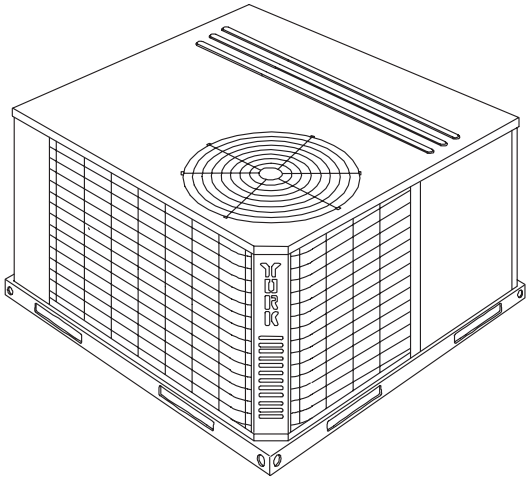
CHAMPION® SERIES
SINGLE PACKAGE HEAT PUMPS

INSTALLATION INSTRUCTION | Supersedes: 66297-YIM-B-1004 | 66297-YIM-C-0205

MODELS B1HH018 THRU 060
1.5 THRU 5 TON
(12 SEER)



GENERAL

YORK Model B1HH units are factory assembled heat pumps designed for outdoor installation on a roof top or a slab. Field-installed electric heater accessories are available to provide supplemental electric heat combined with electric cooling and heating.

The units are completely assembled on rigid, removable base rails. All piping, refrigerant charge, and electrical wiring is factory installed and tested. The units require only electric power and duct connections at the point of installation.

The electric heaters have nickel-chrome resistance wire elements and utilize single point power connection.

INSPECTION

As soon as a unit is received, it should be inspected for possible damage during transit. If damage is evident, the extent of the damage should be noted on the carrier's freight bill. A separate request for inspection by the carrier's agent should be made in writing. Refer to Form 50.15-NM for additional information.

REFERENCE

Additional information on the design, installation, operation and service of this equipment is available in the following reference forms:

- 55.70-N1 — General Installation
- 55.70-N2 — Pre-start & Post-start Check List
- 511.26-N1.1V — Electric Heater Accessory

REPLACEMENT PARTS

- Refer to Replacement Parts Manual for complete listing of replacement parts on this equipment.

Installer should pay particular attention to the words: *NOTE, CAUTION* and *WARNING*. Notes are intended to clarify or make the installation easier. Cautions are given to prevent equipment damage. Warnings are given to alert installer that personal injury and/or equipment damage may result if installation procedure is not handled properly.

CAUTION

THIS PRODUCT MUST BE INSTALLED IN STRICT COMPLIANCE WITH THE ENCLOSED INSTALLATION INSTRUCTIONS AND ANY APPLICABLE LOCAL, STATE, AND NATIONAL CODES INCLUDING, BUT NOT LIMITED TO, BUILDING, ELECTRICAL, AND MECHANICAL CODES

WARNING

INCORRECT INSTALLATION MAY CREATE A CONDITION WHERE THE OPERATION OF THE PRODUCT COULD CAUSE PERSONAL INJURY, PROPERTY DAMAGE AND/OR DEATH.

WARNING

DE-ENERGIZE THE ELECTRICAL POWER TO THE UNIT BEFORE ATTEMPTING TO INSPECT, REPAIR OR PERFORM MAINTENANCE TO THE UNIT.

PRODUCT NOMENCLATURE

B	1	H	H	0	2	4	A	0	6

PRODUCT CATEGORY
B = Single Package Heat Pumps (Air Cooled)

PRODUCT GENERATION
1 = NEW or Current Design

PRODUCT IDENTIFIER
HH = Heat Pump (12 SEER)

NOMINAL COOLING CAPACITY (MBH)
018 = 18,000 BTUH 042 = 42,000 BTUH
024 = 24,000 BTUH 048 = 48,000 BTUH
030 = 30,000 BTUH 060 = 60,000 BTUH
036 = 36,000 BTUH

FACTORY INSTALLED ELECTRIC HEAT
A = No Electric Heat Installed

VOLTAGE CODE
06 = 208/230-1-60
25 = 208/230-3-60
46 = 460-3-60
58 = 575-3-60

INSTALLATION

LIMITATIONS

These units must be installed in accordance with the following national and local safety codes.

1. National Electrical Code ANSI/NFPS No. 70 or Canadian Electrical Code Part 1, C22.1 (latest editions).
2. Local plumbing and waste water codes and other applicable local codes.

Refer to Table 1 for unit application data and to Table 5 for electric heat application data.

If components are to be added to a unit to meet local codes, they are to be installed at the dealer's and/or the customer's expense.

Size of unit for proposed installation should be based on heat loss/heat gain calculations made in accordance with industry recognized procedures identified by the Air Conditioning Contractors of America.

TABLE 1 - UNIT APPLICATION DATA

Voltage Variation Min. / Max.[1]	208/230V[3]	187 / 253[3]
	460V	414 / 504
	575V	518 / 630
Wet Bulb Temperature (°F) of Air on Evaporator Coil, Min. / Max.		57 / 72
Dry Bulb Temperature (°F) of Air on Condenser Coil, Min.[2] / Max.		45 / 120

[1] Rated in accordance with ARI Standard 110, utilization range "A".
[2] A low ambient accessory is available for operation down to 0°F
[3] "T1" transformer primary tap must be moved from the 230 volt connection to the 208 volt connection for low voltage applications of 208 volt and below.

LOCATION

Use the following guidelines to select a suitable location for these units.

1. Unit is designed for outdoor installation only.
2. Condenser must have an unlimited supply of air. Where a choice of location is possible, position unit on either north or east side of building.
3. For ground level installation, a level pad or slab should be used. The thickness and size of the pad or slab used should meet local codes and unit weight. Do not tie the slab to the building foundation.
4. For roof top installation, be sure the structure can support the weight of the unit plus any field installed components. Unit must be installed on a level roof curb or appropriate angle iron frame providing adequate support under the compressor/condenser section.
5. Maintain level tolerance of unit to 1/8" maximum.

RIGGING OR HANDLING

Care must be exercised when moving the unit. Do not remove any packaging until the unit is near the place of installation. Rig unit with slings placed under the unit. Spreader bars of sufficient length should be used across the top of the unit.

BEFORE LIFTING A UNIT, MAKE SURE THAT ITS WEIGHT IS DISTRIBUTED EQUALLY ON THE CABLES SO THAT IT WILL LIFT EVENLY.

Units may also be moved or lifted with a fork-lift. Slotted openings in the skid are provided for this purpose. Forks must pass completely through the base.

Refer to Table 2 for unit weights and to Figure 1 for approximate center of gravity.

TABLE 2 - UNITS WEIGHTS

UNIT SIZE	SHIPPING WEIGHT (lbs.)	OPERATING WEIGHT (lbs.)	CORNER WEIGHTS (location, lbs.)			
			"A"	"B"	"C"	"D"
018	351	346	103	92	73	83
024	356	351	97	93	81	84
030	353	348	96	93	81	84
036	388	383	106	102	89	92
042	440	435	120	115	101	104
048	485	480	132	127	111	115
060	495	490	135	130	113	117

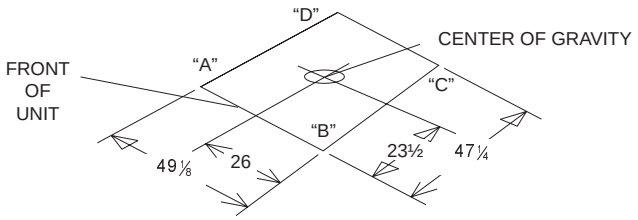


FIG. 1 - CENTER OF GRAVITY

CLEARANCES

All units require certain clearances for proper operation and service. Refer to Figure 3 for the clearances required for combustion, construction, servicing and proper unit operation.

WARNING: Do not permit overhanging structures or shrubs to obstruct the condenser air discharge outlet.

DUCT WORK

These units are adaptable to downflow use as well as rear supply and return air duct openings. To convert to downflow, use the following steps:

1. Remove the duct covers found in the bottom return and supply air duct openings. There are four (4) screws securing each duct cover (save these screws to use later).
2. Install the duct covers, removed in step one, to the rear supply and return air duct openings. Secure with the four (4) screws used in step one.
3. Seal duct covers with silicone caulk.

Downflow units must have an “L”-shaped supply duct without any outlets or registers located below the outlet of the unit.

Duct work should be designed and sized according to the methods of the Air Conditioning Contractors of America (ACCA), as set forth in their Manual D.

A closed return duct system shall be used. This shall not preclude use of economizers or ventilation air intake. Flexible joints may be used in the supply and return duct work to minimize the transmission of noise.

CAUTION: When fastening duct work to the side duct flanges on the unit, insert the screws through the duct flanges only. DO NOT insert the screws through the casing. Outdoor duct work must be insulated and waterproofed.

NOTE: Be sure to note supply and return openings.

Refer to Figure 4 for information concerning rear and bottom supply and return air duct openings.

FILTERS

Single phase units are shipped without a filter and is the responsibility of the installer to secure a filter **in the return air ductwork or install a Filter/Frame Kit** (1FF0114).

A filter rack and a high velocity filters are standard on three phase units.

Filters must always be used and must be kept clean. When filters become dirt laden, insufficient air is delivered by the blower, decreasing your unit's efficiency and increasing operating costs and wear-and-tear on the unit and controls.

Filters should be checked monthly especially since this unit is used for both heating and cooling.

CONDENSATE DRAIN

A condensate trap is required to be installed in the condensate drain. The plumbing must conform to local codes. Use a sealing compound on male pipe threads. Install the condensate drain line (¾" NPTF) to spill into an open drain.

SERVICE ACCESS

Access to all serviceable components is provided by the following removable panels:

- Blower service access
- Electrical/Filter access
- Compressor service access

Refer to Figure 3 for location of these access panels and minimum clearances.

THERMOSTAT

The room thermostat should be located on an inside wall approximately 56" above the floor where it will not be subject to drafts, sun exposure or heat from electrical fixtures or appliances. Follow manufacturer's instructions enclosed with the thermostat for general installation procedure. Six color coded insulated wires (minimum #18 AWG) should be used to connect thermostat to unit. See Figure 2.

POWER AND CONTROL WIRING

Field wiring to the unit must conform to provisions of the current N.E.C. ANSI/NFPA No. 70 or C.E.C. and/or local ordinances. The unit must be electrically grounded in accordance with local codes or, in their absence, with the N.E.C./C.E.C. Voltage tolerances which must be maintained at the compressor terminals during starting and running conditions are indicated on the unit Rating Plate and Table 3.

The wiring entering the cabinet must be provided with mechanical strain relief.

A fused disconnect switch should be field provided for the unit. If any of the wire supplied with the unit must be replaced, replacement wire must be of the type shown on the wiring diagram.

Electrical line must be sized properly to carry the load. Each unit must be wired with a separate branch circuit fed directly from the meter panel and properly fused.

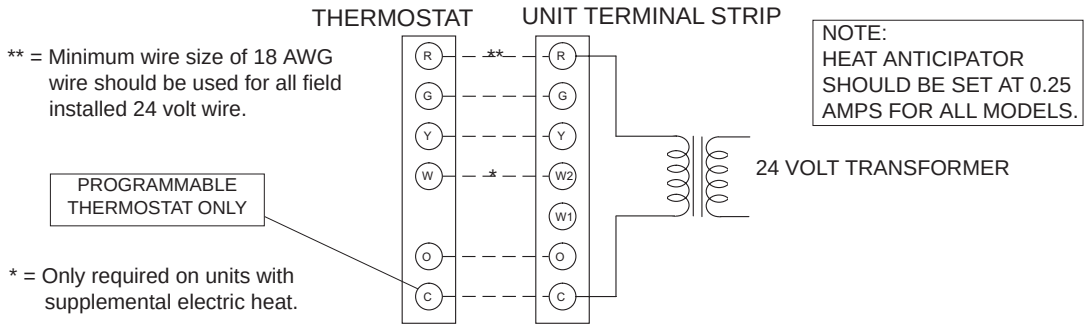
Refer to Figure 2 for typical field wiring and to the appropriate unit wiring diagram for control circuit and power wiring information.

COMPRESSORS

Units are shipped with compressor mountings factory-adjusted and ready for operation.

CAUTION: Do Not loosen compressor mounting bolts.

CONTROL WIRING



CAUTION: Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation. Verify proper operation after servicing.

POWER WIRING

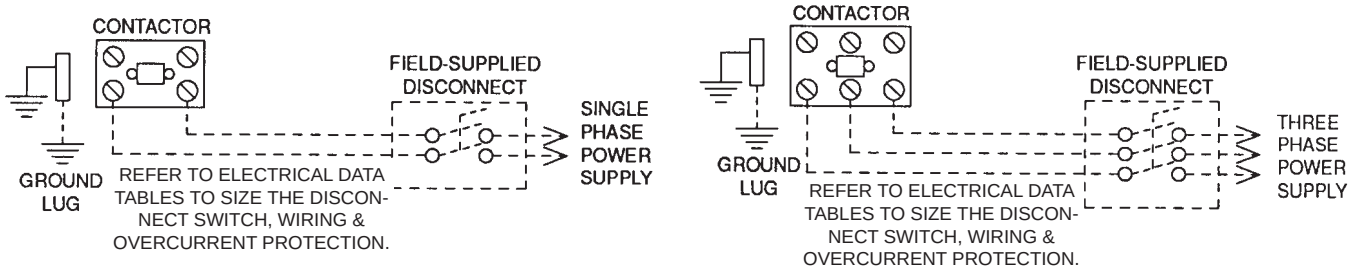


FIG. 2 - TYPICAL FIELD WIRING DIAGRAM

TABLE 3 - PHYSICAL DATA

MODELS		BHH						
		018	024	030	036	042	048	060
INDOOR BLOWER	CENTRIFUGAL BLOWER (Dia. x Wd. in.)	9 X 6	10 X 8	10 X 8	10 x 8	11 x 10	11 x 10	11 x 10
	FAN MOTOR HP (Three Speed)	½	½	½	¾	¾	¾	1
INDOOR COIL	ROWS DEEP	2	2	3	3	3	3	3
	FINS PER INCH	15	15	13	15	16	16	16
	FACE AREA (Sq. Ft.)	4.38	4.38	4.38	4.38	5.63	5.63	5.63
OUTDOOR FAN	PROPELLER DIA. (in.)	22	22	22	22	22	22	22
	FAN MOTOR HP	¼	¼	¼	¼	¼	¼	¼
	NOM. CFM TOTAL	1,800	1.800	1,800	2,400	2,400	3,000	3,000
OUTDOOR COIL	ROWS DEEP	1	1	1	2	2	2	2
	FINS PER INCH	20	20	20	20	20	20	20
	FACE AREA (Sq. Ft.)	8.3	11.7	11.7	11.7	16.4	16.4	16.4
CHARGE	REFRIGERANT 22 (lbs./oz.)	5 / 6	5 / 5	6 / 5	8 / 12	11 / 8	12 / 0	9 / 0
FILTER	FACE AREA (Sq. Ft. / Qty. / Size)	4.28 / 2 / 14" x 22"						
COMPRESSOR	HERMETIC Type, (Qty. = 1)	Reciprocating	Reciprocating	Scroll	Scroll	Scroll	Scroll	Scroll

TABLE 4 - ELECTRICAL DATA (BASIC UNIT)

MODEL BHH	POWER SUPPLY	VOLTAGE LIMITATIONS 1		COMPRESSOR		OUTDOOR FAN MOTOR, FLA	SUPPLY AIR BLOWER MOTOR, FLA	MINIMUM CIRCUIT AMPACITY	MAX. FUSE SIZE, AMPS 2	MAX. HACR BREAKER SIZE, AMPS	UNIT POWER FACTOR	TRANSFORMER SIZE (VA)
		MIN.	MAX.	RLA	LRA							
018	208/230-1-60	187	253	7.1	48.0	1.1	2.6	12.5	15	15	0.96	40
024	208/230-1-60	187	253	9.3	57.0	1.1	2.6	15.3	20	20	0.96	40
030	208/230-1-60	187	253	15.0	72.5	1.1	2.6	22.5	30	30	0.96	40
	208/230-3-60	187	253	10.0	63.0	1.1	2.6	16.2	25	25	0.96	75
	460-3-60	414	504	5.0	31.0	0.6	1.4	8.3	15	15	0.96	75
036	208/230-1-60	187	253	17.2	94.0	1.1	3.5	26.1	35	35	0.96	40
	208/230-3-60	187	253	11.4	78.0	1.1	3.5	18.9	25	25	0.96	75
	460-3-60	414	504	5.7	40.0	0.6	1.8	9.5	15	15	0.96	75
	575-3-60	518	630	4.7	32.0	0.4	1.5	7.8	15	15	0.96	75
042	208/230-1-60	187	253	20.0	104.0	1.1	3.5	29.6	40	40	0.96	40
	208/230-3-60	187	253	13.9	88.0	1.1	3.5	22.0	30	30	0.96	75
	460-3-60	414	504	6.4	44.0	0.6	1.8	10.4	15	15	0.96	75
	575-3-60	518	630	5.4	34.0	0.4	1.5	8.7	15	15	0.96	75
048	208/230-1-60	187	253	23.4	126.0	1.5	4.0	34.7	45	45	0.96	40
	208/230-3-60	187	253	13.0	93.0	1.5	4.0	21.8	30	30	0.96	75
	460-3-60	414	504	6.4	46.5	0.8	2.0	10.8	15	15	0.96	75
	575-3-60	518	630	5.1	37.2	0.6	1.6	8.6	15	15	0.96	75
060	208/230-1-60	187	253	28.8	148.0	1.5	5.6	43.1	60	60	0.96	40
	208/230-3-60	187	253	17.2	123.0	1.5	5.6	28.7	40	40	0.96	75
	460-3-60	414	504	8.2	62.0	0.8	5.6	16.7	20	20	0.96	75
	575-3-60	518	630	7.0	50.0	0.6	2.8	12.2	15	15	0.96	75

1 = Rated in accordance with ARI Standard 110, utilization range “A”. 2 = Dual element, time delay type.

	NOMINAL VOLTAGE	VOLTAGE	KW CAP. MULTIPLIER
ELECTRIC HEAT CORRECTION FACTORS	240	208	.75
		230	.92
	480	460	.92
	600	575	.92

TABLE 5 - ELECTRICAL DATA (12 SEER HEAT PUMP / ELECTRIC HEAT)

MODEL BHH	POWER SUPPLY	COMPRESSOR		COND. FAN MOTOR FLA	SUPPLY AIR BLOWER MOTOR, FLA	ELECTRIC HEAT ACCESSORY			MINIMUM CIRCUIT AMPACITY	MAX. FUSE SIZE,[1] AMPS	MAX. HACR[2] BREAKER SIZE
		RLA	LRA			MODEL NO.	KW	TOTAL AMPS			
018	208/230-1-60	7.1	48.0	1.1	2.6	2NH04500506	3.8 / 5.0 *	18.1 / 20.8	35.1 / 38.6	40 / 40	40 / 40
						2NH04500706	5.6 / 7.5 *	27.1 / 31.3	46.4 / 51.6	50 / 60	50 / 60
024	208/230-1-60	9.3	57.0	1.1	2.6	2NH04500506	3.8 / 5.0 *	18.1 / 20.8	37.9 / 41.4	40 / 45	40 / 45
						2NH04500706	5.6 / 7.5 *	27.1 / 31.3	49.2 / 54.4	50 / 60	50 / 60
						2NH04501006	7.5 / 10.0 *	36.1 / 41.7	60.5 / 67.4	70 / 70	70 / 70
030	208/230-1-60	15.0	72.5	1.1	2.6	2NH04500506	3.8 / 5.0 *	18.1 / 20.8	45.0 / 48.5	50 / 50	50 / 50
						2NH04500706	5.6 / 7.5 *	27.3 / 31.3	56.3 / 61.5	60 / 70	60 / 70
						2NH04501006	7.5 / 10.0 *	36.1 / 41.7	67.6 / 74.5	70 / 80	70 / 80
						2NH04501506	11.3 / 15.0 *	54.2 / 62.5	90.2 / 100.6	100 / 110	100 / 110
		15.0	72.5	1.1	2.6	2ND04501506	3.8/5.0	18.1/20.8	45.0/48.5	50/50	50/50
		0.0	0.0	0.0	0.0		7.5/10.0	36.1/41.7	45.1/52.1	50/60	50/60
036	208/230-1-60	17.2	94.0	1.1	3.5	2NH04500506	3.8 / 5.0 *	18.1 / 20.8	48.7 / 52.1	60 / 60	60 / 60
						2NH04500706	5.6 / 7.5 *	27.1 / 31.3	60.0 / 65.2	70 / 70	70 / 70
						2NH04501006	7.5 / 10.0 *	36.1 / 41.7	71.2 / 78.2	80 / 80	80 / 80
						2NH04501506	11.3 / 15.0 *	54.2 / 62.5	93.8 / 104.2	100 / 110	100 / 110
		17.2	94.0	1.1	3.5	2ND04501506	3.8/5.0	18.1/20.8	48.7/52.1	60/60	60/60
		0.0	0.0	0.0	0.0		7.5/10.0	36.1/41.7	45.1/52.1	50/60	50/60
042	208/230-1-60	20.0	104.0	1.1	3.5	2NP04501006	7.5 / 10.0 *	36.1 / 41.7	74.7 / 81.7	80 / 90	80 / 90
						2NP04501506	11.3 / 15.0 *	54.2 / 62.5	97.3 / 107.7	100 / 110	100 / 110
		20.0	104.0	1.1	3.5	2ND04501506	3.8/5.0	18.1/20.8	52.2/55.6	60/70	60/70
		0.0	0.0	0.0	0.0		7.5/10.0	36.1/41.7	45.1/52.1	50/60	50/60
048	208/230-1-60	23.4	126.0	1.5	4.0	2NP04501006	7.5 / 10.0 *	36.1 / 41.7	79.9/86.8	90/90	90/90
						2NP04501506	11.3 / 15.0 *	54.2 / 62.5	102.5/112.9	110/125	110/125
						2NP04502006	15.0 / 20.0 *	72.2 / 83.3	125.0/138.9	150/150	150/150
						2NX04502506	18.8 / 25.0 *	90.3 / 104.2	147.6/165.0	150/175	150/175
060	208/230-1-60	28.8	148.0	1.5	5.6	2NP04501006	7.5 / 10.0 *	36.1 / 41.7	88.2/95.2	100/110	100/110
						2NP04501506	11.3 / 15.0 *	54.2 / 62.5	110.8/121.2	125/125	125/125
						2NH04502006	15.0 / 20.0 *	72.2 / 83.3	133.4/147.3	150/150	150/150
						2NP04502506	18.8 / 25.0 *	90.3 / 104.2	155.9/173.3	175/175	175/175
030	208/230-3-60	10.0	63.0	1.1	3.5	2NH04501025	7.5 / 10.0 *	20.8 / 24.1	42.3/46.3	45/50	45/50
						2NH04501525	11.3 / 15.0 *	31.3 / 36.1	55.3/61.3	60/70	60/70
036	208/230-3-60	11.4	78.0	1.1	3.5	2NH04501025	7.5 / 10.0 *	20.8 / 24.1	44.9 / 48.9	50/50	50/50
						2NH04501525	11.3 / 15.0 *	31.3 / 36.1	57.9 / 64.0	60/70	60/70
042	208/230-3-60	13.9	88.0	1.1	3.5	2NP04501025	7.5 / 10.0 *	20.8 / 24.1	48.0 / 52.0	50/60	50/60
						2NP04501525	11.3 / 15.0 *	31.3 / 36.1	61.1 / 67.1	70/70	70/70
048	208/230-3-60	13.0	93.0	1.5	4.0	2NP04501025	7.5 / 10.0 *	20.8 / 24.1	47.8/51.8	50/60	50/60
						2NP04501525	11.3 / 15.0 *	31.3 / 36.1	60.8/66.9	70/70	70/70
						2NP04502025	15.0 / 20.0 *	41.7 / 48.1	73.9/81.9	80/90	80/90
						2NH04502525	18.8 / 25.0 *	52.1 / 60.1	86.9/96.9	90/100	90/100
060	208/230-3-60	17.2	123.0	1.5	5.6	2NH04501025	7.5 / 10.0 *	20.8 / 24.1	54.8/58.8	60/70	60/70
						2NH04501525	11.3 / 15.0 *	31.3 / 36.1	67.8/73.8	70/80	70/80
						2NH04502025	15.0 / 20.0 *	41.7 / 48.1	80.8/88.8	90/90	90/90
						2NH04502525	18.8 / 25.0 *	52.1 / 60.1	93.9/103.9	100/110	100/110
030	460-3-60	5.0	31.0	0.6	1.8	2NH04501046	10.0**	12.0	23.3	25	25
						2NH04501546	15.0**	18.0	30.8	35	35
036	460-3-60	5.7	40.0	0.6	1.8	2NH04501046	10.0**	12.0	24.5	25	25
						2NH04501546	15.0**	18.0	32.0	35	35
042	460-3-60	6.4	44.0	0.6	1.8	2NH04501046	10.0**	12.0	25.4	30	30
						2NH04501546	15.0**	18.0	33.0	35	35
048	460-3-60	6.4	46.5	0.8	2.0	2NP04501046	10.0**	12.0	25.8	30	30
						2NH04501546	15.0**	18.0	33.4	35	35
						2NH04502046	20.0**	24.1	40.9	45	45
						2NH04502546	25.0**	30.1	48.4	50	50
060	460-3-60	8.2	62.0	0.8	5.6	2NP04501046	10.0**	12.0	28.9	30	30
						2NH04501546	15.0**	18.0	36.4	40	40
						2NH04502046	20.0**	24.1	43.9	45	45
						2NP04502546	25.0**	30.1	51.4	60	60

[1] = Dual element, time delay type.
[2] = Standard circuit breakers may be used in Canada and on applications over 60 amps where the heaters are separately fused.

* = KW listed is for 240 volts, use table on previous page for 208 or 230 volts.
** = KW listed is for 480 volts, use table on previous page for 460 volts.
*** = KW listed is for 600 volts, use table on previous page for 575 volts.

TABLE 5 - ELECTRICAL DATA (12 SEER HEAT PUMP / ELECTRIC HEAT) (Continued)

MODEL BHH	POWER SUPPLY	COMPRESSOR		COND. FAN MOTOR FLA	SUPPLY AIR BLOWER MOTOR, FLA	ELECTRIC HEAT ACCESSORY			MINIMUM CIRCUIT AMPACITY	MAX. FUSE SIZE,[1] AMPS	MAX. HACR[2] BREAKER SIZE
		RLA	LRA			MODEL NO.	KW	TOTAL AMPS			
036	575-3-60	4.7	32.0	0.4	1.5	2NH04501058 2NH04501558	10.0*** 15.0***	9.6 14.4	19.8 25.8	20 30	20 20
042	575-3-60	5.4	34.0	0.4	1.5	2NH04501058 2NH04501558	10.0*** 15.0***	9.6 14.4	20.7 26.7	25 30	25 30
048	575-3-60	5.1	37.2	0.6	1.6	2NH04501058 2NH04501558 2NH04502058 2NH04502558	10.0*** 15.0*** 20.0*** 25.0***	9.6 14.4 19.2 24.1	20.6 26.7 32.7 38.7	25 30 35 40	25 30 35 40
060	575-3-60	7.0	50.0	0.6	2.8	2NH04501058 2NH04501558 2NP04502058 2NP04502558	10.0*** 15.0*** 20.0*** 25.0***	9.6 14.4 19.2 24.1	24.2 30.2 36.3 42.3	25 35 40 45	25 35 40 45

[1] = Dual element, time delay type.
[2] = Standard circuit breakers may be used in Canada and on applications over 60 amps where the heaters are separately fused.

* = KW listed is for 240 volts, use table on previous page for 208 or 230 volts.
** = KW listed is for 480 volts, use table on previous page for 460 volts.
*** = KW listed is for 600 volts, use table on previous page for 575 volts.

TABLE 6 - COOLING SUPERHEAT AT COMPRESSOR SUCTION, AIRFLOW = 600 CFM (B1HH018)

OUTDOOR TEMPERATURE, °F	INDOOR WB TEMPERATURE, °F										
	55	57	59	61	63	65	67	69	71	73	75
65	5.5	5.8	6.1	6.4	6.7	7.0	7.3	13.0	18.7	24.5	30.2
70	—	5.1	5.5	5.9	6.3	6.7	7.1	12.4	17.8	23.1	28.5
75	—	—	—	5.4	5.8	6.3	6.8	11.8	16.8	21.8	26.8
80	—	—	—	—	5.4	6.0	6.6	11.2	15.8	20.5	25.1
85	—	—	—	—	—	5.6	6.3	10.6	14.9	19.1	23.4
90	—	—	—	—	—	5.3	6.1	10.0	13.9	17.8	21.7
95	—	—	—	—	—	—	5.8	9.4	12.9	16.5	20.0
100	—	—	—	—	—	—	—	7.9	11.0	14.1	17.2
105	—	—	—	—	—	—	—	6.5	9.1	11.8	14.4
110	—	—	—	—	—	—	—	5.0	7.2	9.4	11.6
115	—	—	—	—	—	—	—	—	5.3	7.1	8.8

TABLE 7 - HEATING SUPERHEAT AT COMPRESSOR SUCTION, AIRFLOW = 600 CFM (B1HH018)

INDOOR DB TEMPERATURE, °F	OUTDOOR TEMPERATURE, °F							
	-10	0	10	20	30	40	50	60
55	3.1	3.5	4.0	4.7	5.8	7.3	9.4	12.4
70	—	—	—	—	3.5	5.0	7.1	10.1
80	—	—	—	—	—	3.6	5.7	8.7

TABLE 8 - COOLING SUPERHEAT AT COMPRESSOR SUCTION, AIRFLOW = 800 CFM (B1HH024)

OUTDOOR TEMPERATURE, °F	INDOOR WB TEMPERATURE, °F										
	55	57	59	61	63	65	67	69	71	73	75
65	18.8	20.7	22.6	24.5	26.4	28.3	30.2	30.6	31.0	31.4	31.8
70	15.7	17.5	19.3	21.1	22.9	24.7	26.5	27.5	28.6	29.7	30.8
75	12.5	14.2	15.9	17.6	19.3	21.0	22.7	24.5	26.2	28.0	29.7
80	9.4	11.0	12.6	14.2	15.8	17.4	19.0	21.4	23.8	26.3	28.7
85	6.2	7.7	9.2	10.7	12.2	13.7	15.2	18.3	21.4	24.6	27.7
90	—	—	5.9	7.2	8.7	10.1	11.5	15.3	19.1	22.9	26.7
95	—	—	—	—	5.1	6.4	7.7	12.2	16.7	21.1	25.6
100	—	—	—	—	—	5.3	6.2	10.0	13.9	17.7	21.5
105	—	—	—	—	—	—	—	7.9	11.1	14.2	17.4
110	—	—	—	—	—	—	—	5.8	8.3	10.8	13.3
115	—	—	—	—	—	—	—	—	5.5	7.3	9.2

TABLE 9 - HEATING SUPERHEAT AT COMPRESSOR SUCTION, AIRFLOW = 800 CFM (B1HH024)

INDOOR DB TEMPERATURE, °F	HEATING SUPERHEAT AT COMPRESSOR SUCTION, °F							
	-10	0	10	20	30	40	50	60
55	4.4	4.4	4.6	4.9	5.6	7.1	10.2	16.6
70	—	—	—	—	—	—	5.9	12.3
80	—	—	—	—	—	—	—	9.3

TABLE 10 - COOLING SUPERHEAT AT COMPRESSOR SUCTION, AIRFLOW = 1,000 CFM (B1HH030)

OUTDOOR TEMPERATURE, °F	INDOOR WB TEMPERATURE, °F										
	55	57	59	61	63	65	67	69	71	73	75
65	—	5.8	10.8	15.8	20.8	25.8	30.8	31.7	32.6	33.4	34.3
70	—	5.1	9.3	13.6	17.8	22.1	26.3	28.0	29.6	31.3	32.9
75	—	—	7.9	11.4	14.8	18.3	21.8	24.2	26.7	29.1	31.6
80	—	—	6.4	9.1	11.9	14.6	17.3	20.5	23.7	27.0	30.2
85	—	—	—	6.9	8.9	10.8	12.8	16.8	20.8	24.8	28.8
90	—	—	—	—	5.9	7.1	8.3	13.1	17.9	22.6	27.4
95	—	—	—	—	—	—	—	9.4	14.9	20.5	26.0
100	—	—	—	—	—	—	—	7.6	12.0	16.3	20.7
105	—	—	—	—	—	—	—	5.9	9.0	12.2	15.3
110	—	—	—	—	—	—	—	—	6.1	8.0	9.9
115	—	—	—	—	—	—	—	—	—	—	—

TABLE 11 - HEATING SUPERHEAT AT COMPRESSOR SUCTION, AIRFLOW = 1,000 CFM (B1HH030)

INDOOR DB TEMPERATURE, °F	HEATING SUPERHEAT AT COMPRESSOR SUCTION, °F							
	-10	0	10	20	30	40	50	60
55	—	5.8	7.9	9.6	13.4	19.1	26.9	36.6
70	—	—	—	—	5.4	11.2	18.9	28.7
80	—	—	—	—	—	8.1	15.9	25.6

TABLE 12 - COOLING SUPERHEAT AT COMPRESSOR SUCTION, AIRFLOW = 1,200 CFM (B1HH036)

OUTDOOR TEMPERATURE, °F	INDOOR WB TEMPERATURE, °F										
	55	57	59	61	63	65	67	69	71	73	75
65	—	5.2	7.3	9.4	11.6	13.7	15.8	20.0	24.2	28.4	32.6
70	—	—	6.4	8.2	10.0	11.8	13.6	17.9	22.2	26.5	30.8
75	—	—	5.5	6.9	8.4	9.8	11.3	15.7	20.2	24.6	29.1
80	—	—	—	5.7	6.8	7.9	9.1	13.6	18.2	22.7	27.3
85	—	—	—	—	5.2	6.0	6.8	11.5	16.2	20.8	25.5
90	—	—	—	—	—	—	—	9.3	14.2	19.0	23.8
95	—	—	—	—	—	—	—	7.2	12.1	17.1	22.0
100	—	—	—	—	—	—	—	5.9	9.9	14.0	18.0
105	—	—	—	—	—	—	—	—	7.7	10.9	14.0
110	—	—	—	—	—	—	—	—	5.5	7.8	10.1
115	—	—	—	—	—	—	—	—	—	—	6.1

TABLE 13 - HEATING SUPERHEAT AT COMPRESSOR SUCTION, AIRFLOW = 1,200 CFM (B1HH036)

INDOOR DB TEMPERATURE, °F	HEATING SUPERHEAT AT COMPRESSOR SUCTION, °F							
	-10	0	10	20	30	40	50	60
55	—	—	3.3	4.1	5.3	7.0	9.5	13.2
70	—	—	—	—	3.8	5.5	8.0	11.7
80	—	—	—	—	—	—	4.5	8.2

TABLE 14 - COOLING SUPERHEAT AT COMPRESSOR SUCTION, AIRFLOW = 1,400 CFM (B1HH042)

OUTDOOR TEMPERATURE, °F	INDOOR WB TEMPERATURE, °F										
	55	57	59	61	63	65	67	69	71	73	75
65	19.6	22.0	24.4	26.8	29.2	31.6	34.0	34.8	35.6	36.4	37.2
70	19.1	21.5	23.9	26.2	28.6	31.0	33.3	34.2	35.0	35.9	36.7
75	18.7	21.0	23.4	25.7	28.0	30.3	32.7	33.6	34.5	35.4	36.2
80	18.2	20.5	22.8	25.1	27.4	29.7	32.0	32.9	33.9	34.8	35.8
85	17.8	20.0	22.3	24.6	26.8	29.1	31.3	32.3	33.3	34.3	35.3
90	15.5	17.5	19.5	21.5	23.5	25.5	27.5	29.3	31.0	32.8	34.6
95	13.2	14.9	16.7	18.4	20.2	21.9	23.7	26.2	28.8	31.3	33.9
100	10.2	11.7	13.3	14.8	16.4	17.9	19.5	22.4	25.3	28.2	31.2
105	7.2	8.5	9.9	11.2	12.6	13.9	15.3	18.6	21.9	25.1	28.4
110	—	5.3	6.5	7.6	8.8	9.9	11.1	14.7	18.4	22.1	25.7
115	—	—	—	—	—	5.9	6.9	10.9	14.9	19.0	23.0

TABLE 15 - HEATING SUPERHEAT AT COMPRESSOR SUCTION, AIRFLOW = 1,400 CFM (B1HH042)

INDOOR DB TEMPERATURE, °F	HEATING SUPERHEAT AT COMPRESSOR SUCTION, °F							
	-10	0	10	20	30	40	50	60
55	—	—	—	4.0	6.2	9.0	12.5	16.6
70	—	—	—	—	4.4	7.2	10.7	14.8
80	—	—	—	—	—	—	3.3	7.4

TABLE 16 - COOLING SUPERHEAT AT COMPRESSOR SUCTION, AIRFLOW = 1,600 CFM (B1HH048)

OUTDOOR TEMPERATURE, °F	INDOOR WB TEMPERATURE, °F										
	55	57	59	61	63	65	67	69	71	73	75
65	18.5	20.8	23.1	25.4	27.7	30.3	32.3	33.0	33.8	34.6	35.3
70	15.2	17.4	19.6	21.7	23.9	26.1	28.3	29.9	31.6	33.2	34.8
75	11.8	13.9	16.0	18.1	20.2	22.3	24.3	26.8	29.3	31.8	34.3
80	8.5	10.4	12.4	14.4	16.4	18.4	20.4	23.7	27.1	30.4	33.8
85	5.1	7.0	8.9	10.88	12.6	14.5	16.4	20.6	24.8	29.0	33.2
90	5.6	6.6	7.6	8.6	9.7	10.7	11.7	16.4	21.1	25.8	30.5
95	6.1	6.3	6.4	6.5	6.7	6.8	7.0	12.2	17.3	22.5	27.7
100	5.9	6.0	6.1	6.2	6.3	6.4	6.4	10.7	14.9	19.1	23.3
105	5.7	5.7	5.8	5.8	5.8	5.9	5.9	9.2	12.4	15.7	18.9
110	5.5	5.5	5.5	5.4	5.4	5.4	5.4	7.7	10.0	12.2	14.5
115	5.3	5.2	5.1	5.1	5.0	—	—	6.2	7.5	8.8	10.1

TABLE 17 - HEATING SUPERHEAT AT COMPRESSOR SUCTION, AIRFLOW = 1,600 CFM (B1HH048)

INDOOR DB TEMPERATURE, °F	HEATING SUPERHEAT AT COMPRESSOR SUCTION, °F							
	-10	0	10	20	30	40	50	60
55	—	3.0	3.5	4.2	5.1	6.5	8.5	11.3
70	—	—	—	—	3.1	4.5	6.5	9.3
80	—	—	—	—	—	—	—	4.8

TABLE 18 - COOLING SUPERHEAT AT COMPRESSOR SUCTION, AIRFLOW = 2,000 CFM (B1HH060)

OUTDOOR TEMPERATURE, °F	INDOOR WB TEMPERATURE, °F										
	55	57	59	61	63	65	67	69	71	73	75
65	—	—	—	5.4	6.8	8.3	9.8	15.5	21.2	27.0	32.7
70	—	—	—	—	6.3	7.8	9.2	14.9	20.6	26.2	31.9
75	—	—	—	—	5.8	7.2	8.6	14.2	19.9	25.5	31.1
80	—	—	—	—	5.3	6.7	8.0	13.6	19.2	24.8	30.3
85	—	—	—	—	—	6.1	7.4	12.9	18.5	24.0	29.6
90	—	—	—	—	—	—	5.8	10.5	15.3	20.0	24.8
95	—	—	—	—	—	—	—	8.2	12.1	16.1	20.0
100	—	—	—	—	—	—	—	6.8	10.0	13.1	16.3
105	—	—	—	—	—	—	—	5.5	7.8	10.2	12.5
110	—	—	—	—	—	—	—	—	5.7	7.2	8.8
115	—	—	—	—	—	—	—	—	—	—	5.0

TABLE 19 - HEATING SUPERHEAT AT COMPRESSOR SUCTION, AIRFLOW = 2,000 CFM (B1HH060)

INDOOR DB TEMPERATURE, °F	HEATING SUPERHEAT AT COMPRESSOR SUCTION, °F							
	-10	0	10	20	30	40	50	60
55	—	—	2.9	3.1	3.7	5.3	9.4	20.0
70	—	—	—	—	—	—	6.6	17.3
80	—	—	—	—	—	—	—	10.2

TABLE 20 - SIDE AND BOTTOM SUPPLY AIR BLOWER PERFORMANCE

230/460/575 volts

MODEL NO. BHH	MOTOR SPEED	EXTERNAL STATIC PRESSURE - IWG																			
		0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80		0.90		1.00	
		CFM	WATTS	CFM	WATTS	CFM	WATTS	CFM	WATTS	CFM	WATTS	CFM	WATTS	CFM	WATTS	CFM	WATTS	CFM	WATTS	CFM	WATTS
018	HI	—	—	—	—	—	—	—	—	—	—	668	401	652	386	—	—	—	—	—	—
	MED	—	—	—	—	—	—	—	—	654	233	541	209	—	—	—	—	—	—	—	—
	LOW	—	—	—	—	702	220	641	206	536	183	—	—	—	—	—	—	—	—	—	—
024	HI	—	—	—	—	—	—	—	—	—	—	—	—	—	—	987	507	873	493	760	480
	MED	—	—	—	—	—	—	—	—	935	338	867	322	800	304	733	286	867	268	—	—
	LOW	900	290	850	287	800	243	760	220	697	238	843	183	—	—	—	—	—	—	—	—
030	HI	—	—	—	—	—	—	—	—	—	—	1200	640	1100	620	987	507	873	493	760	480
	MED	1200	390	1134	397	1068	368	1002	367	936	339	897	322	800	304	—	—	—	—	—	—
	LOW	900	280	850	267	800	243	—	—	—	—	—	—	—	—	—	—	—	—	—	—
036	HI	—	—	—	—	—	—	—	—	1414	617	1317	688	1219	660	1116	533	1013	507	910	480
	MED	—	—	—	—	1472	647	1394	626	1297	495	1199	465	1102	435	985	397	—	—	—	—
	LOW	1462	526	1400	506	1337	486	1275	467	1167	440	1100	414	1012	387	—	—	—	—	—	—
042	HI	—	—	—	—	—	—	—	—	—	—	—	—	1706	807	1637	782	1569	757	1500	732
	MED	—	—	—	—	—	—	1736	733	1668	706	1599	680	1531	653	1434	622	1337	591	1240	560
	LOW	1544	620	1508	610	1472	600	1436	590	1375	573	1313	557	1252	540	1172	517	1062	493	—	—
048	HI	—	—	—	—	—	—	1947	882	1867	857	1786	832	1706	807	1637	782	1569	757	1500	732
	MED	1876	752	1829	772	1783	753	1736	733	1968	706	1599	680	1531	663	1434	622	1337	581	1240	560
	LOW	1544	620	1508	610	1472	600	1436	590	1375	573	1313	557	1252	540	—	—	—	—	—	—
060 (230/460 only)	COOL TB2-A HEAT TB2-A	1900	520	1900	573	1900	627	1900	680	1900	727	1900	773	1900	820	1900	863	1900	907	—	—
	COOL TB2-B HEAT TB2-B	2000	590	2000	653	2000	717	2000	780	2000	833	2000	887	2000	940	2000	998	—	—	—	—
	ELECTRIC HEAT	1750	400	1750	447	1750	493	1750	540	1750	593	1750	647	1750	700	1750	753	1750	807	1750	860
060 (575 ony)	HI	—	—	—	—	—	—	2499	1290	2391	1233	2283	1177	2175	1120	2067	1080	1958	1040	1850	1000
	MED	—	—	2454	1163	2387	1117	2320	1070	2229	1023	2137	977	2046	930	1950	887	1854	843	1758	800
	LOW	2242	1090	2201	1053	2161	1017	2120	980	2041	927	1962	873	1883	820	1797	787	1711	753	1625	720

NOTE: Above data includes allowances for a dry indoor coil and no filters. For additional pressure drops, refer to the “Additional Static Pressure Resistance” table. **Continued**

208 volts

MODEL NO. BHH	MOTOR SPEED	EXTERNAL STATIC PRESSURE - IWG																			
		.10		.20		.30		.40		.50		.60		.70		.80		.90		1.00	
		CFM	WATTS	CFM	WATTS	CFM	WATTS	CFM	WATTS	CFM	WATTS	CFM	WATTS	CFM	WATTS	CFM	WATTS	CFM	WATTS	CFM	WATTS
018	HI	—	—	—	—	—	—	—	—	689	374	593	361	497	347	—	—	—	—	—	—
	MED	—	—	—	—	—	—	690	231	659	210	487	188	—	—	—	—	—	—	—	—
	LOW	741	226	686	212	632	198	577	185	453	165	—	—	—	—	—	—	—	—	—	—
024	HI	—	—	—	—	—	—	—	—	—	—	—	—	990	468	888	456	786	444	684	432
	MED	—	—	—	—	961	351	902	321	841	305	751	290	720	274	660	257	—	—	—	—
	LOW	810	261	765	240	720	219	675	198	627	215	—	—	—	—	—	—	—	—	—	—
030	HI	—	—	—	—	—	—	—	—	1171	604	1080	486	980	468	888	456	786	444	—	—
	MED	1080	351	1021	341	961	331	902	321	841	306	781	280	—	—	—	—	—	—	—	—
	LOW	810	261	766	240	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
036	HI	—	—	—	—	1440	608	1381	581	1273	656	1185	530	1097	604	1004	480	912	456	—	—
	MED	1465	631	1395	512	1325	492	1255	473	1167	446	1079	419	952	392	—	—	—	—	—	—
	LOW	1316	473	1260	455	1204	438	1148	420	1069	396	990	372	911	348	—	—	—	—	—	—
042	HI	—	—	—	—	—	—	—	—	—	—	1728	770	1644	740	1559	707	1474	673	1388	640
	MED	1694	690	1662	673	1629	657	1597	640	1542	623	1408	607	1431	590	1336	563	1240	537	1195	510
	LOW	1385	520	1349	510	1312	500	1276	490	1235	480	1193	470	1152	460	1079	440	—	—	—	—
048	HI	—	—	1982	870	1939	850	1897	830	1813	800	1728	770	1644	740	1559	707	1474	673	1389	—640
	MED	1694	690	1662	673	1629	657	1597	640	1542	623	1486	607	1431	590	1336	563	1240	537	—	—
	LOW	1385	520	1349	510	1312	500	1276	490	1235	480	—	—	—	—	—	—	—	—	—	—
060	COOL TB2-A HEAT TB2-A	1900	520	1900	573	1900	627	1900	680	1900	727	1900	773	1900	820	—	—	—	—	—	—
	COOL TB2-B HEAT TB2-B	2000	590	2000	653	2000	717	2000	780	2000	833	2000	877	—	—	—	—	—	—	—	—
	ELECTRIC HEAT	1750	400	1750	447	1750	493	1750	540	1750	593	1750	647	1750	700	1750	753	—	—	—	—

NOTE: Above data includes allowances for a dry indoor coil and no filters. For additional pressure drops, refer to the “Additional Static Pressure Resistance” table.

TABLE 21 - ADDITIONAL STATIC PRESSURE RESISTANCE

DESCRIPTION	RESISTANCE, IWG															
	CFM															
	500	600	700	800	900	1,000	1,100	1,200	1,300	1,400	1,500	1,600	1,700	1,800	1,900	2,000
Wet Indoor coil	0.01	0.01	0.01	0.02	0.01	0.02	0.03	0.04	0.04	0.03	0.04	0.04	0.05	0.05	0.06	0.07
Economizer	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.07	0.08	0.08
Filter/Frame Kit	0.01	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.04	0.05	0.05	0.06	0.06	0.07
Electric Heat	0.02	0.03	0.03	0.03	0.04	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.01	0.11	0.11	0.12

NOTE: 1. Deduct these resistance values from the available external static pressure shown in the respective Blower Performance Table.

2. The pressure thru the economizer is greater for 100% outdoor air then for 100% return air. If the resistance of the return air duct system is less then 0.25 IWG, the unit will deliver less CFM during full economizer operation.

CLEARANCES (Minimum)	
Front	12"
Back	0"
Left Side (Filter Access)	24"
Right Side	24"
Below Unit①	0"
Above Unit②	36" (For Condenser Air Discharge)

① Units may be installed on combustible floors made from wood or class A, B or C roof covering material.

② Units must be installed outdoors. Overhanging structures or shrubs should not obstruct outdoor air discharge outlet.

NOTE: FOR UNITS APPLIED WITH A ROOF CURB, THE MINIMUM CLEARANCE MAY BE REDUCED FROM 1 INCH TO 1/2 INCH BETWEEN COMBUSTIBLE ROOF CURB MATERIAL AND THE SUPPLY DUCT.

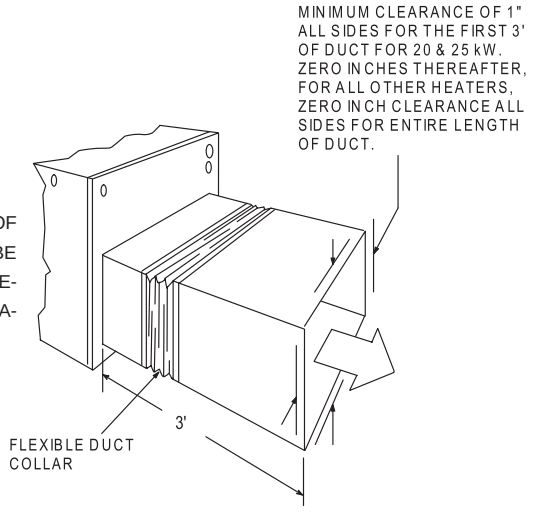
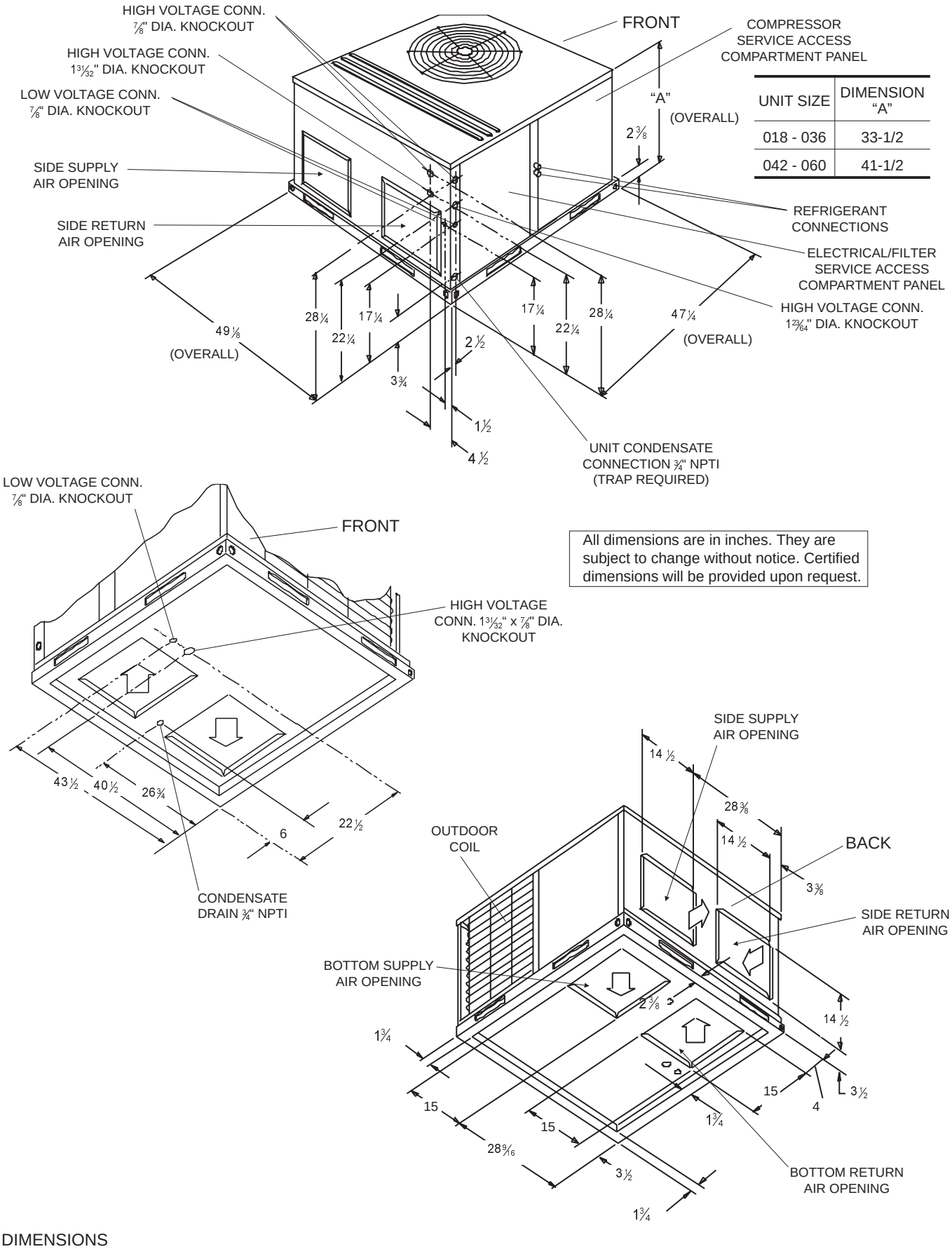


FIG. 3 - CLEARANCES



UNIT SIZE	DIMENSION "A"
018 - 036	33-1/2
042 - 060	41-1/2

All dimensions are in inches. They are subject to change without notice. Certified dimensions will be provided upon request.

FIG. 4 - DIMENSIONS

SEQUENCE OF OPERATION

Anti-short Cycle Timer

This unit has an anti-short cycle timer built in to the defrost control. This timer will not permit the compressor to start within five minutes after the completion of the last cycle or power interruption. To bypass the anti-short cycle feature, short the “TEST” pins together for 2 seconds.

The following sequences of operation are based on using a standard single-stage heat pump thermostat.

Cooling Operation

(B1HH018 — 048 and 575-volt 060 Models with Standard PSC Indoor Motor)

WITH POWER TO UNIT AND THERMOSTAT IN COOLING MODE.

1. If the fan switch on the thermostat is in the “ON” position, the 24 volts at “G” will energize the “K1” relay on the fan control board, close the “K1” relay contacts, and energize the indoor blower motor. If the fan switch on the thermostat is in the “AUTO” position, the blower will operate only when there is a call for cooling by the thermostat.
2. On a call for cooling, the thermostat will send 24 volts to “Y” and “O” on the fan control board. After the anti-short cycle period is complete,The 24 volt signal will energize contactor “M1”, and the reversing valve solenoid. Power will be supplied to the compressor and outdoor fan motor, and the reversing valve will switch to the cooling position. If the fan switch on the thermostat is on the “AUTO” position, the fan control will energize the indoor blower.
3. When the demand for cooling has been satisfied, the 24 volt “Y” signal is removed and the “M1” contactor will be de-energized. If the fan switch on the thermostat is in the “ON” position, the indoor blower will continue to run. If the fan switch is in the “AUTO” position, the “K1” relay will open and de-energize the indoor blower motor after a 60 second delay,

Heating Operation

(B1HH018 — 048 and 575-volt 060 Models with Standard PSC Indoor Motor)

WITH POWER TO UNIT AND THERMOSTAT IN HEATING MODE.

1. If the fan switch on the thermostat is in the “ON” position, the 24 volts at “G” will energize the “K1” relay on the fan control board, close the “K1” relay contacts, and energize the indoor blower motor. If the fan switch on the thermostat is in the “AUTO” position, the blower will operate only when there is a call for heating by the thermostat.
2. On a call for heating, the thermostat will send 24 volts to “Y” on the fan control board. After the anti-short cycle period is complete, the 24 volts signal will energize contactor coil “M1” and power will be supplied to the compressor and outdoor fan motor. The reversing valve will remain in the heating position. If the fan switch on the thermostat is in the “AUTO” position, the fan control will energize the indoor blower.
3. For units equipped with supplementary electric heat, if the heat pump cannot meet the demand, the thermostat “W” will send 24 volts to “W2” on the fan control board. This signal will also be sent through the defrost control terminals “W” and “W1/66” and back to the fan control “W1”. This 24 volt signal will energize all stages of electric heat.
4. When the heating demand is satisfied, the electric heat will be de-energized when the 24 volt “W” signal is removed, and the “M1” contactor will be de-energized when the 24 volt “Y” signal is removed. If the fan switch on the thermostat is in the “ON” position, the indoor blower will continue to run. If the fan switch is in the “AUTO” position, the “K1” relay will open and de-energize the indoor blower motor after the appropriate time delay.

Defrost Operation

The minimum time between defrosts can be field selected at 30, 60 or 90 minutes. The default time is 90 minutes if the jumper is not installed.

Defrost will initiate when the defrost sensor, located on the outdoor coil, senses a temperature below 31°F and when the time since the last defrost is greater than the selected time on the defrost control. The defrost cycle terminates when either the defrost sensor reaches 55°F or the unit has been in defrost mode for 10 minutes. If the room thermostat opens during defrost, the unit will resume operation in defrost when the thermostat re-closes.

During the defrost mode, the defrost control will provide a 24 volt signal from terminal “W1/66” to the fan control terminal “W1”. This signal will energize electric heat stage 1, if the unit is so equipped.

For trouble shooting purposes, the defrost cycle can be manually initiated by shorting the “TEST” pins together for 5 seconds. Defrost will terminate normally during the “TEST” mode.

Heat Pump Safety Switch Operation

If the unit is equipped with the field installed upgrade safety package, the refrigeration system will be protected against high or low refrigerant pressure and low indoor coil temperature. If any of these three safety switches opens, the unit will be shut off for the 5 minute anti-short cycle time. Once this has expired, a six hour elapsed run timer begins. If a second opening of a safety switch occurs during this six hour period, the compressor will be locked out.

Resetting the lockout function is accomplished by;

1. Removing power from the control's thermostat 1st stage (Y) input for a time not to exceed 5 seconds (ON-OFF-ON).
2. Removing power from “R” for more than 2 seconds.
3. Shorting the “TEST” pins together for more than 2 seconds.

Electric Heat Limit Switch Operation

The limit switch responds to over temperature conditions in the air duct. Opening of the device results in dropping power to the relays. The control logic will also respond by turning off the relays. After four limit cycle trips the unit goes into a 1 hour soft lockout period. If during this period the control “sees” another limit cycle, the unit will go into a hard lockout condition. Once in a hard lockout state, the fan is locked on and the heaters are disabled. **Only a power cycle will clear the state**.

During the soft lockout period, the fan responds to thermostat input but the heaters are enabled. This is to sense a failed heater relay. The limit cycle count is reset at the start of a heat request. If the limit remains open for period of 80 seconds or more, the control is immediately put into a hard lockout condition. **Only a power cycle will clear this state**.

COOLING OPERATION

(B1HH060 with ECM indoor motor)

1. When the fan switch on the thermostat is in the “ON” position, the 24 volts at “G” will bring on the indoor blower motor at the cooling airflow. When the fan switch on the thermostat is in the “AUTO” position, the blower operates only when there is a call for cooling by the thermostat.
2. On a call for cooling, the thermostat sends 24 volts to “Y” and “O” on the fan control and defrost control boards. The reversing valve solenoid is energized, and after the anti-short cycle period is complete contactor coil M1 is ener-

gized. Power is supplied to the compressor and outdoor fan motor, and the reversing valve switched to the cooling position. When the fan switch on the thermostat is in the "AUTO" position the indoor blower motor is energized at the cooling airflow.

3. When the demand for cooling has been satisfied, the 24 volt "Y" signal is removed, and the M1 contactor is de-energized. When the fan switch on the thermostat is in the "ON" position, the indoor blower motor continues to run. If the fan switch is in the "AUTO" position. the indoor motor ramps down over a 30-second period.

HEATING OPERATION (B1HH060 with ECM indoor motor)

1. When the fan switch on the thermostat is in the "ON" position, the 24 volts at "G" brings on the indoor blower motor at the heating flow. When the fan switch on the thermostat is in the "AUTO" position, the blower operates when there is a call for heating by the thermostat.
2. On a call for heating, the thermostat sends 24 volts to "Y" on the fan control board. After the anti-short cycle period is complete, the 24 volt signal energizes contactor coil M1 and power is supplied to the compressor and outdoor fan motor. The reversing valve remains in the heating position. When the fan switch on the thermostat is in the "AUTO" position, the indoor blower is energized at the heating airflow.
3. For units equipped with supplementary electric heat, when the heat pump cannot meet the demand, the thermostat "W" sends 24 volts to "W2" on the fan control board. This signal also is sent through the defrost control terminals "W" and "W6" and back to the fan control "W1". The 24 volt signal energizes all stages of electric heat.
4 When the heating demand is satisfied, the electric heat is de-energized when the 24 volt "W" signal is removed, and the M1 contactor is de-energized when the 24 volt "Y" signal is removed. When the fan switch on the thermostat is in the "ON" position, the indoor blower continues to run. When the fan switch is in the "AUTO" position, the indoor blower motor ramps down over a 15-second period.

Please refer to Tables 22 and 23 for more information.

SECURE OWNER'S APPROVAL: *When the system is functioning 1/6 properly, secure the owner's approval. Show him the location of all disconnect switches and the thermostat. Teach him how to start and stop the unit and how to adjust temperature settings within the limitations of the system.*

TABLE 22 - THERMOSTAT SIGNALS (SINGLE PHASE UNITS)

SIGNAL	STATE	BOARD FUNCTION
"G"	ON	FAN INSTANT ON
	OFF	FAN INSTANT OFF
"G" & "Y" & "O"	ON	FAN INSTANT ON COMPRESSOR AND OUTDOOR FAN INSTANT ON (AFTER ANTI-SHORT CYCLE DELAY) REVERSING VALVE ENERGIZED SYSTEM OPERATES IN COOLING
	OFF	COMPRESSOR AND OUTDOOR FAN INSTANT OFF FAN 60 SEC. DELAY OFF
"G" & "Y"	ON	FAN INSTANT ON COMPRESSOR AND OUTDOOR FAN INSTANT ON (AFTER ANTI-SHORT CYCLE DELAY) SYSTEM OPERATES IN HEATING
	OFF	COMPRESSOR AND OUTDOOR FAN INSTANT OFF FAN 60 SEC. DELAY OFF
"G" & "W"	ON	FAN INSTANT ON HEATER BANK 1 ELEC. HEAT INSTANT ON HEATER BANK 2 ELEC. HEAT 10 SEC. DELAY ON HEATER BANK 3 ELEC. HEAT 20 SEC. DELAY ON
	OFF	HEATER BANK 3 ELEC. HEAT INSTANT OFF HEATER BANK 2 ELEC. HEAT ½ SEC. DELAY OFF HEATER BANK 1 ELEC. HEAT 1 SEC. DELAY OFF FAN 10 SEC. DELAY OFF
"G" & "Y" & "W"	ON	FAN INSTANT ON COMPRESSOR AND OUTDOOR FAN INSTANT ON SYSTEM OPERATES IN HEATING HEATER BANK 1 ELEC. HEAT INSTANT ON HEATER BANK 2 ELEC. HEAT 10 SEC. DELAY ON HEATER BANK 3 ELEC. HEAT 20 SEC. DELAY ON
	OFF	COMPRESSOR AND OUTDOOR FAN INSTANT OFF HEATER BANK 3 ELEC. HEAT INSTANT OFF HEATER BANK 2 ELEC. HEAT ½ SEC. DELAY OFF HEATER BANK 1 ELEC. HEAT 1 SEC. DELAY OFF FAN 60 SEC. DELAY OFF
"W"	ON	FAN INSTANT ON HEATER BANK 1 ELEC. HEAT INSTANT ON HEATER BANK 2 ELEC. HEAT 10 SEC. DELAY ON HEATER BANK 3 ELEC. HEAT 20 SEC. DELAY ON
	OFF	HEATER BANK 3 ELEC. HEAT INSTANT OFF HEATER BANK 2 ELEC. HEAT ½ SEC. DELAY OFF HEATER BANK 1 ELEC. HEAT 1 SEC. DELAY OFF FAN 10 SEC. DELAY OFF

TABLE 23 - THERMOSTAT SIGNALS (THREE PHASE UNITS)

SIGNAL	STATE	BOARD FUNCTION
"G"	ON	FAN INSTANT ON
	OFF	FAN INSTANT OFF
"G" & "Y" & "O"	ON	FAN INSTANT ON COMPRESSOR AND OUTDOOR FAN INSTANT ON (AFTER ANTI-SHORT CYCLE DELAY) REVERSING VALVE ENERGIZED SYSTEM OPERATES IN COOLING
	OFF	COMPRESSOR AND OUTDOOR FAN INSTANT OFF FAN 60 SEC. DELAY OFF
"G" & "Y"	ON	FAN INSTANT ON COMPRESSOR AND OUTDOOR FAN INSTANT ON (AFTER ANTI-SHORT CYCLE DELAY) SYSTEM OPERATES IN HEATING
	OFF	COMPRESSOR AND OUTDOOR FAN INSTANT OFF FAN 60 SEC. DELAY OFF
"G" & "W"	ON	FAN INSTANT ON HEATER BANK 1, 2 & 3 ELEC. HEAT INSTANT ON HEATER BANK 4, 5 & 6 ELEC. HEAT 10 SEC. DELAY ON
	OFF	HEATER BANK 4, 5 & 6 ELEC. HEAT INSTANT OFF HEATER BANK 1, 2 & 3 ELEC. HEAT ½ SEC. DELAY OFF FAN 10 SEC. DELAY OFF
"G" & "Y" & "W"	ON	FAN INSTANT ON COMPRESSOR AND OUTDOOR FAN INSTANT ON SYSTEM OPERATES IN HEATING HEATER BANK 1, 2 & 3 ELEC. HEAT INSTANT ON HEATER BANK 4, 5 & 6 ELEC. HEAT 10 SEC. DELAY ON
	OFF	COMPRESSOR AND OUTDOOR FAN INSTANT OFF HEATER BANK 4, 5 & 6 ELEC. HEAT INSTANT OFF HEATER BANK 1, 2 & 3 ELEC. HEAT ½ SEC. DELAY OFF FAN 60 SEC. DELAY OFF
"W"	ON	FAN INSTANT ON HEATER BANK 1, 2 & 3 ELEC. HEAT INSTANT ON HEATER BANK 4, 5 & 6 ELEC. HEAT 10 SEC. DELAY ON
	OFF	HEATER BANK 4, 5 & 6 ELEC. HEAT INSTANT OFF HEATER BANK 1, 2 & 3 ELEC. HEAT ½ SEC. DELAY OFF FAN 10 SEC. DELAY OFF

MAINTENANCE

NORMAL MAINTENANCE

WARNING: Prior to any of the following maintenance procedures, shut off all power to the unit, to avoid personal injury.

Periodic maintenance consists of changing or cleaning filters and general cleaning of the outdoor coil.

FILTERS - Inspect once a month. Replace Disposable or clean Permanent Type as necessary. DO NOT replace Permanent Type with Disposable.

MOTORS - Indoor and outdoor fan motors are permanently lubricated and require no maintenance.

OUTDOOR COIL - Dirt should not be allowed to accumulate on the outdoor coil surface or other parts in the air circuit. Cleaning should be as often as necessary to keep the coil clean. Use a brush, vacuum cleaner attachment, or other suitable means. If water is used to clean the coil, be sure that the power to the unit is shut off prior to cleaning.

CAUTION: Exercise care when cleaning the coil so that the coil fins are not damaged.

Do not permit the hot condenser air discharge to be obstructed by overhanging structures or shrubs.

TROUBLESHOOTING

WARNING: Troubleshooting of components necessarily requires opening the electrical control box with the power connected to the unit. Use extreme care when working with live circuit! Check the unit nameplate for the correct range before making any connections with line terminals.

CAUTION: The wire number or color and terminal designations referred to may vary. Check the wiring label inside the control box access panel for the correct wiring.

CAUTION: If the variable speed motor found in the BHH060 models operates erratically, check the fan control board for the presence of a break-off tab. Remove tab if present.

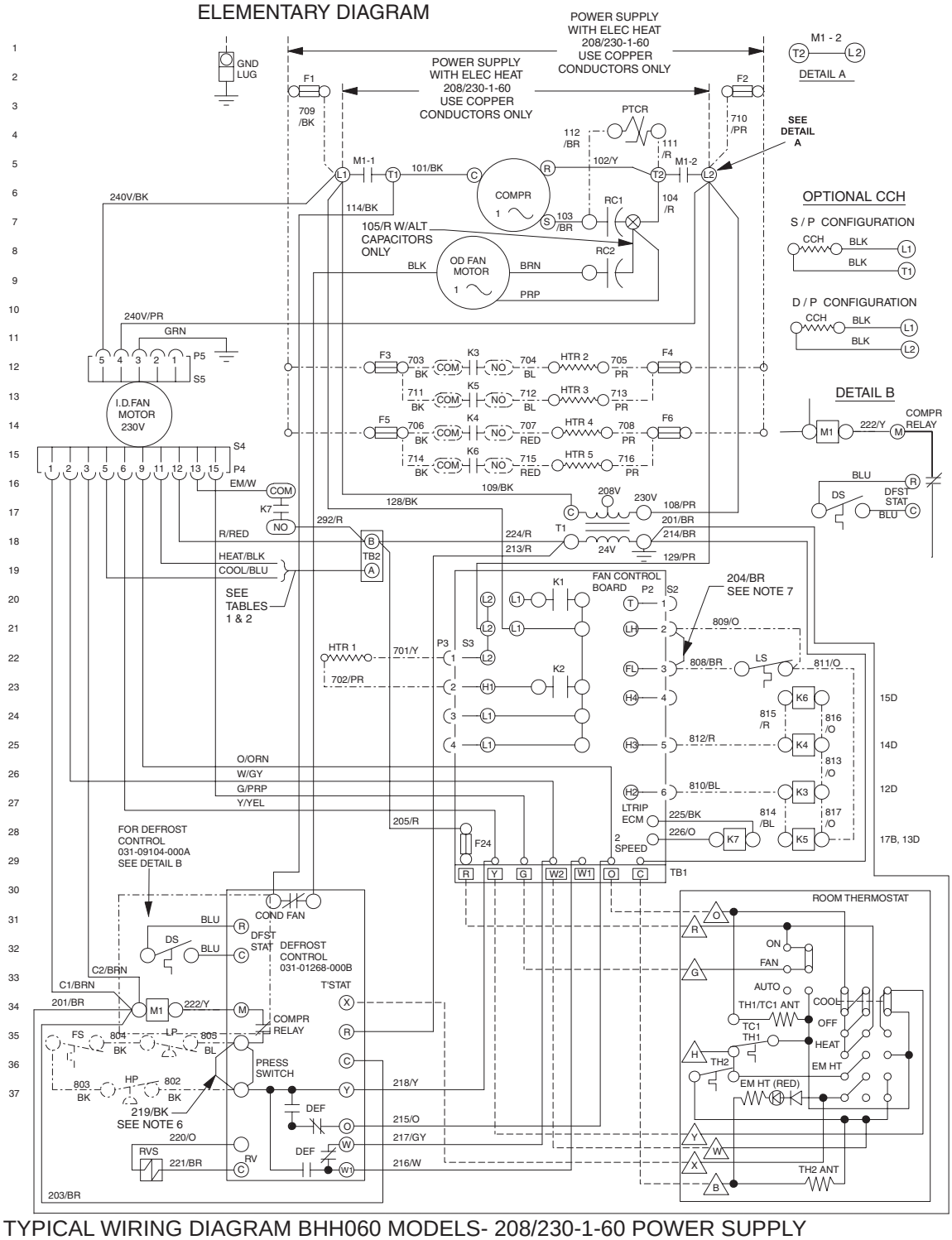


FIG. 5 - TYPICAL WIRING DIAGRAM BHH060 MODELS- 208/230-1-60 POWER SUPPLY

TYPICAL WIRING DIAGRAM LEGEND (See page 18)

LEGEND:

CCH CRANKCASE HEATER (OPTIONAL)
COMPR COMPRESSOR
DS DEFROST SENSOR, CLOSES @ 31 °F, OPENS @ 55 DS DEFROST SENSOR, CLOSES @ 31 °F.
F1, F2 FUSES, LINE VOLTAGE - (5, 7.5, 10, 15, 20 & 25 KW ELEC HEAT)
F3, F4 FUSES, LINE VOLTAGE - (7.5, 10, 15, 20 & 25 KW ELEC HEAT)
F5, F6 FUSES, LINE VOLTAGE - (15, 20 & 25 KW ELEC HEAT)
F7, F8, F9 FUSES, LINE VOLTAGE - (15, 20 & 25 KW ELEC HEAT)
F24 FUSE 24V SECONDARY, 5 AMP
FS FREEZESTAT SWITCH (OPTIONAL ACCESSORY) OPEN @ 26 °F
HP HIGH PRESSURE SWITCH (OPTIONAL ACCESSORY) OPENS @ 380 PSIG
HTR 1 ELECTRIC HEATER (OPT. ACCSSRY: ALL KW ELEC HEAT)
HTR 2 ELECTRIC HEATER (OPT. ACCSSRY: 7.5, 10, 15, 20 & 25 KW ELEC HEAT)
HTR 3 ELECTRIC HEATER (OPT. ACCSSRY: 25 KW ELEC HEAT)
HTR 4 ELECTRIC HEATER (OPT. ACCSSRY: 15, 20 &25 KW ELEC HEAT)
HTR 5 & 6 ELECTRIC HEATER (OPT. ACCSSRY: 20 & 25 KW ELEC HEAT)
K1 RELAY INDOOR FAN MOTOR
K2 RELAY ELECTRIC HEATER
K3 RELAY ELECTRIC HEATER, 24 VDC COIL (7.5, 10, 15, 20 & 25 KW ELEC HEAT)
K4 RELAY ELECTRIC HEATER, 24 VDC COIL (15, 20 & 25 KW ELEC HEAT)
K5 RELAY ELECTRIC HEATER, 24 VDC COIL (25 KW ELEC HEAT)
K6 RELAY ELECTRIC HEATER, 24 VDC COIL (20 & 25 KW ELEC HEAT)
K7 RELAY LIMIT TRIP, 24 VDC COIL
LP LOW PRESSURE SWITCH (OPTIONAL ACCESSORY) OPEN @ 7 PSIG
LS LIMIT SWITCH, ELECTRIC HEAT (PART OF ELEC HEAT ACCESSORY)
M1 CONTACTOR, COMPRESSOR & OUTDOOR FAN
PTCR START ASSIST (OPTIONAL DEVICE)
RC1/RC2 COMPRESSOR START & OUTDOOR FAN RUN CAPACITOR
RC1 COMPRESSOR START CAPACITOR (ALTERNATE)
RC2 OUTDOOR FAN RUN CAPACITOR (ALTERNATE)
RVS REVERSING VALVE SOLENOID
S2/P2 SOCKET/PLUG CONNECTION ON FAN CONTROL BOARD, LOW VOLTAGE
S3/P3 SOCKET/PLUG CONNECTION ON FAN CONTROL BOARD, LINE VOLTAGE
S4/P4 SOCKET/PLUG CONNECTION ON ID FAN MOTOR, 24V
S5/P5 SOCKET/PLUG CONNECTION ON ID FAN MOTOR, 230V
T1 TRANSFORMER, 24V, 40 VA
TB2 TERMINAL BLOCK ECM MOTOR "SPEED" CONNECTIONS
⊗ IDENTIFIED TERMINAL ON RUN CAPACITOR
△ ROOM THERMOSTAT 24V CONNECTIONS
☐ TB1 ON FAN/ELEC HEAT CONTROL BOARD
——— FACTORY WIRING AND DEVICES
–·–·– OPTIONAL WIRING AND DEVICES
– – – – FIELD WIRING

TYPICAL WIRING DIAGRAM NOTES (See page 18)

NOTES:

1. ALL FIELD WIRING TO BE ACCOMPLISHED FOLLOWING CITY, LOCAL AND/OR NATIONAL CODES IN EFFECT AT TIME OF INSTALLATION OF THIS UNIT.
2. CAUTION: LABEL ALL WIRES PRIOR TO DISCONNECTION WHEN SERVICING CONTROLS. WIRING ERRORS CAN CAUSE IMPROPER AND DANGEROUS OPERATION. IF ANY OF THE WIRE AS SUPPLIED WITH THIS UNIT MUST BE REMOVED, IT MUST BE REPLACED WITH TYPE 105° C, 600V WIRE OR EQUIVALENT CLEARLY RENUMBERED FOR IDENTIFICATION. VERIFY PROPER OPERATION AFTER SERVICING.
3. MOTORS ARE INHERENTLY PROTECTED.
4. UNIT FACTORY WIRED FOR 230 VOLT OPERATION. FOR 208 VOLT OPERATION MOVE '108/PR' WIRE FROM 240V TO 208V ON TRANSFORMER T1.
5. SEE UNIT NAMEPLATE FOR MAXIMUM FUSE SIZE AND MINIMUM CIRCUIT AMPACITY.
6. IF OPTIONAL SAFETY SWITCH KIT IS INSTALLED, WIRE 219/BK IS REM0VED.
7. WIRE 204/BR IS REMOVED WHEN ELECTRIC HEAT IS INSTALLED.
8. SHUNT CONTACT ALSO USED WITH CRANKCASE HEATER. (OPTIONAL)

CAUTION - OPEN ALL DISCONNECTS BEFORE SERVICING THIS UNIT

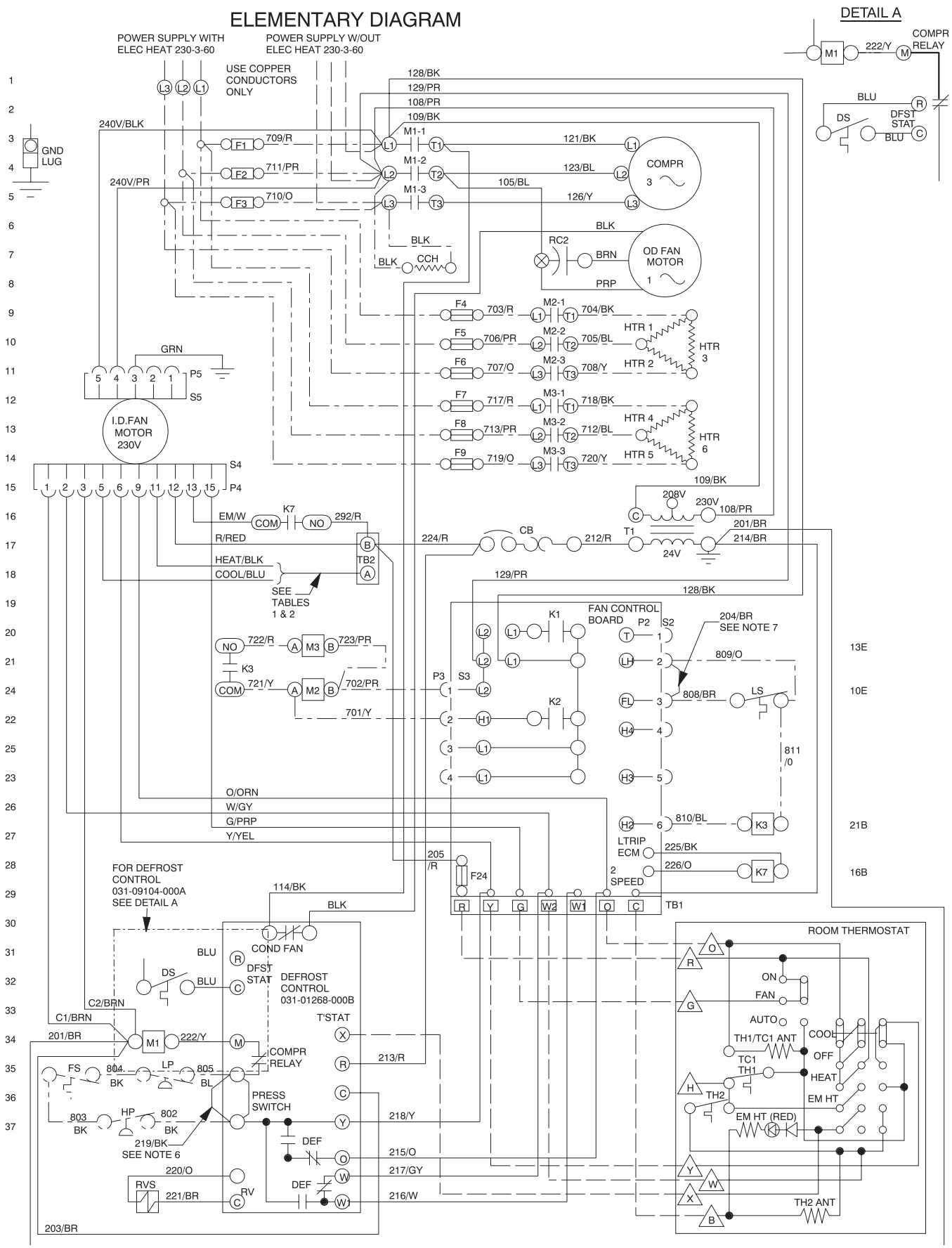


FIG. 6 - TYPICAL WIRING DIAGRAM BHH060 - 208/230-3-60 POWER SUPPLY

TYPICAL WIRING DIAGRAM LEGEND (See page 20)

LEGEND:

CB CIRCUIT BREAKER 24V, 3 AMP
CCH CRANKCASE HEATER (OPTIONAL)
COMPR COMPRESSOR
DS DEFROST SENSOR, CLOSES @ 31 °F, OPENS @ 55DS DEFROST SENSOR, CLOSES @ 31 °F.
F1,F2,F3 FUSES, LINE VOLTAGE -(10, 15, 20 & 25 KW ELEC HEAT)
F4,F5,F6 FUSES, LINE VOLTAGE -(10 ,15, 20 & 25 KW ELEC HEAT)
F7,F8,F9 FUSES, LINE VOLTAGE -(20 & 25 KW ELEC HEAT)
F24 FUSE 24V SECONDARY, 5 AMP
FS FREEZESTAT SWITCH (OPTIONAL ACCESSORY) OPEN @ 26 °F
HP HIGH PRESSURE SWITCH (OPTIONAL ACCESSORY) OPENS @ 380 PSIG
HTR1,2,3 ELECTRIC HEATER (OPT. ACCSSRY: 10, 15, 20 & 25 KW ELEC HEAT)
HTR4,5,6 ELECTRIC HEATER (OPT. ACCSSRY: 20 & 25 KW ELEC HEAT)
K1 RELAY INDOOR FAN MOTOR
K2 RELAY ELECTRIC HEATER
K3 RELAY, ELECTRIC HEAT, 24V DC COIL
K7 RELAY LIMIT TRIP, 24 VDC COIL
LP LOW PRESSURE SWITCH (OPTIONAL ACCESSORY) OPEN @ 7 PSIG
LS LIMIT SWITCH, ELECTRIC HEAT
M1 CONTACTOR, COMPRESSOR & OUTDOOR FAN
M2 CONTACTOR, ELECTRIC HEAT, 230V COIL
M3 CONTACTOR, ELECTRIC HEAT, 230V COIL
RC2 OUTDOOR FAN RUN CAPACITOR (ALTERNATE)
RVS REVERSING VALVE SOLENOID
S2/P2 SOCKET/PLUG CONNECTION ON FAN CONTROL BOARD, LOW VOLTAGE
S3/P3 SOCKET/PLUG CONNECTION ON FAN CONTROL BOARD, LINE VOLTAGE
S4/P4 SOCKET/PLUG CONNECTION ON ID FAN MOTOR, 24V
S3/P3 SOCKET/PLUG CONNECTION ON ID FAN MOTOR, 230V
T1 TRANSFORMER, 24V, 75 VA
TB2 TERMINAL BLOCK ECM MOTOR "SPEED" CONNECTIONS
⊗ IDENTIFIED TERMINAL ON RUN CAPACITOR
△ ROOM THERMOSTAT 24V CONNECTIONS
☐ TB1 ON FAN/ELEC HEAT CONTROL BOARD
———— FACTORY WIRING AND DEVICES
—— – —— –OPTIONAL WIRING AND DEVICES
—— —— —FIELD WIRING

TYPICAL WIRING DIAGRAM NOTES (See page 20)

NOTES:

1. ALL FIELD WIRING TO BE ACCOMPLISHED FOLLOWING CITY, LOCAL AND/OR NATIONAL CODES IN EFFECT AT TIME OF INSTALLATION OF THIS UNIT.
2. CAUTION: LABEL ALL WIRES PRIOR TO DISCONNECTION WHEN SERVICING CONTROLS. WIRING ERRORS CAN CAUSE IMPROPER AND DANGEROUS OPERATION. IF ANY OF THE WIRE AS SUPPLIED WITH THIS UNIT MUST BE REMOVED, IT MUST BE REPLACED WITH TYPE 105 ° C, 600V WIRE OR EQUIVALENT CLEARLY RENUMBERED FOR IDENTIFICATION. VERIFY PROPER OPERATION AFTER SERVICING.
3. MOTORS ARE INHERENTLY PROTECTED.
4. UNIT FACTORY WIRED FOR 230 VOLT OPERATION. FOR 208 VOLT OPERATION MOVE '108/PR' WIRE FROM 240V TO 208V ON TRANSFORMER T1.
5. SEE UNIT NAMEPLATE FOR MAXIMUM FUSE SIZE AND MINIMUM CIRCUIT AMPACITY.
6. IF OPTIONAL SAFETY SWITCH KIT IS INSTALLED, WIRE 219/BK IS REM0VED.
7. WIRE 204/BR IS REMOVED WHEN ELECTRIC HEAT IS INSTALLED.

CAUTION - OPEN ALL DISCONNECTS
BEFORE SERVICING THIS UNIT
035-15534D000 REV A

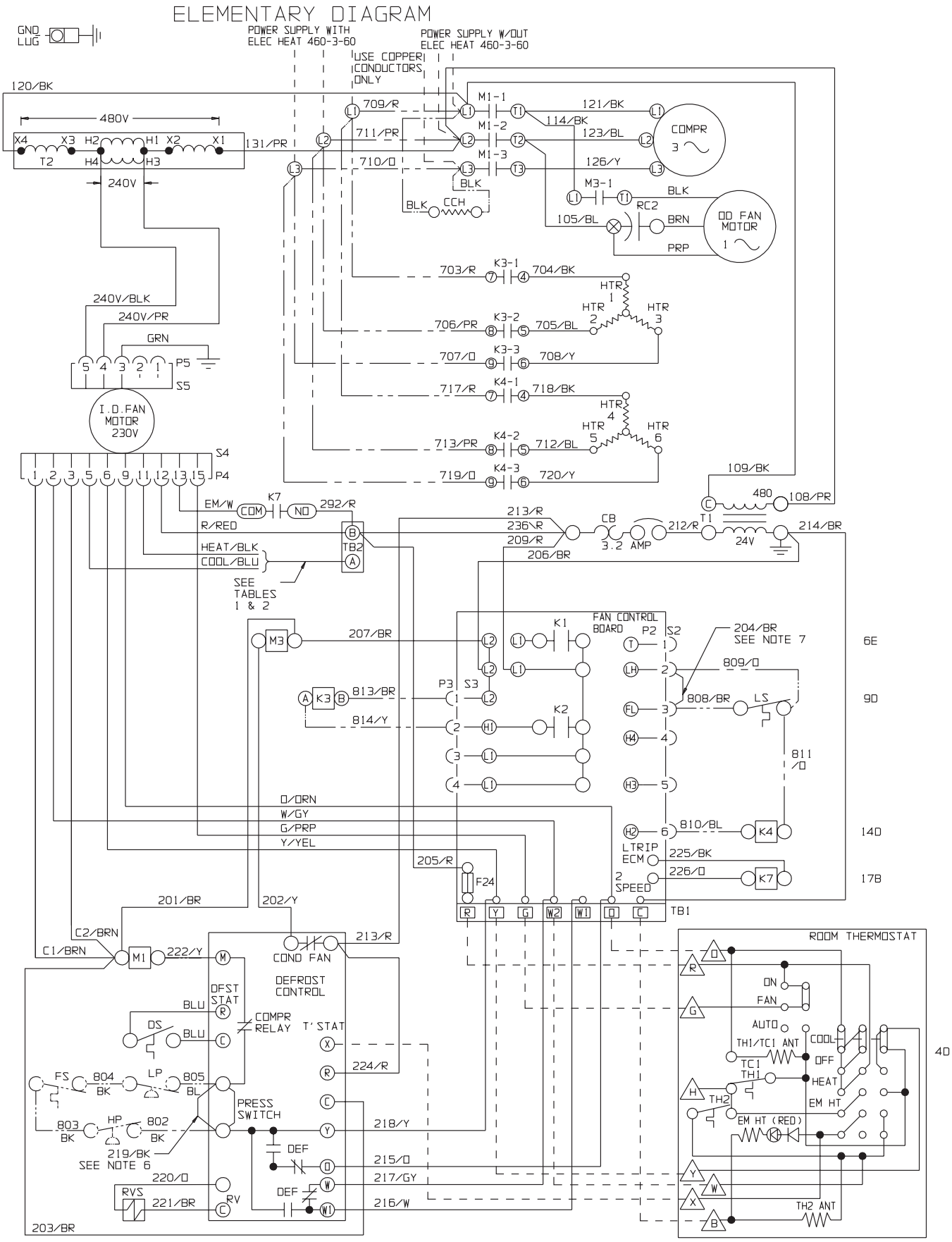


FIG. 7 - TYPICAL WIRING DIAGRAM BHH060 - 460-3-60 POWER SUPPLY

TYPICAL WIRING DIAGRAM LEGEND (See page 22)

LEGEND:

CB CIRCUIT BREAKER, 3 AMP
CCH CRANKCASE HEATER
COMPR COMPRESSOR
DS DEFROST SENSOR,CLOSES @ 31 °F, OPENS @ 55DS DEFROST SENSOR,CLOSES @ 31 °F
F24 FUSE 24V SECONDARY, 5 AMP
FS FREEZESTAT SWITCH (OPTIONAL ACCESSORY) OPEN @ 26 °F
HP HIGH PRESSURE SWITCH (OPTIONAL ACCESSORY) OPENS @ 380 PSIG
HTR1,2, ELECTRIC HEATER (OPT. ACCSSRY: 10,15,20 & 25 KW ELEC HEAT)
HTR4,5,6 ELECTRIC HEATER (OPT. ACCSSRY: 20 & 25 KW ELEC HEAT)
K1 RELAY INDOOR FAN MOTOR
K2 RELAY ELECTRIC HEATER
K3 RELAY ELEC HEATER, 24 VAC COIL (10,15,20 & 25 KW ELEC HEAT)
K4 RELAY ELECTRIC HEATER, 24 VDC COIL (20 & 25 KW)
K7 RELAY LIMIT TRIP, 24 VAC COIL
LP LOW PRESSURE SWITCH (OPTIONAL ACCESSORY) OPEN @ 7 PSIG
LS LIMIT SWITCH, ELECTRIC HEAT (PART OF ELEC HEAT ACCESSORY)
M1 CONTACTOR, COMPRESSOR & OUTDOOR FAN
M3 CONTACTOR, OUTDOOR FAN MOTOR
RC2 OUTDOOR FAN RUN CAPACITOR
RVS REVERSING VALVE SOLENOID
S2/P2 SOCKET/PLUG CONNECTION ON CONTROL BOARD, LOW VOLTAGE
S3/P3 SOCKET/PLUG CONNECTION ON CONTROL BOARD, LOW VOLTAGE
S4/P4 SOCKET/PLUG CONNECTION ON ID FAN MOTOR, 24V
S5/P5 SOCKET/PLUG CONNECTION ON ID FAN MOTOR, 230V
T1 TRANSFORMER, 24V, 75 VA
T2 TRANSFORMER, 460V/240V
TB2 TERMINAL BLOCK ECM MOTOR "SPEED" CONNECTION
⊗ IDENTIFIED TERMINAL ON RUN CAPACITOR
△ ROOM THERMOSTAT 24V CONNECTIONS
☐ TB1 ON FAN/ELEC HEAT CONTROL BOARD
———— FACTORY WIRING AND DEVICES
—— – – OPTIONAL WIRING AND DEVICES
—— —— FIELD WIRING

TYPICAL WIRING DIAGRAM NOTES (See page 22)

NOTES:

1. ALL FIELD WIRING TO BE ACCOMPLISHED FOLLOWING CITY, LOCAL AND/OR NATIONAL CODES IN EFFECT AT TIME OF INSTALLATION OF THIS UNIT.
2. CAUTION: LABEL ALL WIRES PRIOR TO DISCONNECTION WHEN SERVICING CONTROLS. WIRING ERRORS CAN CAUSE IMPROPER AND DANGEROUS OPERATION. IF ANY OF THE WIRE AS SUPPLIED WITH THIS UNIT MUST BE REMOVED, IT MUST BE REPLACED WITH TYPE 105 ° C, 600V WIRE OR EQUIVALENT CLEARLY RENUMBERED FOR IDENTIFICATION. VERIFY PROPER OPERATION AFTER SERVICING.
3. MOTORS ARE INHERENTLY PROTECTED.
4. UNIT FACTORY WIRED FOR 230 VOLT OPERATION. FOR 208 VOLT OPERATION MOVE '108/PR' WIRE FROM 240V TO 208V ON TRANSFORMER T1.
5. SEE UNIT NAMEPLATE FOR MAXIMUM FUSE SIZE AND MINIMUM CIRCUIT AMPACITY.
6. IF OPTIONAL SAFETY SWITCH KIT IS INSTALLED, WIRE 219/BK IS REM0VED.
7. WIRE 204/BR IS REMOVED WHEN ELECTRIC HEAT IS INSTALLED.

CAUTION - OPEN ALL DISCONNECTS
BEFORE SERVICING THIS UNIT
035-15535D000 REV B

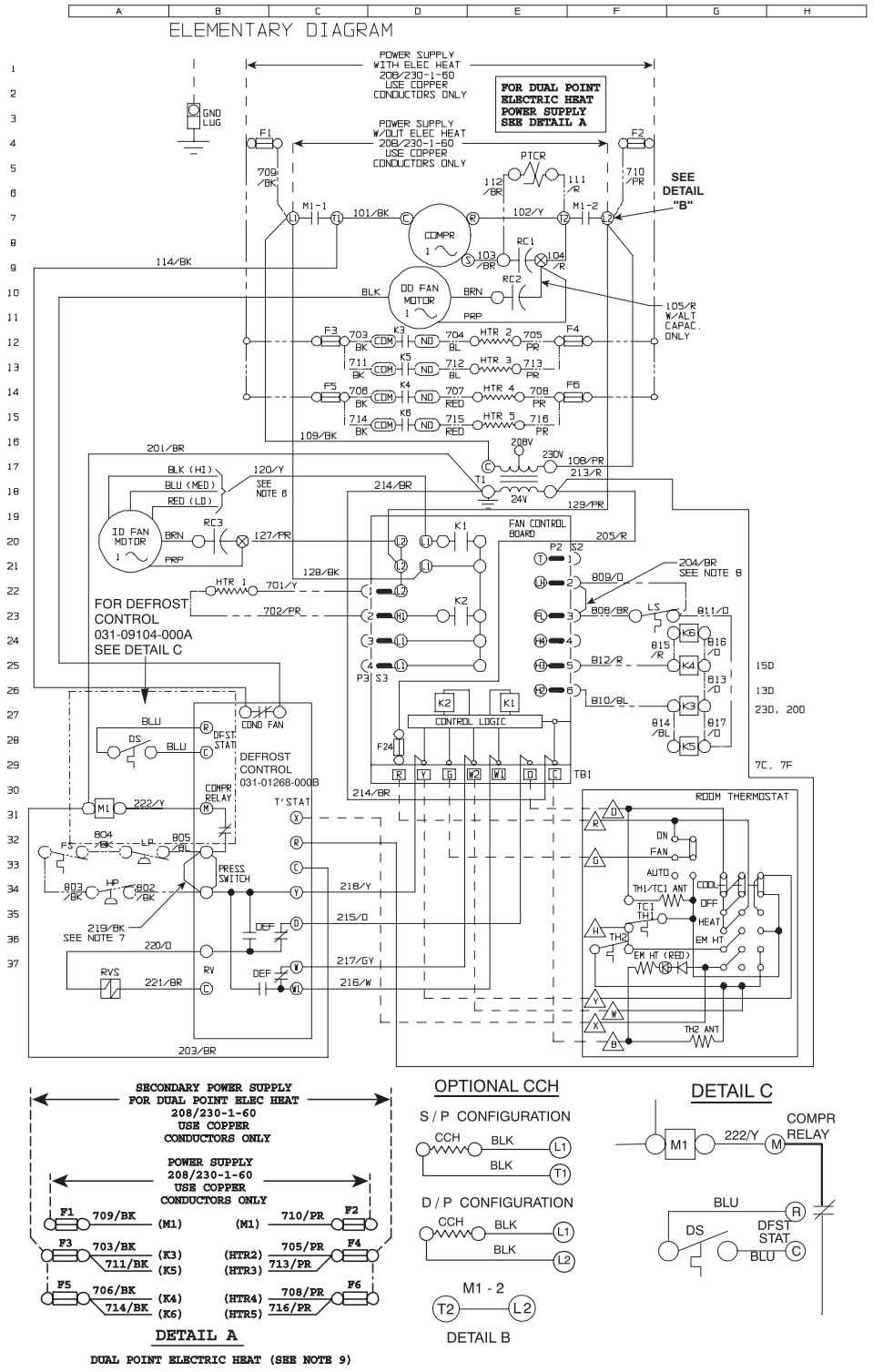


FIG. 8 - TYPICAL WIRING DIAGRAM (208/230-1-60 POWER SUPPLY)

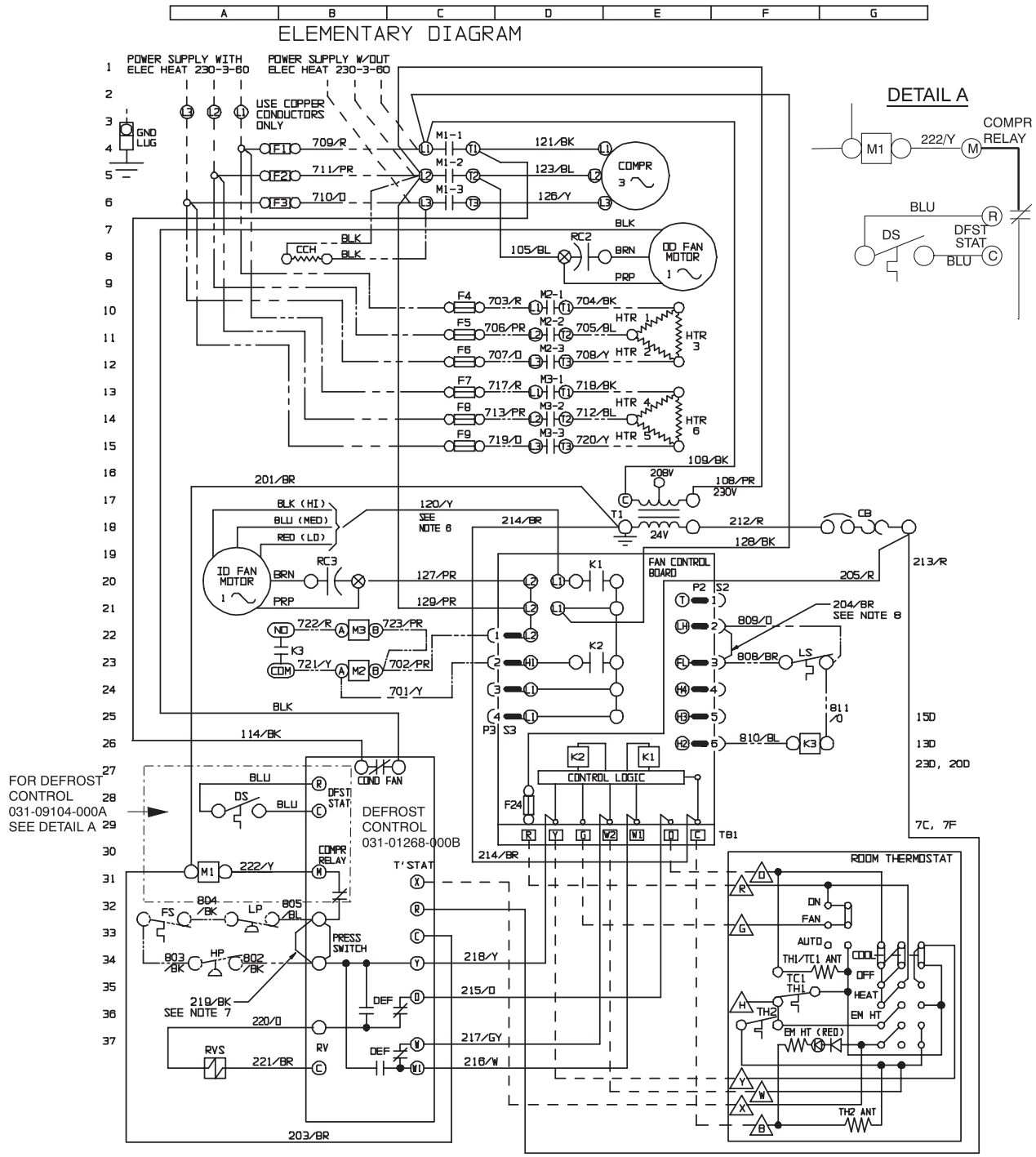


FIG. 9 - TYPICAL WIRING DIAGRAM (230-3-60 POWER SUPPLY)

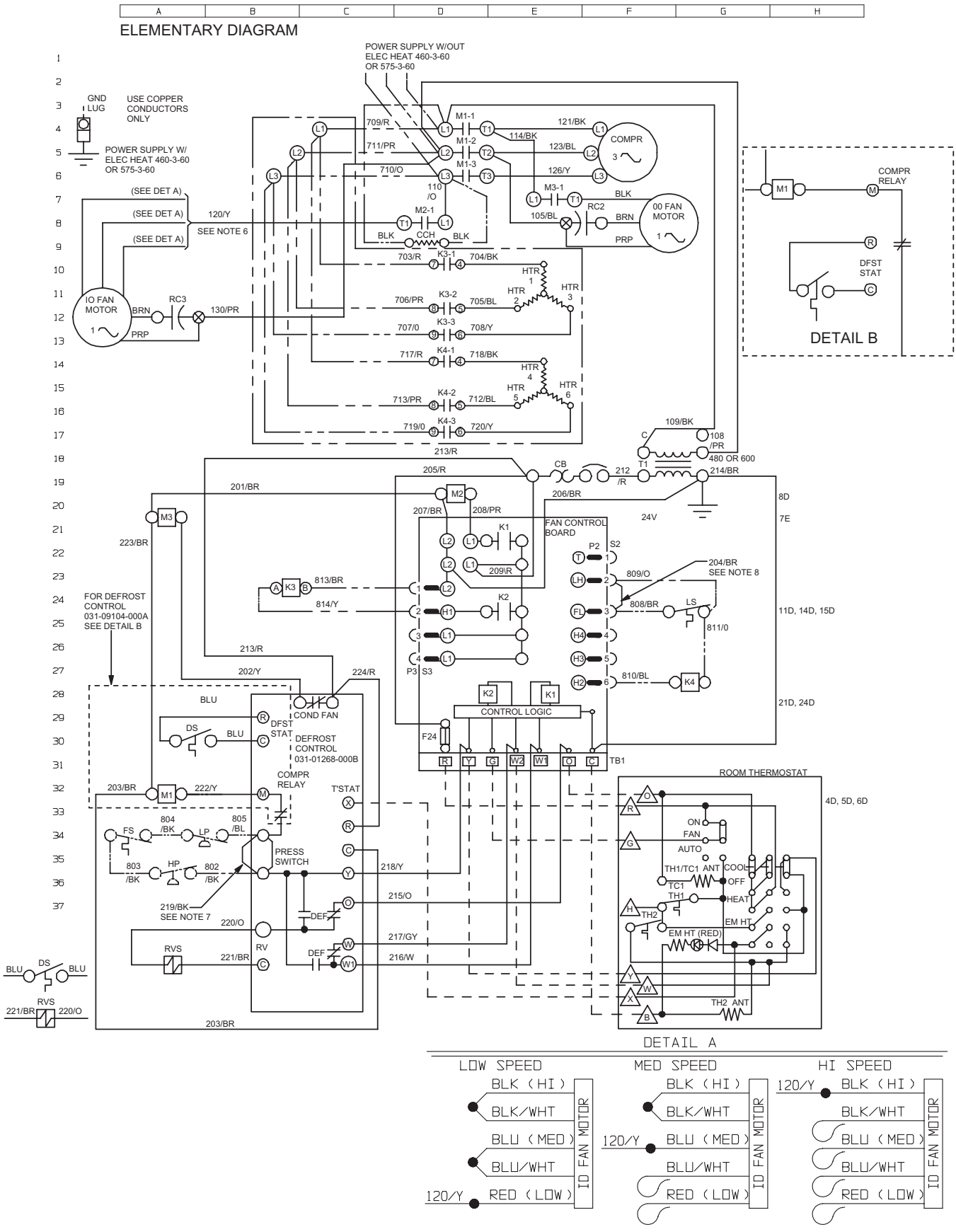


FIG. 10 - TYPICAL WIRING DIAGRAM (460-3-60 & 575-3-60 POWER SUPPLY)

TYPICAL WIRING DIAGRAM LEGEND (See page 24, 25 and 25)

CB	CIRCUIT BREAKER 24V, 3 AMP
CCH	CRANKCASE HEATER (OPTIONAL)
COMPR	COMPRESSOR
DS	DEFROST SENSOR, CLOSES @ 31˚F, OPENS @ 55˚F.
F1 F2 F3	FUSES, LINE VOLTAGE - 60 AMP (10, 15, 20 & 25 KW ELEC HEAT)
F4 F5 F6	FUSES, LINE VOLTAGE - 30 AMP (10, 15, 20 & 25 KW ELEC HEAT)
F7 F8 F9	FUSES, LINE VOLTAGE - 30 AMP (20, 25 KW ELEC HEAT)
F24	FUSE 24V SECONDARY, 5 AMP
FS	FREEZESTAT SWITCH (OPTIONAL ACCESSORY) OPEN @ 26˚ F
HP	HIGH PRESSURE SWITCH (OPTIONAL ACCESSORY) OPENS @ 280 PSIG
HTR 1	ELECTRIC HEATER (OPT. ACCSSRY: ALL KW ELEC HEAT)
HTR 2	ELECTRIC HEATER (OPT. ACCSSRY: 7.5, 10, 15, 20 & 25 KW ELEC HEAT)
HTR 3	ELECTRIC HEATER (OPT. ACCSSRY: 20 & 25 KW ELEC HEAT)
HTR 4	ELECTRIC HEATER (OPT. ACCSSRY: 15, 20 & 25 KW ELEC HEAT)
HTR 5	ELECTRIC HEATER (OPT. ACCSSRY: 20 & 25 KW ELEC HEAT)
HTR 6	ELECTRIC HEATER (OPT. ACCSSRY: 20 & 25 KW ELEC HEAT)
K1	RELAY INDOOR FAN MOTOR
K2	RELAY ELECTRIC HEATER
K3	RELAY ELECTRIC HEATER, 24 VDC COIL
K7	RELAY LIMIT TRIP, 25 VDC COIL
LP	LOW PRESSURE SWITCH (OPTIONAL ACCESSORY) OPEN @ 7 PSIG
LS	LIMIT SWITCH, ELECTRIC HEAT (PART OF ELEC HEAT ACCESSORY)
M1	CONTACTOR, COMPRESSOR & OUTDOOR FAN
M2	CONTACTOR, ELECTRIC HEAT, 230V COIL
M3	CONTACTOR, ELECTRIC HEAT, 230V COIL
PTCR	START ASSIST (OPTIONAL DEVICE)
RC1/RC2	COMPRESSOR START & OUTDOOR FAN RUN CAPACITOR
RC1	COMPRESSOR START CAPACITOR (ALTERNATE)
RC2	OUTDOOR FAN RUN CAPACITOR (ALTERNATE)
RC3	INDOOR FAN RUN CAPACITOR
RVS	REVERSING VALVE SOLENOID
S2/P2	SOCKET/PLUG CONNECTION ON FAN CONTROL BOARD, LOW VOLTAGE
S3/P3	SOCKET/PLUG CONNECTION ON FAN CONTROL BOARD, LINE VOLTAGE
S4/P4	SOCKET/PLUG CONNECTION ON ID FAN MOTOR, 24V
S3/P3	SOCKET/PLUG CONNECTION ON ID FAN MOTOR, 230V
T1	TRANSFORMER, 24V, 40 VA
TB2	TERMINAL BLOCK ECM MOTOR "SPEED" CONNECTIONS
⊗	IDENTIFIED TERMINAL ON RUN CAPACITOR
△	ROOM THERMOSTAT 24V CONNECTIONS
□	TB1 ON FAN/ELEC HEAT CONTROL BOARD
————	FACTORY WIRING AND DEVICES
—— – – ——	OPTIONAL WIRING AND DEVICES
– – – –	FIELD WIRING

TYPICAL WIRING DIAGRAM NOTES (See page 24, 25 and 25)

1. ALL FIELD WIRING TO BE ACCOMPLISHED FOLLOWING CITY, LOCAL AND/OR NATIONAL CODES IN EFFECT AT TIME OF INSTALLATION OF THIS UNIT.
2. CAUTION: LABEL ALL WIRES PRIOR TO DISCONNECTION WHEN SERVICING CONTROLS. WIRING ERRORS CAN CAUSE IMPROPER AND DANGEROUS OPERATION. IF ANY OF THE WIRE AS SUPPLIED WITH THIS UNIT MUST BE REMOVED, IT MUST BE REPLACED WITH TYPE 105° C, 600V WIRE OR EQUIVALENT CLEARLY RENUMBERED FOR IDENTIFICATION. VERIFY PROPER OPERATION AFTER SERVICING.
3. MOTORS ARE INHERENTLY PROTECTED.
4. UNIT FACTORY WIRED FOR 230 VOLT OPERATION. FOR 208 VOLT OPERATION MOVE '108/PR' WIRE FROM 240V TO 208V ON TRANSFORMER T1.
5. SEE UNIT NAMEPLATE FOR MAXIMUM FUSE SIZE AND MINIMUM CIRCUIT AMPACITY.
6. SELECT INDOOR BLOWER SPEED TO OBTAIN APPROX 400 CFM/TON IN COOLING.
7. IF OPTIONAL SAFETY SWITCH KIT IS INSTALLED, WIRE 219/BK IS REMOVED.
8. WIRE 204/BR IS REMOVED WHEN ELECTRIC HEAT IS INSTALLED.
9. ELECTRIC HEAT ACCESSORY WITH DUAL POINT SUPPLY POWER. SEE DETAIL A
10. SHUNT CONTACT ALSO USED WITH CRANKCASE HEATER. (OPTIONAL)

CAUTION - OPEN ALL DISCONNECTS
BEFORE SERVICING THIS UNIT

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