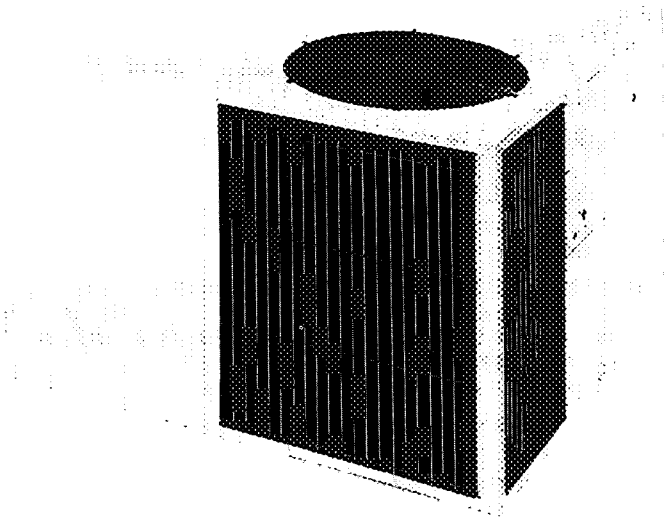
day & night

Day & Night
Air Conditioning

SINGLE PACKAGE
GAS HEATING/
ELECTRIC COOLING UNITS

Model 584B
Sizes 018–042
1-1/2 to 3-1/2 Tons

PRELIMINARY PRODUCT DATA



DESCRIPTION

All 584B models feature one piece, compact design and are fully self-contained units that are prewired, prepiped, and precharged for minimum installation expense. Units feature side-by-side duct configuration and convert easily from vertical to horizontal discharge. Models are available in a variety of standard and optional heating/cooling size combinations with voltage options to meet residential and light commercial requirements. These units install easily on a rooftop or a ground-level pad.

FEATURES

High-efficiency design with SEER's (Seasonal Energy Efficiency Ratios) up to 10.0 and an AFUE (Annual Fuel Utilization Efficiency) rating of 78.5%. All models have a minimum CSE (California Seasonal Efficiency) rating of 72%, and all meet the California maximum oxides of nitrogen (NO_X) emission requirements.

Energy-saving, intermittent spark-ignition pilot 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 conversion to propane is available for all units.

Durable, dependable compressors are designed for high efficiency. Each compressor is hermetically sealed against contamination to help promote longer life and dependable operation. Vibration isolation provides quiet 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, needs cleaning.

Four-pass heat exchangers accelerate heat transfer and extract heat that conventional heat exchangers allow to escape up the flue. The heat exchanger is aluminized steel for corrosion resistance.

Direct-drive multispeed, PSC (permanent split capacitor) blower motor is standard on all 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 for size 024-042 units, and 45 F for size 018 units.

Refrigerant system is designed to provide dependability. Liquid refrigerant strainers 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.

Evaporator and condenser coils are computer designed for optimum heat transfer and cooling efficiency. Condenser coil is fabricated of copper tube and aluminum fins and is protected by a field-installed accessory coil guard. Vertical condenser fan discharge carries sound and air up and away.

Weatherized cabinets, constructed of heavey-duty, phosphated, zinc-coated, prepainted steel, are capable of withstanding 500 hours in salt spray. Interior surfaces of the evaporator/heat exchanger compartment are insulated to help keep the conditioned air from being affected by the outdoor ambient temperature.

Form No. PDS 584B.18.1D

ACCESSORY DESCRIPTION AND USAGE

ROOF CURBS — Curbs are designed for use on vertical discharge applications. Heavy gage, galvanized steel construction provides one-piece support. The curb complies with the standards of the NRCA (National Roofing Contractors Association). A wood nailing strip is provided for attaching the roofing to the curb.

SUGGESTED USE:

- Slab-mounted applications when elevation of the unit above the slab is necessary.
- Rooftop application for vertical discharge.
- Curbs are preassembled and are available for flat or pitched roofs.

ECONOMIZERS — The economizers are available for downflow or horizontal discharge applications. The downflow discharge economizers are designed for easy installation. The horizontal economizers are designed for use in horizontal applications, and are installed in the return-air duct.

All of these economizers adjust their outdoor- and return-air dampers to economically blend cooler outdoor air with warmer return air for comfort cooling. This process reduces energy costs and extends equipment life by allowing the use of outdoor air to supply "free" cooling when conditions are favorable.

Constant ventilation is recommended for light commercial application when the conditioned space is occupied.

The modulating economizers have a mixed-air controller that provides for full-range modulation of the outdoor- and return-air dampers. The enthalpy control selects the suitable outdoor-air quality for "free" cooling operation by measuring the outdoor-air dry bulb temperature and humidity mix. The modulating economizers also have a mixed-air controller and an adjustable, motor-mounted, minimum-position potentiometer and a compressor lockout switch. The motor operates through the unit 24-v low-voltage control circuit.

In the 2-position economizers, the enthalpy control determines the suitability or adequacy of outdoor-air quality for "free" cooling operation by measuring the outdoor-air dry bulb temperature and humidity. Whenever the outdoor air quality is acceptable for "free" cooling, the air damper opens fully and the return-air damper closes, allowing the cooler outdoor air to enter the building.

NOTE: The 2-position and modulating downflow economizers contain a built-in barometric relief damper.

All economizers are shipped complete with a damper motor and linkage, enthalpy control, low-voltage wiring harness, and a rainhood. Adequate wire lengths are provided (additional field-supplied wires are not required). Horizontal economizers are also furnished with a 2-in. disposable air filter and gasket material.

SUGGESTED USE:

- Allows outdoor air to be used for "free" cooling whenever the outdoor air is below the enthalpy control setting.
- To reduce energy usage. Use whenever the hours of operation at temperatures below 55 F are significant.

HIGH-CAPACITY FILTER RACKS — Downflow and horizontal filter racks feature easy installation, serviceability, and high filtering performance.

The horizontal filter rack housing is constructed from heavy-gage steel and is fully insulated. Both sides of the filter rack are flanged for easy installation to the outside of the unit. Two-in. high-capacity Farr 30/30 filters are factory supplied.

The downflow filter rack is internal to the unit. One-in. or 2-in. filters are field supplied.

SUGGESTED USE:

- Kit provides ability to locate filters outside the building.

FLEXIBLE DUCT KIT — Kit consists of 2 flexible UL-listed (Underwriters' Laboratories) ducts. The duct construction includes vapor barrier and one-in. fiberglass insulation. The 'K' factor is 0.23. Each duct has a square-to-round snap adapter for attachment to the accessory roof curb on one end, and a round clamp collar for attachment to the concentric diffuser box on the other end.

SUGGESTED USE:

- Kit provides ability to easily and inexpensively connect concentric diffuser box to unit.

CONCENTRIC DIFFUSER BOX — Accessory is aerodynamically designed and equipped with a combination 4-way supply, and a center return diffuser. The box is designed for use with accessory flexible ducts and roof curbs to provide an easily installed concentric system. A special core is provided within the diffuser box to provide even 4-way air distribution.

SUGGESTED USE:

- Allows for convenient central location of supply- and return-air openings.

MANUAL OUTDOOR-AIR DAMPER — Damper provides for minimum outdoor air and is manually adjustable to 3 positions. This device closes automatically whenever the evaporator fan is not operating.

SUGGESTED USE:

- Kit provides the ability to inexpensively meet minimum outdoor air requirements.

COIL GUARD — Accessory protects condenser coil from damage.

SUGGESTED USE:

- When unit is located in a high-traffic area, or could be subject to damage.

THERMOSTAT AND SUBBASE — Thermostat provides heating and cooling unit control. The subbase provides system and fan switching at the thermostat location. Automatic and manual changeover types are available.

SUGGESTED USE:

- To operate and control unit, and to maintain desired building temperature.

LOW-AMBIENT KIT (Weatherprobe™ II Device) — Accessory is designed to allow the use of mechanical cooling down to outdoor ambient temperatures as low as 0° F.

SUGGESTED USE:

- When mechanical cooling is required when outdoor-air temperature is between 40 F and 0° F.

NATURAL-TO-PROPANE CONVERSION KIT — Kit allows for conversion from natural gas to liquid propane.

SUGGESTED USE:

- When natural gas cannot be obtained and liquid propane is used as fuel.

SOLID-STATE COMPROTEC® DEVICE — Accessory protects compressor by preventing short cycling.

SUGGESTED USE:

- To protect compressor in areas where power interruption is frequent, or when thermostat setting is likely to be tampered with frequently.

HARD START KIT — Accessory provides starting boost to compressor during low-voltage situations.

SUGGESTED USE:

- To be used in areas where fluctuations in power supply result in low voltage.

CRANKCASE HEATER — Heater warms crankcase oil to reduce refrigerant migration and ensure proper compressor lubrication.

SUGGESTED USE:

- To protect compressor by preventing oil from migrating into compressor shell.

SEER IMPROVEMENT RELAY — Accessory improves SEER performance level during cooling operation.

SUGGESTED USE:

- When it is desirable to improve unit SEER levels.

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MODEL DESCRIPTION

584 B N W 030 040

Model No.

584 — Packaged Gas Heating/Electric Cooling Units

Model Series

Electrical Supply

N — 208/230-1-60
P — 208/230-3-60
E — 460-3-60

Fuel Type

W — Natural Gas
H — Liquid Propane

Nominal Cooling Capacity

018 — 1 1/2 Tons
024 — 2 Tons
030 — 2 1/2 Tons
036 — 3 Tons
042 — 3 1/2 Tons

Heat Input

040 — 40,000 Btuh
060 — 60,000 Btuh
080 — 80,000 Btuh
096 — 96,000 Btuh

PRELIMINARY HEATING CAPACITIES AND EFFICIENCIES

UNIT 584B	HEATING INPUT (Btuh)	OUTPUT CAPACITY (Btuh)	TEMPERATURE RISE RANGE (°F)	AFUE (%)*	CSE (%)*
018040	40,000	31,000	30-60	78.5	72.8
024040			30-60	78.5	72.8
030040			30-60	78.5	72.8
024060	60,000	46,000	45-75	78 5	74.4
030060			45-75	78.5	74.4
036060			45-75	78.5	74.7
042060			30-60	78.5	74.2
030080	80,000	62,000	45-75	78.5	75.2
036080			45-75	78.5	75.2
042080			45-75	78.5	75.2
036096	96,000	75,000	40-70	78.5	74.4
042096			40-70	78.5	74.4

LEGEND

AFUE — Annual Fuel Utilization Efficiency
CSE — California Seasonal Efficiency

*These ratings are preliminary and are subject to change

PRELIMINARY COOLING CAPACITIES AND EFFICIENCIES

UNIT 584B	NOMINAL TONS	STANDARD CFM	NET COOLING* CAPACITIES	SEER*		SOUND RATINGS† (Bels)
				With FDR	Without FDR	
018040	1½	600	18,000	10 0	9.7	7.8
024040	2	800	24,000	10.0	9.7	7.8
024060						
030040	2½	1000	29,400	10 0	9 7	8.0
030060						
030080						
036060	3	1200	35,400	10.0	9.7	8.4
036080						
036096						
042060	3½	1400	41,500	10.0	9.7	8.4
042080						
042096						

LEGEND

ARI — Air Conditioning & Refrigeration Institute
Bels — Sound Levels (1 bel = 10 decibels)
FDR — Fan-Delay Relay
SEER — Seasonal Energy Efficiency Ratio

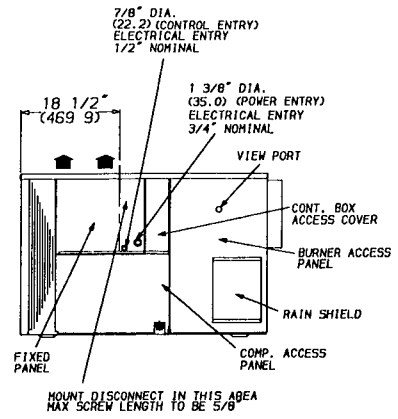
NOTE: Ratings are net values, reflecting the effects of circulating fan heat. These ratings are preliminary and are subject to change Ratings are based on:

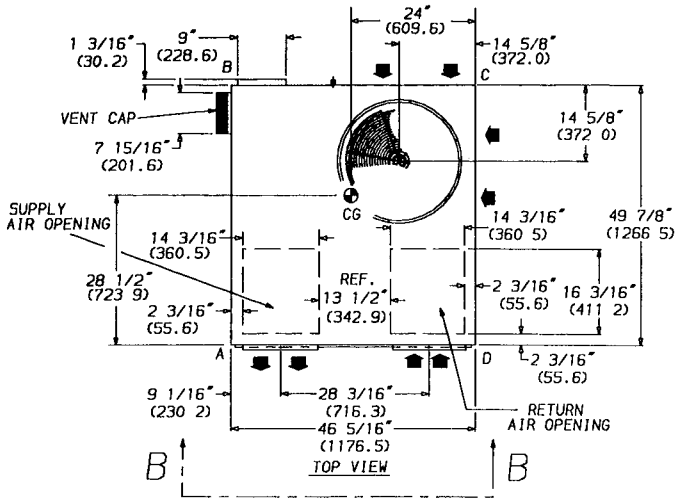
Cooling Standard: 80 F db, 67 F wb indoor entering-air temperature and 95 F db air entering outdoor unit.

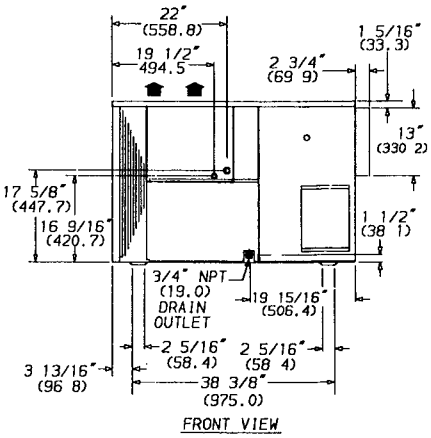
*Rated in accordance with U.S Government DOE (Department of Energy) test procedures and/or ARI Standard 210/240-89.

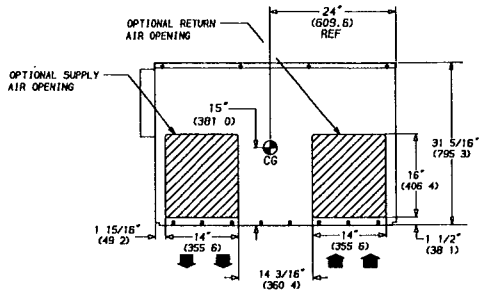
†Rated in accordance with ARI Standard 270-84.

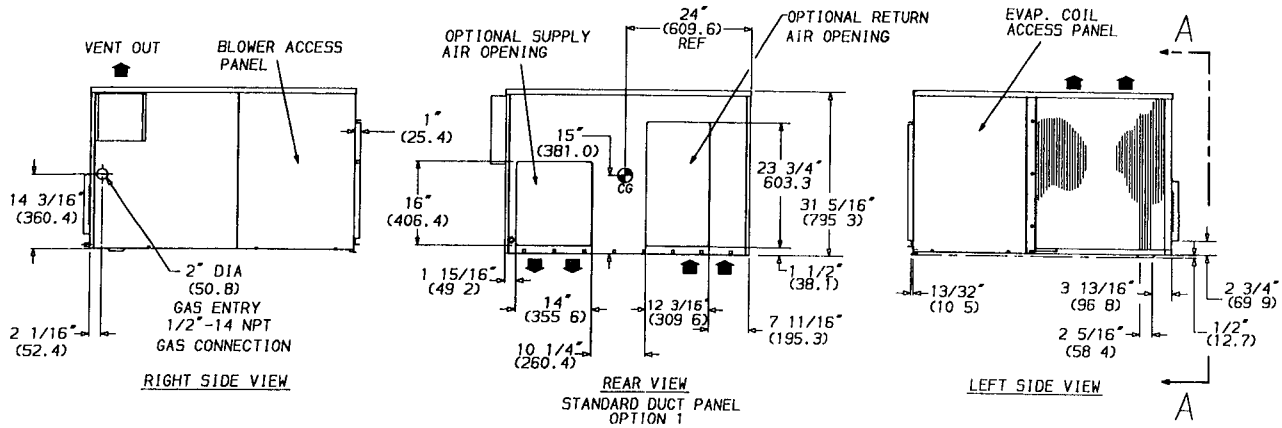
DIMENSIONAL DRAWING











UNIT	ELECTRICAL CHARACTERISTICS	UNIT WT		CORNER WT LB/KG			
		lbs	kg	A	B	C	D
584B018040	208/230-1-60	450	204	99/45	126/57	126/57	99/45
584B024040	208/230-1-60	454	206	100/45	127/58	127/58	100/45
584B024060	208/230-1-60	460	210	101/46	129/59	129/59	101/46
584B030040	208/230-1-60, 208/230-3-60	470	214	103/47	132/60	132/60	103/47
584B030060	208/230-1-60, 208/230-3-60	476	216	105/48	133/60	133/60	105/48
584B030080	208/230-1-60, 208/230-3-60	480	218	106/48	134/61	134/61	106/48
584B036060	208/230-1-60, 208/230-3-60, 460-3-60	486	222	107/49	136/62	136/62	107/49
584B036080	208/230-1-60, 208/230-3-60, 460-3-60	490	222	108/49	137/62	137/62	108/49
584B036096	208/230-1-60, 208/230-3-60, 460-3-60	490	222	108/49	137/62	137/62	108/49
584B042060	208/230-1-60, 208/230-3-60, 460-3-60	496	224	109/49	139/63	139/63	109/49
584B042080	208/230-1-60, 208/230-3-60, 460-3-60	500	228	110/50	140/64	140/64	110/50
584B042096	208/230-1-60, 208/230-3-60, 460-3-60	500	228	110/50	140/64	140/64	110/50

REQ'D CLEARANCES FOR SERVICING in (mm)

Blower Access Panel Side	30 (762 0)
Control Box Access Panel Side	30 (762 0)

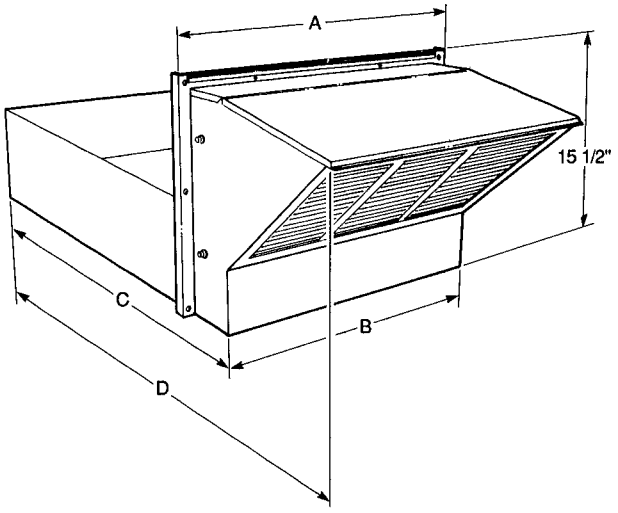
REQ'D CLEARANCE TO COMBUSTIBLE MATERIAL in (mm)

Maximum Extension of Overhang	48 (1219.2)
Unit Top	36 (914.4)
Duct Side of Unit	6 min (152 4 min)
Side Opposite Ducts	30 (762 0)
Bottom of Unit	0

NOTES:
1 Clearances must be maintained to prevent recirculation of air from outdoor fan discharge
2. Unit weights and corner weights are preliminary and are subject to change
3 Dimensions in ( ) are millimeters

Unit 584B, Sizes 018040 – 042096

DOWNFLOW ECONOMIZER



DOWNFLOW ECONOMIZER DIMENSIONS (in.)

ACCESSORY	PART NUMBER	"A"	"B"	"C"	"D"
Two-Position Economizer, Downflow	315236-201	21⅞	19⅛	20¾	30¾
Modulating Economizer, Downflow	312116-201	29 15/16	27 3/16	28 15/16	39 15/16

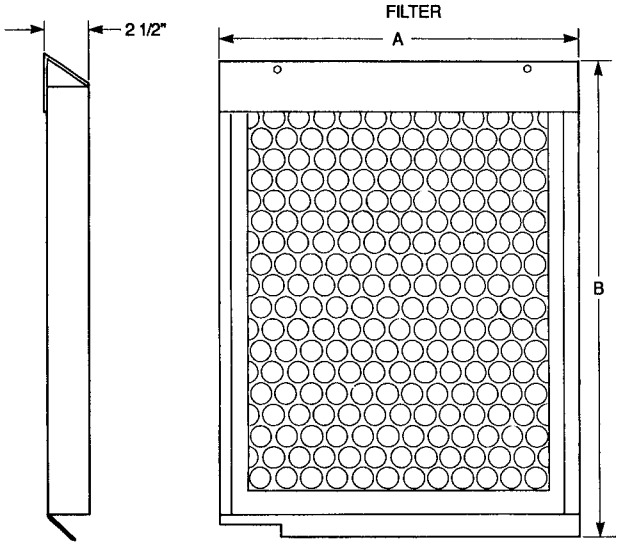
HORIZONTAL ECONOMIZER DIMENSIONS (in.)

ACCESSORY	PART NUMBER
Two-Position Economizer, Horizontal	389042-701
Modulating Economizer, Horizontal	389043-701

NOTE: Dimensions for two-position and modulating horizontal economizers are not available at this time

Economizers

DOWNFLOW FILTER RACK



DOWNFLOW FILTER RACK DIMENSIONS (in.)

ACCESSORY	PART NUMBER	"A"	"B"	FILTER SIZE (Qty)
Filter Rack*	312120-201	21⅞	26¾	20 x 25 (1)

*A one- or 2-in. field-supplied standard or pleated filter is required

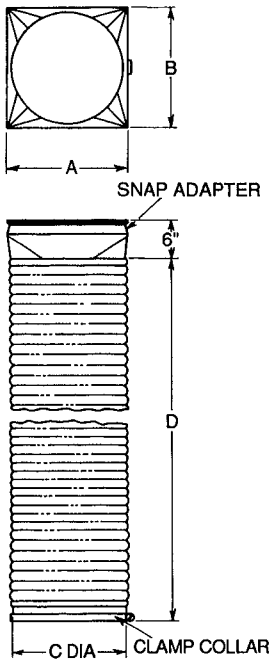
HORIZONTAL FILTER RACK DIMENSIONS (in.)

ACCESSORY	PART NUMBER
Filter Rack	389040-201

NOTE: Dimensions for the horizontal filter rack are not available at this time.

Filter Racks and Filters

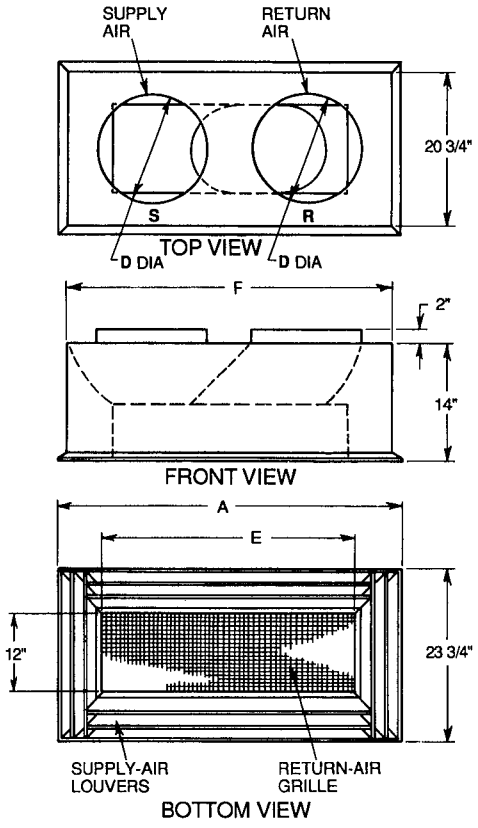
DIMENSIONAL DRAWING (cont)



DIMENSIONS (in.)

ACCESSORY	PART NUMBER	"A"	"B"	"C"	"D"
14-in. Flexible Duct Kit	312119-201	18	18	14	42
16-in. Flexible Duct Kit	312119-202	18	18	16	42

Flexible Duct Kits

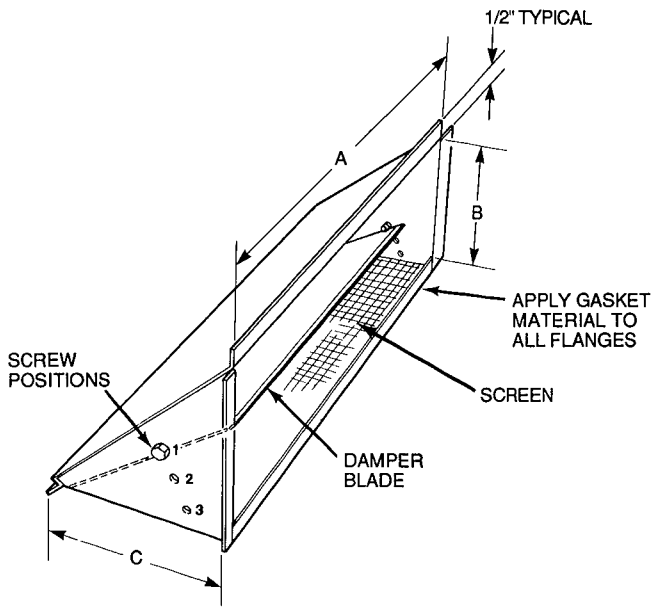


DIMENSIONS (in.)

ACCESSORY	PART NUMBER	"A"	"D"	"E"	"F"
14-in. Diffuser Box	309410-204	32¾	14	31	30
16-in. Diffuser Box	309410-201	38¾	16	24	36

Concentric Diffuser Boxes

DIMENSIONAL DRAWING (cont)



DIMENSIONS (in.)

ACCESSORY	PART NUMBER	"A"	"B"	"C"
Manual Outdoor-Air Damper	312118-201	17½	6	6

Manual Outdoor-Air Damper (Downflow)

SPECIFICATIONS

UNIT SIZE 584B	018040	024040	024060	030040	030060	030080
NOMINAL CAPACITY (ton)	1½	2			2½	
OPERATING WEIGHT*						
(lb)	450	454	460	470	476	480
COMPRESSORS	Reciprocating Hermetic, 3500 Rpm					
Quantity	1					
REFRIGERANT (R-22)						
Charge (lb-oz)	2-13	3-6	3-6	3-3	3-3	3-3
Refrigerant Metering Device	Check-Flo-Rater™ Device					
CONDENSER COIL						
Rows	1	1	1	1	1	1
Fins/in.	17	17	17	17	17	17
CONDENSER FAN						
Nominal Airflow (cfm)	2000	2000	2000	2000	2000	2000
Nominal Speed (rpm)	825	825	825	825	825	825
Quantity...Diameter (in.)	1..22	1. .22	1...22	1 .22	1. .22	1. .22
Motor Hp	1/10	1/10	1/10	1/10	1/10	1/10
EVAPORATOR COIL						
Rows	2	2	2	2	2	2
Fins/in.	15	15	15	15	15	15
EVAPORATOR FAN						
Nominal Cfm	600	800	800	1000	1000	1000
Nominal Speed (rpm)	1100	1100	1100	1100	1100	1100
Diameter x Width (in.)	10 x 8	10 x 8	10 x 8	10 x 8	10 x 8	10 x 8
Motor Hp (single-phase)	¼	⅓	⅓	⅓	⅓	½
(three-phase)	—	—	—	⅓	⅓	½
FURNACE SECTION						
Burner Orifice No. (Qty...drill size) Natural Gas	2 44	2 44	3 .44	2 44	3 44	4.. 44
Burner Orifice No. (Qty...drill size) Propane Gas	2 55	2. .55	3 .55	2 55	3 55	4 55
Pilot Orifice Diameter, Dual Orifice (in.) Natural Gas	0225/ 0240	0225/ 0240	0225/.0240	0225/ 0240	0225/ 0240	0225/ 0240
Pilot Orifice Diameter (in.) Propane Gas	.010	010	.010	010	.010	.010
RETURN-AIR FILTERS (sq in.)†						
Disposable	288	288	528	528	528	624
Cleanable	192	192	352	352	352	416

UNIT SIZE 584B	036060	036080	036096	042060	042080	042096
NOMINAL CAPACITY (ton)	3			3½		
OPERATING WEIGHT*						
(lb)	490	530	536	500	550	556
COMPRESSORS	Reciprocating Hermetic, 3500 Rpm					
Quantity	1					
REFRIGERANT R-22						
Charge (lb-oz)	4-0	4-0	4-0	4-11	4-11	4-11
Refrigerant Metering Device	Check-Flo-Rater™ Device					
CONDENSER COIL						
Rows	1	1	1	2	2	2
Fins/in.	17	17	17	17	17	17
CONDENSER FAN						
Nominal Airflow (cfm)	2500	2500	2500	2500	2500	2500
Nominal Speed (rpm)	1100	1100	1100	1100	1100	1100
Quantity...Diameter (in.)	1.. 22	1 . 22	1...22	1 . 22	1 ..22	1 . 22
Motor Hp	¼	¼	¼	¼	¼	¼
EVAPORATOR COIL						
Rows	3	3	3	3	3	3
Fins/in.	15	15	15	15	15	15
EVAPORATOR FAN						
Nominal Cfm	1200	1200	1200	1400	1400	1400
Nominal Speed (rpm)	1100	1100	1100	1100	1100	1100
Diameter x Width (in.)	10 x 10	10 x 10	10 x 10	10 x 10	10 x 10	10 x 10
Motor Hp (single-phase)	½	½	½	½	½	½
(three-phase)	½	½	½	½	½	½
FURNACE SECTION						
Burner Orifice No. (Qty...drill size) Natural Gas	3 44	4 . 44	4 42	3 44	4 44	4 42
Burner Orifice No. (Qty...drill size) Propane Gas	3 55	4 55	4 54	3 55	4 55	4 . 54
Pilot Orifice Diameter, Dual Orifice (in.) Natural Gas	0225/.0240	.0225/ 0240	0225/ 0240	0225/ 0240	0225/.0240	0225/.0240
Pilot Orifice Diameter (in.) Propane Gas	.010	010	.010	010	.010	.010
RETURN-AIR FILTERS (sq in.)†						
Disposable	624	624	720	720	720	720
Cleanable	416	416	480	480	480	480

*Operating weights are estimates only and are likely to change

†Required field-supplied filter areas are based on the larger of the ARI-rated (Air Conditioning & Refrigeration Institute) cooling airflow or the heating airflow at a velocity of 300 ft/min for disposable type or 450 ft/min for high-capacity type. Air filter pressure drop must not exceed 0.08 in wg

SELECTION PROCEDURE

I DETERMINE COOLING AND HEATING REQUIREMENTS AT DESIGN CONDITIONS:

Given:

Required Cooling Capacity (TC) . . . . . 34,000 Btuh
Sensible Heat Capacity (SHC) . . . . . 24,000 Btuh
Required Heating Capacity . . . . . 60,000 Btuh
Condenser Entering-Air Temperature . . . . . 95 F
Indoor-Air Temperature . . . . . 80 F edb, 67 F ewb
Evaporator-Air Quantity . . . . . 1200 cfm
External Static Pressure . . . . . 0.2 in. wg
Electrical Characteristics (V-Ph-Hz) 208-1-60

II SELECT UNIT BASED ON REQUIRED COOLING CAPACITY:

Enter Gross Cooling Capacities table on page 11 at condenser entering temperature of 95 F. Unit 584B036080 at 1,200 cfm and 67 F ewb will provide a total capacity of 35,400 Btuh and an SHC of 25,400 Btuh. Calculate SHC correction, if required, using notes under Gross Cooling Capacities tables.

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

In the Heating Capacities and Efficiencies table (page 4), note that unit 584B036080 will provide 62,000 Btuh with an input of 80,000 Btuh.

IV DETERMINE FAN SPEED AND POWER REQUIREMENTS AT DESIGN CONDITIONS:

Tabulated fan performance does not include filters and wet evaporator coil. Refer to Wet Coil Pressure Drop table on page 14 to determine pressure drop at 1,200 cfm (i.e., 0.050 in. wg). Determine pressure drop of field-supplied air filter at 1,200 cfm. Assume 0.010 in. wg. Add total pressure drop due to wet coil and air filter:

$$0.050 + 0.010 = 0.060 \text{ in. wg}$$

$$\text{Total pressure drop} = 0.2 + 0.060$$
$$= 0.260 \text{ in. wg}$$

Refer to the Dry Coil Air Delivery, Vertical Discharge table on page 13. The fan will deliver 1358 cfm at 0.2 ESP (external static pressure) and 1273 cfm at 0.3 ESP at low speed. Thus, the fan speed should be set at low.

V SELECT UNIT THAT CORRESPONDS TO POWER SOURCE AVAILABLE:

The Electrical Data table on page 15 shows that the unit is designed to operate at 208-1-60.

GROSS COOLING CAPACITIES

584B018

EVAPORATOR AIR			CONDENSER-AIR TEMPERATURE (F)											
			85			95			105			115		
Cfm	BF	°F Ewb	Capacity MBtuh		Compressor kW	Capacity MBtuh		Compressor kW	Capacity MBtuh		Compressor kW	Capacity MBtuh		Compressor kW
			Total	Sensible		Total	Sensible		Total	Sensible		Total	Sensible	
525	010	72	20.7	9.50	1 87	19.6	9.12	1.98	18.5	8.74	2 10	17 4	8.32	2.21
		67	18.8	12.1	1.82	17.8	11.6	1.93	16.7	11.2	2.04	15 6	10.8	2 14
		62	16.9	14.4	1.77	16.0	14.0	1.88	15.0	13.5	1 98	13.9	13.0	2.08
600	.012	72	20.9	9.73	1 91	19.9	9.38	2.03	18.7	8.97	2.14	17.5	8.61	2.26
		67	19.1	12.7	1.87	18 0	12.2	1.98	16 9	11 8	2.09	15.8	11.4	2 20
		62	17.2	15 2	1.82	16 3	14 8	1.93	15.2	14.3	2.03	14.1	13 8	2.13
675	.013	72	21 2	9.99	1.96	20.1	9.65	2.08	18.9	9.29	2.20	17 7	8 92	2 31
		67	19.3	13.2	1.92	18.2	12 8	2.03	17.1	12.4	2 14	15.9	12.0	2 24
		62	17.5	16.0	1.87	16 4	15.6	1 98	15.4	15 1	2.08	14 2	14.2	2 19

584B024

EVAPORATOR AIR			CONDENSER-AIR TEMPERATURE (F)											
			85			95			105			115		
Cfm	BF	°F Ewb	Capacity MBtuh		Compressor kW	Capacity MBtuh		Compressor kW	Capacity MBtuh		Compressor kW	Capacity MBtuh		Compressor kW
			Total	Sensible		Total	Sensible		Total	Sensible		Total	Sensible	
700	0.13	72	27.7	12 7	2.49	26.2	12.2	2 64	24.8	11.7	2.80	23 3	11 1	2 95
		67	25 0	16.0	2.43	23 6	15.5	2.57	22.2	14.9	2.72	20.8	14.4	2.86
		62	22.3	19 0	2.36	21.1	18.5	2.50	19.6	17 7	2.63	18.0	16 9	2 77
800	0.14	72	28.1	13.1	2.56	26 8	12 6	2.71	25.1	12.1	2.86	23.8	11 7	3.03
		67	25.4	16.8	2 49	24.0	16 4	2.64	22 6	15.8	2.78	21.1	15.2	2 92
		62	22.7	20.2	2.42	21 5	19.6	2.57	20.1	19.0	2.70	18.5	18.1	2.84
900	0.16	72	28 4	13.5	2 62	27.0	13 1	2.77	25 5	12 6	2.93	23.9	12.1	3.08
		67	25.7	17.6	2 55	24.3	17.1	2.70	22.8	16 5	2 84	21.3	16.0	2.99
		62	23 0	21.2	2.49	21 7	20.6	2 63	20.4	20.0	2.77	18.9	18.9	2.91

584B030

EVAPORATOR AIR			CONDENSER-AIR TEMPERATURE (F)											
			85			95			105			115		
Cfm	BF	°F Ewb	Capacity MBtuh		Compressor kW	Capacity MBtuh		Compressor kW	Capacity MBtuh		Compressor kW	Capacity MBtuh		Compressor kW
			Total	Sensible		Total	Sensible		Total	Sensible		Total	Sensible	
875	0.13	72	33.7	15.6	3.26	32 0	15.0	3.44	30.3	14.5	3.64	28.4	13.9	3 82
		67	30.6	19.9	3.16	29.0	19.3	3.34	27.2	18.7	3.52	25 4	18 0	3.69
		62	27 6	23.9	3.07	26.0	23.1	3.24	24.3	22.3	3.40	22.4	21.4	3.56
1000	0.14	72	34.3	16.1	3 34	32.6	15.7	3.54	30.7	15.0	3 72	28 7	14 4	3.89
		67	31.1	21.0	3.25	29.4	20.4	3.42	27.6	19.8	3.61	25.8	19.1	3 77
		62	28.1	25.4	3.15	26.4	24.6	3.32	24 7	23.7	3.49	22.8	22.8	3.65
1125	0.16	72	34.5	16 5	3 41	32.9	16 1	3.61	30.9	15.5	3 79	28 9	14.9	3.97
		67	31.5	22.0	3.32	29.7	21.4	3.50	27.8	20 7	3 67	26 0	20 0	3 85
		62	28 5	26.7	3 23	26.7	25.9	3.40	25.0	25 0	3.57	23 1	23.1	3.73

LEGEND

BF — Bypass Factor
Edb — Entering Dry Bulb
Ewb — Entering Wet Bulb
kW — Compressor Motor Power Input
SHC — Sensible Heat Capacity (1000 Btuh) Gross
TC — Total Capacity (1000 Btuh) Gross

NOTES:

1 Direct interpolation is permissible. Do not extrapolate

2. The following formulas may be used:

$$t_{ldb} = t_{edb} - \frac{\text{sensible capacity (MBtuh x 1000)}}{1.10 \times \text{cfm}}$$

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

$$h_{lwb} = h_{ewb} - \frac{\text{total capacity (MBtuh x 1000)}}{4\,5 \times \text{cfm}}$$

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

3 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.

BYPASS FACTOR (BF)	ENTERING AIR DRY-BULB TEMP (F)					
	79	78	77	76	75	under 75
	81	*82*	*83*	*84*	*85*	*over 85*
	Correction Factor					
.05	1 04	2 07	3 11	4 14	5.18	Use formula shown below.
.10	98	1.96	2 94	3.92	4 90	
.20	.87	1 74	2.62	3.49	4.36	
.30	76	1 53	2.29	3.05	3.82	

Interpolation is permissible

Correction Factor = 1 10 x (1 − BF) x (edb − 80).

GROSS COOLING CAPACITIES (cont)

584B036

EVAPORATOR AIR			CONDENSER-AIR TEMPERATURE (F)											
			85			95			105			115		
Cfm	BF	°F Ewb	Capacity MBtuh		Compressor kW	Capacity MBtuh		Compressor kW	Capacity MBtuh		Compressor kW	Capacity MBtuh		Compressor kW
			Total	Sensible		Total	Sensible		Total	Sensible		Total	Sensible	
1050	0.06	72	41.3	19.5	3.95	39.0	18.8	4.19	36.6	18.0	4.40	34.3	17.2	4.63
		67	37 1	24.8	3.83	34.9	23.9	4.04	32.6	23.1	4.25	29.7	21 9	4 46
		62	33.1	29.7	3.71	31.0	28.8	3.91	28 6	27.6	4.10	24.4	24.4	4.31
1200	0 07	72	41.9	20.3	4 05	39.6	19.7	4 28	37.1	18.8	4 50	34 7	18.1	4 72
		67	37 7	26.3	3.93	35.4	25.4	4.13	33.1	24 5	4 35	30.2	23.5	4.56
		62	33.7	31.8	3.80	31.6	30.8	4.01	29.2	29.2	4.20	25.8	25.8	4.42
1350	0.08	72	42.6	21.2	4.14	40 1	20.5	4 38	37.5	19 7	4 60	35 0	18 9	4.82
		67	38.1	27.7	4.02	35.8	26 8	4.23	33.4	25 9	4.44	30.6	25.0	4.65
		62	34 1	33.6	3 89	32.0	32.0	4 10	29 7	29.7	4.30	27.0	27.0	4.54

584B042

EVAPORATOR AIR			CONDENSER-AIR TEMPERATURE (F)											
			85			95			105			115		
Cfm	BF	°F Ewb	Capacity MBtuh		Compressor kW	Capacity MBtuh		Compressor kW	Capacity MBtuh		Compressor kW	Capacity MBtuh		Compressor kW
			Total	Sensible		Total	Sensible		Total	Sensible		Total	Sensible	
1225	0 07	72	47.9	22 6	4.55	45.1	21.5	4.80	42.5	20.7	5.08	39.8	19.8	5.34
		67	43.1	28.5	4.39	40.7	27 6	4.65	38.2	26.6	4.90	35.6	25.6	5.14
		62	38 5	34.1	4.24	36 3	33.2	4 49	33.9	32 2	4.72	31.2	30.9	4.96
1447	0.08	72	48.7	23.6	4.68	45.9	22 8	4.95	43 5	22.1	5.23	40 3	20.8	5 46
		67	44.0	30.6	4.52	41.5	29.7	4.78	38.8	28.7	5.04	36.2	27.7	5.28
		62	39.4	37 1	4.38	37.1	36.1	4.62	34.7	34.7	4 86	32 3	32.3	5.09
1575	0.09	72	49.2	24.3	4.74	46.4	23 3	5.02	43 6	22.6	5.30	40 8	21.7	5 56
		67	44.4	31.9	4.59	41.8	30.9	4 86	39.1	29.9	5 11	36.4	28.9	5.35
		62	39.8	38 7	4 45	37.4	37.4	4.70	35.0	35.0	4.95	32.8	32.8	5.19

LEGEND

BF — Bypass Factor
Edb — Entering Dry Bulb
Ewb — Entering Wet Bulb
kW — Compressor Motor Power Input
SHC — Sensible Heat Capacity (1000 Btuh) Gross
TC — Total Capacity (1000 Btuh) Gross

NOTES:

1 Direct interpolation is permissible. Do not extrapolate.

2. The following formulas may be used:

$$t_{ldb} = t_{edb} - \frac{\text{sensible capacity (MBtuh x 1000)}}{1.10 \times \text{cfm}}$$

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

$$h_{lwb} = h_{ewb} - \frac{\text{total capacity (MBtuh x 1000)}}{4\,5 \times \text{cfm}}$$

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

3 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

BYPASS FACTOR (BF)	ENTERING AIR DRY-BULB TEMP (F)					
	79	78	77	76	75	under 75
	81	*82*	*83*	*84*	*85*	*over 85*
	Correction Factor					
.05	1.04	2 07	3.11	4.14	5.18	Use formula shown below.
.10	.98	1 96	2.94	3.92	4 90	
.20	.87	1.74	2.62	3.49	4.36	
.30	.76	1.53	2.29	3 05	3.82	

Interpolation is permissible

Correction Factor = 1.10 x (1 − BF) x (edb − 80)

DRY-COIL AIR DELIVERY* — VERTICAL DISCHARGE

584B V-PH-HZ	MOTOR SPEED	AIR DELIVERY	208 V						230 V or 460 V					
			External Static Pressure (in. wg)											
			0.0	0.1	0.2	0 3	0.4	0.5	0.0	0.1	0.2	0.3	0 4	0.5
018040, 024040, 024060 208/230-1-60	Low	Watts	451	417	397	373	355	338	491	467	447	423	405	388
		Cfm	1138	1102	1045	996	942	889	1196	1161	1101	1050	993	932
	High	Watts	491	463	454	420	400	382	541	513	494	470	450	432
		Cfm	1308	1234	1162	1084	1020	951	1379	1301	1225	1143	1075	1002
030040, 030060 208/230-1-60 208/230-3-60	Low	Watts	509	497	482	467	445	421	559	547	532	517	495	471
		Cfm	1155	1138	1120	1104	1073	1031	1218	1200	1182	1165	1132	1088
	High	Watts	600	582	561	539	512	473	650	632	611	589	562	523
		Cfm	1411	1362	1326	1249	1195	1133	1493	1457	1412	1358	1274	1218
030080, 036060, 036080, 036096, 042060, 042080, 042096 208/230-1-60 208/230-3-60 460-3-60	Low	Watts	522	504	485	663	440	422	600	573	555	523	491	470
		Cfm	1494	1430	1358	1273	1174	1058	1574	1507	1431	1341	1237	1115
	High	Watts	651	631	610	575	540	517	695	680	658	624	590	563
		Cfm	1683	1615	1536	1440	1274	1153	1763	1700	1619	1492	1343	1215

*Air delivery values are without air filter and are for dry coil. See Wet Coil Pressure Drop table on page 14.
Deduct field-supplied air filter pressure drop and wet coil pressure drop to obtain external static pressure available for ducting.

NOTES:

1. Do not operate the unit at a cooling airflow that is less than 350 cfm per each 12,000 Btuh of rated cooling capacity. Evaporator coil frosting may occur at airflows below this point. Water blow-off may occur at airflows above 450 cfm per 12,000 Btuh of rated cooling capacity.
2. Do not change blower speed settings for units with 460 v (high speed only)

DRY-COIL AIR DELIVERY* — HORIZONTAL DISCHARGE

584B V-PH-HZ	MOTOR SPEED	AIR DELIVERY	208 V						230 V or 460 V					
			External Static Pressure (in. wg)											
			0.0	0.1	0.2	0 3	0.4	0.5	0.0	0.1	0.2	0.3	0.4	0.5
018040, 024040, 024060 208/230-1-60	Low	Watts	451	427	407	383	365	348	501	477	457	433	415	398
		Cfm	1185	1129	1088	1026	979	922	1256	1195	1148	1081	1031	971
	High	Watts	511	483	464	440	420	402	561	533	514	490	470	452
		Cfm	1370	1291	1221	1142	1063	1003	1442	1359	1285	1202	1119	1056
030040, 030060 208/230-1-60 208/230-3-60	Low	Watts	519	507	492	477	455	431	569	557	542	527	505	481
		Cfm	1184	1163	1150	1134	1105	1064	1248	1226	1211	1194	1164	1120
	High	Watts	620	602	581	559	532	493	670	652	631	609	582	543
		Cfm	1443	1414	1376	1329	1279	1197	1519	1489	1449	1399	1347	1261
030080, 036060, 036080, 036096, 042060, 042080, 042096 208/230-1-60 208/230-3-60 460-3-60	Low	Watts	560	544	527	505	482	461	610	593	575	500	524	494
		Cfm	1515	1452	1389	1308	1227	1105	1597	1530	1464	1378	1293	1164
	High	Watts	670	650	631	602	573	542	720	701	680	653	625	594
		Cfm	1765	1705	1621	1521	1383	1254	1857	1795	1708	1603	1457	1321

*Air delivery values are without air filter and are for dry coil. See Wet Coil Pressure Drop table on page 14.
Deduct field-supplied air filter pressure drop and wet coil pressure drop to obtain external static pressure available for ducting.

NOTES:

1. Do not operate the unit at a cooling airflow that is less than 350 cfm per each 12,000 Btuh of rated cooling capacity. Evaporator coil frosting may occur at airflows below this point Water blow-off may occur at airflows above 450 cfm per 12,000 Btuh of rated cooling capacity.
2. Do not change blower speed settings for units with 460 v (high speed only)

WET COIL PRESSURE DROP

UNIT 584B	AIRFLOW (Cfm)	PRESSURE DROP (In. wg)
018	500 600 700	.033 .038 .044
024, 030	800 900 1000 1200	.035 .042 .050 .064
036, 042	1000 1200 1400 1600	.038 .050 .064 .080

STATIC PRESSURE DROP (in. wg) — 650 CFM TO 1550 CFM

ACCESSORY	AIRFLOW (Cfm)									
	650	750	850	950	1050	1150	1250	1350	1450	1550
DOWNFLOW FILTER RACK	.037	.040	.043	.046	049	.052	.055	.058	.064	.069
HORIZONTAL FILTER RACK	.080	.100	.120	.130	.150	.160	180	.200	.210	.220
DOWNFLOW ECONOMIZER	.029	.031	.033	.036	.039	.042	.045	.049	.056	.064
HORIZONTAL ECONOMIZER	.270	.270	.290	.310	.310	.320	.350	350	.350	.360
14-in. FLEXIBLE DUCTS AND CONCENTRIC DIFFUSER BOX	.060	.080	.100	.130	.160	.190	.220	.260	.300	.340
16-in. FLEXIBLE DUCTS AND CONCENTRIC DIFFUSER BOX	.040	.060	.080	.110	.140	.170	.200	.240	.280	.320

ELECTRICAL DATA

UNIT SIZE 584B	NOMINAL V-PH-HZ	UNIT 584B	VOLTAGE RANGE		COMPR		CONDENSER-FAN MOTOR	EVAPORATOR-FAN MOTOR	AWG MIN WIRE SIZE	POWER SUPPLY		MAXIMUM WIRE LENGTH – FT (60 C Wire)
			Min	Max	RLA	LRA	FLA	FLA		MCA	MOCP	
018	208/230-1-60	018040	187	253	10.4	49 0	0.8	1.8	12	15.6	25	100
024	208/230-1-60	024040 024060	187	253	12.4	61.0	0.8	2.5	12	18.8	30	80
030	208/230-1-60	030040 030060 030080	187	253	16 0	82.0	0 8	2.5 2.5 3.0	10	23 3 23.3 23.8	35	100
	208/230-3-60	030040 030060 030080	187	253	10.4	65.5	0.8	2.5 2.5 3.0	12	16.3 16.3 16.8	30	75
036	208/230-1-60	036060 036080 036096	187	253	18.0	96.0	1.5	3.0	10	27.0	45	85
	208/230-3-60	036060 036080 036096	187	253	11.4	75.0	1.5	3.0	12	18.8	30	65
	460-3-60	036060 036080 036096	414	506	4 8	37.0	1.2	1 5	14	8.7	10	100
042	208/230-1-60	042060 042080 042096	187	253	20.4	102.0	1.5	3.0	10	30.0	50	80
	208/230-3-60	042060 042080 042096	187	253	14 0	91.0	1.5	3.0	10	22.0	35	90
	460-3-60	042060 042080 042096	414	506	6.4	42.0	1.2	1.5	14	10.7	15	100

LEGEND

AWG — American Wire Gage
FLA — Full Load Amps
LRA — Locked Rotor Amps
MCA — Minimum Circuit Amps
MOCP — Maximum Overcurrent Protection
NEC — National Electrical Code
RLA — Rated Load Amps

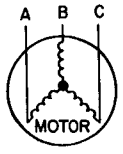
NOTES:

1. In compliance with NEC requirements for multimotor and combination load equipment (refer to NEC Articles 430 and 440), the overcurrent protective device for the unit shall be fuse or HACR breaker.
2. **Unbalanced 3-Phase Supply Voltage**
   Never operate a motor where a phase imbalance in supply voltage is greater than 2%. Use the following formula to determine the % voltage imbalance.

   % Voltage Imbalance

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

   Example: Supply voltage is 460-3-60



   AB = 452 volts
   BC = 464 volts
   AC = 455 volts

   $$\text{Average Voltage} = \frac{452 + 464 + 455}{3}$$

   $$= \frac{1371}{3}$$

   $$= 457$$

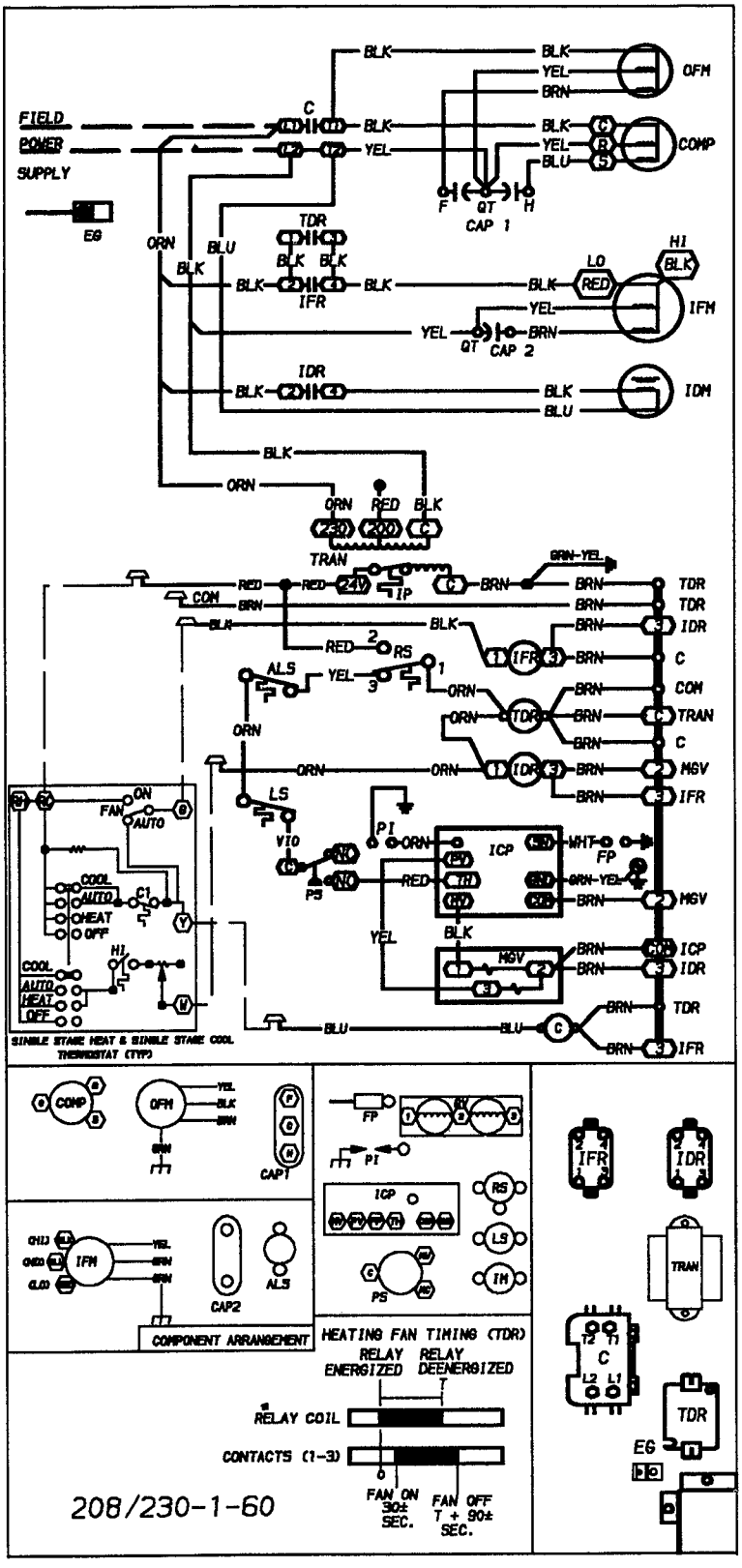
Determine maximum deviation from average voltage.
(AB) 457 – 452 = 5 v
(BC) 464 – 457 = 7 v
(AC) 457 – 455 = 2 v
Maximum deviation is 7 v.
Determine % voltage imbalance.

$$\% \text{ Voltage Imbalance} = 100 \times \frac{7}{457} = 1.53\%$$

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 SINGLE-PHASE WIRING SCHEMATIC



LEGEND

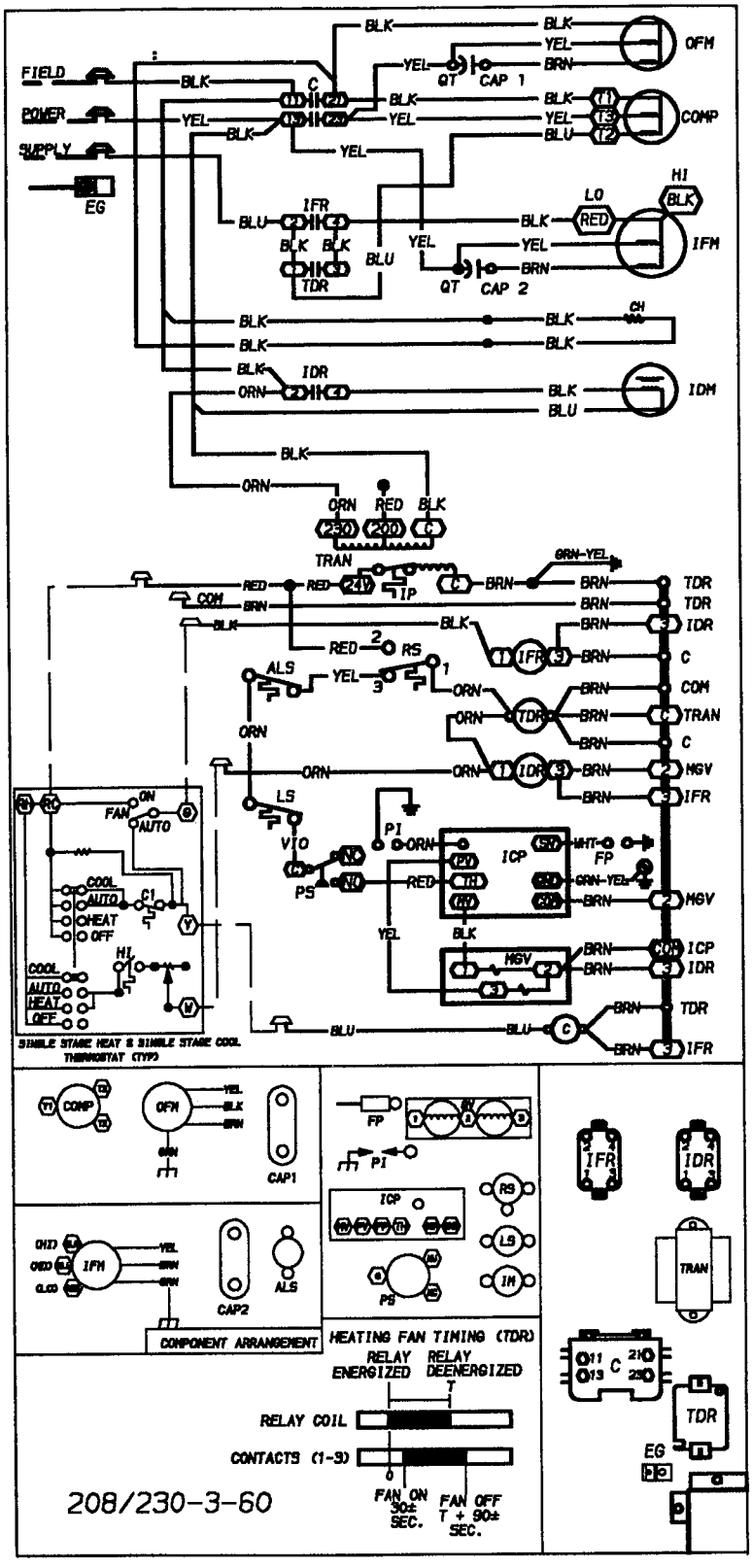
ALS	— Auxiliary Limit Switch (SPST) NC (Blower)
C	— Contactor
CAP 1,2	— Capacitors
COMP	— Compressor
EG	— Equipment Ground
FL	— Fuse Link
GV	— Gas Valve
IFM	— Indoor Fan Motor
IFR	— Indoor Fan Relay (SPST)
IDR	— Induced Draft Relay (SPST)
IDM	— Induced Draft Motor
ICP	— Ignitor Control
IP	— Internal Protector (Auto Reset)
LS	— Limit Switch (SPST)
MV	— Main Valve
OFM	— Outdoor Fan Motor
FP	— Pilot (Flame Sensing)
PI	— Pilot Ignitor
PS	— Pressure Switch (SPDT)
PV	— Pilot Valve
RS	— Rollout Switch (SPDT)
TDR	— Time Delay Relay(SPST)
TRAN	— Transformer

- Field High Voltage Wiring
- Factory High Voltage Wiring
- Factory Low Voltage Wiring
- Field Low Voltage Wiring
- Marked Connection
- Unmarked Connection
- Internally Connected or Wirenut
- Field Splice

NOTES:

1. 230-v operation as shown For 208-v operation reverse RED and ORN leads of transformer.
2. Transformer has internal automatic reset overload.
3. If any of the original wire as supplied must be replaced, use minimum 105 C wiring material.
4. Use copper wire only for field power supply leads.
5. Compressor and fan motors provided with inherent thermal protection.

TYPICAL THREE-PHASE WIRING SCHEMATIC (208/230-3-60 Shown)



LEGEND

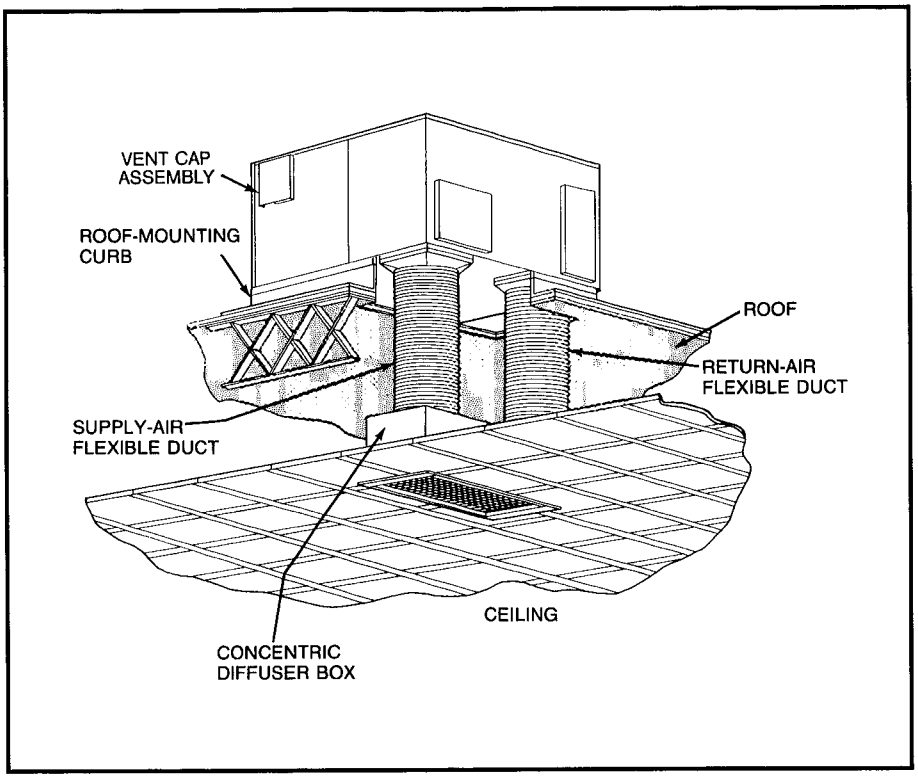
ALS	— Auxiliary Limit Switch (SPST) (Blower)
C	— Contactor
CAP 1,2	— Capacitors
CH	— Crankcase Heater
COMP	— Compressor
EG	— Equipment Ground
FL	— Fuse Link
GV	— Gas Valve
IFM	— Indoor Fan Motor
IFR	— Indoor Fan Relay (SPST)
IDR	— Induced Draft Relay (SPST)
IDM	— Induced Draft Motor
ICP	— Ignitor Control
IP	— Internal Protector (Auto Reset)
LS	— Limit Switch (SPST)
MV	— Main Valve
OFM	— Outdoor Fan Motor
FP	— Pilot (Flame Sensing)
PI	— Pilot Ignitor
PS	— Pressure Switch (SPDT)
PV	— Pilot Valve
RS	— Rollout Switch (SPDT)
TDR	— Time Delay Relay (SPST)
TRAN	— Transformer

- Field High Voltage Wiring
- Factory High Voltage Wiring
- Factory Low Voltage Wiring
- Field Low Voltage Wiring
- Marked Connection
- Unmarked Connection
- Internally Connected or Wirenut
- Field Splice

NOTES:

1. 230-v operation as shown. For 208-v operation reverse RED and ORN leads of transformer
2. Transformer has internal automatic reset overload
3. If any of the original wire as supplied must be replaced, use minimum 105 C wiring material
4. Use copper wire only for field power supply leads.
5. Compressor and fan motors provided with inherent thermal protection.

TYPICAL INSTALLATION



APPLICATION DATA

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

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

To convert a unit with standard configuration from vertical discharge to horizontal discharge, a field-supplied panel is required to cover the return-air opening. The supply-air opening can be covered using the panel removed from the vertical side discharge opening.

To convert a unit with alternate configuration, the panels removed from the horizontal and vertical side discharge openings can be used to cover the return-air and supply-air openings.

Thermostat — To achieve simultaneous economizer cooling and mechanical cooling, use of 2-stage cooling thermostat is recommended for all units equipped with economizer.

Airflow — Units are draw-thru on cooling and blow-thru on heating.

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

Minimum cooling airflow is 350 cfm/ton.

Minimum ambient operating temperature for size 024-042 standard units is 40 F, and for size 018 units is 45 F. With accessory low ambient temperature kit, units can operate at temperatures down to 0° F.

ACCESSORY LIST

ACCESSORY	
Roof Curb	8 in.
	11 in.
	14 in.
Pitched Roof Curb	1:12
	2:12
	3:12
	4:12
	5:12
	6:12
Square-to-Round Connection (Curbs)	14 in.
	16 in.
Square-to-Round Connection	14 in.
	16 in.
Modulating Economizer, Downflow	
Modulating Economizer With Filter Rack, Downflow	
Two-Position Economizer, Downflow	
Two-Position Economizer With Filter Rack, Downflow	
Modulating Economizer, Horizontal	
Two-Position Economizer, Horizontal	
Manual Outdoor-Air Damper, Downflow	
Barometric Relief Damper, Horizontal	
Filter Rack, Downflow	
Filter Rack, Horizontal	
Flexible Duct Kit	14 in.
	16 in.

ACCESSORY	
Flexible Duct Kit (14 in.) for 16-in. Truss Centers	
Concentric Diffuser Box	14 in.
	16 in.
Crankcase Heater (230-1-60)	
Thermostat, Manual Changeover	
Thermostat Subbase	
Thermostat, Autochangeover	
Thermostat Subbase	
Low-Pressure Switch Kit	
High-Pressure Switch Kit	
Comprotec® Kit	
Low-Ambient Kit (Weatherprobe™ II Device)	
Hard Start Kit	
Natural-to-Propane Conversion Kit (Units with 40,000 to 80,000 Btuh Heating Capacity)	
Natural-to-Propane Conversion Kit (Units with 96,000 Btuh Heating Capacity)	
Coil Guard	
SEER Improvement Relay	

ENGINEERS' SPECIFICATION GUIDE

GENERAL: Furnish and install single-package, outdoor heating and cooling unit utilizing a reciprocating hermetic compressor for cooling and gas combustion for heating duty. Unit shall discharge supply air vertically as shown on the contract drawings. Unit shall be capable of starting and running at 125 F ambient outdoor temperature per maximum load criteria of ARI Standard 210/240. Unit shall be provided with fan time-delay to prevent cold air delivery before heat exchanger warms up. Unit shall be provided with 30-second fan time-delay after the thermostat is satisfied.

Nominal unit electrical characteristics shall be 208/230 v, 1 ph, 60 Hz. The unit shall be capable of satisfactory operation within voltage limits of 187 to 253 v. All unit power wiring shall enter unit cabinet at a single location.

COOLING CAPACITY Total cooling capacity of the unit shall be _____ Btuh or greater, and sensible capacity shall be _____ Btuh or greater at conditions of _____ cfm evaporator air entering at unit at _____ F dry bulb, _____ F wet bulb, and condenser entering air of _____ F dry bulb. Total design conditions shall be a minimum of _____ Btuh/Watt. The unit shall be capable of cooling operation down to 40 F for unit sizes 024-042, or 45 F for unit size 018.

HEATING CAPACITY: Total heating capacity of the unit shall be _____ Btuh or greater with a gas input of _____ Btuh.

CABINET: The cabinet shall be constructed of heavy duty, phosphated, zinc-coated, prepainted steel capable of withstanding 500 hours in salt spray. Cabinet panels shall be removed easily for servicing. Unit shall be equipped with factory-supplied condensate drain connection for evaporator coil. Indoor-blower compartment interior cabinet surfaces shall be insulated with a minimum ½-in. thick, flexible fiberglass insulation, coated on the air side. Aluminum foil-faced fiberglass insulation shall be used in the furnace compartment.

COMPRESSSOR: Compressor shall be welded, fully hermetic type with factory-installed vibration isolation. Compressor motor shall be of the refrigerant-cooled type with line break thermal and current overload protection.

CONDENSER SECTION: The condenser coils shall have aluminum-plate fins mechanically bonded to seamless copper tubes with all joints brazed. Condenser fan wheel shall be dynamically balanced. Fan-motor bearings shall be sealed and permanently lubricated. Condenser-fan motor shall have inherent automatic-reset thermal overload protection and shall be open drip-proof.

EVAPORATOR SECTION: Evaporator coils shall have aluminum plate fins mechanically bonded to seamless copper tubes with all joints brazed. Evaporator fan shall be of the forward-curved, centrifugal, direct-driven type. Fan wheel shall be made from steel, be double-inlet type with forward curved blades with corrosion resistant finish and be dynamically balanced. Fan-motor bearings shall be sealed and permanently lubricated. Evaporator-fan motor shall have inherent automatic-reset thermal overload protection and shall be open drip-proof.

HEATING SECTION: The unit shall be equipped with an induced-draft combustion system with energy saving intermittent spark ignition system and redundant main gas valve. The heat exchanger shall be constructed of 20-gage steel with an Alumaguard™ steel coating for corrosion resistance. Burners shall be of the in-shot type constructed of aluminum coated steel. All gas piping shall enter the unit cabinet at a single location.

REFRIGERANT SYSTEM: Refrigerant system shall include a Check-Flo-Rater™ device.

CONTROLS: Unit shall be complete with self-contained control system. Unit staging shall be minimum one-cool, one-heat. In the event of a power failure, unit control system shall sequence the unit to restart. Thermostat set points shall have adjustable dead band between heat and cool. Compressors shall be provided with inherent internal line break safety feature, and also overcurrent and overtemperature protection.

AGENCY CERTIFICATIONS AND STANDARDS: The unit shall be CGA design certified, and AGA tested and certified. All wiring shall be in accordance with NEC. The unit shall be rated in accordance with ARI Standards 210/240 and 270. Insulation and adhesive shall meet NFPA 90A requirements for flame spread and smoke generation.

ACCESSORIES: Field-installed accessories shall include: flat unitized roof curb (8, 11, or 14-in.), pitched roof curb, modulating economizer, 2-position economizer, thermostat and subbase, low-ambient kit (Weatherprobe™ II device), natural-to-propane conversion kit, manual outdoor-air damper, filter and filter racks, flexible duct kit, high- and low-pressure switches, and concentric diffuser box.

day & night

Day & Night
Air Conditioning

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

UNIT MUST BE INSTALLED IN ACCORDANCE WITH INSTALLATION INSTRUCTIONS

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Printed in U S A 1/92 CATALOG NO. DN-3258-402