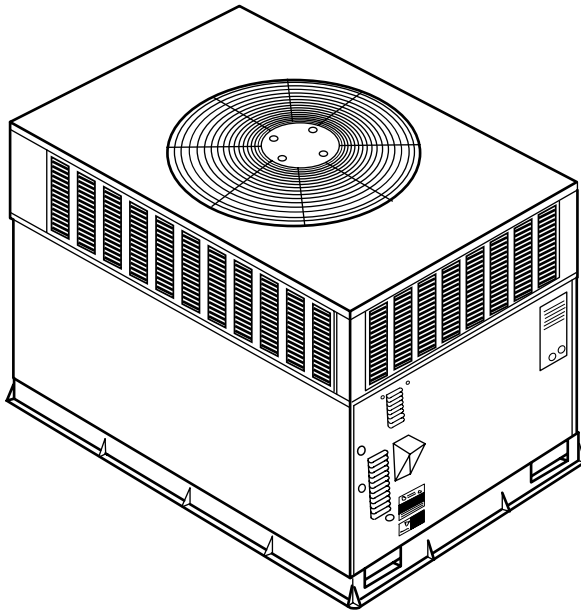




SINGLE-PACKAGE GAS HEATING/ELECTRIC COOLING UNITS

Model 583B
Sizes 024-060
2 to 5 Nominal Tons
Low NOx Models Available



UNIT 583B

Single-Package Rooftop Products with Energy-Saving Features and Puron® refrigerant.

- Direct Spark Ignition
- Low Sound Levels
- Up to 81% AFUE
- 12 SEER
- Variable Speed Blower Option

FEATURES/BENEFITS

One-piece heating and cooling units with low sound levels, easy installation, low maintenance, and dependable performance.

Puron® Environmentally Sound Refrigerant is Bryant's unique refrigerant designed to help protect the environment. Puron is an HFC refrigerant which does not contain chlorine that can harm the ozone layer. The most important advantage of Puron refrigerant is that it has not been banned in future air conditioning systems as the traditional refrigerant R-22 has been. Puron refrigerant is in service in thousands of systems proving highly reliable, environmentally sound performance.

Perfect Heat, Perfect Humidity™ featuring Variable Speed Blower motors provides better comfort and energy efficiency. You can expect up to 30 times better dehumidification; a SEER boost of up to 12.7; economical constant fan for less than \$30 a year, which provides improved indoor air quality and more even temperatures from room to room; and reduced indoor noise due to lower air velocity. In addition, you'll realize improved installation flexibility with 3 different airflow choices for best overall comfort.

EASY INSTALLATION—Factory-assembled package is a com-

pact, fully self-contained, combination gas heating/electric cooling unit that is pre-wired, pre-piped, and pre-charged for minimum installation expense.

These units are available in a variety of standard and optional heating/cooling size combinations with voltage options to meet residential and light commercial requirements. Units are lightweight and install easily on a rooftop or at ground level. The high tech composite basepan eliminates rust problems associated with ground level applications.

CONVERTIBLE DUCT CONFIGURATION—Unit is designed for easy use in either downflow or horizontal applications. Each unit is easily converted from horizontal to downflow.

EFFICIENT OPERATION

High-efficiency design offers SEER (Seasonal Energy Efficiency Ratios) of 12.0 and AFUE (Annual Fuel Utilization Efficiency) ratings as high as 81%.

Energy-saving, direct spark ignition saves gas by operating only when the room thermostat calls for heating. Standard units are furnished with natural gas controls. A low-cost field-installed kit for propane conversion is available for all units.

583B units with an "N" in the thirteenth position of model # are dedicated Low NOx units designed for California installations. These models meet the California maximum oxides of nitrogen (NOx) emissions requirement of 40 nanograms/joule or less as shipped from the factory and **MUST** be installed in California Air Quality Management Districts where a Low NOx rule exists.

DURABLE, DEPENDABLE COMPONENTS

Compressors are designed for high efficiency. Each compressor is hermetically sealed against contamination to help promote longer life and dependable operation. Each compressor also has vibration isolation to provide quieter operation. All compressors have internal high pressure and overcurrent protection.

Monoport inshot burners produce precise air-to-gas mixture, which provides for clean and efficient combustion. The large monoport on the inshot (or injection type) burners seldom, if ever, requires cleaning. All gas furnace components are accessible in one compartment.

Turbo-tubular™ heat exchangers are constructed of aluminum steel for corrosion resistance and optimum heat transfer for improved efficiency. The tubular design permits hot gases to make multiple passes across the path of the supply air.

In addition, dimples located on the heat exchanger walls force the hot gases to stay in close contact with the walls, improving heat transfer.

Direct-drive multi-speed, PSC (permanent split capacitor) blower motor is standard on all 583B models.

Direct-drive, PSC condenser-fan motors are designed to help reduce energy consumption and provide for cooling operation down to 40°F outdoor temperature. Motormaster® II low ambient kit is available as a field-installed accessory.

Corporate thermostats include the Time Guard® II anti-short cycle protection circuitry. If a non-corporate thermostat without anti-short cycle protection is used the Time Guard II field installed anti-short cycle kit is recommended.

Refrigerant system is designed to provide dependability. Liquid filter dryers are used to promote clean, unrestricted operation. Each unit leaves the factory with a full refrigerant charge. Refrigerant service connections make checking operating pressures easier.

HIGH AND LOW PRESSURE SWITCHES provide added reliability for the compressor.

Evaporator and condenser coils are computer-designed for optimum heat transfer and cooling efficiency. The evaporator coil is fabricated from copper tube and aluminum fins and is located inside the unit for protection against damage. The condenser coil is internally mounted on the top tier of the unit. Copper fin coils and pre-coated fin coils are available from the factory by special order. These coils are recommended in applications where aluminum fins are likely to be damaged due to corrosion. They are ideal for seacoast applications.

Low sound ratings ensure a quiet indoor and outdoor environment with sound ratings as low as 72 dB. (See page 3.)

Easy to service cabinets provide easy single-panel accessibility to serviceable components during maintenance and installation. The basepan with integrated drain pan provides easy ground level installation with or without a mounting pad. Convenient handholds

are provided to manipulate the unit on the jobsite. A nesting feature ensures a positive basepan to roof curb seal when the unit is roof mounted. A convenient 3/4-in. wide perimeter flange makes frame mounting on a rooftop easy.

Standard metal duct covers with insulation come with the unit and cover the horizontal duct openings. These can be left in place if the units are converted to downflow.

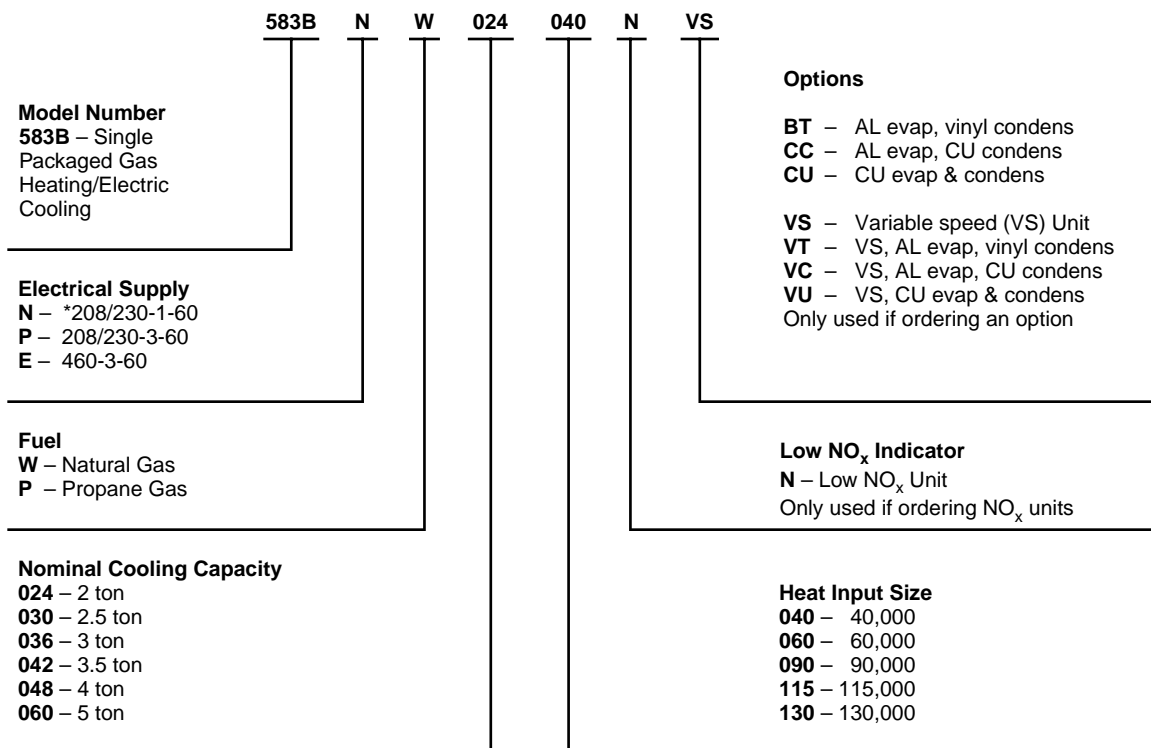
Downflow operation is easily provided in the field to allow vertical ductwork connections. The basepan utilizes knockout style seals on the bottom openings to ensure a positive seal in the horizontal airflow mode.

Integrated Gas Control (IGC) board provides safe and efficient control of heating and simplifies trouble-shooting through its built-in diagnostic function.

Cabinets are constructed of heavy-duty, phosphated, zinc-coated prepainted steel capable of withstanding 500 hours in salt spray. Interior surfaces of the evaporator/heat exchanger compartment are insulated with cleanable semi-rigid insulation board, which keeps the conditioned air from being affected by the outdoor ambient temperature and provides improved indoor air quality. (Conforms to American Society of Heating, Refrigeration and Air Conditioning Engineers No. 62P.) The sloped drain pan minimizes standing water in the drain, which is provided with an external drain.

Louvered Grille provides hail and vandalism protection.

MODEL NUMBER NOMENCLATURE



*Variable speed models are only available in 208/230-1-60 (N)

LEGEND
CU — Copper
AL — Aluminum

ARI* CAPACITIES COOLING CAPACITIES AND EFFICIENCIES

UNIT 583B	NOMINAL TONS	STANDARD CFM	NET COOLING CAPACITIES (Btuh)	SEER†	SOUND RATINGS** (dB)
024040 024060	2	800	24,000	12.0	72
030040 036060	2-1/2	1000	29,000	12.0	72
036060 036090	3	1200	35,000	12.0	72
042060 042090	3-1/2	1400	41,000	12.0	73
048090 048115 048130	4	1600	48,000	12.0	78
060090 060115 060130	5	1750	59,000	12.0	76

583B with ICM FIOP

Unit 583B	"A"‡ Capacity	"A"‡ EER	SEER
024	24,000	10.7	12.7
030	29,000	10.7	12.7
036	35,000	10.6	12.5
042	41,000	10.7	12.5
048	48,000	10.5	12.3
060	59,000	10.4	12.3

‡"A" Capacity— 80°F db/67°Fwb indoor & 95°Fdb outdoor.

LEGEND

dB — Decibels
db — Dry Bulb
SEER — Seasonal Energy Efficiency Ratio
wb — Wet Bulb

* Air Conditioning & Refrigeration Institute.
† Rated in accordance with U.S. Government DOE (Department of Energy) test procedures and/or ARI Standard 210/240-89.
** Tested in accordance with ARI Standard 270-95 (not listed in ARI).

NOTES:

- Ratings are net values, reflecting the effects of circulating fan heat. Ratings are based on:
Cooling Standard: 80°F db, 67°F wb indoor entering-air temperature and 95°F db outdoor entering-air temperature.
- Before purchasing this appliance, read important energy cost and efficiency information available from your retailer.

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**ARI* CAPACITIES (cont)
HEATING CAPACITIES AND EFFICIENCIES**

UNIT 583B	HEATING INPUT (Btuh)	OUTPUT CAPACITY (Btuh)	TEMPERATURE RISE RANGE (°F)	AFUE
024040 030040	40,000	31,000	20-50	80.1
024060 030060 036060 042060	60,000	46,000 46,000 46,000 47,000	35-65 35-65 25-55 20-50	78.4 78.4 78.7 78.7
036090 042090 048090 060090	90,000 90,000 90,000 90,000	70,000 71,000 70,000 70,000	45-75 35-65 25-55 25-55	79.9 79.9 78.6 78.6
048115 060115	115,000	92,000	35-65	81.1
048130 060130	130,000	104,000 103,000	40-70	80.3

LEGEND

AFUE — Annual Fuel Utilization Efficiency

NOTE: Before purchasing this appliance, read important energy cost and efficiency information available from your retailer.



OUTDOOR SOUND: OCTAVE BAND DATA — DECIBELS (Lw(A))

UNIT Frequency (Hz)	583B					
	024	030	036	042	048	060
63	44.8	48.0	50.0	49.1	51.4	53.7
125	60.4	58.2	60.4	63.9	65.2	62.6
250	58.3	59.2	61.6	65.2	69.7	65.9
500	64.8	65.8	66.9	67.9	72.7	70.6
1000	66.9	67.7	67.8	66.7	72.9	71.6
2000	64.3	64.8	64.6	63.8	69.8	68.2
4000	59.8	61.8	60.7	60.2	65.8	65.8
8000	51.8	53.6	52.8	50.7	57.9	58.3

PHYSICAL DATA

UNIT SIZE 583B	024040	024060	030040	030060	036060	036090	042060	042090
NOMINAL CAPACITY (ton)	2	2	2-1/2	2-1/2	3	3	3-1/2	3-1/2
OPERATING WEIGHT (lb)	290	290	313	313	321	321	382	382
COMPRESSORS Scroll								
Quantity	1							
REFRIGERANT (R-410A)								
Quantity (lb)	5.0	5.0	5.5	5.5	6.9	6.9	9.0	9.0
REFRIGERANT METERING DEVICE								
Orifice ID (in.) AccuRater® Piston	.057	.057	.057	.057	.065	.065	.070	.070
CONDENSER COIL								
Rows—Fins/in. Face Area (sq ft)	1/17 10.9	1/17 10.9	1/17 12.7	1/17 12.7	2/17 9.1	2/17 9.1	2/17 12.3	2/17 12.3
CONDENSER FAN								
Nominal Cfm Diameter (in.) Motor Hp (Rpm)	2350 22 1/8 (825)	2350 22 1/8 (825)	2350 22 1/8 (825)	2350 22 1/8 (825)	2350 22 1/8 (825)	2350 22 1/8 (825)	2350 22 1/8 (825)	2350 22 1/8 (825)
EVAPORATOR COIL								
Rows—fins/in. Face Area (sq ft)	3/15 3.7	3/15 3.7	3/15 3.7	3/15 3.7	3/15 3.7	3/15 3.7	3/15 4.7	3/15 4.7
EVAPORATOR BLOWER								
Nominal Airflow (Cfm) Size (in.) Motor Hp (Rpm)	800 10 x 10 1/4 (1075)	800 10 x 10 1/4 (1075)	1000 10 x 10 1/4 (1075)	1000 10 x 10 1/4 (1075)	1200 10 x 10 1/2 (1075)	1200 10 x 10 1/2 (1075)	1400 11 x 10 3/4 (1075)	1400 11 x 10 3/4 (1075)
EVAPORATOR BLOWER (ICM FIOP ONLY)								
Nominal Airflow (Cfm) Size (in.) Motor Hp (Rpm)	800 10 x 10 1/2	800 10 x 10 1/2	1000 10 x 10 1/2	1000 10 x 10 1/2	1200 11 x 10 3/4	1200 11 x 10 3/4	1400 11 x 10 3/4	1400 11 x 10 3/4
FURNACE SECTION								
Burner Orifice No. (Qty...Drill Size) Natural Burner Orifice No. (Qty...Drill Size) Propane	2...44 2...50	2...38 2...46	2...44 2...50	2...38 2...46	2...38 2...46	3...38 3...46	2...38 2...46	3...38 3...46
HIGH-PRESSURE SWITCH (psig)								
Cutout Reset (Auto.)	610 ± 15 420 ± 25							
LOSS-OF-CHARGE/LOW-PRESSURE SWITCH								
(Liquid Line) (psig) Cutout Reset (Auto.)	20 ± 5 45 ± 10							
RETURN-AIR FILTERS (in.)								
Throwaway	20 x 24 x 1	20 x 24 x 1	20 x 24 x 1	20 x 24 x 1	20 x 24 x 1	20 x 24 x 1	24 x 30 x 1	24 x 30 x 1

PHYSICAL DATA (cont)

UNIT SIZE 583B	048090	048115	048130	060090	060115	060130
NOMINAL CAPACITY (ton)	4	4	4	5	5	5
OPERATING WEIGHT (lb)	421	421	421	468	468	468
COMPRESSORS Scroll						
Quantity	1					
REFRIGERANT (R-410A)						
Quantity (lb)	9.5	9.5	9.5	10.0	10.0	10.0
REFRIGERANT METERING DEVICE						
Orifice ID (in.) AccuRater® Piston	.073	.073	.073	.086	.086	.086
CONDENSER COIL						
Rows—Fins/in. Face Area (sq ft)	2/17 12.3	2/17 12.3	2/17 12.3	2/17 16.4	2/17 16.4	2/17 16.4
CONDENSER FAN						
Nominal Cfm Diameter (in.) Motor Hp (Rpm)	3300 22 1/4 (1100)	3300 22 1/4 (1100)	3300 22 1/4 (1100)	3300 22 1/4 (1100)	3300 22 1/4 (1100)	3300 22 1/4 (1100)
EVAPORATOR COIL						
Rows—fins/in. Face Area (sq ft)	4/15 4.7	4/15 4.7	4/15 4.7	4/15 4.7	4/15 4.7	4/15 4.7
EVAPORATOR BLOWER						
Nominal Airflow (Cfm) Size (in.) Motor Hp (Rpm)	1600 11 x 10 3/4 (1075)	1600 11 x 10 3/4 (1075)	1600 11 x 10 3/4 (1075)	1750 11 x 10 1.0 (1040)	1750 11 x 10 1.0 (1040)	1750 11 x 10 1.0 (1040)
EVAPORATOR BLOWER (ICM FIOP ONLY)						
Nominal Airflow (Cfm) Size (in.) Motor Hp (Rpm)	1600 11 x 10 3/4	1600 11 x 10 3/4	1600 11 x 10 3/4	1750 11 x 10 1.0	1750 11 x 10 1.0	1750 11 x 10 1.0
FURNACE SECTION						
Burner Orifice No. (Qty...Drill Size) Natural Gas	3...38	3...33	3...31	3...38	3...33	3...31
Burner Orifice No. (Qty...Drill Size) Propane Gas	3...46	3...42	3...41	3...46	3...42	3...41
HIGH-PRESSURE SWITCH (psig)						
Cutout Reset (Auto.)	610 ± 15 420 ± 25					
LOSS-OF-CHARGE/LOW-PRESSURE SWITCH						
(Liquid Line) (psig) Cutout Reset (Auto.)	20 ± 5 45 ± 10					
RETURN-AIR FILTERS (in.)						
Throwaway	24 x 30 x 1	24 x 30 x 1	24 x 30 x 1	24 x 30 x 1	24 x 30 x 1	24 x 30 x 1

OPTIONS AND ACCESSORIES

Factory-installed options

Coil options include copper/copper and vinyl-coated construction for refrigerant coils. Units are shipped standard with copper tube/aluminum fin construction. See model number nomenclature for coil options.

Electronic Variable-Speed Motor — ICM Motors (Integrated Control Motor) provide variable-speed operation to optimize comfort levels year round. They are also more economical to operate than standard motors.

Field-installed accessories

Economizer with Solid-State Controls and Barometric Relief Dampers
Manual Air Damper (25% open)
Filter Rack
Roof Curbs (8-in. and 14-in.)
Square-to-Round Duct Transition Kit
Thermostats
Crankcase Heater
Compressor Hard Start Kit (for use on single-phase units only)
LP Conversion Kit
High Altitude Kit
Low Ambient Kit (Motormaster® II Control)
Solid-State Time Guard® II Device
Lifting Kit
LP to Natural Conversion Kit

Economizer with solid-state controls and barometric relief dampers includes filter racks and provide outdoor air during cooling and reduce compressor operation.

Manual outside air damper includes hood and filter rack with adjustable damper blade for up to 25% outdoor air.

Flat roof curbs in both 8 in. and 14 in. sizes are available for roof mounted applications.

Square-to-round duct transition kit enables 024-048 size units to be fitted to 14 in. round ductwork.

Compressor hard start kit assists compressor start-up by providing additional starting torque on single phase units and prolongs compressor motor life.

Thermostats provide control for the system heating and cooling functions. Thermostat models are available in both programmable and non-programmable versions.

Crankcase heater provides anti-floodback protection for low-load cooling applications.

LP (liquid propane) conversion kit allows for conversion from natural gas to liquid propane fuel.

Low-ambient kit (Motormaster® II control) allows the use of mechanical cooling down to outdoor temperatures as low as 0°F.

Solid-state Time Guard® II device provides short-cycling protection for the compressor. Not required with corporate electronic thermostats.

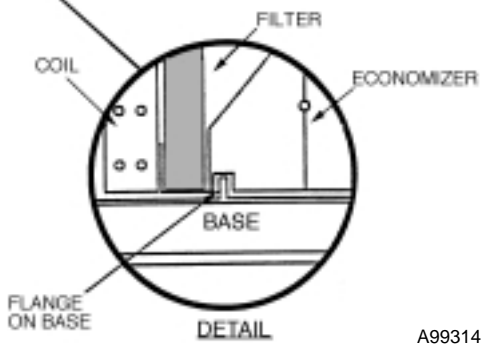
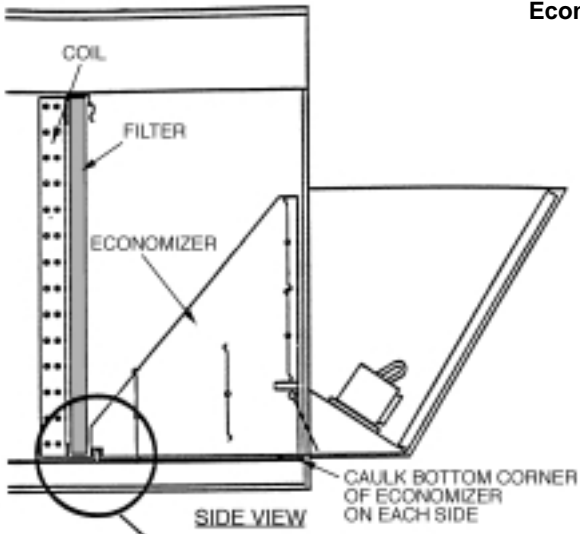
Filter rack features easy installation, serviceability, and high-filtering performance for vertical applications.

High altitude kit is for use at 2001 to 6000 ft above sea level. Kit consists of natural gas orifices that compensate for gas heat operation at high altitude.

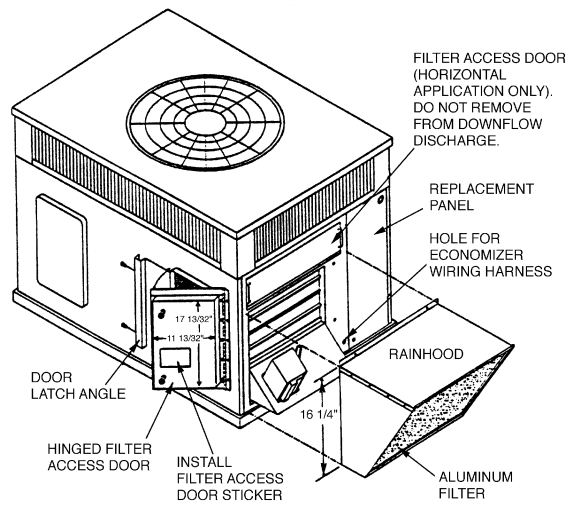
LP to natural gas conversion kit allows conversion back to natural gas.

Lifting kit includes lifting brackets which are inserted into the basepan handholds to rig unit for rooftop applications.

Economizer



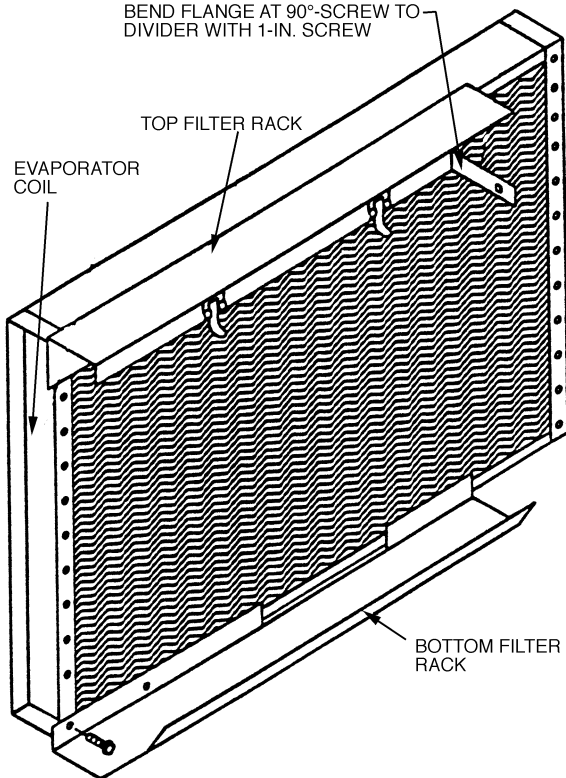
A99314



A99315

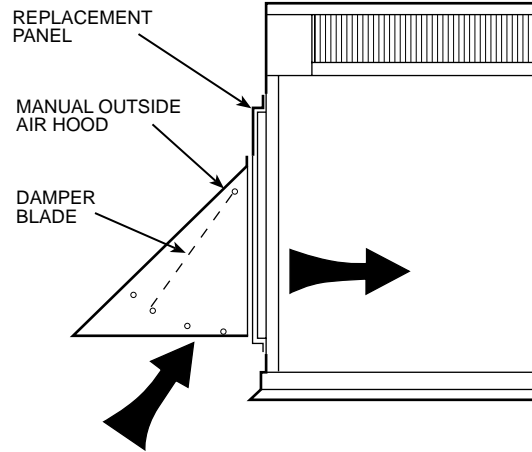
Filter Rack

BEND FLANGE AT 90°-SCREW TO DIVIDER WITH 1-IN. SCREW



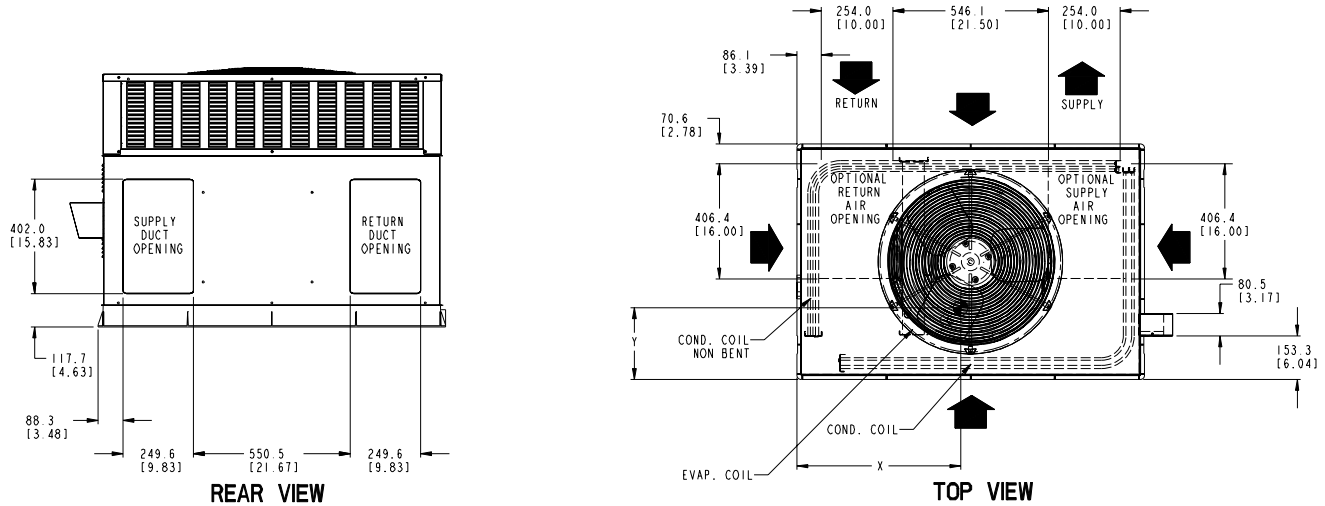
A99316

Manual Outside Air Damper



A99317

BASE UNIT DIMENSIONS — 583B024-036



REQ'D CLEARANCES FOR OPERATION AND SERVICING. in. (mm)

Evaporator coil access side	.36 (914)
Power entry side (except for NEC requirements)	.36 (914)
Unit top	.48 (1219)
Side opposite ducts	.36 (914)
Duct panel	.12 (304.8)*

*Minimum distances: If unit is placed less than 12 in. (304.8 mm) from wall system, then the system performance may be compromised.

LEGEND

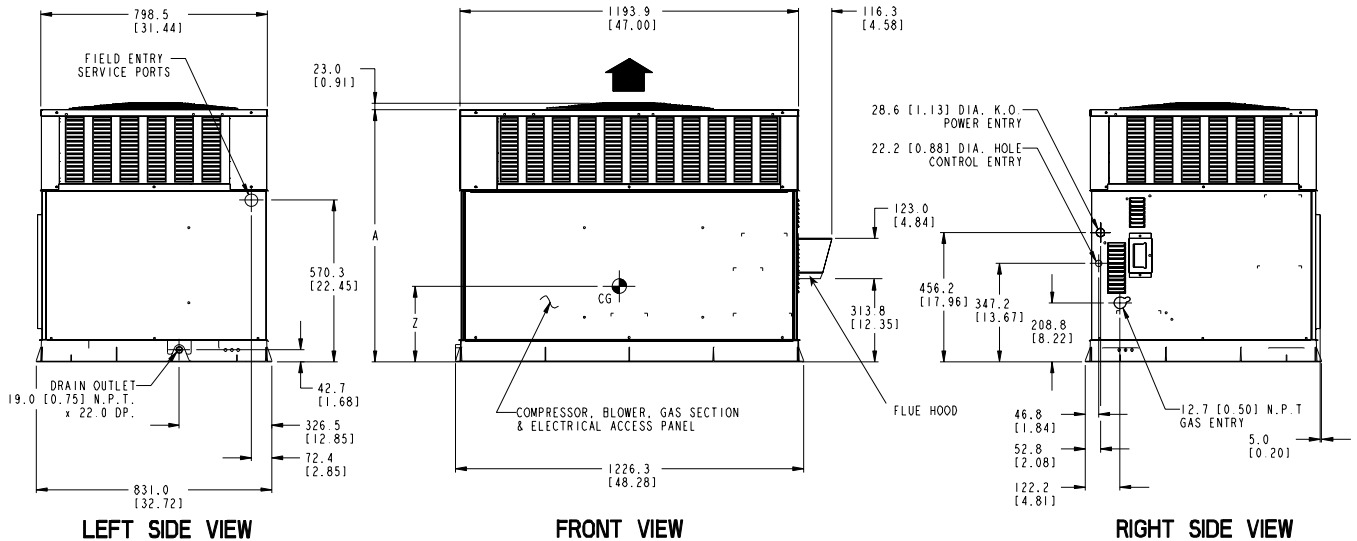
- CG - Center of Gravity
- COND - Condenser
- EVAP - Evaporator
- NEC - National Electrical Code
- REQ'D - Required
- Note: Dimensions are in in. (mm)

REQ'D CLEARANCES TO COMBUSTIBLE MAT'L. in. (mm)

Top of unit	.14 (355.6)
Duct side of unit	.2 (50.8)
Side opposite ducts	.14 (355.6)
Bottom of unit	.050 (12.7)
Flue panel	.36 (914.4)

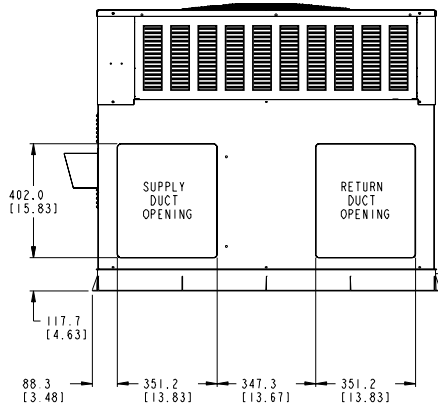
NEC REQ'D CLEARANCES. in. (mm)

Between units, power entry side	.42 (1066.8)
Unit and ungrounded surfaces, power entry side	.36 (914)
Unit and block or concrete walls and other grounded surfaces, control box side	.42 (1066.8)

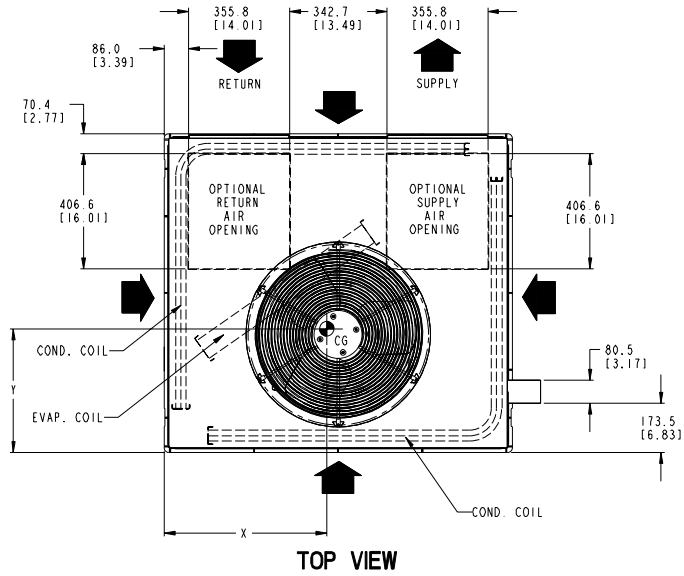


UNIT	ELECTRICAL CHARACTERISTICS	UNIT WEIGHT		UNIT HEIGHT IN. [MM] "A"	CENTER OF GRAVITY IN. [MM]		
		lb.	kg.		X	Y	Z
583B024040/060	208/230-1-60	290	131.5	37.02 [940.3]	22.0 [558.8]	14.5 [368.3]	16.0 [406.4]
583B030040/060	208/230-1-60 208/230-3-60	313	142.0	39.02 [991.1]	22.0 [558.8]	15.3 [387.4]	17.6 [447.0]
583B036060/090	208/230-1-60 208/230-3-60 460-3-60	321	145.6	35.02 [889.5]	22.0 [558.8]	15.3 [387.4]	16.5 [419.1]

BASE UNIT DIMENSIONS – 583B042-060



REAR VIEW



TOP VIEW

C99074

REQUIRED CLEARANCE FOR OPERATION AND SERVICING

	in. [mm]
EVAP. COIL ACCESS SIDE.....	36.00 [914.0]
POWER ENTRY SIDE.....	36.00 [914.0]
(EXCEPT FOR NEC REQUIREMENTS)	
UNIT TOP.....	36.00 [914.0]
SIDE OPPOSITE DUCTS.....	36.00 [914.0]
DUCT PANEL.....	12.00 [304.8] *

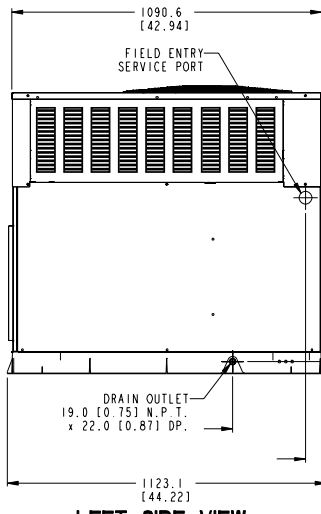
*MINIMUM DISTANCES: IF UNIT IS PLACED LESS THAN 12.00 in. [304.8 mm.] FROM WALL THEN SYSTEM PERFORMANCE MAYBE COMPROMISED.

REQUIRED CLEARANCE TO COMBUSTIBLE MATL.

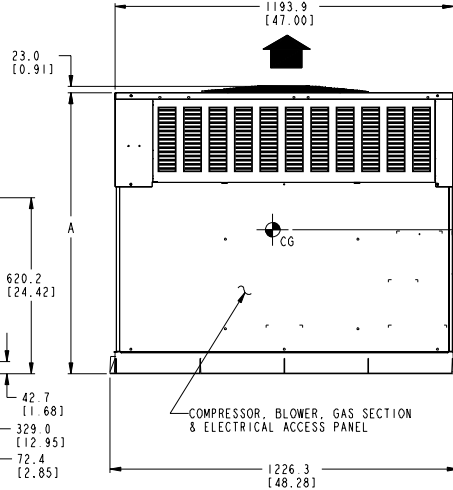
	in. [mm]
TOP OF UNIT.....	14.00 [355.6]
DUCT SIDE OF UNIT.....	2.00 [50.8]
SIDE OPPOSITE DUCTS.....	14.00 [355.6]
BOTTOM OF UNIT.....	0.50 [12.7]
ELECTRIC HEAT PANEL.....	36.00 [914.4]

NEC. REQUIRED CLEARANCES.

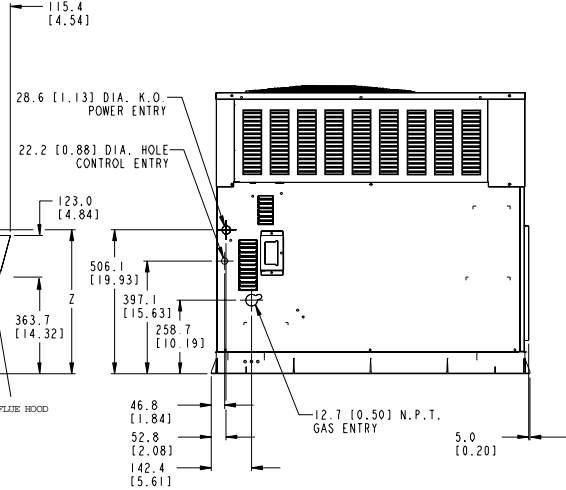
	MILLIMETERS [IN.]
BETWEEN UNITS, POWER ENTRY SIDE.....	42.00 [1066.8]
UNIT AND UNGROUNDED SURFACES, POWER ENTRY SIDE ...	36.00 [914.0]
UNIT AND BLOCK OR CONCRETE WALLS AND OTHER GROUNDED SURFACES, POWER ENTRY SIDE.....	42.00 [1066.8]



LEFT SIDE VIEW



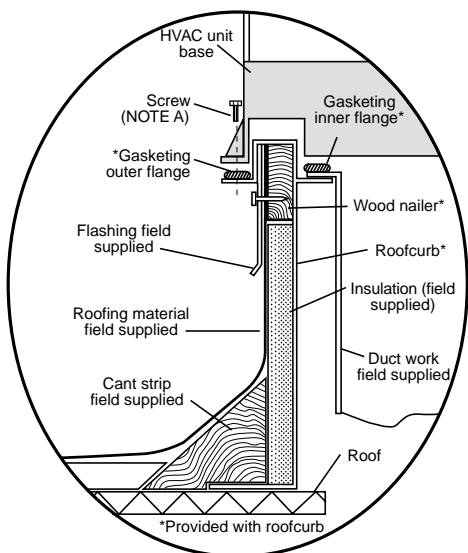
FRONT VIEW



RIGHT SIDE VIEW

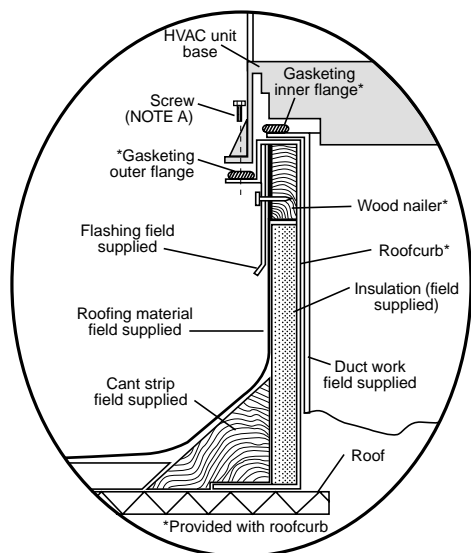
UNIT	ELECTRICAL CHARACTERISTICS	UNIT WEIGHT		UNIT HEIGHT IN. [MM] "A"	CENTER OF GRAVITY IN. [MM]		
		lb.	kg.		X	Y	Z
583B042060/090	208/230-1-60 208/230-3-60 460-3-60	382	173.3	38.98 [990.2]	23.0 [584.2]	16.3 [412.8]	16.6 [421.6]
583B048090/115/130	208/230-1-60 208/230-3-60 460-3-60	421	191.0	38.98 [990.2]	21.5 [546.1]	16.6 [422.1]	18.0 [457.2]
583B060090/115/130	208/230-1-60, 208/230-3-60, 460-3-60	468	212.3	42.98 [1091.7]	23.5 [596.9]	16.3 [412.8]	17.6 [447.0]

ACCESSORY DIMENSIONS



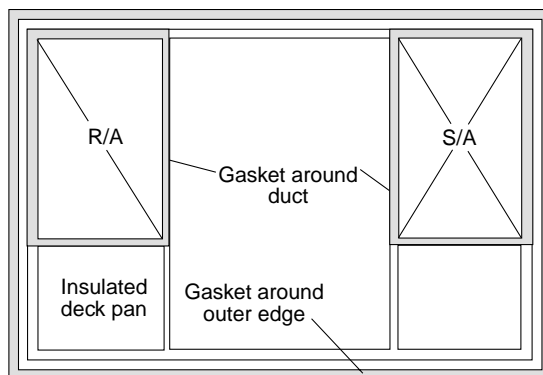
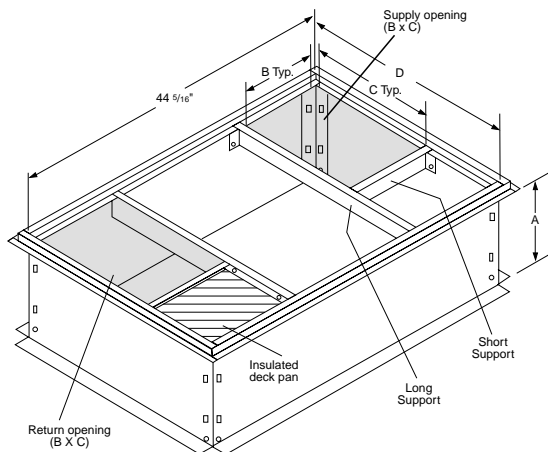
Roof Curb for Small Cabinet

Note A: When unit mounting screw is used, retainer bracket must also be used.



Roof Curb for Large Cabinet

Note A: When unit mounting screw is used, retainer bracket must also be used.



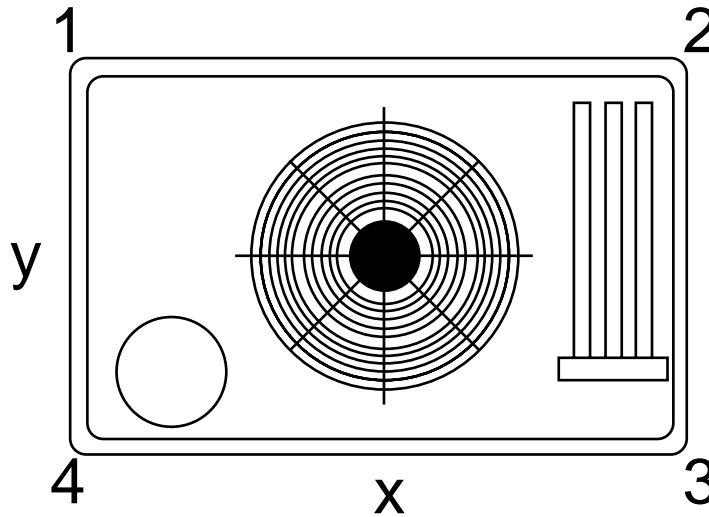
Roof Curb Dimensions Side View

ROOF CURB	UNIT SIZE	ODS ORDER NUMBER	A IN. [MM]	B IN. [MM]	C IN. [MM]	D IN. [MM]
	024-036	CPRFCURB006A00	8 [203]	11 [279]	16 1/2 [419]	28 3/4 [730]
CPRFCURB007A00		14 [356]	11 [279]	16 1/2 [419]	28 3/4 [730]	
042-060	CPRFCURB008A00	8 [203]	16 3/16 [411]	17 3/8 [441]	40 1/4 [1022]	
	CPRFCURB009A00	14 [356]	16 3/16 [411]	17 3/8 [441]	40 1/4 [1022]	

Notes:

1. Roof curb must be set up for unit being installed.
2. Seal strip must be applied as required to unit being installed.
3. Dimensions in [] are in millimeters.
4. Roof curb is made of 16 gage steel.
5. Table lists only the dimensions per part number that have changed.
6. Attach ductwork to curb (flanges of duct rest on curb).
7. Insulated panels: 1-in. thick fiberglass 1 lb. density.
8. Dimensions are in inches.
9. When unit mounting screw is used (Note A), a retainer bracket must be used as well. This bracket must also be used when required by code for hurricane or seismic conditions. This bracket is available through Micrometl.

583B CORNER WEIGHTS



CORNER #	024	030	036	042	048	060
1	55.1	59.5	61.0	72.6	80.0	88.9
2	52.2	56.3	57.8	68.8	75.8	84.2
3	89.9	97.0	99.5	118.4	130.5	145.1
4	92.8	100.2	102.7	122.2	134.7	149.8
TOTAL WEIGHT	290	313	321	382	421	468

SELECTION PROCEDURE (WITH EXAMPLE)

I DETERMINE COOLING AND HEATING REQUIREMENTS AT DESIGN CONDITIONS:

Given:

Required Cooling Capacity (TC).....35,000 Btuh
 Sensible Heat Capacity (SHC).....25,000 Btuh
 Required Heating Capacity.....60,000 Btuh
 Condenser Entering Air Temperature..... 95°F
 Indoor-Air Temperature80°F edb 67°F ewb
 Evaporator Air Quantity1200 CFM
 External Static Pressure..... 0.1 in. wg
 Electrical Characteristics.....230-1-60

II SELECT UNIT BASED ON REQUIRED COOLING CAPACITY.

Enter Net Cooling Capacities table at condenser entering temperature of 95 F. Unit 583B036 at 1200 cfm and 67 F ewb (entering wet bulb) will provide a total capacity of 35,900 Btuh and a SHC of 26,700 Btuh. Calculate SHC correction, if required, using Note 3 under Cooling Capacities tables.

III SELECT HEATING CAPACITY OF UNIT TO PROVIDE DESIGN CONDITION REQUIREMENT.

In the Heating Capacities and Efficiencies table on page 4, note that the unit 583B036090 will provide 70,000 Btuh with an input of 90,000 Btuh.

IV DETERMINE FAN SPEED AND POWER REQUIREMENTS AT DESIGN CONDITIONS.

Before entering the air delivery tables, calculate the total static pressure required. From the *given* example, the Wet Coil Pressure Drop Table, and the Filter Pressure Drop table on page 16, find at 1200 cfm:

External Static Pressure	0.1 in. wg
Filter	0.13 in. wg
Total Static Pressure	0.23 in. wg

Enter the table for Wet Coil Air Delivery — Horizontal and Downflow Discharge on page 16. For 208 v operation, deduct 10% from value given. At .23 ESP (external static pressure), the fan will deliver 1327 cfm at low speed. The fan speed should be set at low speed.

V SELECT UNIT THAT CORRESPONDS TO POWER SOURCE AVAILABLE.

The Electrical Data table on page 21 shows that the unit is designed to operate at 208/230-1-60.

**PERFORMANCE DATA
STANDARD INDOOR PSC MOTOR
COOLING CAPACITIES**

583B024 COOLING PERFORMANCE TABLE										
Temp (F) Outdoor Air Entering Condenser		Evaporator Air — CFM / BF								
		600 / 0.08			800 / 0.10			1000 / 0.12		
		Evaporator Air — Ewb (F)								
		62	67	72	62	67	72	62	67	72
75	TC	23.7	26.0	28.1	24.7	26.9	28.7	25.2	26.9	28.7
	SHC	19.6	16.8	13.9	22.3	18.6	14.5	24.4	19.7	14.9
	kW	1.74	1.76	1.78	1.88	1.90	1.91	2.04	2.09	2.11
85	TC	22.4	25.0	27.2	23.6	25.8	27.7	24.1	25.9	27.5
	SHC	18.9	16.3	13.4	21.8	18.2	14.2	24.1	19.4	14.6
	kW	1.91	1.96	1.97	2.07	2.09	2.11	2.22	2.29	2.30
95	TC	21.2	23.7	26.2	22.3	24.6	26.7	23.0	24.7	26.4
	SHC	18.4	15.8	13.0	21.1	17.7	13.8	23.0	19.0	14.1
	kW	2.11	2.17	2.21	2.25	2.31	2.35	2.40	2.52	2.52
105	TC	19.1	21.5	23.8	20.1	22.3	24.2	21.0	22.3	24.1
	SHC	17.1	14.6	12.0	19.5	16.4	12.8	21.0	17.8	13.1
	kW	2.37	2.45	2.47	2.52	2.61	2.61	2.68	2.81	2.81
115	TC	16.9	19.3	21.8	18.2	20.0	22.3	19.2	20.1	22.1
	SHC	15.9	13.5	11.1	18.2	15.4	11.9	19.2	16.8	12.6
	kW	2.73	2.82	2.89	2.88	3.01	3.02	3.07	3.21	3.23
125	TC	14.7	16.8	19.2	16.1	17.4	19.6	16.9	17.5	19.4
	SHC	14.7	12.5	10.2	16.1	14.2	11.1	16.9	15.7	11.6
	kW	3.16	3.28	3.38	3.34	3.46	3.51	3.54	3.68	3.72

583B030 COOLING PERFORMANCE TABLE										
Temp (F) Outdoor Air Entering Condenser		Evaporator Air — CFM / BF								
		750 / 0.08			1000 / 0.11			1250 / 0.15		
		Evaporator Air — Ewb (F)								
		62	67	72	62	67	72	62	67	72
75	TC	29.0	32.2	34.3	30.4	32.8	34.6	31.1	32.6	34.2
	SHC	25.2	21.5	17.2	29.0	23.5	18.0	31.1	24.7	18.1
	kW	2.11	2.14	2.15	2.28	2.32	2.33	2.46	2.58	2.59
85	TC	27.5	30.7	33.3	28.7	31.7	33.4	29.8	31.5	33.3
	SHC	24.5	20.9	16.8	28.1	23.3	17.6	29.8	24.4	18.0
	kW	2.34	2.38	2.44	2.52	2.60	2.62	2.68	2.87	2.84
95	TC	25.9	29.4	31.9	27.5	30.0	32.3	28.5	29.8	31.9
	SHC	23.7	20.4	16.3	27.5	22.7	17.2	28.5	24.3	17.7
	kW	2.58	2.65	2.67	2.78	2.84	2.85	2.95	3.09	3.12
105	TC	23.3	26.2	29.1	24.8	27.0	29.4	25.9	27.0	29.1
	SHC	22.0	18.7	15.1	24.8	31.1	16.0	25.9	22.9	16.4
	kW	2.90	3.00	3.01	3.07	3.19	3.20	3.31	3.43	3.47
115	TC	21.5	24.4	26.9	23.1	24.9	27.5	24.2	24.8	26.8
	SHC	21.2	17.9	14.2	23.1	20.2	15.2	24.2	22.0	15.7
	kW	3.14	3.28	3.33	3.39	3.49	3.48	3.62	3.74	3.79
125	TC	19.7	22.2	24.7	21.4	22.7	24.8	22.3	22.5	24.6
	SHC	19.7	16.8	13.4	21.4	19.2	14.3	22.3	21.0	14.8
	kW	3.55	3.69	3.70	3.78	3.86	3.89	4.00	4.10	4.10

See Legend and Notes on page 15.

PERFORMANCE DATA (cont)
STANDARD INDOOR PSC MOTOR
COOLING CAPACITIES (cont)

583B036 COOLING PERFORMANCE TABLE										
Temp (F) Outdoor Air Entering Condenser		Evaporator Air — CFM/BF								
		900/0.09			1200/0.13			1500/0.18		
		Evaporator Air — Ewb (F)								
		62	67	72	62	67	72	62	67	72
75	TC	35.2	38.7	41.6	36.6	39.8	41.9	37.3	39.5	41.5
	SHC	30.3	25.5	20.7	34.0	28.0	21.6	37.3	29.3	21.6
	kW	2.58	2.61	2.61	2.79	2.84	2.83	3.03	3.14	3.14
85	TC	32.9	36.9	39.9	34.8	37.9	40.2	35.5	37.7	39.8
	SHC	28.7	24.8	20.1	33.3	27.4	21.0	35.5	28.8	21.1
	kW	2.83	2.88	2.89	3.05	3.11	3.12	3.28	3.43	3.43
95	TC	31.0	34.9	37.9	32.4	35.9	38.3	33.8	35.7	37.8
	SHC	27.9	24.0	19.3	30.8	26.7	20.3	33.8	28.0	20.5
	kW	3.11	3.19	3.20	3.33	3.42	3.43	3.56	3.74	3.73
105	TC	27.9	31.5	34.3	29.3	32.2	34.6	30.7	32.0	34.0
	SHC	26.0	22.2	17.7	28.3	24.8	18.6	30.7	26.5	18.7
	kW	3.49	3.59	3.60	3.73	3.82	3.82	3.97	4.15	4.13
115	TC	25.5	28.8	31.4	27.5	29.4	31.5	28.3	29.2	31.0
	SHC	24.7	21.0	16.5	27.5	23.4	17.5	28.3	25.2	17.6
	kW	3.85	3.96	3.96	4.07	4.19	4.19	4.34	4.46	4.51
125	TC	22.2	24.6	27.0	24.0	25.0	27.0	24.5	24.8	26.3
	SHC	22.2	19.1	14.8	24.0	21.5	15.8	24.5	23.0	15.8
	kW	4.48	4.59	4.61	4.71	4.79	4.84	4.98	5.09	5.15

583B042 COOLING PERFORMANCE TABLE										
Temp (F) Outdoor Air Entering Condenser		Evaporator Air — CFM/BF								
		1050 / 0.10			1500 / 0.13			1750 / 0.17		
		Evaporator Air — Ewb (F)								
		62	67	72	62	67	72	62	67	72
75	TC	40.9	44.6	48.1	42.3	45.8	49.1	43.1	45.9	48.8
	SHC	35.2	29.5	23.4	39.8	32.4	24.6	43.1	34.4	25.1
	kW	2.93	2.97	2.99	3.20	3.27	3.30	3.48	3.70	3.72
85	TC	38.8	42.7	46.3	40.4	43.8	47.1	41.5	43.9	46.9
	SHC	34.2	28.7	22.8	39.0	31.7	24.0	41.5	33.8	24.5
	kW	3.26	3.31	3.35	3.53	3.62	3.66	3.76	4.04	4.07
95	TC	36.5	40.7	44.2	38.1	41.7	45.0	39.8	41.6	44.7
	SHC	33.1	27.8	22.0	38.1	30.9	23.3	39.8	33.0	23.9
	kW	3.60	3.70	3.73	3.87	4.01	4.03	4.15	4.43	4.45
105	TC	31.9	35.8	39.4	33.9	36.8	40.0	35.5	36.5	39.8
	SHC	30.3	25.3	20.0	33.9	28.5	21.3	35.5	30.7	22.1
	kW	4.26	4.42	4.46	4.50	4.75	4.78	4.91	5.17	5.21
115	TC	28.6	32.0	35.6	30.8	32.9	36.0	32.2	32.7	35.5
	SHC	28.6	23.6	18.6	30.8	26.9	20.0	32.2	29.1	20.6
	kW	4.92	5.10	5.18	5.06	5.47	5.49	5.63	5.84	5.94
125	TC	25.3	28.4	32.0	27.8	29.1	32.1	29.0	28.9	31.3
	SHC	26.6	21.8	17.1	27.8	25.1	18.5	29.0	27.2	19.0
	kW	5.62	5.84	5.97	5.66	6.24	6.26	6.41	6.57	6.73

See Legend and Notes on page 15.

PERFORMANCE DATA (cont)
STANDARD INDOOR PSC MOTOR
COOLING CAPACITIES (cont)

583B048 COOLING PERFORMANCE TABLE										
Temp (F) Outdoor Air Entering Condenser		Evaporator Air — CFM/BF								
		1200 / 0.06			1600 / 0.08			2000 / 0.11		
		Evaporator Air — Ewb (F)								
		62	67	72	62	67	72	62	67	72
75	TC	47.9	52.3	56.8	49.6	53.7	58.1	50.5	54.0	57.7
	SHC	41.5	34.8	28.2	47.4	38.7	29.9	50.5	41.6	30.7
	kW	3.38	3.43	3.48	3.68	3.78	3.82	4.01	4.23	4.27
85	TC	45.7	50.2	54.7	47.5	51.6	56.1	48.9	51.6	56.0
	SHC	40.4	34.1	27.4	46.5	37.9	29.3	48.9	40.9	30.3
	kW	3.77	3.80	3.86	4.03	4.16	4.21	4.36	4.63	4.68
95	TC	43.3	47.9	52.3	45.3	49.2	53.7	47.0	48.9	53.5
	SHC	39.1	33.1	26.5	45.3	37.1	28.5	47.0	39.9	29.5
	kW	4.15	4.23	4.28	4.41	4.57	4.63	4.78	5.07	5.11
105	TC	39.2	43.7	47.9	41.5	44.6	48.9	42.9	44.3	48.9
	SHC	36.4	30.8	24.6	41.5	34.6	26.4	42.9	37.5	27.6
	kW	4.67	4.79	4.82	4.93	5.14	5.19	5.34	5.60	5.66
115	TC	35.3	39.6	43.7	38.2	40.3	44.3	39.3	40.1	44.0
	SHC	34.4	29.0	23.0	38.2	32.8	24.7	39.3	35.7	26.0
	kW	5.32	5.50	5.54	5.65	5.85	5.89	6.06	6.27	6.36
125	TC	32.0	35.2	38.7	34.4	35.5	39.3	35.0	35.2	38.8
	SHC	32.0	27.0	21.0	34.4	30.8	22.8	35.0	33.4	24.0
	kW	6.16	6.31	6.34	6.47	6.63	6.69	6.89	7.04	7.16

583B060 COOLING PERFORMANCE TABLE													
Temp (F) Outdoor Air Entering Condenser		Evaporator Air — CFM/BF											
		1500 / 0.05			1750 / 0.06			2000 / 0.07			2500 / 0.08		
		Evaporator Air — Ewb (F)											
		62	67	72	62	67	72	62	67	72	62	67	72
75	TC	57.6	64.3	69.9	59.8	66.1	71.7	61.7	67.6	73.1	65.0	69.6	75.1
	SHC	50.6	43.0	34.4	55.5	46.2	36.3	59.8	49.3	38.1	65.0	54.8	41.3
	kW	4.63	4.69	4.75	4.67	4.71	4.78	4.68	4.73	4.80	4.70	4.75	4.84
85	TC	54.4	60.9	67.0	56.4	63.0	68.6	58.0	64.5	69.9	62.3	66.4	71.6
	SHC	49.0	41.6	33.4	53.6	45.0	35.2	58.0	48.2	37.0	62.3	54.0	40.2
	kW	5.06	5.17	5.21	5.10	5.17	5.23	5.14	5.18	5.26	5.17	5.21	5.29
95	TC	51.2	57.5	63.7	53.1	59.4	65.3	55.1	60.7	66.5	59.3	62.7	68.1
	SHC	47.5	40.0	32.2	51.9	43.5	34.0	55.1	46.8	35.8	59.3	52.8	39.1
	kW	5.54	5.68	5.72	5.58	5.68	5.74	5.64	5.69	5.76	5.68	5.71	5.79
105	TC	45.8	51.9	57.7	47.8	53.4	59.1	50.2	54.6	60.1	53.8	56.2	61.4
	SHC	44.0	37.0	29.5	47.8	40.3	31.4	50.2	43.4	33.1	53.8	49.3	36.2
	kW	6.17	6.35	6.39	6.23	6.36	6.41	6.30	6.37	6.42	6.36	6.38	6.44
115	TC	41.9	47.6	53.2	44.5	49.0	54.4	46.8	50.1	55.2	50.0	51.6	56.5
	SHC	41.9	35.1	27.8	44.5	38.3	29.6	46.8	41.5	31.3	50.0	47.1	34.5
	kW	6.75	6.94	6.98	6.83	6.95	6.99	6.82	6.95	7.01	6.94	6.95	7.03
125	TC	38.6	43.2	48.3	41.1	44.5	49.4	43.1	45.4	50.0	46.0	46.7	51.0
	SHC	38.6	33.2	25.8	41.1	36.3	27.6	43.1	39.3	29.1	46.0	44.5	32.1
	kW	7.36	7.64	7.67	7.58	7.64	7.68	7.63	7.64	7.69	7.64	7.65	7.71

LEGEND

- BF — Bypass Factor
- Ewb — Entering Wet-Bulb
- kW — Total Unit Power Input
- SHC — Sensible Heat Capacity (1000 Btuh)
- TC — Cooling Capacity (1000 Btuh)
- PSC — Permanent Split Capacitor

$$t_{ldb} = t_{edb} - \frac{\text{sensible capacity (Btuh)}}{1.10 \times \text{cfm}}$$

$$t_{lwb} = \text{Wet-bulb temperature corresponding to enthalpy of air leaving evaporator coil } (h_{lwb})$$

$$h_{lwb} = h_{ewb} - \frac{\text{total capacity (Btuh)}}{4.5 \times \text{cfm}}$$

Where: h_{ewb} = Enthalpy of air entering evaporator coil

NOTES:

1. Ratings are net; they account for the effects of the evaporator-fan motor power and heat.
2. Direct interpolation is permissible. Do not extrapolate.
3. The following formulas may be used:
4. The SHC is based on 80°F edb temperature of air entering evaporator coil. Below 80°F edb, subtract (Corr Factor x CFM) from SHC above 80°F edb, add (Corr Factor x CFM) to SHC Correction Factor = 1.10 x (1 + BF) x (edb + 80)

583B STANDARD UNIT—WET COIL AIR FLOW DELIVERY

230 AND 460 VOLT													
Unit 583B	Motor Speed		External Static Pressure (in. wg)										
			0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
024	Low	Watts	279	282	280	277	276	—	—	—	—	—	—
		CFM	882	801	738	674	604	—	—	—	—	—	—
	Med	Watts	—	—	—	373	367	361	356	351	—	—	—
		CFM	—	—	—	936	868	797	719	626	—	—	—
	High	Watts	—	—	—	—	—	463	452	439	428	—	—
		CFM	—	—	—	—	—	956	878	794	702	—	—
030	Low	Watts	243	244	242	—	—	—	—	—	—	—	—
		CFM	885	842	786	—	—	—	—	—	—	—	—
	Med	Watts	353	339	333	330	326	320	—	—	—	—	—
		CFM	1195	1134	1070	997	911	818	—	—	—	—	—
	High	Watts	—	—	—	443	436	426	416	406	397	—	—
		CFM	—	—	—	1230	1145	1061	977	888	786	—	—
036	Low	Watts	490	463	446	432	418	403	389	378	—	—	—
		CFM	1431	1398	1347	1281	1205	1118	1024	921	—	—	—
	Med	Watts	—	513	501	488	474	459	443	428	—	—	—
		CFM	—	1491	1426	1351	1267	1175	1077	976	—	—	—
	High	Watts	—	—	645	636	627	616	605	593	583	—	—
		CFM	—	—	1484	1410	1330	1243	1147	1044	936	—	—
042	Low	Watts	634	618	608	598	583	562	534	502	473	454	457
		CFM	1669	1599	1545	1498	1448	1391	1326	1257	1189	1132	1101
	Med	Watts	—	—	—	733	704	672	638	604	574	550	536
		CFM	—	—	—	1746	1688	1630	1566	1492	1399	1279	1120
	High	Watts	—	—	—	—	—	—	797	773	751	727	696
		CFM	—	—	—	—	—	—	1727	1632	1537	1423	1308
048	Low	Watts	591	578	573	568	559	544	524	500	—	—	—
		CFM	1554	1523	1496	1467	1432	1387	1332	1269	—	—	—
	Med	Watts	755	737	719	699	678	653	627	602	579	562	556
		CFM	1834	1802	1758	1706	1648	1585	1520	1455	1392	1332	1276
	High	Watts	—	—	—	890	858	828	801	777	756	734	709
		CFM	—	—	—	1943	1870	1793	1711	1624	1531	1433	1329
060	Low	Watts	589	576	569	566	559	541	499	—	—	—	—
		CFM	1946	1891	1836	1779	1718	1651	1577	—	—	—	—
	Med	Watts	750	733	715	695	673	648	623	598	577	—	—
		CFM	2189	2097	2021	1952	1883	1809	1727	1635	1530	—	—
	High	Watts	—	879	850	821	795	772	750	728	701	—	—
		CFM	—	2337	2159	2050	1974	1905	1824	1722	1597	—	—

NOTE: *Air delivery values are without air filter.

Deduct field-supplied air filter pressure drop to obtain external static pressure available for ducting.

Deduct 10% for 208 volts.

Dashes indicate portions of table that are not recommended.

FILTER PRESSURE DROP (In. wg)

FILTER SIZE	CFM																		
	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
20 X 20 X 1	0.05	0.07	0.08	0.10	0.12	0.13	0.14	0.15	—	—	—	—	—	—	—	—	—	—	—
20 X 24 X 1	—	—	—	—	0.09	0.10	0.11	0.13	0.14	0.15	0.16	—	—	—	—	—	—	—	—
24 X 30 X 1	—	—	—	—	—	—	—	0.07	0.08	0.09	0.10	0.11	0.12	0.13	0.14	0.15	0.16	0.17	0.18

583B COOLING DRY COIL ICM AIRFLOW—SMALL CABINET

UNIT SIZE	CFM ADJUST PIN SELECT	LO PIN			NOM PIN			HI PIN		
	EXTERNAL STATIC PRESSURE RANGE	0.0–0.4	0.4–0.7	0.7–1.0	0.0–0.4	0.4–0.7	0.7–1.0	0.0–0.4	0.4–0.7	0.7–1.0
024	COOLING	745	675	—	835	750	690	940	880	815
	COOLING DEHUMIDIFY	675	625	—	675	650	600	755	730	705
030	COOLING	940	860	785	1020	965	895	1185	1100	1010
	COOLING DEHUMIDIFY	820	785	735	820	800	770	955	920	880
036	COOLING	1025	935	—	1145	1085	1005	1320	1260	1180
	COOLING DEHUMIDIFY	925	885	—	925	900	870	1060	1040	1010

583B COOLING DRY COIL ICM AIRFLOW—LARGE CABINET

UNIT SIZE	CFM ADJUST PIN SELECT	LO PIN	NOM PIN	HI PIN
	EXTERNAL STATIC PRESSURE RANGE	0.1–1.0	0.1–1.0	0.1–1.0
042	COOLING	1035	1095	1280
	COOLING DEHUMIDIFY	880	880	1025
048	COOLING	1150	1285	1500
	COOLING DEHUMIDIFY	1025	1025	1200
060	COOLING	1480	1630	1920
	COOLING DEHUMIDIFY	1305	1305	1535

583B HEATING ICM AIRFLOW—SMALL CABINET

EASY SELECT™ BOARD SETTING (CFM)		700			800			1100			1250		
UNIT SIZE	EXTERNAL STATIC PRESSURE	0.0–0.4	0.4–0.7	0.7–1.0	0.0–0.4	0.4–0.7	0.7–1.0	0.0–0.4	0.4–0.7	0.7–1.0	0.0–0.4	0.4–0.7	0.7–1.0
	GAS HEAT SIZE												
024	040	—	—	—	855	770	710	—	—	—	—	—	—
	060	—	—	—	—	—	—	1020	890	835	—	—	—
030	040	—	—	—	880	840	805	—	—	—	—	—	—
	060	—	—	—	—	—	—	1030	970	910	—	—	—
036	060	—	—	—	—	—	—	1035	995	955	—	—	—
	090	—	—	—	—	—	—	—	—	—	1170	1110	1025

583B HEATING ICM AIRFLOW—LARGE CABINET

EASY SELECT™ BOARD SETTING (CFM)		1000	1250	1600	1750	1800
UNIT SIZE	EXTERNAL STATIC PRESSURE	0.0–1.0	0.0–1.0	0.0–1.0	0.0–1.0	0.0–1.0
	GAS HEAT SIZE					
042	060	1000	—	—	—	—
	090	—	1250	—	—	—
048	090	—	1250	—	—	—
	115	—	—	1600	—	—
060	130	—	—	—	1750	—
	090	—	1250	—	—	—
	115	—	—	1600	—	—
	130	—	—	—	—	1800

583B ICM AIR FLOW VS. TEMPERATURE RISE CHART

UNIT	COOLING SIZE	RATED GAS INPUT RATE (X 1000)	AIRFLOW SETTING EAST SELECT™ (SCFM)	CALCULATED TEMPERATURE RISE	MIN. TEMP RISE	MAX TEMP RISE	MAX DISCH. TEMP
583B	024	40	800	36.5	20	50	175
583B	024	60	1100	40	35	65	165
583B	030	40	800	36.5	20	50	175
583B	030	60	1100	40	35	65	165
583B	036	60	1100	40	25	55	165
583B	036	90	1200	54	45	75	175
583B	042	60	1000	44	20	50	165
583B	042	90	1250	53	35	65	170
583B	048	90	1250	53	25	55	165
583B	048	115	1600	53	35	65	170
583B	048	130	1750	54	40	70	175
583B	060	90	1600	41	25	55	155
583B	060	115	1600	53	35	65	170
583B	060	130	1800	53	40	70	175

PERFORMANCE DATA (CONT)

ECONOMIZER/1-IN. FILTER PRESSURE DROP (in. wg)

UNIT 583B	PRESSURE DROP
024-036	0.20
042-060	0.25

HIGH ALTITUDE COMPENSATION

NATURAL GAS ONLY ORIFICE CONVERSION — 3.5 in. wc MANIFOLD PRESSURE*

ALTITUDE (ft)	INPUT (Btuh)	OUTPUT (Btuh)	ORIFICE NUMBER†
0-2000	40,000	31,000	#44
	60,000	46,000	#38
	90,000	70,000	#38
	115,000	92,000	#33
	130,000	103,000	#31
2001-6000	32,075	24,858	#48
	48,547	37,219	#42
	72,820	56,638	#42
	90,094	72,075	#37
	102,630	81,315	#34

LIQUID PROPANE ONLY ORIFICE CONVERSION — 3.5 in. wc MANIFOLD PRESSURE*

ALTITUDE (ft)	INPUT (Btuh)	OUTPUT (Btuh)	ORIFICE NUMBER†
0-2000	40,000	31,000	#50
	57,000	43,720	#46
	85,500	66,520	#46
	115,000	92,000	#42
	127,000	100,580	#41
	2001-6000	33,834	26,221
49,238		37,766	#48
73,856		57,461	#48
94,571		75,657	#44
101,284		80,214	#43

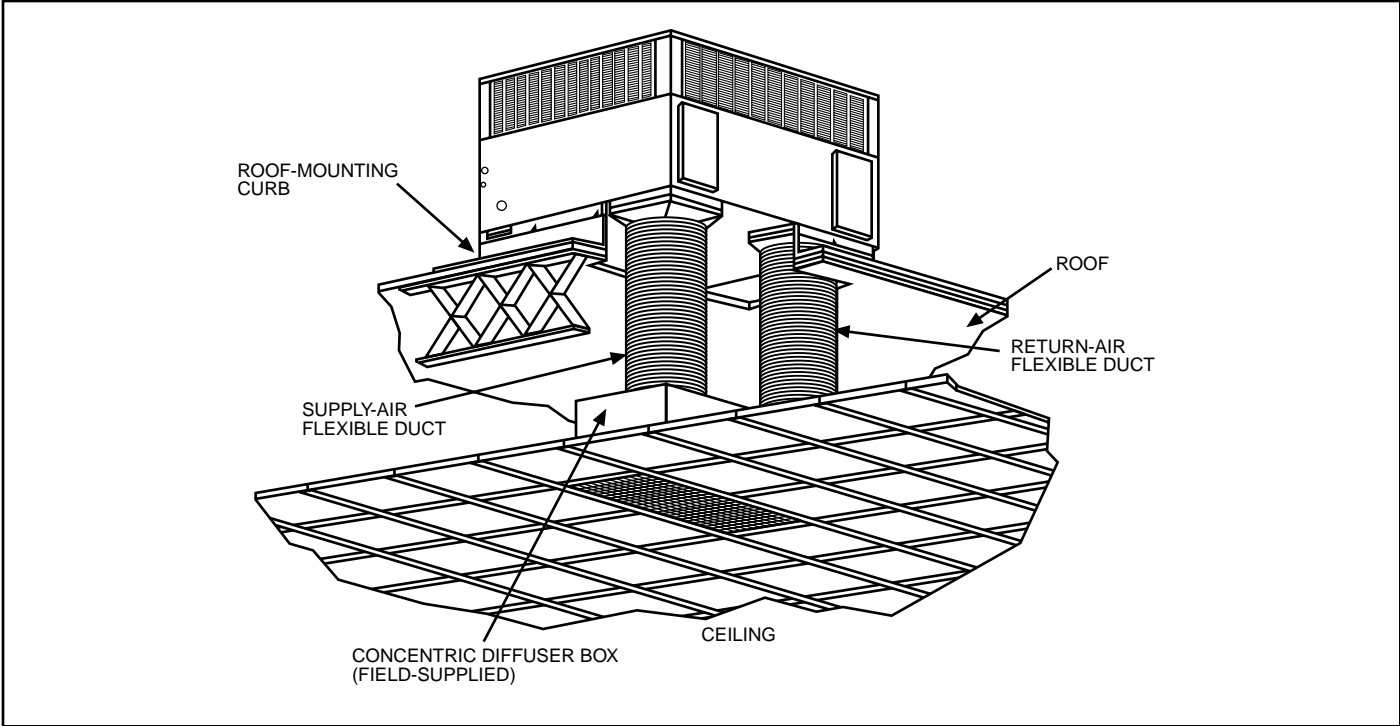
* As the height above sea level increases, there is less oxygen per cubic ft of air. Therefore, heat input rate should be reduced at higher altitudes.

† Orifices available through your Bryant distributor.

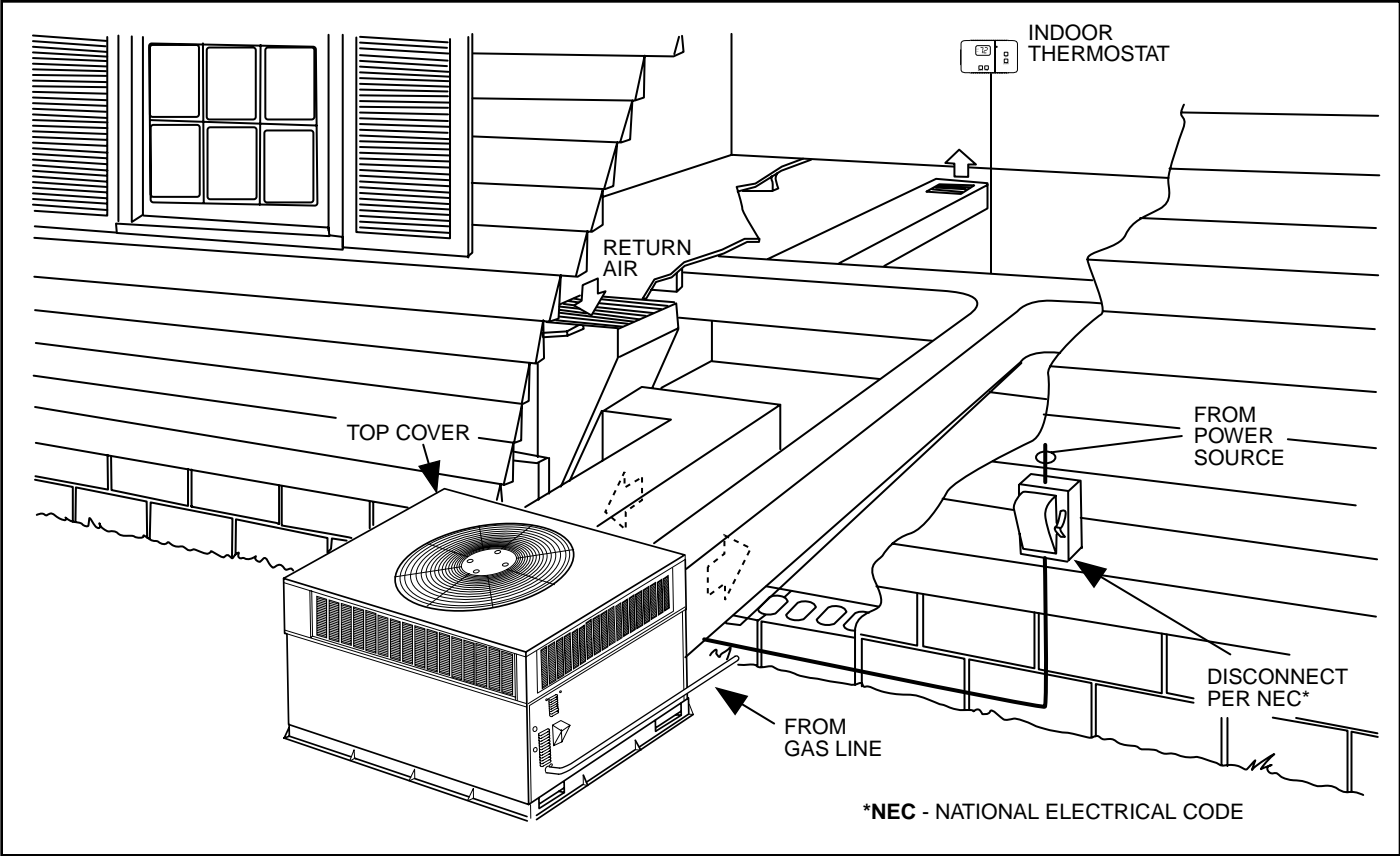
583B ICM FIOP WET COIL PRESSURE DROP

UNIT SIZE	STANDARD CFM															
	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100
024	0.005	0.007	0.010	0.012	0.015	—	—	—	—	—	—	—	—	—	—	—
030	—	0.007	0.010	0.012	0.015	0.018	0.021	0.024	—	—	—	—	—	—	—	—
036	—	—	—	0.019	0.023	0.027	0.032	0.037	0.042	0.047	—	—	—	—	—	—
042	—	—	—	—	0.014	0.017	0.020	0.024	0.027	0.031	0.035	0.039	0.043	—	—	—
048	—	—	—	—	—	—	0.027	0.032	0.036	0.041	0.046	0.052	0.057	0.063	0.068	—
060	—	—	—	—	—	—	—	—	—	0.029	0.032	0.036	0.040	0.045	0.049	0.053

TYPICAL PIPING AND WIRING



C00023

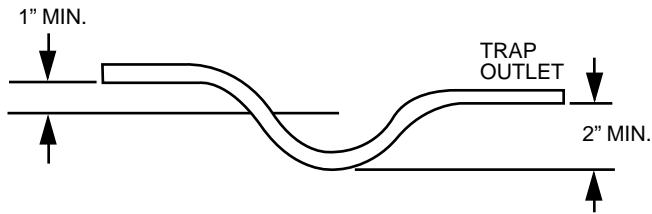


*NEC - NATIONAL ELECTRICAL CODE

C00022

APPLICATION DATA

Condensate trap — A 2-in. condensate trap must be field supplied.



Ductwork — Secure downflow discharge ductwork to roof curb. For horizontal discharge applications, attach ductwork to unit with flanges.

To convert a unit to downflow discharge — Units are equipped with factory-installed inserts in the down-flow openings. Removal of the inserts is similar to removing an electrical knock-out. The unit is factory equipped with duct

covers to seal the horizontal discharge openings in the unit. Units installed in horizontal discharge orientation do not require duct covers.

Maximum cooling airflow — To minimize the possibility of condensate blow-off from the evaporator, airflow through the units should not exceed 450 cfm per ton.

Minimum cooling airflow — The minimum cooling airflow is 350 cfm per ton.

Minimum cooling ambient operating temperature — All standard units have a minimum cooling ambient operating temperature of 40°F. Units with the ICM Indoor Motor FIOP have a minimum cooling outdoor operating temperature of 55°F. With accessory low ambient temperature kit, units can operate at temperatures down to 0°F.

Maximum operating outdoor air temperature — for cooling is 125°F.

ELECTRICAL DATA 583B (STANDARD) ELECTRICAL DATA

UNIT SIZE 583B	V-PH-Hz	VOLTAGE RANGE		COMPRESSOR		OUTDOOR FAN MOTOR	INDOOR FAN MOTOR	POWER SUPPLY	
		Min	Max	RLA	LRA	FLA	FLA	MCA	MAX FUSE OR BKR
024	208/230-1-60	187	253	13.5	61.0	0.8	2.0	19.7	30
030	208/230-1-60	187	253	14.7	73.0	0.8	2.1	21.3	35
	208/230-3-60	187	253	9.6	63.0	0.8	2.1	14.9	20
036	208/230-1-60	187	253	15.4	83.0	0.8	3.6	23.7	35
	208/230-3-60	187	253	12.2	77.0	0.8	3.6	19.7	30
	460-3-60	414	506	5.1	35.0	0.8	1.9	9.1	15
042	208/230-1-60	187	253	18.6	105.0	0.9	4.1	28.3	45
	208/230-3-60	187	253	13.8	88.0	0.9	4.1	22.3	35
	460-3-60	414	506	6.3	39.0	0.9	2.0	10.8	15
048	208/230-1-60	187	253	20.5	109.0	1.6	4.1	31.3	50
	208/230-3-60	187	253	14.7	91.0	1.6	4.1	24.1	35
	460-3-60	414	506	6.5	46.0	0.9	2.0	11.0	15
060	208/230-1-60	187	253	27.6	158.0	1.6	6.2	42.3	60
	208/230-3-60	187	253	18.1	137.0	1.6	6.2	30.4	45
	460-3-60	414	506	9.0	62.0	0.9	3.2	15.4	20

583B WITH ICM FIOP ELECTRICAL DATA

UNIT SIZE 583B	V-PH-HZ	VOLTAGE RANGE		COMPRESSOR		OUTDOOR FAN MOTOR	INDOOR FAN MOTOR	POWER SUPPLY	
		MIN	MAX	RLA	LRA	FLA	FLA	MCA	MAX FUSE OR CKT. BKR.
024	208/230-1-60	187	253	13.5	61.0	0.9	4.3	22.1	35
030	208/230-1-60	187	253	14.7	73.0	0.9	4.3	23.6	35
036	208/230-1-60	187	253	15.4	83.0	0.9	6.8	27.0	40
042	208/230-1-60	187	253	18.6	105.0	0.9	6.8	31.7	45
048	208/230-1-60	187	253	20.5	109.0	1.6	6.8	34.0	50
060	208/230-1-60	187	253	27.6	158.0	1.6	9.2	45.2	60

LEGEND

- FLA — Full Load Amps
- LRA — Locked Rotor Amps
- MCA — Minimum Circuit Amps
- MOCP — Maximum Overcurrent Protection
- RLA — Rated Load Amps



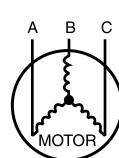
*Heater capacity (KW) based on heater voltage of 208v, 240v, & 480v.
If power distribution voltage to unit varies from rated heater voltage, heater KW will vary accordingly.

NOTES:

1. In compliance with NEC (National Electrical Code) requirements for multimotor and combination load equipment (refer to NEC Articles 430 and 440), the overcurrent protective device for the unit shall be Power Supply fuse. The CGA (Canadian Gas Association) units may be fuse or circuit breaker.
2. Minimum wire size is based on 60 C copper wire. If other than 60 C wire is used, or if length exceeds wire length in table, determine size from NEC.
3. 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 460-3-60.



- AB = 452 v
- BC = 464 v
- AC = 455 v

$$\begin{aligned} \text{Average Voltage} &= \frac{452 + 464 + 455}{3} \\ &= \frac{1371}{3} \\ &= 457 \end{aligned}$$

Determine maximum deviation from average voltage.

- (AB) 457 - 452 = 5 v
- (BC) 464 - 457 = 7 v
- (AC) 457 - 455 = 2 v

Maximum deviation is 7 v.

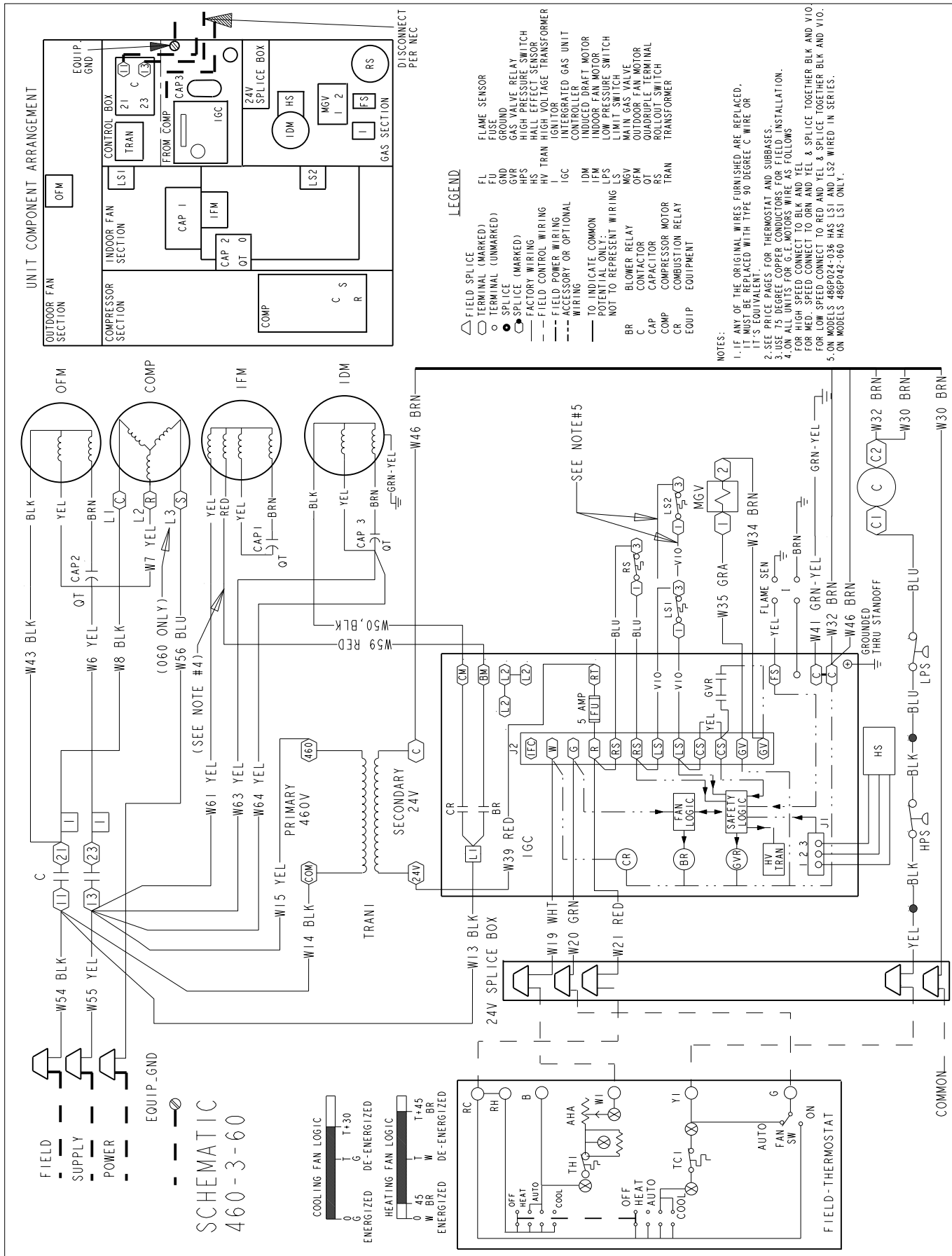
Determine percent of voltage imbalance.

$$\begin{aligned} \% \text{ Voltage Imbalance} &= 100 \times \frac{7}{457} \\ &= 1.53\% \end{aligned}$$

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.

TYPICAL WIRING SCHEMATIC—460-3-60 SHOWN



CONTROLS

OPERATING SEQUENCE

Heating — On a call for heating, terminal “W” of the thermostat is energized, starting the induced-draft motor. When the hall-effect sensor on the induced-draft motor senses that it has reached the required speed, the burner sequence begins. This function is performed by the integrated gas control (IGC). The evaporator fan motor is energized 45 seconds after flame is established. When the thermostat is satisfied and “W” is de-energized, the burners stop firing and the evaporator fan motor shuts off after a 45-second time-off delay.

Cooling — When the room temperature rises to a point that is slightly above the cooling control setting of the thermostat, the thermostat completes the circuit between thermostat terminal R to terminals Y and G. These completed circuits through the thermostat connect contactor coil (C) (through unit wire Y) and blower relay coil (BR) (through unit wire G) across the 24-v secondary of transformer (TRAN).

The normally open contacts of energized contactor (C) close and complete the circuit through compressor motor (COMP) to condenser (outdoor) fan motor (OFM). Both motors start instantly.

The set of normally open contacts of energized relay BR close and complete the circuit through evaporator blower (indoor) fan motor (IFM).

NOTE: Once the compressor has started and then has stopped, it should not be started again until 5 minutes have elapsed.

The cooling cycle remains “on” until the room temperature drops to a point that is slightly below the cooling control setting of the room thermostat. At this point, the thermostat “breaks” the circuit between thermostat terminal R to terminals Y and G. These open circuits de-energize contactor coil C and relay coil BR. The condenser and compressor motors stop. After a 30-second delay, the blower motor stops. The unit is in a “standby” condition, waiting for the next “call for cooling” from the room thermostat.

The ICM FIOP indoor blower operation with a call for fan operation (G) in cooling mode will perform by the on/off delay profile selected on the Easy Select™ circuit board.

GUIDE SPECIFICATIONS

PACKAGED GAS HEATING/ELECTRIC COOLING UNITS CONSTANT VOLUME APPLICATION

HVAC GUIDE SPECIFICATIONS

SIZE RANGE: 2 TO 5 TONS, NOMINAL COOLING
40,000 TO 130,000 BTUH,
NOMINAL HEATING INPUT

BRYANT MODEL NUMBER: 583B

PART 1 — GENERAL

1.01 SYSTEM DESCRIPTION

Outdoor rooftop mounted, gas heating/electric cooling unit utilizing a scroll compressor for cooling duty. Unit shall discharge supply air vertically or horizontally as shown on contract drawings. Condenser fan/coil section shall have a draw-thru design with vertical discharge for minimum sound levels.

1.02 QUALITY ASSURANCE

- A. Unit shall be rated in accordance with ARI Standards 210/240-94 and 270-95 (Sound ratings for 270-95 are not listed with ARI).
- B. Unit shall be designed in accordance with UL Standard 1995.
- C. Unit shall be manufactured in a facility registered to ISO 9001 manufacturing quality standard.
- D. Unit shall be UL listed and certified under Canadian Standards as a total package for safety requirements.
- E. Roof curb shall be designed to conform to NRCA Standards.
- F. Insulation and adhesives shall meet NFPA 90A requirements for flame spread and smoke generation.
- G. Cabinet insulation shall meet ASHRAE Standard 62P.

1.03 DELIVERY, STORAGE AND HANDLING

Unit shall be stored and handled per manufacturer's recommendations.

PART 2 — PRODUCTS

2.01 EQUIPMENT

A. General:

Factory-assembled, single-piece, heating and cooling unit. Contained within the enclosure shall be all factory wiring, piping, controls, refrigerant charge with R-410A refrigerant, and special features required prior to field start-up.

B. Unit Cabinet:

1. Unit Cabinet shall be constructed of phosphated, zinc-coated, pre-painted steel capable of withstanding 500 hours in salt spray.
2. Normal service shall be through a single removable cabinet panel.
3. The unit shall be constructed on a rust proof basepan that has an externally trapped, integrated sloped drain pan.
4. Evaporator fan compartment top surface shall be insulated with a minimum 1/2-in. thick, flexible fiberglass insulation, coated on the air side and retained by adhesive and mechanical means. The evaporator wall sections will be insulated with a minimum semi-rigid foil-faced board capable of being wiped clean. Aluminum foil-faced fiberglass insulation shall be used in the entire indoor air cavity section.
5. Unit shall have a field-supplied condensate trap.

C. Fans:

1. The evaporator fan shall be 3-speed, direct-drive,

as shown on equipment drawings or factory optional variable speed motor and control.

2. Fan wheel shall be made from steel, and shall be double-inlet type with forward curved blades with corrosion resistant finish. Fan wheel shall be dynamically balanced.
 3. Condenser fan shall be direct drive propeller type with aluminum blades riveted to corrosion resistant steel spiders, be dynamically balanced, and discharge air vertically.
- D. Compressor:
1. Fully hermetic compressors with factory-installed vibration isolation.
 2. Scroll compressors shall be standard on all units.
- E. Coils:
- Evaporator and condenser coils shall have aluminum plate fins mechanically bonded to seamless copper tubes with all joints brazed. (Copper/copper and vinyl-coated construction available as option). Tube sheet openings shall be belled to prevent tube wear.
- F. Heating Section:
1. Induced-draft combustion type with energy saving direct spark ignition system and redundant main gas valve.
 2. Induced-draft motors shall be provided with solid-state hall-effect sensor to ensure adequate airflow for combustion.
 3. The heat exchangers shall be constructed of aluminized steel for corrosion resistance.
 4. Burners shall be of the in-shot type constructed of aluminum coated steel.
 5. All gas piping and electric power shall enter the unit cabinet at a single location.
- G. Refrigerant Components:
- Refrigerant expansion shall be of the fixed orifice type.
- H. Filters:
- Filter section shall consist of field-installed, throwaway, 1-in. thick fiberglass filters of commercially available sizes.
- I. Controls and Safeties:
1. Unit controls shall be complete with a self-contained low voltage control circuit.
 2. Compressors shall incorporate a solid-state compressor protector that provides reset capability.
 3. Unit shall provide high and loss-of-charge/low pressure safety protection.
- J. Operating Characteristics:
1. Unit shall be capable of starting and running at 125°F ambient outdoor temperature exceeding maximum load criteria of ARI Standard 210.
 2. Compressor with standard controls shall be capable of operation down to 40 F ambient outdoor temperature. (55°F with ICM FIOP)
 3. Units shall be provided with fan time delay to prevent cold air delivery before the heat exchanger warms up.
 4. Unit shall be provided with 30-second fan time delay after the thermostat is satisfied with standard indoor blower.
 5. On ICM FIOP fan off delay for cooling is selected on Easy Select™ Board.

GUIDE SPECIFICATIONS continued

K. Electrical Requirements:

All unit power wiring shall enter the unit cabinet at a single location.

L. Motors:

1. Compressor motors shall be of the refrigerant-cooled type with line-break thermal and current overload protection.
2. All fan motors shall have permanently lubricated bearings, and inherent, automatic reset, thermal overload protection.
3. Condenser fan motor shall be totally enclosed.

M. Grille:

1. Louvered Grille:
Louvered grille shall be factory-installed to provide hail guard and vandalism protection.

N. Duct Conversion:

Shall be available with the use of included duct covers.

O. Special Features:

1. ICM Indoor Blower FIOP:
Integral control motor shall be a factory installed option for optimizing comfort levels in all operating modes and increasing system efficiency.
2. Coil Options:
Shall include factory-installed optional copper/ copper and vinyl-coated refrigerant coils.
3. Economizer:
 - a. Economizer controls capable of providing free cooling using outside air.
 - b. Equipped with low leakage dampers not to exceed 3% leakage, at 1.0 in. wg pressure differential.
 - c. Spring return motor shuts off outdoor damper on power failure.
4. Flat Roof Curb:
Curbs shall have seal strip and a wood nailer for flashing and shall be installed per manufacturer's instructions.
5. Manual Outdoor Air Damper:

Package shall consist of damper, birdscreen, and rain-hood which can be preset to admit outdoor air for year-round ventilation.

6. Thermostat:

To provide for one-stage heating and cooling in addition manual or automatic changeover and indoor fan control.

7. Natural-to-Propane Conversion Kit:

Shall be complete with all required hardware to convert to liquid propane (LP) operation.

8. Low Ambient Package:

Shall consist of a solid-state control and condenser coil temperature sensor for controlling condenser-fan motor operation, which shall allow unit to operate down to 0° F outdoor ambient temperature.

9. Filter Rack Kit:

Shall provide filter mounting for downflow applications.

10. Square-To-Round Duct Transitions:

Shall have the ability to convert the supply and return openings from rectangular to round.

11. Compressor Protection (Time Guard® II Kit)

Solid-state control shall protect compressor by preventing "short cycling."

12. Crankcase Heater:

Shall provide anti-floodback protection for low-load cooling applications.

13. High Altitude Kit:

Shall consist of natural gas orifices to compensate for gas heat operation at 2001 to 6000 ft above sea level.

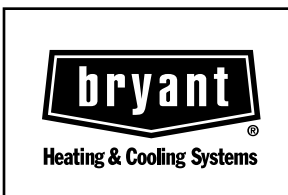
14. Low NO_x (Natural Gas only) option:

Shall provide NO_x reduction to values below 40 nano-grams/joule to meet California emission requirements.

15. Compressor Hard Start Kit:

Shall provide additional starting torque for single-phase compressors. (Single phase only).

16. Rigging kit includes lifting brackets which are inserted into the basepan handholds to rig unit for rooftop applications.



SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

UNIT MUST BE INSTALLED IN ACCORDANCE
WITH INSTALLATION INSTRUCTIONS

Cancels: PDS 583B.24.2

Form PDS 583B.24.3