



IM-200
June 1997

General Installation, Operation and Maintenance Instructions For Aerovent Products

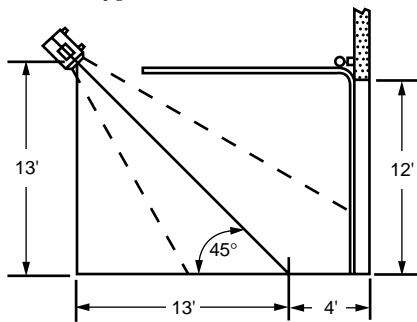
Gas Door Air Heater

Installation

1. Install the door heater in position required. Dimensions can vary to suit door opening. Heaters can be mounted in horizontal, angular or vertical position. Do not mount with control box upside down or on the bottom. Weight of unit is approximately 375 lbs.

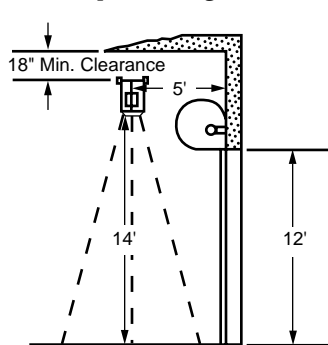
NOTE: Negative pressure in the building will have an affect on unit's ability to maintain an air curtain effect. This should be taken into account when locating the unit.

Typical Overhead Door



Angular Mounting Approx. 45°

Roll Top or Straight Lift Door



Vertical Mounting Used With Roll Top Doors

2. Connect electrical power. If the unit does not have a built-in disconnect switch, then an external disconnect should be provided by the installer. Be sure power supply is the proper voltage. These units are furnished for specified voltage.

3. Connect gas supply line using the regulator furnished with the unit. Consult your gas company service representative to determine the proper size for the gas line. This varies according to the pressure and length of the run. Required gas input can be determined by the chart, Fig. 1.

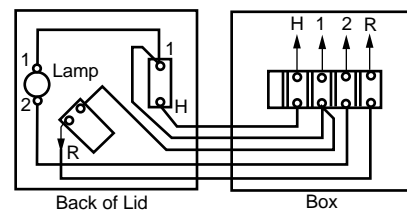
Fig. 1

NATURAL GAS MODEL NO.	INPUT BTU	NOMINAL TEMP. RISE	GAS PRESS.
24S728 NDH* 3/4 HP	325,000	73°F	1 oz.
	440,000	99°F	2 oz.
	580,000	131°F	3 oz.
24S728 NDH* 2 HP	440,000	66°F	2 oz.
	580,000	85°F	3 oz.
	680,000	102°F	4 oz.
	790,000	118°F	5 oz.
	870,000	130°F	6 oz.
	990,000	148°F	7 oz.

*PDH = Propane units

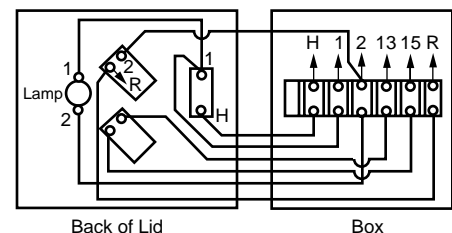
4. Mount operating station in a convenient location and make connections to the terminal strip in the unit as indicated in Fig. 2, or Fig. 3 for units supplied with optional high-low fire feature.

Fig. 2. Operating Station



Connect H, 1, 2, and R to terminal strip in unit control box.

Fig. 3. Operating Station with Optional Hi-Lo Fire



Connect H, 1, 2, R, 13 and 15 to terminal strip in unit control box.

- Mount door switch so it will trip to close the circuit when the door is open. The switch may be located so the heater will come on when the door starts to open or when fully open at the discretion of the user. See typical suggested installations.

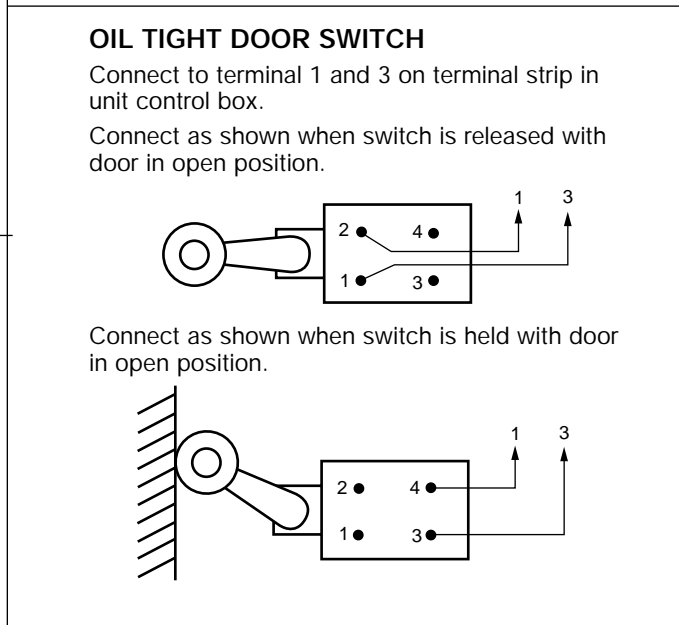
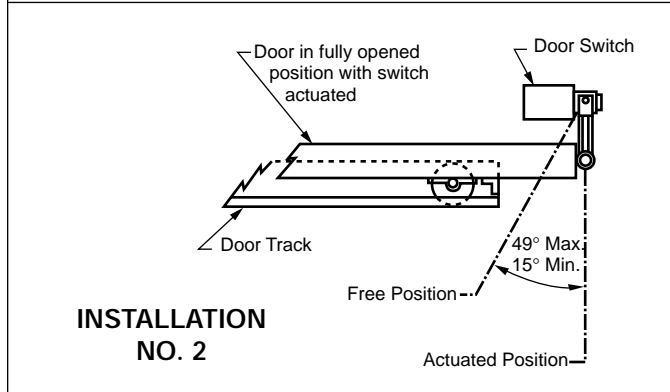
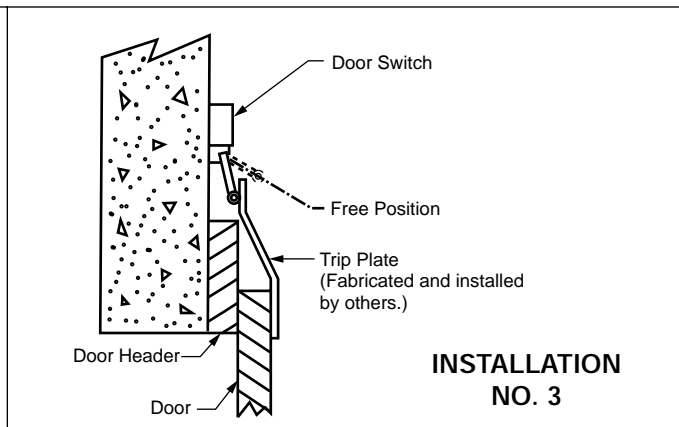
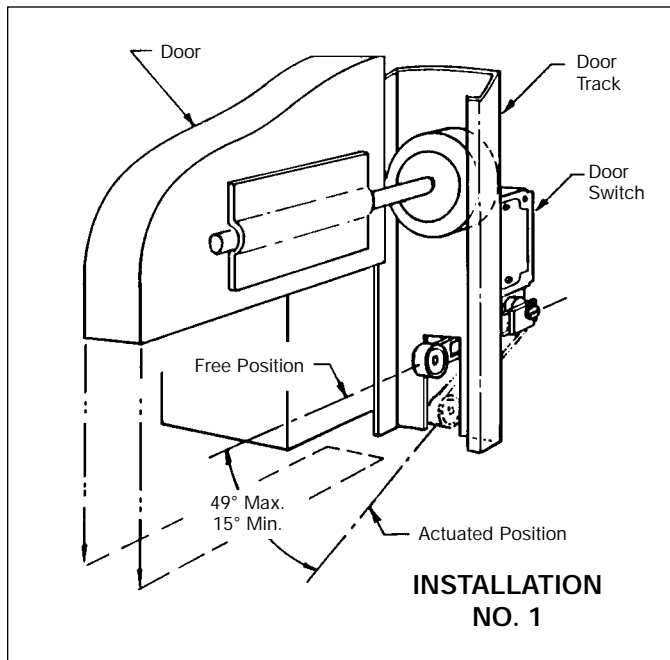
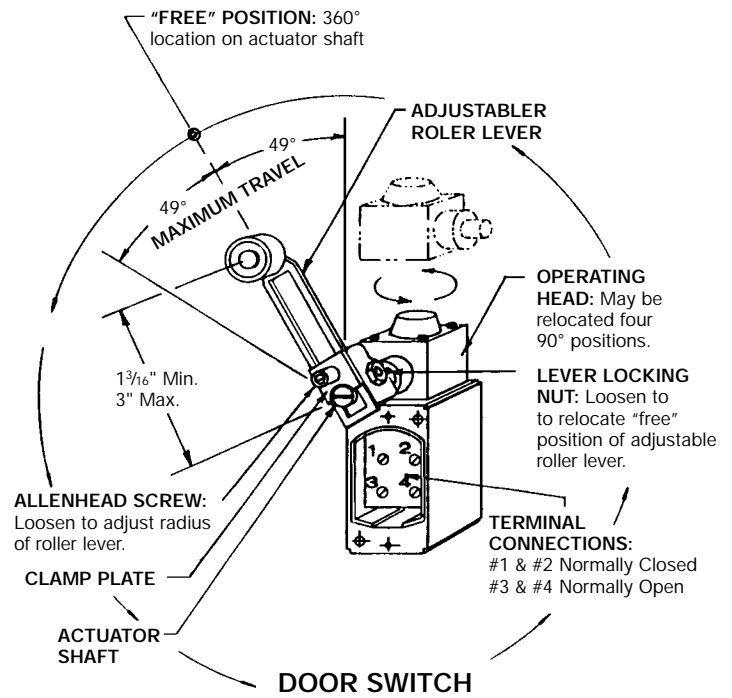
Door Switch and Suggested Installations

The door switch may be installed with the switch in the "free" position when the door is either opened or closed. If the switch is mounted so that it is in the "free" position when the door is open, use the normally-closed circuit, terminals #1 and #2. If the switch is mounted so that it is in the "free" position when the door is closed, use the normally-open circuit, terminals #3 and #4.

Installation #1: Floor Level Location - Switch is in "free" position when door is open. Use switch terminals #1 and #2. Heater will fire when door starts to open.

Installation #2: Overhead Location - Switch is in "free" position when door is closed. Use switch terminals #3 and #4. Heater will fire only when door is completely open.

Installation #3: Overhead Location - Switch is in "free" position when door is open. Use switch terminals #1 and #2. Heater will fire when door starts to open.



Standard Wiring and Piping Sequence of Operation

Unit can be operated manually with on-off switch in remote station or automatically from door switch on overhead door. Normal operation is to leave on-off switch "on" and cycle unit with door switch as overhead door on dock opens and closes.

Door opening closes switch between terminal #1 and #3; fan starts. Interlock (E) on fan starter (FSR) closes circuit between terminal #6 and #7. Electrical circuit is made to terminal #7 through high gas pressure switch (C) and airflow switch (D). Power on terminal #7 will cause primary combustion relay (RM7890) to pull in. Ignition occurs powered from terminal #9, main gas valves open powered from terminal #11.

Flame is proven through the flame rod and the RM7890 primary relay allows power to energize terminal #10 and de-energizes terminal #9 dropping out the ignition transformer.

If discharge temperature exceeds 200°F, high limit (A) between terminals #10 and #11 will open which de-energizes the gas valves. Loss of flame will cause combustion relay to lock out requiring manual reset on IRI, FM single valve and FM 2 valve. Standard unit will try to restart on flame loss.

Sequence of operation is similar for IRI and FM units. For schematic wiring, see the following reduction drawings:

Standard	R26871-00
IRI	R26870-00
FM Single Valve	R26870-00
FM Two Valve	R26869-00
All Piping Diagrams	R26872-00

Troubleshooting

1. Switch on-off toggle switch to "ON" position in remote station. Indicator light should come on. If not, check power supply to unit, fuse between H and XI or bulb to see if it has burned out.
2. Close door switch between terminal #1 and #3. Fan should start. If not, check overload on motor starter (manual reset) when fan starts auxiliary contact between terminal #6 and #7 closes. You should have 120 volts to terminal #7 (flame relay). If not, check high gas pressure switch (manual reset) or airflow switch. High gas pressure switch should be set at 21.0". Airflow switch should be set at 1.0".
3. When flame relay has power to terminal #6, it will go through a self-checking cycle and then power wire #9 from terminal #10, turning on ignition transformer and wire #10 from terminal #8, opening main valves. If ignition (spark) is occurring but valves do not open, check high limit between terminal #10 and #11. High limit should be set at 200°F. If spark is not occurring, check spark plug. Gap should be .072 and electrode should be clean (no carbon). If flame relay has power to it but flame cycle will not occur, reset flame relay (manual reset). If flames comes on momentarily and goes out, check flame rod. There

should not be any cracks in porcelain. Flame rod senses current in flame. To check if it is functioning, plug voltmeter into amplified module. Unit should be 0-5 volts D.C. (On older units equipped with RA890F, test jack is beside red reset button and unit should be minimum 2 microamps. Normal range is 2-5 microamps.)

4. IRI and FM units work the same as standard with the exception that they have a pilot which lights before the main flame comes on. If the pilot does not light, check to see that 1/4" pilot valve is opening, pilot gas line is not obstructed or pilot assembly in burner is intact. Also, there is a timer to turn pilot off after burner lights which should be set at approximate 5 seconds. Check timer to make sure it is functioning.
5. Some units are supplied with UV scanner (mini-peeper) rather than a flame rod. Flame current check should yield the same results as a flame rod: 0-5 volts D.C. (on older units equipped with RA890G flame relay, flame current should be minimum 1.5 microamps).

For additional troubleshooting guidance, refer to RM7890A1015 bulletin.

High-Low Fire Option

Units ordered with the high-low fire option are supplied with a 1" NPT SR600 two-stage valve mounted in the pipe train.

The SR600 provides an economical means of flame staging where infinite modulation is not required. Turn-down on low-fire is from 25% to 75% of high-fire. This valve is powered by a 24 volt AC transformer. When the coil is energized, the valve is at low-fire. When the coil is de-energized, it is at high-fire.

Adjustments

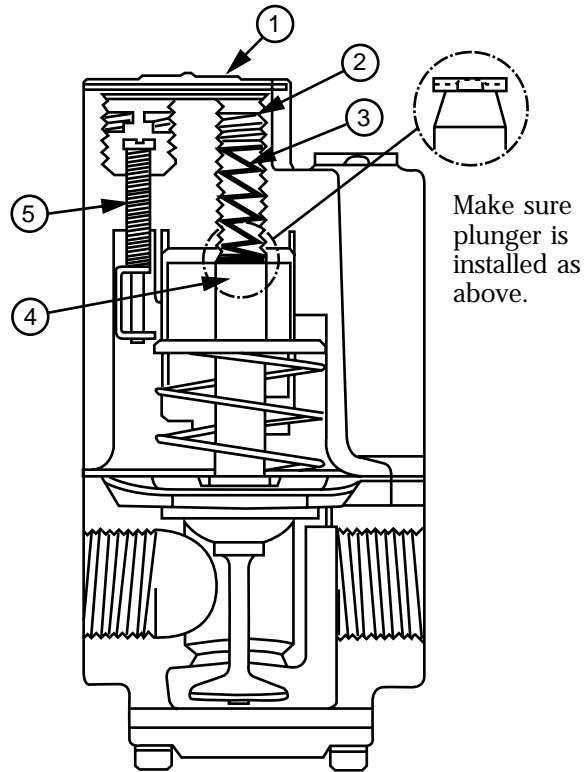
To check the minimum or low-fire and maximum or high-fire pressures for the limits of modulation or staging, use the following procedures:

To set minimum or low-fire

1. Remove cover plate ①.
2. Remove high fire adjusting screw ②, spring ③, and plunger ④. A small magnet is useful for this purpose. Handle plunger carefully to avoid marring or collecting dirt. Do not lubricate.
3. Modulation or Staging: Using low-fire adjusting screw ⑤, set manifold pressure to manufacturer's specifications (50% to 75% of high-fire).
4. Modulation or Staging: Cycle solenoid gas valve to check for proper ignition.
5. Modulation or Staging: Adjust air shutter or increase low-fire adjustment if needed.
6. Replace plunger, spring and high-fire adjusting screw.

To Set Maximum or High-Fire:

Note: To avoid danger of over-firing, make certain that inlet pressure is at 1.0" w.c. above the outlet pressure.



1. Modulation and Staging: Using high-fire adjusting screw ②, set manifold pressure to manufacturer's specifications. See page 1, Fig. 1.
2. Staging Only: Cycle burner to check performance.
3. Replace cover plate.



Aerovent

A Twin City Fan Company

5959 Trenton Lane · Minneapolis, MN 55442-3238
Phone (612) 551-7500 · Fax (612) 551-7501 · www.aerovent.com

