

**RGH210-303  
SINGLE PACKAGE ROOFTOP  
GAS HEATING, ELECTRIC COOLING  
WITH R-410A REFRIGERANT**

**Electrical Data Supplement**

**NOTE:** Read the entire instruction manual before starting the installation

This supplement only applies to RGH210-303 units when there is "B" in the 9<sup>th</sup> position of the Model Number, as shown in the Model Number Nomenclature diagram below. Check the Unit Nameplate (see Figs. 1 & 2). If there is not a "B" in the 9<sup>th</sup> position of the model number discard this document.


**MODEL NOMENCLATURE**

| MODEL SERIES   | R  | G | H | 2 | 1 | 0 | H | D | A | B  | 0  | A  | G  | A  |
|--|--|---|---|---|---|---|---|---|---|----|----|----|----|----|
| Position Number  | 1  | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| R = Rooftop  |  |   |   |   |   |   |   |   |   |    |    |    |    |    |
| A = Air Conditioning (Cooling Only)<br>G = Gas/Electric  | <b>Type</b>                                      |   |   |   |   |   |   |   |   |    |    |    |    |    |
| H = High Efficiency ASHRAE 90.1-2010   | <b>Efficiency</b>                                |   |   |   |   |   |   |   |   |    |    |    |    |    |
| 210 = 210,000 = 17.5 Tons Dedicated Vertical SA/RA<br>213 = 210,000 = 17.5 Tons Dedicated Horizontal SA/RA<br>240 = 240,000 = 20 Tons Dedicated Vertical SA/RA<br>243 = 240,000 = 20 Tons Dedicated Horizontal SA/RA<br>300 = 300,000 = 25 Tons Dedicated Vertical SA/RA<br>303 = 300,000 = 25 Tons Dedicated Horizontal SA/RA                           | <b>Nominal Cooling Capacity</b>                  |   |   |   |   |   |   |   |   |    |    |    |    |    |
| H = 208/230-3-60<br>L = 460-3-60<br>S = 575-3-60   | <b>Voltage</b>                                   |   |   |   |   |   |   |   |   |    |    |    |    |    |
| D = Low Heat<br>E = Medium Heat<br>F = High Heat<br>S = Low Heat, Stainless Steel Heat Exchanger<br>R = Medium Heat, Stainless Steel Heat Exchanger<br>T = High Heat, Stainless Steel Heat Exchanger   | <b>Heating Capacity</b>                          |   |   |   |   |   |   |   |   |    |    |    |    |    |
| A = Standard Static Option<br>B = High Static Option<br>E = High Static Option with High Efficiency Motor  | <b>Motor Option</b>                              |   |   |   |   |   |   |   |   |    |    |    |    |    |
| A = None<br>B = Economizer w/Bara-relief, OA Temp sensor<br>E = Economizer w/Bara-relief + CO <sub>2</sub> sensor, OA Temp sensor<br>H = Economizer w/Bara-relief, Enthalpy sensor<br>L = Economizer w/Bara-relief + CO <sub>2</sub> sensor, Enthalpy sensor<br>P = 2-Position damper w/Baro-relief  | <b>Outdoor Air Options / Control</b>             |   |   |   |   |   |   |   |   |    |    |    |    |    |
| 0A = No Options<br>4B = Non-fused Disconnect<br>AT = Non-powered 115v Convenience Outlet.<br>BR = Supply Air Smoke Detector<br>7C = Non-fused Disconnect + Non-powered 115v Convenience Outlet.<br>7K = Non-fused Disconnect + Non-powered 115v Convenience Outlet. + Supply Air Smoke Detector<br>BA = Non-fused Disconnect + Supply Air Smoke Detector | <b>Factory Installed Options</b>                 |   |   |   |   |   |   |   |   |    |    |    |    |    |
| G = Alum / Alum Cond & Alum / Cu Evap<br>K = E-Coated Alum / Alum Cond Coil, Std Alum / Cu Evap Coil   | <b>Condenser / Evaporator Coil Configuration</b> |   |   |   |   |   |   |   |   |    |    |    |    |    |
| A = Standard   | <b>Sales Digit</b>                               |   |   |   |   |   |   |   |   |    |    |    |    |    |

## SAFETY CONSIDERATIONS

Improper installation, adjustment, alteration, service, maintenance, or use can cause explosion, fire, electrical shock or other conditions which may cause personal injury or property damage. Consult a qualified installer, service agency, or your distributor or branch for information or assistance. The qualified installer or agency must use factory-authorized kits or accessories when modifying this product. Refer to the individual instructions packaged with the kits or accessories when installing.

Follow all safety codes. Wear safety glasses and work gloves. Use quenching cloths for brazing operations and have a fire extinguisher available. Read these instructions thoroughly and follow all warnings or cautions attached to the unit. Consult local building codes and appropriate national electrical codes (in USA, ANSI/NFPA70, National Electrical Code (NEC); in Canada, CSA C22.1) for special requirements.

It is important to recognize safety information. This is the safety-alert symbol . When you see this symbol on the unit and in instructions or manuals, be alert to the potential for personal injury.

Understand the signal words DANGER, WARNING, CAUTION, and NOTE. These words are used with the safety-alert symbol. DANGER identifies the most serious hazards which **will** result in severe personal injury or death. WARNING signifies hazards which **could** result in personal injury or death. CAUTION is used to identify unsafe practices, which **may** result in minor personal injury or product and property damage. NOTE is used to highlight suggestions which **will** result in enhanced installation, reliability, or operation.

Nameplate Location

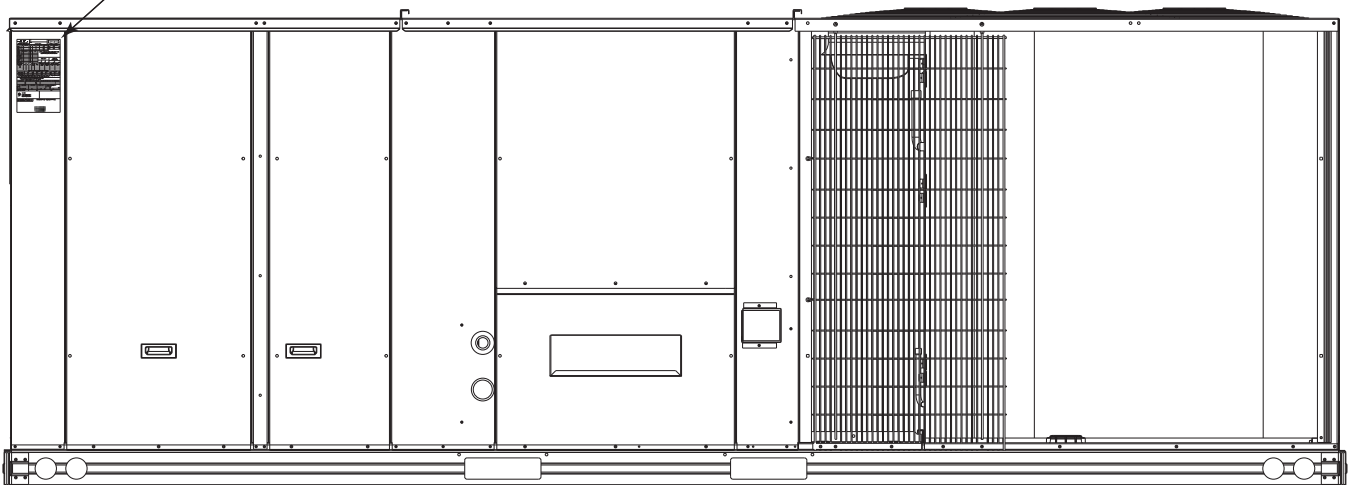


Fig. 1 – Location of Unit Nameplate

## CAUTION

### ELECTRICAL HAZARD

Failure to follow this caution may result in personal injury or product and property damage.

The electrical data contained in this document is only for use with RGH210-303 which display a “B” in the 9<sup>th</sup> position of the 14 digit model number as displayed on the unit’s nameplate.

See Fig. 1 for location of the unit’s nameplate.

See Fig. 2 for details of the 14 digit model number.

## WARNING

### ELECTRICAL SHOCK HAZARD

Failure to follow this warning could cause personal injury or death.

Before performing service or maintenance operations on unit, always turn off main power switch to unit and install lockout tag. Unit may have more than one power switch.

|  |     |  |  |            |  |   |  |  |    |                                   |     |                                       |  |                     |  |
|--|-----|--|--|------------|--|---|--|--|----|-----------------------------------|-----|---------------------------------------|--|---------------------|--|
| INTERNATIONAL COMFORT PRODUCTS, LLC<br>Louisburg, TN 37081   |     | MODEL<br>RGH210HFBA0AAA  |  | SERIAL     |  | FACTORY CHARGED                         |  |  |    |                                   |     |                                       |  |                     |  |
| QTY  |     | VOLTS AC   |  | PH HZ      |  | RLA LRA                                 |  | REF. SYSTEM R-410A   |    | TEST PRESSURE GAGE                |     |                                       |  |                     |  |
| COMPR A  |     |  |  |            |  |   |  | LBS  | kg | HI                                | PSI | kPa                                   |  |                     |  |
| COMPR B  |     |  |  |            |  |   |  | LBS  | kg | LO                                | PSI | kPa                                   |  |                     |  |
| COMPR C  |     |  |  |            |  |   |  | LBS  | kg |                                   |     |                                       |  |                     |  |
| FAN MTR  | QTY | VOLTS AC   |  | PH HZ      |  | FLA                                     |  | CHARGE SYSTEM PER INSTALLATION INSTRUCTIONS FOR OUTDOOR INSTALLATION ONLY COMBINATION COOLING AND HEATING UNIT |    |                                   |     |                                       |  |                     |  |
| OUTDOOR  |     |  |  |            |  |   |  |  |    |                                   |     |                                       |  |                     |  |
| INDOOR   |     |  |  |            |  |   |  |  |    |                                   |     |                                       |  |                     |  |
| PWR EXHAUST  |     |  |  |            |  |   |  |  |    |                                   |     |                                       |  |                     |  |
| ERV SUPPLY   |     |  |  |            |  |   |  |  |    |                                   |     |                                       |  |                     |  |
| ERV EXHAUST  |     |  |  |            |  |   |  |  |    |                                   |     |                                       |  |                     |  |
| ERV WHEEL  |     |  |  |            |  |   |  | POWER SUPPLY   |    | PERMISSIBLE VOLTAGE TO UNIT       |     |                                       |  |                     |  |
| COMBUST  |     |  |  |            |  |   |  |  |    |                                   |     |                                       |  |                     |  |
| CONV. OUTLET   |     |  |  |            |  |   |  | VOLTS  |    | PH HZ                             |     | MAX MIN                               |  |                     |  |
| ACCESSORY PWR EXHAUST MODEL NUMBER   |     | VOLTS  |  | PH HZ      |  | ACC. PWR. EXH. FLA                      |  | MIN. CKT AMPS  |    | MAX. FUSE OR HACR BREAKER PER NEC |     | MAXIMUM OVERCURRENT PROTECTION DEVICE |  | MIN UNIT DISCONNECT |  |
| NONE   |     |  |  |            |  | -                                       |  |  |    |                                   |     |                                       |  | FLA LRA             |  |
| MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS  |     |  |  |            |  |   |  |  |    |                                   |     |                                       |  |                     |  |
|  |     | TOP  |  | BOTTOM     |  | SIDES                                   |  | FLUE SIDE  |    | **                                |     |                                       |  |                     |  |
| DOWN SUPPLY  |     | IN. MM   |  | IN. MM     |  | IN. MM                                  |  | IN. MM   |    |                                   |     |                                       |  |                     |  |
| SIDE SUPPLY  |     | IN. MM   |  | IN. MM     |  | IN. MM                                  |  | IN. MM   |    |                                   |     |                                       |  |                     |  |
| * FOR INSTALLATION ON COMBUSTIBLE FLOORING OR CLASS A,B, OR C ROOFING MATERIAL                               |     |  |  |            |  |   |  |  |    |                                   |     |                                       |  |                     |  |
| ** 18 INCHES(457mm) WITH ACCESSORY FLUE DISCHARGE DEFLECTOR  |     |  |  |            |  |   |  |  |    |                                   |     |                                       |  |                     |  |
| DEVICE CERTIFIED AS A FORCED AIR FURNACE WITH COOLING UNIT APPROVED FOR NON-RESIDENTIAL USE TO -40°F AMBIENT |     |  |  |            |  |   |  |  |    |                                   |     |                                       |  |                     |  |
| AIR TEMP RISE  |     | MAX EXTERNAL STATIC PRESSURE   |  |            |  | DESIGNED MAXIMUM OUTLET AIR TEMPERATURE |  |  |    |                                   |     |                                       |  |                     |  |
| F  |     | W.C.   |  |            |  | F                                       |  |  |    |                                   |     |                                       |  |                     |  |
| C  |     | KPa  |  |            |  | C                                       |  |  |    |                                   |     |                                       |  |                     |  |
| INPUT MIN  |     | INPUT MAX  |  | OUTPUT CAP |  | THERMAL EFFICIENCY                      |  | EQUIPPED FOR USE WITH  |    |                                   |     |                                       |  |                     |  |
| BTU/HR   |     |  |  |            |  | %                                       |  | GAS  |    |                                   |     |                                       |  |                     |  |
| KW   |     |  |  |            |  |   |  |  |    |                                   |     |                                       |  |                     |  |
| GAS SUPPLY PRESSURE  |     |  |  | W.C.       |  | KPa MAX                                 |  | W.C.   |    | KPa MIN                           |     |                                       |  |                     |  |
| MANIFOLD PRESSURE  |     |  |  | W.C.       |  | KPa                                     |  |  |    |                                   |     |                                       |  |                     |  |
|  |     | ETL LISTED<br>COOLING PORTION CONFORMS TO UL-1995<br>HEATING PORTION CONFORMS TO ANSI Z21.47, CSA 2.3 (2007) |  |            |  |   |  |  |    |                                   |     |                                       |  |                     |  |
| THIS EQUIPMENT COMPLIES WITH THE 2004 REQUIREMENTS OF ASHREA 90.1  |     |  |  |            |  | ENGINEERED IN USA, ASSEMBLED IN MEXICO  |  |  |    |                                   |     |                                       |  |                     |  |

Fig. 2 – Example of Nameplate with Model Number

|                 |   |   |   |   |   |   |   |   |   |    |    |    |    |    |
|-----------------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|
| MODEL SERIES    | R | G | H | 2 | 1 | 0 | H | D | B | A  | 0  | A  | G  | A  |
| Position Number | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |

**Table 1 – Unit Wire/Fuse or HACR Breaker Sizing Data**

| UNIT       | NOM.<br>V–Ph–Hz | IFM<br>TYPE | COMBUSTION<br>FAN MOTOR | POWER<br>EXHAUST | NO C.O. or UNPWR C.O. |       |     |                         |                         |       |     |                         |            |     |
|------------|-----------------|-------------|-------------------------|------------------|-----------------------|-------|-----|-------------------------|-------------------------|-------|-----|-------------------------|------------|-----|
|            |                 |             |                         |                  | NO RE.                |       |     |                         | w/ P.E. (pwrd fr/ unit) |       |     |                         |            |     |
|            |                 |             |                         |                  | FLA                   | FLA   | MCA | FUSE or<br>HACR<br>BRKR | DISC. SIZE              |       | MCA | FUSE or<br>HACR<br>BRKR | DISC. SIZE |     |
|            |                 |             |                         |                  |                       |       |     |                         | FLA                     | LRA   |     |                         | FLA        | LRA |
| RGH210/213 | 208/230–3–60    | STD         |                         |                  | 75.7                  | 100.0 | 79  | 440                     | 87.5                    | 100.0 | 93  | 460                     |            |     |
|            |                 | MED         | 0.52                    | 5.9              | 80.5                  | 100.0 | 85  | 449                     | 92.3                    | 100.0 | 98  | 469                     |            |     |
|            |                 | HIGH        |                         |                  | 78.3                  | 100.0 | 82  | 451                     | 90.1                    | 100.0 | 96  | 471                     |            |     |
|            | 460–3–60        | STD         |                         |                  | 36.6                  | 45.0  | 38  | 245                     | 42.8                    | 50    | 46  | 257                     |            |     |
|            |                 | MED         | 0.3                     | 3.1              | 39.2                  | 50.0  | 41  | 249                     | 45.4                    | 50.0  | 49  | 261                     |            |     |
|            |                 | HIGH        |                         |                  | 38.2                  | 50.0  | 40  | 250                     | 44.4                    | 50.0  | 47  | 262                     |            |     |
|            | 575–3–60        | STD         |                         |                  | 26.2                  | 30.0  | 27  | 186                     | 31                      | 40    | 33  | 194                     |            |     |
|            |                 | MED         | 0.24                    | 2.4              | 29.0                  | 35.0  | 31  | 200                     | 33.8                    | 40.0  | 36  | 208                     |            |     |
|            |                 | HIGH        |                         |                  | 28.5                  | 35    | 30  | 189                     | 33.3                    | 40    | 36  | 197                     |            |     |
| RGH240/243 | 208/230–3–60    | STD         |                         |                  | 88.7                  | 100.0 | 93  | 544                     | 100.5                   | 125.0 | 107 | 564                     |            |     |
|            |                 | MED         | 0.52                    | 5.9              | 86.5                  | 100.0 | 91  | 546                     | 98.3                    | 125.0 | 104 | 566                     |            |     |
|            |                 | HIGH        |                         |                  | 93.1                  | 110.0 | 98  | 582                     | 104.9                   | 125.0 | 112 | 602                     |            |     |
|            | 460–3–60        | STD         |                         |                  | 48.6                  | 60.0  | 51  | 277                     | 54.8                    | 60    | 58  | 289                     |            |     |
|            |                 | MED         | 0.3                     | 3.1              | 47.6                  | 60.0  | 50  | 278                     | 53.8                    | 60.0  | 57  | 290                     |            |     |
|            |                 | HIGH        |                         |                  | 50.9                  | 60.0  | 54  | 296                     | 57.1                    | 70.0  | 61  | 308                     |            |     |
|            | 575–3–60        | STD         |                         |                  | 35.5                  | 45.0  | 37  | 204                     | 40.3                    | 50    | 43  | 212                     |            |     |
|            |                 | MED         | 0.24                    | 2.4              | 35.0                  | 45.0  | 37  | 193                     | 39.8                    | 50.0  | 42  | 201                     |            |     |
|            |                 | HIGH        |                         |                  | 37.7                  | 45    | 40  | 219                     | 42.5                    | 50    | 45  | 227                     |            |     |
| RGH300/303 | 208/230–3–60    | STD         |                         |                  | 117.4                 | 150.0 | 121 | 584                     | 129.2                   | 175.0 | 135 | 604                     |            |     |
|            |                 | MED         | 0.52                    | 5.9              | 115.2                 | 150.0 | 119 | 586                     | 127.0                   | 175.0 | 132 | 606                     |            |     |
|            |                 | HIGH        |                         |                  | 121.8                 | 150.0 | 126 | 622                     | 133.6                   | 175.0 | 140 | 642                     |            |     |
|            | 460–3–60        | STD         |                         |                  | 54.0                  | 60.0  | 57  | 303                     | 60.2                    | 70    | 64  | 315                     |            |     |
|            |                 | MED         | 0.3                     | 3.1              | 53.0                  | 60.0  | 56  | 304                     | 59.2                    | 70.0  | 63  | 316                     |            |     |
|            |                 | HIGH        |                         |                  | 56.3                  | 70.0  | 59  | 322                     | 62.5                    | 80.0  | 66  | 334                     |            |     |
|            | 575–3–60        | STD         |                         |                  | 40.4                  | 50.0  | 42  | 228                     | 45.2                    | 50    | 48  | 236                     |            |     |
|            |                 | MED         | 0.24                    | 2.4              | 39.9                  | 50.0  | 42  | 217                     | 44.7                    | 50.0  | 47  | 225                     |            |     |
|            |                 | HIGH        |                         |                  | 42.6                  | 50    | 45  | 243                     | 47.4                    | 60    | 50  | 251                     |            |     |

**Legend and Notes for Table 1**

**LEGEND:**

- BRKR – Circuit breaker
- CO – Convenience outlet
- DISC – Disconnect
- FLA – Full load amps
- IFM – Indoor fan motor
- LRA – Locked rotor amps
- MCA – Minimum circuit amps
- PE – Power exhaust
- UNPWR CO – Unpowered convenient outlet



Example: Supply voltage is 230-3-60



AB = 224 v  
BC = 231 v  
AC = 226 v

$$\text{Average Voltage} = \frac{(224 + 231 + 226)}{3} = \frac{681}{3}$$

$$= 227$$

Determine maximum deviation from average voltage.

- (AB) 227 – 224 = 3 v
- (BC) 231 – 227 = 4 v
- (AC) 227 – 226 = 1 v

Maximum deviation is 4 v.

Determine percent of voltage imbalance.

$$\% \text{ Voltage Imbalance} = 100 \times \frac{4}{227}$$

$$= 1.76\%$$

This amount of phase imbalance is satisfactory as it is below the maximum allowable 2%.

**IMPORTANT:** If the supply voltage phase imbalance is more than 2%, contact your local electric utility company immediately.

**NOTES:**

1. In compliance with NEC requirements for multimotor and combination load equipment (refer to NEC Articles 430 and 440), the overcurrent protective device for the unit shall be fuse or HACR breaker. Canadian units may be fuse or circuit breaker.

**2. Unbalanced 3-Phase Supply Voltage**

Never operate a motor where a phase imbalance in supply voltage is greater than 2%. Use the following formula to determine the percentage of voltage imbalance.

$$\% \text{ Voltage Imbalance} = 100 \times \frac{\text{max voltage deviation from average voltage}}{\text{average voltage}}$$