

# 80 PLUS GAS FURNACES: GAS CONVERSION KIT INDEX NATURAL TO LP GAS RXGJ-

▲ Recognize this symbol as an indication of Important Safety Information!

## ▲ WARNING

**FURNACES USED ON LP GAS MUST BE EQUIPPED WITH 100% SAFETY SHUT-OFF CONTROLS. CONVERSION WITH THE CORRECT KIT WILL MEET THIS SAFETY REQUIREMENT. FAILURE TO USE THE PROPER KIT CAN CAUSE IMPROPER FURNACE OPERATION RESULTING IN FIRE, EXPLOSION, PERSONAL INJURY OR DEATH.**

The conversion of the Air Conditioning Division furnaces must be made by a qualified service professional. Use the following conversion kits only on the furnace model and gas control systems for which they are shown. If you do not find your exact furnace model number and Gas Code in the kit selection chart, contact your distributor or manufacturer for help in verifying the correct kit selection for your equipment. **Do not substitute** kits or kit components.

## HOW TO IDENTIFY THE CONTROL SYSTEM CODE ON THE FURNACE TO BE CONVERTED

The model number and the control system code on the furnace to be converted are required to select the proper conversion kit. This information is located on the rating plate of the furnace just below the date of manufacture. The control system code designates the control system as applied by the manufacturer and the type gas it was manufactured to burn.

Locate the control system code in Chart 1. This is the control system on the furnace.

**NOTE:** The same Gas Code can exist for 80% and 90 Plus furnaces.

All furnaces are manufactured to burn natural gas. Verify correct fuel on the furnace rating plate.

## CHART 1: CONTROL SYSTEMS

JF)	HONEYWELL VR8215S (60-105055-01), UT ELECTRONIC CONTROLS 1194-200 (62-104058-02), PSE DIRECT SPARK IGNITOR (62-24164-03)
JG)	WHITE-RODGERS 36G55-521 (60-101921-01), UT ELECTRONIC CONTROLS 1095-300 (62-104059-01), PSE DIRECT SPARK IGNITOR (62-24164-03)
JH)	WHITE-RODGERS 36G55-521 (60-101921-01), HONEYWELL S9233F2019 (62-104061-01 OR -02), PSE DIRECT SPARK IGNITOR (62-24164-03)
JJ)	HONEYWELL VR8215S (60-105055-01), UT ELECTRONIC CONTROLS 1194-200 (62-104058-02), PSE DIRECT SPARK IGNITOR (62-24164-04)
JK)	WHITE-RODGERS 36G55-521 (60-101921-01), UT ELECTRONIC CONTROLS 1095-300 (62-104059-01), PSE DIRECT SPARK IGNITOR (62-24164-04)
JL)	WHITE-RODGERS 36G55-521 (60-101921-01), HONEYWELL S9233F2019 (62-104061-01 OR -02), PSE DIRECT SPARK IGNITOR (62-24164-04)
JM)	HONEYWELL VR8215S (60-105055-01) UT 1194-250 (62-105217-01), PSE DIRECT SPARK IGNITOR (62-24164-03)
JQ)	HONEYWELL VR8215S (60-105055-01) UT 1194-250 (62-105217-01), PSE DIRECT SPARK IGNITOR (62-24164-04)
JU)	WHITE-RODGERS 36J52-501 (60-103901-02), UT ELECTRONIC CONTROLS 1194-200 (62-104058-02), PSE DIRECT SPARK IGNITOR (62-24164-03)
JV)	WHITE-RODGERS 36J52-501 (60-103901-02), UT ELECTRONIC CONTROLS 1194-200 (62-104058-02), PSE DIRECT SPARK IGNITOR (62-24164-04)
JW)	WHITE-RODGERS 36J52-501 (60-103901-02), UT ELECTRONIC CONTROLS 1194-250 (62-105217-01), PSE DIRECT SPARK IGNITOR (62-24164-03)
JX)	WHITE-RODGERS 36J52-501 (60-103901-02), UT ELECTRONIC CONTROLS 1194-250 (62-105217-01), PSE DIRECT SPARK IGNITOR (62-24164-04)

## EXAMPLE: CONTROL SYSTEM CODE

The control system code is "JF." When the "JF" is located in Chart 1, the control system in the furnace is a Honeywell VR8215T Valve, manufactured to burn natural gas.

With the model number from the rating plate, the control system from Chart 1, and the type gas it presently burns, the proper conversion kit can now be selected.

## EXPLANATION: USING THE CONVERSION KIT CHARTS

- STEP 1. Find the control system code letters in the Gas Code Column in the conversion kit chart.
- STEP 2. The type furnace and model number are listed on the left hand column. **IMPORTANT: Verifying the model number of the furnace is a necessity, since there are common control system codes which are used on the 80% & 90 Plus models.**
- STEP 3. By going down in the control system and across in the model number line, the proper kit number can be located.

### EXAMPLE

You wish to convert a natural gas furnace model (-)801PA075 from natural gas to LP gas.

Using the information from the first example, the control system code is "JF." Locate the control system code letters "JF" in the Gas Code Column of Chart 2: Conversion Kits - Natural gas to LP gas. Locate the model number of the unit in the first column on the left on the chart, and find that for U.S./Canadian models an FP15 conversion kit would be used.



## CHART 2: “80+ MODELS” CONVERSION KITS - NATURAL GAS TO LP GAS

Furnace Model Number	Type of Ignition	Gas Code	Kit Number
(-)801PXXXXXXXXSX	Direct Spark (Single Stage)	JF, JJ, JU, JV	FP15
(-)801SXXXXXXXXSX	Direct Spark (Single Stage)	JF, JJ, JU, JV	FP15
(-)801TXXXXXXXXSX	Direct Spark (Single Stage)	JM, JQ, JW, JX	FP15
(-)802PXXXXXXXXSX	Direct Spark (Two Stage)	JG, JK	FP32
(-)802VXXXXXXXXSX	Direct Spark (Two Stage)	JH, JL	FP32

## CHART 3: “80+ MODELS ONLY” BURNER ORIFICE SIZES – Natural Gas & LP

**Note:** 80+ furnaces do not require any high altitude conversion kits. Orifice sizes will need to be adjusted based on altitude and local heating values.

Elevations above 2,000 ft. require the furnace to be de-rated 4% per thousand feet. Note# Factory orifices are calculated and sized based on a sea level natural gas heating value of 1050 btu per cubic ft. Regional reduced heating values may nullify the need to change orifices except at extreme altitudes.

Example of orifice sizing using the National Fuel Gas Code Appendix F:

## CHART 4: NATURAL GAS ORIFICE SELECTION BASED ON HEATING VALUE & ELEVATION\*

Notes:

- All (-)80+ units are factory equipped with orifices sized for 1050 sea level heating value gas.
- Local utilities adjust the sea level heating value of gasses used at higher elevations to compensate for appliance operation at altitude. Installer must be aware of the local heating value (sea level standard) to use the chart below.
- This chart is based on the National Fuel Gas Code (NFGC) Annex F based on natural gas with a specific gravity of 0.60
- The recommended orifices below allow the furnace to operate within 10% of design rate. However, NFGC calculations are the best method.
- Furnace operation is optimized when operating at design rate. Installer is responsible to verify rate.
- This table applies to 80+ models only with 25,000BTU/Burner. DO **NOT** USE THIS CHART FOR ANY 90+ FURNACE MODEL.

Grey Cells Indicate Factory Orifice Size		ELEVATION									
		Sea Level to 1,999'	2,000' to 2,999'	3,000' to 3,999'	4,000' to 4,999'	5,000' to 5,999'	6,000' to 6,999'	7,000' to 7,999'	8,000' to 8,999'	9,000' to 9,999'	10,000'
Gas Heating Value (BTU's/ft <sup>3</sup> ) @ Sea Level**	1,000-1,100	43	44	44	44	45	45	46	47	47	48
		42	42	43	43	43	44	44	45	46	47
	900-999	42	42	43	43	43	44	44	45	46	47
		41	42	42	42	43	43	44	44	45	46
	800-899	40	41	42	42	42	43	43	44	44	45
		39	40	41	41	42	42	43	43	44	44
		38	39	40	41	41	42	42	43	43	44
	700-799	37	38	39	39	40	41	42	42	43	43
		36	37	38	38	39	40	41	41	42	43
		35	36	36	37	37	38	39	40	41	42

\*Table is derived from Appendix of the **National Fuel Gas Code**. To determine the correct orifice for your installation consult the **National Fuel Gas Code** tables F.1 and F.4

\*\*Be sure to use sea level heating value. When requesting the heating value from a local utility, it must be converted to sea level equivalent in order to use this table.

**Example: 900 BTU/ft<sup>3</sup> Regional Natural Gas Heating Value**

$I / H = Q$

$25000 / 900 = 27.78 \text{ ft}^3$

I = Sea Level input (per burner): 25000

H = Sea Level Heating Value: 900

Q = 27.78 ft<sup>3</sup> Natural Gas per hour.From Table F.1 of *National Fuel Gas Code Handbook, 2002* (3.5" w.c. column)

Orifice required at Sea Level: # 40

From Table F.4 of *National Fuel Gas Code Handbook, 2002*

Orifice required at 5000 ft. elevation (4% de-rate per thousand ft): # 42

Orifice required at 8000 ft. elevation (4% de-rate per thousand ft): # 44

**Example: 1050 BTU/ft<sup>3</sup> Regional Natural Gas Heating Value**

$I / H = Q$

$25000 / 1050 = 23.81 \text{ ft}^3$

I = Sea Level input (per burner): 25000

H = Sea Level Heating Value: 1050

Q = 23.81 ft<sup>3</sup> Natural Gas per hour.From Table F.1 of *National Fuel Gas Code Handbook, 2002* (3.5" w.c. column)

Orifice required at Sea Level: # 43

From Table F.4 of *National Fuel Gas Code Handbook, 2002*

Orifice required at 5000 ft. elevation (4% de-rate per thousand ft): # 45

Orifice required at 8000 ft. elevation (4% de-rate per thousand ft): # 47

**LP GAS**

LP Gas is a manufactured gas that has consistent heating value across most regions. The NFGC guidelines are used with the following exception: The recommended LP Gas high altitude orifice selections differ slightly in that the NFGC LP orifice chart, as they are not accurate for Rheem products. The National Fuel Gas Code LP orifices are based on an 11" of water column pressure at the orifice, which differs from Rheem products that use 10" of water column at the orifice. This difference requires a deviation from the NFGC orifice size recommendations. The Sea Level input should still be reduced by 4% per thousand ft. and the orifice size must be selected based on the reduced input selection chart below.

**Orifice Ordering Information: Orifice sizes are selected by adding the 2-digit drill size required in the orifice part number. Drill sizes available are 39 through 64; Orifice Part Number 62-22175-(drill size).**

**Example 1: #54 drill size required – Part # 62-22175-54**

<b>For U.S. and Canada</b> <b>L.P. Gas Orifice Drill Size</b> <b>(4% per 1,000 ft. De-Rate)</b> 80% Burner Input (per burner) 25,000 BTU @ Sea Level		
Altitude	Input (per burner) 15000	Orifice Size
0 to 2000 ft.	25000	#54
3000	24000	#54
4000	23000	#54
5000	22000	#54
6000	21000	#54
7000	20000	#54
8000	19000	#55
9000	18000	#55
10000	17000	#55

