CONVERSION FROM NATURAL GAS TO LP GAS, US AND CANADA HIGH ALTITUDE CONVERSION (-)GED (50 AND 60 Hz MODELS)

⚠ 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. CONVERSION WITH THE WRONG KIT CAN LEAD TO A FIRE OR EXPLOSION RESULTING IN PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

The conversion of Air Conditioning Division furnaces must be made by a qualified service professional using factory specified or approved parts. The following conversion kits must only be used on the furnace models and gas control systems for which they are shown. If you do not find your exact furnace model number 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 in order to avoid risk of dangerous conditions that may result in personal injury or property damage.

IMPORTANT NOTE FOR INSTALLATIONS AT ELEVATIONS ABOVE 2,000 FEET (610 METERS): The main burner orifices in your furnace and in Natural Gas to LP Gas (Propane) Conversion Kits are sized for the nameplate input and intended for installations at elevations up to 2,000 feet only. For elevations above 2,000 feet (610 meters), the burner orifices must be sized to reduce the input as follows:

In the USA: Reduce the input 4% for each 1,000 feet (305 meters) above sea level.

See Chart III in this Conversion Kit Index for proper orifice sizes for the elevation at which the specific unit is to be installed. The Conversion Kit Index is shipped with each unit and with the Natural Gas to LP Gas (Propane) Conversion Kits.

In Canada: A high altitude conversion kit available from the manufacturer must be used for operation on natural gas at elevations of 2,000 - 4,500 feet (610 - 1373 meters) above sea level. See Chart II in this Conversion Kit Index for the Canadian High Altitude Kit model number.

The proper high altitude orifices and instructions are included with the standard Natural Gas to LP Gas (Propane) Conversion Kits for operation on LP Gas (Propane) at elevations of 2,000 - 4,500 feet (610 - 1373 meters) above sea level in Canada. A special high altitude kit is not required in this case. Simply use the proper orifice size specified in Chart III in this Conversion Kit Index for elevations of 2,000 - 4,500 feet (610 - 1373 meters) in Canada.

NOTICE: THE CONVERSION SHALL BE CARRIED OUT BY A MANUFACTURER'S AUTHORIZED REPRESENTATIVE, IN ACCORDANCE WITH THE REQUIREMENTS OF THE MANUFACTURER, AND STATE, PROVINCIAL, OR TERRITORIAL AUTHORITIES HAVING JURISDICTION AND IN ACCORDANCE WITH THE REQUIREMENTS OF ALL LOCAL CODES, THE NATIONAL FUEL GAS CODE, ANSI Z223.1, CAN/CGA-B149.1, OR CAN/CGA-B149.2 INSTALLATION CODES.

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

The unit model number and the gas control system code on the product to be converted are required to select the proper conversion kit. This information is located on the rating plate of the furnace.

STEP 1. Locate the gas control system code in Chart I. This is the control system on the furnace. All furnaces are manufactured to burn natural gas.

STEP 2. Determine the altitude at which the furnace is to be installed.

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

CHART I
CONTROL SYSTEMS

3A = WHITE RODGERS TWO-STAGE 36H54 (60-106075-01) AND UTEC INTEGRATED FURNACE CONTROL 1218-110 (62-102860-05)

3B = WHITE RODGERS TWO-STAGE 36H54 (60-106075-01) AND UTEC INTEGRATED FURNACE CONTROL 1218-120 (62-102860-07)

3C = WHITE RODGERS TWO-STAGE 36H54 (60-106075-01) AND UTEC INTEGRATED FURNACE CONTROL 1218-100 (62-102860-06)

3D = WHITE RODGERS TWO-STAGE VR8305Q (60-106075-02) AND UTEC INTEGRATED FURNACE CONTROL 1218-110 (62-102860-05)

3E = WHITE RODGERS TWO-STAGE VR8305Q (60-106075-02) AND UTEC INTEGRATED FURNACE CONTROL 1218-120 (62-102860-07)

3F = WHITE RODGERS TWO-STAGE VR8305Q (60-106075-02) AND UTEC INTEGRATED FURNACE CONTROL 1218-100 (62-102860-06)

USING CONVERSION KIT CHART II

STEP 1) Find the appropriate gas control system code letters in line 2 of Chart II.

STEP 2) Verify the control system listed in line 3 of Chart II by name. Also verify that the furnace actually has this type control system.

STEP 3) Identify the furnace model number in lines 4, 5 or 6 in Chart II and move across this line until it intersects the proper gas control system code found in step 1. This space shows the proper conversion kit model number.

CHART II
CONVERSION KITS - NATURAL GAS TO PROPANE GAS

1	TYPE KIT, ALTITUDE AND COUNTRY	NAT. GAS TO PROPANE ALL ALTITUDES - (USA & CANADA)
2	SERIAL NO. CODE LETTER	3A, 3B, 3C 3D, 3E, 3F
3	TYPE CONTROL SYSTEM	WHITE-RODGERS 36H54 AND HONEYWELL VR8305Q TWO-STAGE GAS VALVE WITH DIRECT SPARK IGNITION
4	KIT NUMBER FOR FURNACE MODELS: (-)GED	USE KIT NO. RXGJ-FP39

USING CONVERSION KIT CHART III

The following chart should be used to verify the size of all main burner orifices for high altitude derating and natural gas to propane gas conversions.

Use the furnace nameplate gas **INPUT** rating, the number of main burners and the altitude of the installation to select the correct natural gas or propane gas orifice size.

The table is based on manifold pressures of 3.5” W.C. for natural gas and 10” W.C. for propane gas.

IMPORTANT: NEVER ATTEMPT TO INCREASE THE GAS FURNACE FIRING RATE BY USING LARGER ORIFICES THAN SPECIFIED. ALTHOUGH FURNACE DIMENSIONS MAY APPEAR SIMILAR, INTERNAL DIFFERENCES CAN CAUSE POOR COMBUSTION, UNSAFE OPERATING CONDITIONS, AND PREMATURE EQUIPMENT FAILURE.

NOTICE: Some Gas utilities in high altitude areas derate the natural gas heating value to compensate for the low air density. If the natural gas heating value is less than 1,000 BTU per cubic foot, orifice sizes must be recalculated. Contact your gas supplier, ask for the specific gravity or heating value of the gas being supplied to the installation and calculate the orifice size accordingly.

CHART III
"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 valve of 1,050 BTU per cubic ft. Regional reduced heating values may nullify the need to change orifices except at extreme altitudes.

Orifice sizes using the National Fuel Gas Code Annex E.

CHART IV
NATURAL GAS ORIFICE SELECTION BASED ON HEATING VALUE & ELEVATION*

This chart is for Natural Gas units with 25,000 BTU/hr per Burner.

Natural Gas orifice size chart.

Elevation	Heating value BTU/HR	Sea level-1,999'	2,000'-2,999'	3,000'-3,999'	4,000'-4,999'	5,000'-5,999'	6,000'-6,999'	7,000'-7,999'	8,000'-8,999'	9,000'-9,999'	10,000'
Gas Heating value (BTU/ft^3)	**1100**	43	44	44	44	45	45	46	47	47	48
	1050	42	42	43	43	43	44	44	45	46	47
	1000	42	42	43	43	43	44	44	45	46	47
	950	41	42	42	42	43	43	44	44	45	46
	900	40	41	42	42	42	43	43	44	44	45
	850	38	39	40	41	41	42	42	43	43	44
	800	37	38	39	39	40	41	42	42	43	43
	750	36	37	38	38	39	40	41	41	42	43
	700	35	36	36	37	37	38	39	40	41	42

LP @ 25,000 BTU/hr per burner	
Orifice P (in. W.C.)	10
Elevation (ft)	Orifice size
0-2000	54
3000	54
4000	54
5000	54
6000	54
7000	54
8000	55
9000	55
10000	55

Canada @ 25,000 BTU/hr per burner		
Elevation (ft)	Natural Gas	LP
0'-1999'	42	54
2000'-4500'	44	54

This chart is for Natural Gas units with 22,800 BTU/hr per Burner.

Natural Gas orifice size chart.

Elevation	Heating value BTU/HR	Sea level-1,999'	2,000'-2,999'	3,000'-3,999'	4,000'-4,999'	5,000'-5,999'	6,000'-6,999'	7,000'-7,999'	8,000'-8,999'	9,000'-9,999'	10,000'
Gas Heating value (BTU/ft^3)	**1100**	44	45	45	45	46	47	47	48	48	49
	1050	43	43	44	44	45	45	46	47	47	48
	1000	43	43	44	44	45	45	46	47	47	48
	950	42	42	43	43	43	44	44	45	46	47
	900	42	42	43	43	43	44	44	45	46	47
	850	40	41	42	42	42	43	43	44	44	45
	800	39	40	41	41	42	42	43	43	44	44
	750	37	38	39	39	40	41	42	42	43	43
	700	36	37	38	38	39	40	41	41	42	43

LP @ 22,800 BTU/hr per burner	
Orifice P (in. W.C.)	10
Elevation (ft)	Orifice size
0-2000	54
3000	55
4000	55
5000	55
6000	55
7000	55
8000	56
9000	56
10000	56

Canada High altitude @ 22,800 BTU/hr per burner		
Elevation (ft)	Natural Gas	LP
0'-1999'	43	54
2000'-4500'	44	55

*Table is derived from Annex E, of the National Fuel Gas Code. To determine the correct orifice for your installation, consult the National Fuel Gas Code tables E1.1(a) and E1.1(d)

This chart is for Natural Gas 50 Hz units with 20,800 BTU/hr per Burner.

Natural Gas orifice size chart.

Elevation	Heating value BTU/HR	Sea level-1,999'	2,000'-2,999'	3,000'-3,999'	4,000'-4,999'	5,000'-5,999'	6,000'-6,999'	7,000'-7,999'	8,000'-8,999'	9,000'-9,999'	10,000'
Gas Heating value (BTU/ft^3)	**1100**	46	47	47	47	48	48	49	49	50	50
	1050	45	46	47	47	47	48	48	49	49	50
	1000	44	45	45	45	46	47	47	48	48	49
	950	43	44	44	44	45	45	46	47	47	48
	900	43	44	44	44	45	45	45	47	47	48
	850	42	42	43	43	43	44	44	45	46	47
	800	41	42	42	42	43	43	44	44	45	46
	750	40	41	42	42	42	43	43	44	44	45
	700	38	39	40	41	41	42	42	43	43	44

LP @ 20,800 BTU/hr per burner	
Orifice P (in. W.C.)	**10**
Elevation (ft)	Orifice size
0-2000	55
3000	55
4000	55
5000	56
6000	56
7000	56
8000	56
9000	56
10000	57

This chart is for Natural Gas 50 Hz units with 19,000 BTU/hr per Burner.

Natural Gas orifice size chart.

Elevation	Heating value BTU/HR	Sea level-1,999'	2,000'-2,999'	3,000'-3,999'	4,000'-4,999'	5,000'-5,999'	6,000'-6,999'	7,000'-7,999'	8,000'-8,999'	9,000'-9,999'	10,000'
Gas Heating value (BTU/ft^3)	**1100**	47	48	48	49	49	49	50	50	51	51
	1050	47	47	48	49	49	49	50	50	51	51
	1000	45	46	47	47	47	48	48	49	49	50
	950	45	46	47	47	47	48	48	49	49	50
	900	44	45	45	45	46	47	47	48	48	49
	850	43	44	44	44	45	45	46	47	47	48
	800	43	44	44	44	45	45	46	47	47	48
	750	42	42	43	43	43	44	44	45	46	47
	700	40	41	42	42	42	43	43	44	44	45

LP @ 19000 BTU/hr per burner	
Orifice P (in. W.C.)	**10**
Elevation (ft)	Orifice size
0-2000	56
3000	56
4000	57
5000	57
6000	57
7000	58
8000	59
9000	59
10000	60

*Table is derived from Annex E, of the National Fuel Gas Code. To determine the correct orifice for your installation, consult the National Fuel Gas Code tables E1.1(a) and E1.1(d)