Carrier

WeatherMaster®
48P 030-100
Single Package Gas Heating and Electric Cooling Units with Direct Spark Ignition and *Comfort*Link Controls

Installation Instructions

CONTENTS

GENERAL

This installation instruction contains basic unit installation information, including installation of thermostats and remote temperature sensors.

For additional information and service instructions, refer to the Controls and Troubleshooting literature.

A factory-installed optional integral economizer and high-capacity power exhaust is available on size 075-100 units.

A factory-installed optional return fan is available on size 075-100 units.

The staged gas control (SGC) option adds the capability to control the rooftop unit's gas heating system to a specified supply-air temperature set point for purposes of tempering a cool mixed-air condition.

SAFETY CONSIDERATIONS

Installation and servicing of air-conditioning equipment can be hazardous due to system pressure and electrical components. Only trained and qualified service personnel should install, repair, or service air-conditioning equipment.

Untrained personnel can perform basic maintenance functions of cleaning coils and filters and replacing filters. All other operations should be performed by trained service personnel. When working on air-conditioning equipment, observe precautions in the literature, tags and labels attached to the unit, and other safety precautions that may apply.

Follow all safety codes, including ANSI (American National Standards Institute) Z223.1. Wear safety glasses and work gloves. Use quenching cloth for unbrazing operations. Have fire extinguisher available for all brazing operations.

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

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

⚠ WARNING

Before performing service or maintenance operations on unit, turn off main power switch to unit. Electrical shock could cause personal injury.

⚠ WARNING

RISK OF FIRE OR EXPLOSION

If the information in this manual is not followed exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

WHAT TO DO IF YOU SMELL GAS

- Do not try to light any appliance.
- Do not touch any electrical switch; do not use any phone in your building.
- Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.

Installation and service must be performed by a qualified installer, service agency or the gas supplier.

⚠ AVERTISSEMENT

RISQUE D´INCENDIE OU D´EXPLOSION

Si les consignes de sécurité ne sont pas suivies à la lettre, cela peut entraîner la mort, de graves blessures ou des dommages matériels.

Ne pas entreposer ni utiliser d´essence ni autres vapeurs ou liquides inflammables à proximité de cet appareil ou de tout autre appareil.

QUE FAIRE SI UNE ODEUR DE GAZ EST DÉTECTÉE

- Ne mettre en marche aucun appareil.
- Ne toucher aucun interrupteur électrique; ne pas utiliser de téléphone dans le bâtiment.
- Quitter le bâtiment immédiatement.
- Appeler immédiatement le fournisseur de gaz en utilisant le téléphone d´un voisin. Suivre les instructions du fournisseur de gaz.
- Si le fournisseur de gaz n´est pas accessible, appeler le service d´incendie.

L´installation et l´entretien doivent être effectués par un installateur ou une entreprise d´entretien qualifié, ou le fournisseur de gaz.

⚠ WARNING

FIRE, EXPLOSION HAZARD

Failure to follow this warning could result in death, serious personal injury and/or property damage.

Disconnect gas piping from unit when pressure testing at pressure greater than 0.5 psig (3450 Pa). Pressures greater than 0.5 psig will cause gas valve damage resulting in hazardous condition. If gas valve is subjected to pressure greater than 0.5 psig, it must be replaced before use. When pressure testing field-supplied gas piping at pressures of 0.5 psig or less, a unit connected to such piping must be isolated by closing the manual gas valve(s).

⚠ WARNING

DO NOT USE TORCH to remove any component. System contains oil and refrigerant under pressure.

To remove a component, wear protective gloves and goggles and proceed as follows:

a. Shut off electrical power to unit.
b. Recover refrigerant to relieve all pressure from system using both high-pressure and low pressure ports.
c. Traces of vapor should be displaced with nitrogen and the work area should be well ventilated. Refrigerant in contact with an open flame produces toxic gases.
d. Cut component connection tubing with tubing cutter and remove component from unit. Use a pan to catch any oil that may come out of the lines and as a gauge for how much oil to add to the system.
e. Carefully un-sweat remaining tubing stubs when necessary. Oil can ignite when exposed to torch flame.

Failure to follow these procedures may result in personal injury or death.

⚠ WARNING

CARBON-MONOXIDE POISONING HAZARD

Failure to follow instructions could result in severe personal injury or death due to carbon-monoxide poisoning, if combustion products infiltrate into the building.

Check that all openings in the outside wall around the vent (and air intake) pipe(s) are sealed to prevent infiltration of combustion products into the building.

Check that furnace vent (and air intake) terminal(s) are not obstructed in any way during all seasons.

⚠ AVERTISSEMENT

RISQUE D'INTOXICATION AU MONOXYDE DE CARBONE

Si ces directives ne sont pas suivies, cela peut entraîner des blessures graves ou une intoxication au monoxyde de carbone pouvant causer la mort, si des produits de combustion s'infiltrent dans le bâtiment.

Vérifier que toutes les ouvertures pratiquées dans le mur extérieur autour du ou des tuyaux d'évent (et de la prise d'air) sont scellées de manière à empêcher l'infiltration de produits de combustion dans le bâtiment.

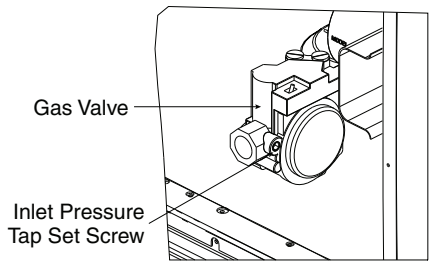
Veiller à ce que la ou les sorties de l'évent de l'appareil de chauffage (et la prise d'air) ne soient, en aucune façon, obstruées, quelle que soit la saison.

⚠ WARNING

FIRE HAZARD

Failure to follow this warning could result in severe personal injury and/or property damage.

Inlet pressure tap set screw must be tightened and 1/8 in. NPT pipe plug must be installed to prevent gas leaks.

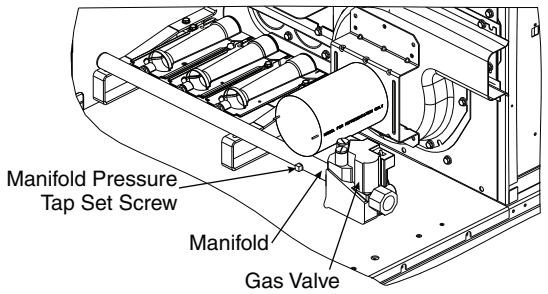


⚠ WARNING

FIRE HAZARD

Failure to follow this warning could result in severe personal injury and/or property damage.

Manifold pressure tap set screw must be tightened and 1/8 in. NPT pipe plug must be installed to prevent gas leaks.



⚠ CAUTION

DO NOT re-use compressor oil or any oil that has been exposed to the atmosphere. Dispose of oil per local codes and regulations. DO NOT leave refrigerant system open to air any longer than the actual time required to service the equipment. Seal circuits being serviced and charge with dry nitrogen to prevent oil contamination when timely repairs cannot be completed. Failure to follow these procedures may result in damage to equipment.

IMPORTANT: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

UNIT CONSIDERATIONS

Unit Storage

Carrier applied rooftop equipment is designed for outdoor installation. However, due to scheduling or building closures, it may need to be stored either on the ground or in its final position. During storage, internal components, whether powered in standby mode or unpowered, may be exposed to conditions unsuitable for subsequent operation. Proper steps must be taken to ensure they remain operational without damage.

STORAGE GUIDELINES

Dry Location

Store the equipment in a dry location. Ensure adequate blocking under the base rail to provide proper support. Inadequate support may result in damage when removing screws and opening doors. Ensure the unit is well supported along the entire length of the base rail.

Drainage

Provide proper drainage around the equipment to prevent flooding.

Condensation Prevention

Remove the shipping plastic and take steps to prevent condensation inside the unit's electrical components and motors. Isolate all side panel service openings, such as conduits, flue, supply air, and return air holes, to minimize the introduction of ambient air until the unit is installed on the curb and prepared for start-up.

Protection

Provide adequate protection from vandalism, mechanical contact, and other potential damages. Condenser fins are particularly vulnerable and can be damaged even by light contact.

IMPORTANT: Do not use the equipment's heater, compressor cooling, or dehumidification features as a temporary means to dry out the unit. These features should only be used after proper preparation (pre-start-up) and start-up procedures have been completed.

Temporary Operation for a Completed Building

Carrier does not recommend operating the supply fan, cooling, dehumidification, or heating systems of this equipment prior to equipment start-up being performed. Operating the equipment prior to start-up can cause damage to the equipment. Damaged caused by improper operation is not covered under Carrier's standard or extended warranties.

If temporary operation of equipment is required, Carrier recommends performing a start-up on the equipment system that requires temporary operation, such as heating or cooling. Performing a start-up on the system will help ensure proper operation.

Consider the following when performing a temporary equipment start-up.

1. For systems where the ductwork system or ancillary air terminal systems are not fully commissioned, consider operating the supply fan at a constant speed that provides more than the minimum cooling or heating airflow per the unit product data.
   a. Operating airflow too low can cause erratic or improper operation and may damage the cooling or heating systems.
   b. Operating the airflow too high may cause damage to the supply fan.
   c. Ensure that air terminal units, balancing dampers, fire dampers and other air volume control devices are open prior to operating the equipment.

d. Ensure that ductwork systems provide enough static resistance for proper supply fan operation. Consult the unit fan tables for airflow and static limits.

2. For systems where the unit control system has not been installed (multi-zone VAV, VVT, thermostat, space temperature sensor), Carrier recommends configuring the unit for temporary operation from a thermostat (TSTAT MULTI) or space temperature sensor (SPT MULTI). The thermostat or space temperature sensor could be temporarily located in the space or the return duct.
3. If heating is being started up for temporary operation, lock out the cooling and dehumidification systems to prevent operation prior to start-up being performed.
4. If cooling is being started up for temporary operation, lock out the heating system to prevent operation prior to start-up being performed.
5. If the unit will be operating for extended periods prior to full equipment start-up, maintenance must be performed on the equipment to ensure proper operation. Damage or failures that can be attributed to improper maintenance or lack of maintenance is not covered under warranty.
6. The equipment warranty starts at the first period of unit operation, which includes temporary start-up.

Temporary Operation for an Under-Construction Building

This product is not designed to operate in a construction environment. Extensive equipment damage can be caused by operating this equipment while construction, renovation, or remodeling is occurring in the space or near the equipment. Carrier recommends using equipment designed for specific construction duty or specialized application duty based on the construction or application need.

INSTALLATION

Step 1 — Perform Jobsite Survey

Complete the following checks before installation.

1. Consult local building codes and the NEC (National Electrical Code) (ANSI/NFPA [American National Standards Institute/National Fire Protection Association] 70) for special installation requirements.
2. Determine unit location (from project plans) or select unit location.
3. Check for possible overhead obstructions which may interfere with unit lifting or rigging.

⚠ CAUTION

Do not lift unit with forklift truck. Move unit with overhead rigging only.

Step 2 — Place Unit

Inspect unit for transportation damage. File claim with transportation agency.

Provide clearance around and above unit for airflow, safety, and service access. Do not restrict top (area above condenser fans) in any way. Allow at least 6 ft on all sides for rated performance, code compliance, and service. On units equipped with power exhaust option, high velocity air is exhausted out the hood. Unit should be positioned with at least 10 ft clearance between the exhaust hood and any obstruction.

Check unit dimensional drawings for unit arrangement and minimum performance and service clearances.

Do not install unit in an indoor location. Do not locate unit air inlets near exhaust vents or other sources of contaminated air. For proper unit operation, adequate combustion and ventilation air must be provided in accordance with Section 5.3 (Air for Combustion and Ventilation) of the National Fuel Gas Code, ANSI Z223.1 (American National Standards Institute). Although unit is weatherproof, guard against water from higher level runoff and overhangs.

Locate mechanical draft system flue assembly at least 10 ft from any opening through which combustion products could enter the building, 4 ft from regulator vent, and at least 4 ft from any adjacent building. When unit is located adjacent to public walkways, flue assembly must be at least 7 ft above grade or 4 ft horizontally from walkway. See Fig. 1.

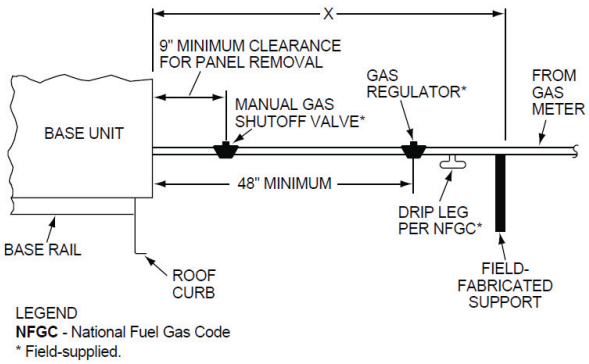


Fig. 1 — Vent Clearance Requirements

Level by using unit frame as a reference. Physical data is shown in Tables 1-12.

Step 3 — Roof Mount Unit

Check building codes for weight distribution requirements. Unit weight is shown in Tables 1-4 and 8. Unit may be mounted on class A, B, or C roofing material.

ROOF CURB

Assemble and install roof curb as described in instructions shipped with the accessory. Accessory roof curb and information required to field fabricate a roof curb is shown in Fig. 2-6. Install insulation, cant strips, roofing and counter flashing as required. For unit condensate drain to function properly, curb must be level or within tolerances shown in Fig. 2-6.

STEEL BEAMS

If roof curb is not used, support unit with steel beams along its entire length and then support steel as required. As a minimum, unit must be supported across its width at each lifting lug location.

Step 4 — Slab Mount Unit

Provide a level concrete slab that extends beyond unit cabinet at least 6 inches. Make a slab 8 in. thick with 4 in. above grade. Use gravel apron in front of condenser coil air inlet to prevent grass and foliage from obstructing airflow. Ensure that slab is of sufficient height to allow for condensate trap as described in Step 8 on page 23.

Step 5 — Install Curb Gasketing

SIZE 030-060 UNITS

After ductwork has been connected to the roof curb, attach adhesive-backed gasketing on all end rails, cross rails, and duct rails. Be sure all joints and corners of gasket are square and flush to prevent possible water leaks. Follow all applicable building codes.

SIZE 070-100 UNITS

After ductwork has been connected to the roof curb, apply gasket material (1/2 in. thick x 1-1/2 in. wide neoprene) where indicated.

Single-Thickness Gasketing (See Fig. 7-9 for Item Numbers)

Apply gasketing in the following places:

1. Along both side rails (1) — 2 places, full length
2. Along return air end rail (2) — 1 place
3. Around return air internal duct flange (3) — 1 or 2 places
4. Around supply air internal duct flanges (4) — 3 places

Double-Thickness Gasketing (See Fig. 7 and 9 and Detail A-A)

Locate a line 9-3/4 in. from the supply air end of the accessory curb. Apply a double-thickness of gasket material along line per detail A-A.

NOTE: Do not apply gasket material along the outside edge of the curb (area "X"). This pan area of the curb extends out beneath the end of the unit's air handler section; applying gasket here develops a potential water trap area on top of the curb.

Condenser Section Roof Curb (See Fig. 8)

Apply single-thickness gasket along both side rails (5).

Table 1 — Physical Data 48P 030-035

BASE UNIT	48P 030		48P 035	
NOMINAL CAPACITY (tons)	30		35	
OPERATING WEIGHT (lb)	Standard Chassis	Extended Chassis	Standard Chassis	Extended Chassis
Base Unit				
Low Heat	5310	5810	5410	5910
High Heat	5440	5940	5540	6040
With Economizer				
Low Heat	5610	6110	5710	6210
High Heat	5740	6240	5840	6340
COMPRESSORS	Scroll			
Quantity...Type	1...ZP154/1...ZP154		1...ZP182/1...ZP182	
Oil Charge (oz) per Compressor	110		110	
Number of Refrigerant Circuits	2		2	
REFRIGERANT	R-410A			
Operating Charge (lb), Ckt 1/Ckt 2				
Standard Evaporator Coil	15.4/14.8		17.1/17.5	
Standard Evaporator with Humidi-MiZer®	15.4/24.9		17.1/27.6	
Alternate High-Capacity Evaporator Coil	18.8/17.8		N/A	
Alternate High-Capacity Evaporator with Humidi-MiZer	18.8/27.9		N/A	
CONDENSER COILS	Aluminum Novation® Heat Exchanger with Microchannel Coils			
Quantity	1		1	
Total Face Area (sq ft)	33.3		33.3	
EVAPORATOR COILS				
Quantity	1			
Total Face Area (sq ft)	32.1			
Refrigerant Feed Device...No. per Circuit	Thermostatic Expansion Valve...1			
Standard Evaporator Coils				
Rows...Fins/in.	3...15.0		4...15.0	
Fin Type	Double Wavy		Double Wavy	
Tube Type	Cross Hatched		Cross Hatched	
Alternate, High-Capacity Evaporator Coils				
Rows...Fins/in.	4...15.0		N/A	
Fin Type	Double Wavy		N/A	
Tube Type	Cross Hatched		N/A	
HEATING SECTION	Low Heat	High Heat	Low Heat	High Heat
Number of Heat Exchangers	7	14	7	14
Input (MBtuh) (Vertical/Horizontal)	325/310	650/600	325/310	650/600
Output (MBtuh) (Vertical/Horizontal)	263/251	527/486	263/251	527/486
Temperature Rise Range (F)	10-40	25-55	10-40	25-55
Efficiency (%) (Vertical/Horizontal)	81/81	81/81	81/81	81/81
Burner Orifice Diameter				
Quantity (in. ...drill no.)	7 (.1285...30)	14 (.1285...30)	7 (.1258...30)	14 (.1258...30)
Manifold Pressure (in. wg)	3.5	3.5	3.5	3.5
Line Pressure (in. wg) (min...max)	5.0...13.0	5.0...13.0	5.0...13.0	5.0...13.0
Firing Stages	2	2	2	2
Number of Gas Valves	1	2	1	2
CONDENSER FANS	Propeller Type			
Quantity...Diameter (in.)	2...30		2...30	
Nominal cfm	18,000		19,500	
Motor Hp...rpm	1.0...1140		1.0...1140	
SUPPLY FAN	Centrifugal 25 x 25 in.			
Nominal cfm	12,000		14,000	
Maximum Allowable cfm	15,000		15,000	
Maximum Allowable rpm	900		900	
Shaft Diameter at Pulley (in.)	1-11/16		1-11/16	
SUPPLY-FAN MOTOR AND DRIVE	(Any motor available on any unit)			
Motor Hp	7.5	10	15	20	25
Motor Frame Size	213T	215T	254T	256T	284T
Efficiency at Full Load (%)					
High Efficiency	88.5	89.5	91.0	91.0	91.7
Premium Efficiency	91.7	91.7	93.0	93.6	93.6
Fan Pulley Pitch Diameter (in.)	13.7	13.7	13.7	13.7	13.7
Motor Pulley Pitch Diameter (in.)	3.4	4.3	4.9	5.5	6.5
Resulting Fan Speed (rpm)	438	549	626	703	830
Belts Quantity...Type	2...BX60	2...5VX630	2...5VX630	2...5VX630	2...5VX650
Center Distance Range (in.)	17.74-14.30	17.74-14.30	17.63...14.01	17.63...14.01	16.63...12.87
OPTIONAL POWER EXHAUST[a]	Centrifugal, 18 x 15 in. (Any motor available on any unit)			
Quantity...Motor Hp	2...3.0	2...5.0	2...7.5	2...10
Motor Frame Size — High Eff	56HZ	184T	213T	215T
Motor Frame Size — Prem Eff	182T	184T	213T	215T
Efficiency at Full Load (%) High/Premium	81.0/88.5	87.5/89.5	88.5/91.7	89.5/91.7
Fan Pulley Pitch Diameter (in.) — High Eff	11	10.4	12	12
Fan Pulley Pitch Diameter (in.) — Prem Eff	11.0	10.4	12	12
Motor Pulley Pitch Diameter Range (in.) — High Eff	4.1-3.1	4.7-3.7	6.0-4.8	7.0-5.8
Motor Pulley Pitch Diameter Range (in.) — Prem Eff	4.1-3.1	4.7-3.7	6.0-4.8	7.0-5.8
Motor Pulley Pitch Diameter Factory Setup (in.)	4.1	4.2	5.4	6.4
Blower Shaft Diameter at Pulley (in.)	1-7/16	1-7/16	1-7/16	1-7/16
Fan rpm Range	500-656	621-785	717-882	854-1000
Factory Setup Fan rpm	656	703	800	927
Maximum Allowable rpm	1000	1000	1000	1000
FILTERS				
Standard Efficiency Throwaway (Standard)				
Quantity...Size (in.)	8...20 x 25 x 2, 8...20 x 20 x 2		8...20 x 25 x 2, 8...20 x 20 x 2	
Medium Efficiency (30%) Pleated (Optional)				
Quantity...Size (in.)	8...20 x 25 x 2, 8...20 x 20 x 2		8...20 x 25 x 2, 8...20 x 20 x 2	
High Efficiency (90%) Bag Filters with High Velocity Prefilters (Opt)				
Quantity...Size (in.)				
Bag Filter	6...20 x 24 x 22, 6...20 x 20 x 22		6...20 x 24 x 22, 6...20 x 20 x 22	
Prefilter	12...16 x 20 x 2, 3...20 x 24 x 2		12...16 x 20 x 2, 3...20 x 24 x 2	
MERV 15 Cartridge Filters with High Velocity Prefilters (Opt)				
Quantity...Size (in.)				
Cartridge Filter	6...20 x 24 x 12, 6...20 x 20 x 12		6...20 x 24 x 12, 6...20 x 20 x 12	
Prefilter	12...16 x 20 x 2, 3...20 x 24 x 2		12...16 x 20 x 2, 3...20 x 24 x 2	
OUTSIDE AIR SCREENS				
Standard Hood (25%) Quantity...Size (in.)	None		None	
OPTIONAL ECONOMIZER FILTER	Aluminum Frame, Permanent			
Quantity...Size (in.)	5...20 x 20 x 2 2...20 x 25 x 1		5...20 x 20 x 1 2...20 x 25 x 1	

NOTE(S):

a. See Table 10, “Power Exhaust Fan Drive Data,” on page 11 for more information.

LEGEND

MBtuh — Btuh in Thousands

Table 2 — Physical Data 48P 040-050

BASE UNIT	48P 040		48P 050	
NOMINAL CAPACITY (tons)	40		50	
OPERATING WEIGHT (lb)	Standard Chassis	Extended Chassis	Standard Chassis	Extended Chassis
Base Unit				
Low Heat	5810	6310	6025	6525
High Heat	5940	6440	6155	6655
With Economizer				
Low Heat	6110	6610	6325	6825
High Heat	6240	6740	6455	6955
COMPRESSORS	Scroll			
Quantity...Type	2...ZP103/1...ZP182		2...ZP120/2...ZP137	
Oil Charge (oz) per Compressor	110		110	
Number of Refrigerant Circuits	2		2	
REFRIGERANT	R-410A			
Operating Charge (lb), Ckt 1/Ckt 2				
Standard Evaporator Coil	22.6/27.9		29.4/29.0	
Standard Evaporator with Humidi-MiZer®	22.6/40.6		29.4/41.4	
Alternate High-Capacity Evaporator Coil	31.1/37.2		35.2/36.5	
Alternate High-Capacity Evaporator with Humidi-MiZer	31.1/49.6		35.2/48.9	
CONDENSER COILS	Aluminum Novation® Heat Exchanger with Microchannel Coils			
Quantity	2		2	
Total Face Area (sq ft)	66.7		66.7	
EVAPORATOR COILS				
Quantity	2			
Total Face Area (sq ft)	45.5			
Refrigerant Feed Device...No. per Circuit	Thermostatic Expansion Valve...2			
Standard Evaporator Coils				
Rows...Fins/in.	3...15.0		4...15.0	
Fin Type	Double Wavy		Double Wavy	
Tube Type	Cross Hatched		Cross Hatched	
Alternate, High-Capacity Evaporator Coils				
Rows...Fins/in.	6...16.0		6...16.0	
Fin Type	Double Wavy		Double Wavy	
Tube Type	Cross Hatched		Cross Hatched	
HEATING SECTION	Low Heat	High Heat	Low Heat	High Heat
Number of Heat Exchangers	7	14	7	14
Input (MBtuh) (Vertical/Horizontal)	325/310	650/600	325/310	650/600
Output (MBtuh) (Vertical/Horizontal)	263/251	527/486	263/251	527/486
Temperature Rise Range (F)	10-40	25-55	10-40	25-55
Efficiency (%) (Vertical/Horizontal)	81/81	81/81	81/81	81/81
Burner Orifice Diameter				
Quantity (in. ...drill no.)	7 (.1285...30)	14 (.1285...30)	7 (.1285...30)	14 (.1285...30)
Manifold Pressure (in. wg)	3.5	3.5	3.5	3.5
Line Pressure (in. wg) (min...max)	5.0...13.0	5.0...13.0	5.0...13.0	5.0...13.0
Firing Stages	2	2	2	2
Number of Gas Valves	1	2	1	2
CONDENSER FANS	Propeller Type			
Quantity...Diameter (in.)	3...30		4...30	
Nominal cfm	30,000		38,000	
Motor Hp...rpm	1.0...1140		1.0...1140	
SUPPLY FAN	Centrifugal 25 x 25 in.			
Nominal cfm	16,000		20,000	
Maximum Allowable cfm	20,000		20,000	
Maximum Allowable rpm	900		900	
Shaft Diameter at Pulley (in.)	1-11/16		1-11/16	

SUPPLY-FAN MOTOR AND DRIVE	(Any motor available on any unit)					
Motor Hp	7.5	10	15	20	25	30 (460-3-60 only)
Motor Frame Size	213T	215T	254T	256T	284T	286T
Efficiency at Full Load (%)						
High Efficiency	88.5	89.5	91.0	91.0	91.7	92.4
Premium Efficiency	91.7	91.7	93.0	93.6	93.6	93.6
Fan Pulley Pitch Diameter (in.)	13.7	13.7	13.7	13.7	13.7	12.5
Motor Pulley Pitch Diameter (in.)	3.4	4.3	4.9	5.5	6.5	6.5
Resulting Fan Speed (rpm)	438	549	626	703	830	910
Belts Quantity...Type	2...BX60	2...5VX630	2...5VX630	2...5VX630	2...5VX650	3...5VX630
Center Distance Range (in.)	17.74-14.30	17.74-14.30	17.63...14.01	17.63...14.01	16.63...12.87	16.63...12.87

OPTIONAL POWER EXHAUST[a]		Centrifugal, 18 x 15 in. (Any motor available on any unit)			
Quantity...Motor Hp		2...3.0	2...5.0	2...7.5	2...10
Motor Frame Size	High Eff	56HZ	184T	213T	215T
	Prem Eff	182T	184T	213T	215T
Efficiency at Full Load (%) High/Premium		81.0/88.5	87.5/89.5	88.5/91.7	89.5/91.7
Fan Pulley Pitch Diameter (in.)	High Eff	11	10.4	12	12
	Prem Eff	11.0	10.4	12	12
Motor Pulley Pitch Diameter Range (in.)	High Eff	4.1-3.1	4.7-3.7	6.0-4.8	7.0-5.8
	Prem Eff	4.1-3.1	4.7-3.7	6.0-4.8	7.0-5.8
Motor Pulley Pitch Diameter Factory Setup (in.)		4.1	4.2	5.4	6.4
Blower Shaft Diameter at Pulley (in.)		1-7/16	1-7/16	1-7/16	1-7/16
Fan rpm Range		500-656	621-785	717-882	854-1000
Factory Setup Fan rpm		656	703	800	927
Maximum Allowable rpm		1000	1000	1000	1000

FILTERS		
Standard Efficiency Throwaway (Standard)		
Quantity...Size (in.)	8...20 x 25 x 2, 8...20 x 20 x 2	8...20 x 25 x 2, 8...20 x 20 x 2
Medium Efficiency (30%) Pleated (Optional)		
Quantity...Size (in.)	8...20 x 25 x 2, 8...20 x 20 x 2	8...20 x 25 x 2, 8...20 x 20 x 2
High Efficiency (90%) Bag Filters with High Velocity Prefilters (Opt)		
Quantity...Size (in.)		
Bag Filter	6...20 x 24 x 22, 6...20 x 20 x 22	6...20 x 24 x 22, 6...20 x 20 x 22
Prefilter	12...16 x 20 x 2, 3...20 x 24 x 2	12...16 x 20 x 2, 3...20 x 24 x 2
MERV 15 Cartridge Filters with High Velocity Prefilters (Opt)		
Quantity...Size (in.)		
Cartridge Filter	6...20 x 24 x 12, 6...20 x 20 x 12	6...20 x 24 x 12, 6...20 x 20 x 12
Prefilter	12...16 x 20 x 2, 3...20 x 24 x 2	12...16 x 20 x 2, 3...20 x 24 x 2
OUTSIDE AIR SCREENS		
Standard Hood (25%) Quantity...Size (in.)	None	None
OPTIONAL ECONOMIZER FILTER	Aluminum Frame, Permanent	
Quantity...Size (in.)	5...20 x 20 x 2 2...20 x 25 x 1	5...20 x 20 x 1 2...20 x 25 x 1

NOTE(S):

a. See Table 10, “Power Exhaust Fan Drive Data,” on page 11 for more information.

LEGEND

MBtuh — Btuh in Thousands

Table 3 — Physical Data 48P 055-070

BASE UNIT	48P 055		48P 060		48P 070	
NOMINAL CAPACITY (tons)	55		60		70	
OPERATING WEIGHT (lb)	Standard Chassis	Extended Chassis	Standard Chassis	Extended Chassis	Standard Chassis	Extended Chassis
Base Unit						
Low Heat	7810	8360	7865	8415	8205	8755
High Heat	7940	8490	7995	8545	8335	8885
With Economizer						
Low Heat	8340	8890	8395	8945	8735	9285
High Heat	8470	9020	8525	9075	8865	9415
COMPRESSORS	Scroll					
Quantity...Type	2...ZP137/2...ZP137		2...ZP154/2...ZP154		1...ZP154,1...ZP182/1...ZP154,1...ZP182	
Oil Charge (oz) per Compressor	110		110		110	
Number of Refrigerant Circuits	2		2		2	
REFRIGERANT	R-410A					
Operating Charge (lb), Ckt 1/Ckt 2						
Standard Evaporator Coil	37.6/37.9		37.6/37.9		41.2/44.8	
Standard Evaporator with Humidi-MiZer®	37.6/50.3		37.6/50.3		41.2/57.2	
Alternate High-Capacity Evaporator Coil	43.5/42.8		44.6/43.5		52.5/52.0	
Alternate High-Capacity Evaporator with Humidi-MiZer	43.5/55.2		44.6/55.9		52.5/64.4	
CONDENSER COILS	Aluminum Novation® Heat Exchanger with Microchannel Coils					
Quantity	2		2		4	
Total Face Area (sq ft)	66.7		66.7		106.7	
EVAPORATOR COILS						
Quantity	2					
Total Face Area (sq ft)	61.5					
Refrigerant Feed Device...No. per Circuit	Thermostatic Expansion Valve...2					
Standard Evaporator Coils						
Rows...Fins/in.	4...15		4...15		4...15	
Fin Type	Double Wavy		Double Wavy		Double Wavy	
Tube Type	Cross Hatched		Cross Hatched		Cross Hatched	
Alternate, High-Capacity Evaporator Coils						
Rows...Fins/in.	6...16		6...16		6...16	
Fin Type	Double Wavy		Double Wavy		Double Wavy	
Tube Type	Cross Hatched		Cross Hatched		Cross Hatched	
HEATING SECTION	Low Heat	High Heat	Low Heat	High Heat	Low Heat	High Heat
Number of Heat Exchangers	14	21	14	21	14	21
Input (MBtuh) (Vertical/Horizontal)	590/590	885/885	590/590	885/885	590/590	885/885
Output (MBtuh) (Vertical/Horizontal)	478/478	717/717	478/478	717/717	478/478	717/717
Temperature Rise Range (F)	10-40	20-50	10-40	20-50	10-40	20-50
Efficiency (%) (Vertical/Horizontal)	81/81	81/81	81/81	81/81	81/81	81/81
Burner Orifice Diameter						
Quantity (in. ...drill no.)	14 (.1285...30)	21 (.1285...30)	14 (.1285...30)	21 (.1285...30)	14 (.1285...30)	21 (.1285...30)
Manifold Pressure (in. wg)	3.5	3.5	3.5	3.5	3.5	3.5
Line Pressure (in. wg) (min...max)	5.0...13.0	5.0...13.0	5.0...13.0	5.0...13.0	5.0...13.0	5.0...13.0
Firing Stages	2	2	2	2	2	2
Number of Gas Valves	2	3	2	3	2	3
CONDENSER FANS	Propeller Type					
Quantity...Diameter (in.)	4...30		4...30		4...30	
Nominal cfm	36,000		36,600		39,000	
Motor Hp...rpm	1.0...1140		1.0...1140		1.0...1140	
SUPPLY FAN	Centrifugal 30 x 27.5 in.					
Nominal cfm	22,000		24,000		28,000	
Maximum Allowable cfm	25,000		30,000		30,000	
Maximum Allowable rpm	800		800		800	
Shaft Diameter at Pulley (in.)	1-11/16		1-11/16		1-11/16	
SUPPLY-FAN MOTOR AND DRIVE	(Any motor available on any unit)					
Motor Hp	15	20	25	30	40 (460-3-60 only)	
Motor Frame Size	254T	256T	284T	286T	S324T	
Efficiency at Full Load (%)						
High Efficiency	91.0	91.0	91.7	92.4	93.0	
Premium Efficiency	93.0	93.6	93.6	93.6	94.5	
Fan Pulley Pitch Diameter (in.)	13.7	13.7	13.7	15.5	16.1	
Motor Pulley Pitch Diameter (in.)	4.5	5.1	5.5	5.9	6.7	
Resulting Fan Speed (rpm)	575	651	703	711	740	
Belts Quantity...Type	2...5VX1230	2...5VX1230	2...5VX1230	2...5VX1230	3...5VX1250	
Center Distance Range (in.)	48.25-44.00	48.25-44.00	48.50-44.25	48.50-44.25	48.25-44.00	
OPTIONAL POWER EXHAUST[a]	Centrifugal, 18 x 15 in. (Any motor available on any unit)					
Quantity...Motor Hp	2...5		2...7.5		2...10	
Motor Frame Size	184T		213T		215T	
Efficiency at Full Load (%) High/Premium	87.5/89.5		88.5/91.7		89.5/91.7	
Resulting Fan rpm	740		820		920	
Maximum Allowable rpm	1000		1000		1000	
FILTERS						
Standard Efficiency Throwaway (Standard)						
Quantity...Size (in.)	12...20 x 25 x 2, 12...20 x 20 x 2		12...20 x 25 x 2, 12...20 x 20 x 2		12...20 x 25 x 2, 12...20 x 20 x 2	
Medium Efficiency (30%) Pleated (Optional)						
Quantity...Size (in.)	12...20 x 25 x 2, 12...20 x 20 x 2		12...20 x 25 x 2, 12...20 x 20 x 2		12...20 x 25 x 2, 12...20 x 20 x 2	
High Efficiency (90%) Bag Filters with High Velocity Prefilters (Optional)						
Quantity...Size (in.)						
Bag Filter	6...24 x 24 x 22, 6...24 x 20 x 22		6...24 x 24 x 22, 6...24 x 20 x 22		6...24 x 24 x 22, 6...24 x 20 x 22	
Prefilter	6...24 x 24 x 2, 6...20 x 24 x 2		6...24 x 24 x 2, 6...20 x 24 x 2		6...24 x 24 x 2, 6...20 x 24 x 2	
MERV 15 Cartridge Filters with High Velocity Prefilters (Optional)						
Quantity...Size (in.)						
Cartridge Filter	6...24 x 24 x 12,, 6...24 x 20 x 12		6...24 x 24 x 12,, 6...24 x 20 x 12		6...24 x 24 x 12, 6...24 x 20 x 12	
Prefilter	6...24 x 24 x 2, 6...20 x 24 x 2		6...24 x 24 x 2, 6...20 x 24 x 2		6...24 x 24 x 2, 6...20 x 24 x 2	
OUTSIDE AIR SCREENS						
Standard Hood (25%) Quantity...Size (in.)	4...25 x 16 x 1, 2...20 x 16 x 1		4...25 x 16 x 1, 2...20 x 16 x 1		4...25 x 16 x 1, 2...20 x 16 x 1	
OPTIONAL ECONOMIZER FILTER	Aluminum Frame, Permanent					
Quantity...Size (in.)	12...16 x 25 x 1, 2...16 x 20 x 1		12...16 x 25 x 1, 2...16 x 20 x 1		12...16 x 25 x 1, 2...16 x 20 x 1	

NOTE(S):

a. See Table 10, “Power Exhaust Fan Drive Data,” on page 11 for more information.

LEGEND

MBtuh — Btuh in Thousands

Table 4 — Physical Data 48P 075-100

BASE UNIT	48P 075		48P 090		48P 100	
NOMINAL CAPACITY (tons)	75		90		100	
OPERATING WEIGHT (lb)	Standard Chassis	Extended Chassis	Standard Chassis	Extended Chassis	Standard Chassis	Extended Chassis
Base Unit						
Low Heat	9065	9615	9665	10,215	9685	10,235
High Heat	9195	9745	9795	10,345	9815	10,365
With Economizer						
Low Heat	9595	10,145	10,195	10,745	10,215	10,765
High Heat	9725	10,275	10,325	10,875	10,345	10,895
COMPRESSORS	Scroll					
Quantity...Type	2...ZP182/2...ZP182		3...ZP154,3...ZP154		3...ZP154,3...ZP182	
Oil Charge (oz) per Compressor	110		110		110	
Number of Refrigerant Circuits	2		2		2	
REFRIGERANT	R-410A					
Operating Charge (lb), Ckt 1/Ckt 2						
Standard Evaporator Coil	41.2/44.8		50.4/51.3		50.8/52.8	
Standard Evaporator with Humidi-MiZer®	41.2/57.2		50.4/69.1		50.8/70.6	
Alternate High-Capacity Evaporator Coil	52.5/52.0		61.5/62.9		59.3/62.8	
Alternate High-Capacity Evaporator with Humidi-MiZer	52.5/64.4		61.5/80.7		59.3/80.6	
CONDENSER COILS	Aluminum Novation® Heat Exchanger with Microchannel Coils					
Quantity	4		6		6	
Total Face Area (sq ft)	106.7		160.0		160.0	
EVAPORATOR COILS						
Quantity	2					
Total Face Area (sq ft)	61.5					
Refrigerant Feed Device...No. per Circuit	Thermostatic Expansion Valve...2					
Standard Evaporator Coils						
Rows...Fins/in.	4...15		4...15		4...15	
Fin Type	Double Wavy		Double Wavy		Double Wavy	
Tube Type	Cross Hatched		Cross Hatched		Cross Hatched	
Alternate, High-Capacity Evaporator Coils						
Rows...Fins/in.	6...16		6...16		6...16	
Fin Type	Double Wavy		Double Wavy		Double Wavy	
Tube Type	Cross Hatched		Cross Hatched		Cross Hatched	
HEATING SECTION	Low Heat	High Heat	Low Heat	High Heat	Low Heat	High Heat
Number of Heat Exchangers	2	3	2	3	2	3
Input (MBtuh) (Vertical/Horizontal)	590/590	885/885	590/590	885/885	590/590	885/885
Output (MBtuh) (Vertical/Horizontal)	478/478	717/717	478/478	717/717	478/478	717/717
Temperature Rise Range (F)	10-40	20-50	10-40	20-50	10-40	20-50
Efficiency (%) (Vertical/Horizontal)	81/81	81/81	81/81	81/81	81/81	81/81
Burner Orifice Diameter						
Quantity (in. ...drill no.)	7 (.1285...30)	7 (.1285...30)	7 (.1285...30)	7 (.1285...30)	7 (.1285...30)	7 (.1285...30)
Manifold Pressure (in. wg)	3.5	3.5	3.5	3.5	3.5	3.5
Line Pressure (in. wg) (Min...Max)	5.0...13.0	5.0...13.0	5.0...13.0	5.0...13.0	5.0...13.0	5.0...13.0
Number of Gas Valves	2	3	2	3	2	3
CONDENSER FAN	Propeller Type					
Quantity...Diameter (in.)	4...30		6...30		6...30	
Nominal cfm	39,000		58,000		58,000	
Motor Hp (ea)...rpm	1.0...1140		1.0...1140		1.0...1140	
STANDARD SUPPLY FAN	Forward Curved Centrifugal 36 x 30 in.					
Nominal cfm	30,000		36,000		40,000	
Maximum Allowable cfm	30,000		34,000		40,000	
Maximum Allowable rpm	680		680		680	
Shaft Diameter at Pulley (in.)	1-11/16		1-11/16		1-11/16	
STANDARD SUPPLY-FAN MOTOR AND DRIVE	(Any motor available on any unit)					
Motor Hp	30	40	50	60		
Motor Frame Size	S268T	S324T	S326T	S364T		
Efficiency at Full Load (%)						
High Efficiency	92.4	93.0	93.0	93.6		
Premium Efficiency	93.6	94.5	94.5	95.4		
Fan Pulley Pitch Diameter (in.)	18.5	18.5	18.5	18.5		
Motor Pulley Pitch Diameter (in.)	5.3	5.7	6.5	7.1		
Resulting Fan rpm	501	539	615	672		
Belts Quantity...Type	3...5VX1320	4...5VX1320	4...5VX1320	4...5VX1320		
Center Distance Range (in.)	47.88-45.01	47.64-44.76	47.42-44.52	47.42-44.52		
ALTERNATE, AIRFOIL FAN	Airfoil					
Nominal Airflow (cfm)	30,000		36,000		40,000	
Maximum Allowable Airflow (cfm)	30,000		36,000		40,000	
Maximum Allowable Wheel Speed (rpm)	1846		1846		1846	
Shaft Diameter at Pulley (in.)	2-11/16		2-11/16		2-11/16	
ALTERNATE SUPPLY-FAN MOTOR AND DRIVE	(Any motor available on any unit)					
Motor Hp	30	40	50	60	75	
Motor Frame Size	S268T	S324T	S326T	S364T	365T	
Efficiency at Full Load (%)						
High Efficiency	92.4	93.0	93.0	93.6	94.1	
Premium Efficiency	93.6	94.5	94.5	95.4	95.4	
Fan Pulley Pitch Diameter (in.)	9.7	10.2	8.9	8.9	10.8	
Motor Pulley Pitch Diameter (in.)	7.5	8.7	8.1	8.7	11.1	
Resulting Fan rpm	1353	1493	1593	1711	1799	
Belts Quantity...Type	2...5VX1150	2...5VX1180	3...5VX1150	3...5VX1150	3...5VX1230	
Center Distance Range (in.)	42.96...45.82	42.96...45.57	42.96...45.57	42.45...45.35	42.45...45.35	
OPTIONAL POWER EXHAUST[a]	Centrifugal, 18 x 15 in. (Any motor available on any unit.)					
Quantity...Motor Hp	2...5		2...7.5		2...10	
Motor Frame Size	184T		213T		215T	
Efficiency at Full Load (%)						
High Efficiency	87.5		88.5		89.5	
Premium Efficiency	89.5		91.7		91.7	
Fan Pulley Pitch Diameter (in.)	10.6		10.6		10.6	
Motor Pulley Pitch Diameter (in.)	4.5		5.0		5.6	
Shaft Diameter at Pulley (in.)	1-7/16		1-7/16		1-7/16	
Resulting Fan rpm	740		820		920	
Maximum Allowable rpm	1000		1000		1000	
FILTERS						
Standard Efficiency Throwaway (Standard)						
Quantity...Size (in.)	12...20 x 25 x 2, 12...20 x 20 x 2		12...20 x 25 x 2, 12...20 x 20 x 2		12...20 x 25 x 2, 12...20 x 20 x 2	
30% and 65% Pleated (Optional)						
Quantity...Size (in.)	12...20 x 25 x 2, 12...20 x 20 x 2		12...20 x 25 x 2, 12...20 x 20 x 2		12...20 x 25 x 2, 12...20 x 20 x 2	
OUTSIDE AIR SCREENS						
Standard Hood (25%) Quantity...Size (in.)	4...25 x 16 x 1, 2...20 x 16 x 1		4...25 x 16 x 1, 2...20 x 16 x 1		4...25 x 16 x 1, 2...20 x 16 x 1	
OPTIONAL ECONOMIZER FILTER	Aluminum Frame, Permanent					
Quantity...Size (in.)	12...16 x 25 x 1, 2...16 x 20 x 1		12...16 x 25 x 1, 2...16 x 20 x 1		12...16 x 25 x 1, 2...16 x 20 x 1	

NOTE(S):

a. For more information, see Table 6, “Optional High-Capacity Power Exhaust Physical Data (48P 075-100 Only)” and Table 10, “Power Exhaust Fan Drive Data”.

LEGEND

MBtuh — Btuh in Thousands

Table 5 — Optional Return Fan Physical Data

BASE UNIT	48P 030-050				48P 055-070				48P 075-100			
	Plenum Fan (Any motor available on any unit)											
RETURN/EXHAUST FAN	30 in.				36 in.				47.13 in.			
Quantity...Motor Hp	1...10	1...15	1...20	1...25	1...15	1...20	1...25	1...30	1...20	1...25	1...30	1...40
Motor Frame Size	215T	254T	256T	284T	254T	256T	284T	286T	256T	284T	286T	324T
Efficiency at Full Load (%)	91.7	93.0	93.6	93.6	93.0	93.6	93.6	93.6	91.0/93.6	91.7/93.6	92.4/93.6	93.0/93.8
High/Premium												
Fan Pulley Pitch Diameter (in.)	6.6	7.4	6.8	8.0	9.1	9.1	9.1	9.1	8.5	9.8	8.5	8.5
Motor Pulley Pitch Diameter (in.)	4.9	6.6	6.6	8.0	5.9	6.1	6.7	6.9	5.3	6.7	6.1	6.7
Shaft Diameter at Pulley (in.)	1-7/16	1-7/16	1-7/16	1-7/16	1-11/16	1-11/16	1-11/16	1-11/16	2-15/16	2-15/16	2-15/16	2-15/16
Resulting Fan rpm	1300	1540	1700	1730	1150	1200	1300	1327	1104	1209	1271	1396
Maximum Allowable rpm	1750	1750	1750	1750	1750	1750	1750	1750	1447	1447	1447	1447

Table 6 — Optional High-Capacity Power Exhaust Physical Data (48P 075-100 Only)

BASE UNIT	48P 075-100				
POWER EXHAUST	Centrifugal, 22 x 20 in., 1-11/16 in. shaft diameter (Any motor available on any unit)				
Total Hp	20	30	40	50	60
Quantity...Motor Hp	2...10	2...15	2...20	2...25	2...30
Motor Frame Size	S215T	D254T	S256T	S284T	S286T
Efficiency at Full Load (%)					
High Efficiency	89.5	91	91	91.7	92.4
Premium Efficiency	91.7	93	93.6	93.6	93.6
Fan Sheave Pitch Diameter (in.)	12.4	12.4	11.1	11.1	11.1
Motor Sheave Pitch Diameter (in.)	4.8	5.8	5.9	6.5	6.9
Resulting Fan rpm	714	841	928	1020	1094
Maximum Allowable rpm	1175	1175	1175	1175	1175
Belts — Quantity...Type	2...BX93	2...BX93	2...5VX950	2...5VX950	2...5VX950

Table 7 — Optional Humidi-MiZer® Coil Data

UNIT SIZE 48P	030-075	090,100
Humidi-MiZer Coil Construction	Aluminum Novation® Coil	
Quantity	1	1
Face Area (sq ft)	26.7	33.3

Table 8 — Operating Weights of Options and Accessories (lb)

OPTION OR ACCESSORY	48/50P UNIT SIZE							
	030,035	040,050	055	060	070	075	090	100
Condenser Section Roof Curb	—	—	540	540	625	625	625	625
Economizer	300[a]	300[a]	530[a]	530[a]	530[a]	530[a]	530[a]	530[a]
Power Exhaust	710[a]	710[a]	710[a]	710[a]	710[a]	710[a]	710[a]	710[a]
Barometric Relief	200	200	200	200	200	200	200	200
Double Wall Construction	700	800	900	900	900	900	900	900
Roof Curb								
Standard Length	455	495	605	605	605	605	605	605
Extended Length	545	545	1200	1200	—	—	—	—
With High-Capacity Power Exhaust	—	—	—	—	—	700	700	700
High-Efficiency Filters	20	20	20	20	20	20	20	20
Bag Filters and Cartridge Filters	35	35	40	40	40	—	—	—
Hail Guard	120	150	145	145	210	210	210	210
Inlet Guide Vanes	95	95	115	115	115	115	115	115
Variable Frequency Drive								
7.5 hp	20	20	—	—	—	—	—	—
10 hp	20	20	—	—	—	—	—	—
15 hp	35	35	35	35	35	—	—	—
20 hp	35	35	35	35	35	—	—	—
25 hp	53	53	53	53	53	—	—	—
30 hp	—	—	53	53	53	53	53	53
40 hp	—	—	53	53	53	53	53	53
50 hp	—	—	—	—	—	53	53	53
60 hp	—	—	—	—	—	53	53	53
75 hp	—	—	—	—	—	152	152	152
High-Capacity Evaporator Coil	150	300	300	300	300	300	300	300
Airfoil Fan	—	—	—	—	—	350	350	350
Humidi-MiZer® Adaptive Dehumidification System	72	72	72	72	72	72	92	92

NOTE(S):

a. Includes hood.

Table 9 — Supply Fan Drive Data[a]

HP	SHAFT DIA (in.)	SPEED (rpm)	MOTOR SHEAVE	MOTOR PITCH DIA (in.)	WHEEL SHEAVE	WHEEL PITCH DIA (in.)	QUANTITY...BELT
Sizes 030-050							
7.5	1-3/8	438	2BK36	3.4	2B5V136	13.7	2...BX60
10	1-3/8	549	2B5V42	4.3	2B5V136	13.7	2...5VX630
15	1-5/8	626	2B5V48	4.9	2B5V136	13.7	2...5VX630
20	1-5/8	703	2B5V54	5.5	2B5V136	13.7	2...5VX630
25	1-7/8	830	2B5V64	6.5	2B5V136	13.7	2...5VX650
30[b]	1-7/8	910	3B5V64	6.5	3B5V124	12.5	3...5VX630
Sizes 055-070							
15	1-5/8	575	2B5V44	4.5	2B5V136	13.7	2...5VX1230
20	1-5/8	651	2B5V50	5.1	2B5V136	13.7	2...5VX1230
25	1-7/8	703	2B5V54	5.5	2B5V136	13.7	2...5VX1230
30	1-7/8	711	2B5V62	6.3	2B5V154	15.5	2...5VX1230
40	2-1/8	740	3B5V66	6.7	3B5V160	16.1	3...5VX1250
Sizes 075-100 (Forward-Curved Fan)							
30	1-7/8	501	3B5V52	5.33	B5V184	18.5	3...5VX1320
40	2-1/8	539	4B5V56	5.74	B5V184	18.5	4...5VX1320
50	2-1/8	615	4B5V64	6.54	B5V184	18.5	4...5VX1320
60	2-3/8	672	4B5V70	7.14	B5V184	18.5	4...5VX1320
Sizes 075-100 (Airfoil Fan)							
30	1-7/8	1353	2B5V74	7.5	2Q5V97	9.7	2...5VX1150
40	2-1/8	1493	2B5V86	8.7	2Q5V103	10.2	2...5VX1180
50	2-1/8	1593	3B5V80	8.1	3R5V90	8.9	3...5VX1150
60	2-3/8	1711	3B5V86	8.7	3R5V90	8.9	3...5VX1150
75	2-3/8	1799	3B5V110	11.1	3R5V109	10.8	3...5VX1230

NOTE(S):

a. Part numbers are Browning Manufacturing Corp. reference.
b. Sizes 040,050 only.

Table 10 — Power Exhaust Fan Drive Data

TOTAL HP	MOTOR QTY...HP	MOTOR SHAFT DIAMETER (in.)	FAN SPEED rpm	MOTOR SHEAVE		BLOWER SHEAVE		48P2,P3 UNITS		48P4,P5 UNITS	
				Part Number[a]	Pitch Diameter (in.)	Part Number[a]	Pitch Diameter (in.)	BELTS QTY...P/N	CENTER DISTANCE RANGE (in.)	BELTS QTY...P/N	CENTER DISTANCE RANGE (in.)
Sizes 030-050											
6[b]	2...3	7/8	656/500	1VL44	4.1-3.1	BK115	11	1...BX71	23.62-26.50	1...BX46	11.40-13.26
6[c]	2...3	1-1/8	656/500	1VP44L	4.1-3.1	BK115	11	1...BX71	23.62-26.50	1...BX46	11.40-13.26
10[d]	2...5	1-1/8	785/621	1VP50L	4.7-3.7	BK110	10.4	1...BX71	23.62-26.50	1...BX46	11.16-13.05
15[d]	2...7.5	1-3/8	882/717	1VP65	6.0-4.8	BK130	12	1...BX77	23.62-26.50	1...BX53	11.40-13.26
20[d]	2...10	1-3/8	1000/854	1VP75	7.0-5.8	BK130	12	1...BX79	23.62-26.50	1...BX53	11.04-12.95
Sizes 055-100											
10	2...5	1-1/8	740	2P3V45	4.5	2Q3V106	10.6	2...3VX71	22.71-26.38	2...3VX50	10.91-13.30
15	2...7.5	1-3/8	820	2P3V50	5.0	2Q3V106	10.6	2...3VX71	22.71-26.38	2...3VX50	10.78-13.20
20	2...10	1-3/8	920	2P3V56	5.6	2Q3V106	10.6	2...3VX75	22.71-26.38	2...3VX50	10.78-13.20

NOTE(S):

a. Part numbers are Browning Manufacturing Corp. reference.
b. High-efficiency motor option.
c. Premium-efficiency motor option.
d. Applies to both motor options.

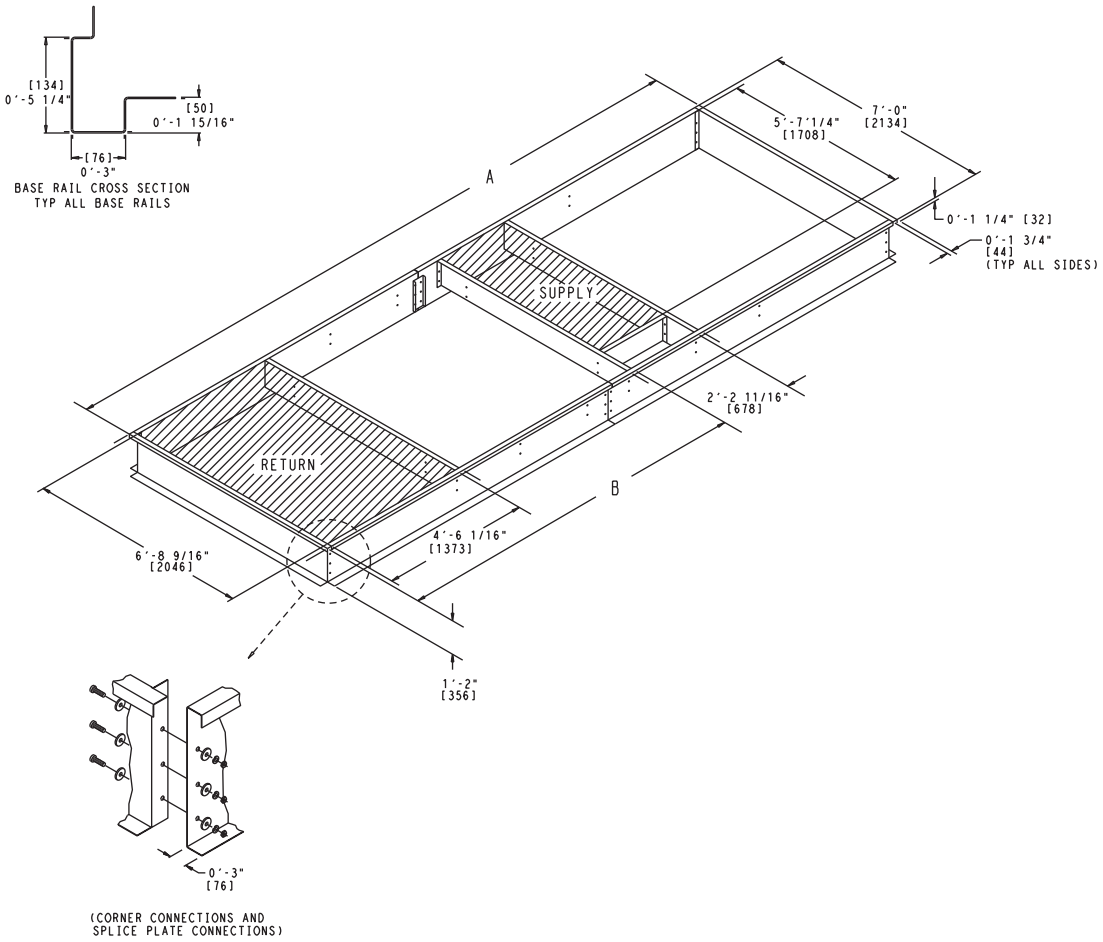
Table 11 — Optional High-Capacity Power Exhaust Fan Drive Data

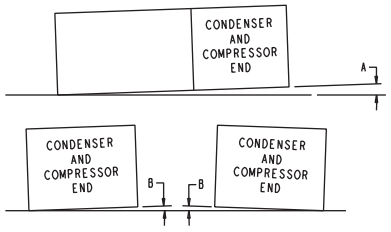
TOTAL HP	MOTOR QTY...HP	MOTOR SHAFT DIA. (in.)	SPEED RPM	MOTOR SHEAVE		BLOWER SHEAVE		QTY...BELT	CENTER DISTANCE RANGE (in.)
				Part No.	Pitch Diameter (in.)	Part No.	Pitch Diameter (in.)		
20	2...10	1.375	714	2B5V48	4.8	2B5V124	12.4	2...BX93	32.8 to 36.7
30	2...15	1.625	841	2B5V58	5.8	2B5V124	12.4	2...BX93	32.6 to 36.5
40	2...20	1.625	928	2B5V58	5.9	2B5V110	11.1	2...5VX950	32.6 to 36.5
50	2...25	1.875	1020	2B5V64	6.5	2B5V110	11.1	2...5VX950	32.5 to 36.3
60	2...30	1.875	1094	2B5V68	6.9	2B5V110	11.1	2...5VX950	32.5 to 36.3

Table 12 — Optional Return Fan Drive Data

TOTAL HP	MOTOR QTY...HP	MOTOR SHAFT DIA. (in.)	SPEED RPM	MOTOR SHEAVE		BLOWER SHEAVE		QTY...BELT	CENTER DISTANCE RANGE (in.)
				Part No.	Pitch Diameter (in.)	Part No.	Pitch Diameter (in.)		
Sizes 030-050									
10	1...10	1.375	1300	2B5V48	4.9	D4700	6.6	2...BX80	31.3 to 34.2
15	1...15	1.625	1540	2B5V66	6.6	2BK80	7.4	2...BX86	32.8 to 35.7
20	1...20	1.625	1700	2B5V66	6.6	D4720	6.8	2...BX85	32.8 to 35.7
25	1...25	1.875	1730	2B5V80	8.0	2B5V80	8.0	2...BX90	33.0 to 35.9
Sizes 055-070									
15	1...15	1.625	1150	2B5V58	5.9	2B5V90	9.1	2...5VX950	34.8 to 37.7
20	1...20	1.625	1200	2B5V60	6.1	2B5V90	9.1	2...5VX950	34.8 to 37.7
25	1...25	1.875	1300	2B5V66	6.7	2B5V90	9.1	2...5VX1000	35.6 to 38.5
30	1...30	1.875	1327	2B5V68	6.9	2B5V90	9.1	2...5VX1000	35.6 to 38.5
Sizes 075-100									
20	1...20	1.625	1104	3B5V52	5.3	3R5V85	8.5	3...5VX1000	38.1 to 41.0
25	1...25	1.875	1209	3B5V66	6.7	3R5V97	9.8	3...5VX1060	38.9 to 41.8
30	1...30	1.875	1271	3B5V60	6.1	3R5V85	8.5	3...5VX1030	38.9 to 41.8
40	1...40	2.125	1396	3B5V66	6.7	3R5V85	8.5	3...5VX1060	39.9 to 42.8

NOTES:
1. Roof curb is shipped disassembled.
2. Roofcurb: 14ga (VA03-56) STL.
3. Dimensions are inches (millimeters).





DIMENSIONS
(degrees and inches)

A		B	
DEG.	IN.	DEG.	IN.
1.0	2.0	.50	.75

UNIT LEVELING TOLERANCES
*From edge of unit to horizontal.

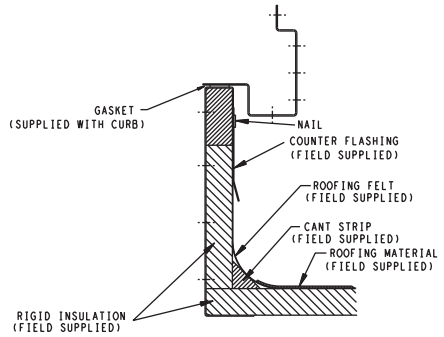
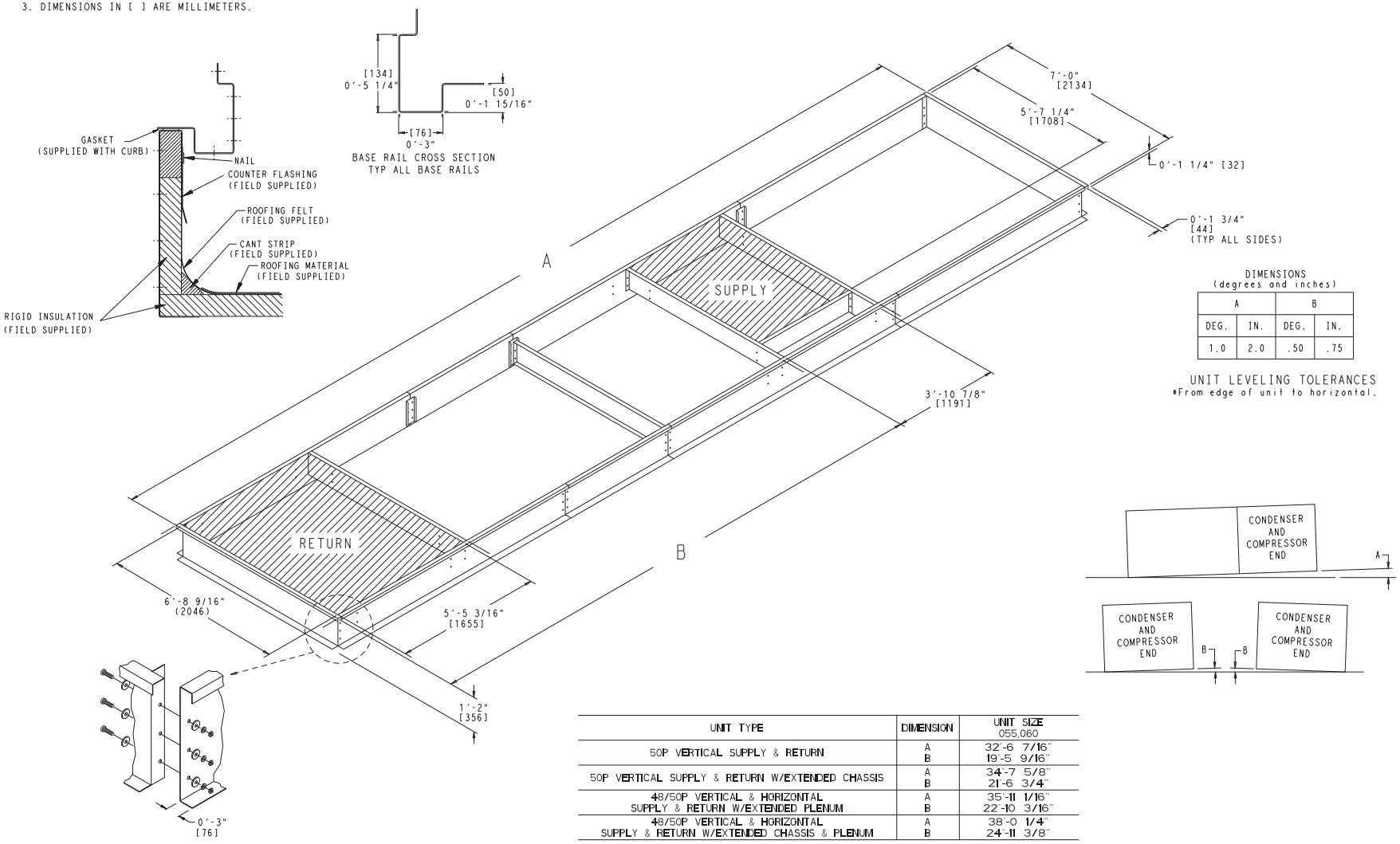


Fig. 2 — Roof Curb — Sizes 030-050

NOTES:
1. ROOF CURB IS SHIPPED DISASSEMBLED.
2. ROOF CURB: 14 GA.[VA03-56] STL.
3. DIMENSIONS IN [ ] ARE MILLIMETERS.



DIMENSIONS
(degrees and inches)

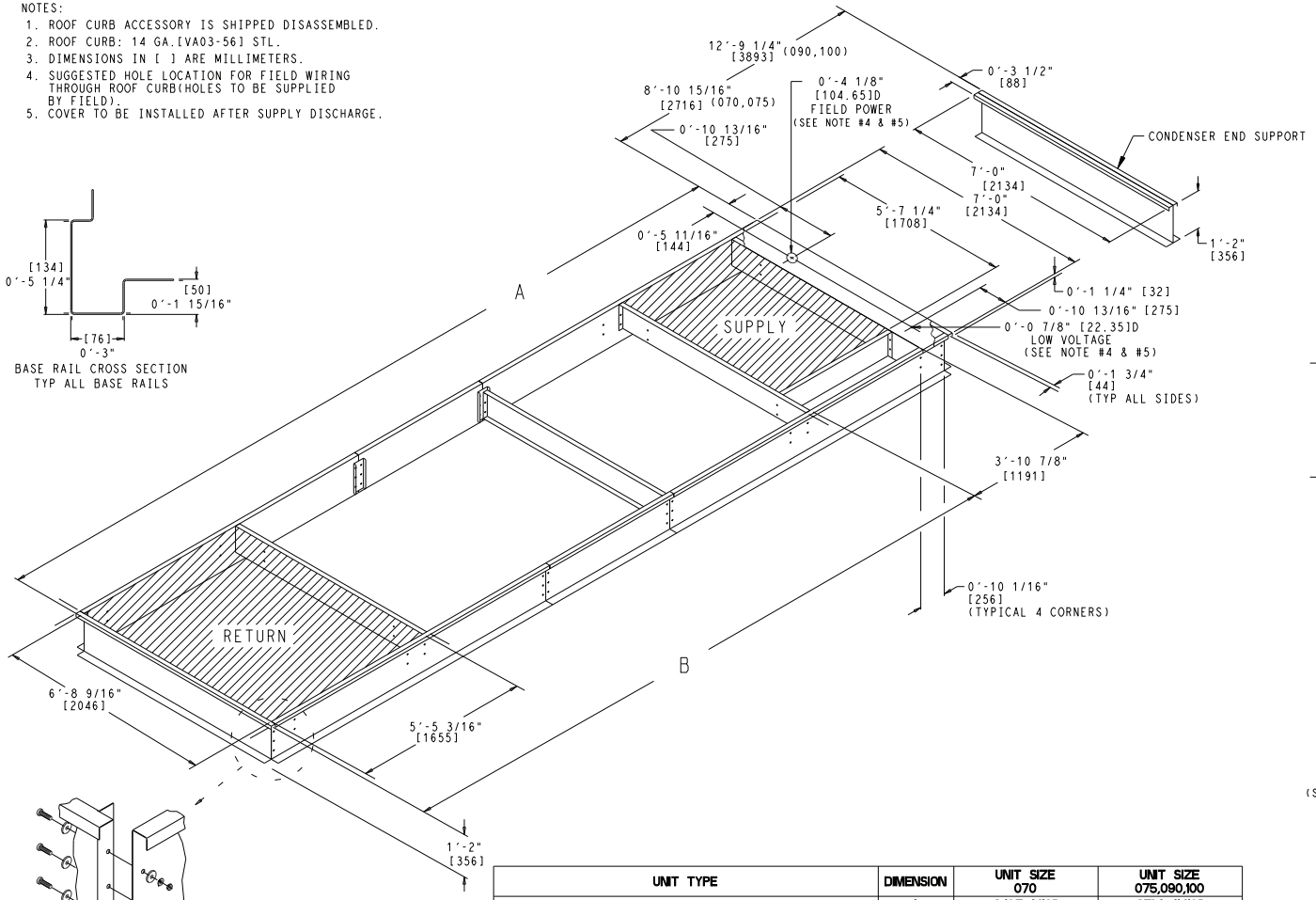
A		B	
DEG.	IN.	DEG.	IN.
1.0	2.0	.50	.75

UNIT LEVELING TOLERANCES
*From edge of unit to horizontal.

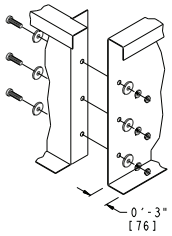
UNIT TYPE	DIMENSION	UNIT SIZE 055,060
50P VERTICAL SUPPLY & RETURN	A	32'-6 7/16"
	B	19'-5 9/16"
50P VERTICAL SUPPLY & RETURN W/EXTENDED CHASSIS	A	34'-7 5/8"
	B	21'-6 3/4"
48/50P VERTICAL & HORIZONTAL SUPPLY & RETURN W/EXTENDED PLENUM	A	35'-11 1/16"
	B	22'-10 3/16"
48/50P VERTICAL & HORIZONTAL SUPPLY & RETURN W/EXTENDED CHASSIS & PLENUM	A	38'-0 1/4"
	B	24'-11 3/8"

Fig. 3 — Roof Curb — Sizes 055, 060

NOTES:
1. ROOF CURB ACCESSORY IS SHIPPED DISASSEMBLED.
2. ROOF CURB: 14 GA.[VA03-56] STL.
3. DIMENSIONS IN [ ] ARE MILLIMETERS.
4. SUGGESTED HOLE LOCATION FOR FIELD WIRING THROUGH ROOF CURB(HOLES TO BE SUPPLIED BY FIELD).
5. COVER TO BE INSTALLED AFTER SUPPLY DISCHARGE.



BASE RAIL CROSS SECTION
TYP ALL BASE RAILS

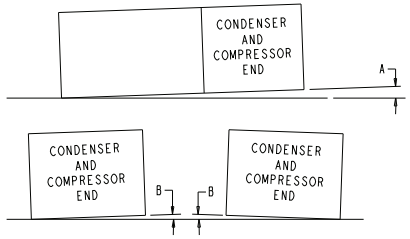


(CORNER CONNECTIONS AND SPLICE PLATE CONNECTIONS)

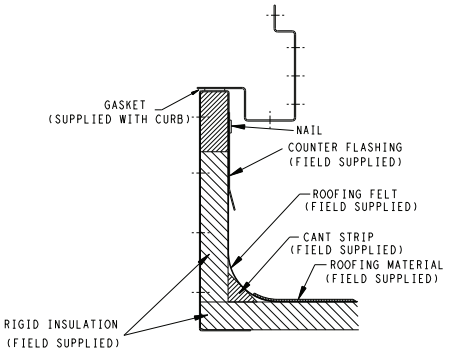
DIMENSIONS
(degrees and inches)

A		B	
DEG.	IN.	DEG.	IN.
1.0	2.0	.50	.75

UNIT LEVELING TOLERANCES
*From edge of unit to horizontal.



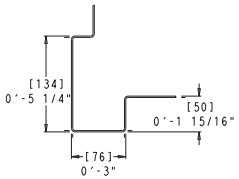
UNIT TYPE	DIMENSION	UNIT SIZE 070	UNIT SIZE 075,090,100
50P VERTICAL SUPPLY & RETURN	A	24'-5 1/16"	27'-9 11/16"
	B	19'-5 9/16"	22'-10 3/16"
50P VERTICAL SUPPLY & RETURN W/EXTENDED CHASSIS	A	26'-6 1/4"	29'-10 7/8"
	B	21'-6 3/4"	24'-11 3/8"
48/50P VERTICAL & HORIZONTAL SUPPLY & RETURN W/EXTENDED PLENUM	A	27'-9 11/16"	27'-9 11/16"
	B	22'-10 3/16"	22'-10 3/16"
48/50P VERTICAL & HORIZONTAL SUPPLY & RETURN W/EXTENDED CHASSIS & PLENUM	A	29'-10 7/8"	29'-10 7/8"
	B	24'-11 3/8"	24'-11 3/8"



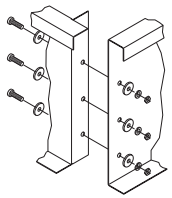
SHEET					
1 OF 1	02/19/09	50DW412157	48/50P070-100 VERTICAL & HORIZONTAL SUPPLY & RETURN W/EXTENDED CHASSIS & PLENUM	48ZZ501985	A.3

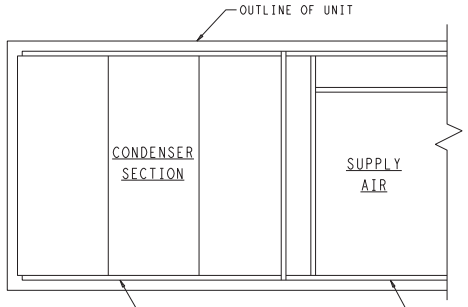
Fig. 4 — Roof Curb — Sizes 070-100

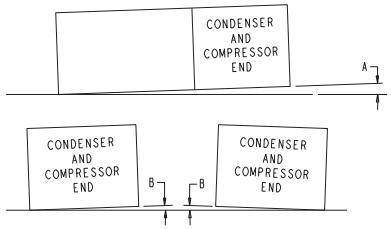
NOTES:
1. ROOF CURB ACCESSORY CRRFCURB070A00 IS SHIPPED DISASSEMBLED.
2. DIMENSIONS IN [ ] ARE MILLIMETERS.
3. ROOF CURB: 14 GA.[VA03-56] STL.
   ROOF CURB PANS: 16 GA.[VA03-56] STL.



BASE RAIL CROSS SECTION
TYP ALL BASE RAILS


VIEW B
(CORNER CONNECTIONS AND
SPLICE PLATE CONNECTIONS)

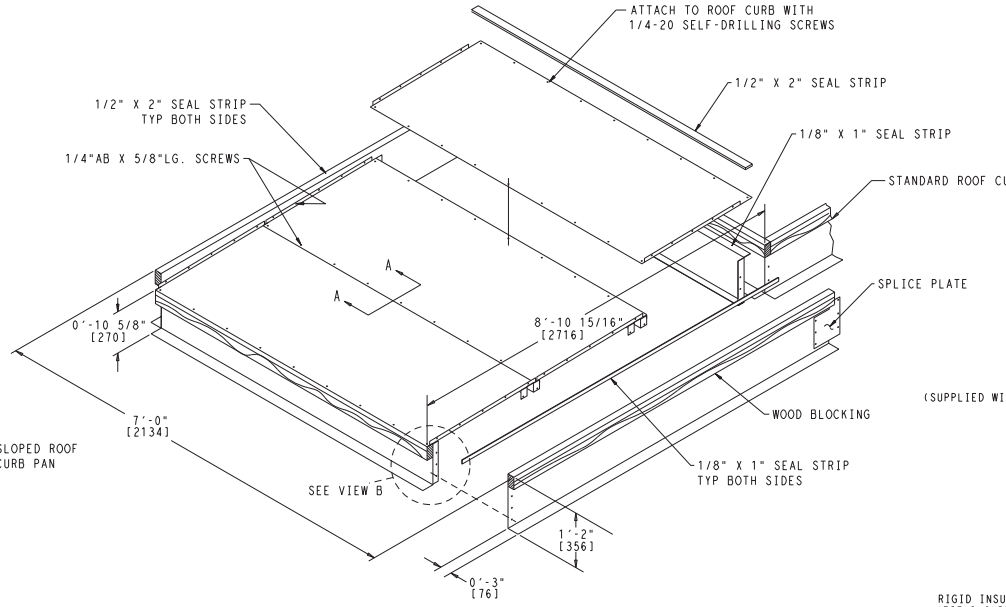


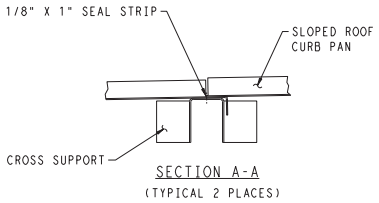


DIMENSIONS
(degrees and inches)

A		B	
DEG.	IN.	DEG.	IN.
1.0	2.0	.50	.75

UNIT LEVELING TOLERANCES
*From edge of unit to horizontal.





SECTION A-A
(TYPICAL 2 PLACES)

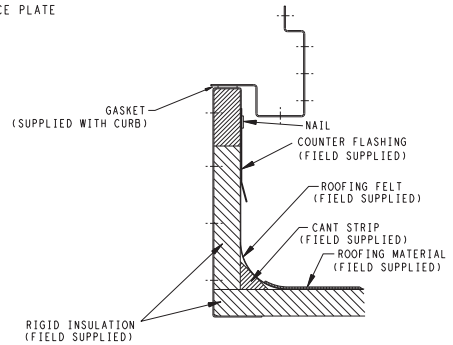
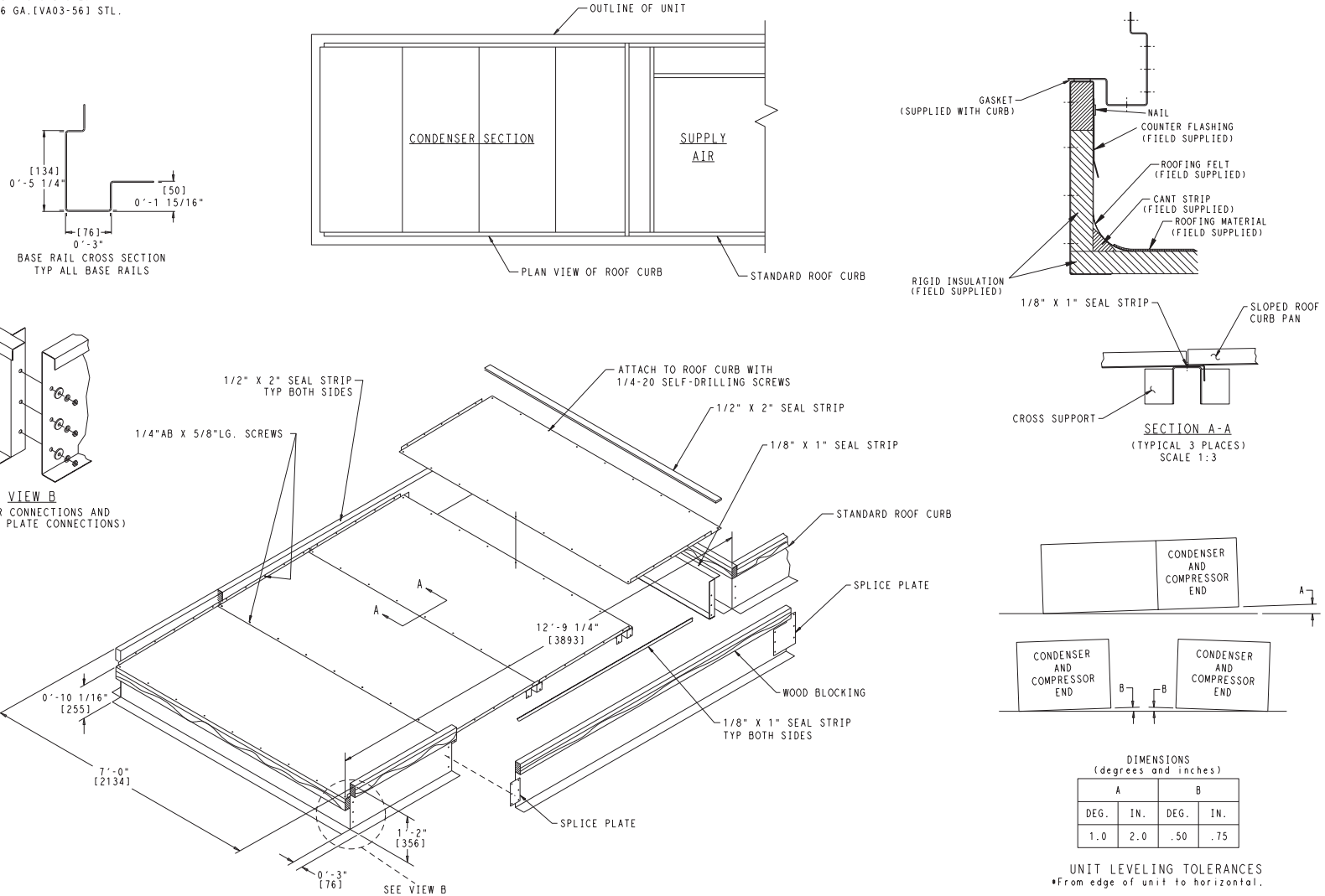


Fig. 5 — Condenser Section Roof Curb (Sizes 070 and 075)

NOTES:
1. ROOF CURB ACCESSORY CRRFCURB071A00 IS SHIPPED DISASSEMBLED.
2. DIMENSIONS IN [ ] ARE MILLIMETERS.
3. ROOF CURB: 14 GA.[VA03-56] STL.
   ROOF CURB PANS: 16 GA.[VA03-56] STL.



DIMENSIONS
(degrees and inches)

A		B	
DEG.	IN.	DEG.	IN.
1.0	2.0	.50	.75

UNIT LEVELING TOLERANCES
*From edge of unit to horizontal.

Fig. 6 — Condenser Section Roof Curb (Sizes 090 and 100)

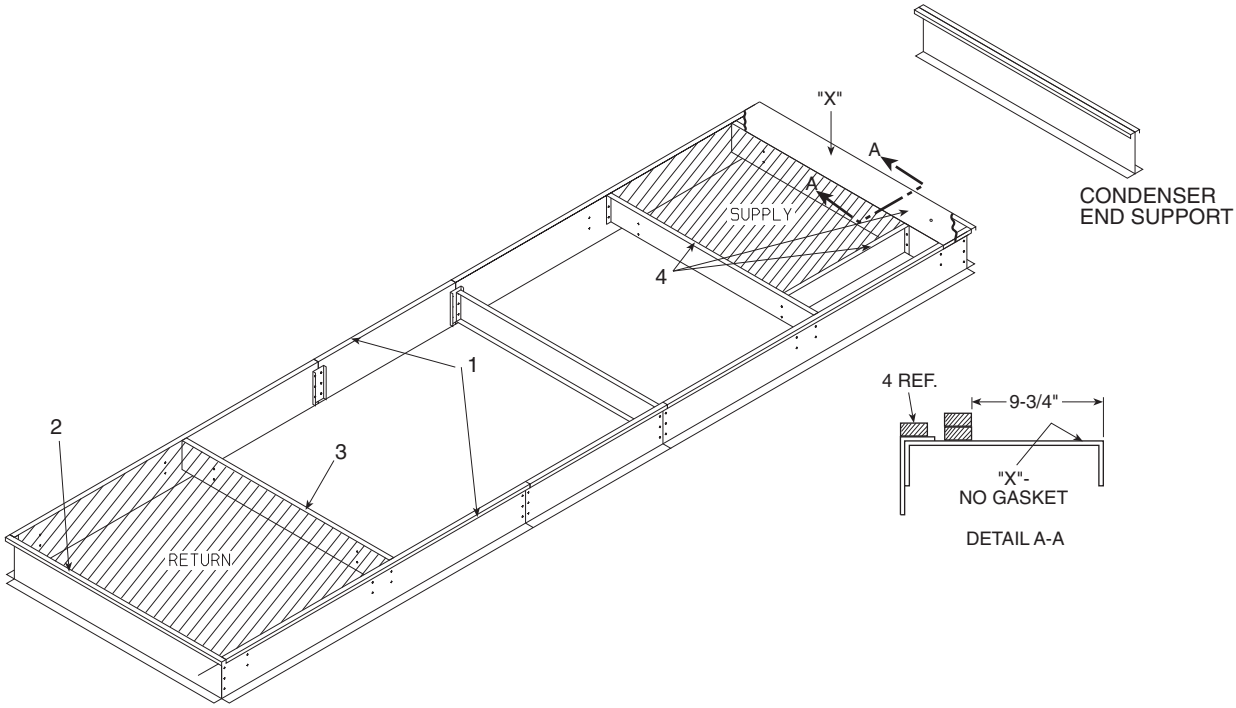


Fig. 7 — Gasket Location on Roof Curb (Size 070-100 Units)

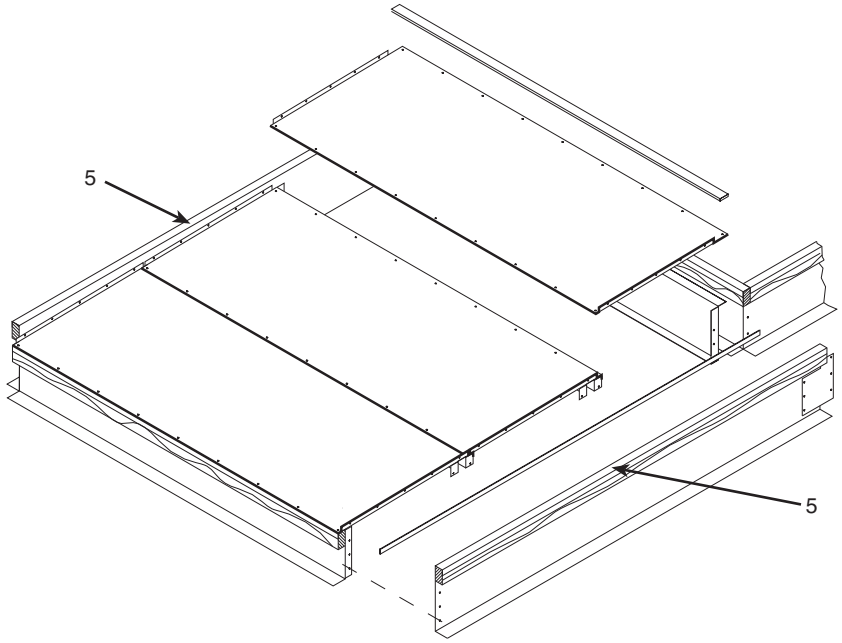


Fig. 8 — Gasket Location — Condenser Section Roof Curb (Size 070-100 Units)

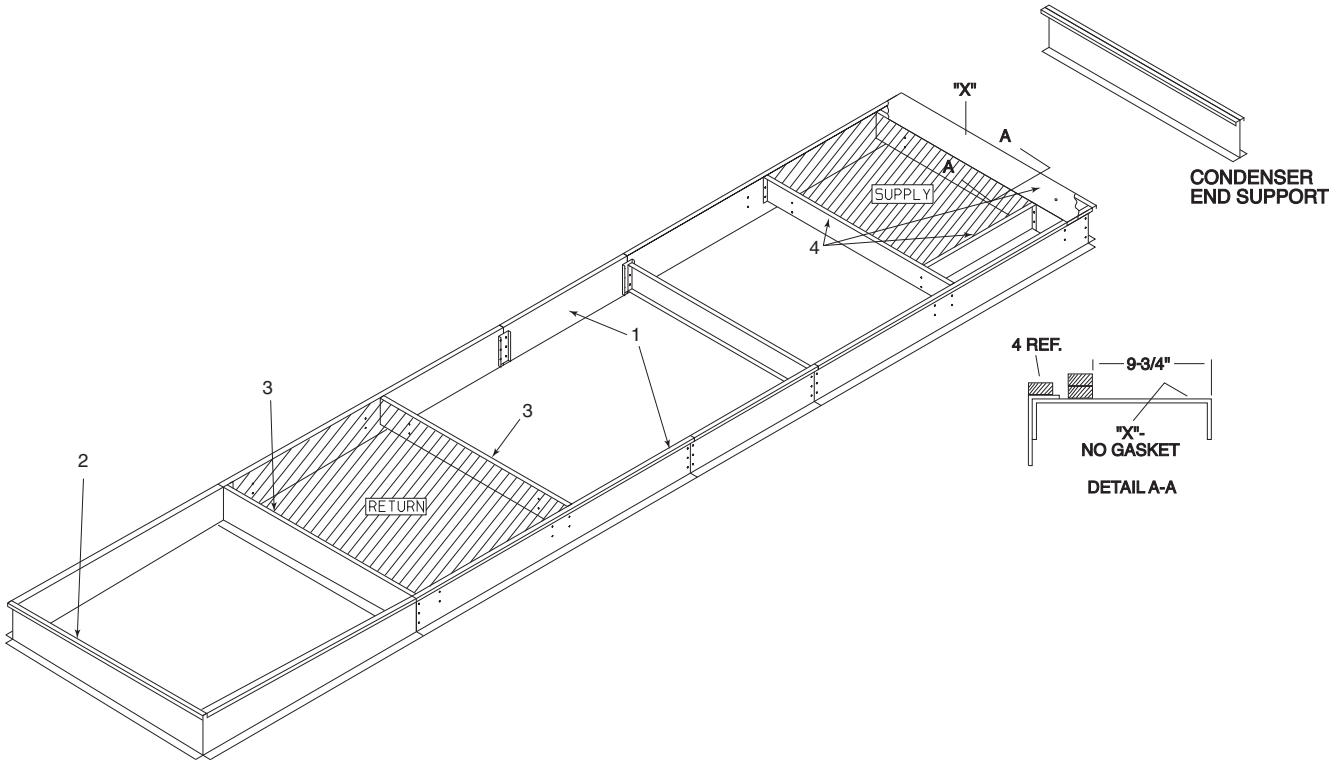


Fig. 9 — Gasket Location on Roof Curb (48P075-100 Units with Optional High-Capacity Power Exhaust)

Step 6 — Install Field-Fabricated Ductwork

⚠ WARNING

For vertical supply and return units, tools or parts could drop into ductwork and cause an injury. Install a 90-degree elbow in the supply and return ductwork between the unit and the conditioned space. If a 90-degree elbow cannot be installed, then a grille of sufficient strength and density should be installed to prevent objects from falling into the conditioned space. Failure to follow these instructions could result in personal injury or property damage due to falling objects.

The 48P2,P3,P6,P7 units are designed for vertical supply/return only. Field-fabricated ductwork must be attached to the roof curb, or to the support steel, prior to the final rigging and installation of the unit. Supply and return duct dimensions are shown in Fig. 2-4.

To attach ductwork to roof curb, insert duct approximately 10 to 11 in. up into roof curb. Connect ductwork to 14-gauge roof curb material with sheet metal screws driven from inside the duct.

Secure all ducts to the building structure, using flexible duct connectors between roof curbs and ducts as required. Ducts passing through an unconditioned space must be insulated and covered with a vapor barrier. Outlet grilles must not lie directly below unit discharge.

Design supply duct strong enough to handle expected static pressures.

⚠ WARNING

Supply duct must be designed to be strong enough to handle expected static pressures.

Step 7 — Rig Unit

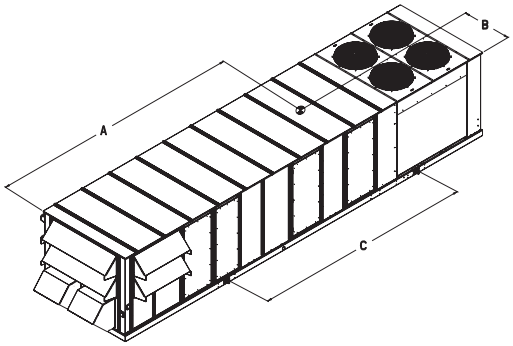
Do not drop unit; keep upright. Use spreader bars over unit to prevent sling or cable damage. Sheets of plywood placed along the condenser coils will provide additional protection. All lifting lugs MUST be used when lifting unit. Level by using unit frame as a reference. See Fig. 10 and 11 for information. Unit and accessory weights are shown in Tables 1-4 and 8. Weight distribution and center of gravity can be found in Fig. 12.

⚠ CAUTION - NOTICE TO RIGGERS:

ALL PANELS MUST BE IN PLACE WHEN RIGGING.

NOTE: Rig with four cables and spread with two 95 inch (2413 MM) spreader bars.

Position			Units	Size	Weight		Center of Gravity Dimensions				Lifting Lugs	
							A		B		C	
1,2,3	4	5			Lbs	Kgs	Inches	Millimeters	Inches	Millimeters	Inches	Millimeters
48P	2,3,4,5 6,7,8,9	B,D,H	48 P2, P3, P4, P5, P6,P7,P8,P9 Vertical Supply/ Return Horizontal Supply/ Return Low Gas Heat	30	6019	2733	170,6	4334	45,8	1164	166,4	4227
				35	6169	2801	170,9	4342	45,8	1164	166,4	4227
				40	6710	3046	198,2	5035	45,8	1164	185,3	4707
				50	6925	3144	198,0	5029	45,8	1164	185,3	4707
				55	9220	4186	228,9	5814	45,8	1164	257,5	6541
				60	9275	4211	228,5	5803	45,8	1164	257,5	6541
				70	9615	4365	244,7	6215	40,2	1021	219,0	5563
48P	2,3,4,5 6,7,8,9	C,E,J	48 P2, P3, P4, P5, P6,P7,P8,P9 Vertical Supply/ Return Horizontal Supply/ Return High Gas Heat	30	6149	2792	169,7	4310	45,8	1164	166,4	4227
				35	6299	2860	170,0	4319	45,8	1164	166,4	4227
				40	6840	3105	197,3	5012	45,8	1164	185,3	4707
				50	7055	3203	200,4	5090	45,8	1164	185,3	4707
				55	9350	4245	229,0	5816	45,8	1164	257,5	6541
				60	9405	4270	228,5	5805	45,8	1164	257,5	6541
				70	9745	4424	244,8	6218	40,2	1021	219,0	5563
48P	2,3,4,5 6,7,8,9	P,R,W	48 P2, P3, P4, P5, P6,P7,P8,P9 Vertical Supply/ Return Horizontal Supply/ Return Low Gas Heat Extended Chassis	30	6519	2960	187,1	4753	45,8	1164	191,6	4867
				35	6669	3028	187,7	4768	45,8	1164	191,6	4867
				40	7210	3273	214,8	5456	45,8	1164	208,2	5288
				50	7425	3371	217,8	5532	45,8	1164	208,2	5288
				55	9770	4436	242,7	6164	45,8	1164	273,2	6939
				60	9825	4461	242,2	6151	45,8	1164	273,2	6939
				70	10165	4615	258,3	6562	40,2	1021	250,2	6355
48P	2,3,4,5 6,7,8,9	Q,S,X	48 P2, P3, P4, P5, P6,P7,P8,P9 Vertical Supply/ Return Horizontal Supply/ Return High Gas Heat Extended Chassis	30	6649	3019	186,1	4726	45,8	1164	191,6	4867
				35	6799	3087	186,7	4742	45,8	1164	191,6	4867
				40	7340	3332	213,8	5431	45,8	1164	208,2	5288
				50	7555	3430	216,8	5507	45,8	1164	208,2	5288
				55	9900	4495	242,7	6166	45,8	1164	273,2	6939
				60	9955	4520	242,3	6153	45,8	1164	273,2	6939
				70	10295	4674	258,4	6564	40,2	1021	250,2	6355
50P	2,3,6,7	-,A,B,C	50 P2, P3, P6, P7 Vertical Supply/ Return	30	5519	2506	159,2	4043	45,8	1164	148,1	3762
				35	5669	2574	159,4	4049	45,8	1164	148,1	3762
				40	6210	2819	186,1	4727	45,8	1164	169,5	4305
				50	6425	2917	189,3	4807	45,8	1164	169,5	4305
				55	8230	3736	212,6	5401	45,8	1164	210,5	5347
				60	8285	3761	212,3	5392	45,8	1164	210,5	5347
				70	8625	3916	250,5	6362	40,2	1021	176,5	4483
50P	2,3,6,7	H	50 P2, P3, P6,P7 Vertical Supply/ Return w/ Ext Plenum	30	5819	2642	152,3	3867	45,8	1164	166,4	4227
				35	5969	2710	152,1	3863	45,8	1164	166,4	4227
				40	6510	2956	180,2	4576	45,8	1164	185,3	4707
	4,5,8,9	-	50 P4, P5, P8,P9 Horizontal Supply/ Return	50	6725	3053	183,6	4665	45,8	1164	185,3	4707
				55	8780	3986	231,7	5885	45,8	1164	257,5	6541
				60	8835	4011	231,3	5874	45,8	1164	257,5	6541
				70	9175	4165	247,5	6287	40,2	1021	219,0	5563
50P	2,3,6,7	R,S,T,V,W	50 P2, P3, P6, P7 Vertical Supply/ Return w/ Extended Chassis	30	6019	2733	175,4	4456	45,8	1164	173,3	4402
				35	6169	2801	176,2	4475	45,8	1164	173,3	4402
				40	6710	3046	202,8	5151	45,8	1164	194,7	4945
				50	6925	3144	205,8	5228	45,8	1164	194,7	4945
				55	8780	3986	226,0	5741	45,8	1164	208,2	5288
				60	8835	4011	225,6	5731	45,8	1164	208,2	5288
				70	9175	4165	264,8	6725	40,2	1021	201,7	5123
50P	2,3,6,7	P,Y R,W	50 P2, P3, P6, P7 Vertical Supply/ Return w/ Ext Plenum w/ Extended Chassis	30	6319	2869	166,8	4237	45,8	1164	191,6	4867
				35	6469	2937	167,1	4244	45,8	1164	191,6	4867
				40	7010	3183	195,3	4961	45,8	1164	208,2	5288
	4,5,8,9		50 P4, P5, P8, P9 Horizontal Supply/ Return w/ Extended Chassis	50	7225	3280	198,8	5050	45,8	1164	208,2	5288
				55	9330	4236	245,1	6226	45,8	1164	273,2	6939
				60	9385	4261	244,7	6214	45,8	1164	273,2	6939
				70	9725	4415	260,8	6625	45,8	1164	250,2	6355
50P	2,3,6,7	-,A,B,C	50 P2, P3, P6, P7 Vertical Supply/ Return w/ RE Fan	30	6394	2903	158,7	4030	45,8	1164	191,6	4867
				35	6544	2971	158,9	4037	45,8	1164	191,6	4867
				40	7085	3217	185,1	4703	45,8	1164	208,2	5288
				50	7300	3314	188,0	4776	45,8	1164	208,2	5288
				55	9458	4294	211,0	5358	45,8	1164	273,2	6939
				60	9513	4319	210,5	5347	45,8	1164	273,2	6939
				70	9853	4473	249,0	6325	40,2	1021	250,2	6355
48P	2,3,6,7	B,D,H	48 P2, P3, P6, P7 Low Gas Heat Vertical Supply/ Return	30	6894	3130	170,1	4321	45,8	1164	191,6	4867
				35	7044	3198	170,5	4330	45,8	1164	191,6	4867
				40	7585	3444	197,3	5013	45,8	1164	208,2	5288
				50	7800	3541	197,2	5008	45,8	1164	208,2	5288
				55	10448	4743	227,3	5774	45,8	1164	273,2	6939
				60	10503	4768	226,8	5760	45,8	1164	273,2	6939
				70	10843	4923	243,0	6173	40,2	1021	250,2	6355
48P	2,3,6,7	C,E,J	48 P2, P3, P6, P7 High Gas Heat Vertical Supply/ Return	30	7024	3189	169,2	4298	45,8	1164	191,6	4867
				35	7174	3257	169,6	4307	45,8	1164	191,6	4867
				40	7715	3503	196,5	4990	45,8	1164	208,2	5288
				50	7930	3600	199,3	5061	45,8	1164	208,2	5288
				55	10578	4802	227,4	5777	45,8	1164	273,2	6939
				60	10633	4827	226,9	5763	45,8	1164	273,2	6939
				70	10973	4982	243,2	6176	40,2	1021	250,2	6355
50P	2,3,6,7	R,S,T,V,W	50 P2, P3, P6 ,P7 Vertical Supply/ Return w/ Extended Chassis w/ Return Fan	30	6894	3130	176,6	4486	45,8	1164	191,6	4867
				35	7044	3198	179,9	4570	45,8	1164	191,6	4867
				40	7585	3444	207,4	5268	45,8	1164	208,2	5288
				50	7800	3541	210,6	5350	45,8	1164	208,2	5288
				55	10008	4544	230,0	5842	45,8	1164	273,2	6939
				60	10063	4569	229,6	5833	45,8	1164	273,2	6939
				70	10403	4723	263,4	6689	40,2	1021	250,2	6355
48P	2,3,6,7	P,R,W	48 P2, P3, P6, P7 Vertical Supply/ Return w/ Return Fan Low Gas Heat Extended Chassis	30	7394	3357	188,0	4776	45,8	1164	191,6	4867
				35	7544	3425	191,6	4867	45,8	1164	191,6	4867
				40	8085	3671	220,7	5607	45,8	1164	208,2	5288
				50	8300	3768	224,3	5697	45,8	1164	208,2	5288
				55	10998	4993	241,2	6125	45,8	1164	273,2	6939
				60	11053	5018	240,6	6111	45,8	1164	273,2	6939
				70	11393	5172	240,6	6112	40,2	1021	250,2	6355
48P	2,3,6,7	Q,S,X	48 P2, P3, P6, P7 Vertical Supply/ Return w/ Return Fan High Gas Heat Extended Chassis	30	7524	3416	187,4	4760	45,8	1164	191,6	4867
				35	7674	3484	190,6	4840	45,8	1164	191,6	4867
				40	8215	3730	218,0	5536	45,8	1164	208,2	5288
				50	8430	3827	221,2	5618	45,8	1164	208,2	5288
				55	11128	5052	241,3	6128	45,8	1164	273,2	6939
				60	11183	5077	240,7	6114	45,8	1164	273,2	6939
				70	11523	5231	276,3	7019	40,2	1021	250,2	6355



NOTE:
1. Weights do not include economizer or power exhaust.
2. Label only for units size 30-70.

48ZZ501077 C

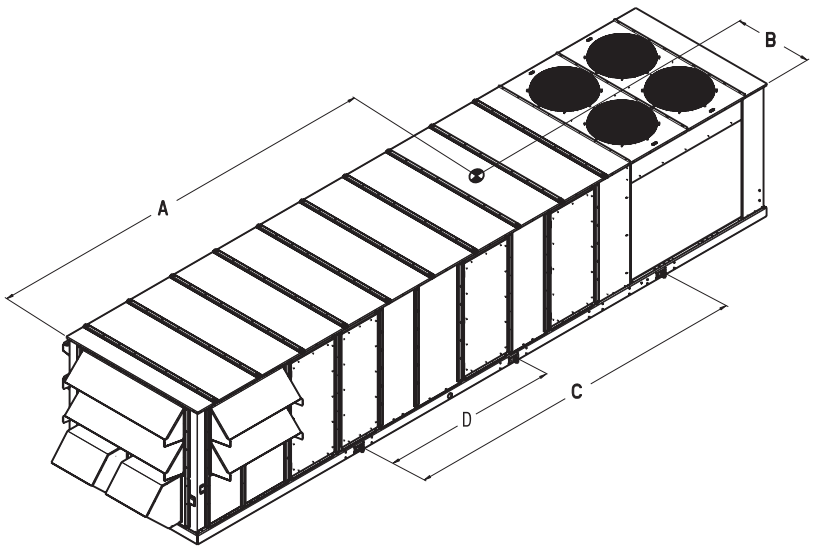
Fig. 10 — Rigging Label — 030-070 Units

⚠ CAUTION - NOTICE TO RIGGERS:

ALL PANELS MUST BE IN PLACE WHEN RIGGING.

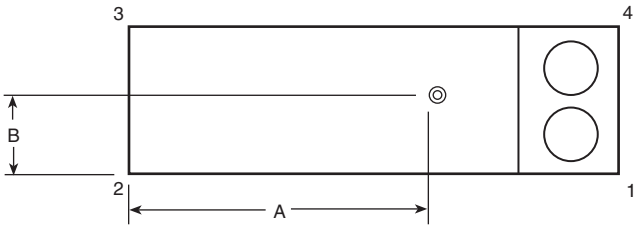
NOTE: Rig with four cables and spread with two 95 inch (2413 MM) spreader bars.

Position			Units	Size	Weight		Center of Gravity Dimensions				Lifting Lugs			
							A		B		C		D	
1,2,3	4	5			Lbs	Kgs	Inches	Millimeters	Inches	Millimeters	Inches	Millimeters	Inches	Millimeters
48P	2,3,4,5	B,D,H	48 P2, P3, P4, P5, P6,P7,P8,P9 Low Gas Heat	75	10665	4842	253.1	6429	40.2	1021	255.7	6495	111.3	2827
	6,7,8,9		Vertical Supply/ Return	90	11265	5114	260.9	6628	41.5	1054	255.7	6495	110.4	2804
			Horizontal Supply/ Return	100	11285	5123	260.0	6603	41.5	1054	255.7	6495	110.4	2804
48P	2,3,4,5	C,E,J	48 P2, P3, P4, P5, P6,P7,P8,P9 High Gas Heat	75	10795	4901	254.4	6462	40.2	1021	255.7	6495	111.3	2827
	6,7,8,9		Vertical Supply/ Return	90	11395	5173	262.1	6657	41.5	1054	255.7	6495	110.4	2804
			Horizontal Supply/ Return	100	11415	5182	261.3	6637	41.5	1054	255.7	6495	110.4	2804
48P	2,3,4,5	P,R,W	48 P2, P3, P4, P5, P6,P7,P8,P9 Low Gas Heat	75	11215	5092	266.7	6775	40.2	1021	280.8	7132	139.4	3541
	6,7,8,9		Vertical Supply/ Return	90	11815	5364	274.7	6976	41.5	1054	280.8	7132	139.4	3541
			Horizontal Supply/ Return Extended Chassis	100	11835	5373	273.4	6944	41.5	1054	280.8	7132	139.4	3541
48P	2,3,4,5	Q,S,X	48 P2, P3, P4, P5, P6,P7,P8,P9 High Gas Heat	75	11345	5151	268.0	6808	40.2	1021	280.8	7132	139.4	3541
	6,7,8,9		Vertical Supply/ Return	90	11945	5423	275.8	7005	41.5	1054	280.8	7132	139.4	3541
			Horizontal Supply/ Return Extended Chassis	100	11965	5432	274.7	6978	41.5	1054	280.8	7132	139.4	3541
50P	2,3,4,5	-,B,C	50 P2, P3, P4, P5, P6, P7, P8, P9	75	10265	4660	250.1	6354	40.2	1021	255.7	6495	111.3	2827
	6,7,8,9		Vertical Supply/ Return	90	10865	4933	258.4	6562	41.5	1054	255.7	6495	110.4	2804
			Horizontal Supply/ Return	100	10885	4942	257.3	6535	41.5	1054	255.7	6495	110.4	2804
50P	2,3,4,5	R,T,V,W	50 P2, P3, P4, P5, P6, P7, P8, P9	75	10815	4910	264.6	6722	40.2	1021	280.8	7132	139.4	3541
	6,7,8,9		Vert, Horz Supply/ Return	90	11415	5182	272.9	6932	41.5	1054	280.8	7132	139.4	3541
			w/ Extended Chassis	100	11435	5191	271.6	6899	41.5	1054	280.8	7132	139.4	3541
50P	2,3,4,5	-,B,C	50 P2, P3, P4, P5, P6, P7, P8, P9	75	11921	5412	220.1	5590	40.2	1021	255.7	6495	111.3	2827
	6,7,8,9		Vert Supply/Return w/ RE Fan	90	12521	5685	228.4	5800	41.5	1054	255.7	6495	110.4	2804
			Horz Supply Vert Return w/ RE Fan	100	12541	5694	227.8	5786	41.5	1054	255.7	6495	110.4	2804
48P	2,3,4,5	B,D,H	48 P2,P3,P4,P5,P6,P7,P8,P9 Low Gas Heat	75	12321	5594	224.6	5706	40.2	1021	255.7	6495	111.3	2827
	6,7,8,9		Vert Supply/Return w/ RE Fan	90	12921	5866	232.6	5908	41.5	1054	255.7	6495	110.4	2804
			Horz Supply Vert Return w/ RE Fan	100	12941	5875	230.4	5853	41.5	1054	255.7	6495	110.4	2804
48P	2,3,4,5	C,E,J	48 P2,P3,P4,P5,P6,P7,P8,P9 High Gas Heat	75	12451	5653	226.9	5764	40.2	1021	255.7	6495	111.3	2827
	6,7,8,9		Vert Supply/Return w/ RE Fan	90	13051	5925	233.7	5936	41.5	1054	255.7	6495	110.4	2804
			Horz Supply Vert Return w/ RE Fan	100	13071	5934	232.9	5915	41.5	1054	255.7	6495	110.4	2804
50P	2,3,4,5	R,T,V,W	50 P2, P3, P4, P5, P6, P7, P8, P9	75	12471	5662	231.7	5885	40.2	1021	280.8	7132	139.4	3541
	6,7,8,9		Vert Sup/Ret, Horz Sup/ Vert Ret	90	13071	5934	240.1	6098	41.5	1054	280.8	7132	139.4	3541
			w/ RE Fan, w/ Ext Chassis	100	13091	5943	239.2	6075	41.5	1054	280.8	7132	139.4	3541
48P	2,3,4,5	P,R,W	48 P2,P3,P4,P5,P6,P7,P8,P9 Low Gas Heat	75	12871	5843	236.2	6000	40.2	1021	280.8	7132	139.4	3541
	6,7,8,9		Vert Sup/Ret, Horz Sup/ Vert Ret	90	13471	6116	244.3	6205	41.5	1054	280.8	7132	139.4	3541
			w/ RE Fan, w/ Ext Chassis	100	13491	6125	241.8	6142	41.5	1054	280.8	7132	139.4	3541
48P	2,3,4,5	Q,S,X	48 P2,P3,P4,P5,P6,P7,P8,P9 High Gas Heat	75	13001	5902	238.5	6058	40.2	1021	280.8	7132	139.4	3541
	6,7,8,9		Vert Sup/Ret, Horz Sup/ Vert Ret	90	13601	6175	245.4	6234	41.5	1054	280.8	7132	139.4	3541
			w/ RE Fan, w/ Ext Chassis	100	13621	6184	244.2	6203	41.5	1054	280.8	7132	139.4	3541
48P	2,3,4,5	B,D,H	48 P2,P3,P4,P5,P6,P7,P8,P9 Low Gas Heat	75	13499	6129	290.1	7367	40.2	1021	312.1	7927	162.6	4130
	6,7,8,9		Vert Sup/Ret, Horz Sup/Ret	90	14097	6400	297.7	7561	41.5	1054	312.1	7927	171.4	4354
			w/ Hi Cap PE	100	14119	6410	297.1	7546	41.5	1054	312.1	7927	171.4	4354
48P	2,3,4,5	C,E,J	48 P2,P3,P4,P5,P6,P7,P8,P9 High Gas Heat	75	13629	6188	291.3	7400	40.2	1021	312.1	7927	162.6	4130
	6,7,8,9		Vert Sup/Ret, Horz Sup/Ret	90	14227	6459	298.9	7593	41.5	1054	312.1	7927	171.4	4354
			w/ Hi Cap PE	100	14249	6469	298.2	7575	41.5	1054	312.1	7927	171.4	4354
50P	2,3,4,5	-,B,C	50 P2, P3, P4, P5, P6, P7, P8, P9	75	13099	5947	287.1	7293	40.2	1021	312.1	7927	162.6	4130
	6,7,8,9		Vert Sup/Ret, Horz Sup/Ret	90	13697	6218	295.1	7496	41.5	1054	312.1	7927	171.4	4354
			w/ Hi Cap PE	100	13719	6228	294.4	7478	41.5	1054	312.1	7927	171.4	4354
48P	2,3,4,5	P,R,W	48 P2,P3,P4,P5,P6,P7,P8,P9 Low Gas Heat	75	14049	6378	483.5	12280	40.2	1021	337.3	8567	151.7	3853
	6,7,8,9		Vert Sup/Ret, Horz Sup/Ret	90	14647	6650	484.3	12302	41.5	1054	337.3	8567	196.7	4996
			w/ Hi Cap PE w/ Ext Chassis	100	14669	6660	493.8	12542	41.5	1054	337.3	8567	196.7	4996
48P	2,3,4,5	Q,S,X	48 P2,P3,P4,P5,P6,P7,P8,P9 High Gas Heat	75	14179	6437	483.5	12280	40.2	1021	337.3	8567	151.7	3853
	6,7,8,9		Vert Sup/Ret, Horz Sup/Ret	90	14777	6709	484.3	12301	41.5	1054	337.3	8567	196.7	4996
			w/ Hi Cap PE w/ Ext Chassis	100	14799	6719	493.8	12542	41.5	1054	337.3	8567	196.7	4996
50P	2,3,4,5	R,T,V,W	50 P2, P3, P4, P5, P6, P7, P8, P9	75	13649	6197	483.5	12281	40.2	1021	337.3	8567	151.7	3853
	6,7,8,9		Vert Sup/Ret, Horz Sup/Ret	90	14247	6468	484.4	12304	41.5	1054	337.3	8567	196.7	4996
			w/ Hi Cap PE w/ Ext Chassis	100	14269	6478	493.8	12543	41.5	1054	337.3	8567	196.7	4996



48ZZ501078 C

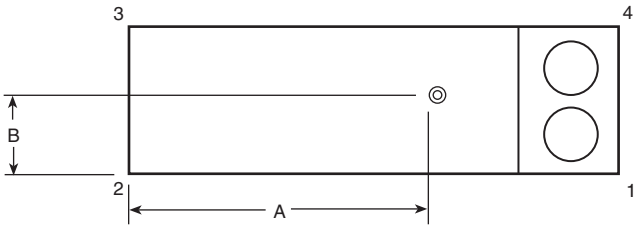
Fig. 11 — Rigging Label — 075-100 Units



Units	Size	Corner Weights (lb)				Total Weight (lb)	A (in.)	B (in.)
		1	2	3	4			
48 P2,P3,P4,P5,P6,P7,P8,P9	30	2002	1009	1008	2000	6019	170.62	45.81
Vertical Supply/ Return	35	2056	1031	1029	2053	6169	170.93	45.81
Horizontal Supply/ Return	40	1983	1374	1372	1981	6710	198.24	45.81
Low Gas Heat	50	2044	1420	1418	2042	6925	198.00	45.81
	55	2408	2205	2202	2404	9220	228.90	45.81
	60	2417	2223	2220	2414	9275	228.46	45.81
	70	2950	2450	1913	2303	9615	244.68	40.20
	75	3385	2604	2033	2643	10665	253.12	40.20
	90	3255	2911	2407	2691	11265	260.95	41.50
	100	3248	2929	2422	2686	11285	259.95	41.50
48 P2, P3, P4, P5, P6,P7,P8,P9	30	2034	1042	1041	2032	6149	169.70	45.81
Vertical Supply/ Return	35	2088	1064	1062	2085	6299	170.02	45.81
Horizontal Supply/ Return	40	2013	1410	1408	2010	6840	197.33	45.81
High Gas Heat	50	2108	1422	1420	2105	7055	200.37	45.81
	55	2443	2236	2233	2439	9350	228.98	45.81
	60	2452	2254	2250	2449	9405	228.53	45.81
	70	2991	2481	1937	2335	9745	244.79	40.20
	75	3444	2618	2044	2689	10795	254.42	40.20
	90	3307	2931	2424	2734	11395	262.08	41.50
	100	3303	2946	2436	2731	11415	261.30	41.50

Units with Optional Extended Chassis	Size	Corner Weights (lb)				Total Weight (lb)	A (in.)	B (in.)
		1	2	3	4			
48 P2, P3, P4, P5, P6,P7,P8,P9	30	2166	1096	1094	2163	6519	187.13	45.81
Vertical Supply/ Return	35	2223	1114	1112	2220	6669	187.73	45.81
Horizontal Supply/ Return	40	2148	1460	1458	2145	7210	214.79	45.81
Low Gas Heat	50	2243	1472	1470	2240	7425	217.78	45.81
Extended Chassis	55	2558	2331	2328	2554	9770	242.67	45.81
	60	2567	2349	2346	2563	9825	242.18	45.81
	70	3117	2591	2023	2434	10165	258.33	40.20
	75	3551	2747	2145	2773	11215	266.74	40.20
	90	3419	3048	2521	2827	11815	274.65	41.50
	100	3409	3070	2538	2819	11835	273.37	41.50
48 P2, P3, P4, P5, P6,P7,P8,P9	30	2197	1130	1129	2194	6649	186.07	45.81
Vertical Supply/ Return	35	2253	1148	1147	2250	6799	186.68	45.81
Horizontal Supply/ Return	40	2177	1496	1494	2174	7340	213.81	45.81
High Gas Heat	50	2272	1508	1506	2269	7555	216.81	45.81
Extended Chassis	55	2592	2361	2358	2589	9900	242.74	45.81
	60	2602	2379	2376	2598	9955	242.26	45.81
	70	3158	2623	2048	2466	10295	258.44	40.20
	75	3610	2761	2156	2818	11345	268.04	40.20
	90	3471	3068	2537	2870	11945	275.78	41.50
	100	3463	3086	2552	2864	11965	274.72	41.50
48 P2, P3, P6, P7 Low Gas Heat	30	2287	1163	1161	2284	6894	170.13	45.81
Vertical Supply/ Return	35	2341	1183	1182	2338	7044	170.46	45.81
	40	2232	1563	1561	2229	7585	197.34	45.81
	50	2293	1610	1608	2290	7800	197.15	45.81
	55	2710	2518	2515	2706	10448	227.32	45.81
	60	2717	2538	2534	2714	10503	226.77	45.81
	70	3304	2785	2175	2579	10843	243.01	40.20

Fig. 12 — Weight Distribution and Center of Gravity



Units with Optional Return Fan	Size	Corner Weights (lb)				Total Weight (lb)	A (in.)	B (in.)
		1	2	3	4			
48 P2, P3, P6, P7 Low Gas Heat	30	2295	1167	1165	2292	6919	170.11	45.81
Vertical Supply/ Return	35	2349	1188	1186	2346	7069	170.45	45.81
	40	2239	1569	1566	2236	7610	197.32	45.81
	50	2300	1615	1613	2297	7825	197.13	45.81
	55	2720	2529	2525	2716	10490	227.27	45.81
	60	2728	2548	2545	2724	10545	226.72	45.81
	70	3316	2797	2184	2589	10885	242.96	40.20
48 P2,P3,P4,P5,P6,P7,P8,P9 Low Gas Heat	75	3470	3449	2693	2709	12321	224.64	40.20
Vert Supply/Return w/ RE Fan	90	3327	3745	3097	2751	12921	232.59	41.50
Horz Supply Vert Return w/ RE Fan	100	3302	3782	3127	2730	12941	230.43	41.50
48 P2,P3,P4,P5,P6,P7,P8,P9 High Gas Heat	75	3543	3449	2693	2766	12451	226.92	40.20
Vert Supply/Return w/ RE Fan	90	3377	3767	3115	2793	13051	233.72	41.50
Horz Supply Vert Return w/ RE Fan	100	3370	3785	3130	2787	13071	232.86	41.50
48 P2, P3, P6, P7	30	2477	1235	1234	2473	7419	188.02	45.81
Vertical Supply/ Return	35	2575	1212	1210	2572	7569	191.62	45.81
w/ Return Fan	40	2483	1575	1573	2479	8110	220.72	45.81
Low Gas Heat	50	2589	1576	1574	2586	8325	224.26	45.81
Extended Chassis	55	2872	2652	2649	2868	11040	241.11	45.81
	60	2879	2672	2669	2875	11095	240.53	45.81
	70	3533	2888	2255	2759	11435	240.58	40.20
48 P2,P3,P4,P5,P6,P7,P8,P9 Low Gas Heat	75	3609	3618	2825	2818	12871	236.23	40.20
Vert Sup/Ret, Horz Sup/ Vert Ret	90	3467	3906	3230	2867	13471	244.30	41.50
w/ RE Fan, w/ Ext Chassis	100	3437	3948	3264	2842	13491	241.80	41.50
48 P2, P3, P6, P7	30	2512	1265	1264	2508	7549	187.39	45.81
Vertical Supply/ Return	35	2605	1248	1246	2601	7699	190.55	45.81
w/ Return Fan	40	2491	1632	1630	2487	8240	217.94	45.81
High Gas Heat	50	2593	1637	1635	2590	8455	221.14	45.81
Extended Chassis	55	2907	2682	2678	2903	11170	241.23	45.81
	60	2914	2702	2699	2910	11225	240.65	45.81
	70	3927	2568	2005	3066	11565	276.31	40.20
48 P2,P3,P4,P5,P6,P7,P8,P9 High Gas Heat	75	3681	3620	2826	2874	13001	238.51	40.20
Vert Sup/Ret, Horz Sup/ Vert Ret	90	3517	3928	3248	2908	13601	245.43	41.50
w/ RE Fan, w/ Ext Chassis	100	3505	3951	3267	2898	13621	244.22	41.50

Units with Optional High-Capacity Power Exhaust	Size	Corner Weights (lb)				Total Weight (lb)	A (in.)	B (in.)
		1	2	3	4			
48 P2,P3,P4,P5,P6,P7,P8,P9 Low Gas Heat	75	4171	3410	2662	3256	13499	290.06	40.20
Vert Sup/Ret, Horz Sup/Ret	90	4004	3712	3070	3311	14097	297.68	41.50
w/ Hi Cap PE	100	4002	3726	3081	3309	14119	297.09	41.50
48 P2,P3,P4,P5,P6,P7,P8,P9 High Gas Heat	75	4230	3424	2673	3302	13629	291.34	40.20
Vert Sup/Ret, Horz Sup/Ret	90	4058	3730	3084	3356	14227	298.94	41.50
w/ Hi Cap PE	100	4054	3745	3097	3352	14249	298.21	41.50
48 P2,P3,P4,P5,P6,P7,P8,P9 Low Gas Heat	75	6905	984	768	5391	14049	483.47	40.20
Vert Sup/Ret, Horz Sup/Ret	90	6484	1534	1268	5362	14647	484.32	41.50
w/ Hi Cap PE w/ Ext Chassis	100	6620	1409	1165	5474	14669	493.79	41.50
48 P2,P3,P4,P5,P6,P7,P8,P9 High Gas Heat	75	6969	993	776	5441	14179	483.45	40.20
Vert Sup/Ret, Horz Sup/Ret	90	6541	1547	1280	5409	14777	484.30	41.50
w/ Hi Cap PE w/ Ext Chassis	100	6679	1422	1176	5523	14799	493.77	41.50

Fig. 12 — Weight Distribution and Center of Gravity (cont)

Step 8 — Connect Condensate Drain

There are a total of five drain connections required on each unit: one primary drain (on right-hand side of the unit) and four secondary drains (two on each side of unit).

PRIMARY DRAIN

The primary drain is a 2 in. FPT pipe connection located on the right-hand side of the unit looking at the unit from the return air end. See Fig. 13-22. Figure 23 shows the additional length of units with an extended chassis.

With field-supplied fittings and pipe sections, plumb the primary condensate drain to the 2 in. FPT connector on the base rail. Use a trap height of at least 4 in. for size 030-070 units and 7 in. for size 075-100 units. See Fig. 24 and 25. Apply a bead of RTV or similar sealant around the pipe joint at the connector in the base rail.

SECONDARY DRAINS (UNITS INSTALLED ON CURB)

There are two secondary drain connections on each side of the unit. See Fig. 26. There are secondary drains on each side of the unit in the filter section and on each side of the unit in the supply fan section. There are labels marking each location on the unit base rail. See Fig. 13-22.

Locate the four 1-1/4 in. drain coupling assemblies and mounting screws (shipped in a bag taped to the basepan in the supply fan section, located behind the access panel marked FAN SECTION). The drain couplings are a 10-gauge plate with a 1-1/4 in. half coupling welded to the plate.

At each secondary drain hole location, there is a 1-3/8 in. hole predrilled in the bottom of the base rail, surrounded by four 0.20 in. engagement holes. Install a drain coupling assembly using screws provided at each secondary drain hole location. See Fig. 27. Do not attach any drain coupling assemblies in the condenser section base rail.

Using field-supplied fittings and pipe sections, assemble U-traps at each secondary drain fitting. See Fig. 28. Provide a minimum size of 1/2 in. pipe for secondary drains. Use a trap at least 4 in. deep for size 030-070 units and 7 in. deep for size 075-100 units. Apply a bead of RTV or similar sealant around the drain assemblies. See Fig. 27.

Consult local plumbing codes for direction on joining multiple drain lines. Total size of any combined line does not need to exceed nominal 2 in. size of primary drain connection.

Fill the U-traps at the secondary drain locations prior to unit startup. Also check the U-traps before each cooling season to ensure the traps are filled and functioning properly.

SECONDARY DRAINS (UNITS INSTALLED ON STEEL BEAM OR SLAB)

There are two secondary drain connections required on each side of the unit. There are secondary drains on the bottom of the base rail on each side of the unit in the filter section and on each side of the unit in the supply fan section. There are labels marking each location on the unit base rail. See Fig. 13-22. Drain holes will need to be drilled in these locations at the side of the base rail. The existing secondary drain holes in the bottom of the base rail must be sealed. Prior to final positioning of the unit, apply a bead of RTV or similar sealant around each secondary drain hole in the bottom of the unit base rail. See Fig. 28. Install the metal seal plates then position the unit into final location.

Using field-supplied fittings and pipe sections, assemble U-traps at each secondary drain fitting. See Fig. 25. Provide a minimum size of 1/2 in. pipe for secondary drains. Use a trap at least 4 in. deep for size 030-070 units and 7 in. deep for size 075-100 units. Apply a bead of RTV or similar sealant around the drain assemblies. See Fig. 25.

Locate the four 1-1/4 in. drain coupling assemblies and mounting screws (shipped in a bag taped to the basepan in the supply fan section, located behind the access panel marked FAN SECTION). The drain couplings are a 10-gauge plate with a 1-1/4 in. half coupling welded to the plate.

After final positioning of the unit, perform the following procedure:

1. At each of the four secondary drain locations (marked with labels on the unit base rail), position the drain coupling assembly in the side of the base rail. Mark the screw holes and the drain hole locations on the base rail.
2. Drill holes for drain outlet (use 1-3/8 in. hole saw) and for the mounting screws (use 3/16 in. drill bit).
3. Install a drain coupling assembly using screws provided at each secondary drain hole location.
4. Using field-supplied fittings and pipe sections, assemble U-traps at each secondary drain fitting. See Fig. 25. Provide minimum size of 1/2 in. pipe for secondary drains. Use a trap at least 4 in. deep for size 030-070 units and 7 in. deep for size 075-100 units.
5. Apply a bead of RTV or similar sealant around the drain assemblies.

Consult local plumbing codes for direction on joining multiple drain lines. Total size of any combined line does not need to exceed nominal 2 in. size of primary drain connection.

Fill the U-traps at the secondary drain locations prior to unit startup. Also check the U-traps before each cooling season to ensure the traps are filled and functioning properly.

NOTES:

1. DIMENSIONS IN [ ] ARE IN MILLIMETERS.
2. ⊕ UNIT WEIGHT AND CENTER OF GRAVITY INCLUDES ECONOMIZER, LARGEST INDOOR FAN MOTOR AND HIGH CAPACITY EVAPORATOR COIL.
3. UNIT CLEARANCES
   TOP - DO NOT RESTRICT CONDENSER FANS
   CONTROL BOX END - 6′-0″
   SIDES - 6′-0″
   ECONOMIZER END - 6′-0″(EXCEPT POWER EXHAUST UNITS 10′-0″)
   FOR SMALLER SERVICE AND OPERATIONAL CLEARANCES, CONTACT CARRIER APPLICATION ENGINEERING DEPARTMENT.
4. DOWNSHOT DUCTS DESIGNED TO BE ATTACHED TO ACCESSORY ROOF CURB. IF UNIT IS MOUNTED ON DUNNAGE,IT IS RECOMMENDED THE DUCTS BE SUPPORTED BY CROSS BRACES AS DONE ON THE ACCESSORY ROOF CURB.
5. WHEN THE UNIT IS SLAB MOUNTED, PLUG THE FACTORY DRILLED AUXILIARY CONDENSATE DRAIN HOLES.
6. ECONOMIZER SIDE HOODS ARE FOLDED INSIDE UNIT FOR SHIPPING.

UNIT SIZE	WEIGHT		A		B	
	LBS.	KGS.	MM	FT. IN.	MM	FT.IN.
030 LOW HEAT	6019	2730	4334	14′-2 5/8″	1164	3′-9 13/16″
030 HIGH HEAT	6149	2789	4310	14′-1 11/16″	1164	3′-9 13/16″
035 LOW HEAT	6169	2798	4342	14′-2 15/16″	1164	3′-9 13/16″
035 HIGH HEAT	6299	2857	4319	14′-2″	1164	3′-9 13/16″

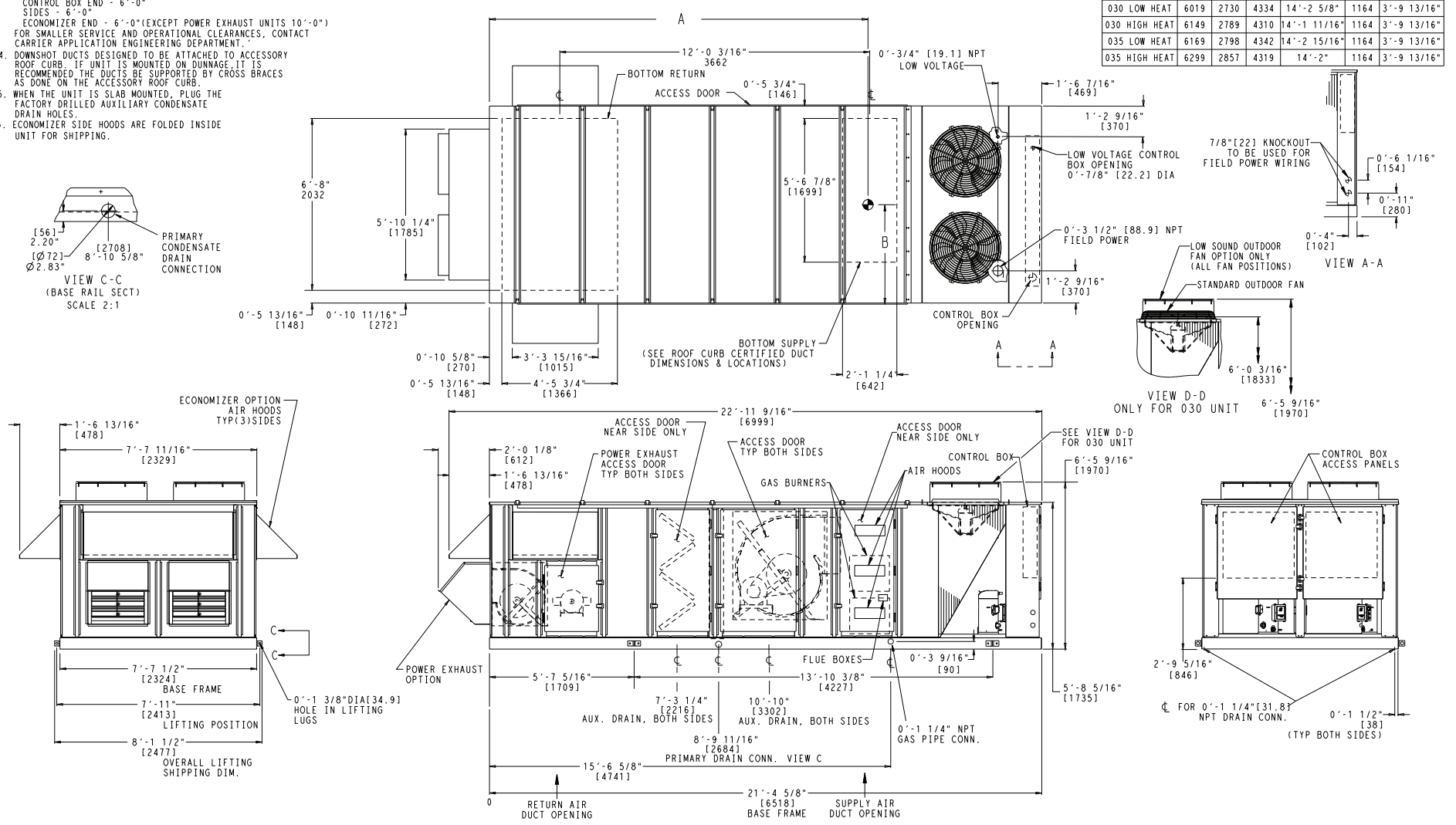


Fig. 13 — Base Unit Dimensional Drawing — 48P2,P3,P6,P7030,035 (Standard Chassis Unit Shown)

NOTES:
1. DIMENSIONS IN [ ] ARE IN MILLIMETERS.
2. ⊕ UNIT WEIGHT AND CENTER OF GRAVITY INCLUDES ECONOMIZER, LARGEST INDOOR FAN MOTOR AND HIGH CAPACITY EVAPORATOR COIL.
3. UNIT CLEARANCES
   TOP - DO NOT RESTRICT CONDENSER FANS
   CONTROL BOX END - 6'-0"
   SIDES - 6'-0"
   ECONOMIZER END - 6'-0"(EXCEPT POWER EXHAUST UNITS 10'-0")
   FOR SMALLER SERVICE AND OPERATIONAL CLEARANCES, CONTACT CARRIER APPLICATION ENGINEERING DEPARTMENT.'
4. SUGGESTED FIELD CONNECTIONS TO BE MADE INSIDE OR OUTSIDE OF 32.5 mm FLANGE.
5. WHEN THE UNIT IS SLAB MOUNTED, PLUG THE FACTORY DRILLED AUXILIARY CONDENSATE DRAIN HOLES.
6. ECONOMIZER SIDE HOODS ARE FOLDED INSIDE UNIT FOR SHIPPING.

UNIT SIZE	WEIGHT		A		B	
	LBS.	KGS.	MM	FT. IN.	MM	FT.IN.
030 LOW HEAT	6019	2730	4334	14'-2 5/8"	1164	3'-9 13/16"
030 HIGH HEAT	6149	2789	4310	14'-1 11/16"	1164	3'-9 13/16"
035 LOW HEAT	6169	2798	4342	14'-2 15/16"	1164	3'-9 13/16"
035 HIGH HEAT	6299	2857	4319	14'-2"	1164	3'-9 13/16"

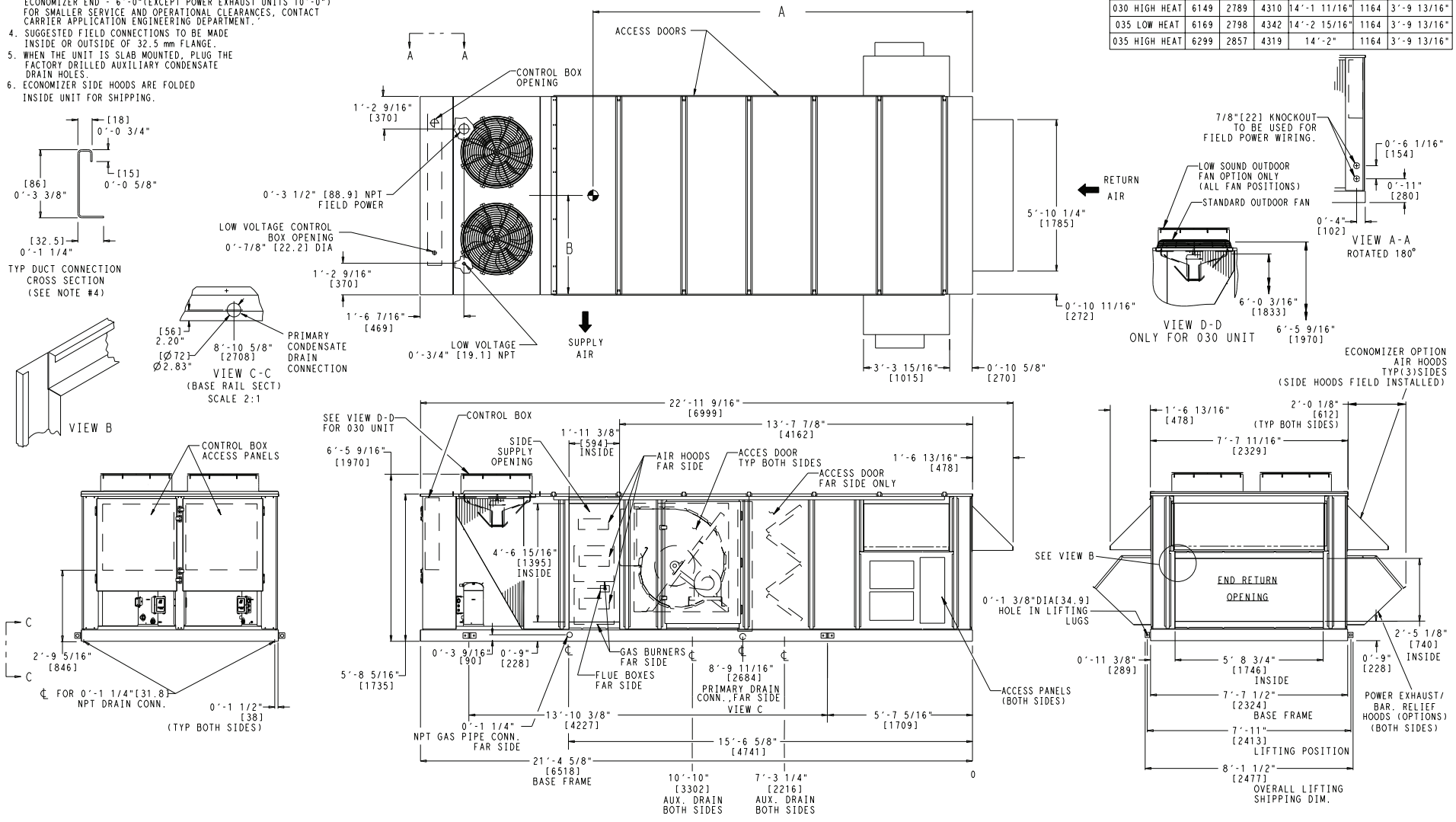


Fig. 14 — Base Unit Dimensional Drawing — 48P4,P5,P8,P9030,035 (Standard Chassis Unit Shown)

NOTES:
1. DIMENSIONS IN [ ] ARE IN MILLIMETERS.
2. ⊕ UNIT WEIGHT AND CENTER OF GRAVITY INCLUDES ECONOMIZER, LARGEST INDOOR FAN MOTOR AND HIGH CAPACITY EVAPORATOR COIL.
3. UNIT CLEARANCES
   TOP - DO NOT RESTRICT CONDENSER FANS
   CONTROL BOX END - 6'-0"
   SIDES - 6'-0"
   ECONOMIZER END - 6'-0"(EXCEPT POWER EXHAUST UNITS 10'-0")
   FOR SMALLER SERVICE AND OPERATIONAL CLEARANCES, CONTACT CARRIER APPLICATION ENGINEERING DEPARTMENT.
4. DOWNSHOT DUCTS DESIGNED TO BE ATTACHED TO ACCESSORY ROOF CURB. IF UNIT IS MOUNTED ON DUNNAGE,IT IS RECOMMENDED THE DUCTS BE SUPPORTED BY CROSS BRACES AS DONE ON THE ACCESSORY ROOF CURB.
5. WHEN THE UNIT IS SLAB MOUNTED, PLUG THE FACTORY DRILLED AUXILIARY CONDENSATE DRAIN HOLES.
6. ECONOMIZER SIDE HOODS ARE FOLDED INSIDE UNIT FOR SHIPPING.

UNIT SIZE	WEIGHT LBS.	WEIGHT KGS.	A MM	A FT. IN.
040 LOW HEAT	6710	3044	5035	16'-6 1/4"
040 HIGH HEAT	6840	3103	5012	16'-5 3/8"
050 LOW HEAT	6925	3141	5113	16'-9 5/16"
050 HIGH HEAT	7055	3200	5090	16'-8 7/16"

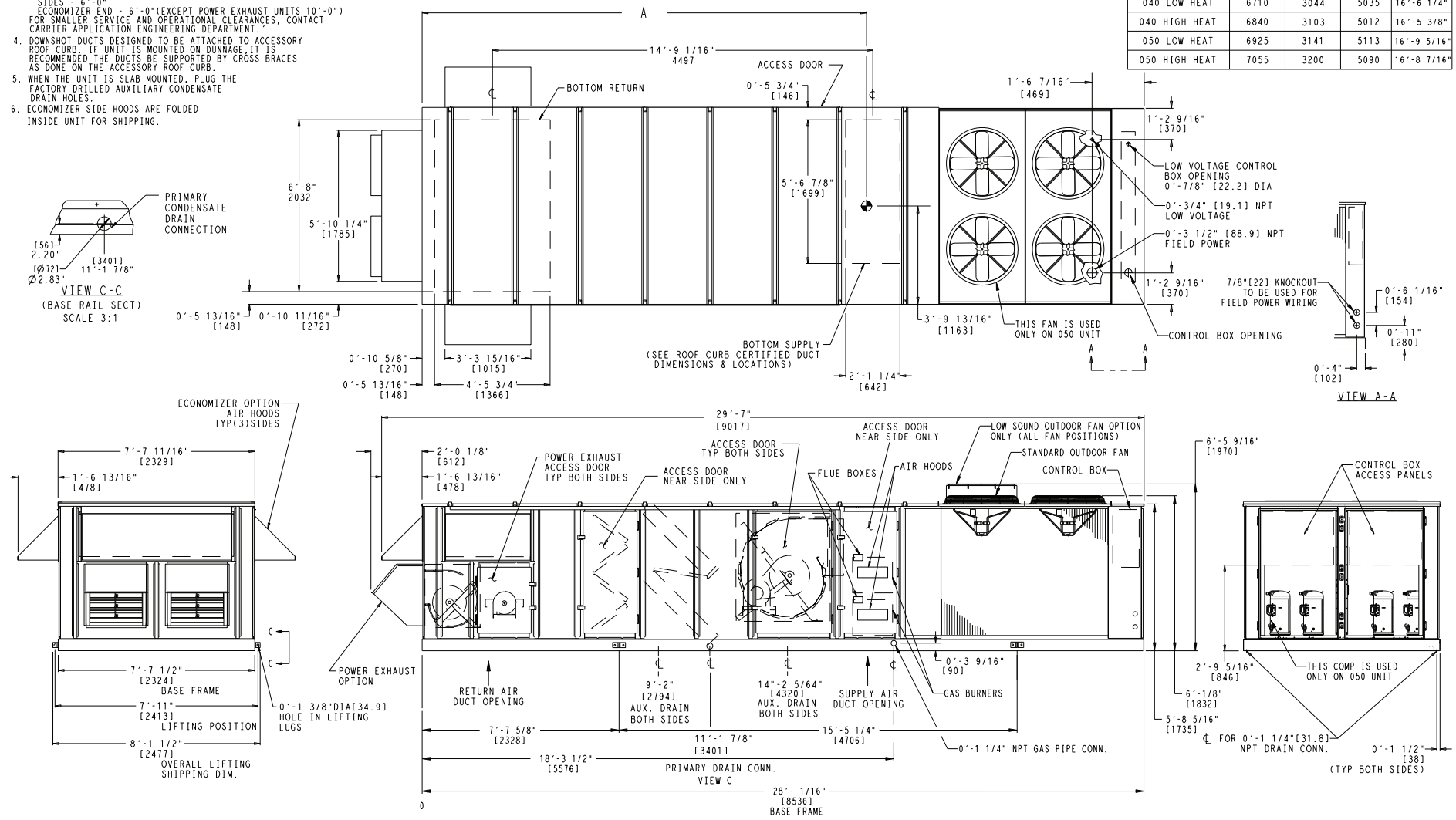


Fig. 15 — Base Unit Dimensional Drawing — 48P2,P3,P6,P7040-050 (Standard Chassis Unit Shown)

NOTES:
1. DIMENSIONS IN [ ] ARE IN MILLIMETERS.
2. ⊕ UNIT WEIGHT AND CENTER OF GRAVITY INCLUDES ECONOMIZER, LARGEST INDOOR FAN MOTOR AND HIGH CAPACITY EVAPORATOR COIL.
3. UNIT CLEARANCES
   TOP - DO NOT RESTRICT CONDENSER FANS
   CONTROL BOX END - 6'-0"
   SIDES - 6'-0"
   ECONOMIZER END - 6'-0"(EXCEPT POWER EXHAUST UNITS 10'-0")
   FOR SMALLER SERVICE AND OPERATIONAL CLEARANCES, CONTACT CARRIER APPLICATION ENGINEERING DEPARTMENT.'
4. SUGGESTED FIELD CONNECTIONS TO BE MADE INSIDE OR OUTSIDE OF 32.5 mm FLANGE.
5. WHEN THE UNIT IS SLAB MOUNTED, PLUG THE FACTORY DRILLED AUXILIARY CONDENSATE DRAIN HOLES.
6. ECONOMIZER SIDE HOODS ARE FOLDED INSIDE UNIT FOR SHIPPING.

UNIT SIZE	WEIGHT LBS.	WEIGHT KGS.	A MM	A FT. IN.
040 LOW HEAT	6710	3044	5035	16'-6 1/4"
040 HIGH HEAT	6840	3103	5012	16'-5 3/8"
050 LOW HEAT	6925	3141	5113	16'-9 5/16"
050 HIGH HEAT	7055	3200	5090	16'-8 7/16"

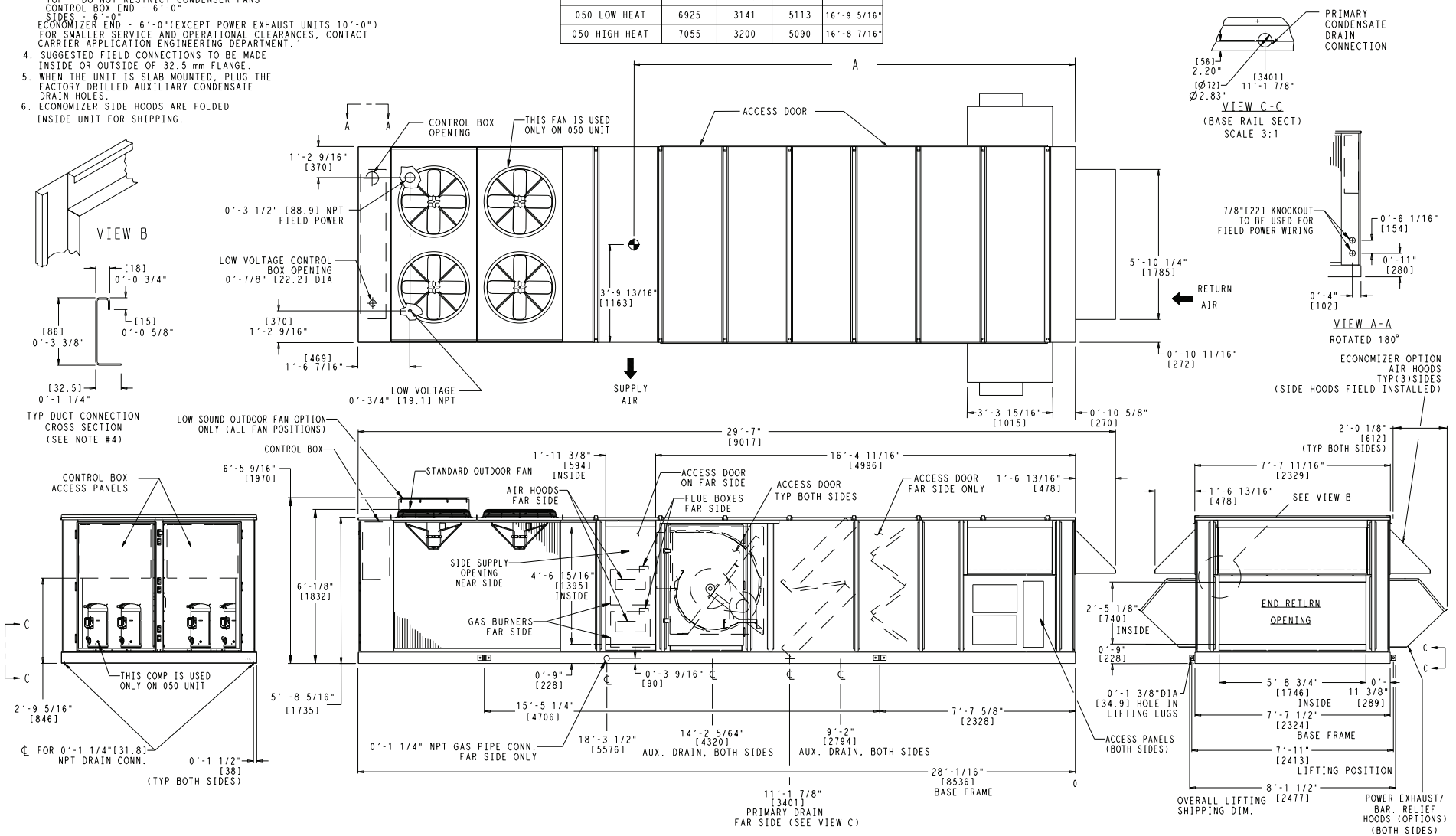


Fig. 16 — Base Unit Dimensional Drawing — 48P4,P5,P8,P9040-050 (Standard Chassis Unit Shown)

UNIT SIZE	WEIGHT LBS.	WEIGHT KGS.	A MM	A FT. IN.	B MM	B FT. IN.	C MM	C FT. IN.	D MM	D FT. IN.	E MM	E FT. IN.	F MM	F FT. IN.
055 LOW HEAT	9220	4182	2718	8′-11"	6541	21′-5 1/2"	5814	19′-7/8"	1163	3′-9 13/16"	11140	36′-6 9/16"	11524	37′-9 11/16"
060 LOW HEAT	9275	4207	2718	8′-11"	6541	21′-5 1/2"	5803	19′-1/2"	1163	3′-9 13/16"	11140	36′-6 9/16"	11524	37′-9 11/16"
055 HIGH HEAT	9350	4241	2718	8′-11"	6541	21′-5 1/2"	5816	19′-1"	1163	3′-9 13/16"	11140	36′-6 9/16"	11524	37′-9 11/16"
060 HIGH HEAT	9405	4266	2718	8′-11"	6541	21′-5 1/2"	5805	19′-9/16"	1163	3′-9 13/16"	11140	36′-6 9/16"	11524	37′-9 11/16"

NOTES:
1. DIMENSIONS IN [ ] ARE IN MILLIMETERS.
2. ⊕ UNIT WEIGHT AND CENTER OF GRAVITY INCLUDES ECONOMIZER, LARGEST INDOOR FAN MOTOR AND HIGH CAPACITY EVAPORATOR COIL.
3. UNIT CLEARANCES
   TOP - DO NOT RESTRICT CONDENSER FANS
   CONTROL BOX END - 6′-0"
   SIDES - 6′-0"
   ECONOMIZER END - 6′-0"(EXCEPT POWER EXHAUST UNITS 10′-0")
   FOR SMALLER SERVICE AND OPERATIONAL CLEARANCES, CONTACT CARRIER APPLICATION ENGINEERING DEPARTMENT.′
4. DOWNSHOT DUCTS DESIGNED TO BE ATTACHED TO ACCESSORY ROOF CURB. IF UNIT IS MOUNTED ON DUNNAGE,IT IS RECOMMENDED THE DUCTS BE SUPPORTED BY CROSS BRACES AS DONE ON THE ACCESSORY ROOF CURB.
5. WHEN THE UNIT IS SLAB MOUNTED, PLUG THE FACTORY DRILLED AUXILIARY CONDENSATE DRAIN HOLES.
6. ECONOMIZER SIDE HOODS ARE FOLDED INSIDE UNIT FOR SHIPPING.

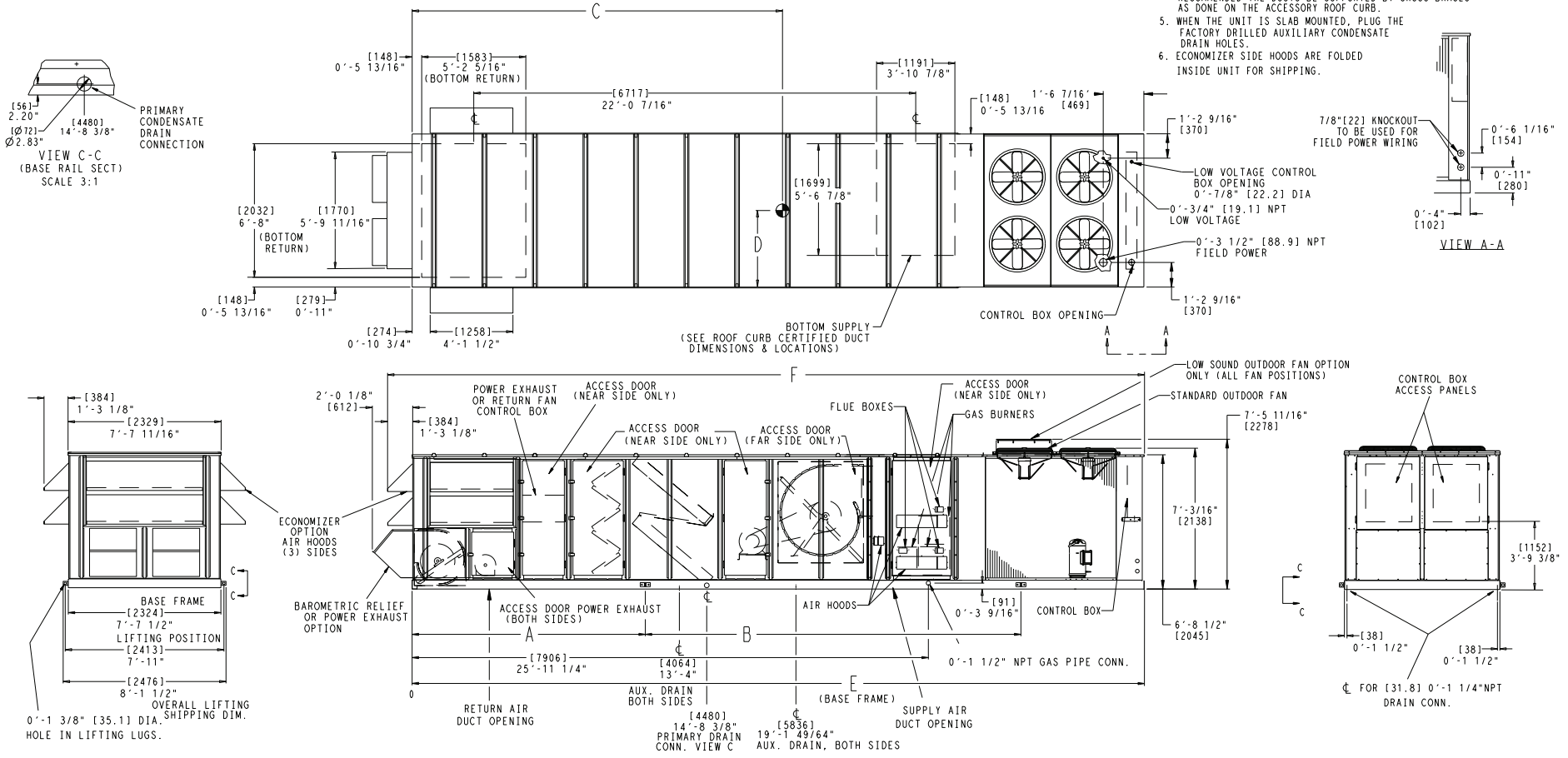


Fig. 17 — Base Unit Dimensional Drawing — 48P2,P3,P6,P7055,060 (Standard Chassis Unit Shown)

UNIT SIZE	WEIGHT LBS.	WEIGHT KGS.	A MM	A FT. IN.	B MM	B FT. IN.	C MM	C FT. IN.	D MM	D FT. IN.	E MM	E FT. IN.	F MM	F FT. IN.
055 LOW HEAT	9220	4182	2718	8′-11"	6541	21′-5 1/2"	5814	19′-7/8"	1163	3′-9 13/16"	11140	36′-6 9/16"	11524	37′-9 11/16"
060 LOW HEAT	9275	4207	2718	8′-11"	6541	21′-5 1/2"	5803	19′-1/2"	1163	3′-9 13/16"	11140	36′-6 9/16"	11524	37′-9 11/16"
055 HIGH HEAT	9350	4241	2718	8′-11"	6541	21′-5 1/2"	5816	19′-1"	1163	3′-9 13/16"	11140	36′-6 9/16"	11524	37′-9 11/16"
060 HIGH HEAT	9405	4266	2718	8′-11"	6541	21′-5 1/2"	5805	19′-9/16"	1163	3′-9 13/16"	11140	36′-6 9/16"	11524	37′-9 11/16"

NOTES:
1. DIMENSIONS IN [ ] ARE IN MILLIMETERS.
2. ⊕ UNIT WEIGHT AND CENTER OF GRAVITY INCLUDES ECONOMIZER, LARGEST INDOOR FAN MOTOR AND HIGH CAPACITY EVAPORATOR COIL.
3. UNIT CLEARANCES
   TOP - DO NOT RESTRICT CONDENSER FANS
   CONTROL BOX END - 6′-0"
   SIDES - 6′-0" (EXCEPT POWER EXHAUST UNITS 10′-0")
   ECONOMIZER END - 6′-0"
   FOR SMALLER SERVICE AND OPERATIONAL CLEARANCES, CONTACT CARRIER APPLICATION ENGINEERING DEPARTMENT.
4. SUGGESTED FIELD CONNECTIONS TO BE MADE INSIDE OR OUTSIDE OF 32.5 mm FLANGE.
5. WHEN THE UNIT IS SLAB MOUNTED, PLUG THE FACTORY DRILLED AUXILIARY CONDENSATE DRAIN HOLES.
6. ECONOMIZER SIDE HOODS ARE FOLDED IN FOR SHIPPING.

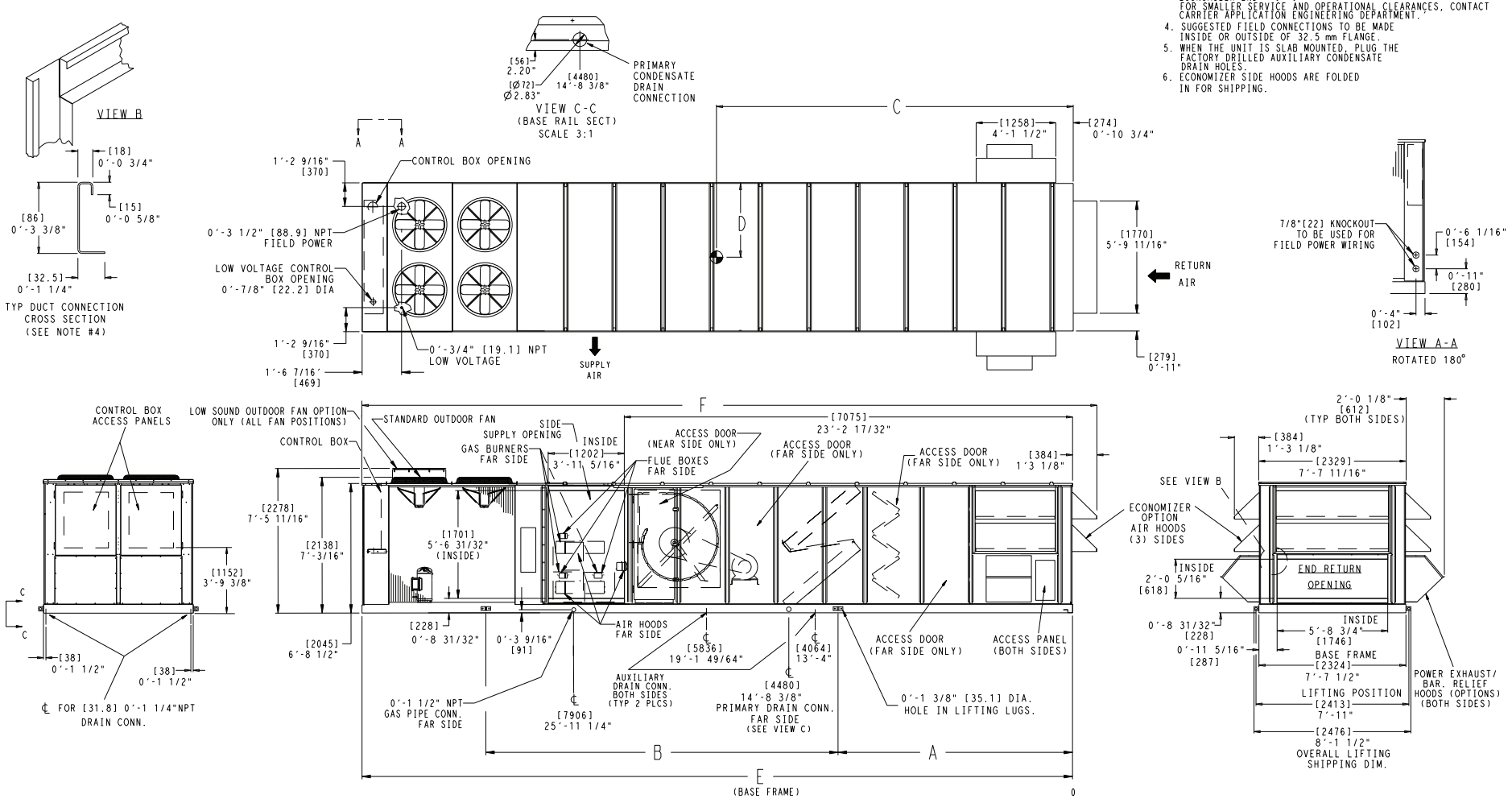


Fig. 18 — Base Unit Dimensional Drawing — 48P4,P5,P8,P9055,060 (Standard Chassis Unit Shown)

UNIT SIZE	WEIGHT LBS.	WEIGHT KGS.	A MM	A FT. IN.	B MM	B FT. IN.	C MM	C FT. IN.	D MM	D FT. IN.	E MM	E FT. IN.	F MM	F FT. IN.
070 LOW HEAT	9615	4361	3543	11′-7 1/2"	5715	18′-9"	6214	20′-4 10/16"	1021	3′- 4 3/16"	11378	37′-3 15/16"	11762	38′-7 1/16"
070 HIGH HEAT	9745	4420	3543	11′-7 1/2"	5715	18′-9"	6217	20′-4 12/16"	1021	3′- 4 3/16"	11378	37′-3 15/16"	11762	38′-7 1/16"

NOTES:
1. DIMENSIONS IN [ ] ARE IN MILLIMETERS.
2. ⊕ UNIT WEIGHT AND CENTER OF GRAVITY INCLUDES ECONOMIZER, LARGEST INDOOR FAN MOTOR AND HIGH CAPACITY EVAPORATOR COIL.
3. UNIT CLEARANCES
   TOP - DO NOT RESTRICT CONDENSER FANS
   CONTROL BOX END - 6′-0"
   SIDES - 6′-0"
   ECONOMIZER END - 6′-0"(EXCEPT POWER EXHAUST UNITS 10′-0")
   FOR SMALLER SERVICE AND OPERATIONAL CLEARANCES, CONTACT CARRIER APPLICATION ENGINEERING DEPARTMENT.′
4. DOWNSHOT DUCTS DESIGNED TO BE ATTACHED TO ACCESSORY ROOF CURB. IF UNIT IS MOUNTED ON DUNNAGE,IT IS RECOMMENDED THE DUCTS BE SUPPORTED BY CROSS BRACES AS DONE ON THE ACCESSORY ROOF CURB.
5. WHEN THE UNIT IS SLAB MOUNTED, PLUG THE FACTORY DRILLED AUXILIARY CONDENSATE DRAIN HOLES.
6. ECONOMIZER SIDE HOODS ARE FOLDED INSIDE UNIT FOR SHIPPING.

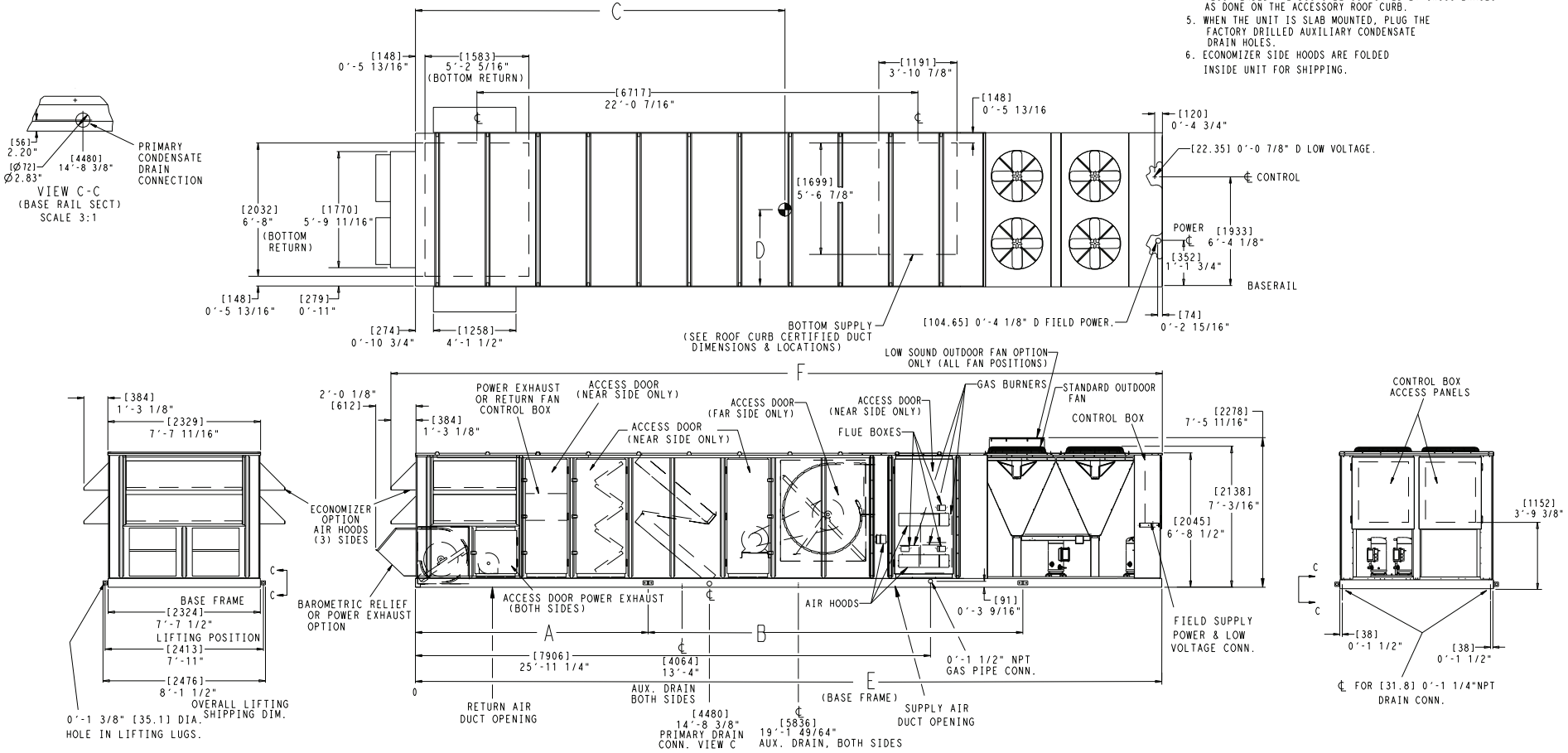


Fig. 19 — Base Unit Dimensional Drawing — 48P2,P3,P6,P7070 (Standard Chassis Unit Shown)

UNIT SIZE	WEIGHT LBS.	WEIGHT KGS.	A MM	A FT. IN.	B MM	B FT. IN.	C MM	C FT. IN.	D MM	D FT. IN.	E MM	E FT. IN.	F MM	F FT. IN.
070 LOW HEAT	9615	4361	3543	11′-7 1/2"	5715	18′-9"	6214	20′-4 5/8"	1021	3′- 4 3/16"	11378	37′-3 15/16"	11762	38′-7 1/16"
070 HIGH HEAT	9745	4420	3543	11′-7 1/2"	5715	18′-9"	6217	20′-4 3/4"	1021	3′- 4 3/16"	11378	37′-3 15/16"	11762	38′-7 1/16"

NOTES:
1. DIMENSIONS IN [ ] ARE IN MILLIMETERS.
2. ⊕ UNIT WEIGHT AND CENTER OF GRAVITY INCLUDES ECONOMIZER, LARGEST INDOOR FAN MOTOR AND HIGH CAPACITY EVAPORATOR COIL.
3. UNIT CLEARANCES
   TOP - DO NOT RESTRICT CONDENSER FANS
   CONTROL BOX END - 6′-0"
   SIDES - 8′-0" (EXCEPT POWER EXHAUST UNITS 10′-0")
   ECONOMIZER END - 6′-0"
   FOR SMALLER SERVICE AND OPERATIONAL CLEARANCES, CONTACT CARRIER APPLICATION ENGINEERING DEPARTMENT.
4. SUGGESTED FIELD CONNECTIONS TO BE MADE INSIDE OR OUTSIDE OF 32.5 mm FLANGE.
5. WHEN THE UNIT IS SLAB MOUNTED, PLUG THE FACTORY DRILLED AUXILIARY CONDENSATE DRAIN HOLES.
6. ECONOMIZER SIDE HOODS ARE FOLDED IN FOR SHIPPING.

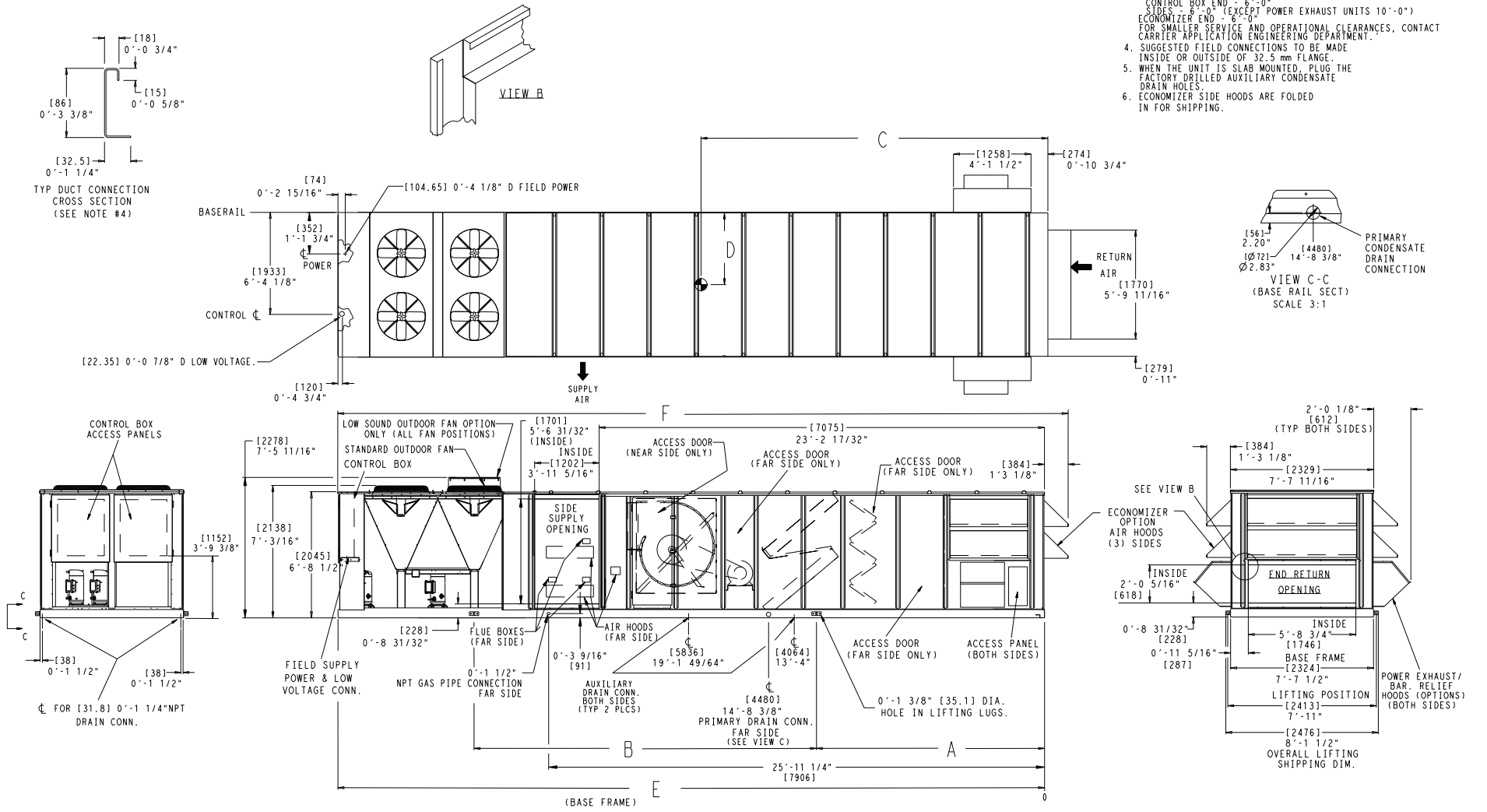


Fig. 20 — Base Unit Dimensional Drawing — 48P4,P5,P8,P9070 (Standard Chassis Unit Shown)

UNIT SIZE	WEIGHT LBS.	WEIGHT KGS.	A MM	A FT. IN.	B MM	B FT. IN.	C MM	C FT. IN.	D MM	D FT. IN.	E MM	E FT. IN.	F MM	F FT. IN.
075 LOW HEAT	13499	6123	3833	12′-6 15/16"	7927	26′-0 1/16"	7367	24′-2"	1021	3′-4 3/16"	13380	43′-10 3/4"	13967	45′-9 7/8"
090 LOW HEAT	14097	6394	3833	12′-6 15/16"	7927	26′-0 1/16"	7561	24′-9 11/16"	1054	3′-5 8/16"	14557	47′-9 1/8"	15144	49′-8 1/4"
100 LOW HEAT	14119	6404	3833	12′-6 15/16"	7927	26′-0 1/16"	7546	24′-9 1/16"	1054	3′-5 8/16"	14557	47′-9 1/8"	15144	49′-8 1/4"
075 HIGH HEAT	13629	6182	3833	12′-6 15/16"	7927	26′-0 1/16"	7400	24′-3 5/16"	1021	3′-4 3/16"	13380	43′-10 3/4"	13967	45′-9 7/8"
090 HIGH HEAT	14227	6453	3833	12′-6 15/16"	7927	26′-0 1/16"	7593	24′-10 15/16"	1054	3′-5 8/16"	14557	47′-9 1/8"	15144	49′-8 1/4"
100 HIGH HEAT	14249	6463	3833	12′-6 15/16"	7927	26′-0 1/16"	7574	24′-10 3/16"	1054	3′-5 8/16"	14557	47′-9 1/8"	15144	49′-8 1/4"

NOTES:
1. DIMENSIONS IN [ ] ARE IN MILLIMETERS.
2. ⊕ UNIT WEIGHT AND CENTER OF GRAVITY INCLUDES ECONOMIZER, LARGEST INDOOR FAN MOTOR, HIGH CAPACITY EVAPORATOR COIL AND LARGEST POWER EXHAUST MOTOR.
3. UNIT CLEARANCES
   TOP - DO NOT RESTRICT CONDENSER FANS
   CONTROL BOX END - 6′-0"
   SIDES - 6′-0" (EXCEPT POWER EXHAUST UNITS 10′-0")
4. SUGGESTED FIELD CONNECTIONS TO BE MADE INSIDE OR OUTSIDE OF 32.5 mm FLANGE.
5. WHEN THE UNIT IS SLAB MOUNTED, PLUG THE FACTORY DRILLED AUXILIARY CONDENSATE DRAIN HOLES.
6. ECONOMIZER SIDE HOODS ARE FOLDED IN FOR SHIPPING.

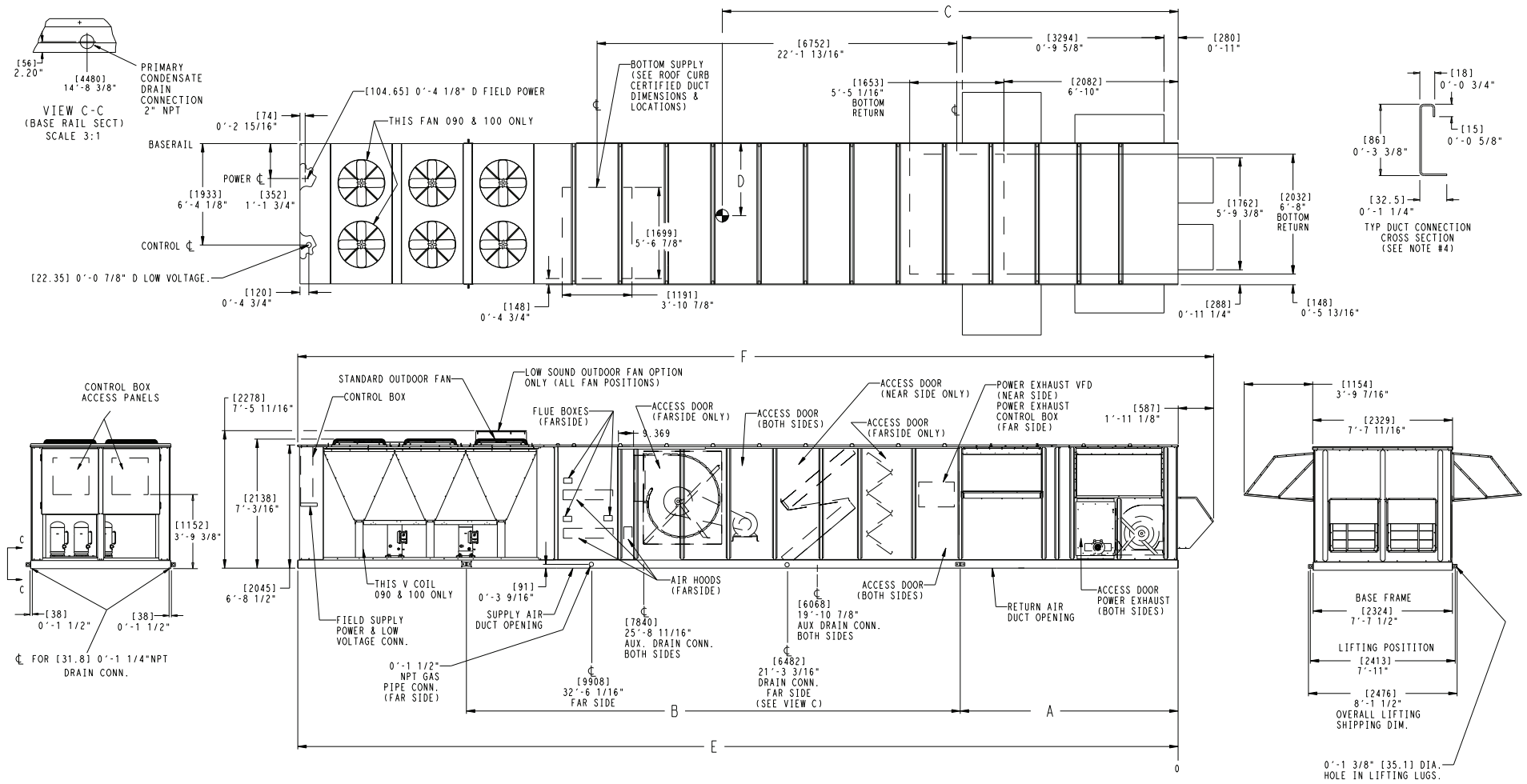


Fig. 21 — Base Unit Dimensional Drawing — 48P2,P3,P6,P7075-100 (Standard Chassis Unit with Optional High-Capacity Power Exhaust Shown)

UNIT SIZE	WEIGHT LBS.	WEIGHT KGS.	A MM	A FT.IN.	B MM	B FT.IN.	C MM	C FT.IN.	D MM	D FT.IN.	E MM	E FT.IN.	F MM	F FT.IN.
075 LOW HEAT	12321	5589	3544	11′-7 1/2"	6495	21′-3 11/16"	5706	18′-8 5/8"	1021	3′-4 3/16"	11378	37′-3 5/16"	11762	38′-7 1/16"
090 LOW HEAT	12921	5861	3544	11′-7 1/2"	6495	21′-3 11/16"	5908	19′-4 9/16"	1054	3′-5 1/2"	12555	41′-2 5/16"	12939	42′-5 7/16"
100 LOW HEAT	12941	5870	3544	11′-7 1/2"	6495	21′-3 11/16"	5853	19′-2 7/16"	1054	3′-5 1/2"	12555	41′-2 5/16"	12939	42′-5 7/16"
075 HIGH HEAT	12451	5648	3544	11′-7 1/2"	6495	21′-3 11/16"	5764	18′-10 15/16"	1021	3′-4 3/16"	11378	37′-3 5/16"	11762	38′-7 1/16"
090 HIGH HEAT	13051	5920	3544	11′-7 1/2"	6495	21′-3 11/16"	5936	19′-5 3/4"	1054	3′-5 1/2"	12555	41′-2 5/16"	12939	42′-5 7/16"
100 HIGH HEAT	13071	5929	3544	11′-7 1/2"	6495	21′-3 11/16"	5915	19′-4 7/8"	1054	3′-5 1/2"	12555	41′-2 5/16"	12939	42′-5 7/16"

NOTES:
1. DIMENSIONS IN [ ] ARE IN MILLIMETERS.
2. UNIT WEIGHT AND CENTER OF GRAVITY INCLUDES ECONOMIZER, LARGEST INDOOR FAN MOTOR, HIGH CAPACITY EVAPORATOR COIL AND LARGEST POWER EXHAUST MOTOR.
3. UNIT CLEARANCES
   TOP - DO NOT RESTRICT CONDENSER FANS
   CONTROL BOX END - 6′-0"
   SIDES - 6′-0"
   ECONOMIZER END - 6′-0" (EXCEPT POWER EXHAUST UNITS 10′-0")
   FOR SMALLER SERVICE AND OPERATIONAL CLEARANCES, CONTACT CARRIER APPLICATION ENGINEERING DEPARTMENT.
4. SUGGESTED FIELD CONNECTIONS TO BE MADE INSIDE OR OUTSIDE OF 32.5 mm FLANGE.
5. WHEN THE UNIT IS SLAB MOUNTED, PLUG THE FACTORY DRILLED AUXILIARY CONDENSATE DRAIN HOLES.
6. ECONOMIZER SIDE HOODS ARE FOLDED IN FOR SHIPPING.

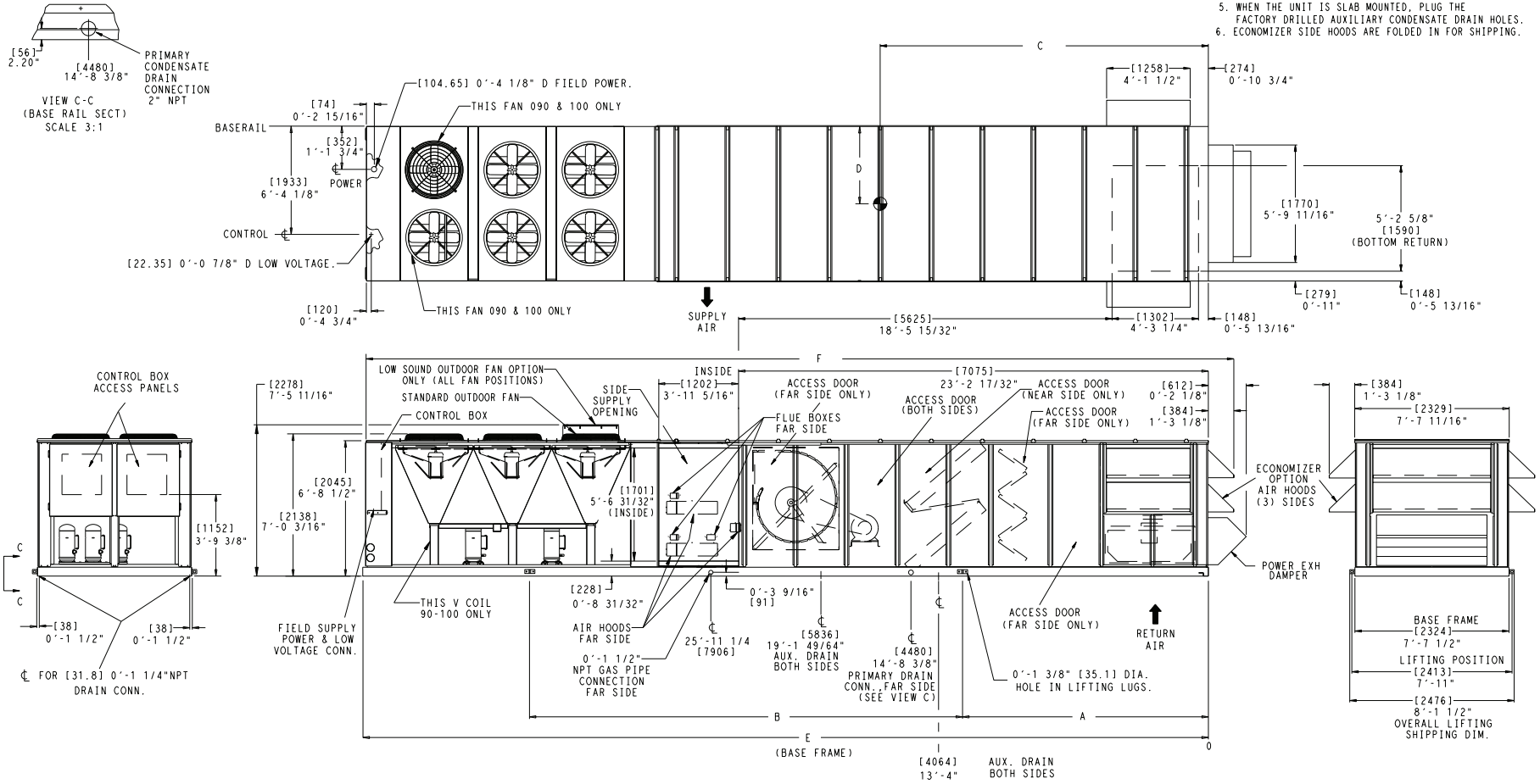
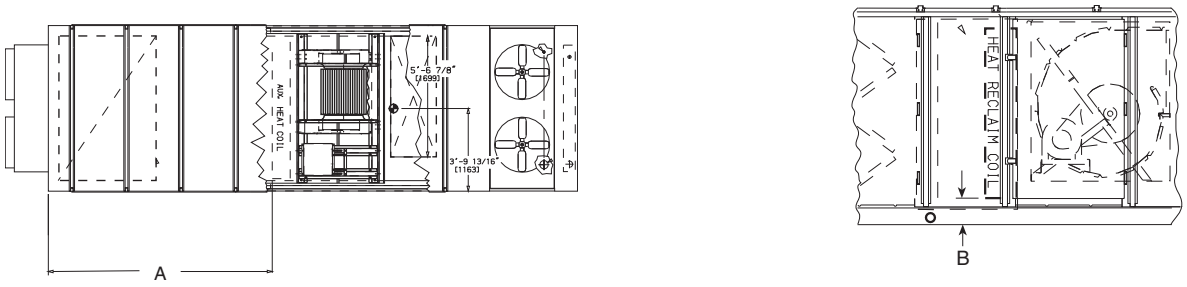


Fig. 22 — Base Unit Dimensional Drawing — 48P4,P5,P8,P9075-100 (Standard Chassis Unit with Optional Return Fan Shown)



Auxiliary Coil Location (in.)

UNIT SIZES	DISTANCE A	HEIGHT B
030,035	123.0	6.6
040,050	156.8	6.6
055-070	200.4	6.6
075-100	200.4	6.6
075-100 with High-Capacity Power Exhaust	279.2	6.6

Fig. 23 — Units with Optional Extended Chassis — Location of Coil Tracks

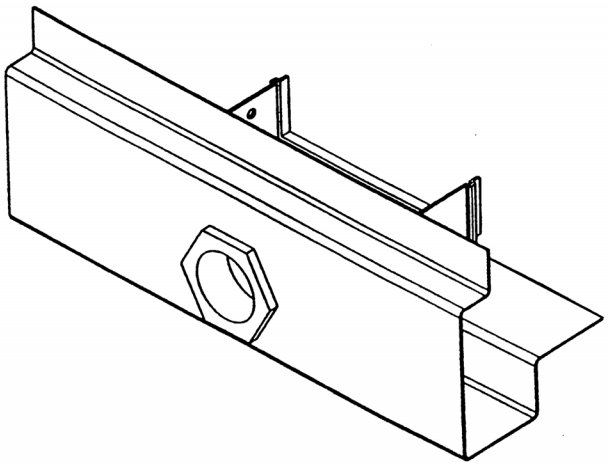


Fig. 24 — Primary Drain Connection

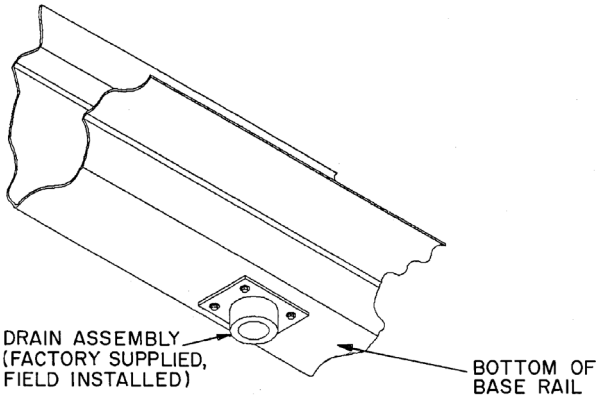
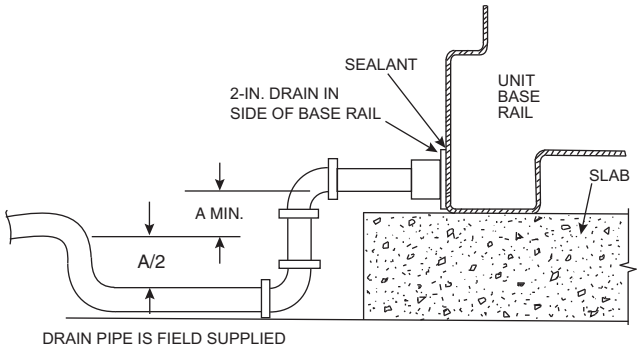


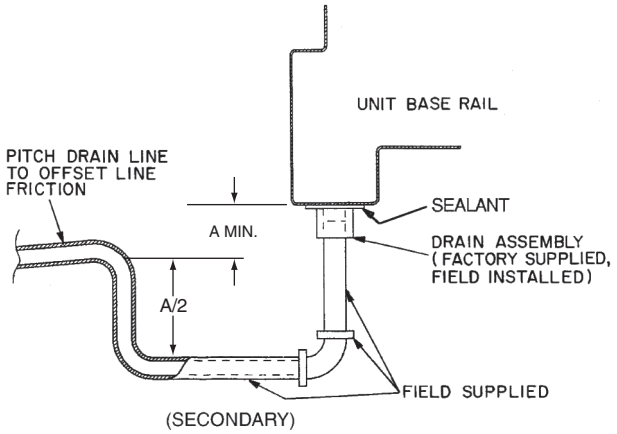
Fig. 26 — Secondary Condensate Drain Location (Curb Mount)



A = 4 in. (102 mm) min — Sizes 030-070

7 in. (178 mm) min — Sizes 075-100

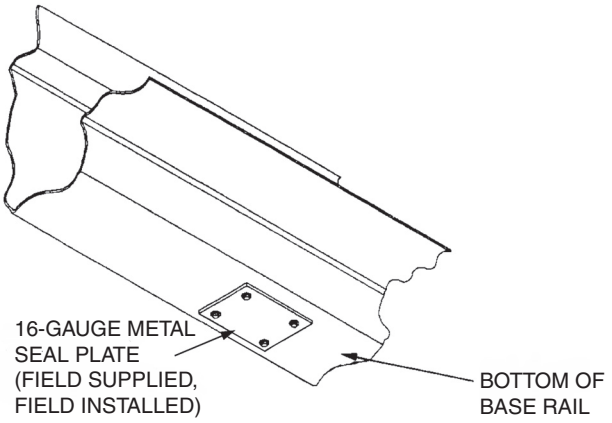
Fig. 25 — Primary Condensate Drain Piping Details (Slab and Curb Mounted) and Slab-Mounted Secondary Condensate Drain Piping Details



A = 4 in. (102 mm) min — sizes 030-070

7 in. (178 mm) min — sizes 075-100

Fig. 27 — Curb-Mounted Secondary Condensate Drain Pipe Details



NOTE: For Greenspeed option units (48P6,P7,P8,P9), secure the OAT sensor in the outdoor-air stream to measure the ambient air temperature.

Fig. 28 — Secondary Drain Seal Plate Location (Slab Mount)

Step 9 — Install Outdoor Hoods (Units without Optional High-Capacity Power Exhaust)

UNIT SIZES 030-050

25% Outdoor-Air Hoods (Units without Economizer Option) (Fig. 29)

1. Outdoor-air hoods are shipped bolted to the unit in a shipping position. Remove the 6 screws holding each 25% outdoor-air hood shipping cover in place.
2. Remove the holddown screw from each upper corner of each hood.
3. Pivot hoods outward (2 hoods).
4. Install 17 screws around outside of each hood. (Screws are in the fastener package taped to the basepan inside the fan section.)
5. Apply a bead of RTV or similar sealant to corner of each hood at pivot points to prevent water leaks. See Fig. 30.

Economizer Hoods (Units with Economizer Option) (Fig. 31 and 32)

1. Outdoor-air hoods are shipped bolted to the unit in a shipping position.
2. Remove the holddown screw from the lower corner of each hood.
3. Pivot hoods out and upward (2 hoods).
4. Apply seal strip to upper horizontal flange of the hood top extensions. Apply seal strip to vertical flange of hood sides. (Hood top extensions, sides, screws, and seal strip are shipped inside the fan section of the unit.)
5. Install hood top extensions on bottom side of hood using 6 screws on each hood. Install hood sides using 10 screws on each side (7 along the top, 3 to fasten to unit side wall).
6. Apply a bead of RTV or similar sealant to corners of economizer hoods at pivot points to prevent water leaks. See Fig. 30.

UNIT SIZES 055-100

25% Outdoor-Air Hoods (Fig. 33)

The outdoor-air hoods are factory installed on the 055-100 units.

Economizer Hoods (Units with Economizer Option) (Fig. 34-36)

1. Outdoor-air hoods are shipped bolted to the unit in a shipping position.
2. Remove the holddown screw from the lower corner of each economizer hood.
3. Pivot hoods out and upward (4 hoods).
4. Apply seal strip to upper horizontal flange of the hood top extensions. Apply seal strip to vertical flange of hood sides. (Hood top extensions, sides, screws, and seal strip are shipped inside the fan section of the unit.)
5. Install hood top extensions on bottom side of hood top using 6 screws for each hood. Install hood sides using 10 screws for each side (7 along the top, 3 to fasten to unit side wall).
6. Apply a bead of RTV or similar sealant to corners of economizer hoods at pivot points to prevent water leaks. See Fig. 30.

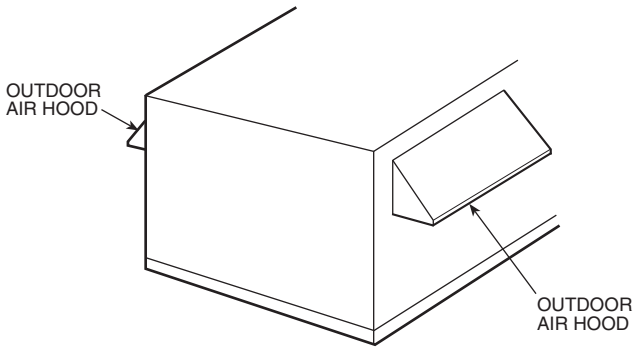


Fig. 29 — Outdoor Air Hood Installation (Sizes 030-050)

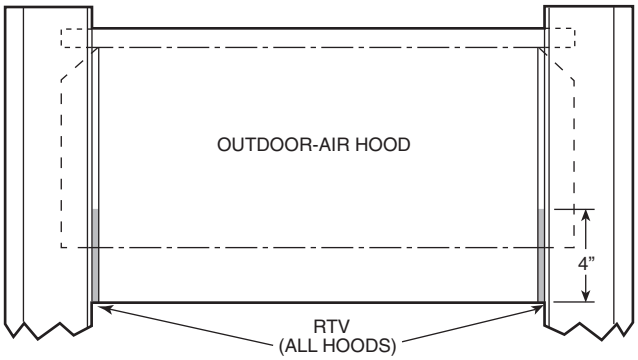


Fig. 30 — Outdoor-Air and Economizer Hood

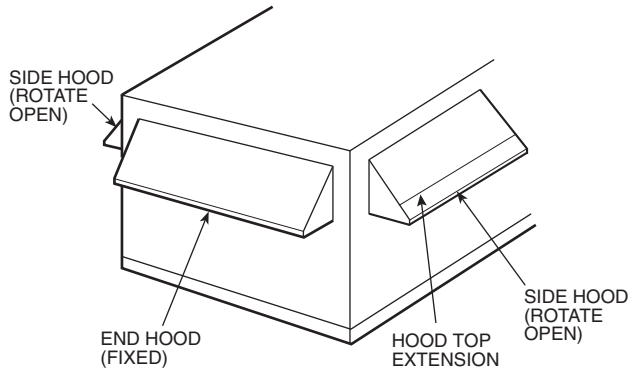


Fig. 31 — Economizer Outdoor-Air Hood Installation (Sizes 030-050)

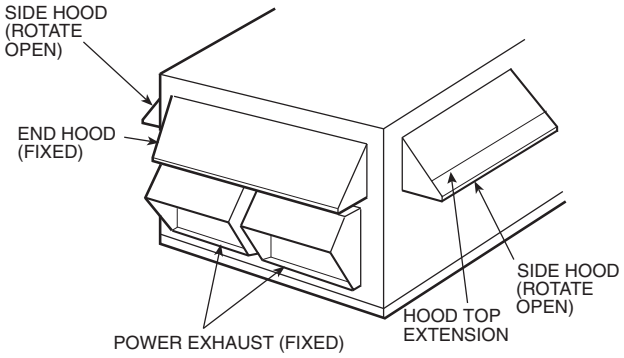


Fig. 32 — Economizer with Power Exhaust Outdoor-Air Hood Installation (Sizes 030-050)

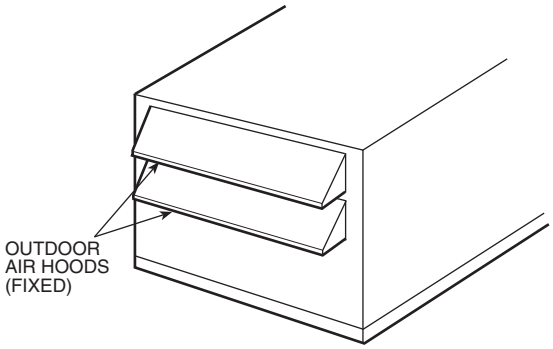


Fig. 33 — 25% Outdoor-Air Hood Location (Sizes 055-105)

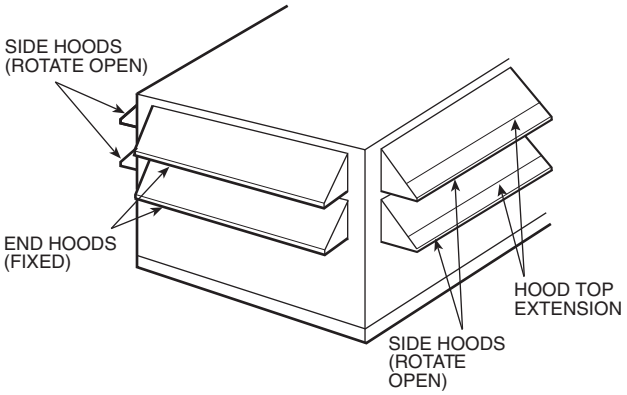


Fig. 34 — Economizer Outdoor-Air Hood Installation (Sizes 055-100)

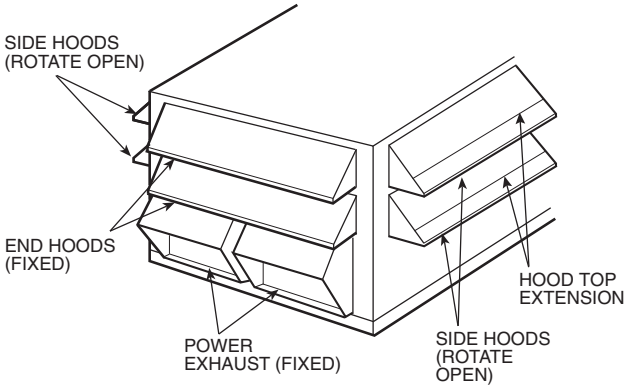


Fig. 35 — Economizer with Power Exhaust Outdoor-Air Hood Installation (Sizes 055-100)

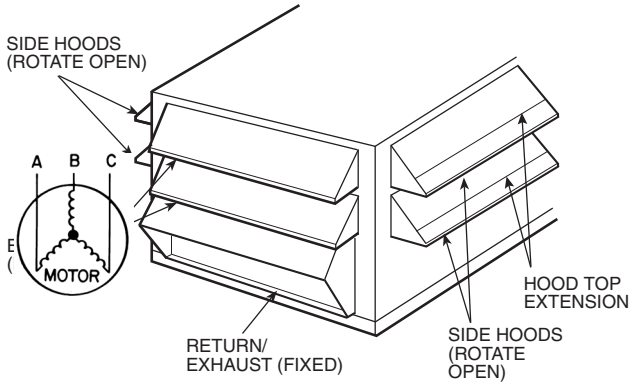


Fig. 36 — Economizer with Return Fan Outdoor-Air Hood Installation (Units with Optional Return Fan)

Step 10 — Install Economizer Hoods (Units with Optional High-Capacity Power Exhaust)

The economizer uses a total of 4 outdoor intake hoods, 2 on each side of the unit. See Fig. 37. Two small hoods (one per side) are factory-installed and are pivoted inside the unit chassis for shipment. Two large hoods are shipped in packages located inside the unit. The large hoods (one on each side) require field assembly and mounting.

INSTALL SMALL HOODS

To install the small economizer hoods, perform the following procedure:

1. Remove the 10 screws holding each of the small economizer hood shipping covers in place.
2. Pivot hoods outward. (There are a total of 2 hoods.)
3. Apply seal strip to vertical flange of hood sides.
4. Install 15 screws (4 each side, 7 across top) around the outside of each hood. Screws are in the fastener package taped to the basepan inside the fan section.
5. Apply a bead of RTV or similar sealant to corner of economizer hood at pivot points to prevent water leaks. See Fig. 30.

INSTALL LARGE HOODS

Large hoods are shipped disassembled in the economizer section of the unit behind the large economizer hood shipping cover. See Fig. 38 for assembly details for large economizer hoods. To install the large economizer hoods, perform the following procedure:

1. Remove the 17 screws holding each of the large economizer hood shipping covers in place.
2. Remove the packages containing the disassembled large economizer hoods (total of 2 packages). Each package contains the following (see Fig. 38 for Item numbers):

   left hood side (Item 1),
   right hood side (Item 2),
   hood top (Item 3),
   hood front (Item 4),
   top filter flange (Item 5),
   4 side filter flanges (Item 6),
   bottom support (Item 7),
   front support (Item 8),
   6 filters (Item 9),
   9 filter clips (Item 10),
   seal strip,
   fasteners.

3. Place seal strip on backside of bottom support (Item 7) along entire length of support, covering 6 clearance holes.
4. Attach bottom support piece (Item 7) to unit. Be sure seal strip is between bottom support and panel on unit.
5. Place seal strip on 3/4 in. flange on both the left and right hood sides (Items 1 and 2).
6. Attach the side filter flanges (Item 6) to the left and right hood sides (Items 1 and 2), 2 on each hood side.
7. Attach left and right hood sides (Items 1 and 2) to unit. Be sure seal strip is between hood side and unit.
8. Place seal strip on 3/4 in. flange on hood top (Item 3).
9. Attach top filter flange (Item 5) to hood top (Item 3).
10. Attach top hood to unit and to hood sides. Be sure seal strip is between hood top and unit.
11. Attach front support (Item 8) between left and right hood sides.
12. Place seal strip on all filter flanges.
13. Attach filter clips (Item 10) to front and bottom supports (Items 7 and 8).
14. Install filters (Item 9). Filters are held in place with filter clips.
15. Attach hood front (Item 4) to hood top and sides.
16. Apply RTV or similar sealant to 6 places shown in Fig. 38.

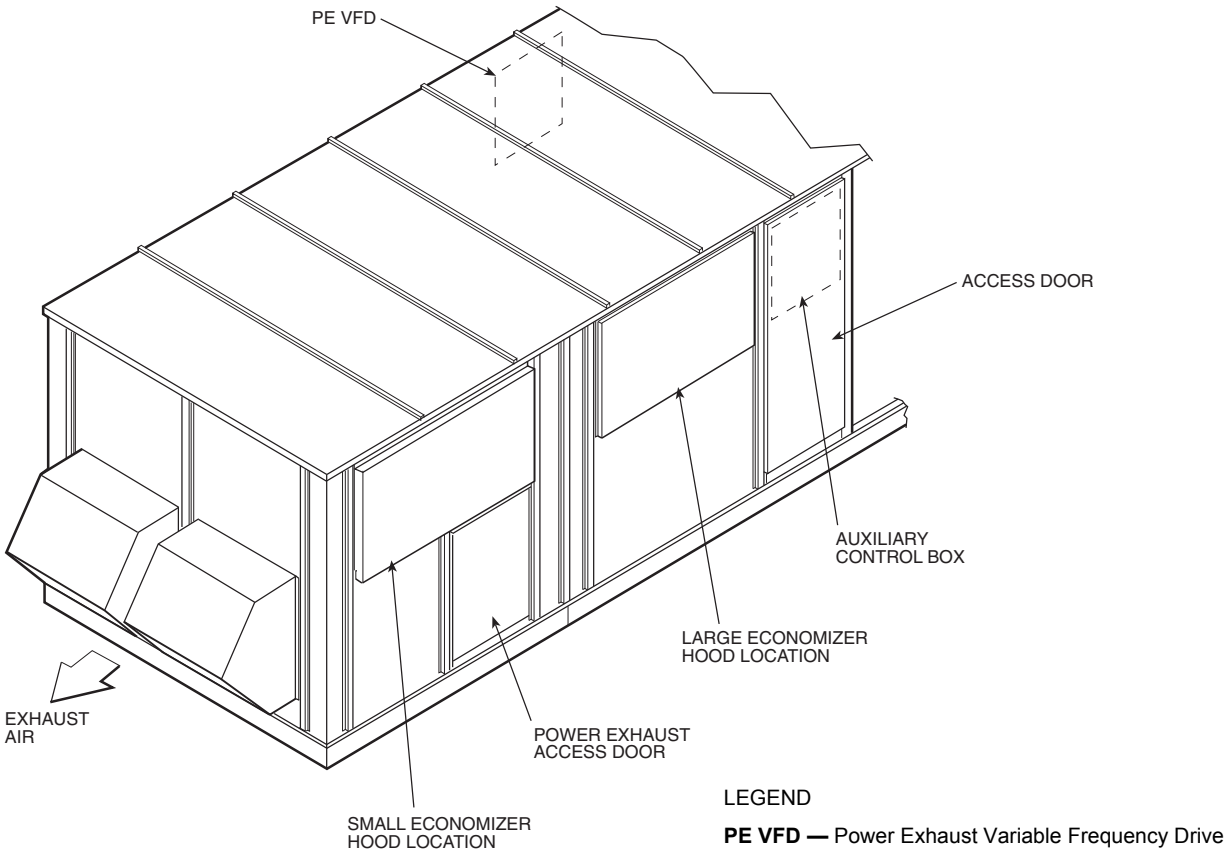


Fig. 37 — Economizer Hood Location — Units with High-Capacity Power Exhaust

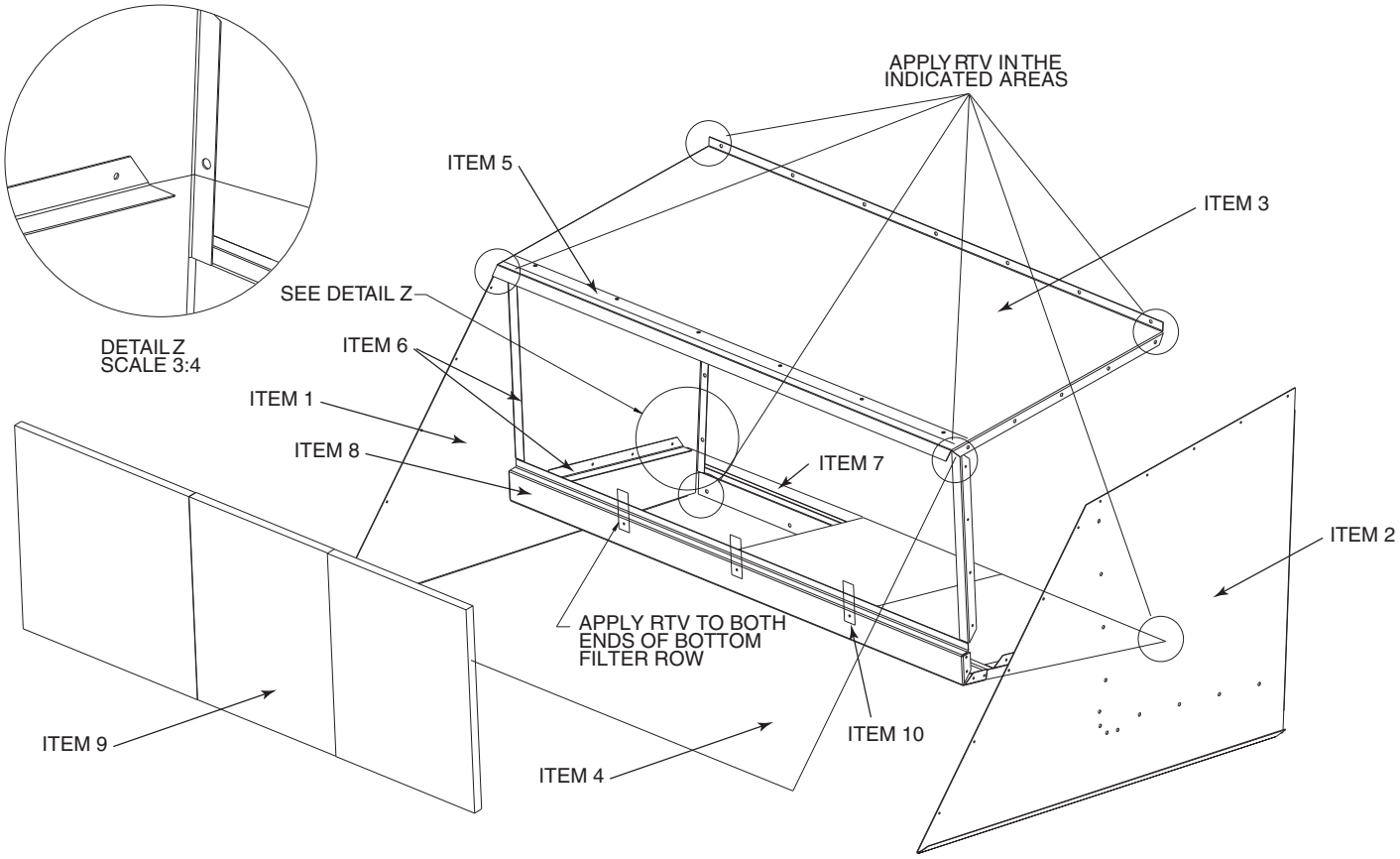


Fig. 38 — Large Economizer Hood Assembly

Step 11 — Route Field Wiring

UNIT SIZES 030-060

Field wiring can be brought into the unit through the basepan and roof curb or through the corner post in the side of the unit next to the control box.

A 3-1/2 in. FPT coupling for field power and a 3/4 in. FPT coupling for 24 v control wiring are provided in the basepan. There are two 7/8 in. pilot holes in the corner post as shown on the certified drawings. Use these holes as pilot holes for making the hole for field-supplied conduit in the corner post for field power wiring.

⚠ CAUTION

Use care when drilling near condenser coil. Damage to unit could result.

If field power wiring is brought through the roof curb, route wiring out through one of the holes to the field-supplied disconnect and then back into the unit through the other hole. See Fig. 39 and 40 for recommended disconnect location.

If power wiring is brought through the side of the unit, route wiring from field-supplied disconnect through top hole into unit.

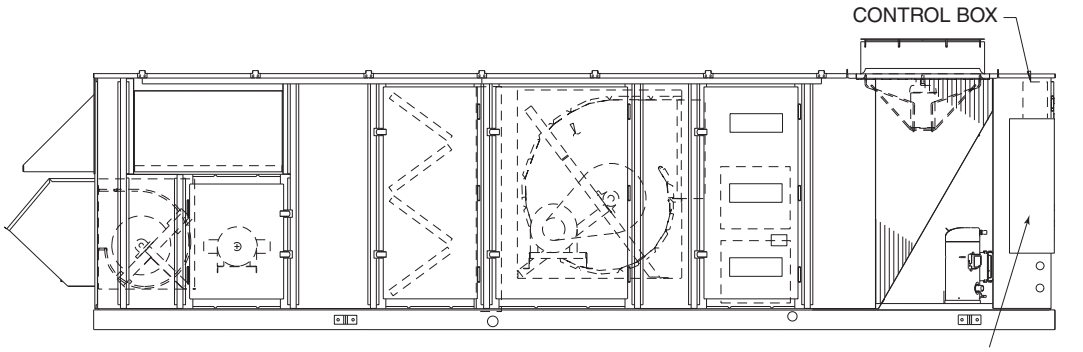
If control wiring is to be brought in through the side of the unit, a 7/8 in. diameter hole must be drilled in the corner post next to the control box.

UNIT SIZES 070-100

Field wiring is brought into the unit through the bottom of the control box. Wiring can be brought through the roof curb through field-supplied watertight connections. See Fig. 41.

A 4-5/32 in. hole for field power wiring and a 7/8 in. hole for 24-v control wiring are provided in the bottom of the control box. Field-supplied couplings must be used when routing wiring into the control box.

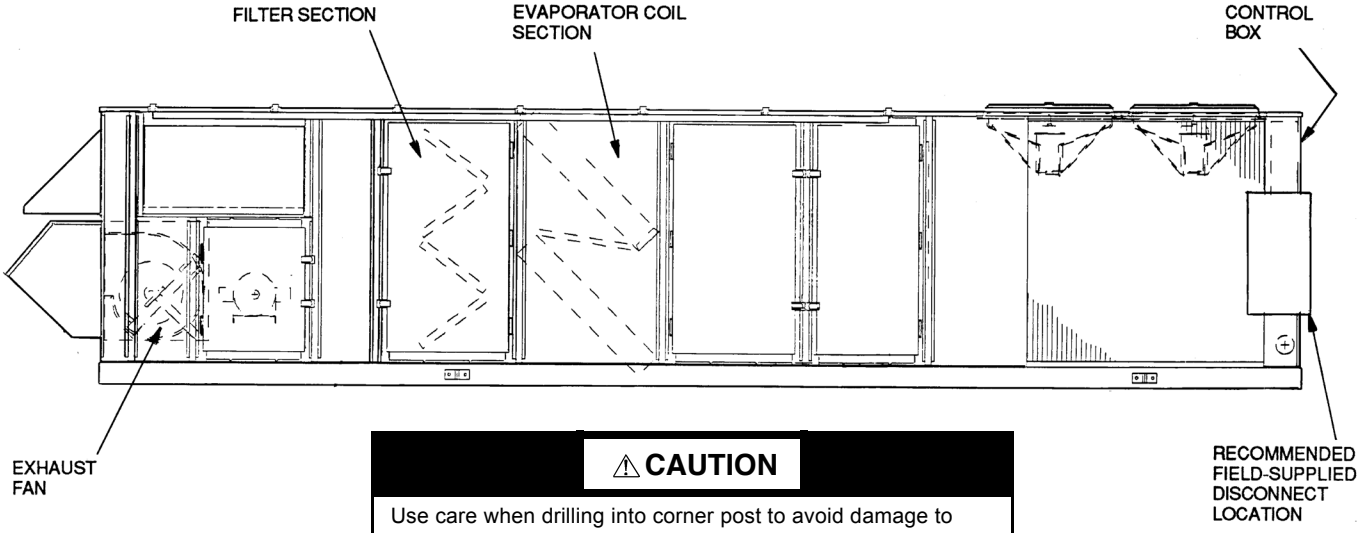
See Fig. 41 for recommended disconnect location.



⚠ CAUTION

Use care when drilling into corner post to avoid damage to condenser coil.

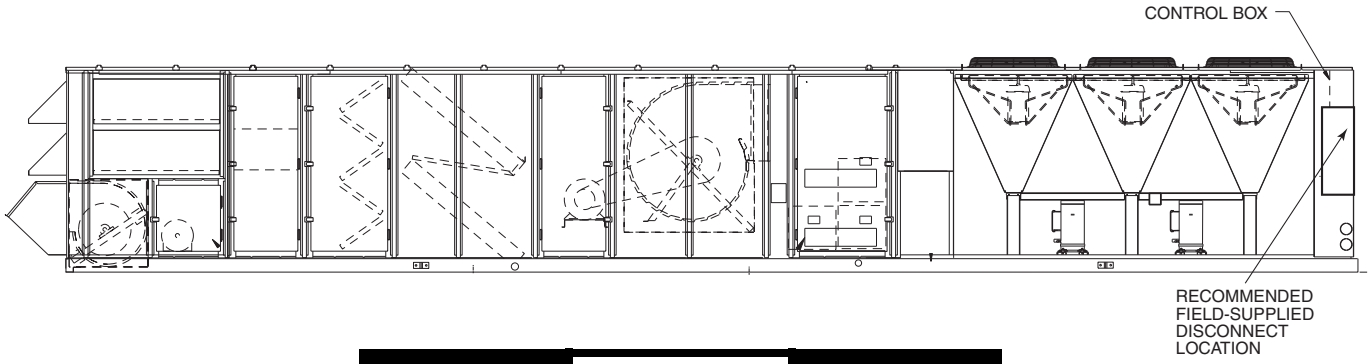
Fig. 39 — Disconnect Location — Size 030 and 035 Units



⚠ CAUTION

Use care when drilling into corner post to avoid damage to condenser coil.

Fig. 40 — Disconnect Location — Size 040-060 Units



⚠ CAUTION

Use care when drilling into corner post to avoid damage to condenser coil.

Fig. 41 — Disconnect Location — Size 070-100 Units

Step 12 — Make Field Electrical Connections

IMPORTANT: Units with VFDs (variable frequency drives) generate, use, and can radiate radio frequency energy. If units are not installed and used in accordance with these instructions, they may cause radio interference. They have been tested and found to comply with limits of a Class A computing device as defined by FCC (Federal Communications Commission) regulations, Subpart J of Part 15, which are designed to provide reasonable protection against such interference when operated in a commercial environment.

POWER WIRING

Units are factory wired for the voltage shown on the unit nameplate. The main terminal block is suitable for use with aluminum or copper wires. Maximum wire size varies according to disconnect size.

Units without Factory-Installed Disconnect

When installing units, provide a disconnect per NEC (National Electrical Code) of adequate size (MOCP [maximum overcurrent protection] of unit is on the informative plate). All field wiring must comply with NEC and all local codes. Size wire based on MCA (minimum circuit amps) on the unit informative plate. See Fig. 42 for power wiring connections to the unit power terminal block and equipment ground. Maximum wire size is two (2) 500 MCM (maximum wire size) conductors per pole.

Units with Factory-Installed Disconnect

The factory-installed disconnect is an interlocking, door-type. The disconnect handle locks the door when it is in the ON position. The disconnect handle must be in the OFF position to open the control box door. The disconnect is located in the control box behind the control box door for all units. See Fig. 43.

All field wiring must comply with NEC and all local codes. Wire must be sized based on MCA (minimum circuit amps) on the unit informative plate. See Fig. 44 for power wiring connections to the unit disconnect and equipment ground.

DISCONNECT SIZE	QUANTITY...MAXIMUM WIRE SIZE (MCM)
250 Amps	1...300
400 Amps	1...600
600 Amps	2...600

Operating Voltage

Operating voltage to the compressor must be within the voltage range indicated on the unit nameplate. Voltages between phases must be balanced within 2%, and the current must be balanced within 10%. See Tables 13-28 for unit electrical data.

Use the following formula to determine the percentage of 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 v
BC = 464 v
AC = 455 v

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

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

$$= 457$$

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 percent 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 local utility immediately.

Unit failure as a result of operation on improper line voltage or excessive phase imbalance constitutes abuse and may cause damage to electrical components.

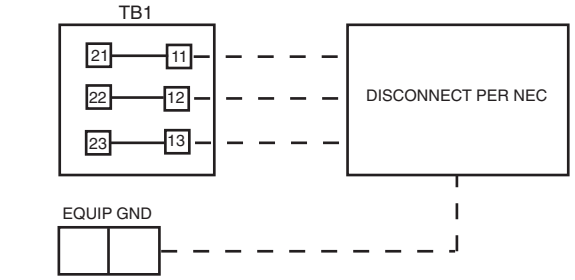


Fig. 42 — Field Power Wiring Connections

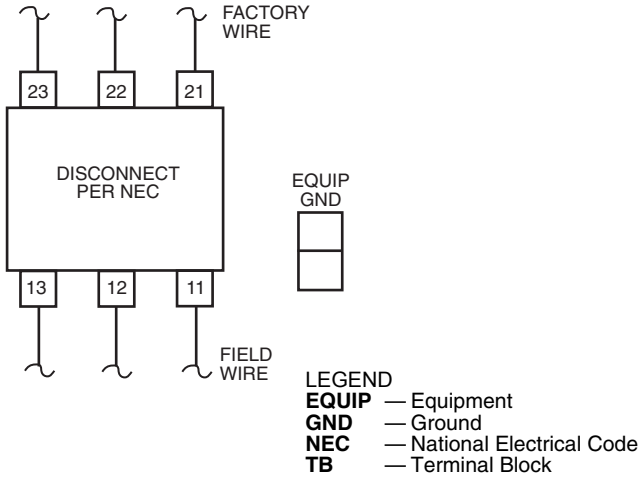


Fig. 43 — Field Power Wiring Connections for Factory-Installed Disconnect

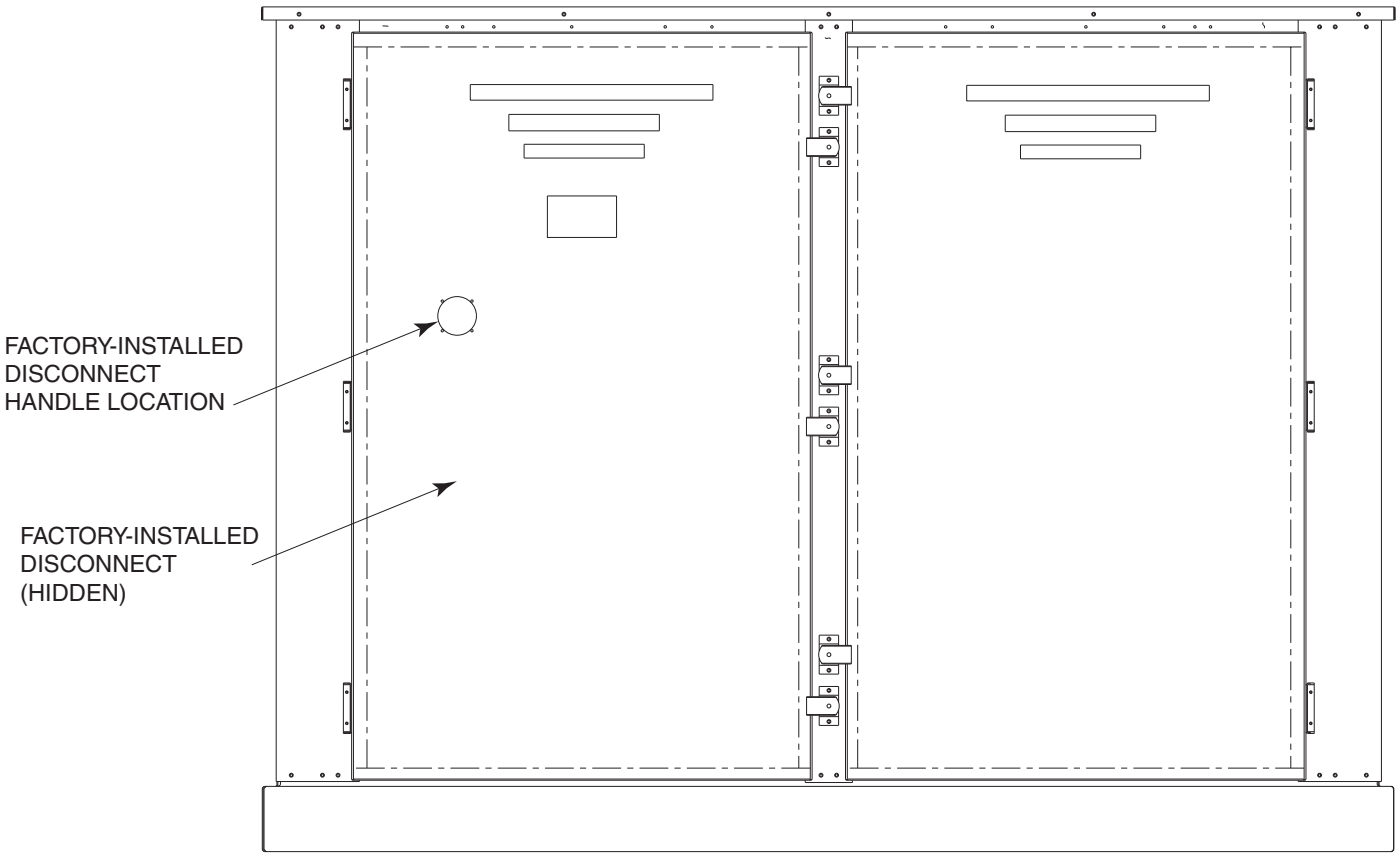


Fig. 44 — Factory-Installed Disconnect Location (End of Unit Shown)

Table 13 — Electrical Data, 48P 030 Units[a]

VOLTAGE 3 PH, 60 Hz	VOLTAGE RANGE		COMPRESSOR No. A1			COMPRESSOR No. B1			CONDENSER FAN MOTOR		EVAPORATOR FAN MOTOR		POWER EXHAUST			POWER SUPPLY	
	Min	Max	Qty	RLA (ea)	LRA (ea)	Qty	RLA (ea)	LRA (ea)	Qty	FLA	Hp	FLA	Qty	Hp (ea)	FLA (ea)	MCA	FUSE OR HACR BRKR[b]
208/230	187	253	1	51.3	300	1	51.3	300	2	6.6 (ea)	7.5	24.2 / 22.0	—	—	— / —	152.8 / 150.6	200 / 200
													1	10	30.8 / 28.0	183.6 / 178.6	225 / 225
													1	15	46.2 / 42.0	199.0 / 192.6	250 / 225
													1	20	59.4 / 54.0	214.3 / 205.3	250 / 250
													1	25	74.8 / 68.0	233.5 / 222.8	300 / 250
											10	30.8 / 28.0	—	—	— / —	159.4 / 156.6	200 / 200
													1	10	30.8 / 28.0	190.2 / 184.6	225 / 225
													1	15	46.2 / 42.0	205.6 / 198.6	250 / 225
													1	20	59.4 / 54.0	220.9 / 211.3	250 / 250
													1	25	74.8 / 68.0	240.1 / 228.8	300 / 250
											15	46.2 / 42.0	—	—	— / —	174.8 / 170.6	225 / 200
													1	10	30.8 / 28.0	205.6 / 198.6	250 / 225
													1	15	46.2 / 42.0	221.0 / 212.6	250 / 250
													1	20	59.4 / 54.0	236.3 / 225.3	250 / 250
													1	25	74.8 / 68.0	255.5 / 242.8	300 / 300
											20	59.4 / 54.0	—	—	— / —	190.1 / 183.3	225 / 225
													1	10	30.8 / 28.0	220.9 / 211.3	250 / 250
													1	15	46.2 / 42.0	236.3 / 225.3	250 / 250
													1	20	59.4 / 54.0	249.5 / 237.3	300 / 250
													1	25	74.8 / 68.0	268.7 / 254.8	300 / 300
											25	74.8 / 68.0	—	—	— / —	209.3 / 200.8	250 / 250
													1	10	30.8 / 28.0	240.1 / 228.8	300 / 250
													1	15	46.2 / 42.0	255.5 / 242.8	300 / 300
													1	20	59.4 / 54.0	268.7 / 254.8	300 / 300
													1	25	74.8 / 68.0	284.1 / 268.8	350 / 300
460	414	508	1	23.1	150	1	23.1	150	2	3.3 (ea)	7.5	11.0	—	—	—	69.6	90
													1	10	14.0	83.6	100
													1	15	21.0	90.6	110
													1	20	27.0	97.6	110
													1	20	34.0	106.3	125
											10	14.0	—	—	—	72.6	90
													1	10	14.0	86.6	100
													1	15	21.0	93.6	110
													1	20	27.0	97.6	125
													1	20	34.0	109.3	125
											15	21.0	—	—	—	79.6	100
													1	10	14.0	93.6	110
													1	15	21.0	100.6	110
													1	20	27.0	107.6	125
													1	20	34.0	116.3	150
											20	27.0	—	—	—	86.6	110
													1	10	14.0	100.6	125
													1	15	21.0	107.6	125
													1	20	27.0	113.6	125
													1	20	34.0	122.3	150
											25	34.0	—	—	—	95.3	125
													1	10	14.0	109.3	125
													1	15	21.0	116.3	150
													1	20	27.0	122.3	150
													1	20	34.0	129.3	150

Table 13 — Electrical Data, 48P 030 Units[a] (cont)

VOLTAGE 3 PH, 60 Hz	VOLTAGE RANGE		COMPRESSOR						CONDENSER FAN MOTOR		EVAPORATOR FAN MOTOR		POWER EXHAUST			POWER SUPPLY	
			No. A1			No. B1											
	Min	Max	Qty	RLA (ea)	LRA (ea)	Qty	RLA (ea)	LRA (ea)	Qty	FLA	Hp	FLA	Qty	Hp (ea)	FLA (ea)	MCA	FUSE OR HACR BRKR[b]
575	518	632	1	19.9	109	1	19.9	109	2	2.6 (ea)	7.5	9.0	—	—	—	59.0	70
													1	10	11.0	70.0	80
													1	15	17.0	76.0	90
													1	20	22.0	81.5	100
													1	20	27.0	87.8	110
											10	11.0	—	—	—	61.0	80
													1	10	11.0	72.0	90
													1	15	17.0	78.0	90
													1	20	22.0	83.5	100
													1	20	27.0	89.8	110
											15	17.0	—	—	—	67.0	80
													1	10	11.0	78.0	90
													1	15	17.0	84.0	100
													1	20	22.0	89.5	110
													1	20	27.0	95.8	110
											20	22.0	—	—	—	72.5	90
													1	10	11.0	83.5	100
													1	15	17.0	89.5	110
													1	20	22.0	94.5	110
													1	20	27.0	100.8	125
											25	27.0	—	—	—	78.8	100
													1	10	11.0	89.8	110
													1	15	17.0	95.8	110
													1	20	22.0	100.8	125
													1	20	27.0	105.8	125

NOTE(S):

a. Units use 1 (low heat) or 2 (high heat) combustion fan motors rated at 0.3 FLA each.
b. Used to determine minimum disconnect per NEC (National Electrical Code).

LEGEND

FLA — Full Load Amps
HACR — Heating, Air Conditioning, and Refrigeration
Hp — Nominal Horsepower
LRA — Locked Rotor Amps
MCA — Minimum Circuit Amps (for wire sizing)
RLA — Rated Load Amps

Table 14 — Electrical Data, 48P 035 Units[a]

VOLTAGE 3 PH, 60 Hz	VOLTAGE RANGE		COMPRESSOR						CONDENSER FAN MOTOR		EVAPORATOR FAN MOTOR		POWER EXHAUST			POWER SUPPLY	
			No. A1			No. B1											
	Min	Max	Qty	RLA (ea)	LRA (ea)	Qty	RLA (ea)	LRA (ea)	Qty	FLA	Hp	FLA	Qty	Hp (ea)	FLA (ea)	MCA	FUSE OR HACR BRKR[b]
208/230	187	253	1	55.8	340	1	55.8	340	2	6.6 (ea)	7.5	24.2 / 22.0	—	—	— / —	163.0 /160.8	200 / 200
													1	10	30.8 / 28.0	193.8 /188.8	225 / 225
													1	15	46.2 / 42.0	209.2 /202.8	250 / 250
													1	20	59.4 / 54.0	223.3 /214.8	250 / 250
													1	25	74.8 / 68.0	242.5 /231.8	300 / 250
											10	30.8 / 28.0	—	—	— / —	169.6 /166.8	225 / 200
													1	10	30.8 / 28.0	200.4 /194.8	250 / 250
													1	15	46.2 / 42.0	231.2 /222.8	250 / 250
													1	20	59.4 / 54.0	245.3 /234.8	250 / 250
													1	25	74.8 / 68.0	264.5 /251.8	300 / 300
											15	46.2 / 42.0	—	—	— / —	185.0 /180.8	225 / 225
													1	10	30.8 / 28.0	215.8 /208.8	250 / 250
													1	15	16.7 / 15.2	231.2 /222.8	250 / 250
													1	20	24.2 / 22.0	245.3 /234.8	300 / 250
													1	25	30.8 / 28.0	264.5 /251.8	300 / 300
											20	59.4 / 54.0	—	—	— / —	199.1 /192.8	250 / 225
													1	10	30.8 / 28.0	229.9 /220.8	250 / 250
													1	15	46.2 / 42.0	245.3 /234.8	300 / 250
													1	20	59.4 / 54.0	258.5 /246.8	300 / 300
													1	25	74.8 / 68.0	277.7 /263.8	350 / 300
											25	74.8 / 68.0	—	—	— / —	218.3 /209.8	250 / 250
													1	10	30.8 / 28.0	249.1 /237.8	300 / 300
													1	15	46.2 / 42.0	264.5 /251.8	300 / 300
													1	20	59.4 / 54.0	277.7 /263.8	350 / 300
													1	25	74.8 / 68.0	293.1 /277.8	350 / 300
460	414	508	1	26.9	179	1	26.9	179	2	3.3 (ea)	7.5	11.0	—	—	—	78.1	100
													1	10	14.0	92.1	110
													1	15	21.0	99.1	125
													1	20	27.0	105.2	125
													1	20	34.0	113.9	125
											10	14.0	—	—	—	81.1	100
													1	10	14.0	95.1	110
													1	15	21.0	102.1	125
													1	20	27.0	108.2	125
													1	20	34.0	116.9	150
											15	21.0	—	—	—	88.1	110
													1	10	14.0	102.1	125
													1	15	21.0	109.1	125
													1	20	27.0	115.2	125
													1	20	34.0	123.9	150
											20	27.0	—	—	—	94.2	110
													1	10	14.0	108.2	125
													1	15	21.0	115.2	125
													1	20	27.0	121.2	125
													1	20	34.0	129.2	150
											25	34.0	—	—	—	102.9	125
													1	10	14.0	116.9	150
													1	15	21.0	123.9	150
													1	20	27.0	129.9	150
													1	20	34.0	136.9	150

Table 14 — Electrical Data, 48P 035 Units[a] (cont)

VOLTAGE 3 PH, 60 Hz	VOLTAGE RANGE		COMPRESSOR						CONDENSER FAN MOTOR		EVAPORATOR FAN MOTOR		POWER EXHAUST			POWER SUPPLY	
			No. A1			No. B1											
	Min	Max	Qty	RLA (ea)	LRA (ea)	Qty	RLA (ea)	LRA (ea)	Qty	FLA	Hp	FLA	Qty	Hp (ea)	FLA (ea)	MCA	FUSE OR HACR BRKR[b]
575	518	632	1	23.7	132	1	23.7	132	2	2.6 (ea)	7.5	9.0	—	—	—	67.5	90
													1	10	11.0	78.5	100
													1	15	17.0	84.5	100
													1	20	22.0	89.5	110
													1	20	27.0	95.4	110
											10	11.0	—	—	—	69.5	90
													1	10	11.0	80.5	100
													1	15	17.0	86.5	110
													1	20	22.0	91.5	110
													1	20	27.0	97.4	110
											15	17.0	—	—	—	75.5	90
													1	10	11.0	86.5	110
													1	15	17.0	92.5	110
													1	20	22.0	97.5	110
													1	20	27.0	103.4	125
											20	22.0	—	—	—	80.5	100
													1	10	11.0	91.5	110
													1	15	17.0	97.5	110
													1	20	22.0	102.5	125
													1	20	27.0	108.4	125
											25	27.0	—	—	—	86.4	110
													1	10	11.0	97.4	110
													1	15	17.0	103.4	125
													1	20	22.0	108.4	125
													1	20	27.0	113.4	125

NOTE(S):

a. Units use 1 (low heat) or 2 (high heat) combustion fan motors rated at 0.3 FLA each.
b. Used to determine minimum disconnect per NEC (National Electrical Code).

LEGEND

FLA — Full Load Amps
HACR — Heating, Air Conditioning, and Refrigeration
Hp — Nominal Horsepower
LRA — Locked Rotor Amps
MCA — Minimum Circuit Amps (for wire sizing)
RLA — Rated Load Amps

Table 15 — Electrical Data, 48P 040 Units[a]

VOLTAGE 3 PH, 60 Hz	VOLTAGE RANGE		COMPRESSOR						CONDENSER FAN MOTOR		EVAPORATOR FAN MOTOR		POWER EXHAUST			POWER SUPPLY	
			No. A1			No. B1											
	Min	Max	Qty	RLA (ea)	LRA (ea)	Qty	RLA (ea)	LRA (ea)	Qty	FLA	Hp	FLA	Qty	Hp (ea)	FLA (ea)	MCA	FUSE OR HACR BRKR[b]
208/230	187	253	1	55.8	340	2	30.1	225	3	6.6 (ea)	7.5	24.2 / 22.0	—	—	— / —	174.0 / 171.8	225 / 225
													1	10	30.8 / 28.0	204.8 / 199.8	250 / 250
													1	15	46.2 / 42.0	220.2 / 213.8	250 / 250
													1	20	59.4 / 54.0	234.3 / 225.8	250 / 250
													1	25	74.8 / 68.0	253.5 / 242.8	300 / 300
											10	30.8 / 28.0	—	—	— / —	180.6 / 177.8	225 / 225
													1	10	30.8 / 28.0	211.4 / 205.8	250 / 250
													1	15	46.2 / 42.0	226.8 / 219.8	250 / 250
													1	20	59.4 / 54.0	240.9 / 231.8	300 / 250
													1	25	74.8 / 68.0	260.1 / 248.8	300 / 300
											15	46.2 / 42.0	—	—	— / —	196.0 / 191.8	250 / 225
													1	10	30.8 / 28.0	226.8 / 219.8	250 / 250
													1	15	46.2 / 42.0	242.2 / 233.8	250 / 250
													1	20	59.4 / 54.0	256.3 / 245.8	300 / 300
													1	25	74.8 / 68.0	275.5 / 262.8	350 / 300
											20	59.4 / 54.0	—	—	— / —	210.1 / 203.8	250 / 250
													1	10	30.8 / 28.0	240.9 / 231.8	300 / 250
													1	15	46.2 / 42.0	256.3 / 245.8	300 / 300
													1	20	59.4 / 54.0	269.5 / 257.8	300 / 300
													1	25	74.8 / 68.0	288.7 / 274.8	350 / 300
											25	74.8 / 68.0	—	—	— / —	229.3 / 220.8	300 / 250
													1	10	30.8 / 28.0	260.1 / 248.8	300 / 300
													1	15	46.2 / 42.0	275.5 / 262.8	350 / 300
													1	20	59.4 / 54.0	288.7 / 274.8	350 / 300
													1	25	74.8 / 68.0	304.1 / 288.8	350 / 350
											30	88.0 / 80.0	—	—	— / —	245.8 / 235.8	300 / 300
													1	10	30.8 / 28.0	276.6 / 263.8	350 / 300
													1	15	46.2 / 42.0	292.0 / 277.8	350 / 350
													1	20	59.4 / 54.0	305.2 / 289.8	350 / 350
													1	25	74.8 / 68.0	320.6 / 303.8	400 / 350
460	414	508	1	26.9	179	2	16.7	114	3	3.3 (ea)	7.5	11.0	—	—	—	87.9	110
													1	10	14.0	101.9	125
													1	15	21.0	108.9	125
													1	20	27.0	115.0	125
													1	20	34.0	123.7	150
											10	14.0	—	—	—	90.9	110
													1	10	14.0	104.9	125
													1	15	21.0	111.9	125
													1	20	27.0	118.0	125
													1	20	34.0	126.7	150
											15	21.0	—	—	—	97.9	110
													1	10	14.0	111.9	125
													1	15	21.0	118.9	125
													1	20	27.0	125.0	150
													1	20	34.0	133.7	150
											20	27.0	—	—	—	104.0	125
													1	10	14.0	118.0	125
													1	15	21.0	125.0	150
													1	20	27.0	131.0	150
													1	20	34.0	139.7	150
											25	34.0	—	—	—	112.7	125
													1	10	14.0	126.7	150
													1	15	21.0	133.7	150
													1	20	27.0	139.7	150
													1	20	34.0	146.7	175
											30	40.0	—	—	—	120.2	150
													1	10	14.0	134.2	150
													1	15	21.0	141.2	175
													1	20	27.0	147.2	175
													1	20	34.0	154.2	175

Table 15 — Electrical Data, 48P 040 Units[a] (cont)

VOLTAGE 3 PH, 60 Hz	VOLTAGE RANGE		COMPRESSOR						CONDENSER FAN MOTOR		EVAPORATOR FAN MOTOR		POWER EXHAUST			POWER SUPPLY	
			No. A1			No. B1											
	Min	Max	Qty	RLA (ea)	LRA (ea)	Qty	RLA (ea)	LRA (ea)	Qty	FLA	Hp	FLA	Qty	Hp (ea)	FLA (ea)	MCA	FUSE OR HACR BRKR[b]
575	518	632	1	23.7	132	2	12.2	80	3	2.6 (ea)	7.5	9.0	—	—	—	70.8	90
													1	10	11.0	81.8	100
													1	15	17.0	87.8	110
													1	20	22.0	92.8	110
													1	20	27.0	97.8	125
											10	11.0	—	—	—	72.8	90
													1	10	11.0	83.8	100
													1	15	17.0	89.8	110
													1	20	22.0	94.8	110
													1	20	27.0	100.7	125
											15	17.0	—	—	—	78.8	100
													1	10	11.0	89.8	110
													1	15	17.0	95.8	110
													1	20	22.0	100.8	110
													1	20	27.0	106.7	125
											20	22.0	—	—	—	83.8	100
													1	10	11.0	94.8	110
													1	15	17.0	100.8	110
													1	20	22.0	105.8	125
													1	20	27.0	111.7	125
											25	27.0	—	—	—	89.7	110
													1	10	11.0	100.7	125
													1	15	17.0	106.7	125
													1	20	22.0	111.7	125
													1	20	27.0	116.7	125
											30	32.0	—	—	—	95.9	125
													1	10	11.0	106.9	125
													1	15	17.0	112.9	125
													1	20	22.0	117.9	125
													1	20	27.0	122.9	150

NOTE(S):

a. Units use 1 (low heat) or 2 (high heat) combustion fan motors rated at 0.3 FLA each.
b. Used to determine minimum disconnect per NEC (National Electrical Code).

LEGEND

FLA — Full Load Amps
HACR — Heating, Air Conditioning, and Refrigeration
Hp — Nominal Horsepower
LRA — Locked Rotor Amps
MCA — Minimum Circuit Amps (for wire sizing)
RLA — Rated Load Amps

Table 16 — Electrical Data, 48P 050 Units[a]

VOLTAGE 3 PH, 60 Hz	VOLTAGE RANGE		COMPRESSOR						CONDENSER FAN MOTOR		EVAPORATOR FAN MOTOR		POWER EXHAUST			POWER SUPPLY	
			No. A1			No. B1											
	Min	Max	Qty	RLA (ea)	LRA (ea)	Qty	RLA (ea)	LRA (ea)	Qty	FLA	Hp	FLA	Qty	Hp (ea)	FLA (ea)	MCA	FUSE OR HACR BRKR[b]
208/230	187	253	2	33.3	239	2	48.1	245	4	6.6 (ea)	7.5	24.2 / 22.0	—	—	— / —	225.4 / 223.2	250 / 250
													1	10	30.8 / 28.0	256.2 / 251.2	300 / 300
													1	15	46.2 / 42.0	271.6 / 265.2	300 / 300
													1	20	59.4 / 54.0	287.7 / 278.7	300 / 300
													1	25	74.8 / 68.0	306.9 / 296.2	350 / 350
											10	30.8 / 28.0	—	—	— / —	232.0 / 229.2	250 / 250
													1	10	30.8 / 28.0	262.8 / 257.2	300 / 300
													1	15	46.2 / 42.0	278.2 / 271.2	300 / 300
													1	20	59.4 / 54.0	294.3 / 284.7	350 / 300
													1	25	74.8 / 68.0	313.5 / 302.2	350 / 350
											15	46.2 / 42.0	—	—	— / —	247.4 / 243.2	250 / 250
													1	10	30.8 / 28.0	278.2 / 271.2	300 / 300
													1	15	46.2 / 42.0	293.6 / 285.2	300 / 300
													1	20	59.4 / 54.0	309.7 / 298.7	350 / 350
													1	25	74.8 / 68.0	328.9 / 316.2	400 / 350
											20	59.4 / 54.0	—	—	— / —	263.5 / 256.7	300 / 300
													1	10	30.8 / 28.0	294.3 / 284.7	350 / 300
													1	15	46.2 / 42.0	309.7 / 298.7	350 / 350
													1	20	59.4 / 54.0	322.9 / 310.7	350 / 350
													1	25	74.8 / 68.0	342.1 / 328.2	400 / 350
											25	74.8 / 68.0	—	—	— / —	282.7 / 274.2	350 / 300
													1	10	30.8 / 28.0	313.5 / 302.2	350 / 350
													1	15	46.2 / 42.0	328.9 / 316.2	400 / 350
													1	20	59.4 / 54.0	342.1 / 328.2	400 / 350
													1	25	74.8 / 68.0	357.5 / 342.2	400 / 400
											30	88.0 / 80.0	—	—	— / —	299.2 / 289.2	350 / 350
													1	10	30.8 / 28.0	330.0 / 317.2	400 / 350
													1	15	46.2 / 42.0	345.4 / 331.2	400 / 400
													1	20	59.4 / 54.0	358.6 / 343.2	400 / 400
													1	25	74.8 / 68.0	374.0 / 357.2	450 / 400
460	414	508	2	17.9	125	2	18.6	125	4	3.3 (ea)	7.5	11.0	—	—	—	101.9	110
													1	10	14.0	115.9	125
													1	15	21.0	123.5	125
													1	20	27.0	131.0	150
													1	20	34.0	139.7	150
											10	14.0	—	—	—	104.9	110
													1	10	14.0	118.9	125
													1	15	21.0	126.5	150
													1	20	27.0	134.0	150
													1	20	34.0	142.7	175
											15	21.0	—	—	—	112.5	125
													1	10	14.0	126.5	150
													1	15	21.0	133.5	150
													1	20	27.0	141.0	150
													1	20	34.0	149.7	175
											20	27.0	—	—	—	120.0	125
													1	10	14.0	134.0	150
													1	15	21.0	141.0	150
													1	20	27.0	147.0	150
													1	20	34.0	155.7	175
											25	34.0	—	—	—	128.7	150
													1	10	14.0	142.7	175
													1	15	21.0	149.7	175
													1	20	27.0	155.7	175
													1	20	34.0	162.7	175
											30	40.0	—	—	—	136.2	175
													1	10	14.0	150.2	175
													1	15	21.0	157.2	175
													1	20	27.0	163.2	200
													1	20	34.0	170.2	200

Table 16 — Electrical Data, 48P 050 Units[a] (cont)

VOLTAGE 3 PH, 60 Hz	VOLTAGE RANGE		COMPRESSOR						CONDENSER FAN MOTOR		EVAPORATOR FAN MOTOR		POWER EXHAUST			POWER SUPPLY	
			No. A1			No. B1											
	Min	Max	Qty	RLA (ea)	LRA (ea)	Qty	RLA (ea)	LRA (ea)	Qty	FLA	Hp	FLA	Qty	Hp (ea)	FLA (ea)	MCA	FUSE OR HACR BRKR[b]
575	518	632	2	12.8	80	2	14.7	100	4	2.6 (ea)	7.5	9.0	—	—	—	78.1	90
													1	10	11.0	89.1	100
													1	15	17.0	95.7	110
													1	20	22.0	101.9	110
													1	20	27.0	108.2	125
											10	11.0	—	—	—	80.1	90
													1	10	11.0	91.1	100
													1	15	17.0	97.7	110
													1	20	22.0	103.9	125
													1	20	27.0	110.2	125
											15	17.0	—	—	—	86.7	100
													1	10	11.0	97.7	110
													1	15	17.0	103.7	110
													1	20	22.0	109.9	125
													1	20	27.0	116.2	125
											20	22.0	—	—	—	92.9	110
													1	10	11.0	103.9	125
													1	15	17.0	109.9	125
													1	20	22.0	114.9	125
													1	20	27.0	121.2	125
											25	27.0	—	—	—	99.2	125
													1	10	11.0	110.2	125
													1	15	17.0	116.2	125
													1	20	22.0	121.2	125
													1	20	27.0	126.2	150
											30	32.0	—	—	—	105.4	125
													1	10	11.0	116.4	125
													1	15	17.0	122.4	150
													1	20	22.0	127.4	150
													1	20	27.0	132.4	150

NOTE(S):

a. Units use 1 (low heat) or 2 (high heat) combustion fan motors rated at 0.3 FLA each.
b. Used to determine minimum disconnect per NEC (National Electrical Code).

LEGEND

FLA — Full Load Amps
HACR — Heating, Air Conditioning, and Refrigeration
Hp — Nominal Horsepower
LRA — Locked Rotor Amps
MCA — Minimum Circuit Amps (for wire sizing)
RLA — Rated Load Amps

Table 17 — Electrical Data, 48P 055 Units[a]

VOLTAGE 3 PH, 60 Hz	VOLTAGE RANGE		COMPRESSOR						CONDENSER FAN MOTOR		EVAPORATOR FAN MOTOR		POWER EXHAUST			POWER SUPPLY	
			No. A1			No. B1											
	Min	Max	Qty	RLA (ea)	LRA (ea)	Qty	RLA (ea)	LRA (ea)	Qty	FLA	Hp	FLA	Qty	Hp (ea)	FLA (ea)	MCA	FUSE OR HACR BRKR[b]
208/230	187	253	2	48.1	245	2	48.1	245	4	6.6 (ea)	15	46.2 / 42.0	—	—	— / —	277.0 / 272.8	300 / 300
													1	15.0	46.2 / 42.0	323.2 / 314.8	350 / 350
													1	20.0	59.4 / 54.0	339.3 / 328.3	350 / 350
													1	25.0	74.8 / 68.0	358.5 / 345.8	400 / 400
													1	30.0	88.0 / 80.0	375.0 / 360.8	450 / 400
											20	59.4 / 54.0	—	—	— / —	293.1 / 286.3	350 / 300
													1	15.0	46.2 / 42.0	339.3 / 328.3	350 / 350
													1	20.0	59.4 / 54.0	352.5 / 340.3	400 / 350
													1	25.0	74.8 / 68.0	371.7 / 357.8	400 / 400
													1	30.0	88.0 / 80.0	388.2 / 372.8	450 / 450
											25	74.8 / 68.0	—	—	— / —	312.3 / 303.8	350 / 350
													1	15.0	46.2 / 42.0	358.5 / 345.8	400 / 400
													1	20.0	59.4 / 54.0	371.7 / 357.8	400 / 400
													1	25.0	74.8 / 68.0	387.1 / 371.8	450 / 400
													1	30.0	88.0 / 80.0	403.6 / 386.8	450 / 450
											30	88.0 / 80.0	—	—	— / —	328.8 / 318.8	400 / 350
													1	15.0	46.2 / 42.0	375.0 / 360.8	450 / 400
													1	20.0	59.4 / 54.0	388.2 / 372.8	450 / 450
													1	25.0	74.8 / 68.0	403.6 / 386.8	450 / 450
													1	30.0	88.0 / 80.0	416.8 / 398.8	500 / 450
											40	114.0 / 104.0	—	—	— / —	361.3 / 348.8	450 / 450
													1	15.0	46.2 / 42.0	407.5 / 390.8	500 / 450
													1	20.0	59.4 / 54.0	420.7 / 402.8	500 / 500
													1	25.0	74.8 / 68.0	436.1 / 416.8	500 / 500
													1	30.0	88.0 / 80.0	449.3 / 428.8	500 / 500
460	414	508	2	18.6	125	2	18.6	125	4	3.3 (ea)	15	21.0	—	—	—	113.9	125
													1	15.0	21.0	134.9	150
													1	20.0	27.0	142.4	150
													1	25.0	34.0	151.1	175
													1	30.0	40.0	158.6	175
											20	27.0	—	—	—	121.4	125
													1	15.0	21.0	142.4	150
													1	20.0	27.0	148.4	175
													1	25.0	34.0	157.1	175
													1	30.0	40.0	164.6	200
											25	34.0	—	—	—	130.1	150
													1	15.0	21.0	151.1	175
													1	20.0	27.0	157.1	175
													1	25.0	34.0	164.1	175
													1	30.0	40.0	171.6	200
											30	40.0	—	—	—	137.6	175
													1	15.0	21.0	158.6	175
													1	20.0	27.0	164.6	200
													1	25.0	34.0	171.6	200
													1	30.0	40.0	177.6	200
											40	52.0	—	—	—	152.6	200
													1	15.0	21.0	173.6	225
													1	20.0	27.0	179.6	225
													1	25.0	34.0	186.6	225
													1	30.0	40.0	192.6	225

Table 17 — Electrical Data, 48P 055 Units[a] (cont)

VOLTAGE 3 PH, 60 Hz	VOLTAGE RANGE		COMPRESSOR						CONDENSER FAN MOTOR		EVAPORATOR FAN MOTOR		POWER EXHAUST			POWER SUPPLY	
			No. A1			No. B1											
	Min	Max	Qty	RLA (ea)	LRA (ea)	Qty	RLA (ea)	LRA (ea)	Qty	FLA	Hp	FLA	Qty	Hp (ea)	FLA (ea)	MCA	FUSE OR HACR BRKR[b]
575	518	632	2	14.7	100	2	14.7	100	4	2.6 (ea)	15	17.0	—	—	—	90.5	100
													1	15.0	17.0	107.5	110
													1	20.0	22.0	113.7	125
													1	25.0	27.0	120.0	125
													1	30.0	32.0	126.2	150
											20	22.0	—	—	—	96.7	110
													1	15.0	17.0	113.7	125
													1	20.0	22.0	118.7	125
													1	25.0	27.0	125.0	150
													1	30.0	32.0	131.2	150
											25	27.0	—	—	—	103.0	125
													1	15.0	17.0	120.0	125
													1	20.0	22.0	125.0	150
													1	25.0	27.0	130.0	150
													1	30.0	32.0	136.2	150
											30	32.0	—	—	—	109.2	125
													1	15.0	17.0	126.2	150
													1	20.0	22.0	131.2	150
													1	25.0	27.0	136.2	150
													1	30.0	32.0	141.2	150
											40	41.0	—	—	—	120.5	150
													1	15.0	17.0	137.5	175
													1	20.0	22.0	142.5	175
													1	25.0	27.0	147.5	175
													1	30.0	32.0	152.5	175

NOTE(S):

a. Units use 2 (low heat) or 3 (high heat) combustion fan motors rated at 0.3 FLA each.
b. Used to determine minimum disconnect per NEC (National Electrical Code).

LEGEND

FLA — Full Load Amps
HACR — Heating, Air Conditioning, and Refrigeration
Hp — Nominal Horsepower
LRA — Locked Rotor Amps
MCA — Minimum Circuit Amps (for wire sizing)
RLA — Rated Load Amps

Table 18 — Electrical Data, 48P 060 Units[a]

VOLTAGE 3 PH, 60 Hz	VOLTAGE RANGE		COMPRESSOR						CONDENSER FAN MOTOR		EVAPORATOR FAN MOTOR		POWER EXHAUST			POWER SUPPLY	
			No. A1			No. B1											
	Min	Max	Qty	RLA (ea)	LRA (ea)	Qty	RLA (ea)	LRA (ea)	Qty	FLA	Hp	FLA	Qty	Hp (ea)	FLA (ea)	MCA	FUSE OR HACR BRKR[b]
208/230	187	253	2	51.3	300	2	51.3	300	4	6.6 (ea)	15	46.2 / 42.0	—	—	— / —	290.6 / 286.4	300 / 300
													1	15.0	46.2 / 42.0	336.8 / 328.4	350 / 350
													1	20.0	59.4 / 54.0	352.1 / 341.1	400 / 350
													1	25.0	74.8 / 68.0	371.3 / 358.6	400 / 400
													1	30.0	88.0 / 80.0	387.8 / 373.6	450 / 450
											20	59.4 / 54.0	—	—	— / —	305.9 / 299.1	350 / 350
													1	15.0	46.2 / 42.0	352.1 / 341.1	400 / 350
													1	20.0	59.4 / 54.0	365.3 / 353.1	400 / 400
													1	25.0	74.8 / 68.0	384.5 / 370.6	450 / 400
													1	30.0	88.0 / 80.0	401.1 / 385.6	450 / 450
											25	74.8 / 68.0	—	—	— / —	325.1 / 316.6	350 / 350
													1	15.0	46.2 / 42.0	371.3 / 358.6	400 / 400
													1	20.0	59.4 / 54.0	384.5 / 370.6	450 / 400
													1	25.0	74.8 / 68.0	399.9 / 384.6	450 / 450
													1	30.0	88.0 / 80.0	416.4 / 399.6	500 / 450
											30	88.0 / 80.0	—	—	— / —	341.6 / 331.6	400 / 400
													1	15.0	46.2 / 42.0	387.8 / 373.6	450 / 450
													1	20.0	59.4 / 54.0	401.1 / 385.6	450 / 450
													1	25.0	74.8 / 68.0	416.4 / 399.6	500 / 450
													1	30.0	88.0 / 80.0	429.6 / 411.6	500 / 450
											40	114.0 / 104.0	—	—	— / —	374.1 / 361.6	450 / 450
													1	15.0	46.2 / 42.0	420.3 / 403.6	500 / 500
													1	20.0	59.4 / 54.0	433.5 / 415.6	500 / 500
													1	25.0	74.8 / 68.0	448.9 / 429.6	500 / 500
													1	30.0	88.0 / 80.0	462.1 441.6	500 / 500
460	414	508	2	23.1	150	2	23.1	150	4	3.3 (ea)	15	21.0	—	—	—	132.4	150
													1	15	21	153.4	175
													1	20	27	160.4	175
													1	25	34	169.1	200
													1	30	40	176.6	200
											20	27.0	—	—	—	139.4	150
													1	15	21	160.4	175
													1	20	27	166.4	175
													1	25	34	175.1	200
													1	30	40	182.6	200
											25	34.0	—	—	—	148.1	175
													1	15	21	169.1	200
													1	20	27	175.1	200
													1	25	34	182.1	200
													1	30	40	189.6	225
											30	40.0	—	—	—	155.6	175
													1	15	21	176.6	200
													1	20	27	182.6	200
													1	25	34	189.6	225
													1	30	40	195.6	225
											40	52.0	—	—	—	170.6	200
													1	15	21	191.6	225
													1	20	27	197.6	225
													1	25	34	204.6	250
													1	30	40	210.6	250

Table 18 — Electrical Data, 48P 060 Units[a] (cont)

VOLTAGE 3 PH, 60 Hz	VOLTAGE RANGE		COMPRESSOR						CONDENSER FAN MOTOR		EVAPORATOR FAN MOTOR		POWER EXHAUST			POWER SUPPLY	
			No. A1			No. B1											
	Min	Max	Qty	RLA (ea)	LRA (ea)	Qty	RLA (ea)	LRA (ea)	Qty	FLA	Hp	FLA	Qty	Hp (ea)	FLA (ea)	MCA	FUSE OR HACR BRKR[b]
575	518	632	2	19.9	109	2	19.9	109	4	2.6 (ea)	15	17.0	—	—	—	112.0	125
													1	15	17	129.0	150
													1	20	22	134.5	150
													1	25	27	140.8	150
													1	30	32	147.0	175
											20	22.0	—	—	—	117.5	125
													1	15	17	134.5	150
													1	20	22	139.5	150
													1	25	27	145.8	150
													1	30	32	152.0	175
											25	27.0	—	—	—	123.8	150
													1	15	17	140.8	150
													1	20	22	145.8	150
													1	25	27	150.8	175
													1	30	32	157.0	175
											30	32.0	—	—	—	130.0	150
													1	15	17	147.0	175
													1	20	22	152.0	175
													1	25	27	157.0	175
													1	30	32	162.0	175
											40	41.0	—	—	—	141.3	175
													1	15	17	158.3	175
													1	20	22	163.3	200
													1	25	27	168.3	200
													1	30	32	173.3	200

NOTE(S):

a. Units use 2 (low heat) or 3 (high heat) combustion fan motors rated at 0.3 FLA each.
b. Used to determine minimum disconnect per NEC (National Electrical Code).

LEGEND

FLA — Full Load Amps
HACR — Heating, Air Conditioning, and Refrigeration
Hp — Nominal Horsepower
LRA — Locked Rotor Amps
MCA — Minimum Circuit Amps (for wire sizing)
RLA — Rated Load Amps

Table 19 — Electrical Data, 48P 070 Units[a]

VOLTAGE 3 PH, 60 Hz	VOLTAGE RANGE		COMPRESSOR						CONDENSER FAN MOTOR		EVAPORATOR FAN MOTOR		POWER EXHAUST			POWER SUPPLY	
			No. A1			No. B1											
	Min	Max	Qty	RLA (ea)	LRA (ea)	Qty	RLA (ea)	LRA (ea)	Qty	FLA	Hp	FLA	Qty	Hp (ea)	FLA (ea)	MCA	FUSE OR HACR BRKR[b]
208/230	187	253	2	51.3	300	2	55.8	340	4	6.6 (ea)	15	46.2 / 42.0	—	—	— / —	300.8 / 296.6	350 / 350
													1	15.0	46.2 / 42.0	347.0 / 338.6	400 / 350
													1	20.0	59.4 / 54.0	361.1 / 350.6	400 / 400
													1	25.0	74.8 / 68.0	380.3 / 367.6	450 / 400
													1	30.0	88.0 / 80.0	396.8 / 382.6	450 / 450
											20	59.4 / 54.0	—	—	— / —	314.9 / 308.6	350 / 350
													1	15.0	46.2 / 42.0	361.1 / 350.6	400 / 350
													1	20.0	59.4 / 54.0	374.3 / 362.6	400 / 400
													1	25.0	74.8 / 68.0	393.5 / 379.6	450 / 400
													1	30.0	88.0 / 80.0	410.0 / 394.6	450 / 450
											25	74.8 / 68.0	—	—	— / —	334.1 / 325.6	400 / 350
													1	15.0	46.2 / 42.0	380.3 / 367.6	450 / 400
													1	20.0	59.4 / 54.0	393.5 / 379.6	450 / 400
													1	25.0	74.8 / 68.0	408.9 / 393.6	450 / 450
													1	30.0	88.0 / 80.0	425.4 / 408.6	500 / 450
											30	88.0 / 80.0	—	—	— / —	152.8 / 150.6	200 / 200
													1	15.0	30.8 / 28.0	183.6 / 178.6	225 / 225
													1	20.0	46.2 / 42.0	199.0 / 192.6	250 / 225
													1	25.0	59.4 / 54.0	214.3 / 205.3	250 / 250
													1	30.0	74.8 / 68.0	233.5 / 222.8	300 / 250
											40	114.0 /104.0	—	—	— / —	350.6 / 340.6	400 / 400
													1	15.0	46.2 / 42.0	396.8 / 382.6	450 / 450
													1	20.0	59.4 / 54.0	410.0 / 394.6	450 / 450
													1	25.0	74.8 / 68.0	425.4 / 408.6	500 / 450
													1	30.0	88.0 / 80.0	471.1 / 450.6	500 / 500
460	414	508	2	23.1	150	2	26.9	179	4	3.3 (ea)	15	21.0	—	—	—	140.9	150
													1	15.0	21.0	161.9	175
													1	20.0	27.0	168.0	175
													1	25.0	34.0	176.7	200
													1	30.0	40.0	184.2	200
											20	27.0	—	—	—	147.0	150
													1	15.0	21.0	168.0	175
													1	20.0	27.0	174.0	200
													1	25.0	34.0	182.7	200
													1	30.0	40.0	190.2	250
											25	34.0	—	—	—	155.7	175
													1	15.0	21.0	176.7	200
													1	20.0	27.0	182.7	200
													1	25.0	34.0	189.7	200
													1	30.0	40.0	197.2	225
											30	40.0	—	—	—	163.2	200
													1	15.0	21.0	184.2	200
													1	20.0	27.0	190.2	225
													1	25.0	34.0	197.2	225
													1	30.0	40.0	203.2	225
											40	52.0	—	—	—	178.2	225
													1	15.0	21.0	199.2	250
													1	20.0	27.0	205.2	250
													1	25.0	34.0	212.2	250
													1	30.0	40.0	218.2	250

Table 19 — Electrical Data, 48P 070 Units[a] (cont)

VOLTAGE 3 PH, 60 Hz	VOLTAGE RANGE		COMPRESSOR						CONDENSER FAN MOTOR		EVAPORATOR FAN MOTOR		POWER EXHAUST			POWER SUPPLY	
			No. A1			No. B1											
	Min	Max	Qty	RLA (ea)	LRA (ea)	Qty	RLA (ea)	LRA (ea)	Qty	FLA	Hp	FLA	Qty	Hp (ea)	FLA (ea)	MCA	FUSE OR HACR BRKR[b]
575	518	632	2	19.9	109	2	23.7	132	4	2.6 (ea)	15	17.0	—	—	—	120.5	125
													1	15.0	17.0	137.5	150
													1	20.0	22.0	142.5	150
													1	25.0	27.0	148.4	175
													1	30.0	32.0	154.6	175
											20	22.0	—	—	—	125.5	150
													1	15.0	17.0	142.5	150
													1	20.0	22.0	147.5	150
													1	25.0	27.0	153.4	175
													1	30.0	32.0	159.6	175
											25	27.0	—	—	—	131.4	150
													1	15.0	17.0	148.4	175
													1	20.0	22.0	153.4	175
													1	25.0	27.0	158.4	175
													1	30.0	32.0	164.6	175
											30	32.0	—	—	—	137.6	150
													1	15.0	17.0	154.6	175
													1	20.0	22.0	159.6	175
													1	25.0	27.0	164.6	175
													1	30.0	32.0	169.6	200
											40	41.0	—	—	—	148.9	175
													1	15.0	17.0	165.9	200
													1	20.0	22.0	170.9	200
													1	25.0	27.0	175.9	200
													1	30.0	32.0	180.9	200

NOTE(S):

a. Units use 2 (low heat) or 3 (high heat) combustion fan motors rated at 0.3 FLA each.
b. Used to determine minimum disconnect per NEC (National Electrical Code).

LEGEND

FLA — Full Load Amps
HACR — Heating, Air Conditioning, and Refrigeration
Hp — Nominal Horsepower
LRA — Locked Rotor Amps
MCA — Minimum Circuit Amps (for wire sizing)
RLA — Rated Load Amps

Table 20 — Electrical Data — 48P 075 Standard Units[a]

VOLTAGE 3 PH, 60 Hz	VOLTAGE RANGE		COMPRESSOR						CONDENSER FAN MOTOR		EVAPORATOR FAN MOTOR		POWER EXHAUST			POWER SUPPLY	
			No. A1			No. B1											
	Min	Max	Qty	RLA (ea)	LRA (ea)	Qty	RLA (ea)	LRA (ea)	Qty	FLA	Hp	FLA	Qty	Hp (ea)	FLA (ea)	MCA	FUSE OR HACR BRKR[b]
460	414	508	2	26.9	179	2	26.9	179	4	3.3 (ea)	30	40.0	—	—	—	170.8	200
													2	5.0	7.6	186.0	225
													2	7.5	11.0	192.8	225
													2	10.0	14.0	198.8	225
											40	52.0	—	—	—	185.8	225
													2	5.0	7.6	201.0	250
													2	7.5	11.0	207.8	250
													2	10.0	14.0	213.8	250
											50	65.0	—	—	—	202.1	250
													2	5.0	7.6	217.3	250
													2	7.5	11.0	224.1	250
													2	10.0	14.0	230.1	250
											60	77.0	—	—	—	217.1	250
													2	5.0	7.6	232.3	300
													2	7.5	11.0	239.1	300
													2	10.0	14.0	245.1	300
											75	96.0	—	—	—	240.8	300
													2	5.0	7.6	256.0	350
													2	7.5	11.0	262.8	350
													2	10.0	14.0	268.8	350
575	518	632	2	23.7	132	2	23.7	132	4	2.6 (ea)	30	32.0	—	—	—	145.2	175
													2	5.0	6.1	157.4	175
													2	7.5	9.0	163.2	175
													2	10.0	11.0	167.2	175
											40	41.0	—	—	—	156.5	175
													2	5.0	6.1	168.7	200
													2	7.5	9.0	174.5	200
													2	10.0	11.0	178.5	200
											50	52.0	—	—	—	170.2	200
													2	5.0	6.1	182.4	225
													2	7.5	9.0	188.2	225
													2	10.0	11.0	192.2	225
											60	62.0	—	—	—	182.7	225
													2	5.0	6.1	194.9	250
													2	7.5	9.0	200.7	250
													2	10.0	11.0	204.7	250
											75	77.0	—	—	—	201.5	250
													2	5.0	6.1	213.7	250
													2	7.5	9.0	219.5	250
													2	10.0	11.0	223.5	300

NOTE(S):

a. Units use 2 (low heat) or 3 (high heat) combustion fan motors rated at 0.3 FLA each.
b. Used to determine minimum disconnect per NEC (National Electrical Code).

LEGEND

FLA — Full Load Amps
HACR — Heating, Air Conditioning, and Refrigeration
Hp — Nominal Horsepower
LRA — Locked Rotor Amps
MCA — Minimum Circuit Amps (for wire sizing)
RLA — Rated Load Amps

Table 21 — Electrical Data — 48P 075 Units with Optional High-Capacity Power Exhaust[a]

VOLTAGE 3 PH, 60 Hz	VOLTAGE RANGE		COMPRESSOR						CONDENSER FAN MOTOR		EVAPORATOR FAN MOTOR		POWER EXHAUST			POWER SUPPLY	
			No. A1,A2			No. B1,B2											
	Min	Max	Qty	RLA (ea)	LRA (ea)	Qty	RLA (ea)	LRA (ea)	Qty	FLA	Hp	FLA	Qty	Hp (ea)	FLA (ea)	MCA	FUSE OR HACR BRKR[b]
460	414	508	2	26.9	179	2	26.9	179	4	3.3 (ea)	30	40.0	2	10	14.0	198.8	225
													2	15	21.0	212.8	250
													2	20	27.0	224.8	250
													2	25	34.0	238.8	250
													2	30	40.0	250.8	300
											40	52.0	2	10	14.0	213.8	250
													2	15	21.0	227.8	250
													2	20	27.0	239.8	250
													2	25	34.0	253.8	300
													2	30	40.0	265.8	300
											50	65.0	2	10	14.0	230.1	250
													2	15	21.0	244.1	300
													2	20	27.0	256.1	300
													2	25	34.0	270.1	300
													2	30	40.0	282.1	300
											60	77.0	2	10	14.0	245.1	300
													2	15	21.0	259.1	300
													2	20	27.0	271.1	300
													2	25	34.0	285.1	350
													2	30	40.0	297.1	350
											75	96.0	2	10	14.0	268.8	350
													2	15	21.0	282.8	350
													2	20	27.0	294.8	350
													2	25	34.0	308.8	400
													2	30	40.0	320.8	400
575	518	632	2	23.7	132	2	23.7	132	4	2.6 (ea)	30	32.0	2	10	11.0	167.2	175
													2	15	17.0	179.2	200
													2	20	22.0	189.2	200
													2	25	27.0	199.2	225
													2	30	32.0	209.2	225
											40	41.0	2	10	11.0	178.5	200
													2	15	17.0	190.5	225
													2	20	22.0	200.5	225
													2	25	27.0	210.5	250
													2	30	32.0	220.5	250
											50	52.0	2	10	11.0	192.2	225
													2	15	17.0	204.2	250
													2	20	22.0	214.2	250
													2	25	27.0	224.2	250
													2	30	32.0	234.2	250
											60	62.0	2	10	11.0	204.7	250
													2	15	17.0	216.7	250
													2	20	22.0	226.7	250
													2	25	27.0	236.7	250
													2	30	32.0	246.7	300
											75	77.0	2	10	11.0	223.5	300
													2	15	17.0	235.5	300
													2	20	22.0	245.5	300
													2	25	27.0	255.5	300
													2	30	32.0	265.5	300

NOTE(S):

a. Units use 2 (low heat) or 3 (high heat) combustion fan motors rated at 0.3 FLA each.
b. Used to determine minimum disconnect per NEC (National Electrical Code).

LEGEND

FLA — Full Load Amps
HACR — Heating, Air Conditioning, and Refrigeration
Hp — Nominal Horsepower
LRA — Locked Rotor Amps
MCA — Minimum Circuit Amps (for wire sizing)
RLA — Rated Load Amps

Table 22 — Electrical Data — 48P 075 Units with Optional Return Fan[a]

VOLTAGE 3 PH, 60 Hz	VOLTAGE RANGE		COMPRESSOR No. A1			COMPRESSOR No. B1			CONDENSER FAN MOTOR		EVAPORATOR FAN MOTOR		POWER EXHAUST			POWER SUPPLY	
	Min	Max	Qty	RLA (ea)	LRA (ea)	Qty	RLA (ea)	LRA (ea)	Qty	FLA	Hp	FLA	Qty	Hp (ea)	FLA (ea)	MCA	FUSE OR HACR BRKR[b]
460	414	508	2	26.9	179	2	26.9	179	4	3.3 (ea)	30	40.0	1	20	27.0	197.8	225
													1	25	34.0	204.8	225
													1	30	40.0	210.8	250
													1	40	52.0	225.8	250
											40	52.0	1	20	27.0	212.8	250
													1	25	34.0	219.8	250
													1	30	40.0	225.8	250
													1	40	52.0	237.8	250
											50	65.0	1	20	27.0	229.1	250
													1	25	34.0	236.1	300
													1	30	40.0	242.1	300
													1	40	52.0	254.1	300
											60	77.0	1	20	27.0	244.1	300
													1	25	34.0	251.1	300
													1	30	40.0	257.1	300
													1	40	52.0	269.1	300
											75	96.0	1	20	27.0	267.8	350
													1	25	34.0	274.8	350
													1	30	40.0	280.8	350
													1	40	52.0	292.8	350
575	518	632	2	23.7	132	2	23.7	132	4	2.6 (ea)	30	32.0	1	20	22.0	167.2	175
													1	25	27.0	172.2	200
													1	30	32.0	177.2	200
													1	40	41.0	188.5	225
											40	41.0	1	20	22.0	178.5	200
													1	25	27.0	183.5	200
													1	30	32.0	188.5	225
													1	40	41.0	197.5	225
											50	52.0	1	20	22.0	192.2	225
													1	25	27.0	197.2	225
													1	30	32.0	202.2	250
													1	40	41.0	211.2	250
											60	62.0	1	20	22.0	204.7	250
													1	25	27.0	209.7	250
													1	30	32.0	214.7	250
													1	40	41.0	223.7	250
											75	77.0	1	20	22.0	223.5	300
													1	25	27.0	228.5	300
													1	30	32.0	233.5	300
													1	40	41.0	242.5	300

NOTE(S):

a. Units use 2 (low heat) or 3 (high heat) combustion fan motors rated at 0.3 FLA each.
b. Used to determine minimum disconnect per NEC (National Electrical Code).

LEGEND

FLA — Full Load Amps
HACR — Heating, Air Conditioning, and Refrigeration
Hp — Nominal Horsepower
LRA — Locked Rotor Amps
MCA — Minimum Circuit Amps (for wire sizing)
RLA — Rated Load Amps

Table 23 — Electrical Data — 48P 090 Standard Units[a]

VOLTAGE 3 PH, 60 Hz	VOLTAGE RANGE		COMPRESSOR						CONDENSER FAN MOTOR		EVAPORATOR FAN MOTOR		POWER EXHAUST			POWER SUPPLY	
			No. A1			No. B1											
	Min	Max	Qty	RLA (ea)	LRA (ea)	Qty	RLA (ea)	LRA (ea)	Qty	FLA	Hp	FLA	Qty	Hp (ea)	FLA (ea)	MCA	FUSE OR HACR BRKR[b]
460	414	508	3	23.1	150	3	23.1	150	6	3.3 (ea)	30	40.0	—	—	—	208.4	225
													2	5	7.6	223.6	250
													2	7.5	11.0	230.4	250
													2	10.0	14.0	236.4	250
											40	52.0	—	—	—	223.4	250
													2	5	7.6	238.6	250
													2	7.5	11.0	245.4	250
													2	10	14.0	251.4	300
											50	65.0	—	—	—	239.7	300
													2	5	7.6	254.9	300
													2	7.5	11.0	261.7	300
													2	10	14.0	267.7	300
											60	77.0	—	—	—	254.7	300
													2	5	7.6	269.9	300
													2	7.5	11.0	276.7	350
													2	10	14.0	282.7	350
											75	96.0	—	—	—	278.4	350
													2	5	7.6	293.6	350
													2	7.5	11.0	300.4	350
													2	10	14.0	306.4	400
575	518	632	3	19.9	109	3	19.9	109	6	2.6 (ea)	30	32.0	—	—	—	175.0	200
													2	5	6.1	187.2	200
													2	7.5	9.0	193.0	200
													2	10.0	11.0	197.0	225
											40	41.0	—	—	—	186.3	225
													2	5	6.1	198.5	225
													2	7.5	9.0	204.3	225
													2	10	11.0	208.3	225
											50	52.0	—	—	—	200.0	250
													2	5	6.1	212.2	250
													2	7.5	9.0	218.0	250
													2	10	11.0	222.0	250
											60	62.0	—	—	—	212.5	250
													2	5	6.1	224.7	250
													2	7.5	9.0	230.5	250
													2	10	11.0	234.5	250
											75	77.0	—	—	—	231.3	300
													2	5	6.1	243.5	300
													2	7.5	9.0	249.3	300
													2	10	11.0	253.3	300

NOTE(S):

a. Units use 2 (low heat) or 3 (high heat) combustion fan motors rated at 0.3 FLA each.
b. Used to determine minimum disconnect per NEC (National Electrical Code).

LEGEND

FLA — Full Load Amps
HACR — Heating, Air Conditioning, and Refrigeration
Hp — Nominal Horsepower
LRA — Locked Rotor Amps
MCA — Minimum Circuit Amps (for wire sizing)
RLA — Rated Load Amps

Table 24 — Electrical Data — 48P 090 Units with Optional High-Capacity Power Exhaust[a]

VOLTAGE 3 PH, 60 Hz	VOLTAGE RANGE		COMPRESSOR No. A1			COMPRESSOR No. B1			CONDENSER FAN MOTOR		EVAPORATOR FAN MOTOR		POWER EXHAUST			POWER SUPPLY	
	Min	Max	Qty	RLA (ea)	LRA (ea)	Qty	RLA (ea)	LRA (ea)	Qty	FLA	Hp	FLA	Qty	Hp (ea)	FLA (ea)	MCA	FUSE OR HACR BRKR[b]
460	414	508	3	23.1	150	3	23.1	150	6	3.3 (ea)	30	40.0	2	10	14.0	236.4	250
													2	15	21.0	250.4	300
													2	20	27.0	262.4	300
													2	25	34.0	276.4	300
													2	30	40.0	288.4	300
											40	52.0	2	10	14.0	251.4	300
													2	15	21.0	265.4	300
													2	20	27.0	277.4	300
													2	25	34.0	291.4	300
													2	30	40.0	303.4	350
											50	65.0	2	10	14.0	267.7	300
													2	15	21.0	281.7	300
													2	20	27.0	293.7	350
													2	25	34.0	307.7	350
													2	30	40.0	319.7	350
											60	77.0	2	10	14.0	282.7	350
													2	15	21.0	296.7	350
													2	20	27.0	308.7	350
													2	25	34.0	322.7	350
													2	30	40.0	334.7	400
											75	96.0	2	10	14.0	306.4	400
													2	15	21.0	320.4	400
													2	20	27.0	332.4	400
													2	25	34.0	346.4	400
													2	30	40.0	358.4	450
575	518	632	3	19.9	109	3	19.9	109	6	2.6 (ea)	30	32.0	2	10	11.0	197.0	225
													2	15	17.0	209.0	225
													2	20	22.0	219.0	250
													2	25	27.0	229.0	250
													2	30	32.0	239.0	250
											40	41.0	2	10	11.0	208.3	225
													2	15	17.0	220.3	250
													2	20	22.0	230.3	250
													2	25	27.0	240.3	250
													2	30	32.0	250.3	300
											50	52.0	2	10	11.0	222.0	250
													2	15	17.0	234.0	250
													2	20	22.0	244.0	250
													2	25	27.0	254.0	300
													2	30	32.0	264.0	300
											60	62.0	2	10	11.0	234.5	250
													2	15	17.0	246.5	300
													2	20	22.0	256.5	300
													2	25	27.0	266.5	300
													2	30	32.0	276.5	300
											75	77.0	2	10	11.0	253.3	300
													2	15	17.0	265.3	300
													2	20	22.0	275.3	350
													2	25	27.0	285.3	350
													2	30	32.0	295.3	350

NOTE(S):

a. Units use 2 (low heat) or 3 (high heat) combustion fan motors rated at 0.3 FLA each.
b. Used to determine minimum disconnect per NEC (National Electrical Code).

LEGEND

FLA — Full Load Amps
HACR — Heating, Air Conditioning, and Refrigeration
Hp — Nominal Horsepower
LRA — Locked Rotor Amps
MCA — Minimum Circuit Amps (for wire sizing)
RLA — Rated Load Amps

Table 25 — Electrical Data — 48P 090 Units with Optional Return Fan[a]

VOLTAGE 3 PH, 60 Hz	VOLTAGE RANGE		COMPRESSOR						CONDENSER FAN MOTOR		EVAPORATOR FAN MOTOR		POWER EXHAUST			POWER SUPPLY	
			No. A1			No. B1											
	Min	Max	Qty	RLA (ea)	LRA (ea)	Qty	RLA (ea)	LRA (ea)	Qty	FLA	Hp	FLA	Qty	Hp (ea)	FLA (ea)	MCA	FUSE OR HACR BRKR[b]
460	414	508	3	23.1	150	3	23.1	150	6	3.3 (ea)	30	40.0	1	20	27.0	235.4	250
													1	25	34.0	242.4	250
													1	30	40.0	248.4	250
													1	40	52.0	263.4	300
											40	52.0	1	20	27.0	250.4	300
													1	25	34.0	257.4	300
													1	30	40.0	263.4	300
													1	40	52.0	275.4	300
											50	65.0	1	20	27.0	266.7	300
													1	25	34.0	273.7	300
													1	30	40.0	279.7	300
													1	40	52.0	291.7	350
											60	77.0	1	20	27.0	281.7	350
													1	25	34.0	288.7	350
													1	30	40.0	294.7	350
													1	40	52.0	306.7	350
											75	96.0	1	20	27.0	305.4	400
													1	25	34.0	312.4	400
													1	30	40.0	318.4	400
													1	40	52.0	330.4	400
575	518	632	3	19.9	109	3	19.9	109	6	2.6 (ea)	30	32.0	1	20	22.0	197.0	225
													1	25	27.0	202.0	225
													1	30	32.0	207.0	225
													1	40	41.0	218.3	250
											40	41.0	1	20	22.0	208.3	225
													1	25	27.0	213.3	250
													1	30	32.0	218.3	250
													1	40	41.0	227.3	250
											50	52.0	1	20	22.0	222.0	250
													1	25	27.0	227.0	250
													1	30	32.0	232.0	250
													1	40	41.0	241.0	250
											60	62.0	1	20	22.0	234.5	250
													1	25	27.0	239.5	300
													1	30	32.0	244.5	300
													1	40	41.0	253.5	300
											75	77.0	1	20	22.0	253.3	300
													1	25	27.0	258.3	300
													1	30	32.0	263.3	300
													1	40	41.0	272.3	300

NOTE(S):

a. Units use 2 (low heat) or 3 (high heat) combustion fan motors rated at 0.3 FLA each.
b. Used to determine minimum disconnect per NEC (National Electrical Code).

LEGEND

FLA — Full Load Amps
HACR — Heating, Air Conditioning, and Refrigeration
Hp — Nominal Horsepower
LRA — Locked Rotor Amps
MCA — Minimum Circuit Amps (for wire sizing)
RLA — Rated Load Amps

Table 26 — Electrical Data — 48P 100 Standard Units[a]

VOLTAGE 3 PH, 60 Hz	VOLTAGE RANGE		COMPRESSOR						CONDENSER FAN MOTOR		EVAPORATOR FAN MOTOR		POWER EXHAUST			POWER SUPPLY	
			No. A1			No. B1											
	Min	Max	Qty	RLA (ea)	LRA (ea)	Qty	RLA (ea)	LRA (ea)	Qty	FLA	Hp	FLA	Qty	Hp (ea)	FLA (ea)	MCA	FUSE OR HACR BRKR[b]
460	414	508	3	23.1	150	3	26.9	179	6	3.3 (ea)	30	40.0	—	—	—	219.8	250
													2	5.0	7.6	235.0	250
													2	7.5	11.0	241.8	250
													2	10.0	14.0	247.8	250
											40	52.0	—	—	—	234.8	250
													2	5.0	7.6	250.0	300
													2	7.5	11.0	256.8	300
													2	10.0	14.0	262.8	300
											50	65.0	—	—	—	251.1	300
													2	5.0	7.6	266.3	300
													2	7.5	11.0	273.1	300
													2	10.0	14.0	279.1	300
											60	77.0	—	—	—	266.1	300
													2	5.0	7.6	281.3	350
													2	7.5	11.0	288.1	350
													2	10.0	14.0	294.1	350
											75	96.0	—	—	—	289.8	350
													2	5.0	7.6	305.0	400
													2	7.5	11.0	311.8	400
													2	10.0	14.0	317.8	400
575	518	632	3	19.9	109	3	23.7	132	6	2.6 (ea)	30	32.0	—	—	—	186.4	200
													2	5.0	6.1	198.6	225
													2	7.5	9.0	204.4	225
													2	10.0	11.0	208.4	225
											40	41.0	—	—	—	197.7	225
													2	5.0	6.1	209.9	250
													2	7.5	9.0	215.7	250
													2	10.0	11.0	219.7	250
											50	52.0	—	—	—	211.4	250
													2	5.0	6.1	223.6	250
													2	7.5	9.0	229.4	250
													2	10.0	11.0	233.4	250
											60	62.0	—	—	—	223.9	250
													2	5.0	6.1	236.1	250
													2	7.5	9.0	241.9	300
													2	10.0	11.0	245.9	300
											75	77.0	—	—	—	242.7	300
													2	5.0	6.1	254.9	300
													2	7.5	9.0	260.7	300
													2	10.0	11.0	264.7	300

NOTE(S):

a. Units use 2 (low heat) or 3 (high heat) combustion fan motors rated at 0.3 FLA each.
b. Used to determine minimum disconnect per NEC (National Electrical Code).

LEGEND

FLA — Full Load Amps
HACR — Heating, Air Conditioning, and Refrigeration
Hp — Nominal Horsepower
LRA — Locked Rotor Amps
MCA — Minimum Circuit Amps (for wire sizing)
RLA — Rated Load Amps

Table 27 — Electrical Data — 48P 100 Units with Optional High-Capacity Power Exhaust[a]

VOLTAGE 3 PH, 60 Hz	VOLTAGE RANGE		COMPRESSOR						CONDENSER FAN MOTOR		EVAPORATOR FAN MOTOR		POWER EXHAUST			POWER SUPPLY	
			No. A1			No. B1											
	Min	Max	Qty	RLA (ea)	LRA (ea)	Qty	RLA (ea)	LRA (ea)	Qty	FLA	Hp	FLA	Qty	Hp (ea)	FLA (ea)	MCA	FUSE OR HACR BRKR[b]
460	414	508	3	23.1	150	3	26.9	179	6	3.3 (ea)	30	40.0	2	10	14.0	247.8	250
													2	15	21.0	261.8	300
													2	20	27.0	273.8	300
													2	25	34.0	287.8	300
													2	30	40.0	299.8	300
											40	52.0	2	10	14.0	262.8	300
													2	15	21.0	276.8	300
													2	20	27.0	288.8	300
													2	25	34.0	302.8	350
													2	30	40.0	314.8	350
											50	65.0	2	10	14.0	279.1	300
													2	15	21.0	293.1	350
													2	20	27.0	305.1	350
													2	25	34.0	319.1	350
													2	30	40.0	331.1	350
											60	77.0	2	10	14.0	294.1	350
													2	15	21.0	308.1	350
													2	20	27.0	320.1	350
													2	25	34.0	334.1	400
													2	30	40.0	346.1	400
											75	96.0	2	10	14.0	317.8	400
													2	15	21.0	331.8	400
													2	20	27.0	343.8	400
													2	25	34.0	357.8	450
													2	30	40.0	369.8	450
575	518	632	3	19.9	109	3	23.7	132	6	2.6 (ea)	30	32.0	2	10	11.0	208.4	225
													2	15	17.0	220.4	250
													2	20	22.0	230.4	250
													2	25	27.0	240.4	250
													2	30	32.0	250.4	300
											40	41.0	2	10	11.0	219.7	250
													2	15	17.0	231.7	250
													2	20	22.0	241.7	250
													2	25	27.0	251.7	300
													2	30	32.0	261.7	300
											50	52.0	2	10	11.0	233.4	250
													2	15	17.0	245.4	250
													2	20	22.0	255.4	300
													2	25	27.0	265.4	300
													2	30	32.0	275.4	300
											60	62.0	2	10	11.0	245.9	300
													2	15	17.0	257.9	300
													2	20	22.0	267.9	300
													2	25	27.0	277.9	300
													2	30	32.0	287.9	300
											75	77.0	2	10	11.0	264.7	300
													2	15	17.0	276.7	350
													2	20	22.0	286.7	350
													2	25	27.0	296.7	350
													2	30	32.0	306.7	350

NOTE(S):

a. Units use 2 (low heat) or 3 (high heat) combustion fan motors rated at 0.3 FLA each.
b. Used to determine minimum disconnect per NEC (National Electrical Code).

LEGEND

FLA — Full Load Amps
HACR — Heating, Air Conditioning, and Refrigeration
Hp — Nominal Horsepower
LRA — Locked Rotor Amps
MCA — Minimum Circuit Amps (for wire sizing)
RLA — Rated Load Amps

Table 28 — Electrical Data — 48P 100 Units with Optional Return Fan[a]

VOLTAGE 3 PH, 60 Hz	VOLTAGE RANGE		COMPRESSOR No. A1			COMPRESSOR No. B1			CONDENSER FAN MOTOR		EVAPORATOR FAN MOTOR		POWER EXHAUST			POWER SUPPLY	
	Min	Max	Qty	RLA (ea)	LRA (ea)	Qty	RLA (ea)	LRA (ea)	Qty	FLA	Hp	FLA	Qty	Hp (ea)	FLA (ea)	MCA	FUSE OR HACR BRKR[b]
460	414	508	3	23.1	150	3	26.9	179	6	3.3 (ea)	30	40.0	1	20	27.0	246.8	250
													1	25	34.0	253.8	300
													1	30	40.0	259.8	300
													1	40	52.0	274.8	300
											40	52.0	1	20	27.0	261.8	300
													1	25	34.0	268.8	300
													1	30	40.0	274.8	300
													1	40	52.0	286.8	300
											50	65.0	1	20	27.0	278.1	300
													1	25	34.0	285.1	350
													1	30	40.0	291.1	350
													1	40	52.0	303.1	350
											60	77.0	1	20	27.0	293.1	350
													1	25	34.0	300.1	350
													1	30	40.0	306.1	350
													1	40	52.0	318.1	350
											75	96.0	1	20	27.0	316.8	400
													1	25	34.0	323.8	400
													1	30	40.0	329.8	400
													1	40	52.0	341.8	400
575	518	632	3	19.9	109	3	23.7	132	6	2.6 (ea)	30	32.0	1	20	22.0	208.4	225
													1	25	27.0	213.4	225
													1	30	32.0	218.4	250
													1	40	41.0	229.7	250
											40	41.0	1	20	22.0	219.7	250
													1	25	27.0	224.7	250
													1	30	32.0	229.7	250
													1	40	41.0	238.7	250
											50	52.0	1	20	22.0	233.4	250
													1	25	27.0	238.4	250
													1	30	32.0	243.4	250
													1	40	41.0	252.4	300
											60	62.0	1	20	22.0	245.9	300
													1	25	27.0	250.9	300
													1	30	32.0	255.9	300
													1	40	41.0	264.9	300
											75	77.0	1	20	22.0	264.7	300
													1	25	27.0	269.7	300
													1	30	32.0	274.7	350
													1	40	41.0	283.7	350

NOTE(S):

a. Units use 2 (low heat) or 3 (high heat) combustion fan motors rated at 0.3 FLA each.
b. Used to determine minimum disconnect per NEC (National Electrical Code).

LEGEND

FLA — Full Load Amps
HACR — Heating, Air Conditioning, and Refrigeration
Hp — Nominal Horsepower
LRA — Locked Rotor Amps
MCA — Minimum Circuit Amps (for wire sizing)
RLA — Rated Load Amps

Step 13 — Connect Air Pressure Tubing

Before options such as the variable frequency drive (VFD) and/or modulating power exhaust can operate properly, the pneumatic tubing for pressure sensing must be installed. Use fire-retardant plenum tubing (field-supplied). All control devices use 1/4 in. tubing. Tubing must be run from the appropriate sensing location (in the duct or in the building space) to the control device location in the unit.

VARIABLE FREQUENCY DRIVE

The tubing for the duct pressure (DP) control option should sample supply duct pressure approximately 2/3 of the way out from the unit in the main trunk duct, at a location where a constant duct pressure is desired.

On these units, the duct pressure is sensed by a pressure transducer. The pressure transducer output is directed to the unit control module. On all sizes, the DP transducer is located in the unit auxiliary control box. See Fig. 45 and 46 for auxiliary control box location. See Fig. 47-49 for auxiliary control box details. Use a nominal 1/4 in. plastic tubing.

Refer to appropriate base unit Controls and Troubleshooting book for instructions on adjusting set points for duct pressure controls.

MODULATING POWER EXHAUST

The tubing for the building pressure (BP) control (achieved via the modulating power exhaust option) should sample building pressure in the area near the entrance lobby (or other appropriate and sensitive location) so that location is controlled as closely to design pressures as possible.

These units use a pressure transducer for sensing building pressure. The BP transducer is located in the unit auxiliary control box. See Fig. 45 and 46 for auxiliary control box location. See Fig. 47 and 48 for auxiliary control box details. Use a nominal 1/4 in. plastic tubing.

For instructions on adjusting BP control set points, refer to the Controls and Troubleshooting book.

RETURN FAN POWER EXHAUST

The tubing for the building pressure (BP) control (achieved via the return power exhaust option) should sample building pressure in the area near the entrance lobby (or other appropriate and sensitive location) so that location is controlled as closely to design pressures as possible.

The units use a pressure transducer for sensing building pressure. The BP transducer is located in the unit auxiliary control box. See Fig. 46 for auxiliary control box location. See Fig. 49 for auxiliary control box details. Use a nominal 1/4 in. plastic tubing.

For instructions on adjusting BP control set points, refer to the Controls and Troubleshooting book.

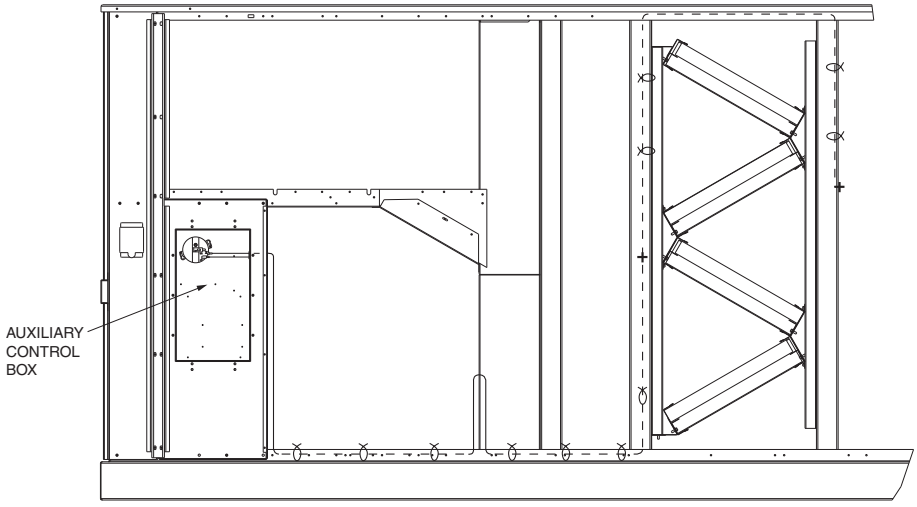


Fig. 45 — Auxiliary Control Box Location (Sizes 030-050)

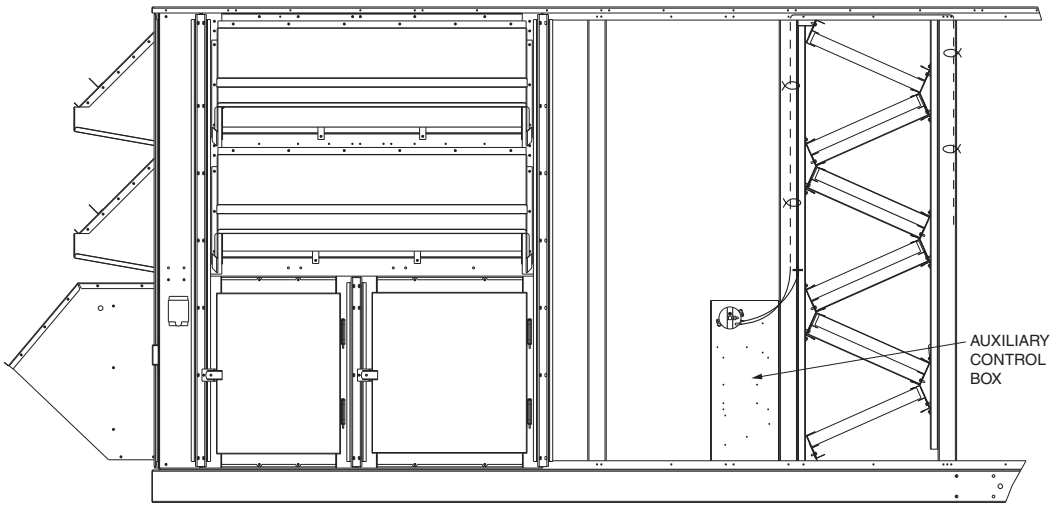
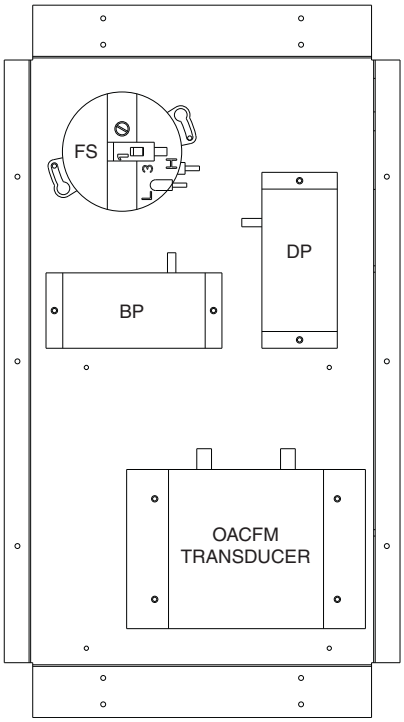


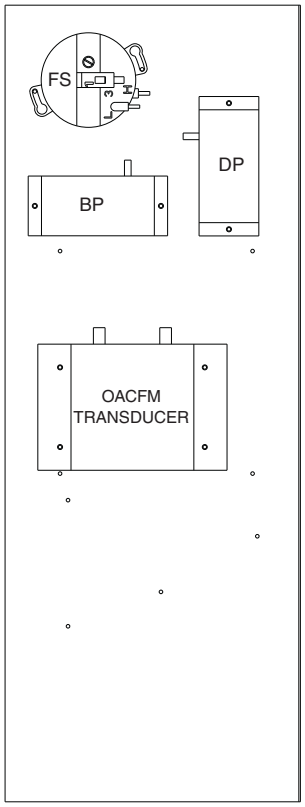
Fig. 46 — Auxiliary Control Box Location (Sizes 055-100)



LEGEND

BP — Building Pressure Transducer
DP — Duct Pressure Transducer
FS — Filter Switch
OACFM — Outdoor Air cfm Sensor Transducer

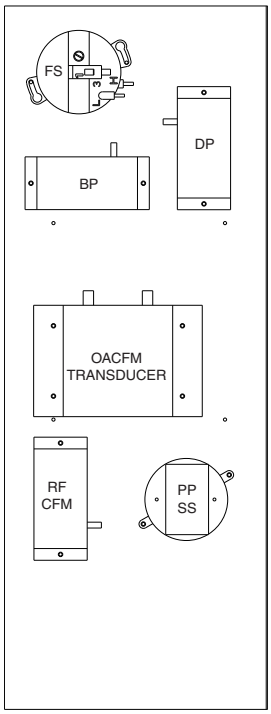
Fig. 47 — Auxiliary Control Box Details (Sizes 030-050)



LEGEND

BP — Building Pressure Transducer
DP — Duct Pressure Transducer
FS — Filter Switch
OACFM — Outdoor Air cfm Sensor Transducer

Fig. 48 — Auxiliary Control Box Details (Sizes 055-100 without Optional Return Fan)



LEGEND

BP — Building Pressure Transducer
DP — Duct Pressure Transducer
FS — Filter Switch
OACFM — Outdoor Air cfm Sensor Transducer
PPSS — Plenum Pressure Safety Switch
RFCFM — Return Fan cfm Sensor Transducer

Fig. 49 — Auxiliary Control Box Details (Units with Optional Return Fan)

Step 14 — Remove Supply-Fan Shipping Brackets and Spring Compression Bolts

Supply-fan shipping brackets (4 per unit) must be removed from each corner of the fan sled before starting unit.

UNIT SIZES 030-050

1. To remove brackets, raise fan sled by turning adjusting bolt counterclockwise until spring is compressed slightly.
2. Remove screws holding shipping bracket to unit cross rail.
3. Remove shipping bracket (top of bracket is slotted so that it will slide out).
4. After removing all shipping brackets, level fan sled using the adjusting screws. On all 4 corners, dimension from cross rail to fan sled should be as shown in Fig. 50.

UNIT SIZES 055-070

To remove shipping brackets, remove the 6 screws holding each bracket to the cross rail. There are 8 brackets per unit. See Fig. 51.

After removing all shipping brackets, level fan sled using the adjusting screws. On all 4 corners dimension from cross rail to fan sled should be as shown in Fig. 51.

UNIT SIZES 075-100

To remove shipping brackets, remove the 6 screws holding each bracket to the cross rail. There are 4 brackets per unit. See Fig. 53.

After removing all shipping brackets, level fan sled using the adjusting screws. On all 4 corners dimension from cross rail to fan sled should be as shown in Fig. 53.

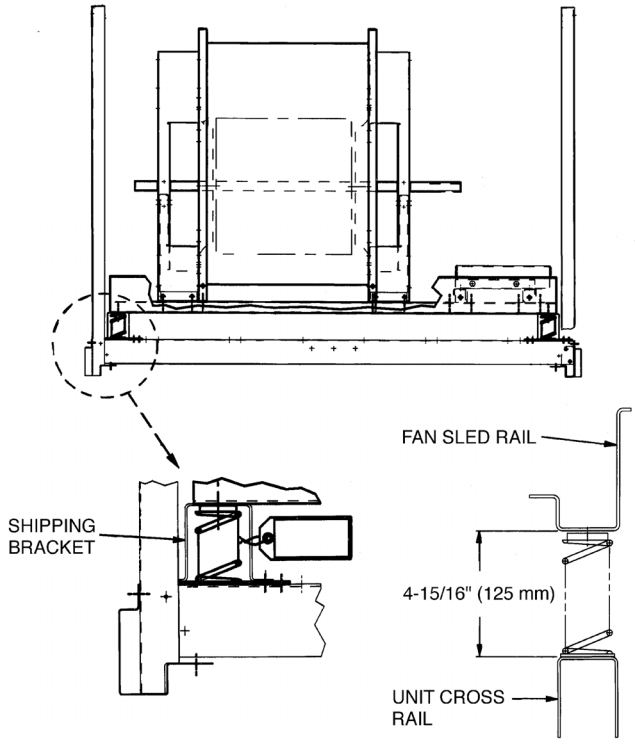


Fig. 50 — Shipping Brackets; Size 030-050 Units

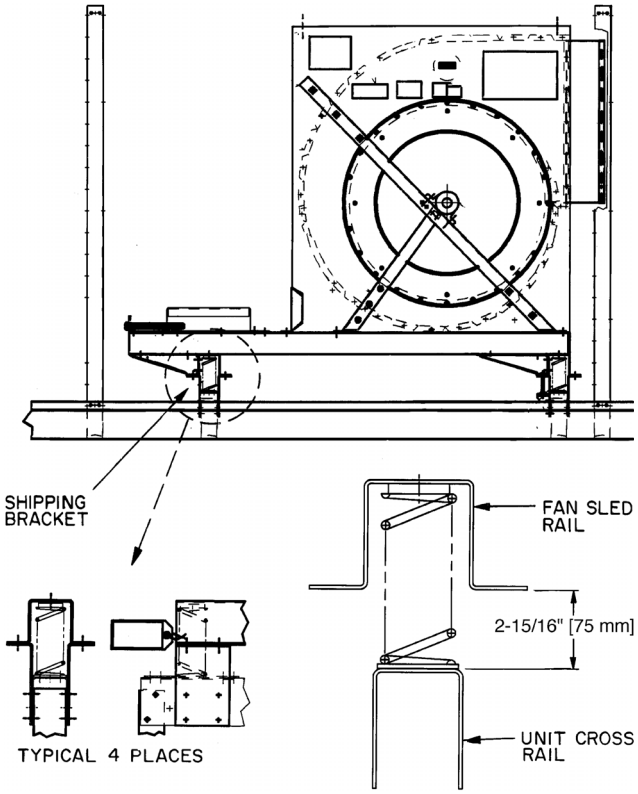


Fig. 51 — Shipping Brackets; Size 055-070 Units

Fan shaft bearings are pre-lubricated by the bearing manufacturer, or again at the time of production. Check for a small bead around the bearing seal and relubricate as necessary.

Some fan sleds come with spring compression bolts near the shipping brackets. See Fig. 52. The bolts need to be removed after the shipping brackets are removed. Failure to remove them will prevent the sled from floating on the corner springs, and will prevent leveling of the fan sled by adjusting the corner spring tension.

Fig. 52 — External Spring Compression Bolt

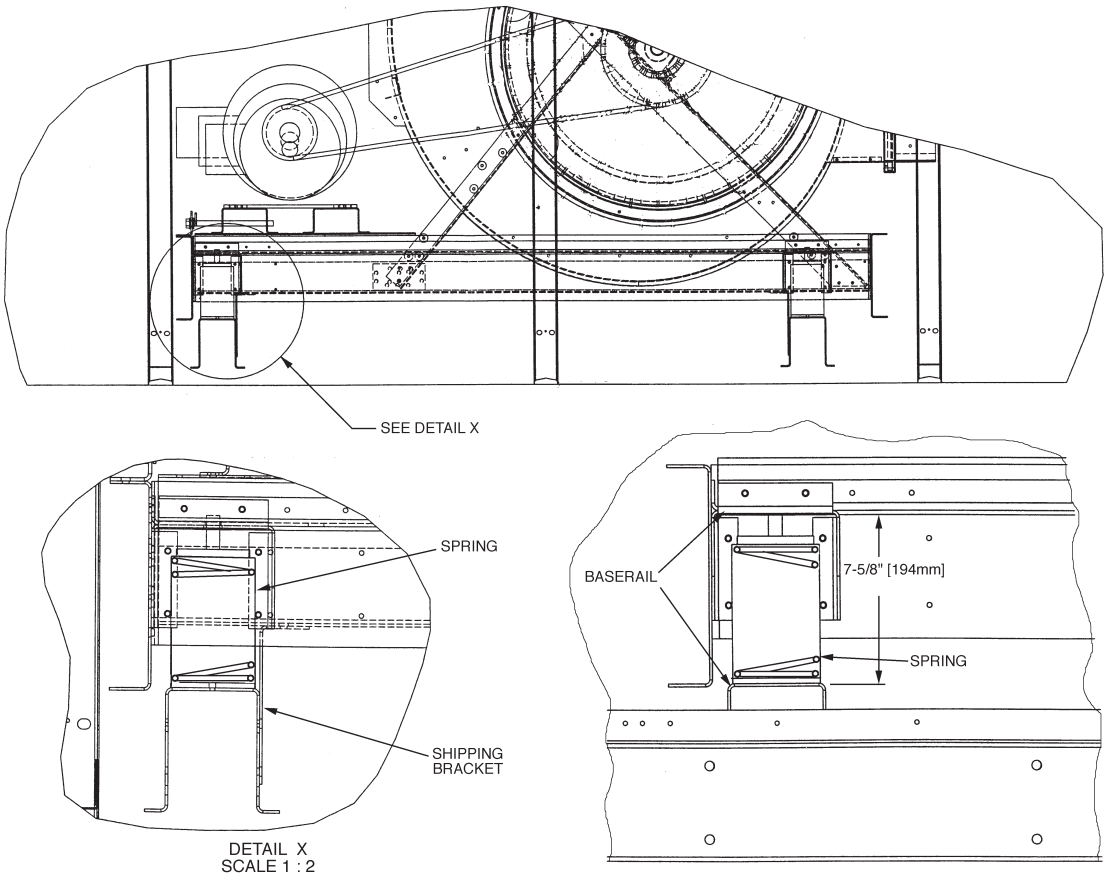


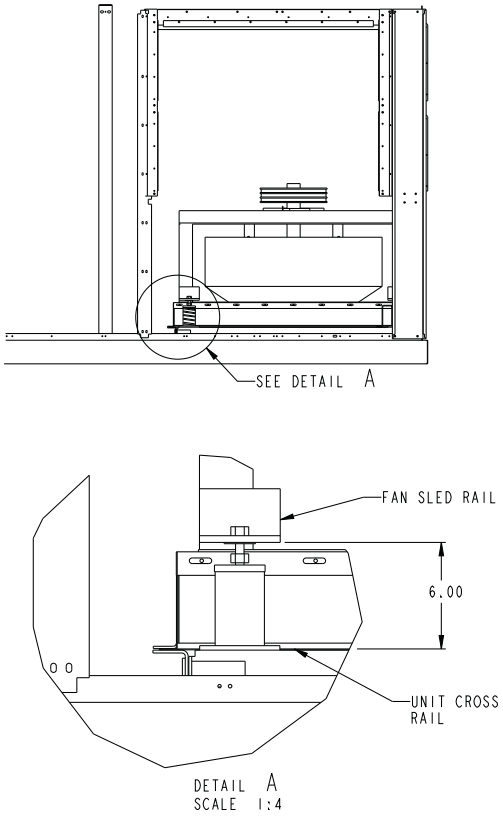
Fig. 53 — Shipping Brackets

Step 15 — Remove Optional Return-Fan Shipping Brackets

Optional return fan shipping brackets must be removed from each corner of the fan sled before starting unit.

To remove shipping brackets, remove 2 screws holding each bracket to the cross rail. There are 4 brackets per unit.

After removing all shipping brackets, level the fan using the adjustment screws. On all 4 corners the dimension from cross rail to fan sled should be as shown in Fig. 54.



NOTE: All dimensions are in inches.

Fig. 54 — Optional Return Fan Shipping Brackets

Step 16 — Connect Gas Piping

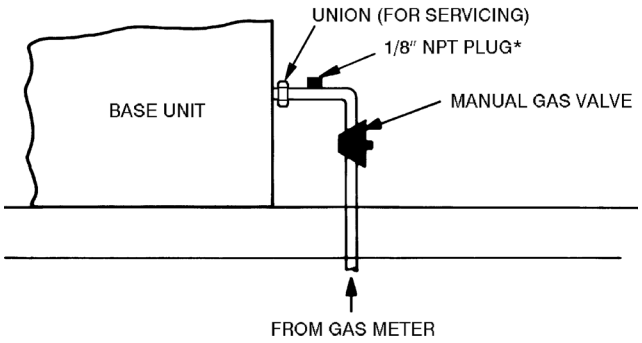
Unit is equipped for use with natural gas only. Installation must conform with local building codes, or in the absence of local codes, with the National Fuel Gas Code (NFGC), ANSI Z223.1.

A 1/8 in. NPT tapping plug, accessible for test gauge connection, must be field installed immediately upstream of gas supply connection to unit, but after manual gas valve. See Fig. 55. Natural gas pressure at unit gas connection must not be less than 5 in. wg or greater than 13 in. wg.

Size gas supply piping for 0.5 in. wg maximum pressure drop. Do not use supply pipe smaller than unit gas connection.

⚠ CAUTION

Disconnect gas piping from unit when leak testing at pressures greater than 0.5 psig. Pressures greater than 0.5 psig will cause gas valve damage resulting in a hazardous condition. If gas valve is subjected to pressure greater than 0.5 psig, it must be replaced.



*NPT plug is field supplied. NOTE: Follow all local codes.

Fig. 55 — Gas Piping Details

Step 17 — Configure Optional Staged Gas or Modulating Gas Control

The 48P Series large rooftop units may be ordered with an optional factory-installed staged gas or modulating gas control system that monitors heating operation of the rooftop.

Refer to the Unit Controls and Troubleshooting book for information on configuring staged gas or modulating gas control.

Step 18 — Install Flue/Inlet Hoods and Baffles

Check for prevailing wind direction to make sure the hot moist flue gas will not be blown into the outside air intake screens. Cold winter weather may lead to ice buildup in the intake screens as the flue gas freezes to the screens. An optional chimney flue may be purchased and installed to prevent this.

The flue/inlet hoods and baffles are shipped in a package taped to the basepan in the fan section. The flue (outlet) hoods are preassembled. The flue deflector, inlet hoods, and baffles require assembly.

The hoods are located on the heating section access panel as shown in Fig. 56 (sizes 030-050), Fig. 57 (sizes 055-100 with low heat and vertical supply), Fig. 58 (sizes 055-100 with low heat and horizontal supply), and Fig. 59 (sizes 055-100 with high heat). The inlet baffles are located inside the access panel as illustrated in Fig. 60 (sizes 030-050), Fig. 61 (sizes 055-100 with modulating low heat and horizontal supply), and Fig. 62 (sizes 055-100 with modulating high heat). See Table 29 for a list of parts used to assemble each hood and quantities of each hood type and baffle used with each unit.

1. Remove shipping block-offs and shipping tape from all openings in the access panel.
2. Attach flue outlet hoods (see Fig. 63) to access panel using screws provided. Hoods are placed over each combustion outlet.
3. Install flue deflector baffle inside flue deflector hood. See Fig. 64 for V-type deflector and Fig. 65 for curve-type deflector. For V-type deflector, screw the baffle and hood together with screw provided. Refer to Table 29 for usage.
4. Install flue deflector hood assembly over each flue outlet hood. See Fig. 66. Observe the offset mounting hole locations in the deflector hood flanges when attaching hood to panel. Holes in the mounting flange must be at the bottom when attached.
5. Inlet hoods are shipped unassembled and must be assembled on the access panel (see Fig. 67-69). Flanges of the hood top and sides should be installed on the inside of the access panel openings with the screws provided. The sides should be placed on the inside of top hoods for all hood assemblies (6 in., 14 in., and 30 in.). Attach speed clips to screen. Insert screen into bottom opening of 6 in. and 14 in. hoods and secure it with 3 screws. To ease the installation, the 30 in. hood screen may be inserted from inside of access panel (gas section door) into bottom opening of hood. Secure with 5 screws. Attached view port cover over 14 in. inlet hood opening (Fig. 68). Secure with two screws.
6. Install inlet baffle on the access panel with the screw(s) provided. See Fig. 70 for 14 in. baffle and Fig. 71 for 30 in. baffle. Attach 14 in. baffle from the outside of the access panel. The 30 in. baffle should be installed from inside of the access panel. Secure with three screws.

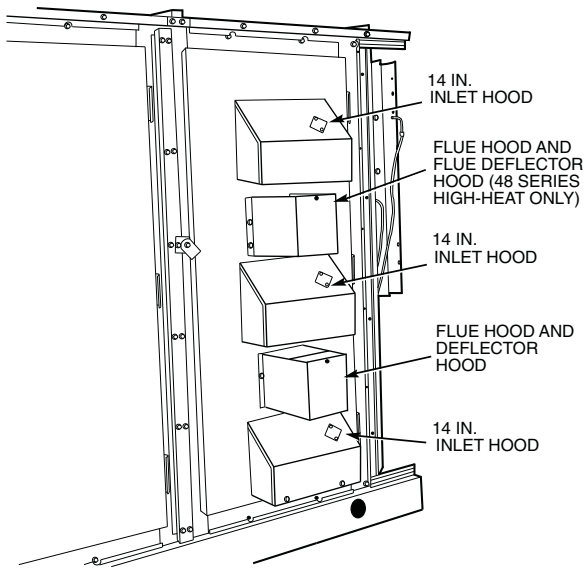


Fig. 56 — Flue/Inlet Hood Locations, 030-050 Units

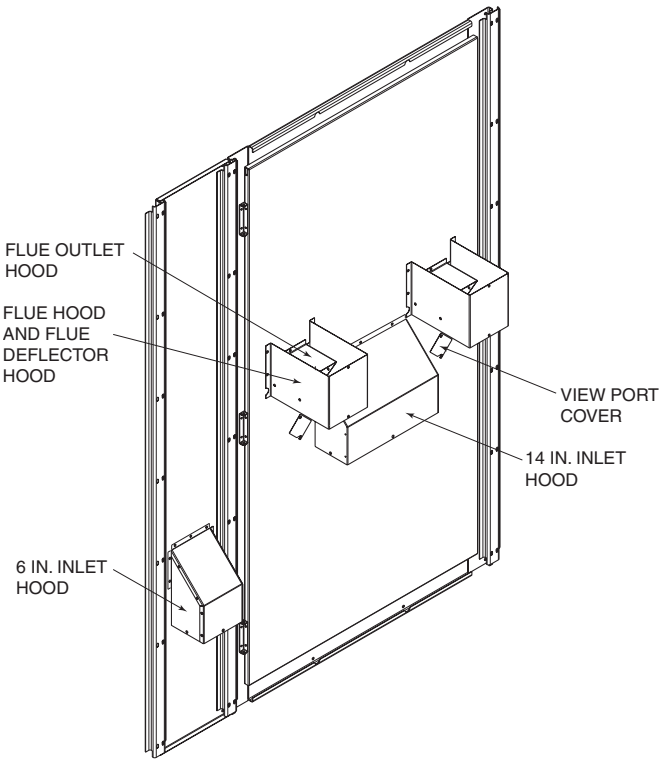


Fig. 57 — Flue/Inlet Hood Locations, Sizes 055-100, Low Heat, Vertical Supply Units

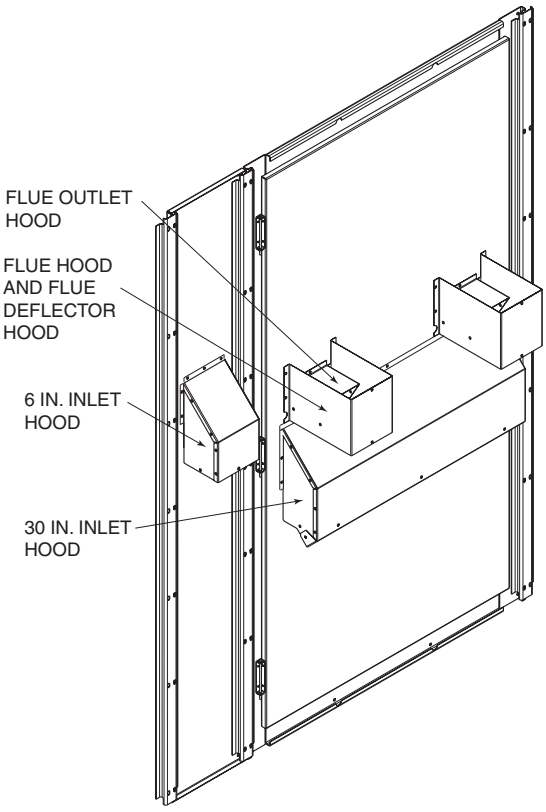


Fig. 58 — Flue/Inlet Hood Locations, Sizes 055-100, Low Heat, Horizontal Supply Units

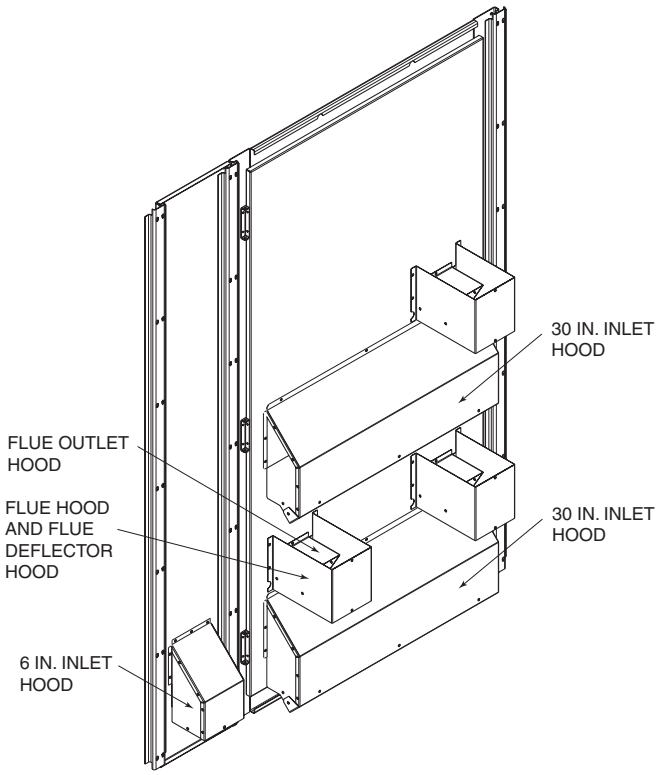


Fig. 59 — Flue/Inlet Hood Locations, Sizes 055-100, High Heat, Vertical and Horizontal Supply Units

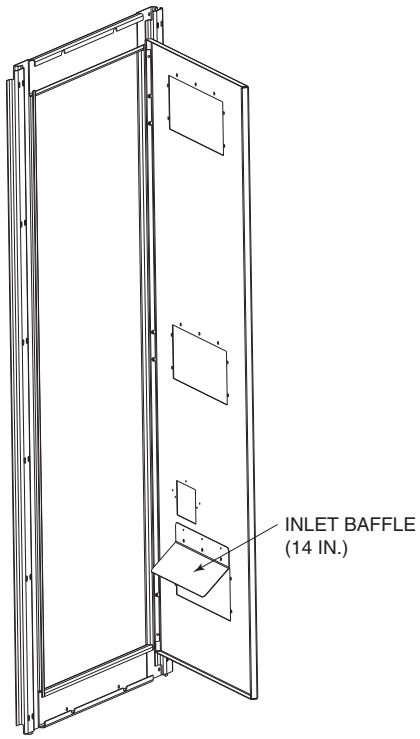


Fig. 60 — Baffle Location, 030-050 Units

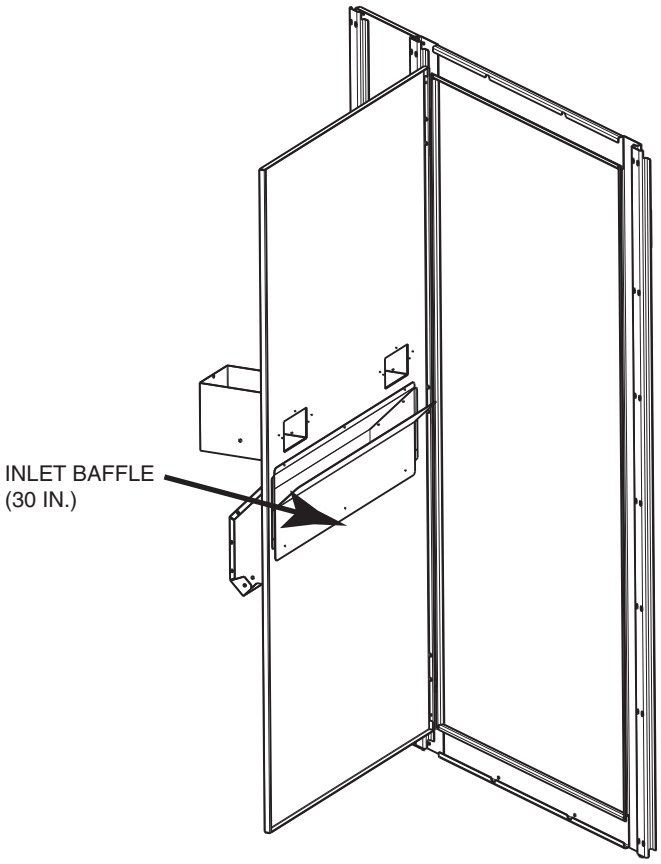


Fig. 61 — Baffle Location, Sizes 055-100, Modulating Low Heat, Horizontal Supply Units

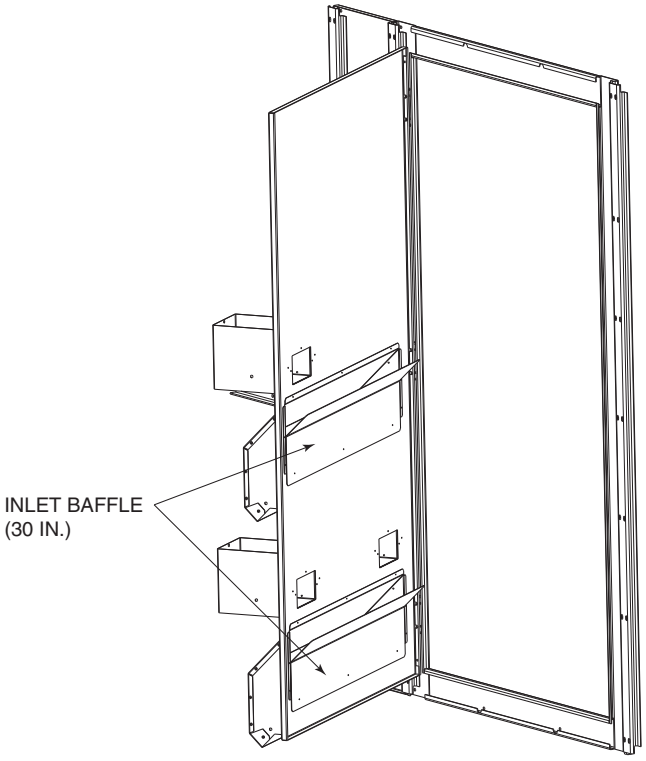


Fig. 62 — Baffle Locations, Sizes 055-100, Modulating High Heat, Vertical and Horizontal Supply Units

Table 29 — Flue Hood, Inlet Hood, and Baffle Usage

HOOD OR BAFFLE TYPE	PARTS LIST	FIG. NO.	QUANTITY USED					
			Sizes 030-050 (Low Heat)	Sizes 030-050 (High Heat)	Sizes 055-070 (Low Heat)	Sizes 055-070 (High Heat)	Sizes 075-100 (Low Heat)	Sizes 075-100 (High Heat)
6 in. Inlet Hood	Top (6 in.) Side (Left) Side (Right) Screen Speed Clips Screws	67	—	—	1	1	1	1
14 in. Inlet Hood	Top (14 in.) Side (Left) Side (Right) Screen Cover Speed Clips Screws	67,68	3	3	1 (Vertical Supply Only)	—	1 (Vertical Supply Only)	—
30 in. Inlet Hood	Top (30 in.) Side (Left) Side (Right) Screen Speed Clips Screws	69	—	—	1 (Horizontal Supply Only)	2	1 (Horizontal Supply Only)	2
Flue Outlet Hood	Pre-assembled	63	1	2	2	3	2	3
Flue Deflector (V-Type)	Hood Deflector Baffle Screws	64	1	2	2 (Horizontal Supply Only)	3	2	3
Flue Deflector (Curve-Type)	Hood Deflector Baffle Screws	65	—	—	2 (Vertical Supply Only)	—	—	—
14 in. Baffle	Baffle Screws	70	1	2	—	—	—	—
30 in. Baffle	Baffle Screws	71	—	—	1 (Modulating Horizontal Supply Only)	2	1 (Modulating Horizontal Supply Only)	2

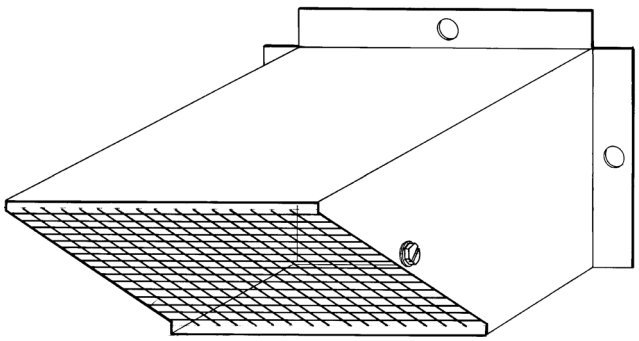


Fig. 63 — Flue Outlet Hood

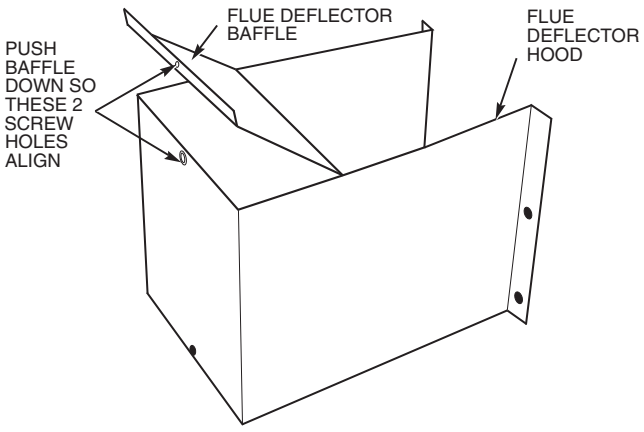


Fig. 64 — Flue Deflector Baffle (V-Type)

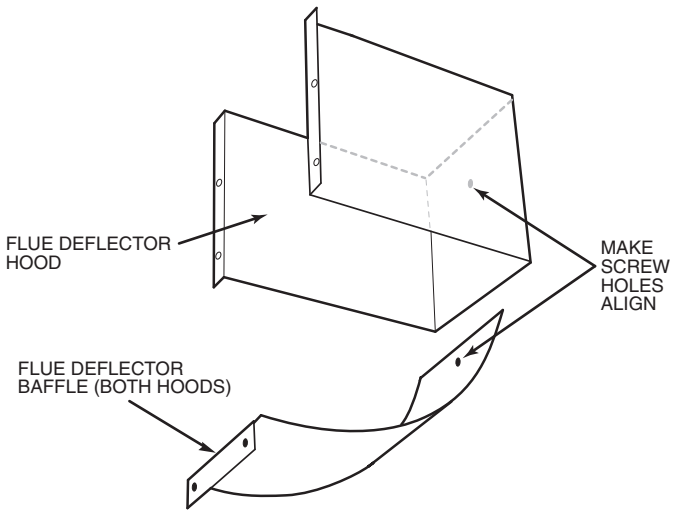


Fig. 65 — Flue Deflector Baffle (Curve-Type)

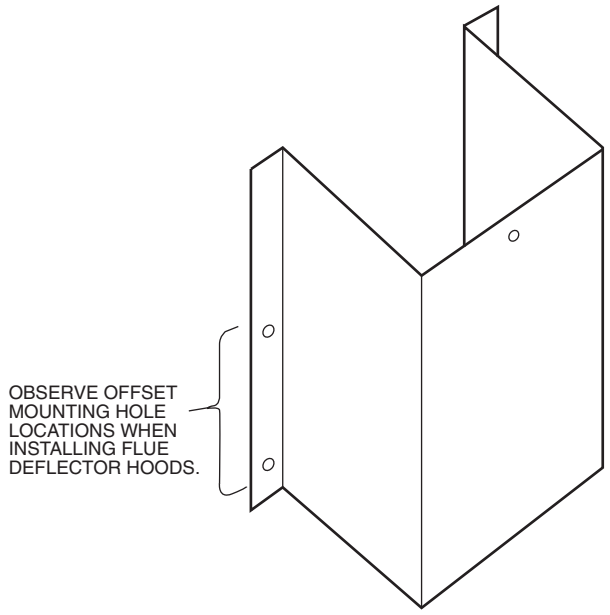


Fig. 66 — Mounting Deflector Hoods

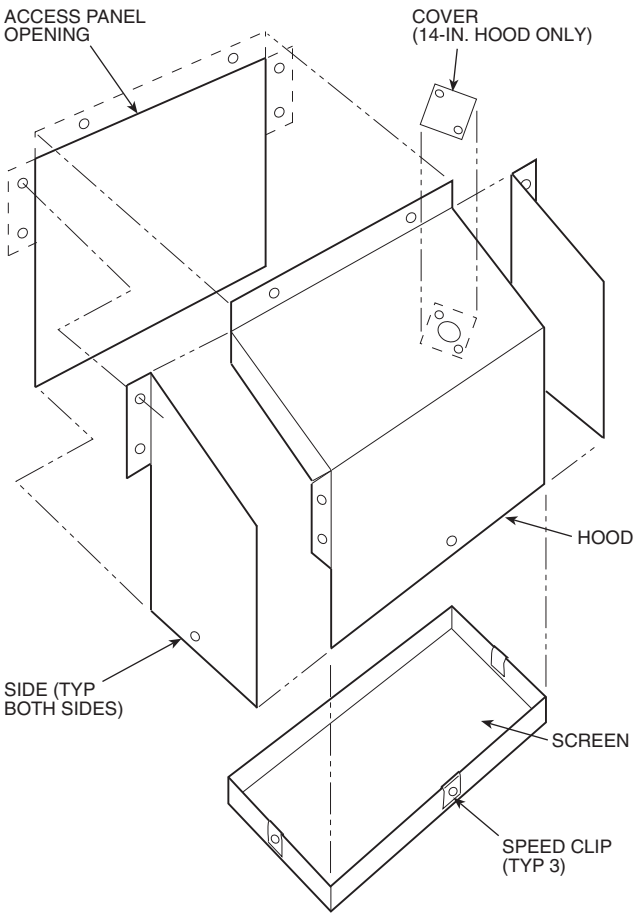


Fig. 67 — Inlet Hood Assembly (6 in. and 14 in.)

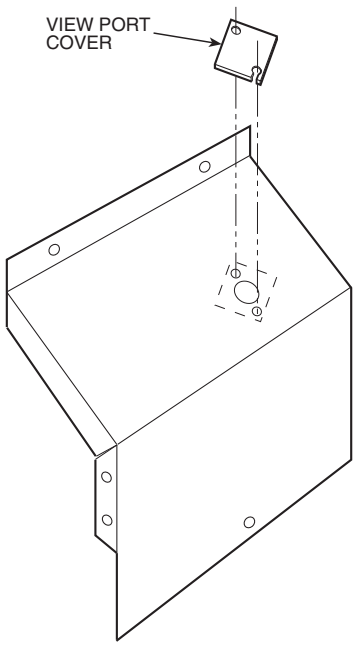


Fig. 68 — 14 in. Inlet Hood View Port Cover Installation

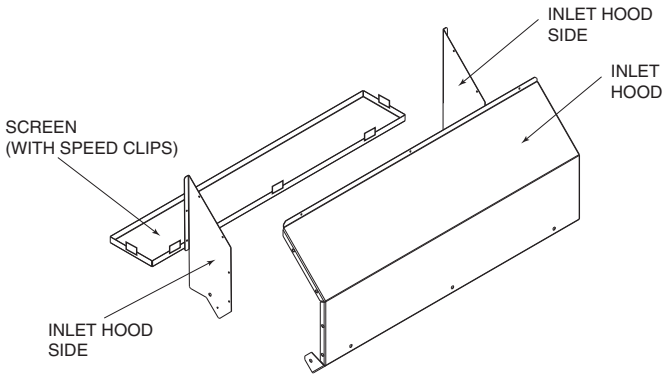


Fig. 69 — Inlet Hood Assembly (30 in.)

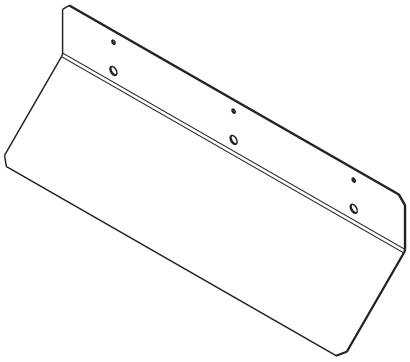


Fig. 70 — Air Baffle (14 in.)

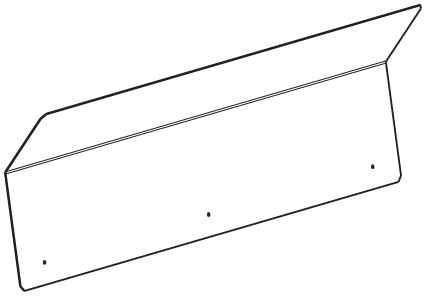


Fig. 71 — Baffle (30 in.)

Step 19 — Install Supply-Air Thermistors (Staged and Modulating Gas Units Only)

Supply-air thermistors are a field-installed, factory-provided component. Three supply-air thermistors are shipped with staged and modulating gas units inside the unit control box. Thermistor wires must be connected to the SGC in the unit control box. See Table 30.

The supply-air thermistors should be located in the supply duct with the following criteria:

- downstream of the heat exchanger cells
- equally spaced as far as possible from the heat exchanger cells
- a duct location where none of the supply air thermistors are within sight of the heat exchanger cells
- a duct location with good mixed supply air portion of the unit.

Table 30 — SGC Thermistor Designations

THERMISTOR	PIN CONNECTION POINT	FUNCTION AND LOCATION	PART NO.
		Thermistors	
SAT1	J8 – 1,2 (SGC)	Supply-Air Thermistor (SAT) — Inserted into supply section underneath the gas heat section (factory-provided, field-installed)	HH79NZ033
SAT2	J8 – 3,4 (SGC)	Supply-Air Thermistor (SAT) — Inserted into supply section underneath the gas heat section (factory-provided, field-installed)	
SAT3	J8 – 5,6 (SGC)	Supply-Air Thermistor (SAT) — Inserted into supply section underneath the gas heat section (factory-provided, field-installed)	
LIMTTEMP	J8 – 15,16 (SGC)	Limit Switch Thermistor (LIMTTEMP) — Inserted next the lower limit switch (factory-installed)	

LEGEND

SGC — Staged Gas Controller

Step 20 — Install Greenspeed/Low Ambient Control (Optional)

The Greenspeed®/Low Ambient control is a motor speed control device which adjusts condenser fan motor speed in response to varying liquid refrigerant pressure. A properly applied Greenspeed control extends the operating range of air-conditioning systems and permits operation at lower outdoor ambient temperatures.

The optional Greenspeed/Low Ambient controls are factory-installed. Field-fabricated and installed wind baffles are also required for units in areas with prevailing winds of more than 5 mph and where temperatures drop below 32°F.

The Greenspeed/Low Ambient control permits operation of the unit to an ambient temperature of –20°F. The control regulates the speed of two to six 3-phase fan motors depending on unit size. Replacement of the fan motor on most units is not necessary.

INSTALL FIELD-FABRICATED WIND BAFFLES

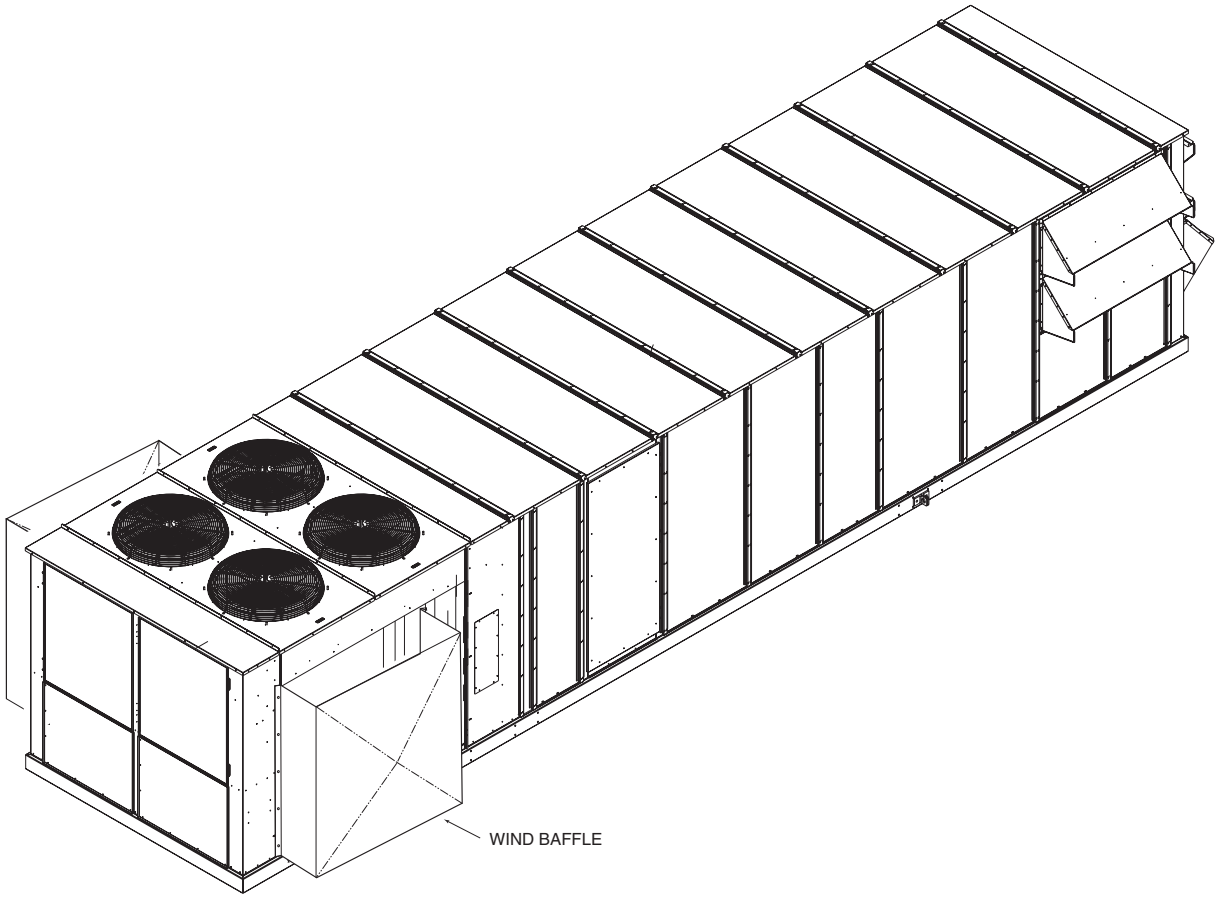
⚠ WARNING

To avoid the possibility of electrical shock, open all disconnects before installing or servicing this accessory.

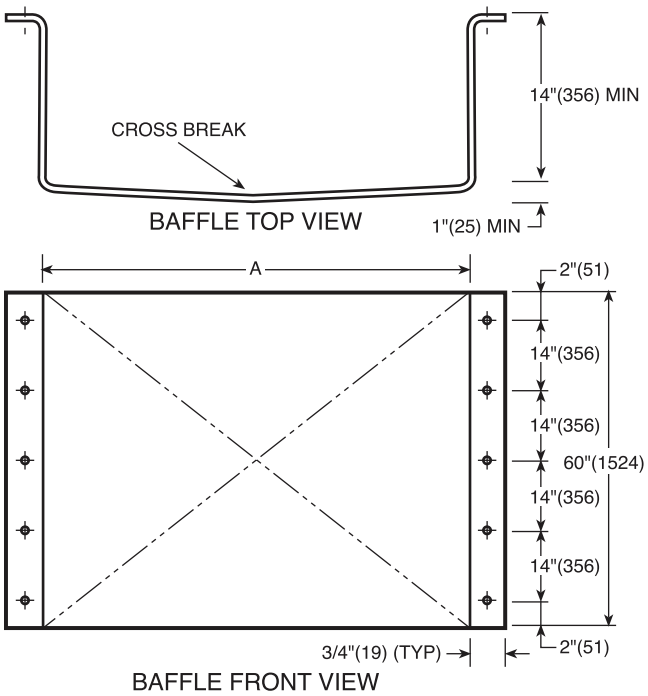
On size 040-060 units, in areas with prevailing winds of more than 5 mph and where temperatures drop below 32°F, wind baffles must be field fabricated to ensure proper cooling cycle operation at low-ambient temperatures with Motormaster® V controls. Wind baffles are not needed on size 030, 035, and 070-100 units. See Fig. 72 for baffle details. Use 20-gauge galvanized sheet metal, or similar corrosion-resistant material for the baffles. Use field-supplied screws to attach baffles to unit. Screws should be 1/4 in. diameter or larger. Screws should not be more than 1/2-inch in length. Drill required screw holes for mounting baffles.

⚠ CAUTION

To avoid damage to refrigerant coils, electrical components, and wiring use extreme care when drilling screw holes and screwing in fasteners.



BAFFLE INSTALLATION LOCATION (SIZES 050 AND 060 SHOWN)



UNIT SIZE	QUANTITY	DIMENSION "A"	
		in.	mm
030,035	Not Used	—	—
040-060	2	78.125 ± 0.125	1984 ± 3
070-100	Not Used	—	—

NOTE: 48/50P030, 035, and 070-100 units do not require baffles.

Fig. 72 — Wind Baffle Details

Step 21 — Install Unit Accessories

For applications requiring accessories, the following packages are available:

All units:

- barometric relief
- space temperature sensor
- CO_2 sensor
- space temperature sensor with CO_2 sensor
- airflow switch
- filter switch
- smoke detector

All 48P2,P4 (constant volume) units:

- modulating power exhaust

All 48P3,P5 (variable air volume) units:

- modulating power exhaust

Refer to the individual accessory installation instructions in each accessory package for information on installing accessories.

CONTROLS INSTALLATION

Constant Volume (CV) Units

The 48P2,P4,P6,P8 units may be used in applications with additional control features, options, or accessories. Refer to the appropriate accessory installation instructions for more information on installing that accessory. Control options and accessories available for CV units are:

- thermostats
- enthalpy sensor
- enthalpy switch
- relative humidity sensor
- CEM (controls expansion module)
- Navigator™ hand-held display

CONTROL WIRING

The unit can be controlled with a Carrier-approved accessory electro-mechanical or electronic thermostat that has two stages of cooling, two stages of heating control, and an output for fan control. The thermostat may also include time of day scheduling or use scheduling routines built into the ComfortLink controls.

Install the thermostat according to the installation instructions shipped with the accessory thermostat. Locate thermostat assembly on a solid interior wall to sense average temperature.

Route thermostat cable or equivalent leads of colored wire from subbase terminals through conduit into the low voltage connections in the main control box. For thermostat TB201 connections, see Fig. 73.

NOTE: For wire runs up to 50 ft, use no. 18 AWG (American Wire Gauge) insulated wire (35 C minimum). For over 75 ft, use no. 14 AWG insulated wire (35 C minimum). All wire larger than no. 18 AWG cannot be directly connected at the thermostat and will require a junction box and splice at the thermostat.

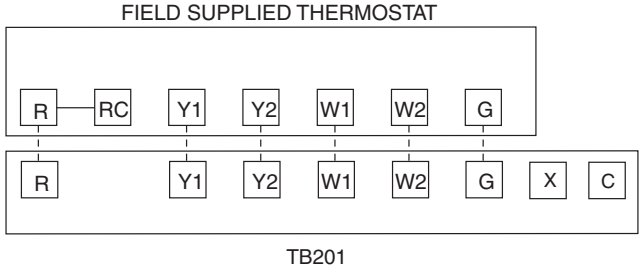


Fig. 73 — Field Control Thermostat Wiring

Variable Air Volume (VAV) Units

The 48P3,P5, P7,P9 units may be used in applications with additional control features, options, or accessories. Refer to the appropriate accessory installation instructions for more information on installing a particular accessory. Refer to the Controls and Troubleshooting manual for more information concerning installation and configuration of options and accessories. Control options and accessories available for VAV units are:

- enthalpy sensor
- enthalpy switch
- relative humidity sensor
- CEM (controls expansion module)
- Navigator hand-held display

VAV CONTROL WIRING

The recommended types of control wiring are shown below:

MANUFACTURER	PART NO.	
	Regular Wiring	Plenum Wiring
Alpha	1895	—
American	A21451	A48301
Belden	8205	884421
Columbia	D6451	—
Manhattan	M13402	M64430
Quabik	6130	—

SENSORS

Sensors should be wired using single twisted pairs of 20 AWG conductor cable rated for the application, except for the T-56 accessory sensor which requires 3-conductor cable.

HUMIDITY CONTROL AND HOT WATER AND STEAM VALVES

These devices require 20 AWG twisted pair conductor cables rated for the application for the 4 to 20 mA signal.

SPACE TEMPERATURE SENSOR (T-55)

The space temperature sensor (P/N 33ZCT55SPT), if used, is wired to terminals in the unit main control box. To connect the space temperature sensor, see Fig. 74.

SPACE TEMPERATURE SENSOR (T-56)

The space temperature sensor (P/N 33ZCT56SPT), if used, is wired to terminals in the unit main control box. To connect the space temperature sensor, see Fig. 74.

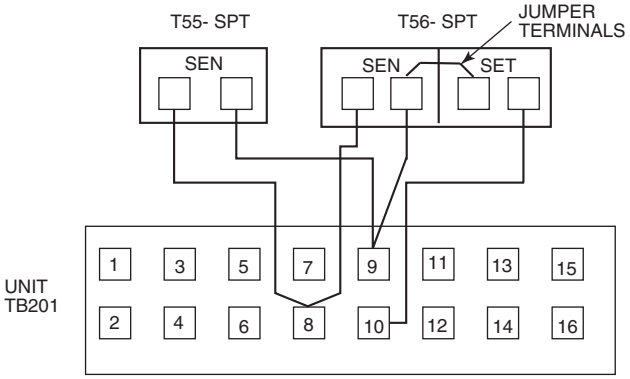


Fig. 74 — T-55 or T-56 Wiring

COMMUNICATING SPACE TEMPERATURE SENSOR (T-58)

The communicating space temperature sensor (P/N 33ZCT58SPT) is wired to the Carrier Comfort Network® (CCN) connections on TB202.

SPACE TEMPERATURE AVERAGING

Applications that require averaging using multiple space temperature sensors can be satisfied using either 4 or 9 sensors as shown in Fig. 75.

NOTE: Only Carrier sensors may be used for standard T-55 space averaging. Sensors must be used in multiples of 1, 4, and 9 only, with total sensors wiring not to exceed 1000 ft.

NOTE: Do not use T-56 sensors for space temperature averaging because the 5-degree offset function will not work in a multiple sensor application.

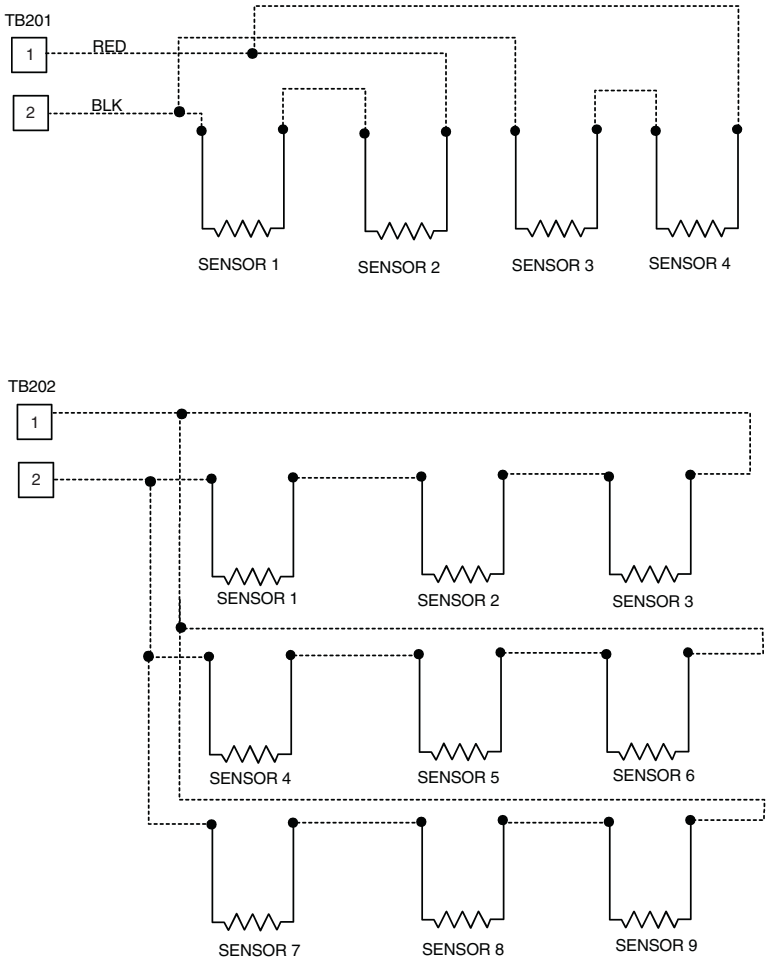
HEAT INTERLOCK RELAY (VAV UNITS — NOT NECESSARY FOR DIGITAL AIR VOLUME APPLICATIONS)

VAV units using morning warm-up and/or occupied heating require that room terminals be controlled to a position that provides the minimum required heating cfm or greater when the unit goes into Heating mode. The HIR (heat interlock relay) function is provided for this control. When the unit goes into Heating mode, the HIR is energized to provide switch closure or opening (depending on how the field-supplied power source is set up) to open the room terminals. The field connections for the HIR are at TB201 terminals 9 and 10. See Fig. 76.

Option and Accessory Control Wiring

The P Series units may be used in applications with additional control features, options, or accessories. Refer to the Controls and Troubleshooting manual for more information concerning installation and configuration of options and accessories. Figures 76-86 contain wiring information on the following features:

- heat interlock relay (Fig. 76)
- outdoor air enthalpy switch (Fig. 77)
- CO_2 space sensor (Fig. 78)
- filter status switch (Fig. 79)
- fan status switch (Fig. 80)
- space humidity sensor (Fig. 81)
- return air humidity sensor (Fig. 81)
- return air CO_2 sensor (Fig. 82)
- return/supply air smoke detector (Fig. 83)
- smoke control — fire shutdown (Fig. 84)
- smoke control — purge (Fig. 85)
- smoke control — evacuation (Fig. 85)
- smoke control — pressurization (Fig. 85)
- CCN connections (Fig. 86)



NOTE: Use T-55 sensor only.

Fig. 75 — Space Temperature Averaging Wiring

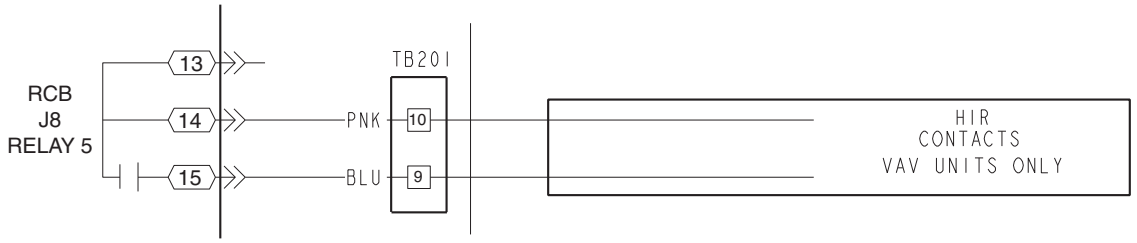


Fig. 76 — Heat Interlock Relay Wiring

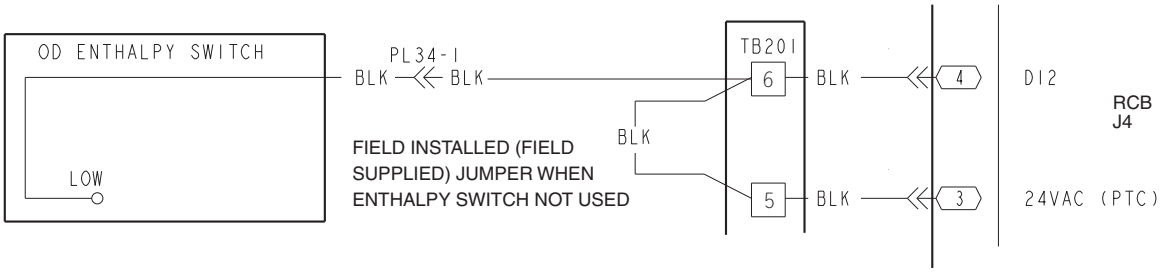


Fig. 77 — Outdoor Air Enthalpy Switch Wiring

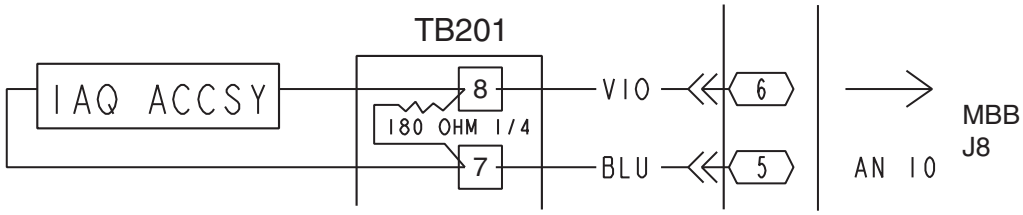


Fig. 78 — CO_2 Space Sensor Wiring

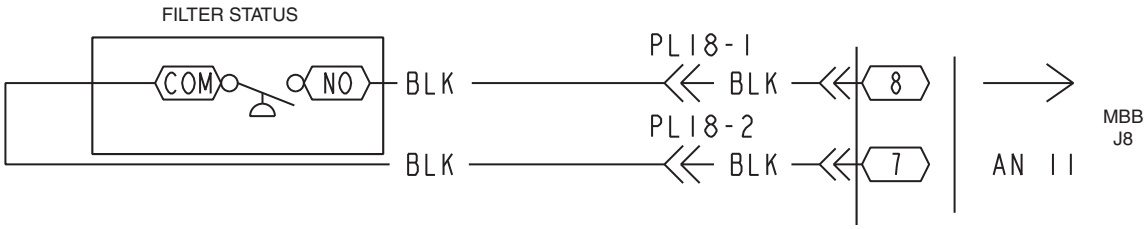


Fig. 79 — Filter Status Wiring

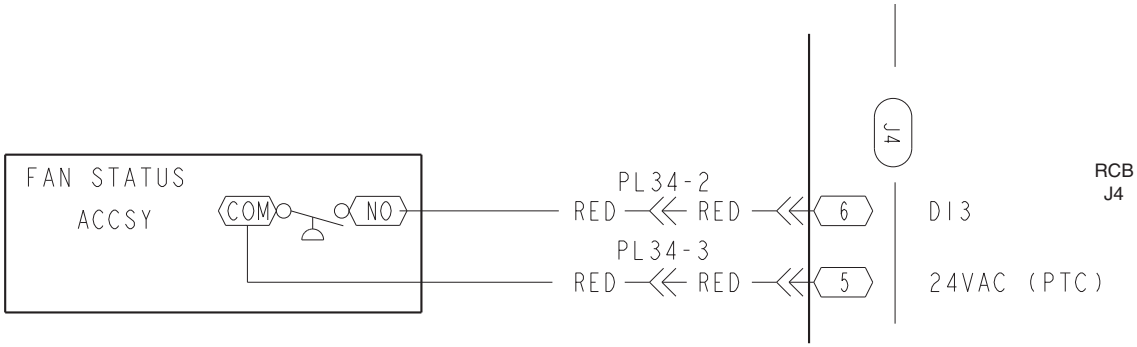


Fig. 80 — Fan Status Switch Wiring

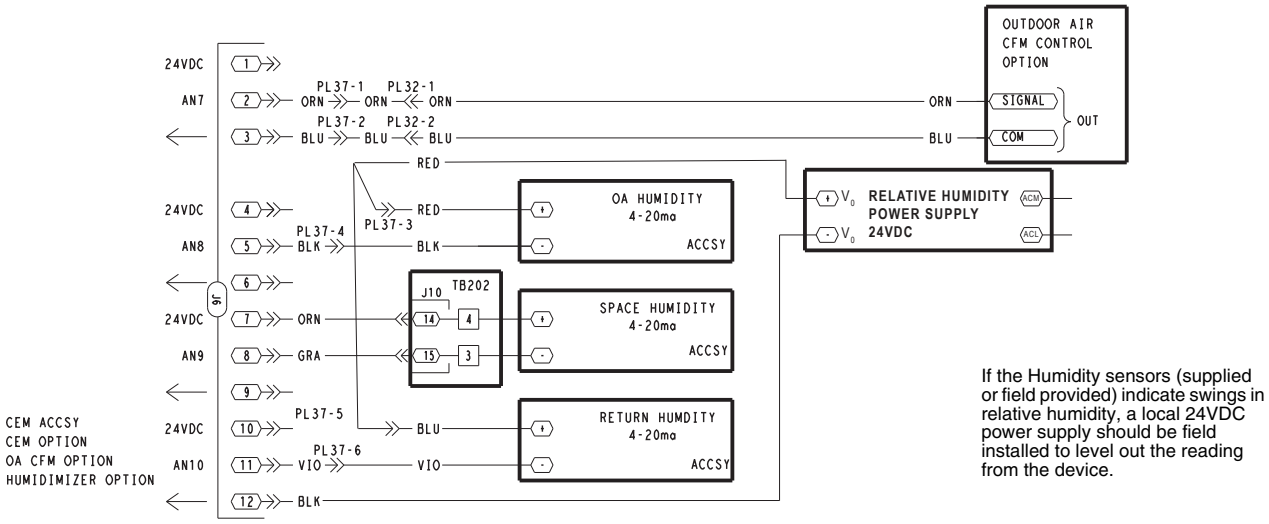


Fig. 81 — Space and Return Air Humidity Sensor Wiring

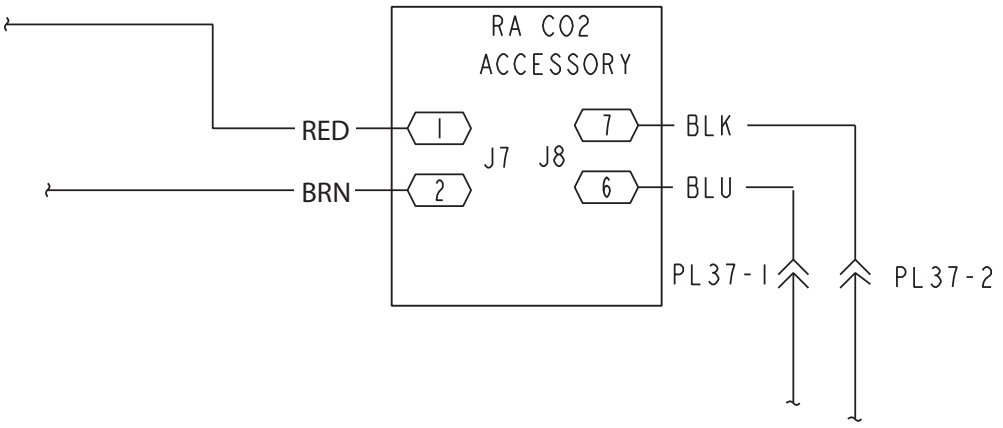


Fig. 82 — Return Air CO_2 Sensor Wiring

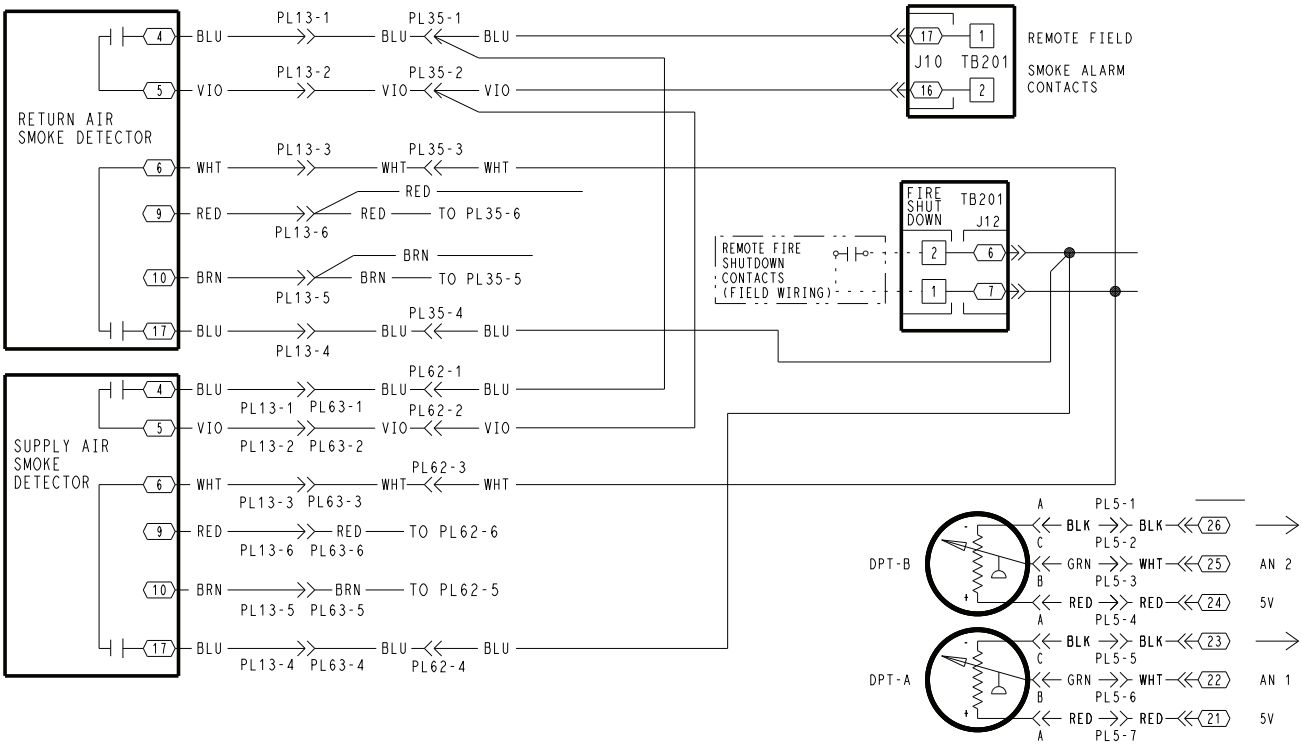


Fig. 83 — Return/Supply Air Smoke Detector Wiring

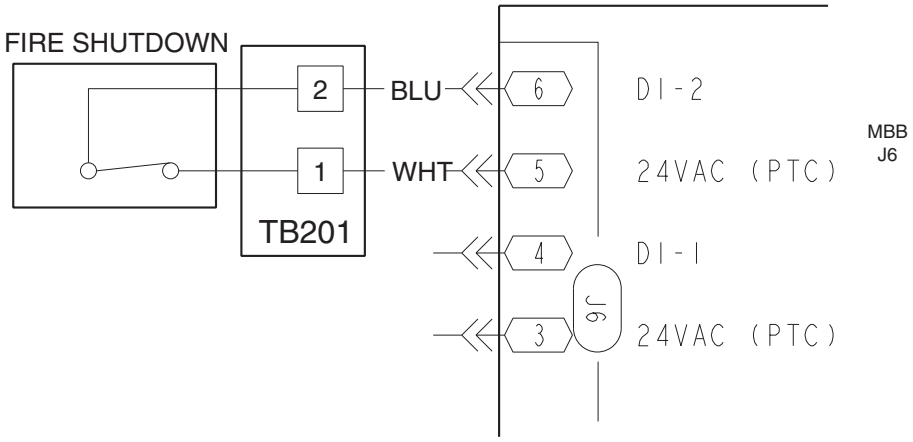


Fig. 84 — Fire Shutdown Wiring

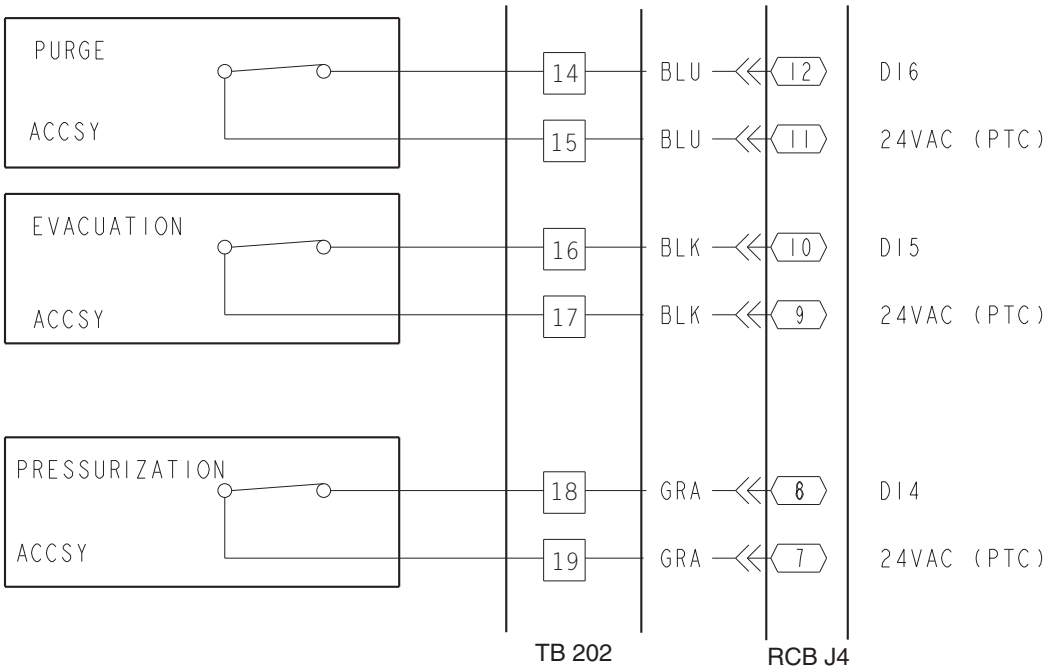


Fig. 85 — Purge, Evacuation, and Pressurization Wiring

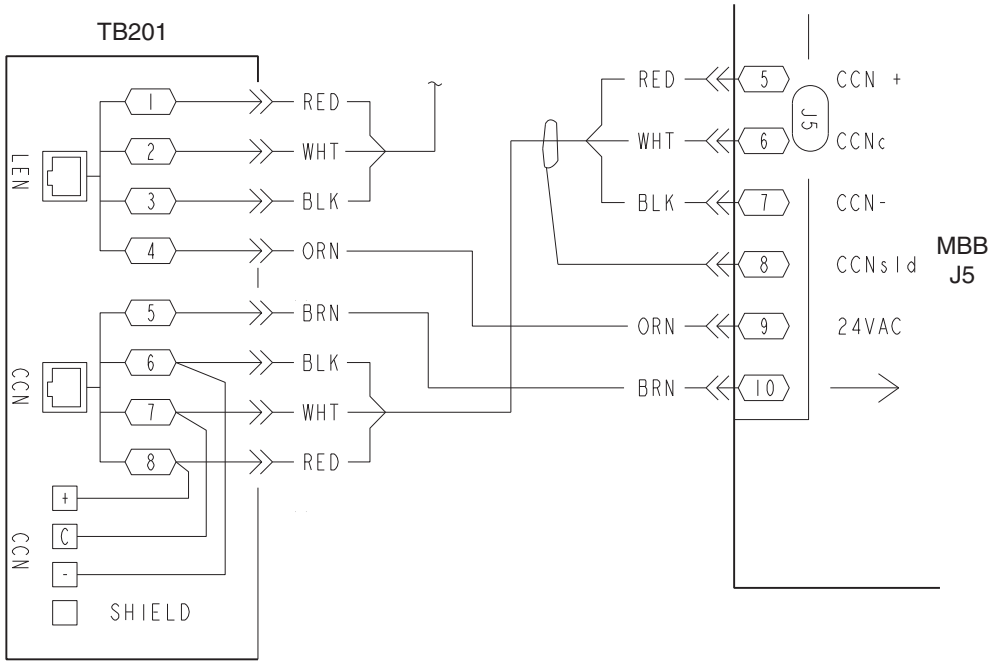


Fig. 86 — CCN Connections

Carrier Comfort Network® (CCN) Interface

The 48P Series units can be connected to the CCN system if desired. The communication bus wiring is supplied and installed in the field. It consists of shielded, 3-conductor cable with shield wire.

The system elements are connected to the communication bus in a daisy chain arrangement. The positive pin of each system element communication connector must be wired to the positive pins of the system element on either side of it, the negative pins must be wired to the negative pins, and the signal pins must be wired to common pins. Wiring connections for the CCN system should be made at the terminal block using the screw terminals. The board also contains an RJ14 CCN plug that can be used to connect a field service computer. There is also another RJ14 LEN (Local Equipment Network) connection that is used to download software or connect a Navigator™ device.

NOTE: Conductors and drain wire must be 20 AWG minimum stranded, tinned copper. Individual conductors must be insulated with PVC, PVC/nylon, vinyl, Teflon[1], or polyethylene. An aluminum/polyester 100% foil shield and an outer jacket of PVC, PVC/nylon, chrome vinyl, or Teflon with a minimum operating temperature range of –4 to 140°F (–20°C to 60°C) is required. See Table 31 for cables that meet the requirements.

Table 31 — CCN Connection Approved Shielded Cables

MANUFACTURER	CABLE PART NO.
Alpha	2413 or 5463
American	A22503
Belden	8772
Columbia	02525

IMPORTANT: When connecting the CCN communication bus to a system element, use a color coding system for the entire network to simplify installation and checkout.

The following color code is recommended:

SIGNAL TYPE	CCN BUS CONDUCTOR INSULATION COLOR	COMM1 PLUG PIN NO.
+	RED	1
COMMON	WHITE	2
–	BLACK	3

NOTE: If a cable with a different color scheme is selected, a similar color code should be adopted for the entire network.

At each system element, the communication bus cable shields must be tied together. If the communication bus is entirely within one building, the resulting continuous field must be connected to a ground at one point only. If the communication bus cable exits from one building and enters another, the shields must be connected to grounds at the lightning suppressor in each building where the cable enters or exits the building (one point per building only).

To connect the unit to the network (Fig. 86):

1. Turn off power to the control box.
2. Cut the CCN wire and strip the ends of the red (+), white (common) and black (–) conductors. (If a different network color scheme is used, substitute appropriate colors.)
3. Wire the CCN to the screw terminals on the COMM board as follows (Fig. 86):
   a. Secure the red (+) wire to CCN screw terminal + on the COMM board.
   b. Secure the white (common) wire to CCN screw terminal C on the COMM board.
   c. Secure the black (–) wire to CCN screw terminal – on the COMM board.
   d. Secure shield wire to CCN screw terminal SHIELD on the COMM board.

IMPORTANT: A shorted CCN bus cable will prevent some routines from running and may prevent unit from starting. If abnormal conditions occur, unplug the connector. If conditions return to normal, check CCN connector, and run new cable if necessary. A short in one section of the bus can cause problems with all system elements on the bus.

Optional UPC Open Installation

WIRING THE UPC OPEN TO THE MS/TP NETWORK

The UPC Open controller communicates using BACnet[1] on an MS/TP network segment communications at 9600 bps, 19.2 kbps, 38.4 kbps, or 76.8 kbps.

Wire the controllers on an MS/TP network segment in a daisy-chain configuration. Wire specifications for the cable are 22 AWG or 24 AWG, low-capacitance, twisted, stranded, shielded copper wire. The maximum length is 2000 ft.

Install a BT485 terminator on the first and last controller on a network segment to add bias and prevent signal distortions due to echoing. See Fig. 87-89.

To wire the UPC Open controller to the BAS network:

1. Pull the screw terminal connector from the controller's BAS Port.
2. Check the communications wiring for shorts and grounds.
3. Connect the communications wiring to the BAS port's screw terminals labeled Net +, Net -, and Shield.

NOTE: Use the same polarity throughout the network segment.

4. Insert the power screw terminal connector into the UPC Open controller's power terminals if not currently connected.
5. Verify communication with the network by viewing a module status report. Use Field assistant to set up the UPC, then perform a Modstat using the i-Vu tools Field Assistant.

To install a BT485 terminator, push the BT485 on to the BT485 connector located near the BACnet connector.

NOTE: The BT485 terminator has no polarity associated with it.

To order a BT485 terminator, consult Commercial Products i-Vu® Open Control System Master Prices.

MS/TP WIRING RECOMMENDATIONS

Recommendations are shown in Tables 32 and 33. The wire jacket and UL temperature rating specifications list two acceptable alternatives. The Halar[1] specification has a higher temperature rating and a tougher outer jacket than the SmokeGard[1] specification, and it is appropriate for use in applications where the user is concerned about abrasion. The Halar jacket is also less likely to crack in extremely low temperatures.

NOTE: Use the specified type of wire and cable for maximum signal integrity.

USING ZS SENSOR OR AN EQUIPMENT TOUCH

The ZS sensors or Equipment touch will connect to the UPC via the UPC's RNET connector. Be sure to follow the ZS sensor and Equipment touch installation instructions available for the specific devices being used.

If the ZS sensor will provide Space temperature feedback for equipment operation, then the control mode to best use for the equipment is Space temperature multi. Otherwise be aware of the differences in mode trip of the rooftop product vs. the displayed setpoint microblock.

1. Third-party trademarks and logos are the property of their respective owners.

If use linkage is set to Yes in the UPC, then the ZS sensor values will only be displayed in the Linkage values shared between the UPC and the RTU. When set to No, the SPT of the RTU will be forced and the setpoint microblock and the RTU's Occupied and Unoccupied setpoints will be shared values.

NOTE: All factory provided UPCs are shipped with a local program for English or SI units. If Metric interaction is desired a controls Expert is required to rebuild the files for the UPC in Metric and to change some specific variables to metric conversion. Make sure to allow labor for this change.

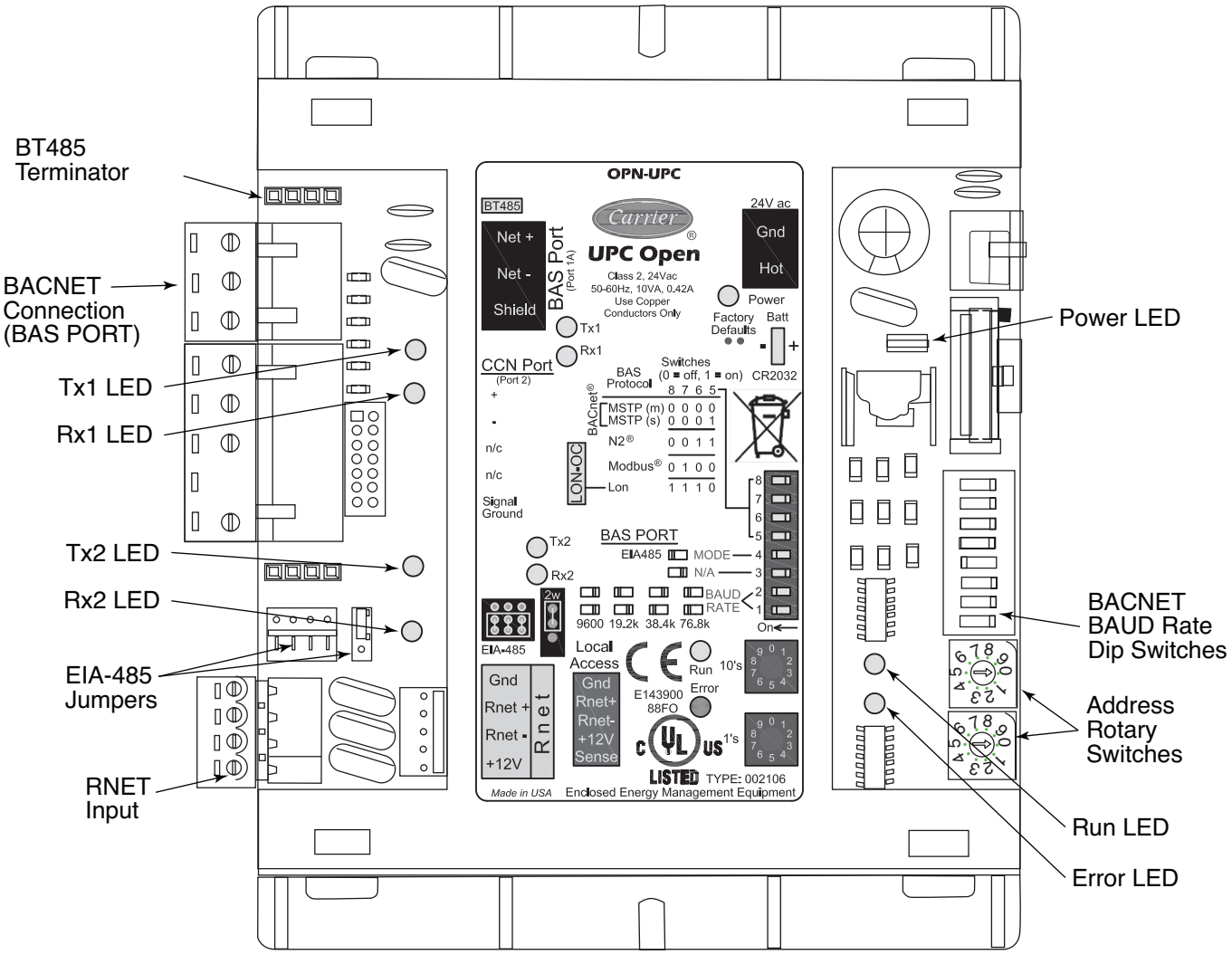


Fig. 87 — UPC Open Controller

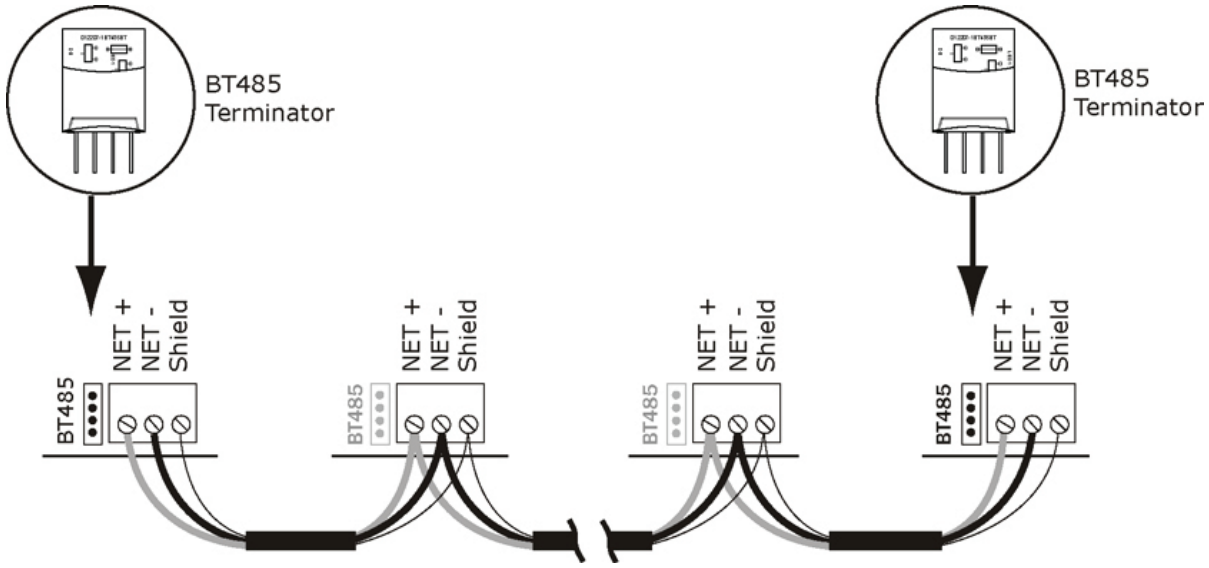


Fig. 88 — Open System Network Wiring

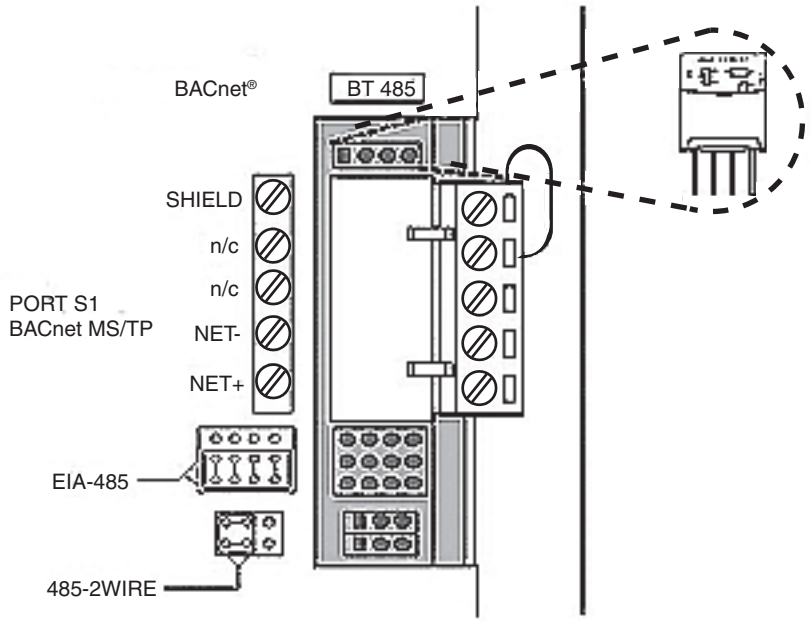


Fig. 89 — BT485 Installation

Table 32 — MS/TP Wiring Recommendations

SPECIFICATION	RECOMMMENDATION
Cable	Single twisted pair, low capacitance, CL2P, 22 AWG (7x30), TC foam FEP, plenum rated cable
Conductor	22 or 24 AWG stranded copper (tin plated)
Insulation	Foamed FEP 0.015 in. (0.381 mm) wall 0.060 in. (1.524 mm) O.D.
Color Code	Black/White
Twist Lay	2 in. (50.8 mm) lay on pair 6 twists/foot (20 twists/meter) nominal
Shielding	Aluminum/Mylar shield with 24 AWG TC drain wire
Jacket	SmokeGard Jacket (SmokeGard PVC) 0.021 in. (0.5334 mm) wall 0.175 in. (4.445 mm) O.D. Halar Jacket (E-CTFE) 0.010 in. (0.254 mm) wall 0.144 in. (3.6576 mm) O.D.
DC Resistance	15.2 Ohms/1000 feet (50 Ohms/km) nominal
Capacitance	12.5 pF/ft (41 pF/meter) nominal conductor to conductor
Characteristic Impedance	100 Ohms nominal
Weight	12 lb/1000 feet (17.9 kg/km)
UL Temperature Rating	SmokeGard 167°F (75°C) Halar -40 to 302°F (-40 to 150°C)
Voltage	300 Vac, power limited
Listing	UL: NEC CL2P, or better

LEGEND

AWG — American Wire Gauge
CL2P — Class 2 Plenum Cable
DC — Direct Current
FEP — Fluorinated Ethylene Polymer
NEC — National Electrical Code
O.D. — Outside Diameter
TC — Tinned Copper
UL — Underwriters Laboratories

Table 33 — Open System Wiring Specifications and Recommended Vendors

WIRING SPECIFICATIONS		RECOMMENDED VENDORS AND PART NUMBERS			
Wire Type	**Description**	**Connect Air International**	**Belden**	**RMCORP**	**Contractors Wire and Cable**
MS/TP Network (RS-485)	22 AWG, single twisted shielded pair, low capacitance, CL2P, TC foam FEP, plenum rated. See MS/TP Installation Guide for specifications.	W221P-22227	—	25160PV	CLP0520LC
	24 AWG, single twisted shielded pair, low capacitance, CL2P, TC foam FEP, plenum rated. See MS/TP Installation Guide for specifications.	W241P-2000F	82841	25120-OR	—
Rnet	4 conductor, unshielded, CMP, 18 AWG, plenum rated.	W184C-2099BLB	6302UE	21450	CLP0442

LEGEND

AWG — American Wire Gauge
CL2P — Class 2 Plenum Cable
CMP — Communications Plenum Rated
FEP — Fluorinated Ethylene Polymer
TC — Tinned Copper

Smoke Control Modes

Rooftop units can be used for aid in building smoke control in the event of a building fire. The available functions include: Fire Shutdown, Pressurization, Evacuation, and Smoke Purge. These functions are enhanced when multiple rooftop units are used to zone a building. See Table 34 and Fig. 84 and 85.

Table 34 — Smoke Control Modes

FUNCTION	MODE			
	Fire Shutdown	Pressurization	Evacuation[a]	Smoke Purge[a]
Supply Fan	Off	On	Off	On
VFD[b]	—	Open/On	—	Open/On
Economizer	Closed	Open	Open	Open
Return Air Damper	Open	Closed	Closed	Closed
Exhaust Fans	Off	Off	On	On
Exhaust Damper	Closed	Closed	Open	Open

NOTE(S):

a. Power exhaust option required for this mode.
b. Applicable to VAV units with appropriate options.

LEGEND

VAV — Variable Air Volume
VFD — Variable Frequency Drive

FIRE SHUTDOWN

Fire Shutdown mode terminates all unit operation (cooling, heating, supply fan, and power exhaust). This mode prevents recirculation of contaminated air back into the space. The mode will not allow admission into the space of unsuitable outside air. See Fig. 84 for wiring.

PRESSURIZATION

Pressurization mode is intended to keep smoke out of a zone. The factory-installed optional economizer is required for this function. Pressurization is accomplished by the following:

- opening the economizer (option)
- running the supply fan (optional inlet guide vanes open or optional VFD at normal duct static pressure set point)
- closing the power exhaust dampers (if installed as option or accessory)
- shutting off the power exhaust fans (if installed as option or accessory)

This allows the space to be overpressurized relative to adjacent zones and prevents or slows entry of smoke into this space from adjacent zones. See Fig. 85 for wiring.

EVACUATION

Evacuation mode removes smoke or undesirable air from interior spaces without reintroducing unsuitable air. The factory-installed optional economizer with option/accessory power exhaust is required for this function. Evacuation is accomplished by the following:

- turning the supply fan off
- opening the economizer (option required)
- running the exhaust fans (option or accessory required)
- opening the exhaust dampers.

See Fig. 85 for wiring.

SMOKE PURGE

Smoke Purge mode removes smoke from the interior spaces and replaces it with fresh outside air. The factory-installed optional economizer with option/accessory power exhaust are required for this function. Smoke purge is accomplished by the following:

- turning supply fan on
- opening the economizer (option required)
- running the exhaust fans (option or accessory required)
- opening the exhaust dampers

See Fig. 85 for wiring.

SMOKE CONTROL INSTALLATION

Implementation of the various smoke control modes on these units requires the installer to modify the unit wiring to add contacts (via either manual switches or relays) that will selectively interrupt and override standard factory control sequences. See Table 34 and Fig. 84 and 85 for more information.