

SELECTION AND INSTALLATION INSTRUCTIONS

conversion from natural gas to propane gas and/or propane gas high altitude operation models TLP, RLP



WARNING

This conversion kit shall 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 or explosion may result causing property damage, personal injury or loss of life. The qualified service agency performing this work assumes responsibility for the proper conversion of this appliance with this kit.

AVERTISSEMENT

Cet ensemble de conversion ne doit être installé que par le représentant d'un organisme qualifié et conformément aux instructions du fabricant et à tous les codes et exigences applicables de l'autorité compétente. Quiconque ne respecte pas à la lettre les instructions dans le présent manuel risque de déclencher un incendie ou une explosion entraînant des dommages matériels, des lésions corporelles ou la perte de vies humaines. L'organisme qualifié qui effectue les travaux est responsable de la conversion correcte de ce générateur d'air chaud à l'aide de cet ensemble.

IMPORTANT

This kit must be used in conjunction with literature number 9-506, MAS9-506, 9-500, or MAS9-500, latest revision, unit installation and service manual.

The propane kits described in this manual provide the components and instructions required for field-converting any natural gas or propane gas unit to any propane gas model size, at any listed elevation.

For Units Being Converted from Natural Gas to Propane Gas at High Altitude Concurrently

Since each kit described in this manual contains a propane conversion regulator kit, a separate propane conversion kit is not necessary.

For Units being Converted from Propane Gas to Another Propane Gas Model Size and/or Altitude Concurrently

Follow the propane conversion instructions in this manual, discarding the propane conversion regulator kit and primary air shutter, since the original unit is already equipped with these components.

For Units Being Converted to High Altitude Operation

Gas-fired equipment ratings in the United States are certified for elevations above 2000 feet to meet ANSI Z223.1, which requires ratings to be reduced 4% for each 1000 feet above sea level. Certification in Canada requires ratings to be reduced 10% for elevations above 2000 feet. All of the high altitude kits described in this manual comply with these requirements.

To accommodate high altitude operation (over 2000 feet elevation), the units must be converted by changing gas orifices as explained in this manual.

All gas-fired products produced by Modine Manufacturing Company are rated at 600 feet above sea level using gas valves of either 1040 Btu/ft³ for natural gas or 2500³ Btu/ft for propane gas. Since gas values vary from location to location, be sure to account for the local gas value when sizing and selecting these products.

SELECTION

Convertible Control Code: 34, 74

Table 2.1 - Propane Gas Model Size Conversion Kit Selection Guide and Parts List (0 - 2000 ft. elevations)

Description									
Kit Item Code	40840	40841	40842	40843	40844	40845	40846	40847	40848
Kit Part Number	3H36739-1	3H36739-2	3H36739-3	3H36739-4	3H36739-5	3H36739-6	3H36739-7	3H36739-8	3H36739-9
Gas Orifice Drill Size	46	43	39	35	32	30	28	23	18
Air Restr. Plate Label	"50P"	"60"	"75P"	"85P"	"100"	"125P"	"150P"	"175P"	"200P"
Pressure Switch / Label Color	5H78034-9 Orange	5H78034-9 Orange	5H78034-10 Gray	5H78034-10 Gray	5H78034-11 Green	5H78034-12 Yellow	5H78034-7 Lt. Blue	5H78034-7 Lt. Blue	5H78034-13 White
Primary Air Shutter	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Regulator Kit for Honeywell SV9510	393691	393691	393691	393691	393691	393691	393691	393691	393691

Table 2.2 - Propane Gas Model Size and High Altitude Conversion Kit Selection Guide and Parts List (2001 to 4500 ft.)

Description									
Kit Item Code	42637	42638	42639	42640	42641	42642	42643	42644	42645
Kit Part Number	3H36793-1	3H36793-2	3H36793-3	3H36793-4	3H36793-5	3H36793-6	3H36793-7	3H36793-8	3H36793-9
Gas Orifice Drill Size	47	44	40	38	33	30	29	25	21
Air Restr. Plate Label	"50P"	"60"	"75P"	"85P"	"100"	"125P"	"150P"	"175P"	"200P"
Pressure Switch / Label Color	5H78034-16 Lt. Blue	5H78034-16 Lt. Blue	5H78034-17 Dk. Blue	5H78034-17 Dk. Blue	5H78034-15 Red	5H78034-12 Yellow	5H78034-12 Yellow	5H78034-12 Yellow	5H78034-18 Green
Primary Air Shutter	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Regulator Kit for Honeywell SV9510	393691	393691	393691	393691	393691	393691	393691	393691	393691
Serial Marking Plate	5H73734A	5H73734A	5H73734A	5H73734A	5H73734A	5H73734A	5H73734A	5H73734A	5H73734A

Table 2.3 - Propane Gas Model Size and High Altitude Conversion Kit Selection Guide and Parts List (4501 to 5500 ft.)

Description									
Kit Item Code	42646	42647	42648	42649	42650	42651	42652	42653	42654
Kit Part Number	3H36793-10	3H36793-11	3H36793-12	3H36793-13	3H36793-14	3H36793-15	3H36793-16	3H36793-17	3H36793-18
Gas Orifice Drill Size	47	44	41	38	34	31	29	26	22
Air Restr. Plate Label	"50P"	"60"	"75P"	"85P"	"100"	"125P"	"150P"	"175P"	"200P"
Pressure Switch / Label Color	5H78034-10 Gray	5H78034-10 Gray	5H78034-17 Dk. Blue	5H78034-17 Dk. Blue	5H78034-15 Red	5H78034-12 Yellow	5H78034-12 Yellow	5H78034-12 Yellow	5H78034-18 Green
Primary Air Shutter	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Regulator Kit for Honeywell SV9510	393691	393691	393691	393691	393691	393691	393691	393691	393691
Serial Marking Plate	5H73734A	5H73734A	5H73734A	5H73734A	5H73734A	5H73734A	5H73734A	5H73734A	5H73734A

Table 2.4 - Propane Gas Model Size and High Altitude Conversion Kit Selection Guide and Parts List (5501 to 6500 ft.)

Description									
Kit Item Code	42655	42656	42657	42658	42659	42660	42661	42662	42663
Kit Part Number	3H36793-19	3H36793-20	3H36793-21	3H36793-22	3H36793-23	3H36793-24	3H36793-25	3H36793-26	3H36793-27
Gas Orifice Drill Size	48	44	42	39	35	31	29	27	23
Air Restr. Plate Label	"50P"	"60"	"75P"	"85P"	"100"	"125P"	"150P"	"175P"	"200P"
Pressure Switch / Label Color	5H78034-10 Gray	5H78034-10 Gray	5H78034-6 Yellow	5H78034-6 Yellow	5H78034-15 Red	5H78034-12 Yellow	5H78034-12 Yellow	5H78034-12 Yellow	5H78034-18 Green
Primary Air Shutter	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Regulator Kit for Honeywell SV9510	393691	393691	393691	393691	393691	393691	393691	393691	393691
Serial Marking Plate	5H73734A	5H73734A	5H73734A	5H73734A	5H73734A	5H73734A	5H73734A	5H73734A	5H73734A

Table 2.5 - Propane Gas Model Size and High Altitude Conversion Kit Selection Guide and Parts List (6501 to 7500 ft.)

Description									
Kit Item Code	42664	42665	42666	42667	42668	42669	42670	42671	42672
Kit Part Number	3H36793-28	3H36793-29	3H36793-30	3H36793-31	3H36793-32	3H36793-33	3H36793-34	3H36793-35	3H36793-36
Gas Orifice Drill Size	48	45	42	40	36	31	30	28	24
Air Restr. Plate Label	"50P"	"60"	"75P"	"85P"	"100"	"125P"	"150P"	"175P"	"200P"
Pressure Switch / Label Color	5H78034-15 Red	5H78034-15 Red	5H78034-6 Yellow	5H78034-6 Yellow	5H78034-17 Dk. Blue	5H78034-12 Yellow	5H78034-18 Green	5H78034-18 Green	5H78034-18 Green
Primary Air Shutter	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Regulator Kit for Honeywell SV9510	393691	393691	393691	393691	393691	393691	393691	393691	393691
Serial Marking Plate	5H73734A	5H73734A	5H73734A	5H73734A	5H73734A	5H73734A	5H73734A	5H73734A	5H73734A

① Propane gas operation is not available at 50 ft. tube system length.

SELECTION

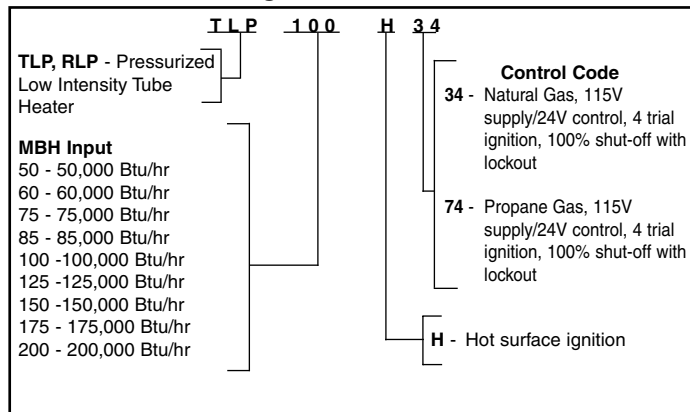
Identifying the Model and Control Code

Figure 3.1 explains the unit model number found on the unit's serial plate. Markings pertinent to verifying correct application of the conversion kits are identified and explained in detail. All of the following prerequisites must be satisfied before the unit is deemed convertible.

1. The first two characters in the model number must either be TLP or RLP.
2. The Control Code must be either 34 (for natural gas) or 74 (for propane gas).

Figure 3.1

Model Number Designations



Selection of the Proper Kit

IMPORTANT

This kit must be used in conjunction with literature number 9-506 or MAS9-506, latest revision, unit installation and service manual.

Referring to the model number on the unit serial plate, select the appropriate kit from Tables 2.1 - 2.5.

Example:

To convert a TLP10034 to propane gas operation at 0-2000 feet, select Item Code #40844. (The new TLP100H74 requires tube system lengths of either 30 or 40 feet.)

Example:

To convert a TLP100H34 to 150 MBH on propane gas at 5000 feet, select Item Code #42652. (The new TLP150H74 requires tube system lengths of either 50 or 60 feet.)

INSTALLATION

Installation of Kit



CAUTION

Gas supply shall be shut off prior to disconnecting the electrical power, before proceeding with the conversion. Failure to do so could result in fire, explosion or electrical shock.

Conversion of any unit is the responsibility of, and the risk of the person making the conversion.

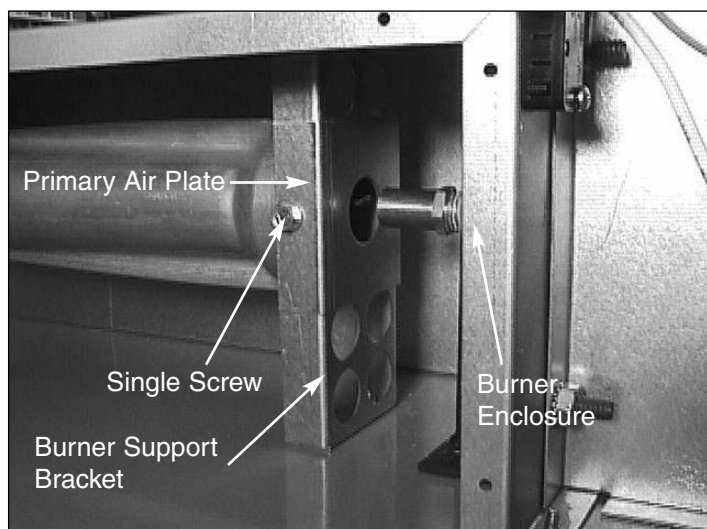
General

The gas valve regulator kit contains the following:

- Cap screw (Honeywell kits)
- Adjustment screw (Honeywell kits)
- Spring
- Label - Warning
- Instructions

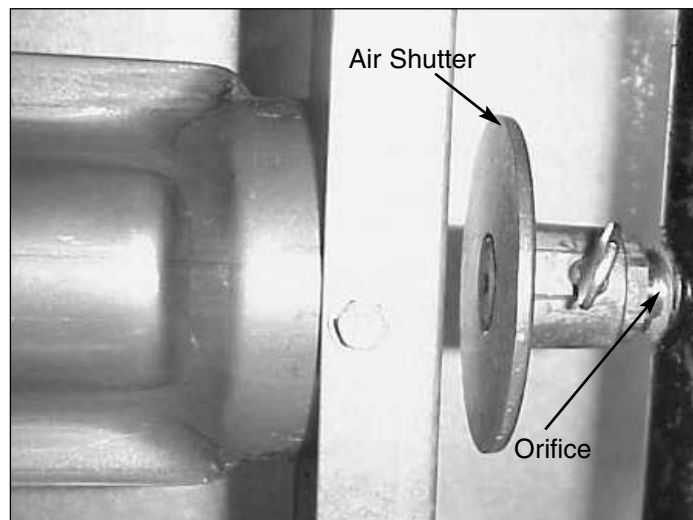
1. Ensure gas supply and electrical power disconnections have been made.
2. Remove burner box side access panel (two screws).
3. Remove burner enclosure panel (ten screws).
4. Remove the single screw and discard the natural gas primary air plate shown in Figure 4.1, which is found only on natural gas models with inputs of 50-125 MBH.

Figure 4.1 - Natural Gas Primary Air Plate



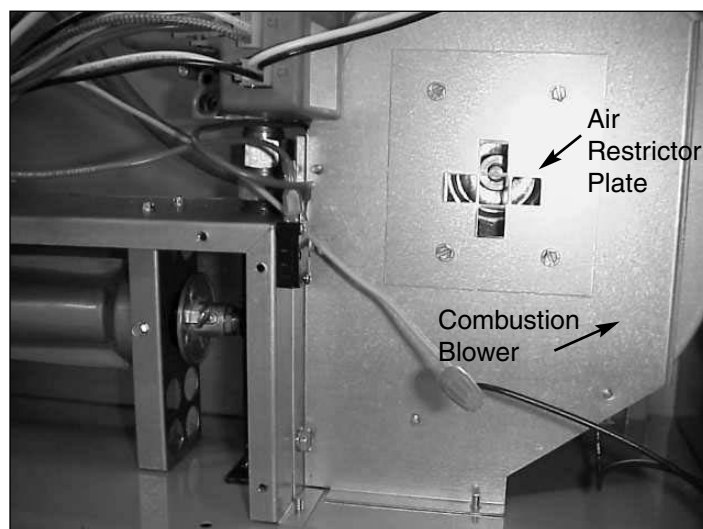
5. Loosen the screws for the burner support bracket (see Figure 4.1) to make clearance for the natural gas orifice removal.
6. Remove original gas orifice from the manifold. Discard this orifice, along with the attached orifice disk and o-ring found on natural gas inputs 50-85.
7. Slip the propane gas air shutter over the propane gas orifice and tighten. The air shutter flat side should be flush with the end of the propane gas orifice, as shown in Figure 4.2.

Figure 4.2 - Propane Gas Air Shutter and Orifice



8. Insert propane gas orifice into manifold. Refer to Tables 2.1 - 2.5 for correct gas orifice drill size. Tighten propane gas orifice using a wrench and ensure that it is gas-tight.
9. Tighten the burner support bracket and replace the burner enclosure panel.
10. Remove the air intake restrictor plate from the combustion blower inlet by removing four screws. Refer to Figure 4.3 for location of restrictor plate.

Figure 4.3 - Air Restrictor Plate

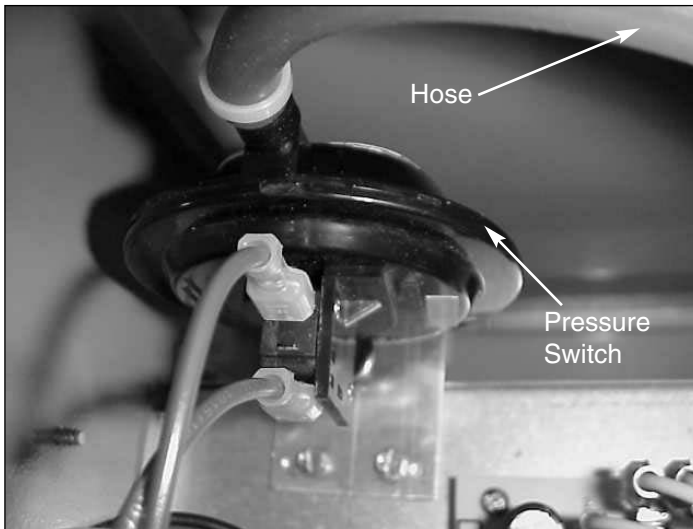


11. Install propane intake air restrictor plate. The air restrictor plate number is stamped onto the restrictor plate. Refer to Table 2.1 - 2.5 to verify the correct restrictor plate.

INSTALLATION

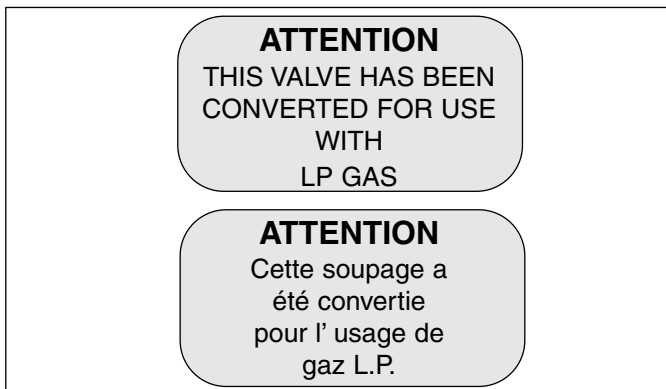
12. Remove the unit's pressure switch by removing the pressure hose, the two wire leads, and two mounting screws. See Figure 5.1.

Figure 5.1 - Pressure Switch



13. Install the new pressure switch. Ensure that the hose and two wire leads are properly connected to the pressure switch. Refer to Tables 2.1 - 2.5 to verify the correct pressure switch part number and label color.
- If the original unit is a natural gas model, proceed to #14 below.
If the original unit is a propane gas model, proceed to #16 below.
14. Modify the combination gas control to use propane gas by following the instructions in the regulator kit. Some conversion kits will have more than one regulator kit, specific to the manufacturer of the combination gas control (i.e. Honeywell, Robertshaw, etc.). Check the conversion kit parts list, Tables 2.1 - 2.5, for application of the correct regulator kit. A second check can be made by finding the model number on the combination gas control and matching it with the correct kit. Do not attempt to substitute one regulator kit for another.
15. Affix the appropriate propane conversion label (see Figure 5.2) to the gas valve. This label is supplied with the regulator conversion kit.

**Figure 5.2
Typical Combination Gas Control Conversion**



16. Affix the propane conversion rating plate (see Figure 5.3) adjacent to the unit's original rating plate, along with the high altitude conversion label (when applicable) shown in Figure 5.4. Be sure that all blanks on the label(s) are completely filled in.

**Figure 5.3
Conversion Rating Plate**

MODINE MANUFACTURING COMPANY CONVERSION KIT RATING PLATE	
This appliance was converted on to propane gas with kit no. _____ by: _____	
which accepts the responsibility that this conversion has been properly made. Use parts supplied by Commercial HVAC&R Division of Modine Manufacturing Company. Conversion to be performed by a qualified service technician.	
Appliance model number and input rating: See existing rating plate.	
Inlet gas pressure:	Minimum 12" W.C. Maximum 14" W.C.
Manifold gas pressure:	10" W.C.
Burner orifice size: # _____	drill
Ce générateur d'air chaud a été converti le _____ pour fonctionner au gaz propane à l'aide de l'ensemble n° _____ par _____	
(nom et adresse de l'organisme qui a effectué la conversion), qui accepte l'entière responsabilité de la conversion.	
5H73734A	

**Figure 5.4
High Altitude Conversion Label**

NOTICE	
THIS APPLIANCE EQUIPPED FOR HIGH ALTITUDE.	
MAIN BURNER ORIFICES CHANGED TO IN U.S.A. & IN CANADA: ACCORDING TO ANSI Z83.19/.20	<input type="text"/> DRILL SIZE.
PLACE THIS LABEL ADJACENT TO SERIAL PLATE.	
5H78225B	

INSTALLATION / CHECK-OUT PROCEDURE

17. Verify that all controls and wiring have not been damaged, then replace the burner box side access panel.



WARNING

Radiant tube baffle must be properly selected from Table 6.1 according to fuel type, burner input and tube system length. It must also be properly assembled and installed.

18. The last section of radiant tube includes a turbulating baffle, which must be assembled from the three identical sections provided with the tubes. Select the appropriate number of sections from Table 6.1 - noting that some models have different numbers of sections for natural and propane gas and fasten them together end-to-end as shown in Figure 6.1. Insert the assembled baffle into the last tube section, flush with the end of the tube closest to the vent as shown in Figure 6.2, and discard any unused baffle sections.
19. Continue with the following Check-Out Procedure.

Table 6.1 - Baffle Section Quantity Determination

Input MBH		Tube System Length (ft.)					
		20	30	40	50	60	70
50	Nat	2	2	-	-	-	-
	Prop	2	2	-	-	-	-
60	Nat	2	1	0	-	-	-
	Prop	3	2	0	-	-	-
75	Nat	-	3	2	0	-	-
	Prop	-	2	1	1	-	-
85	Nat	-	3	2	1	-	-
	Prop	-	3	2	1	-	-
100	Nat	-	3	2	1	-	-
	Prop	-	3	2	-	-	-
125	Nat	-	-	3	2	1	-
	Prop	-	-	3	2	1	-
150	Nat	-	-	-	3	1	0
	Prop	-	-	-	3	1	-
175	Nat	-	-	-	3	1	0
	Prop	-	-	-	3	0	-
200	Nat	-	-	-	3	1	0
	Prop	-	-	-	3	0	-

Figure 6.1 - Baffle Section Fastening Detail

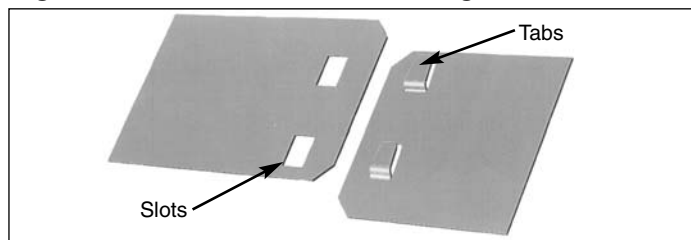
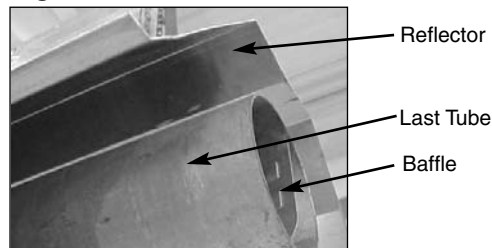


Figure 6.2 - Baffle Insertion



Check-Out Procedure

This is an abbreviated check-out procedure. For additional detail, please see applicable installation and service manual for the appropriate unit.

1. Place pressure taps on both the inlet and outlet pressure taps of the gas valve.
2. Connect a pressure-measuring device capable of reading inches of water column on both the inlet and outlet pressure taps.
3. Restore both the fuel supply and the electrical supply to the unit. Verify the proper ignition sequence. The inlet pressure must be 12"-14" water column. The manifold pressure must be 10" water column.
4. No adjustments can be made to the burner flame. Some yellow in the flame is acceptable as long as no carbon (black soot) is being formed.
5. Verify the input rate by checking the correct main burner orifice size and manifold pressure. This information is presented on the conversion kit rating plate.
6. Turn the unit off and replace the inlet and outlet pressure tap plugs.
7. Turn the unit on.
8. Check for leaks at all joints, pressure tap plugs, and connections in the gas lines. This is most easily done with a soap and water solution. Simply brush or spray some of the solution on a joint or connection, and look for bubble formation.
9. If additional information is required, please refer to applicable installation and service manual for the specific infrared model.

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