RHS240/243
SINGLE PACKAGE ROOFTOP
HEAT PUMP
WITH R–410A REFRIGERANT

Electrical Data Supplement

NOTE: Read the entire instruction manual before starting the installation

This supplement only applies to RHS240/243 units when there is "B" in the 9th 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 9th position of the model number discard this document.

MODEL NOMENCLATURE

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

R = Rooftop

A = Air Conditioning (Cooling Only)
H = Heat Pump
G = Gas/Electric — **Type**

S = Standard ASHRAE 90.1-2010 — **Efficiency**

240 = 20 Tons (Dedicated Vertical S/A)
243 = 20 Tons (Dedicated Horizontal S/A) — **Nominal Cooling Capacity**

K = 208/230-1-60
H = 208/230-3-60
L = 460-3-60
S = 575-3-60 — **Voltage**

0 = No Heat — **Heating Capacity**

A = Standard Static Option
C = Medium Static Option
B = High Static Option
E = High Static Option with High Efficiency Motor — **Motor Option**

A = None
B = Economizer w/Bara-relief, OA Temp sensor
E = Economizer w/Bara-relief + CO2 Sensor, OA Temp sensor
H = Economizer w/Bara-relief, enthalpy sensor
L = Economizer w/Bara-relief + CO2 Sensor, enthalpy sensor
P = 2-Position damper w/Baro-relief — **Outdoor Air Options / Control**

0A = No Options
4B = Non-Fused Disconnect
AT = Non-powered 115v C.O.
BR = Supply Air Smoke Detector
BA = Supply Air Smoke Detector + Non-Powered 115v C.O.
7C = Non-Fused Disconnect + Non-Powered 115v C.O.
7K = Non-Fused Disconnect + Non-Powered 115v C.O.+ SA Smoke detector
8A = Non-Fused Disconnect + SA Smoke detector — **Factory Installed Options**

A = Aluminum / Cu Cond & Evap Coil
B = Precoat Alum/Cu Cond & Alum / Cu Evap
C = E-Coated Alum/Cu Cond & Alum / Cu Evap
D = E-Coated Alum / Cu Cond & Evap
E = Cu / Cu Cond & Alum / Cu Evap
F = Cu/Cu Cond & Evap — **Condenser / Evaporator Coil Configuration**

A = Original Design — Sales Digit

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.

⚠ 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 RHS240/243 which display a “B” in the 9th 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.

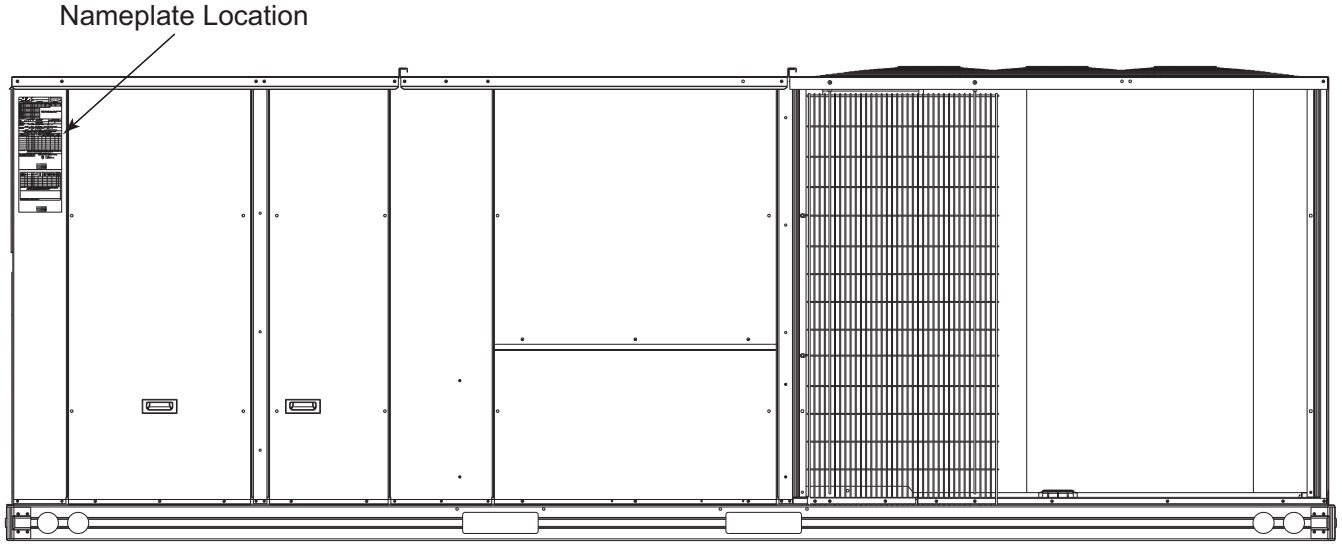
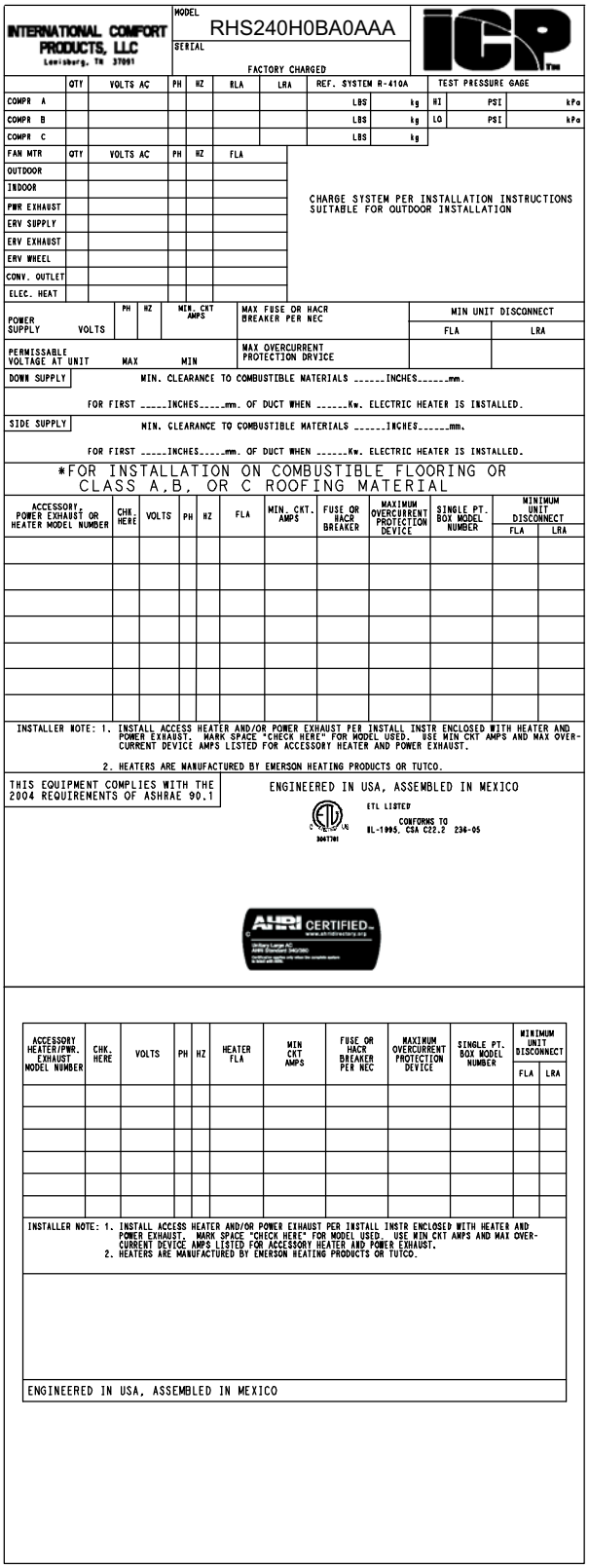


Fig. 1 – Location of Unit Nameplate



INTERNATIONAL COMFORT PRODUCTS, LLC
Lewisburg, TN 37091

MODEL
RHS240H0BA0AAA

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
OUTDOOR					
INDOOR					
PWR EXHAUST					
ERV SUPPLY					
ERV EXHAUST					
ERV WHEEL					
CONV. OUTLET					
ELEC. HEAT					

CHARGE SYSTEM PER INSTALLATION INSTRUCTIONS
SUITABLE FOR OUTDOOR INSTALLATION

POWER SUPPLY VOLTS	PH	HZ	MIN. CKT AMPS	MAX FUSE OR HACR BREAKER PER NEC	MIN UNIT DISCONNECT FLA	MIN UNIT DISCONNECT LRA
PERMISSABLE VOLTAGE AT UNIT MAX MIN				MAX OVERCURRENT PROTECTION DRVICE		

DOWN SUPPLY — MIN. CLEARANCE TO COMBUSTIBLE MATERIALS _____INCHES_____mm.
FOR FIRST _____INCHES_____mm. OF DUCT WHEN _____Kw. ELECTRIC HEATER IS INSTALLED.

SIDE SUPPLY — MIN. CLEARANCE TO COMBUSTIBLE MATERIALS _____INCHES_____mm.
FOR FIRST _____INCHES_____mm. OF DUCT WHEN _____Kw. ELECTRIC HEATER IS INSTALLED.

*FOR INSTALLATION ON COMBUSTIBLE FLOORING OR CLASS A,B, OR C ROOFING MATERIAL

ACCESSORY, POWER EXHAUST OR HEATER MODEL NUMBER	CHK. HERE	VOLTS	PH	HZ	FLA	MIN. CKT. AMPS	FUSE OR HACR BREAKER	MAXIMUM OVERCURRENT PROTECTION DEVICE	SINGLE PT. BOX MODEL NUMBER	MINIMUM UNIT DISCONNECT FLA	MINIMUM UNIT DISCONNECT LRA

INSTALLER NOTE: 1. INSTALL ACCESS HEATER AND/OR POWER EXHAUST PER INSTALL INSTR ENCLOSED WITH HEATER AND POWER EXHAUST. MARK SPACE "CHECK HERE" FOR MODEL USED. USE MIN CKT AMPS AND MAX OVER-CURRENT DEVICE AMPS LISTED FOR ACCESSORY HEATER AND POWER EXHAUST.
2. HEATERS ARE MANUFACTURED BY EMERSON HEATING PRODUCTS OR TUTCO.

THIS EQUIPMENT COMPLIES WITH THE 2004 REQUIREMENTS OF ASHRAE 90.1

ENGINEERED IN USA, ASSEMBLED IN MEXICO

ETL LISTED
CONFORMS TO UL-1995, CSA C22.2 236-05
3047781

AHRI CERTIFIED

ACCESSORY HEATER/PWR. EXHAUST MODEL NUMBER	CHK. HERE	VOLTS	PH	HZ	HEATER FLA	MIN CKT AMPS	FUSE OR HACR BREAKER PER NEC	MAXIMUM OVERCURRENT PROTECTION DEVICE	SINGLE PT. BOX MODEL NUMBER	MINIMUM UNIT DISCONNECT FLA	MINIMUM UNIT DISCONNECT LRA

INSTALLER NOTE: 1. INSTALL ACCESS HEATER AND/OR POWER EXHAUST PER INSTALL INSTR ENCLOSED WITH HEATER AND POWER EXHAUST. MARK SPACE "CHECK HERE" FOR MODEL USED. USE MIN CKT AMPS AND MAX OVER-CURRENT DEVICE AMPS LISTED FOR ACCESSORY HEATER AND POWER EXHAUST.
2. HEATERS ARE MANUFACTURED BY EMERSON HEATING PRODUCTS OR TUTCO.

ENGINEERED IN USA, ASSEMBLED IN MEXICO

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

Fig. 2 – Unit Nameplate with Model Number Detail

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

UNIT	NOM. V–Ph–Hz	IFM TYPE	ELEC. HTR			PE	NO C.O. or UNPWR C.O.							
							NO P.E.				w/ P.E. (pwrd fr/unit)			
								FUSE or HACR BRKR	DISC. SIZE			FUSE or HACR BRKR	DISC. SIZE	
			CRHEATER ***A00	Nom (kW)	FLA	FLA	MCA		FLA	LRA	MCA		FLA	LRA
RHS240/243	208/230–3–60	STD	NONE	–	–	5.9	92.7	125.0	97	558	104.5	125.0	111	578
			279A00	18.8/25.0	52.1/60.1		157.9/167.9	175/175	157/166	610/618	169.7/179.7	175/200	171/180	630/638
			280A00	37.6/50.0	104.2/120.3		223.0/213.0	225/225	217/235	662/678	234.8/224.8	250/250	230/249	682/698
			281A00	56.3/75.0	156.4/180.4		249.1/273.1	300/300	277/305	714/738	260.9/284.9	300/300	290/318	734/758
		MED	NONE	–	–	5.9	90.5	100.0	95	560	102.3	125.0	108	580
			279A00	18.8/25.0	52.1/60.1		155.7/165.7	175/175	154/164	612/620	167.5/177.5	175/200	168/177	632/640
			280A00	37.6/50.0	104.2/120.3		220.8/210.8	225/225	214/233	664/680	232.6/222.6	250/250	228/246	684/700
			281A00	56.3/75.0	156.4/180.4		246.9/270.9	300/300	274/302	716/740	258.7/282.7	300/300	288/316	736/760
		HIGH	NONE	–	–	5.9	97.1	125.0	102	596	108.9	125.0	116	616
			279A00	18.8/25.0	52.1/60.1		162.3/172.3	175/175	162/171	648/656	174.1/184.1	175/200	176/185	668/676
			280A00	37.6/50.0	104.2/120.3		227.4/217.4	250/250	222/240	700/716	239.2/229.2	250/250	236/254	720/736
			281A00	56.3/75.0	156.4/180.4		253.5/277.5	300/300	282/310	752/776	265.3/289.3	300/300	296/323	772/796
	460–3–60	STD	NONE	–	–	3.1	50.1	60.0	52	288	56.3	70.0	60	300
			282A00	25.0	30.1		87.7	90.0	87	318	93.9	100.0	94	330
			283A00	50.0	60.1		110.2	125.0	122	348	116.4	125.0	129	360
			284A00	75.0	90.2		140.3	150	156	378	146.5	175	163	390
		MED	NONE	–	–	3.1	49.1	60.0	51	289	55.3	60.0	58	301
			282A00	25.0	30.1		86.7	90.0	86	319	92.9	100.0	93	331
			283A00	50.0	60.1		109.2	125.0	120	349	115.4	125.0	128	361
			284A00	75.0	90.2		139.3	150	155	379	145.5	150	162	391
		HIGH	NONE	–	–	3.1	52.4	60.0	55	307	58.6	70.0	62	319
			282A00	25.0	30.1		90.0	100.0	90	337	96.2	100.0	97	349
			283A00	50.0	60.1		112.5	125.0	124	367	118.7	125.0	131	379
			284A00	75.0	90.2		142.6	150	159	397	148.8	175	166	409
	575–3–60	STD	NONE	–	–	2.4	36.2	45.0	38	204	41.0	50.0	43	212
			285A00	24.8	23.9		66.1	70.0	65	228	70.9	80.0	71	236
			286A00	49.6	47.7		95.8	100.0	93	252	100.6	110.0	98	260
			287A00	74.4	71.6		107.8	125	120	276	112.6	125	126	284
		MED	NONE	–	–	2.4	35.7	45.0	37	193	40.5	50.0	43	201
			285A00	24.8	23.9		65.6	70.0	65	217	70.4	80.0	70	225
			286A00	49.6	47.7		95.3	100.0	92	241	100.1	110.0	98	249
			287A00	74.4	71.6		107.3	125	120	265	112.1	125	125	273
		HIGH	NONE	–	–	2.4	38.4	50.0	40	219	43.2	50.0	46	227
			285A00	24.8	23.9		68.3	70.0	68	243	73.1	80.0	73	251
			286A00	49.6	47.7		98.0	100.0	95	267	102.8	110.0	101	275
			287A00	74.4	71.6		110.0	125	123	291	114.8	125	128	299

NOTE: See page 5 for table legend and notes.

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

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.

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

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.