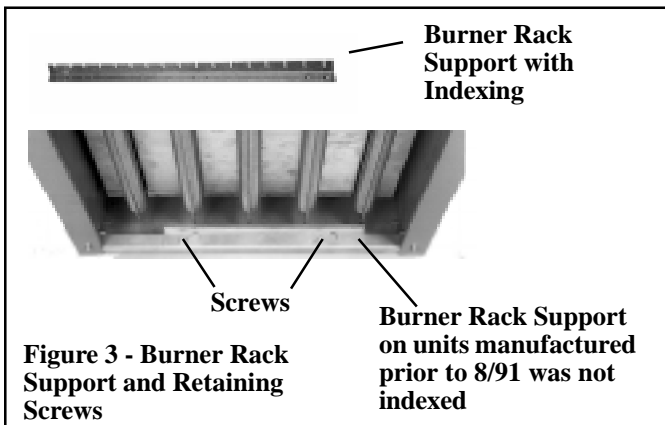
b) The bottom of the pilot assembly is now visible. Do the following:

- 1) Disconnect the pilot tubing from the pilot burner.
- 2) For standing pilot, disconnect the thermocouple from the valve.
- 3) For spark pilot, disconnect the flame sensing wire and high tension (spark) lead from the ignition controller.

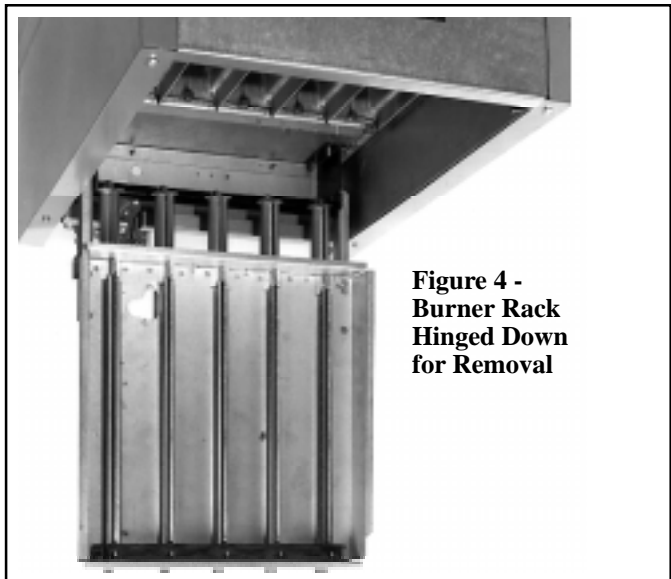
c) Remove the Burner Rack

Heaters manufactured beginning 8/91 (Serial No. Date Code AQH) - The burner rack support is indexed as illustrated in Figure 3. While supporting the burner rack, remove the screws (two or three) that hold the burner rack support. (For screw location, refer to Figure 4.) Remove the burner rack support allowing the burner rack assembly to swing down (See Figure 4).

Heaters manufactured prior to 8/91 (Serial No. Date Code AQH) **Loosen** the sheet metal screws (two or three) located at the front of the burner rack assembly. See Figures 3. These screws retain the burner rack support. While supporting the burner rack assembly, slide the burner rack support and remove it from the screws, allowing the burner rack assembly to swing down (See Figure 4).



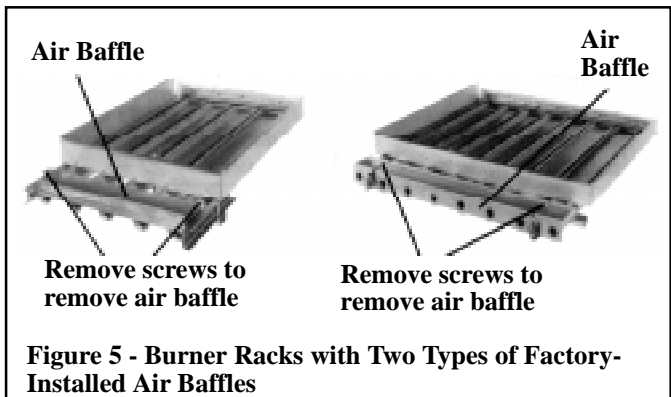
To Remove the Burner Rack -- With the burner rack assembly "hanging" down, lift up on the rear and slide the assembly up and out of the manifold support brackets.



d) Allow the front of the burner rack assembly to drop down lifting up on the rear and sliding the complete burner rack assembly up and out of the manifold support brackets. The burner rack assembly should now be completely removed from the heater.

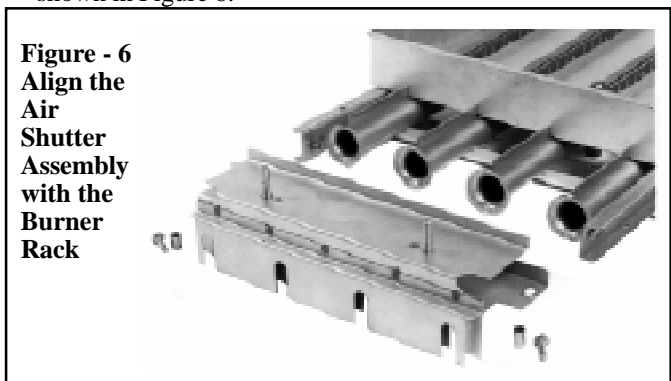
3. Remove Air Baffle (if applicable)

You may have to remove a factory-installed air baffle from the burner rack. Visually inspect the burner rack to determine if it is equipped with either of the air baffles illustrated in Figure 5. Not all heaters are equipped with an air baffle. If your burner rack is factory-equipped with an air baffle, remove and discard the air baffle. Figure 5 indicates which screws to remove.



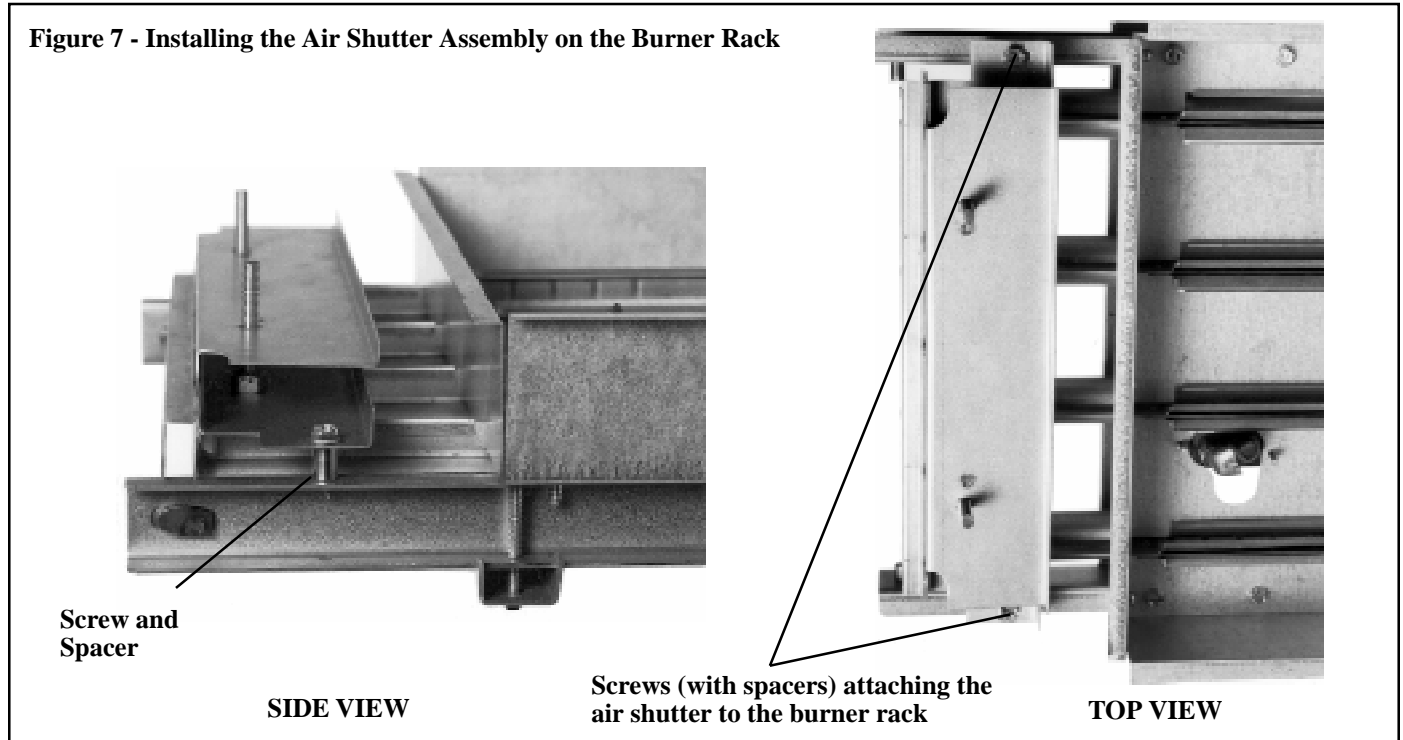
4. Install the Burner Air Shutters

a) Align the air shutter assembly with the front of the burners as shown in Figure 6.



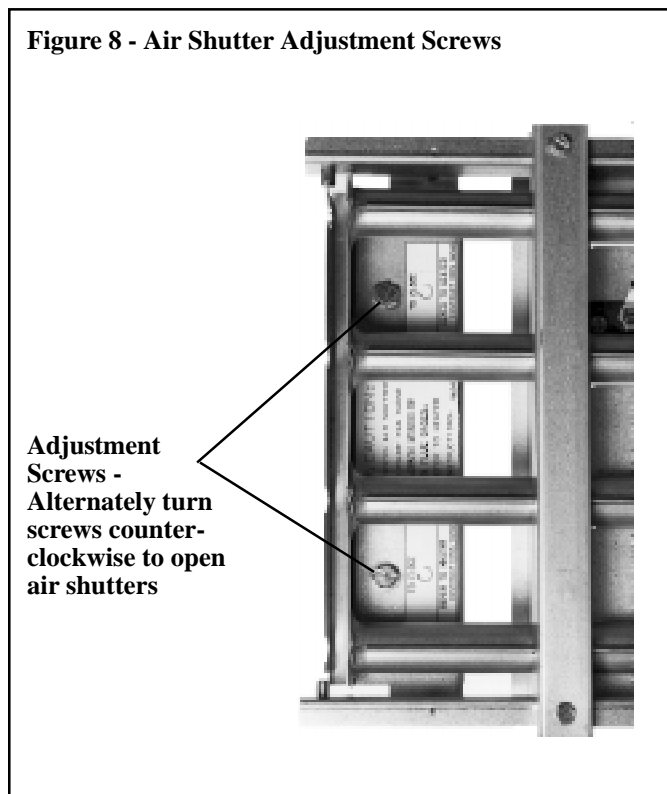
- b) Position the air shutter assembly against the front of the burners.
- c) Position the spacers between the slotted holes in the air shutter assembly and the holes in the burner rack assembly. The

holes in the air shutter assembly are slotted to enable the air shutter assembly to fit tightly against the burner openings. Insert the sheet metal screws through the spacers and tighten. Be sure that the air shutter assembly fits tightly against the burner rack. See the illustrations in Figure 7.



5. Open the Air Shutters

Turn the burner rack over so that the adjustment screws are visible. (See Figure 8.) If the air shutters are not open, open the shutters by alternately turning the adjustment screws counter-clockwise.



6. Re-Assemble the Heater

- a) Place the burner rack on its supports and lift it into position.
- b) Replace/tighten the burner rack support.
- c) Re-connect the pilot assembly.
- d) Place the bottom panel on the hinge pins but do not close.

Be careful to re-assemble the heater correctly to ensure that no unsafe conditions are created.

7. Start-Up and Air Shutter Adjustment

Turn on the electric and the gas. Light according to the instructions on the heater. Using a leak-detecting solution, check the pilot connections for leaks. Tighten as needed.

WARNING: In the event of a pilot outage or improper ignition, wait at least five minutes before attempting to relight the heater.

Allow the heater to operate for about fifteen minutes before adjusting the air shutters. When the adjustment is made, close the air shutters no more than is necessary to eliminate the problem condition.

Observe the flame for yellow-tipping. A limited amount of yellow-tipping is permissible for propane (liquefied petroleum) gas. Other fuels should not display any yellow-tipping.

Air Shutter Adjustment

Adjustment is made with the same adjustment screws that were used to open the air shutters before the burner rack was returned to the heater.

7. Start-Up and Air Shutter Adjustment (cont'd)

Air Shutter Adjustment (cont'd)

To close the shutter, reducing the primary air supply, alternately turn the screws clockwise. To open the shutters, increasing the primary air supply, alternately turn the screws counterclockwise. The two adjustment screws should be rotated alternately to open or close the shutters. Attempting to adjust without alternating between the two screws may cause the shutter to bind.

After proper adjustment has been completed, eliminating the problem condition, close the bottom panel and replace the retaining screws.

WARNING: Failure to install and/or adjust air shutters according to directions could cause property damage, personal injury and/or death.



DANGER: The gas burner in this gas-fired equipment is designed and equipped to provide safe and economically controlled complete combustion. However, if the installation does not permit the burner to receive the proper supply of combustion air, complete combustion may not occur. The result is incomplete combustion which produces carbon monoxide, a poisonous gas that can cause death. Safe operation of indirect-fired gas burning equipment requires a properly operating vent system which vents all flue products to the outside atmosphere. FAILURE TO PROVIDE PROPER VENTING WILL RESULT IN A HEALTH HAZARD WHICH COULD CAUSE SERIOUS PERSONAL INJURY OR DEATH.

Always comply with the combustion air requirements in the installation codes and in Paragraphs 6 and 7. Combustion air at the burner should be regulated only by manufacturer-provided equipment. NEVER RESTRICT OR OTHERWISE ALTER THE SUPPLY OF COMBUSTION AIR TO ANY HEATER. Indoor units installed in a confined space must be supplied with air for combustion as required by Code and in Paragraph 7 of this heater installation manual. MAINTAIN THE VENT SYSTEM IN STRUCTURALLY SOUND AND PROPERLY OPERATING CONDITION.

Thomas & Betts