



Installation Instructions

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SAFETY CONSIDERATIONS

Installation of this accessory can be hazardous due to system pressures, electrical components, and equipment location (such as a roof or elevated structure). Only trained, qualified installers and service technicians should install, start-up, and service this equipment.

When installing this accessory, observe precautions in the literature, labels attached to the equipment, and any other safety precautions that apply:

- Follow all safety codes
- Wear safety glasses and work gloves
- Use care in handling and installing this accessory

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.

GENERAL

The 30MPE electrical distribution panel (Fig. 1) is an electrical cabinet that provides a convenient location for circuit breakers for up to 4 modules in a 30MP multi-chiller plant. A maximum of 2 distribution panels can be used in a given application, allowing for up to 8 chillers per plant. Distribution panels are configurable for 30MPW water-cooled or 30MPA air-cooled applications.

The 30MPE panel is designed with a manifold package as a standard feature that can be piped directly into the common chilled water header and condenser water header, if equipped.

Distribution panels are configured for specific voltages and can be selected with standard or high short-circuit current rating. Available breakers for the distribution panel range from 25 to 350 amps based on respective chiller size, voltage, and MOC (maximum overcurrent protection).

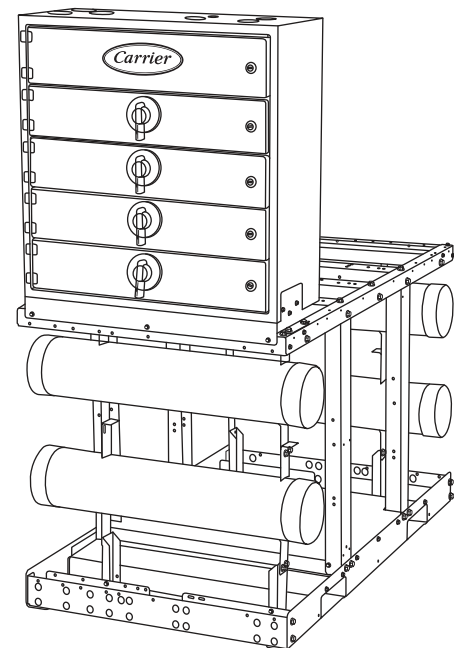


Fig. 1 — 30MPE Electrical Distribution Panel

⚠ WARNING

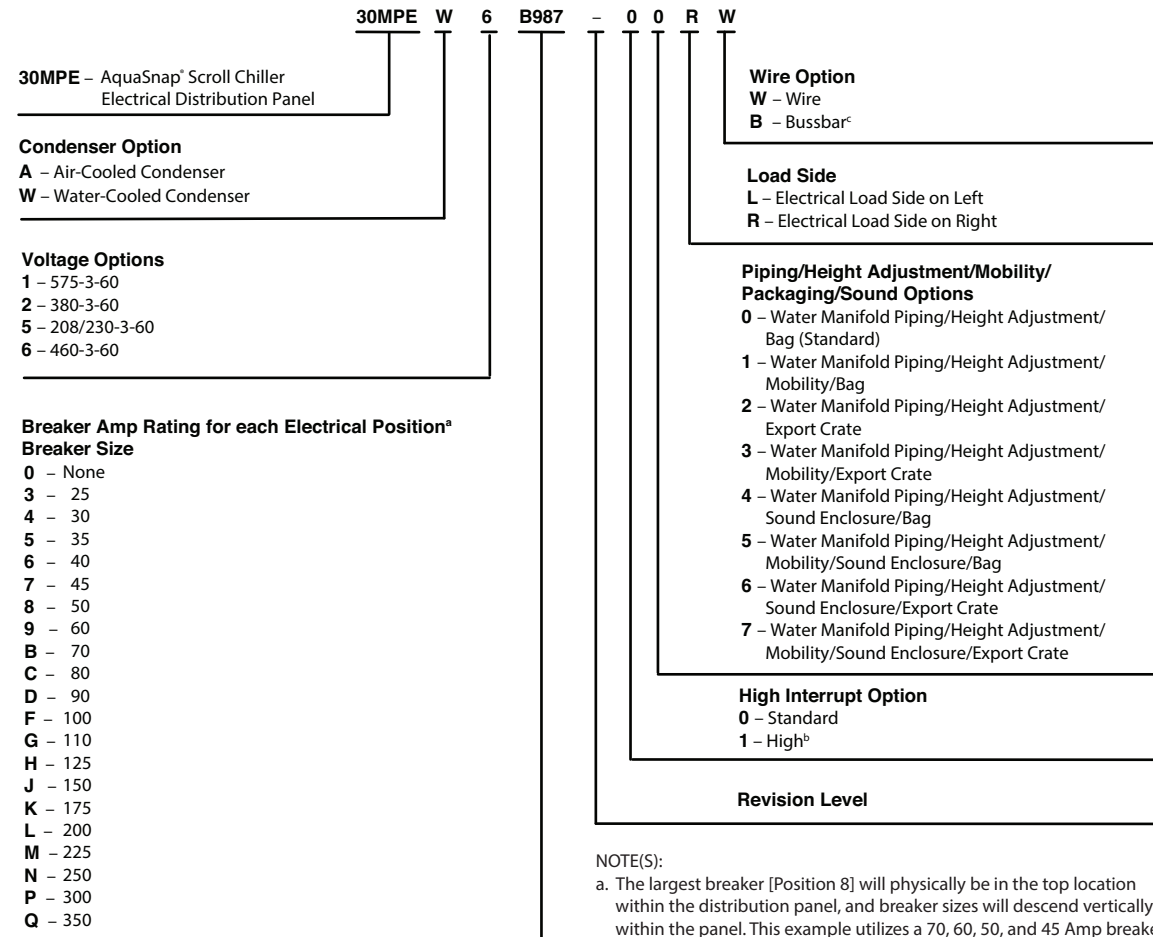
Electrical shock can cause personal injury and death. Shut off all power to this equipment during installation and service. There may be more than one disconnect switch. Tag all disconnect locations to alert others not to restore power until work is completed.

INSTALLATION

Location

Do not store units in an area exposed to weather because of sensitive control mechanisms and electronic devices. Locate unit indoors. See Fig. 2 for model number nomenclature and Fig. 3 for unit dimensional details. When considering location, consult National Electrical Code (NEC) and local code requirements. Allow sufficient space for wiring, piping, and service. Install unit in an area where it will not be exposed to ambient temperatures below 50°F (10°C). Allow 36 in. (914 mm) in front of the unit for control box access door. Additional clearance may be required per local codes.

On all units leave 36 in. (914 mm) of clearance opposite control box end. The floor must be strong enough to support the unit operating weight, see Table 1 and Fig. 3 and 4. If necessary, add a supporting structure (steel beams or reinforced concrete slabs) to the floor to transfer weight to the nearest beams. Additional weight of factory-installed sound enclosure option is 75 lb (34 kg).



NOTE(S):

- The largest breaker [Position 8] will physically be in the top location within the distribution panel, and breaker sizes will descend vertically within the panel. This example utilizes a 70, 60, 50, and 45 Amp breaker in model number positions 8, 9, 10 and 11 respectively.
- For High short-circuit current rating, both 30MPE and all associated 30MP units must be selected with high interrupt option.
- Bussbar is required when the additive amperage of the electrical distribution panel is 760 amps or higher.

Fig. 2 — 30MPE Model Number Nomenclature

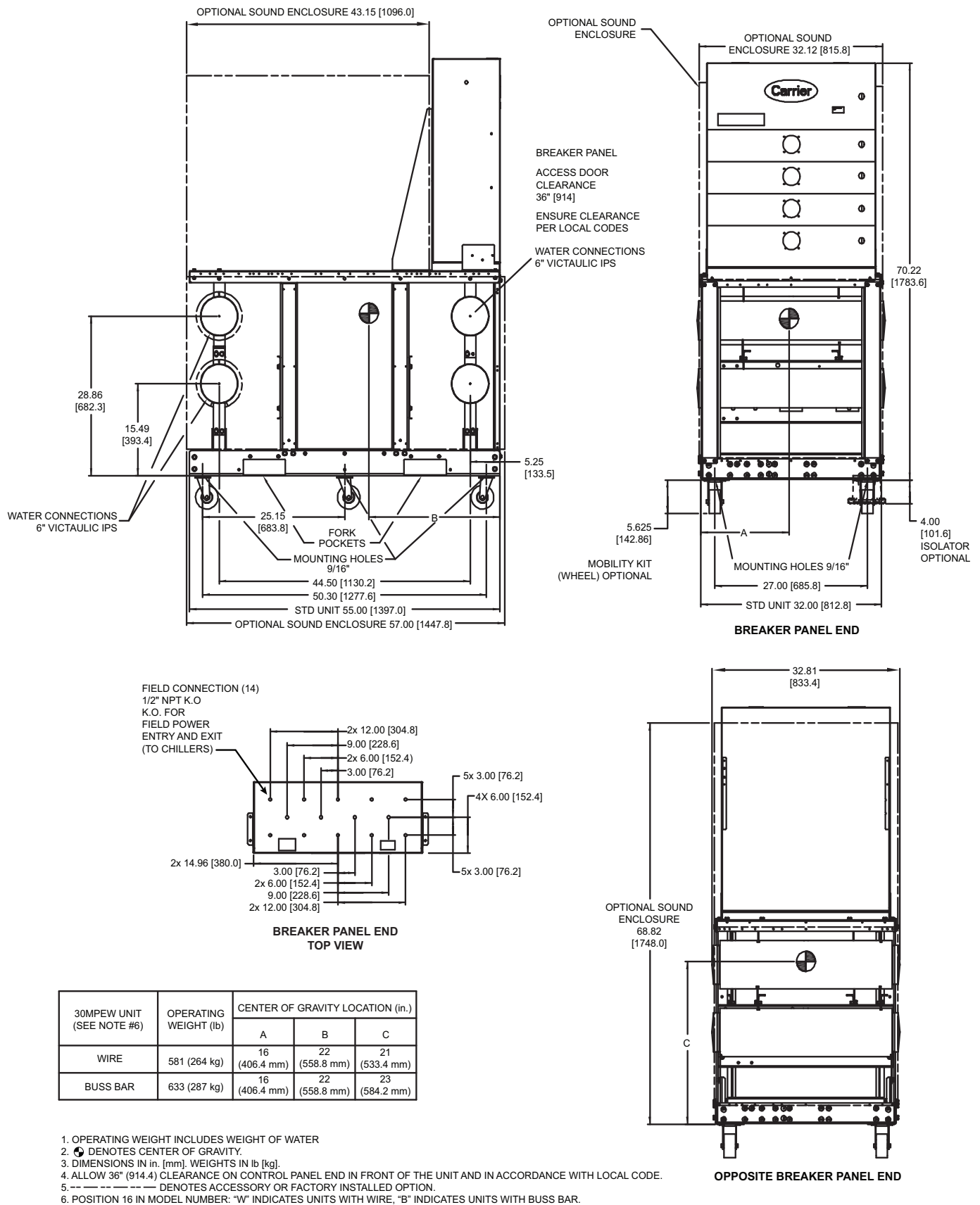


Fig. 3 — 30MPEW Unit Dimensions

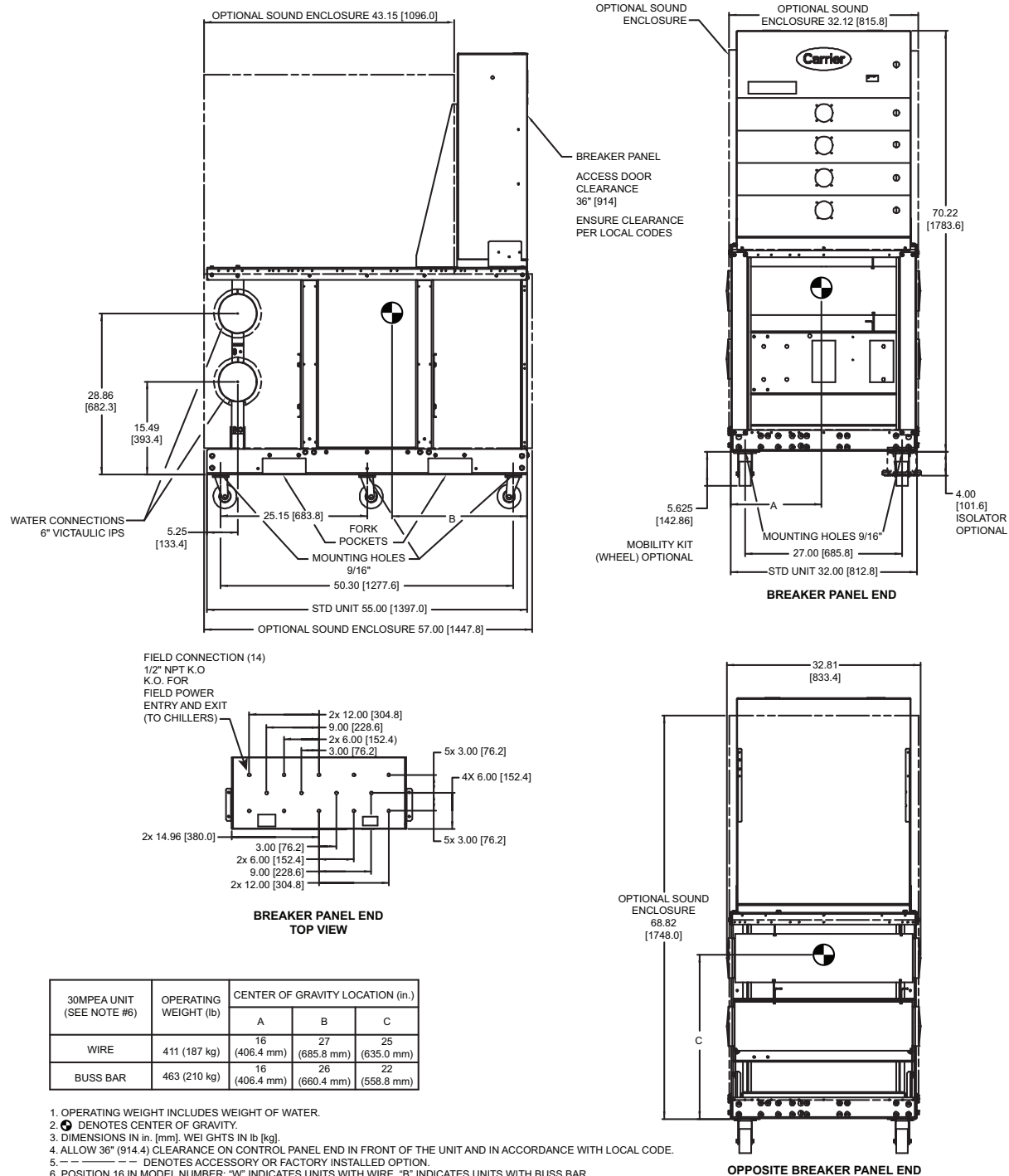


Fig. 4 — 30MPEA Unit Dimensions

Table 1 — 30MPEA Air-Cooled and 30MPEW Liquid-Cooled Units Physical Data Table^{a,b,c,d}

UNIT 30MPEA, 30MPEW	WIRE	BUSSBAR
OPERATING WEIGHT		
MPEA with Manifold – lb [kg]	411 [187]	463 [210]
MPEW with Manifold – lb [kg]	581 [264]	633 [287]
CHASSIS DIMENSIONS		
Length – in. [mm]	55.0 [1397.0]	
Width – in. [mm]	32.0 [812.8]	
Height – in. [mm]	70.2 [1783.0]	

NOTE(S):

- Operating weight includes weight of fluid in the manifold piping.
- 30MPE units are only offered with the manifold option.
- Position 16 in the model number nomenclature indicates wire or buss bar wiring options. See Fig. 2 for reference.
- Optional sound enclosure may increase unit dimensions. Consult certified drawing for reference.

Step 1 — Inspect Shipment

Inspect unit for damage or missing parts. If damaged, or if shipment is incomplete, file a claim immediately with the shipping company.

CAUTION

Unit is top heavy. Unit may tip if handled without care. Damage to unit or injury may result.

Step 2 — Position the Unit

The unit may be moved by means of rollers under the rails or a forklift truck.

If accessory mobility kit is to be used, install this accessory after bringing unit into the building and before moving the unit to its final location per installation instructions provided with the accessory. The factory-supplied mobility kit option consists of 6 swivel-type wheels that are field-mounted to the legs of the unit. See Fig. 5.

IMPORTANT: Each 30MPE distribution panel is intended to be positioned on the outside of its associated 30MP chillers. For installations with two 30MPE distribution panels, each panel should be positioned so that the distribution panels are in the “center” of the modular chilled water plant.

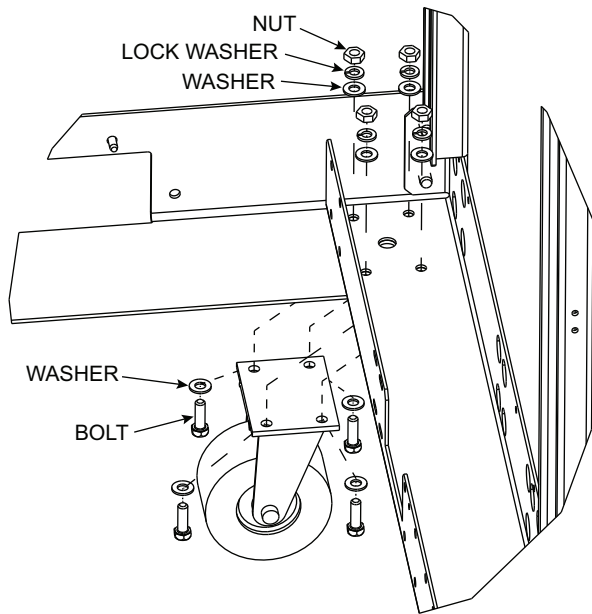


Fig. 5 — Mobility Kit

Step 3 — Place the Unit

IMPORTANT: These units are not suitable for outdoor use.

Carrier recommends that these units be located in the basement or on the ground floor. However, if it is necessary to locate the units on an upper floor, be sure the structure has been designed to support the unit weight. If necessary, add structural support to the floor. Also, be sure the surface for installation is level. Refer to Fig. 3, 4, and 6 for space requirements and weight distribution. Only electrical power connections, fluid connections for condenser, fluid connections for evaporator, and strainer installation are required for 30MPE installation.

When placing 30MP and 30MPE units ensure that the 30MP unit with the largest minimum circuit ampacity (MCA) goes next to the 30MPE distribution panel.

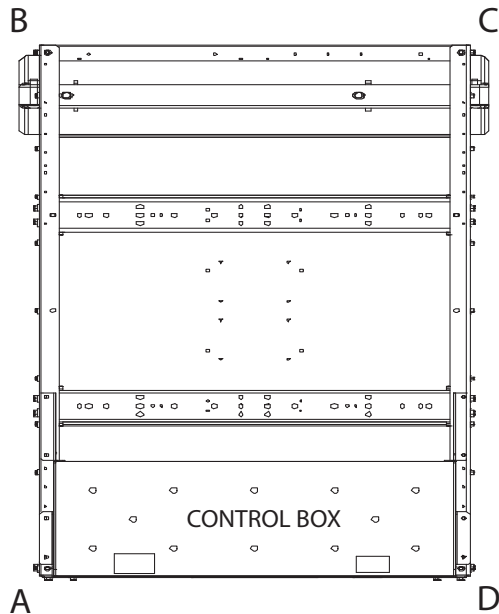
FOR MULTI-CHILLER APPLICATIONS WITH WATER MANIFOLD PIPING

Multiple chiller applications using the Vibration Isolator Springs Accessory Kit should be set on a mounting frame, which should then be installed on the isolator springs. See Fig. 7. I-beam or square metal tubing is acceptable material for the mounting frame. Each chiller MUST be supported in the center (under the heat exchangers) by the mounting frame, however isolators are only necessary at the four corners of each unit. The mounting hole weights from Fig. 6 should be used for calculating weights for units connected via common water manifold piping (multi-chiller applications) and using the Vibration Isolator Springs Accessory Kit.

For standalone units (chillers which are not connected via common water piping), 30MP 017-046 must be supported at the four corner locations shown in Fig. 6. 30MP 051-080 must be supported at the six locations shown in Fig. 7.

When the unit is in its final position, remove the packaging and mobility kit wheels (if equipped). Remove 3/8 in. wheel nuts to remove wheels from unit legs. Level the unit (using a level), and bolt the unit to the floor or pad. If units are to be mounted on unit external vibration isolators, it is recommended that the entire assembly be mounted on a perimeter rail, in contact with all mounting points and the rail assembly isolated. See Fig. 7. To install the accessory leveling kit, follow the instructions provided with the accessory to make sure the unit is level and in the correct position.

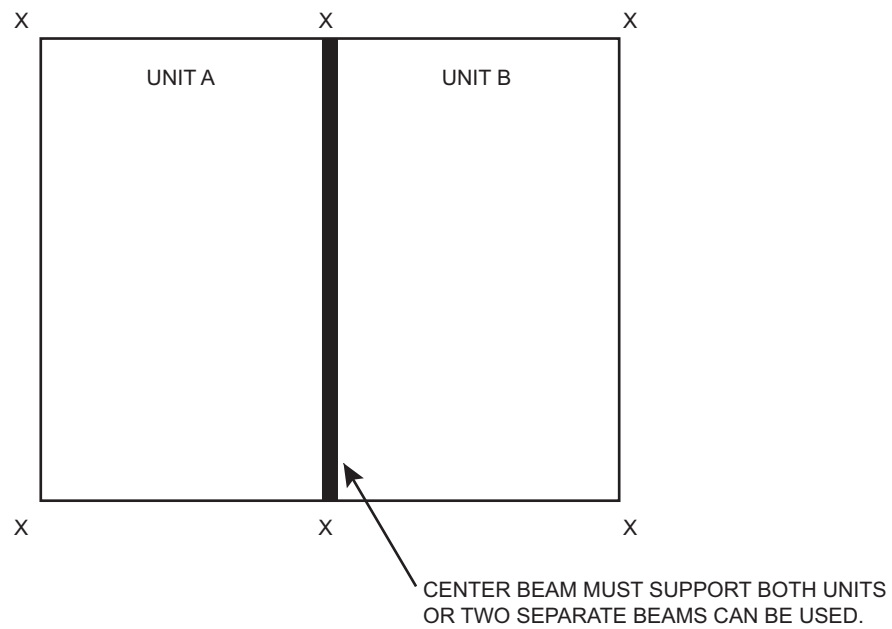
30MPE-A TOP VIEW



UNIT/WEIGHT	A	B	C	D
30MPEA				
Wire				
lb [kg]	105 [47]	101 [46]	101 [46]	105 [47]
Buss Bar				
lb [kg]	122 [55]	109 [50]	109 [50]	122 [55]
30MPEW				
Wire				
lb [kg]	169 [77]	121 [55]	121 [55]	169 [77]
Buss Bar				
lb [kg]	190 [86]	127 [57]	127 [57]	190 [86]

Fig. 6 — 30MPEA, 30MPEW Corner Weights

Refer to Fig. 8 and 9 for a graphical depiction of the intended distribution panel location. The complete configuration is also included in the chiller’s submittal report.



LEGEND

X — Isolator Position

Fig. 7 — Typical Support Frame Design for Multi-Chiller Applications

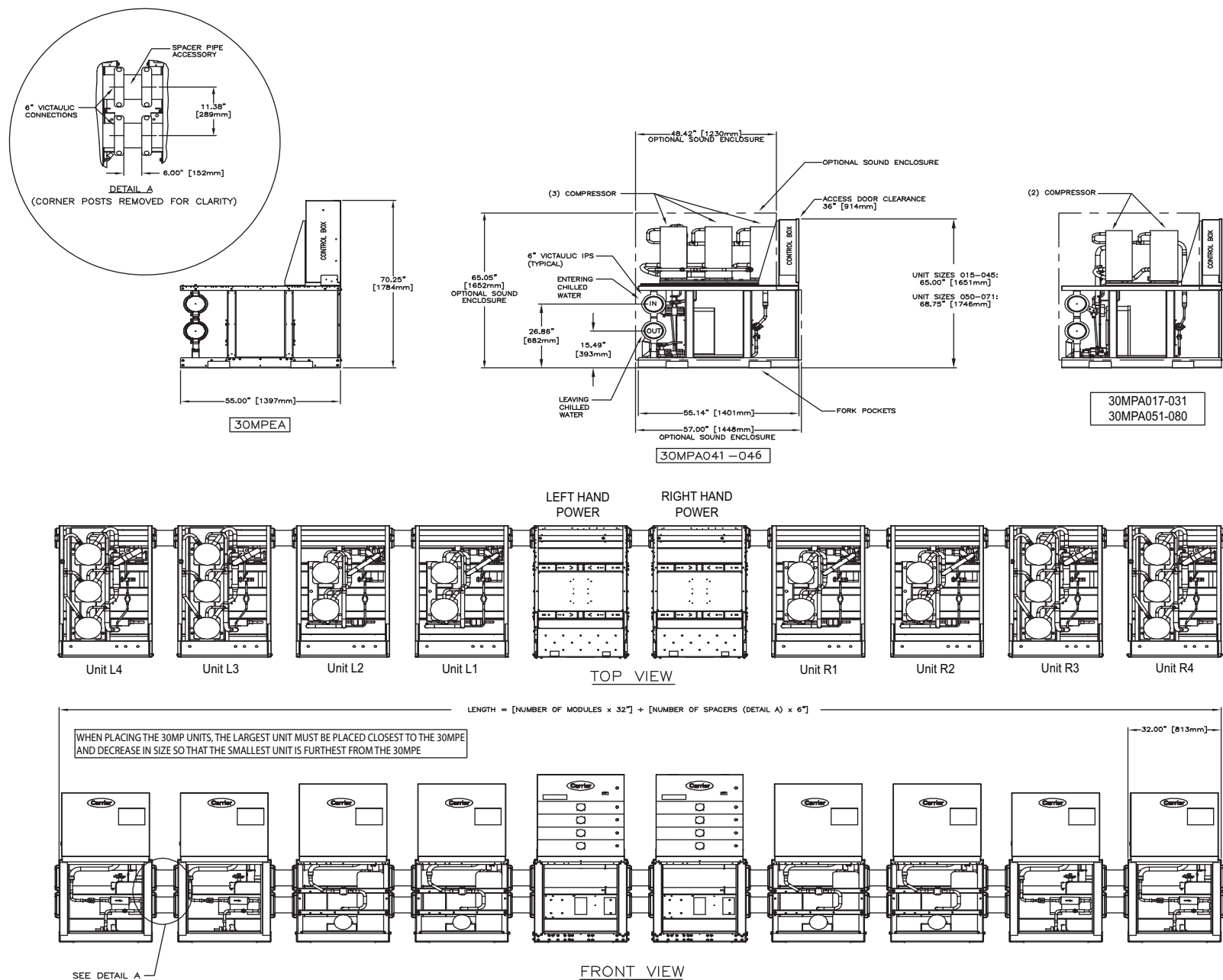


Fig. 8 — 30MPEA Configuration

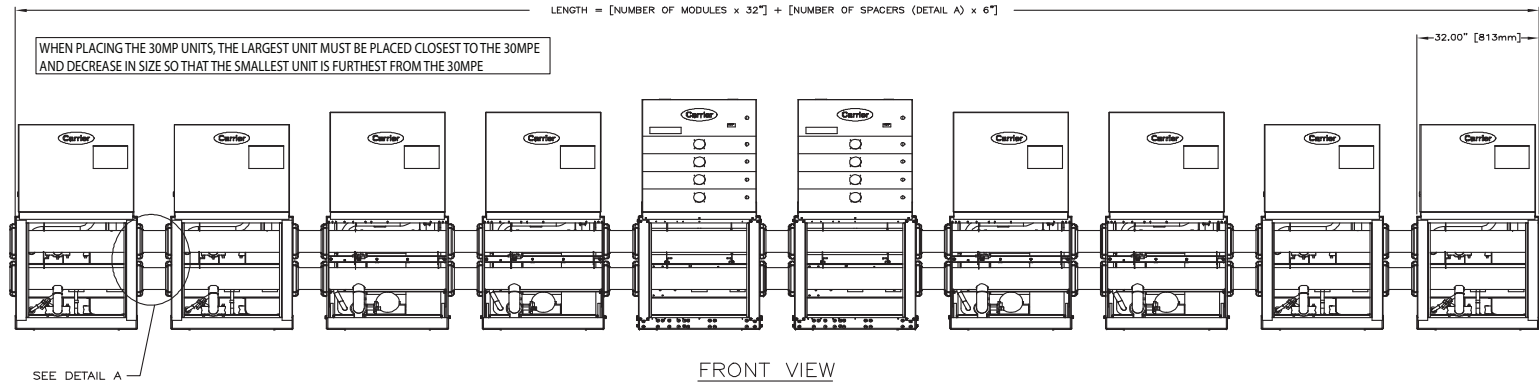
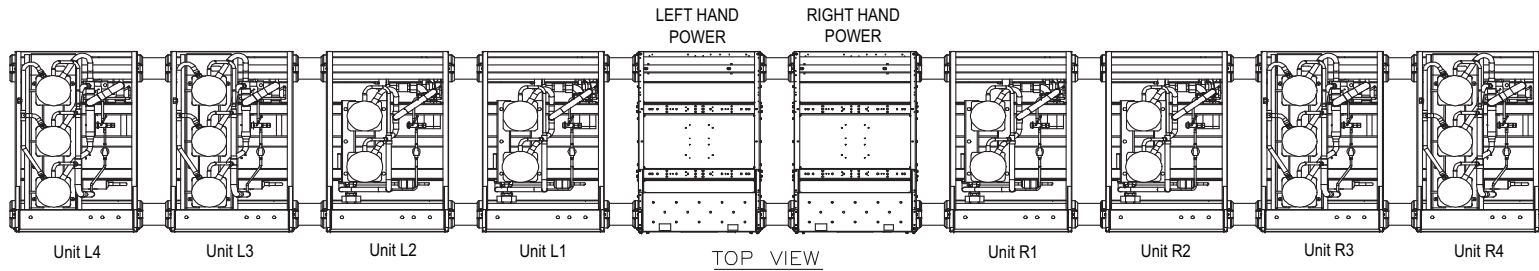
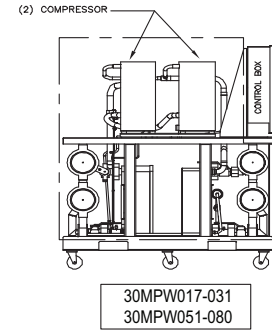
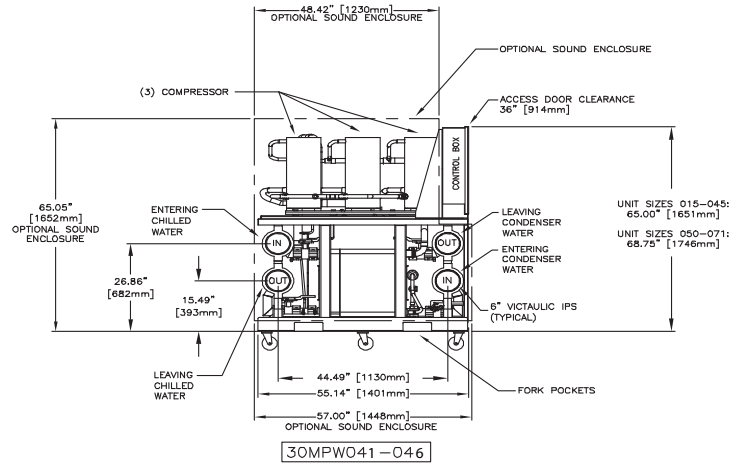
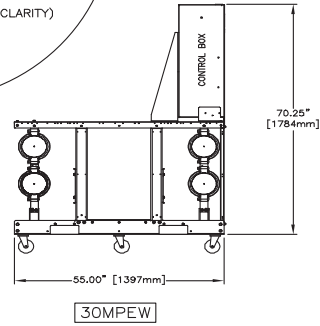
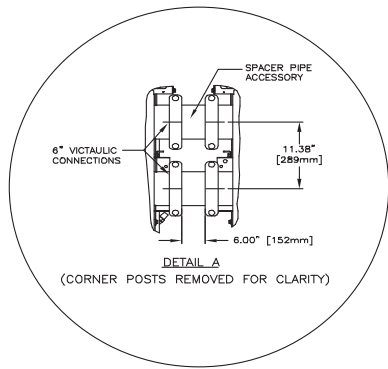


Fig. 9 – 30MPEW Configuration

Step 4 — Make Piping Connections

See Fig. 10 and 11 for typical piping applications.

A strainer with a minimum of 40 mesh **must** be installed within 10 ft (3 m) of the chiller closest to the water header inlet to prevent debris from clogging or damaging the chiller's heat exchangers. The strainer is required for operation and is available as an accessory.

To install the Victaulic¹ coupling connect the 30MPE water manifold piping to its associated chillers water manifold piping (see Fig. 12 on page 11).

1. Use Victaulic couplings designed for use on IPS (Iron Pipe Size) dimensioned materials; for example, Style 75, Style 77, Quick VicTM Style 107, or Style 177.

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

2. Lubricate the gasket lips and stretch the gasket over the end of the heat exchanger coupling. Avoid twisting the gasket when installing.
3. Bring the pipe and heat exchanger coupling ends together into alignment. Slide the gasket so that it is centered over the ends. Apply a light film of lubricant to the gasket, or to the outside diameter of the pipe. Avoid twisting the gasket during installation.
4. Install the inside coupling half over the gasket and then install the outer half. Connect with nuts and bolts. Tighten the nuts equally on both sides. Ensure there is no gap between the two halves of the coupling.
5. Alternately tighten the nuts with a wrench to draw the coupling halves together uniformly as shown in Fig. 12 on page 11. The joint is now complete.

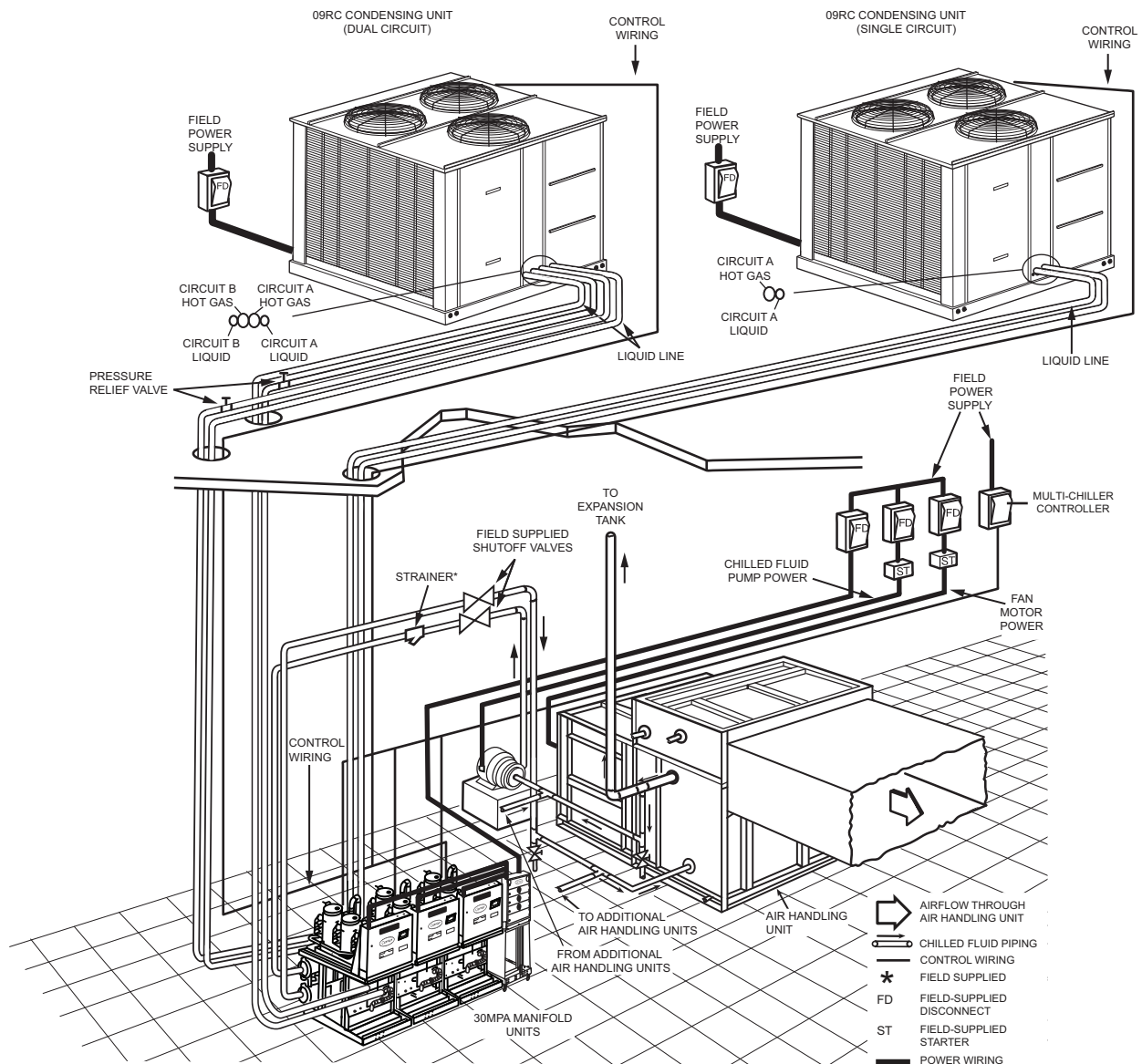


Fig. 10 — 30MPA Typical Piping and Wiring Connections

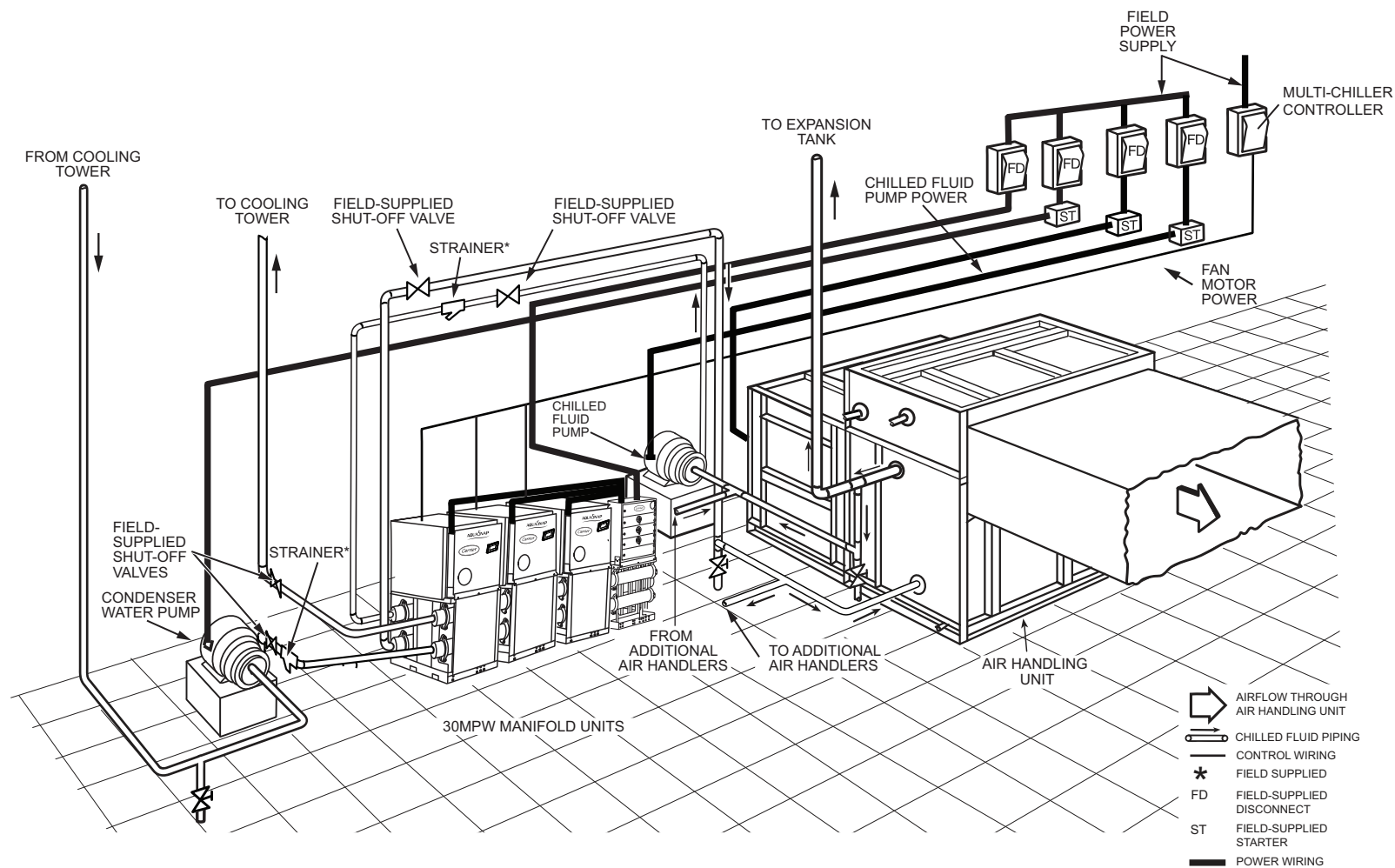


Fig. 11 — 30MPW Typical Piping and Wiring Connections

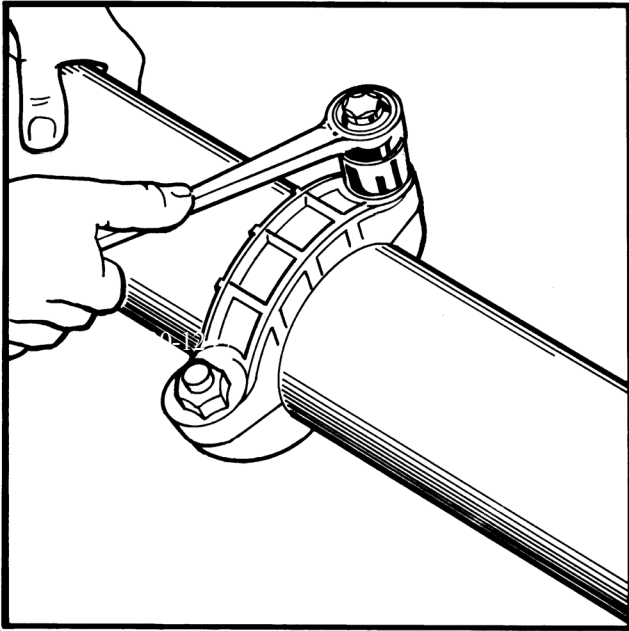


Fig. 12 — Install the Victaulic Coupling

In order to minimize the water pressure drop in the system, use as few bends as possible in the field water piping, and run the lines as short as possible. Size the water lines according to the available pump pressure (not necessarily the connection size), especially on cooling tower applications. See Carrier System Design Manual, Part 3, Piping Design.

EVAPORATOR SIDE PIPING

Plan evaporator fluid piping for minimum number of changes in elevation, and for the fewest number of bends possible. Install manual or automatic vent valve at high points in the line. Maintain system pressure by using a pressure tank or a combination of relief and reducing valves. A strainer with a minimum of 40 mesh must be installed within 10 ft of the evaporator fluid inlet to prevent debris from clogging or damaging the heat exchanger. This strainer is required and is available as an accessory. See Carrier System Design Manual, Part 3, Piping Design, for chilled fluid piping details.

Run the pump for a minimum of 10 minutes, then clean the strainer before starting the unit. See the base unit 30MP Installation Instructions for additional piping and flush requirements.

CONDENSER SIDE PIPING

When facing the front of the electrical distribution panel, the condenser piping is the uninsulated piping located on the front side. To connect 30MPEW units with water manifold option, refer to manifold Victaulic spacer fitting kit accessory installation instructions. A strainer with a minimum of 40 mesh must be installed within 10 ft (3 m) of the chiller closest to the water header inlet to prevent debris from clogging or damaging the chiller's heat exchangers.

Step 5 — Make Electrical Connections

All field wiring must comply with local code requirements. Electrical data for the complete unit is shown in the products submittal report. See unit nameplate for electrical data. Refer to Fig. 10, 11, and 13 for field wiring connections. A field-supplied branch circuit disconnect switch that can be locked in either OPEN or OFF position **must** be installed.

⚠ WARNING

Electrical shock can cause personal injury and death. Shut off all power to this equipment during installation and service. There may be more than one disconnect switch. Tag all disconnect locations to alert others not to restore power until work is completed.

For 30MPE distribution panels, fourteen (14) pilot holes 1/2 in. (12 mm) diameter knockouts are provided. Choose the appropriate knockouts for incoming field power wiring. Inside the distribution panel are terminals for field power and ground (earth) wiring. Connect field power supply wiring to these terminals. A ground wire must be installed with the field power supply. Use copper conductors only.

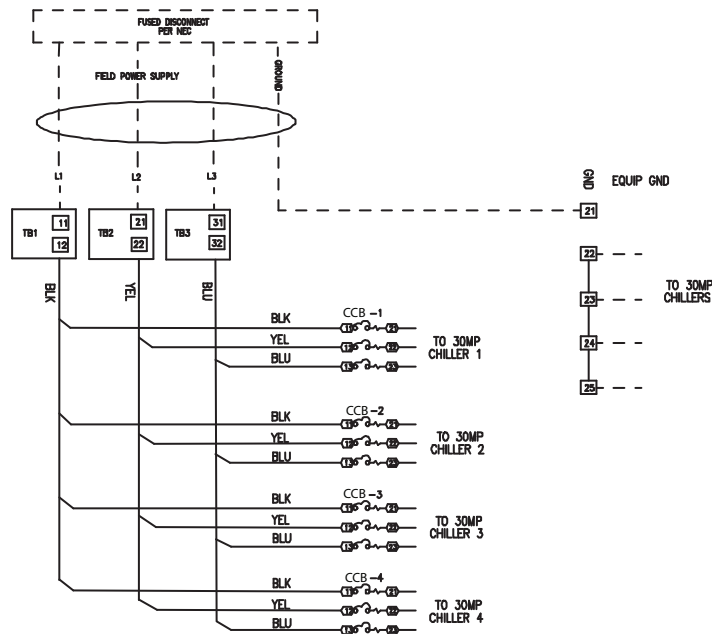
When wiring the 30MPE to its associated 30MP chillers, it is important to connect each circuit breaker to its corresponding chiller.

⚠ CAUTION

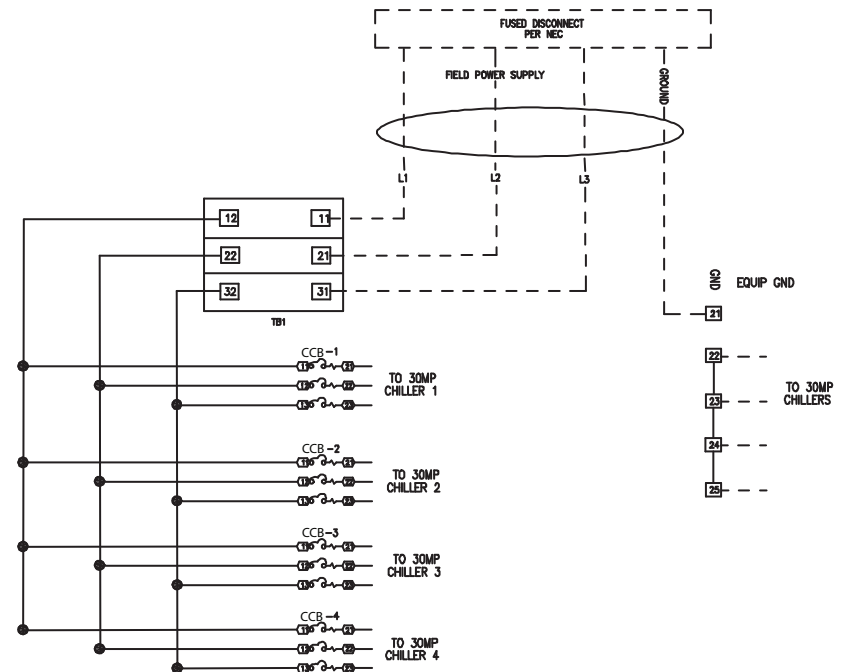
Failure to follow these instructions may result in unit damage. When wiring the 30MP chiller to its associated 30MPE distribution panel, it is important to connect each chiller to its corresponding circuit breaker in the panel.

Each circuit breaker has been sized for its particular chiller. Proper installation is critical to ensure appropriate wire sizing, hazard avoidance, and compliance with local code(s). Consult submittal information.

UNITS WITH WIRE



UNITS WITH BUSS BAR



NOTES:

- FACTORY WIRING IS IN ACCORDANCE WITH UL 1995 STANDARDS. FIELD MODIFICATIONS OR ADDITIONS MUST BE IN COMPLIANCE WITH ALL APPLICABLE CODES.
- ALL UNITS OR MODULES HAVE SINGLE PRIMARY POWER CONNECTION.
- WIRING FOR 30MPE MAIN FIELD SUPPLY MUST BE RATED 75C. USE COPPER CONDUCTORS ONLY.
 - INCOMING WIRE SIZE RANGE:
UNITS WITH WIRE (W IN POSITION 16 OF MODEL NUMBER): 4 AWG (AMERICAN WIRE GAUGE) TO 500 KCMIL.
UNITS WITH BUSS BAR (B IN POSITION 16 OF MODEL NUMBER): 4 AWG TO 600 KCMIL.
INCOMING GND CONNECTION (ALL UNITS): 4 AWG TO 500 KCMIL.
- REFER TO CERTIFIED DIMENSION DRAWINGS FOR EXACT LOCATIONS OF THE MAIN POWER ENTRANCE LOCATIONS
- BREAKER LOAD SIDE AND GND CONNECTION LOCATION WILL BE ON LEFT OR RIGHT, DEPENDING ON UNIT CONFIGURATION.
- 30MP CHILLER WIRING FOR MAIN FIELD SUPPLY MUST BE RATED 75C USE COPPER CONDUCTORS ONLY.
 - WIRE SIZE RANGE FOR 30MP CHILLERS SIZES 017-046 WITH TERMINAL BLOCK WITH MCA UP TO 120 AMPS IS 14 AWG TO 2/0.
 - WIRE SIZE RANGE FOR 30MP CHILLERS SIZES 017-046 WITH TERMINAL BLOCK WITH MCA FROM 120.1 AMPS TO 310 AMPS IS 6 AWG TO 350 KCMIL.
 - WIRE SIZE RANGE FOR 30MP CHILLERS SIZES 017-046 WITH NON-FUSED DISCONNECT WITH MCA UP TO 50 AMPS IS 10 AWG TO 2 AWG.
 - WIRE SIZE RANGE FOR 30MP CHILLERS SIZES 017-046 WITH NON-FUSED DISCONNECT WITH MCA FROM 50.1 AMPS TO 90 AMPS IS 6 AWG TO 3/0.
 - WIRE SIZE RANGE FOR 30MP CHILLERS SIZES 017-046 WITH NON-FUSED DISCONNECT WITH MCA FROM 90.1 AMPS TO 250 AMPS IS 4 AWG TO 350 KCMIL.
 - WIRE SIZE RANGE FOR 30MP CHILLERS SIZES 051-080 WITH TERMINAL BLOCK IS 4 AWG TO 50 KCMIL.
 - WIRE SIZE RANGE FOR 30MP CHILLERS SIZES 051-080 WITH NON-FUSED DISCONNECT WITH MCA UP TO 170 AMPS IS 6 AWG TO 3/0.
 - WIRE SIZE RANGE FOR 30MP CHILLERS SIZES 051-080 WITH NON-FUSED DISCONNECT WITH MCA 170.1 AND ABOVE IS 4 AWG TO 350 KCMIL.

	Terminal Block
	Terminal (Marked)
	Field Power Wiring
	Factory Installed Wiring/Buss Bar
CCB	Compressor Circuit Breaker
GND	Ground
TB	Terminal Block
EQUIP	Equipment

Fig. 13 — Typical Wiring Diagram

The largest breaker, in ampacity rating, is located toward the top of the panel. The highest ampacity chillers in the modular configuration are designed to be nearest the centrally located 30MPE distribution panel. Refer to Fig. 10 and 11. The product's submittal performance report, explaining which 30MP chillers belongs in each position of the modular configuration, was included in the project's submittal report.

Inside each 30MPE electrical distribution panel (Fig. 14) are terminals for field power and ground (earth) wiring for each 30MP unit. Connect power wiring at the 30MP chiller and at the corresponding circuit breaker in the 30MPE distribution panel. For the distribution panel, choose the appropriate knockouts for incoming field power wiring. For 30MP chillers, see 30MP Installation Instructions for wiring detail.

Factory wiring is in accordance with UL 1995 standards. Field modifications or additions must be in compliance with all applicable codes.

All units or modules have single primary power connection. Wiring for 30MPE main field supply must be rated 75°C. Use copper conductors only.

Incoming wire size range:

- Units with wire option (W in position 16 of model number): 4 AWG (American Wire Gauge) to 500 kcmil.
- Units with Buss Bar option (B in position 16 of model number): 4 AWG to 600 kcmil.
- Incoming ground connection (all units): 4 AWG to 500 kcmil.

Refer to certified dimension drawings for exact locations of the main power entrance locations.

Breaker load side and ground connection location will be on left or right, depending on unit configuration.

For 30MP chiller sizes 017-046 the chiller wiring for main field supply must be rated 75°C; use copper conductors only:

- Wire size range for 30MP chillers with terminal block with MCA (Minimum Circuit Amps) up to 120 amps is 14 AWG to 2/0.
- Wire size range for 30MP chillers with terminal block with MCA from 120.1 amps to 310 amps is 6 AWG to 350 kcmil.
- Wire size range for 30MP chillers with non-fused disconnect with MCA up to 50 amps is 2 AWG.
- Wire size range for 30MP chillers with non-fused disconnect with MCA from 50.1 amps to 90 amps is 10 AWG to 2 AWG.
- Wire size range for 30MP chillers with non-fused disconnect with MCA from 90.1 amps to 250 amps is 4 AWG to 3/0.

For 30MP chiller sizes 051-080 the wiring for main field-supply must be rated 75°C; use copper conductors only:

- Incoming wire size range for 30MP chillers with fused disconnect is 6 to 10 AWG.
- Incoming wire size range for non-fused disconnect with MCA up to 170 amps is 6 AWG to 3/0.
- Incoming wire size range for non-fused disconnect with MCA 170.1 and above is 4 AWG to 350 kcmil.

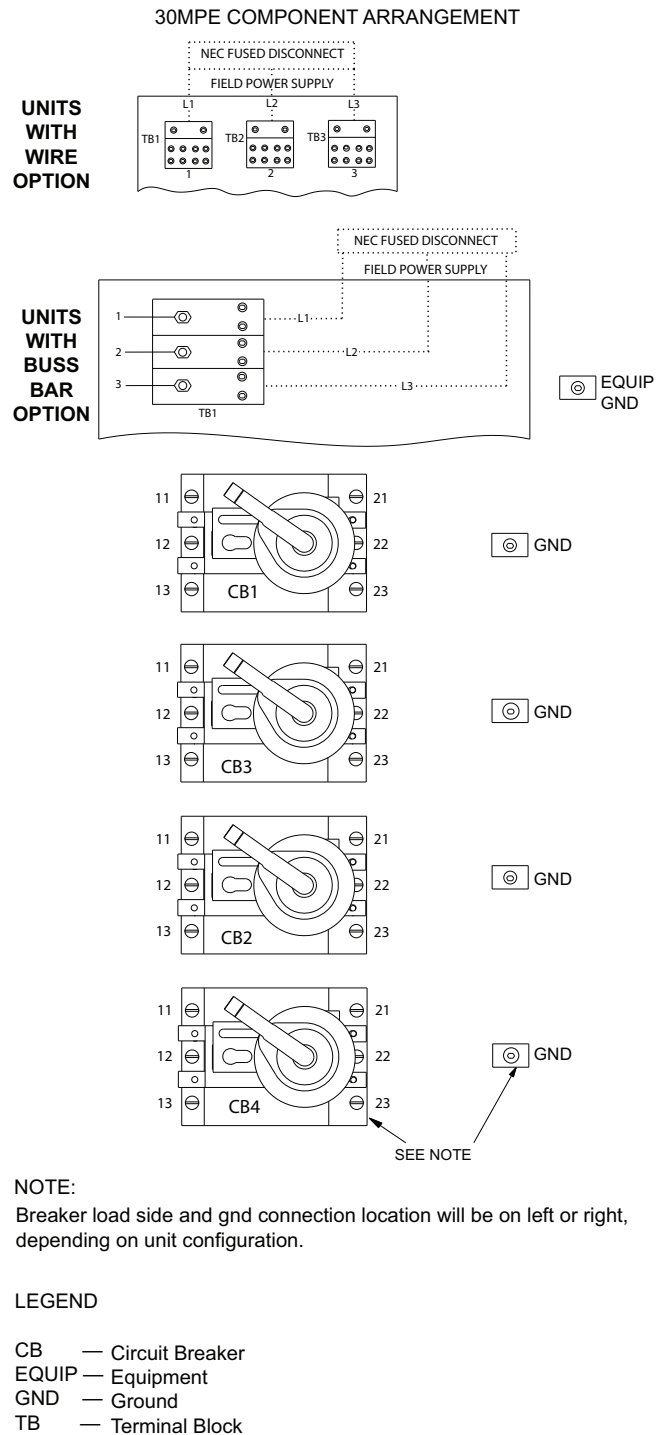


Fig. 14 — 30MPE Interior Component Arrangement

