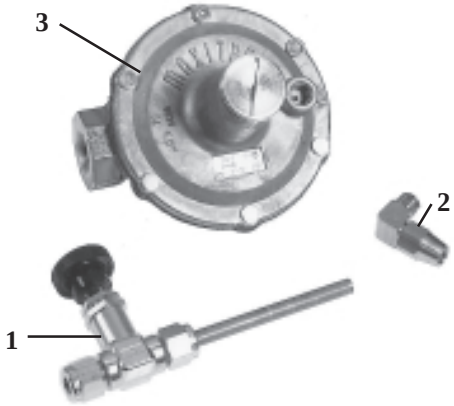
Pilot Needle Valve Conversion Kit for RDF Models

P/N 112645

Kit, **P/N 112645**, includes:

Code	Qty	P/N	Description
1	1	112710	Needle valve and tubing assembly (includes needle valve, Nupro B-4JNR, **P/N 112462**, and 2" long aluminum tubing, **P/N 112711**, installed on inlet side)
2	1	93388	Brass Elbow, 1/8" NPT x 1/4" (includes nut and ferrule)
3	1	112644	Pilot Regulator, Maxitrol 325-3



Pilot Needle Valve Conversion Kit, P/N 112645, for RDF Models manufactured prior to 12/90

Description/Application

This kit was developed to correct the problem of gas surges through the pilot valve. If surges of pilot gas are a problem, the addition of the needle valve and the replacement regulator in this kit will provide a better regulated flow of gas to the pilot. This kit applies to RDF units manufactured prior to December 1990.

Installation Instructions

1. Turn off the gas supply to the unit.
2. Turn off electrical power to the unit.
3. Remove the Pilot Regulator - Remove the electrical and burner control compartment service panels. Locate the pilot valve and the pilot regulator (See Figures 1A, 1B, and 1C).

Figure 1A - Pilot Valve GC #S311AF02N6 (P/N 86967) - will be re-installed

Figure 1B - Original Pilot Regulator, Maxitrol #R400S (being replaced by P/N 112644 - Item 3 above)

Disconnect the 1/4" pilot tubing from both the pilot valve and the pilot regulator. On the pilot regulator, remove the 3/8" x 1/8" NPT hex bushing from the inlet side. Save this bushing as it will be used when installing the new pilot regulator.

Remove the two sheetmetal screws attaching the pilot valve bracket to the heater panel. (Pilot valve is still sitting on the bracket, and wiring to the pilot valve is in tact. Save the screws to e-attach the bracket.) The pilot valve/pilot regulator assembly is now loose from the heater panel.

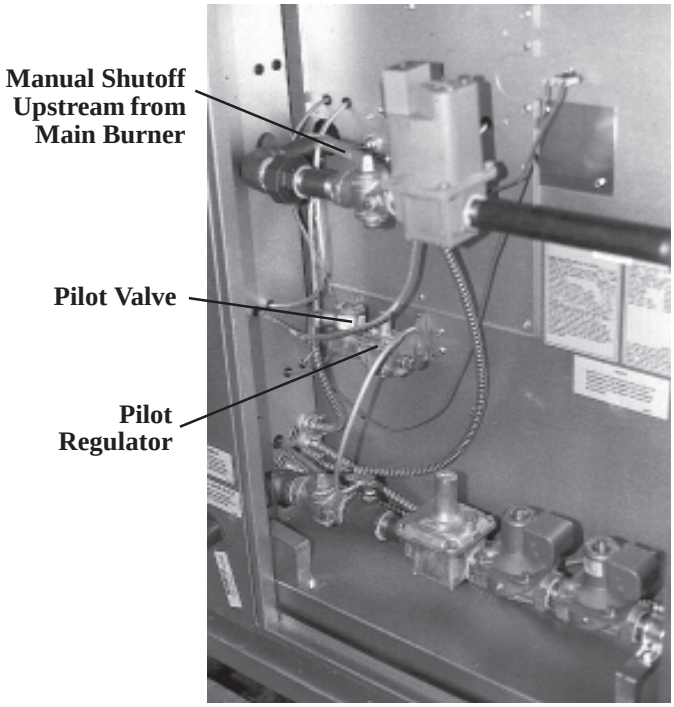


Figure 1C - Burner Control Compartment (arrangements vary with type of manifold option selected)

Loosen the 3/8" close nipple between the pilot regulator and the pilot valve. Remove the pilot regulator, leaving the close nipple attached to the pilot valve.

4. Install the new Pilot Regulator - Place a small amount of pipe thread compound on the 3/8" close nipple attached to the pilot valve. Check the direction of the flow arrow on the bottom of the new pilot regulator (Maxitrol 325-3). With e flow arrow pointing toward the pilot valve, thread the new pilot regulator on to the close nipple

   While the pilot valve/pilot regulator assembly is still detached from the heater panel, remove the 90o brass fitting from the outlet side of the pilot valve. (This fitting will not be re-used.) Replace the fitting with the brass fitting include in the kit. The new fitting includes a nut and ferrule tubing connection.

   The 3/8" hex bushing removed from the old regulator serves a dual purpose. It is not only a connection but also the method of attaching the regulator to the mounting bracket. Apply a small amount of pipe thread compound on the 3/8" NPT hex bushing, insert if through the hole in the bracket, and thread it into the pilot regulator (NOTE: Depending on the manifold arrangement, the pilot valve assembly may have to be relocated slightly to allow room for the addition of the needle valve. Before re-attaching the pilot valve bracket, position the bracket assembly and hold the new needle valve at the fitting on the outlet side of the pilot valve. If a position adjustment is necessary, remove the screws from the regulator bracket an adjust the position of the assembly to allow for the needle valve. Mark and drill the four new holes.) Re-attach the bracket(s) with sheetmetal screws.

   Re-connect the 1/4" pilot tubing to the bushing on the inlet side of the new installed pilot regulator.

5. **Install Needle Valve -** The needle valve comes pre-assembled to a short piece of aluminum tubing. To attache the needle valve to the pilot valve, place the end of that aluminum tubing into the nut and ferrule on the

new brass fitting attached to the outlet side of the pilot valve. Tighten this connection.

Using tubing cutters, remove the old nut and ferrule from the 1/4" pilot line. Remove any burrs from the end of the tubing. Connect the tubing to the needle valve using the nut and ferrule fitting on the needle valve. (Note: to provide proper connection, the nut and ferrule supplied with the needle valve must be used.)

6. Adjust the Pilot Regulator and the Needle Valve/Leak Test/Verify Pilot Flame Adjustment/Check Operation (FOLLOW ALL STEPS IN SEQUENCE)

1) Close all service panels except for the electrical and burner control compartment doors.

2) Adjust Regulator/Needle Valve - Adjust the pilot regulator seven complete turns counterclockwise from the maximum outlet pressure (completely closed). Adjust the needle valve tow complete turn counterclockwise from the completely closed position.

3) Check for Pilot Line Leaks -

a) Set the blower service switches and the burner service switch to "TEST" positions. (Switches are in the electrical compartment.) (NOTE: Placing blower and burner service switches in "TEST" position is necessary safety to override control from the remote console when the electrical power is on at the disconnect switch.)

b) Turn on the electrical power to the unit.

c) Close manual shutoff valve immediately upstream from the main burner. (See Figure 1C.)

d) Turn on gas supply to the unit.

e) Using a leak-detecting solution, check all connections in the pilot line. Correct any leaks.

WARNING: Never test for gas leaks with an open flame. Failure to comply could result in severe personal injury, property damage, or death.

4) Check Length of Pilot Flame (2 persons recommended)

Since the gas pressure in the pilot line will vary depending upon the size of the unit and the airflow across the burner it is necessary to verify that the "standard" adjustments made in Step (2) are correct for your installation. The only way to do this is by visually checking the length of the pilot flame.

a) Turn off electrical power to the unit.

b) Set the blower service switch and the burner service switch to "OFF" positions.

c) On the side of the blower compartment opposite the burner controls (the pilot flame is not visible from the control side), remove the blower compartment door panel. Because the pilot flame will be affected if the door is completely open, it is necessary to remove the lower door panel, leaving approximately a 1" opening across the top.

CAUTION: When the blower energizes, the "loosened" door panel will be drawn to the cabinet. If holding the panel in position, do not put fingers between the door panel and the cabinet.

d) Turn on the electrical power to the unit.

e) Set the blower service switch and the burner service switch to "TEST' position.

f) Looking through the opening across the top of the blower compartment door panel, visually check the length of the pilot flame. The flame should be between 2" and 4". If the pilot flame is within the 2"-4" range, no further adjustment is required. If not, make adjustments to the pilot regulator and/or the needle valve until proper pilot flame length is achieved.

5) Restore the unit to normal operation

a) Turn off electrical power to the unit.

b) Set the blower and burner service switches to "OFF" positions.

c) Open the manual shutoff valve immediately upstream from the main burner.

d) Se the blower service and burner service switch to "RUN" positions.

e) Close all service panels.

f) Turn on electrical power to the unit.

g) Installation of the conversion kit is complete and the unit is restored to normal control Test the unit with remote console to verify proper operation.

1199 2M YL Form CP-23 (Version .1)