Installation, Operation, and Maintenance

Water Source Heat Pump Axiom™ High Efficiency Vertical Stack – GET

0.75 to 3 Tons – 60 Hz

⚠ SAFETY WARNING

Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.

June 2023 **WSHP-SVX10J-EN**

Introduction

Read this manual thoroughly before operating or servicing this unit.

Warnings, Cautions, and Notices

Safety advisories appear throughout this manual as required. Your personal safety and the proper operation of this machine depend upon the strict observance of these precautions.

The three types of advisories are defined as follows:

⚠WARNING	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
⚠CAUTION	Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It could also be used to alert against unsafe practices.
NOTICE	Indicates a situation that could result in equipment or property-damage only accidents.

Important Environmental Concerns

Scientific research has shown that certain man-made chemicals can affect the earth's naturally occurring stratospheric ozone layer when released to the atmosphere. In particular, several of the identified chemicals that may affect the ozone layer are refrigerants that contain Chlorine, Fluorine and Carbon (CFCs) and those containing Hydrogen, Chlorine, Fluorine and Carbon (HCFCs). Not all refrigerants containing these compounds have the same potential impact to the environment. Trane advocates the responsible handling of all refrigerants.

Important Responsible Refrigerant Practices

Trane believes that responsible refrigerant practices are important to the environment, our customers, and the air conditioning industry. All technicians who handle refrigerants must be certified according to local rules. For the USA, the Federal Clean Air Act (Section 608) sets forth the requirements for handling, reclaiming, recovering and recycling of certain refrigerants and the equipment that is used in these service procedures. In addition, some states or municipalities may have additional requirements that must also be adhered to for responsible management of refrigerants. Know the applicable laws and follow them.

⚠WARNING

Proper Field Wiring and Grounding Required!

Failure to follow code could result in death or serious injury. All field wiring MUST be performed by qualified personnel. Improperly installed and grounded field wiring poses FIRE and ELECTROCUTION hazards. To avoid these hazards, you MUST follow requirements for field wiring installation and grounding as described in NEC and your local/state/national electrical codes.

⚠WARNING

Personal Protective Equipment (PPE) Required!

Failure to wear proper PPE for the job being undertaken could result in death or serious injury. Technicians, in order to protect themselves from potential electrical, mechanical, and chemical hazards, MUST follow precautions in this manual and on the tags, stickers, and labels, as well as the instructions below:

- **Before installing/servicing this unit, technicians MUST put on all PPE required for the work being undertaken (Examples; cut resistant gloves/sleeves, butyl gloves, safety glasses, hard hat/bump cap, fall protection, electrical PPE and arc flash clothing). ALWAYS refer to appropriate Safety Data Sheets (SDS) and OSHA guidelines for proper PPE.**
- **When working with or around hazardous chemicals, ALWAYS refer to the appropriate SDS and OSHA/GHS (Global Harmonized System of Classification and Labeling of Chemicals) guidelines for information on allowable personal exposure levels, proper respiratory protection and handling instructions.**
- **If there is a risk of energized electrical contact, arc, or flash, technicians MUST put on all PPE in accordance with OSHA, NFPA 70E, or other country-specific requirements for arc flash protection, PRIOR to servicing the unit. NEVER PERFORM ANY SWITCHING, DISCONNECTING, OR VOLTAGE TESTING WITHOUT PROPER ELECTRICAL PPE AND ARC FLASH CLOTHING. ENSURE ELECTRICAL METERS AND EQUIPMENT ARE PROPERLY RATED FOR INTENDED VOLTAGE.**

⚠WARNING

Follow EHS Policies!

Failure to follow instructions below could result in death or serious injury.

- **All Trane personnel must follow the company's Environmental, Health and Safety (EHS) policies when performing work such as hot work, electrical, fall protection, lockout/tagout, refrigerant handling, etc. Where local regulations are more stringent than these policies, those regulations supersede these policies.**
- **Non-Trane personnel should always follow local regulations.**

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Factory Training

Factory training is available through Trane University™ to help you learn more about the operation and maintenance of your equipment. To learn about available training opportunities contact Trane University™.

Online: www.trane.com/traneuniversity

Phone: 855-803-3563

Email: traneuniversity@trane.com

Revision History

- Updated the Model Number Descriptions chapter.
- Control type Symbio™ 400-B content added in the document.
- Tracer® ZN510 drawings removed from Unit Wiring chapter.

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Model Number Descriptions

Vertical High-Rise Cabinet WSHP

Digits 1-3: Unit Configuration

GET = High Efficiency Vertical High Rise Heat Pump

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E = R-410A

Digits 5-7: Nominal Size (Tons)

009 = 0.75 Tons
012 = 1 Tons
015 = 1.25 Tons
018 = 1.5 Tons
024 = 2 Tons
036 = 3 Tons

Digit 8: Voltage (Volts/Hz/Phase)

1 = 208/60/1
2 = 230/60/1
7 = 265/60/1

Digit 9: Heat Exchanger

1 = Copper water coil
2 = Cupro-nickel water coil
3 = Copper water coil with Isolation valve and low flow control
4 = Cupro- nickel water coil with Isolation valve and low flow control
5 = Copper water coil with isolation valve and high flow control
6 = Cupro-nickel water coil with isolation valve and high flow control

Digit 10: Current Design Sequence

Digit 11: Refrigeration Circuit

0 = Heating and cooling circuit

Digit 12: Blower Configuration

1 = Free discharge (factory wire low speed) - PSC motor
2 = Ducted (factory wire hi speed) - PSC motor
3 = Free discharge with 1-inch flange - PSC motor
4 = Free discharge with 3-inch flange - PSC motor
5 = ECM without flange
6 = ECM with 1-inch flange
7 = ECM with 3-inch flange
8 = Chassis only/No motor (ECM Control)
9 = Chassis only/No motor (PSC Control)

Digit 13: Freeze Protection

A = 20° Freezestat (For Glycol loop)
B = 35° Freezestat (For Water loop)

Digit 14: Open Digit

0 = Open
S = Special

Digit 15: Supply Air Arrangement

0 = Field cut supply air arrangement
1 = Back and front supply air arrangement
2 = Back and left supply air arrangement
3 = Back and right supply air arrangement
4 = Front and left supply air arrangement
5 = Front and right supply air arrangement
6 = Left and right supply air arrangement
7 = Back, front and right supply air arrangement
8 = Back, front and left supply air arrangement
9 = Front, right and left supply air arrangement
B = Back supply air arrangement
L = Left supply air arrangement
R = Right supply air arrangement
T = Top supply air arrangement
F = Front supply air arrangement

Digit 16: Return Air Arrangement

0 = No door
1 = Hinged return air door
3 = Hinged return air door, tamper resistant (HEX)
4 = Hinged return air door, with key lock

Digit 17: Control Types

D = Deluxe 24V controls
H = Symbio™ 400-B/UC400-B
J = Symbio 400-B/UC400-B with Air-Fi® Wireless Communications

Digit 18: Thermostat Sensor Location

0 = Wall mounted location

Digit 19: Fault Sensors

0 = No fault sensors
1 = Condensate overflow sensor
2 = Filter maintenance timer
3 = Condensate overflow and filter maintenance timer

Digit 20: Temperature Sensor

0 = No Additional temperature sensors
1 = Entering water sensor

Digit 21-22: Open Digits

Digit 23: Unit Mounted Disconnect

0 = No unit mounted Switch
C = ON/OFF switch
D = ON/OFF switch with fuses

Digit 24: Filter Type

1 = 1-inch throwaway filter

Digit 25: Acoustic Arrangement

0 = Enhanced sound attenuation
1 = Deluxe sound attenuation

Digit 26: Factory Configuration

3 = R-410A cabinet only w/standard base
4 = R-410A cabinet only w/ 6" extended base

Digit 27: Paint Color

9 = Light white finish

Digit 28: Outside Air Option

0 = No outside air

Digit 29: Piping Arrangement

B = Back riser location
L = Left hand riser location
R = Right hand riser location

Digit 30: Riser Type

0 = No riser
L = Type L riser
M= Type M riser

Digit 31: Supply Riser

0 = No riser
B = 1-inch riser with insulation
C = 1.25-inch riser with insulation
D = 1.5-inch riser with insulation
E = 2-inch riser with insulation
F = 2.5-inch riser with insulation
G = 3-inch riser with insulation
2 = 1-inch riser
3 = 1.25-inch riser
4 = 1.5-inch riser
5 = 2-inch riser
6 = 2.5-inch riser
7 = 3-inch riser

Digit 32: Return Riser

0 = No riser
B = 1-inch riser with insulation
C = 1.25-inch riser with insulation
D = 1.5-inch riser with insulation
E = 2-inch riser with insulation
F = 2.5-inch riser with insulation
G = 3-inch riser with insulation
2 = 1-inch riser
3 = 1.25-inch riser
4 = 1.5-inch riser
5 = 2-inch riser
6 = 2.5-inch riser
7 = 3-inch riser

Digit 33: Condensate Riser

0 = No riser
B = 1-inch riser with insulation
C = 1.25-inch riser with insulation
D = 1.5-inch riser with insulation
E = 2-inch riser with insulation
F = 2.5-inch riser with insulation
G = 3-inch riser with insulation
2 = 1-inch riser
3 = 1.25-inch riser
4 = 1.5-inch riser
5 = 2-inch riser
6 = 2.5-inch riser
7 = 3-inch riser

Digit 34, 35, 36: Riser Length

000 = No riser
096 = 96-inch riser length
097 = 97-inch riser length
098 = 98-inch riser length
099 = 99-inch riser length
100 = 100-inch riser length
101 = 101-inch riser length
102 = 102-inch riser length
103 = 103-inch riser length
104 = 104-inch riser length
105 = 105-inch riser length
106 = 106-inch riser length
107 = 107-inch riser length
108 = 108-inch riser length
109 = 109-inch riser length
110 = 110-inch riser length
111 = 111-inch riser length
112 = 112-inch riser length
113 = 113-inch riser length
114 = 114-inch riser length
115 = 115-inch riser length
116 = 116-inch riser length
117 = 117-inch riser length
118 = 118-inch riser length
119 = 119-inch riser length
120 = 120-inch riser length

Vertical High-Rise Chassis WSHP

Digits 1-3: Unit Configuration

GET = High efficiency vertical high rise heat pump

Digit 4: Development Sequence

E = R-410A

Digits 5-7: Nominal Size (Tons)

009 = 0.75 Tons
012 = 1 Tons
015 = 1.25 Tons
018 = 1.5 Tons
024 = 2 Tons
036 = 3 Tons

Digit 8: Voltage (Volts/Hz/Phase)

1 = 208/60/1
2 = 230/60/1
7 = 265/60/1

Digit 9: Heat Exchanger

1 = Copper water coil
2 = Cupro-nickel water coil
3 = Copper water coil with isolation valve and low flow control
4 = Cupro- nickel water coil with isolation valve and low flow control
5 = Copper water coil with isolation valve and high flow control
6 = Cupro-nickel water coil with isolation valve and high flow control

Digit 10: Current Design Sequence

Digit 11: Refrigeration Circuit

0 = Heating and cooling circuit

Digit 12: Blower Configuration

1 = Free discharge (factory wire low speed) - PSC motor
2 = Ducted (factory wire hi speed) - PSC motor
3 = Free discharge with 1-inch flange - PSC motor
4 = Free discharge with 3-inch flange - PSC motor
5 = ECM without flange
6 = ECM with 1-inch flange
7 = ECM with 3-inch flange
8 = Chassis only/no motor (ECM control)
9 = Chassis only/no motor (PSC control)

Digit 13: Freeze Protection[1]

A = 20° Freezestat (For Glycol loop)
B = 35° Freezestat (For Water loop)

Digit 14: Open Digit

0 = Open

Digit 15: Supply Air Arrangement

0 = Field cut supply air arrangement
1 = Back and front supply air arrangement
2 = Back and left supply air arrangement
3 = Back and right supply air arrangement
4 = Front and left supply air arrangement
5 = Front and right supply air arrangement
6 = Left and right supply air arrangement
7 = Back, front and right supply air arrangement
8 = Back, front and left supply air arrangement
9 = Front, right and left supply air arrangement
B = Back supply air arrangement
L = Left supply air arrangement
R = Right supply air arrangement
T = Top supply air arrangement
F = Front supply air arrangement

Digit 16: Return Air Arrangement

0 = No door (chassis only)
1 = Flush with wall, hinged return air door
3 = Hinged return air door, tamper resistant (HEX)
4 = Hinged return air door, with key lock

Digit 17: Control Types

0 = Basic controls for WPRD retrofit chassis
D = Deluxe 24V controls
H = Symbio 400-B/UC400-B
J = Symbio 400-B/UC400-B with Air-Fi Wireless Communications

Digit 18: Thermostat Sensor Location

0 = Wall mounted location

Digit 19: Fault Sensors

0= No fault sensors
1 = Condensate overflow sensor
2 = Filter maintenance timer
3 = Condensate overflow and filter maintenance timer

Digit 20: Temperature Sensor

0 = No additional temperature sensors
1 = Entering water sensor

Digit 21-22: Open Digits

Digit 23: Unit Mounted Disconnect

0 = No unit mounted switch
C = ON/OFF switch
D = ON/OFF switch with fuses

Digit 24: Filter Type

1 = 1-inch Throwaway filter

Digit 25: Acoustic Arrangement

0 = Enhanced sound attenuation
1 = Deluxe sound attenuation

Digit 26: Factory Configuration

2 = R-410A chassis
R = WPRD retrofit chassis

Digit 27: Paint Color

9 = Light white finish

Digit 28: Outside Air Option

0 = No outside air

Digit 29: Piping Arrangement

B = Back riser location
L = Left hand riser location
R = Right hand riser location

Digit 30: Riser Type

0 = No riser (chassis only)

Digit 31: Supply Riser

0 = No riser (chassis only)

Digit 32: Return Riser

0 = No riser (chassis only)

Digit 33: Condensate Riser

0 = No riser (chassis only)

Digit 34, 35, 36: Riser Length

000 = No riser (chassis only)

[1] 20°F Freezestat is typically used in a geothermal application. 35°F Freezestat is typically used in a boiler/tower application.

General Information

Blower/Motor

The blower and motor is located inside the unit cabinet. The blower and motor may be removed from the cabinet through the chassis opening. After removing the chassis, the blower assembly is strapped into the unit cabinet through a single metal, flexible bracket. We refer to this bracket as a housing belly bracket. After detaching one screw at the bottom/front edge of the bracket, the housing and motor are free to be lifted from the fan deck.

Compressor Nameplate

The nameplate for the compressors are located on the compressor shell.

Controls

A 75 VA transformer is factory supplied on this unit configuration. See wiring diagram on chassis access panel for field wiring connection to the 24V mechanical thermostat.

Deluxe 24V Controls

Units containing the deluxe 24V control design will incorporate a microprocessor-based control board. The Trane microprocessor board is factory wired to a terminal strip to provide all necessary terminals for field connection. The deluxe board is equipped with a random start relay, anti-short cycle timer, brown out protection, compressor disable, unit safety control, diagnostics and a generic relay (which may be available for field use). See p. 16 for diagnostic information.

Power wiring is made at the contactor. The wiring is fed through the left or right conduit tube, and into the cabinet's control box (contactor).

Schrader Connections

Connections for the low and high side of the refrigeration system are located conveniently on the chassis' front beneath a sheet metal plate.

Sound Attenuation

Sound attenuation is applied as a standard feature in the product design. The enhanced reduction package includes a heavy gage base plate, and gasket/insulation around the compressor enclosure.

An optional deluxe sound reduction package is also available. It includes a heavy gage base plate, gasket and insulation around the compressor enclosure, and vibration isolation between the chassis and cabinet. An additional dampening treatment is applied around the compressor enclosure to achieve greater acoustical reductions.

Unit Description

Before shipment, each unit is leak tested, dehydrated, charged with refrigerant and run tested for proper control operation.

Unit Nameplate

The unit nameplate is located at the front of the unit. It includes the unit model number, serial number, electrical characteristics, refrigerant charge, and other pertinent unit data.

Water Connections

1/2-inch or 3/4-inch water connections are located on the chassis's upper section and clearly labeled for water-in/out hose to riser hook-up.

Water-to-Refrigerant Coils

The co-axial water-to-refrigerant heat exchanger for the 0.75 ton through 3 tons equipment is constructed of copper or cupro-nickel (option) for the water section and stainless steel for the refrigeration section.

The heat exchanger is leak tested to assure there is no cross leakage between the water and refrigerant gas.

Symbio™ 400-B/Tracer® UC400-B

The Symbio 400-B/UC400-B is a multi-purpose, programmable (or application-specific) that provides direct-digital zone temperature control. This controller can operate as a stand-alone device or as part of a building automation system (BAS). Communication between the controller and a BAS occurs on an open standard with inter-operable protocols used in Building Automation and Control Networks (BACnet®). Programming is done by means of the Tracer TU service tool.

For more information on the UC400-B, reference BAS-SVX065*-EN and BAS-SVX092*-EN for Symbio 400-B.

For more information on the Trane® Air-Fi® wireless system, reference BAS-SVX40*-EN.

Pre-Installation

⚠WARNING

Fiberglass Wool!

Exposition to glass wool fibers without all necessary PPE equipment could result in cancer, respiratory, skin or eye irritation, which could result in death or serious injury. Disturbing the insulation in this product during installation, maintenance or repair will expose you to airborne particles of glass wool fibers and ceramic fibers known to the state of California to cause cancer through inhalation.

You MUST wear all necessary Personal Protective Equipment (PPE) including gloves, eye protection, a NIOSH approved dust/mist respirator, long sleeves and pants when working with products containing fiberglass wool.

Precautionary Measures:

- **Avoid breathing fiberglass dust.**
- **Use a NIOSH approved dust/mist respirator.**
- **Avoid contact with the skin or eyes.Wear long-sleeved, loose-fitting clothing, gloves, and eye protection.**
- **Wash clothes separately from other clothing; rinse washer thoroughly.**
- **Operations such as sawing, blowing, tear-out, and spraying may generate fiber concentrations requiring additional respiratory protection. Use the appropriate NIOSH approved respirator.**

First Aid Measures:

- **Eye Contact - Flush eyes with water to remove dust. If symptoms persist, seek medical attention.**
- **Skin Contact -Wash affected areas gently with soap and warm water after handling.**

Jobsite Inspection

Always perform the following checks before accepting a unit:

- Verify that the nameplate data matches the data on the sales order and bill of lading (including electrical data).
- Verify that the power supply complies with the unit nameplate specifications.
- Visually inspect the exterior of the unit, for signs of shipping damage. Do not sign the bill of lading accepting the unit(s) until inspection has been completed. Check for damage promptly after the unit(s) are unloaded. Once the bill of lading is signed at the job site, the unit(s) are now the property of the SOLD TO party and future freight claims MAY NOT be accepted by the freight company.
- Verify that the refrigerant charge has been retained during shipment by use of gauges. Schrader taps are located external to the cabinet on the ¾-3 ton equipment.
- After assuring that charge has been retained, reinstall the schrader caps to assure that refrigerant leakage does not occur.

Jobsite Storage

NOTICE

Microbial Growth!

Wet interior unit insulation can become an amplification site for microbial growth (mold), which could result in odors and damage to the equipment and building materials. If there is evidence of microbial growth on the interior insulation, it should be removed and replaced prior to operating the system.

NOTICE

Microbial Growth!

Failure to follow instructions below could result in odors and damage to the equipment and building materials.

The floor or foundation must be level and the condensate drain at the proper height for proper drainage and condensate flow. Standing water and wet surfaces inside the equipment can become an amplification site for microbial growth (mold). If there is evidence of microbial growth on the interior insulation, it should be removed and replaced prior to operating the system.

This unit is intended for indoor use only. To protect the unit from damage due to the elements, and to prevent possible IAQ contaminant sources from growing, the unit should be stored indoors. If indoor storage is not possible, the following provisions for outdoor storage must be met:

- Place the unit(s) on a dry surface or raise above the ground to assure adequate air circulation beneath the unit.
- Cover the unit(s) with a water proof tarp to protect them from the elements.
- Make provisions for continuous venting of the covered units to prevent moisture from standing on the unit(s) surfaces. Wet interior unit insulation can become an amplification site for microbial growth which has been determined to be a cause of odors and serious health related indoor air quality problems.
- Store refrigeration units (chassis) units in the normal UP orientation to maintain oil in the compressor. Cabinet configurations may be stored as crated.
- Do not stack units.

Dimensions and Weights

⚠WARNING

Improper Unit Lift!

Failure to properly lift unit in a LEVEL position could result in unit dropping and possibly crushing operator/ technician which could result in death or serious injury, and equipment or property-only damage.

Test lift unit approximately 24 inches (61 cm) to verify proper center of gravity lift point. To avoid dropping of unit, reposition lifting point if unit is not level.

Table 1. Unit weights

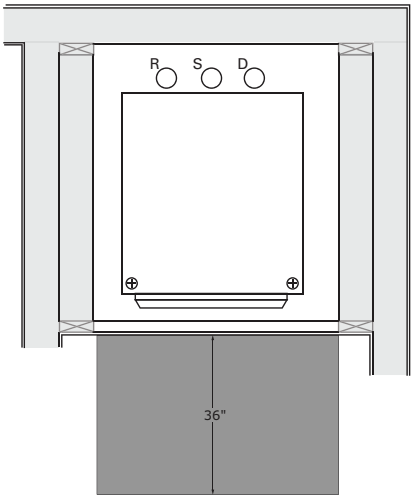
Size	Shipping weight with pallet (lb)	Shipping weight without pallet (lb)
Cabinet		
009	135	115
012	135	115
015	175	150
018	175	150
024	225	195
036	225	195
Chassis		
009	88	78
012	107	97
015	112	102
018	117	107
024	174	164
036	190	180

Unit Location and Clearances

Locate the unit in an indoor area. The ambient temperature surrounding the unit must not be less than 45°F. Do not locate the unit in areas subject to freezing.

Attention should be given to service clearance and technician safety. The unit chassis should be easily removed from the cabinet in all applications. There must be enough space for service personnel to perform maintenance or repair. Provide sufficient room to make water, and electrical connection(s). Local and national codes should be followed in providing electrical power connections.

Figure 1. Mechanical clearances[(a)]



(a) Clearance shown is at unit front for chassis removal.

Dimensions and Weights with Standard Base

Figure 2. GET009-036

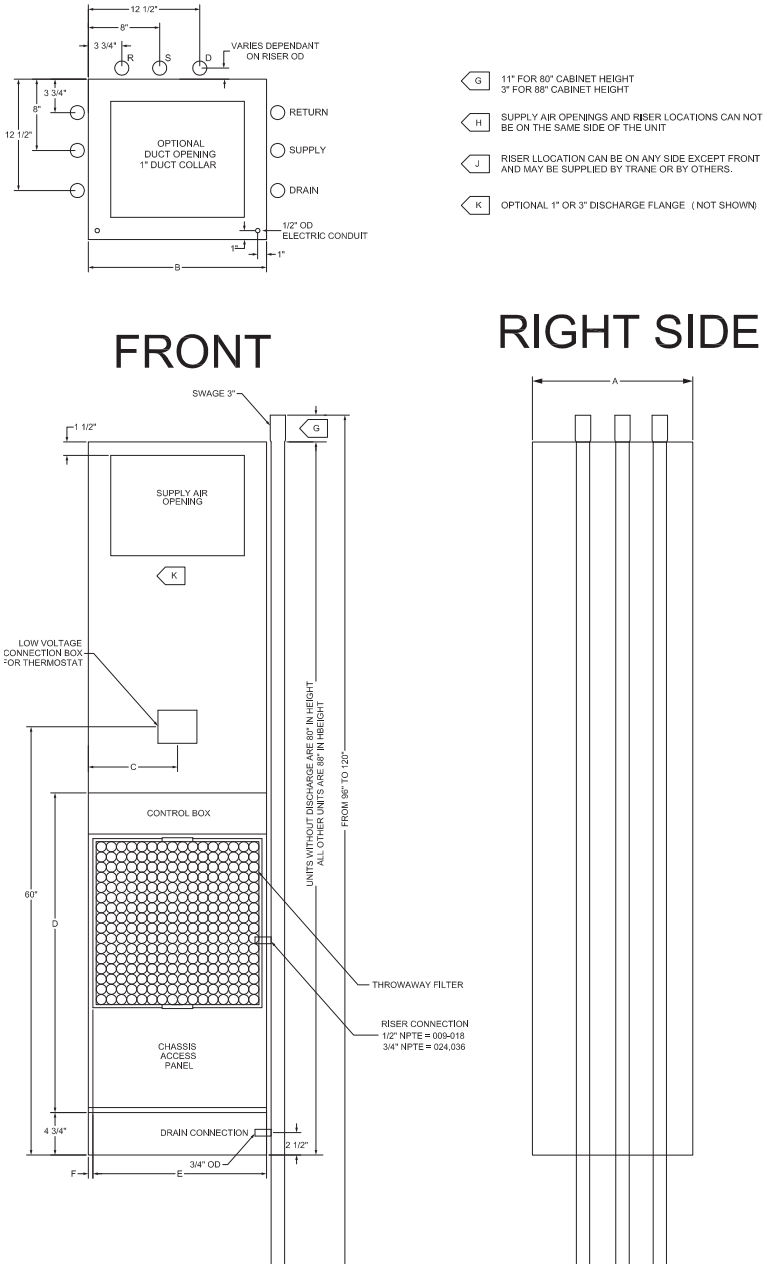


Table 2. Dimensional data - GET009-036 w/standard base

GET	A (inches)	B (inches)	C (inches)	D (inches)	E (inches)	F (inches)
009-012	16¼	16¼	8 1/8	39 1/8	14¾	¾
015-018	18	20	10	40 5/8	18¾	¾
024-036	24	24	12	49 5/8	22 5/8	¾

Dimensions and Weights with 6-inch Extended Base

Figure 3. GET009-036

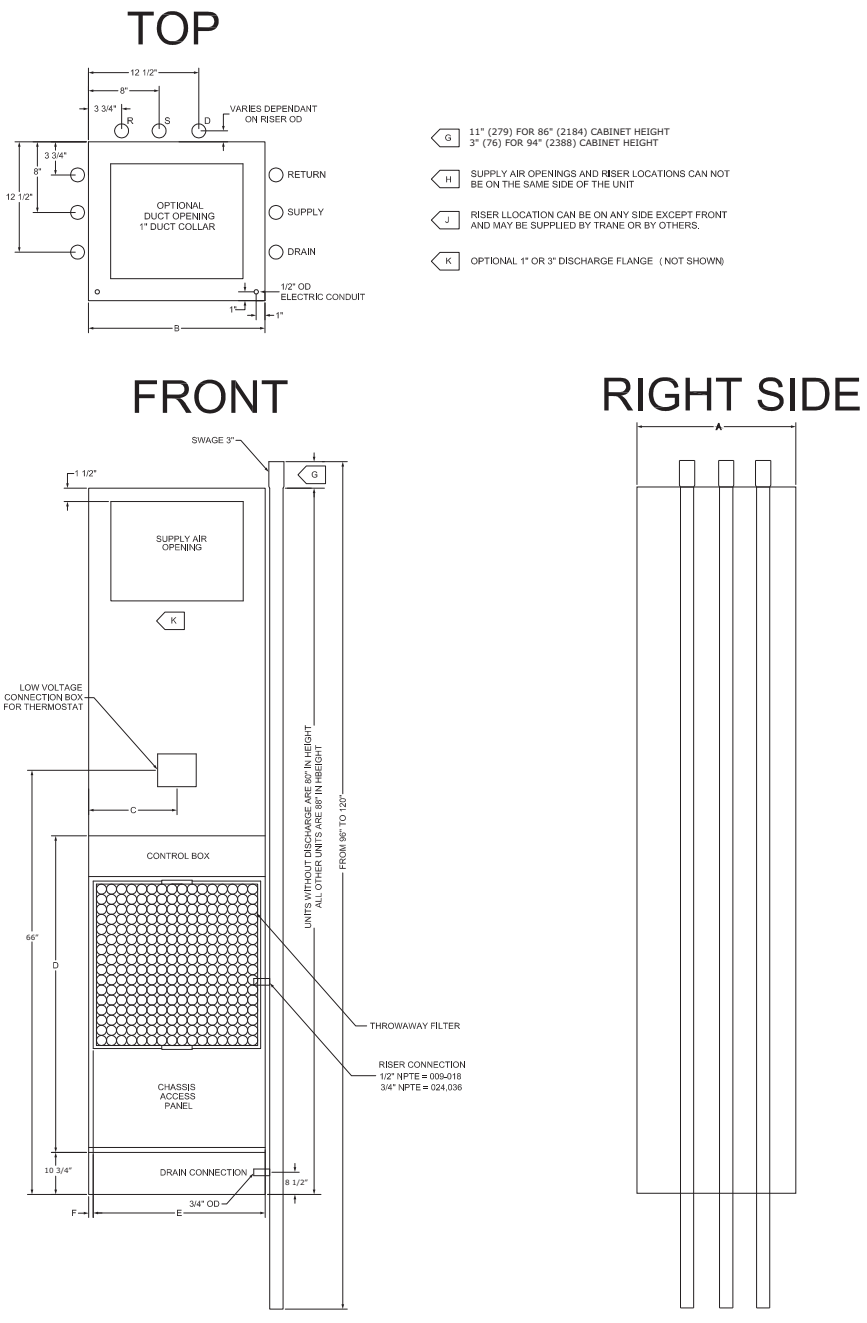


Table 3. Dimensional data - GET009-036 with 6-inch extended base

GET	A (inches)	B (inches)	C (inches)	D (inches)	E (inches)	F (inches)
009-012	16¼	16¼	8 1/8	39 1/8	14¾	¾
015-018	18	20	10	40 5/8	18¾	¾
024-036	24	24	12	49 5/8	22 5/8	¾

Return Air (Hinged) Acoustical Door with Standard Base

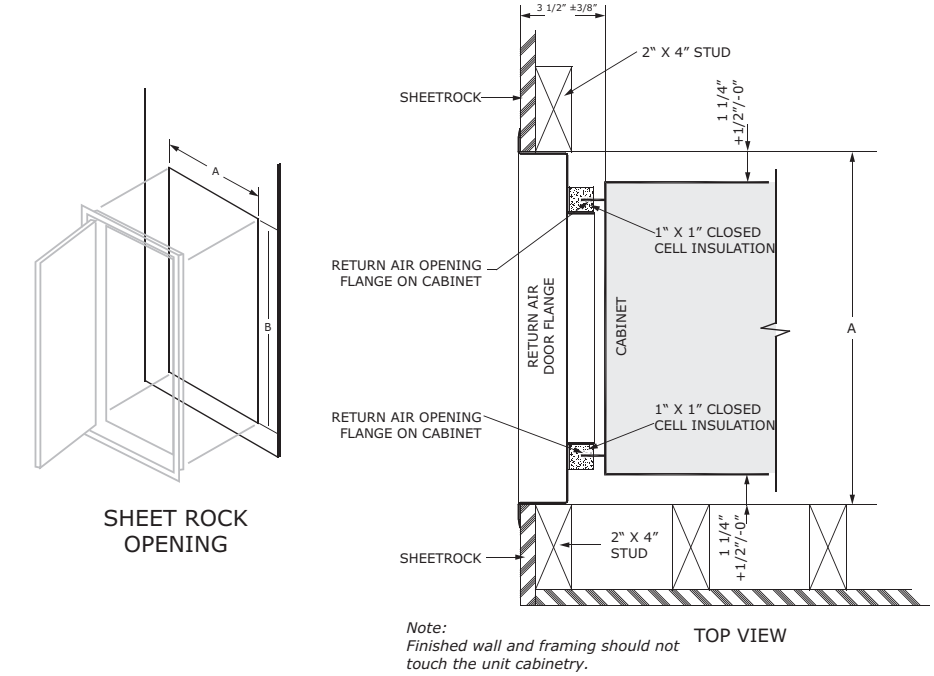
The hinged acoustical door is recessed into the wall so that the door is flush with the surface of the wall.

The opening through the wall for the door assembly must be centered with the return-air opening of the unit cabinet. For full installing instructions of the return-air acoustical door, see p. 16.

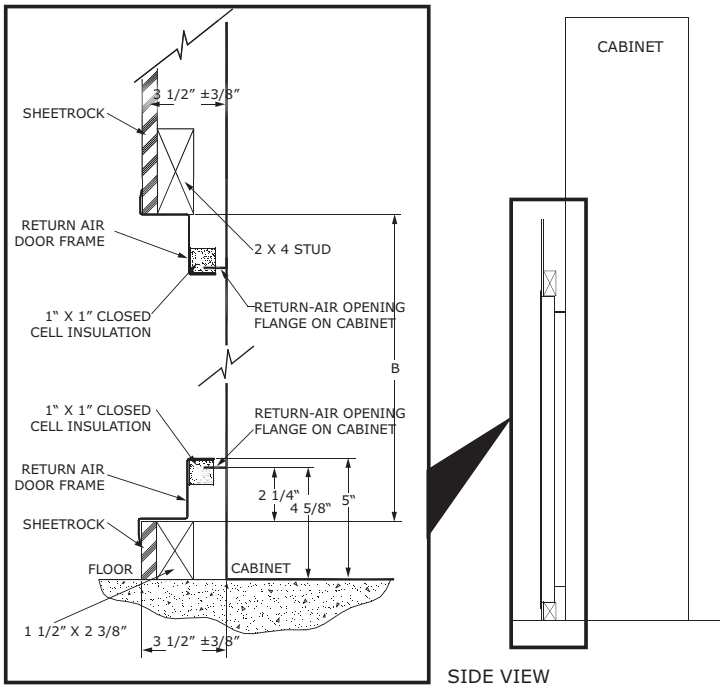
Table 4. Return air hinged acoustical door

Unit Size	A (inches)	B (inches)
009-012	19¼	44 1/8
015-018	23¼	45¼
024-036	27 1/8	54 5/8

Figure 4. Return air (hinged) acoustical door with standard base



Note:
Finished wall and framing should not touch the unit cabinetry.



Return Air (Hinged) Acoustical Door with 6 inch Extended Base

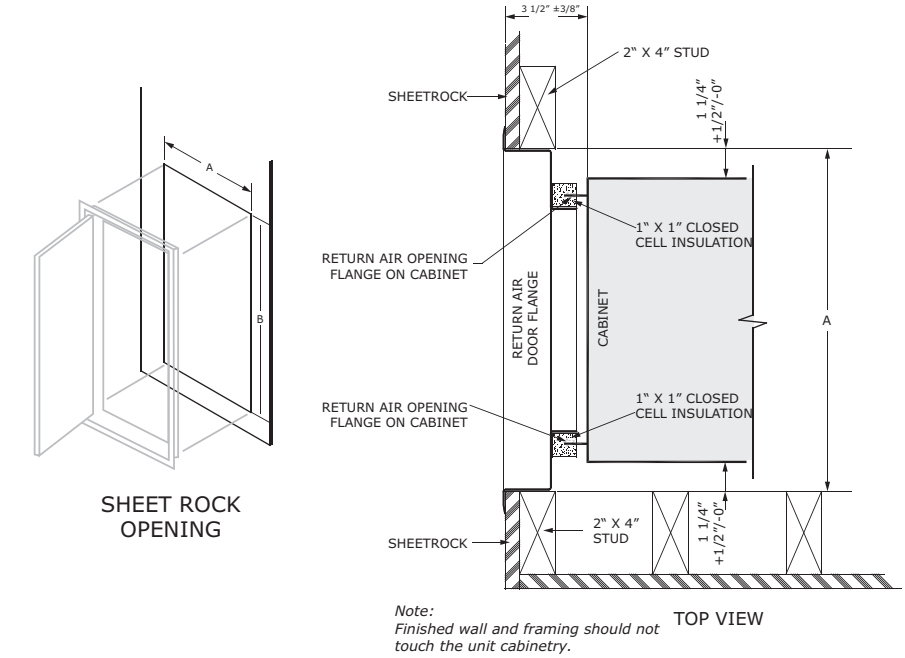
The hinged acoustical door is recessed into the wall so that the door is flush with the surface of the wall.

The opening through the wall for the door assembly must be centered with the return-air opening of the unit cabinet. For full installing instructions of the return-air acoustical door, see p. 16.

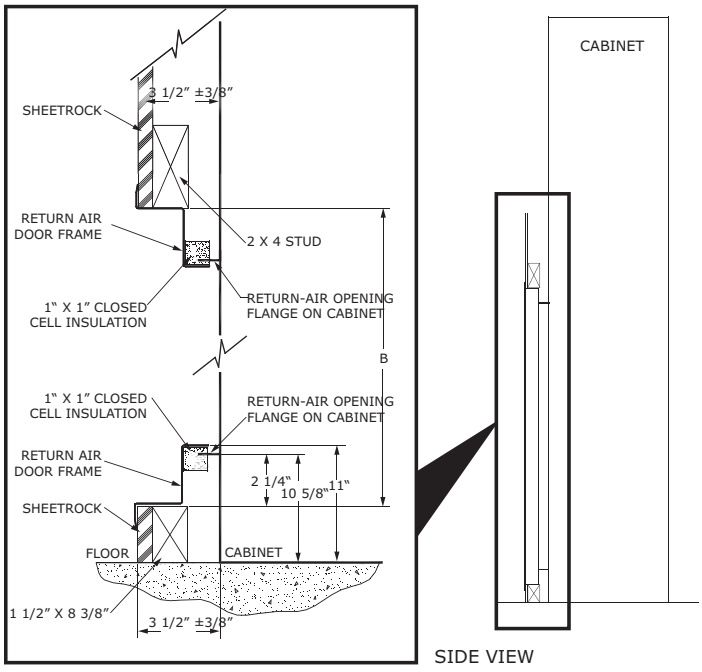
Table 5. Return air hinged acoustical door with 6 inch extended base

Unit Size	A (inches)	B (inches)
009-012	19¼	44 1/8
015-018	23¼	45¼
024-036	27 1/8	54 5/8

Figure 5. Return air (hinged) acoustical door with 6 inches extended base



Note:
Finished wall and framing should not touch the unit cabinetry.



Installation

General Installation Checks

The checklist below is a summary of the steps required to successfully install a unit. This checklist is intended to acquaint the installing personnel with procedures required in the installation process. It does not replace the detailed instructions called out in the applicable sections of this manual.

1. Remove packaging and inspect the unit. Check the unit for shipping damage and material shortage; file a freight claim and notify appropriate sales representation.

Note: *The unit cabinet is packaged in a wooden crate. A pry bar and/or hammer will be needed for packaging removal.*

Note: *The chassis sits inside a cardboard tray with an upper box for protection. Typically four chassis will be shrink-wrapped to a single pallet.*

2. Verify the correct model, options and voltage from the unit nameplate.
3. Verify the installation location of the unit will provide the required clearance for proper operation.
4. Remove refrigeration access panel and inspect the unit. Be certain the refrigerant tubing has clearance from adjacent parts.

Main Electrical

⚠WARNING

Hazardous Voltage!

Failure to disconnect power before servicing could result in death or serious injury.

Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. Verify that no power is present with a voltmeter.

⚠WARNING

Proper Field Wiring and Grounding Required!

Failure to follow code could result in death or serious injury.

All field wiring MUST be performed by qualified personnel. Improperly installed and grounded field wiring poses FIRE and ELECTROCUTION hazards. To avoid these hazards, you MUST follow requirements for field wiring installation and grounding as described in NEC and your local/state/national electrical codes.

1. Verify the power supply complies with the unit nameplate specifications.
2. Inspect all control panel components; tighten any loose connections.
3. Connect properly sized and protected power supply wiring to a field-supplied/installed disconnect switch and to the unit power block (1TB1) in the unit's cabinet control box for equipment.
4. Install proper grounding wires to an earth ground.

Note: *All field-installed wiring must comply with NEC and applicable local codes.*

Low Voltage Wiring (AC and DC) Requirements

Connect properly sized control wiring to the proper termination points between the field supplied thermostat and the terminal plug in the equipment's junction box.

Unit Placement

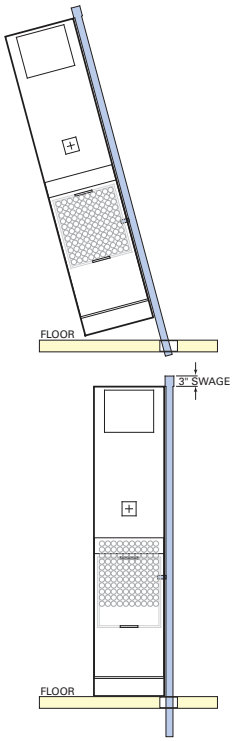
⚠WARNING

Improper Unit Lift!

Failure to properly lift unit in a LEVEL position could result in unit dropping and possibly crushing operator/technician which could result in death or serious injury, and equipment or property-only damage.

Test lift unit approximately 24 inches (61 cm) to verify proper center of gravity lift point. To avoid dropping of unit, reposition lifting point if unit is not level.

Figure 6. Stacking illustration



If unit cabinet assembly includes *factory provided risers*, and "no" field provided between-the-floor riser extensions, please move to Step 1.

Note: *Risers are designed to accommodate a maximum of 1½" to 3" expansion and contraction. If the total calculated riser expansion exceeds 3", expansion devices must be field provided.*

If unit cabinet assembly includes factory provided risers and field provided between-the-floor riser extensions are required, install the extensions before installing the cabinet.

1. Install drain valve, shut-off/balancing valves, flow indicators and drain at the base of each supply and return riser to enable system flushing at start-up, balancing and service/maintenance.
2. Lift cabinet into space while aligning it into the 3" swage of the riser below.

Note: *Take extra care as not to scrape or dent risers during positioning. The riser should fall approximately 2" into the 3" swage. This will allow for the variation in floor-to-floor dimensions, and keep the riser joints from bottoming out.*

3. Level the cabinet.
4. Plumb risers in two planes to assure proper unit operation and condensate drainage.
5. Anchor all units into place.
6. For field provided risers, center the supply/return stubouts into the unit expansion slots. The stubouts should be perpendicular to the cabinet panel.
7. Verify all risers are vertical and that they penetrate the swaged joint at least 1". Riser should not be allowed to bottom out.
8. Braze riser joints. Soft solder or low-temperature alloys should not be used in this application.
9. If risers are field provided, it is recommended that the risers be anchored to the building structure with a minimum of one contact point. For expansion and contraction reasons, do not fasten risers rigidly to the building.
10. Seal access holes made through the cabinet for piping with suitable material to help eliminate air leakage.
11. See “Cleaning and Flushing the Water Loop,” p. 18 for system flushing.

Note: *Remove shipping straps from risers.*

Water Connection

For vibration isolation, it is recommended that flexible steel braided hoses be installed instead of hard piping between the vertical risers and the unit chassis.

Note: *Refer to WSHP-PRC025*-EN for hose kit variations.*

Note: *Two foot hose kit and ball valves are recommended for 009 - 018 size units. Three foot hose kit and ball valves are recommended for 024 - 036 size units.*

Field Installed Power Wiring

⚠WARNING

Proper Field Wiring and Grounding Required!

Failure to follow code could result in death or serious injury.

All field wiring MUST be performed by qualified personnel. Improperly installed and grounded field wiring poses FIRE and ELECTROCUTION hazards. To avoid these hazards, you MUST follow requirements for field wiring installation and grounding as described in NEC and your local/state/national electrical codes.

Verify that the power supply available is compatible with the unit’s nameplate. Use only copper conductors to connect the power supply to the unit.

NOTICE

Use Copper Conductors Only!

Failure to use copper conductors could result in equipment damage as the equipment was not designed or qualified to accept other types of conductors.

Main Unit Power Wiring

⚠WARNING

Hazardous Voltage!

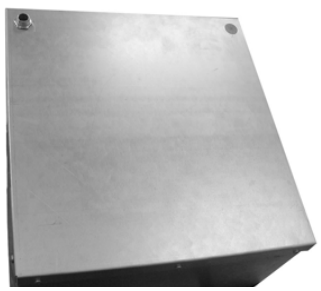
Failure to disconnect power before servicing could result in death or serious injury.

Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. Verify that no power is present with a voltmeter.

A field supplied disconnect switch must be installed at or near the unit in accordance with the National Electric Code (NEC latest edition).

Location of the applicable electric service entrance for HIGH (line voltage) may be found in the following figure.

Figure 7. Power wire entrance



Route power wire to the cabinet control box through the factory installed conduit at the top of the unit cabinetry.The high voltage connection is made at the 1PB1 power block in the cabinet control box. Refer to the customer connection diagram that is shipped with the unit for specific termination points.

Provide proper grounding for the unit in accordance with the local and national codes.

Control Power Transformer

⚠WARNING

Hazardous Voltage!

Failure to disconnect power before servicing could result in death or serious injury.

Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/ tagout procedures to ensure the power can not be inadvertently energized. Verify that no power is present with a voltmeter.

The 24V control power transformers are to be used only with the accessories called out in this manual. Transformers rated greater than 75 VA are equipped with internal circuit breakers. If a circuit breaker trips, turn OFF all power to the unit before attempting to reset it.

The transformer is located in the chassis control box.

Drywall Installation

Before installing drywall around cabinet, cover the cabinet supply and return openings with plastic or cardboard to help prevent dust or construction debris from reaching unit components. Warranties will be voided if paint or foreign debris is allowed to contaminate internal unit components.

The location of the drywall may be dependent upon the type of return air access design.

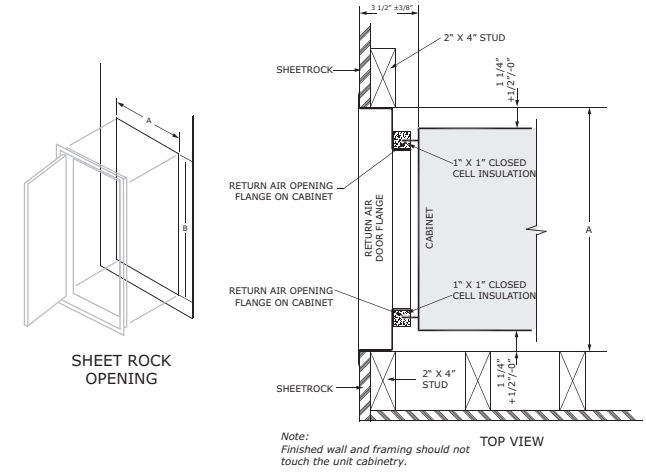
For units containing a field provided return air access assembly, the contractor must calculate location of drywall to allow for frame mounting

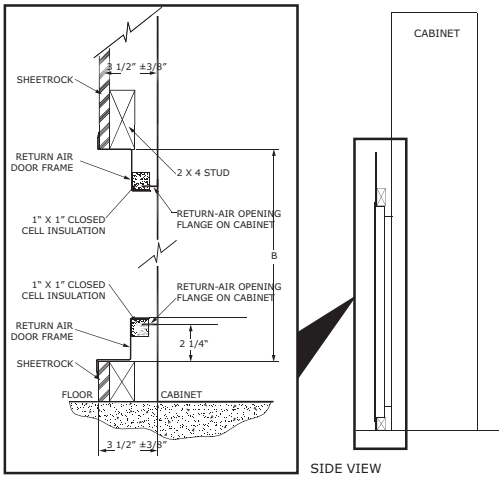
Units Utilizing Hinged Acoustic Door Assembly

Figure 8. Mock-up of stud placement

1. Locate the side studs a minimum of 1¼ inches and a maximum of 1 3/8 inches from the cabinet to the side of the stud. This critical dimension, combined with "distance between studs" is used to determine the side-to-side opening for the door, dimension A. The distances provided in the table are a “minimum” dimension. Allow 3½ inches from the front of the cabinet to the sheet rock surface, Figure 9, p. 16 - top view, Figure 8, p. 16 - mock-up of stud placement.
2. The height of the door assembly must be positioned to recess the door 2¼ inches from the cabinet’s return-air opening, reference drywall installation for hinged acoustic door - side view blow up.

Figure 9. Drywall installation for hinged acoustic door





3. Locate dimensions A and B for sheet rock opening size. The position of the sheet rock opening must be centered side-to-side with the return-air opening in the cabinet. Ensure the bottom of the sheet rock opening is 2¼ inches below the return-air opening in the cabinet. This allows the door recess to rest on the bottom of the sheet rock opening for proper vertical placement of the door.

Table 6. Sheet rock opening size

Unit Size	A (inches)	B (inches)
009-012	19¼	44 1/8
015-018	23¼	45¼
024-036	27 1/8	54 5/8

4. Place the door frame into the sheet rock opening. A positive seal is critical between the back of the door frame and the front of the cabinet. Ensure that the gasket material seals properly.

Note: *When placing the sheet rock panel, make certain the opening for the door is centered with the return-air opening in the cabinet (±1/8 inches).*

5. Secure the door frame to the side studs using the holes located in the door frame and field provided screws.

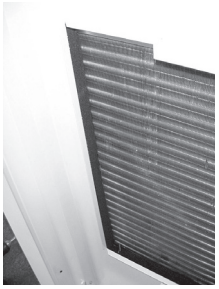
Note: *If the gap between the door frame, and the side stud is over 1/16-inch, place a shim in between the door frame and the stud to prevent the door frame from bending/denting.*

Figure 10. Door opening

6. Place the air panel into the door opening. The gasket on the back side of the air panel should seal around the coil perimeter.

Note: *If return air doors or grills are not installed, field will be required to seal gaps between cabinet and filter door.*

Figure 11. Air panel gasket



7. After verifying that the air panel gasket is sealed to the coil, secure the air panel to the door frame using the slots located on the sides of the air panel.

Figure 12. Secure to door frame

8. Install filter.
9. Vacuum all dust and construction debris from unit after cutting out supply/return openings.

Supply Air Ductwork

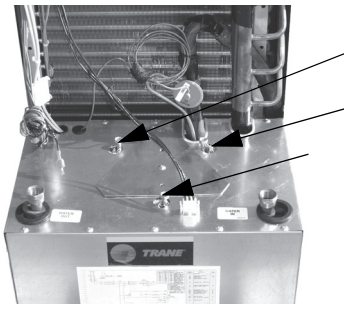
A 2" duct flange may be required to help eliminate supply air from recirculating back into the return air, air-to-refrigerant coil prior to discharging into the space.

Equipment containing a top discharge, ducted design: install field ductwork to the unit providing a water tight flexible connector at the unit. This helps prevent operating sounds from transmitting through the ductwork. Elbows with turning vanes or splitters are recommended to minimize air noise due to turbulence and to help reduce static pressure.

Chassis Installation

1. Remove three 18-inch bolts on the chassis and discard.
2. Rotate the triangular metal plate to cover the bolt holes in the chassis. Secure with two sheet metal screws.

Figure 13. Shipping bolts[(a)] (see arrows)

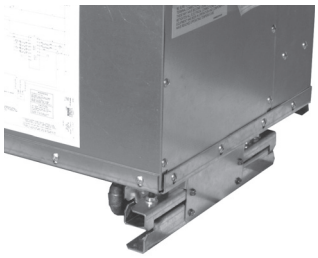


(a) Not all units will include shipping bolts.

3. Remove one shipping bracket (one on each side) attached to the chassis slide rails and discard.

Note: *Remove this bracket only if the deluxe sound package design is selected.*

Figure 14. Bracket removal for deluxe sound package



4. Connect water coil pipe to the system riser with a flexible steel hose assembly.
5. Verify that the shut-off/balancing valve in the return line/ supply line are closed.
6. Place shut-off valves in appropriate location (see sticker on the equipment for best placement recommendation) to allow chassis to slide easily in/out of unit cabinet.
7. Flush the system using the cleaning and flushing the water loop instructions.
8. Open the unit water valves and check piping for leaks.
9. Connect electrical to unit chassis via the quick connect mating plugs.

Note: *Four plugs are included (motor, optional condensate overflow, power and thermostat).*

10. Slide chassis into the cabinet. Center the chassis left to right to minimize sound transmission.

Figure 15. Install chassis centered

11. Verify unit's air filter has shipped with the cabinet.
12. Install cabinet's front cover to the hinged door.

Important: *Ensure the gasket material creates a positive seal around the entire coil to avoid coil bypass. If a field supplied door is used, ensure the front cover is attached to the building structure and not the unit cabinet.*

Supply Grille Installation

Table 7. Supply air opening size

GET	Single Grille 100% CFM (inches)	Two Grille 50% CFM (inches)	Three Grille 33% CFM (inches)	Top Discharge up to 100% CFM (inches)
009-012	14 W x 14 H	10 W x 6 H	Not Recommended	14 W x 10 H
015-018	16 Wx12 H	14 Wx12 H	12 Wx8 H	16 Wx14 H
024	22 Wx18 H	14 Wx12 H	12 Wx8 H	16 Wx14 H
036	Not Recommended	16 Wx14 H	14 Wx12 H	17 Wx17 H

1. Install the supply grille(s) into the cabinet discharge opening. Ensure there are no air gaps between the cabinet supply air and the grille. This helps prevent recirculation of supply air into the return air opening behind the drywall.
2. Secure grille(s) into the drywall via two screws.

Cleaning and Flushing the Water Loop

After the piping system is complete, the flexible hose connectors should be doubled back to complete the water circuit external to the unit (avoiding trash settle-out in the condenser). An extra pipe may be necessary to connect the hose kits. See "Using Antifreeze," p. 19 for antifreeze/water mixture by volume.

1. Water circulation system should be filled with clean water using the water make up connections.

Note: *Air vents should be opened during filling.*

2. With the air vents closed, start the circulating pump and then crack the air vents to bleed off the trapped air, assuring circulation through all components of the system.

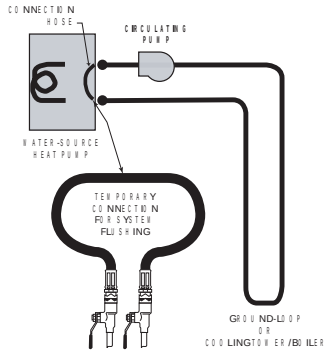
Notes:

- *Make up water must be available to the system to replace the volume formerly occupied by the air that is bled off.*
- *System water pressure needs to be relieved prior to opening system.*

3. With the air vented and the water circulating, the entire system should be checked for leaks with repairs made as required.
4. Operate the supplementary heat system making checks per manufacturer's instructions. During this operation, visual checks should be made for leaks that may have occurred due to increased heat. Repair as required.
5. Open the system at the lowest point for the initial blow down (making sure the make up water is equal to the water being dumped). Continue blow down until the water leaving the drain runs clear, but not less than 2 hours.
6. Shut down pumps and supplementary heat system. Reconnect the hoses placing the water-to-refrigerant heat exchanger in the water circulating system.

Note: *Vents should be open when the pumps and supplementary heat system are shut down.*

Figure 16. Flushing the water loop



Using Antifreeze

In areas of the country where entering water temperatures drop below 45°F or where piping is being run through areas subject to freezing, the loop must be freeze protected by using an approved antifreeze solution to prevent the earth loop water from freezing inside the heat exchanger. Methanol and glycols are the most commonly used antifreeze solutions. Consult your geothermal unit supplier for locally approved solutions in your area.

Propylene glycol is not recommended in installations where the water temperature are expected to fall below 30°F. At extreme temperatures, the viscosity increases to the point where normal loop circulating pumps may not maintain proper flow.

If propylene glycol is the only locally approved solution for anti-freeze, good engineering practices should be used to achieve the desired flow.

Calculate the approximate volume of water in the system by using the requirements detailed in the Table 20, p. 28, Water Volume. Add three gallons to this total to allow for the water contained in the hose kit and geothermal unit.

Table 8. Antifreeze requirements based on volume

Type of Antifreeze	Minimum Temperature for Freeze Protection				
	10°F	15°F	20°F	25°F	30°F
Methanol	25%	21%	16%	10%	3%
Propylene Glycol	—	—	—	—	6%

Low Voltage Wiring

Factory ordered thermostats and zone sensors are pre-wired with a quick connecting plug.

1. After installing the cabinet assembly, simply plug the external portion of thermostat/zone sensor plug into the internal portion of the plug located inside the unit's junction box.
2. Mount the thermostat, zone sensor or Trane® Air-Fi® WCI module on the finished drywall.

Thermostat/zone sensor connection shown below in the zone sensor connection figure.

Low Voltage Wiring for Field Provided Thermostats/Zone Sensors

Ensure that the AC control wiring between the controls and the unit's termination point does not exceed three (3) ohms/ conductor for the length of the run.

NOTICE

Component Failure!

Resistance in excess of 3 ohms per conductor could result in component failure due to insufficient AC voltage supply.

Do not exceed three (3) ohms per conductor for the length of the run.

Check all loads and conductors for grounds, shorts, and mis-wiring.

Do not run the AC low voltage wiring in the same conduit with the high voltage power wiring.

Table 9. 24V AC conductors

Distance from unit to Control	Recommended Wire Size
000-460 feet	18 gauge
461-732 feet	16 gauge
733-1000 feet	14 gauge

Figure 17. Zone sensor connection

Six (6) Pin Connector/Harness

- Red = 24V
- Black = Fan
- Orange = RV
- Yellow = Compressor
- Blue = Common

Table 10. Deluxe controller diagnostic LEDs

Color: Green	Color: Red		Controller Mode
LED1	**LED2**	**LED3**	
OFF	OFF	OFF	Control OFF
ON	OFF	OFF	Normal/Compressor OFF
ON	OFF	FLASH	Anti-short Cycle
ON	OFF	ON	Normal/Compressor ON
FLASH	ON	OFF	Brownout Condition
ON	FLASH	ON	Soft Lockout (low pressure)
ON	FLASH	FLASH	Soft Lockout (high pressure)

Table 10. Deluxe controller diagnostic LEDs (continued)

Color: Green	Color: Red		Controller Mode
LED1	LED2	LED3	
ON	ON	ON	Manual Lockout (low pressure)
ON	ON	FLASH	Manual Lockout (high pressure)
ON	FLASH	OFF	Manual Lockout (condensate overflow)
ON	ON	OFF	Compressor Disable

PSC Blower Motor Speed Retrofit

PSC motors installed in the unit have multiple speed configurations. To modify the rpm of the motor, the following steps may be followed.

⚠WARNING

Hazardous Voltage!

Failure to disconnect power before servicing could result in death or serious injury.

Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. Verify that no power is present with a voltmeter.

1. Locate the blower motor relay inside the chassis control box.
2. Remove the undesired speed tap.
3. Select desired speed tap wire by using information from Table 11, p. 20.
4. Connect desired tap wire to the 1K4 relay at spade 4.
5. Reconnect power to the unit.

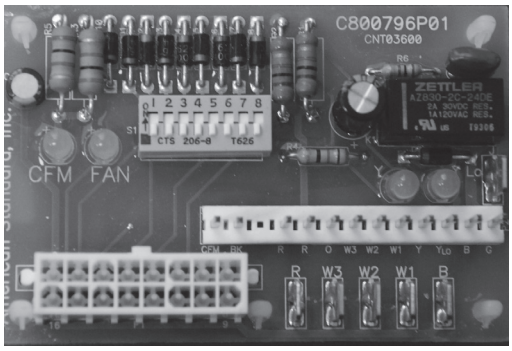
Table 11. Lead change

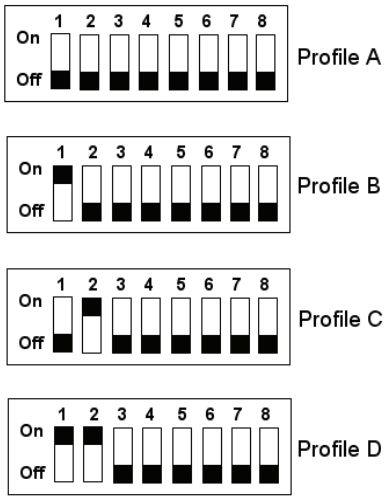
Lead Colors		
Lead Speed	High	Low
Blower	1G	9A

ECM CFM Settings

To adjust the CFM, disconnect the power to the unit. Set the DIP switch located in the control box to the desired profile setting. Connect the power to the unit.

Figure 18. Units with Deluxe 24V controls and ECM motors – DIP switch settings



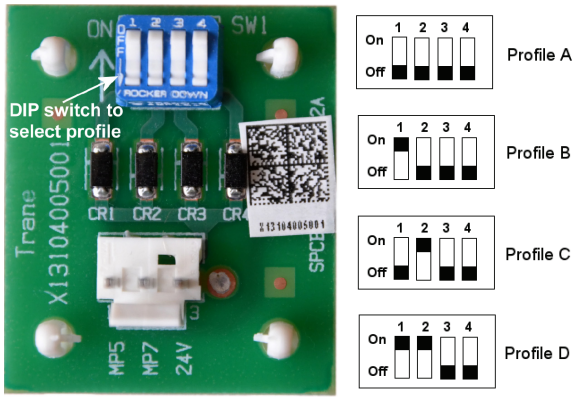


Note: *Units with the optional ECM with deluxe 24V controls are shipped from the factory on Profile B.*

- Profile A = 110% of rated airflow
- Profile B = 100% of rated airflow
- Profile C = 90% of rated airflow
- Profile D = 80% of rated airflow

Installation at higher altitudes may require an adjustment to the fan speed setting to achieve proper airflow. Use profile C or D to get lower airflow. If a lower CFM is needed, then set DIP switch 4 to ON.

Figure 19. Units with Symbio™ 400-B/UC400-B controls and ECM motors – DIP switch settings



Installations at altitudes above 2000 feet may require an adjustment to the fan speed setting to achieve the proper airflow. To adjust the airflow to get the desired CFM, set the DIP switches located in the control box to the proper profile setting. Tracer® TU can be used to make further adjustments to the fan speed.

Use the following table to select the correct profile to use.

Table 12. Profiles for altitude range

Profile	Altitude (Feet)
A	0–2000
B	2000–4000
C	4000–6000
D	Above 6000

Table 13. PSC blower motor external static pressure without return air door (RAD) with filter

Model	External Static Pressure (in. of wg)															
	Speed Tap	Ducted[a] Unit	CFM		0		0.05		0.10		0.15		0.20		0.25	
			Max	Min	CFM	KW	CFM	KW	CFM	KW	CFM	KW	CFM	KW	CFM	KW
GET009	High	Yes	408		421	0.108	388	0.107	354	0.106	320	0.104	283	0.103	244	0.102
	Low	Yes			355	0.073	332	0.072	307	0.070	278	0.068	245	0.067		
	High	No			357	0.073	333	0.071	309	0.070	282	0.069	253	0.067		
	Low	No		272	307	0.061	297	0.060	280	0.059	258	0.058				
GET012	High	Yes	453		453	0.140	433	0.137	412	0.134	390	0.130	367	0.127	342	0.124
	Low	Yes			401	0.112	383	0.109	362	0.106	340	0.103	318	0.100	295	0.097
	High	No			418	0.125	400	0.122	379	0.120	356	0.117	332	0.113	309	0.110
	Low	No		304	345	0.097	331	0.095	313	0.092	292	0.090				
GET015	High	Yes	648						652	0.191	634	0.187	616	0.183	598	0.179
	Low	Yes			560	0.155	539	0.153	523	0.152	511	0.149	499	0.146	487	0.143
	High	No			553	0.169	538	0.167	524	0.165	510	0.162	496	0.159	481	0.155
	Low	No		432	445	0.135	433	0.135	422	0.134						
GET018	High	Yes	780													
	Low	Yes			665	0.253	644	0.249	625	0.246	608	0.242	592	0.237	575	0.232
	High	No			696	0.361	675	0.354	654	0.348	632	0.342	610	0.336	588	0.330
	Low	No		520	544	0.271	526	0.266	506	0.262						
GET024	High	Yes	984												988	0.402
	Low	Yes			908	0.344	895	0.335	876	0.327	854	0.318	829	0.310	803	0.301
	High	No			850	0.317	827	0.310	806	0.303	787	0.297	768	0.291	750	0.286
	Low	No		656	799	0.292	781	0.286	764	0.280	746	0.275	727	0.269	709	0.264
GET036	High	Yes	1404													
	Low	Yes			1303	0.651	1293	0.638	1282	0.625	1270	0.614	1256	0.603	1240	0.592
	High	No			1330	0.642	1304	0.630	1277	0.618	1248	0.606	1219	0.593	1188	0.581
	Low	No		936	1059	0.523	1051	0.516	1042	0.510	1033	0.503	1022	0.496	1011	0.488
Model	**External Static Pressure (in. of wg)**															
	Speed Tap	Ducted Unit	CFM		0.30		0.35		0.40		0.45		0.50		0.55	
			Max	Min	CFM	KW	CFM	KW	CFM	KW	CFM	KW	CFM	KW	CFM	KW
GET012	High	Yes	453		316	0.121	288	0.118								
	Low	Yes														
	High	No			286	0.107										
	Low	No		304												

Table 13. PSC blower motor external static pressure without return air door (RAD) with filter (continued)

Model	External Static Pressure (in. of wg)															
GET015	High	Yes	648		579	0.175	558	0.170	535	0.165	510	0.160	480	0.154	445	0.148
	Low	Yes			472	0.139	455	0.135	433	0.130	405	0.125				
	High	No			464	0.151	444	0.147	421	0.142						
	Low	No		432												
GET018	High	Yes	780				785	0.330	758	0.323	729	0.317	697	0.311	661	0.305
	Low	Yes			556	0.227	537	0.221	517	0.215						
	High	No			566	0.324	544	0.318	521	0.312	497	0.305				
	Low	No		520												
GET024	High	Yes	984		955	0.392	920	0.382	884	0.371	847	0.359	810	0.348	774	0.336
	Low	Yes			778	0.293	754	0.285	732	0.277	712	0.268	693	0.260	675	0.251
	High	No			730	0.280	710	0.274	689	0.267	666	0.260	642	0.251		
	Low	No		656	690	0.258	671	0.252	651	0.246						
	Speed Tap	Ducted Unit	CFM		0.30		0.35		0.40		0.45		0.50		0.55	
			Max	Min	CFM	KW	CFM	KW	CFM	KW	CFM	KW	CFM	KW	CFM	KW
GET036	High	Yes	1404		1420	0.686	1396	0.674	1371	0.662	1346	0.650	1320	0.638	1293	0.625
	Low	Yes			1222	0.582	1202	0.572	1181	0.562	1160	0.553	1138	0.543	1117	0.533
	High	No			1155	0.568	1122	0.555	1086	0.542	1048	0.528	1007	0.515	965	0.501
	Low	No		936	998	0.480	984	0.472	967	0.464	949	0.454	927	0.444		
Model			External Static Pressure (in. of wg)													
	Speed Tap	Ducted Unit	CFM		0.60		0.65		0.70		0.75		0.80		0.85	
			Max	Min	CFM	KW	CFM	KW	CFM	KW	CFM	KW	CFM	KW	CFM	KW
GET015	High	Yes	648		404	0.141										
	Low	Yes														
	High	No														
	Low	No		432												
GET018	High	Yes	780		620	0.300	573	0.295	518	0.291						
	Low	Yes														
	High	No														
	Low	No		520												
GET024	High	Yes	984		739	0.324	706	0.312	676	0.299	649	0.287				
	Low	Yes			658	0.243	641	0.234								
	High	No														
	Low	No		656												
GET036	High	Yes	1404		1265	0.613	1236	0.601	1206	0.588	1175	0.575	1142	0.563	1107	0.550
	Low	Yes			1097	0.522	1076	0.511	1055	0.498	1031	0.486	1003	0.472	967	0.456
	High	No			919	0.487										
	Low	No		936												
Model			External Static Pressure (in. of wg)													
	Speed Tap	Ducted Unit	CFM		0.90		0.95		1.00		1.05		1.10			
			Max	Min	CFM	KW	CFM	KW	CFM	KW	CFM	KW	CFM	KW		
GET036	High	Yes	1404		1071	0.536	1032	0.523	991	0.509	947	0.495	900	0.481		
	Low	Yes			919	0.440										
	High	No														
	Low	No		936												

(a) The NO "Ducted" option is for non-ducted (free return) units. Units specified as "non-ducted" (free return) are factory wired to low-speed. Units specified as "ducted" are factory wired to high-speed.

Table 14. ECM Blower motor external static pressure without return air door (RAD) with filter

Model No.	Airflow Profile	External Static Pressure (in. of wg)															
			0.00	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70
		CFM	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW
GET009	A	374	0.025	0.037	0.050	0.062	0.075	0.087	0.098	0.110	0.121	0.133	0.144	0.037	0.165	0.176	0.176
	B	344	0.023	0.035	0.046	0.057	0.068	0.079	0.090	0.100	0.110	0.120	0.130	0.035	0.149	0.159	0.159
	C	313	0.021	0.032	0.042	0.052	0.062	0.071	0.081	0.090	0.099	0.108	0.117	0.032	0.134	0.143	0.143
	D	285	0.017	0.027	0.036	0.045	0.054	0.063	0.071	0.080	0.088	0.096	0.104	0.027	0.120	0.127	0.127
GET012	A	487	0.027	0.042	0.057	0.071	0.086	0.100	0.114	0.128	0.142	0.155	0.168	0.042	0.193	0.206	0.206
	B	442	0.025	0.038	0.052	0.065	0.077	0.090	0.103	0.115	0.127	0.139	0.151	0.038	0.173	0.184	0.184
	C	403	0.023	0.034	0.046	0.057	0.069	0.080	0.091	0.102	0.112	0.122	0.133	0.034	0.152	0.161	0.161
	D	368	0.019	0.029	0.039	0.049	0.059	0.068	0.078	0.087	0.096	0.105	0.114	0.029	0.131	0.139	0.139
GET015	A	594	0.062	0.072	0.081	0.090	0.100	0.109	0.119	0.128	0.138	0.148	0.158	0.072	0.179	0.191	0.202
	B	540	0.044	0.054	0.064	0.073	0.083	0.092	0.101	0.111	0.121	0.131	0.141	0.054	0.162	0.173	0.185
	C	486	0.032	0.042	0.051	0.060	0.069	0.079	0.088	0.097	0.106	0.116	0.126	0.042	0.146	0.157	0.168
	D	432	0.025	0.034	0.042	0.051	0.059	0.068	0.076	0.085	0.093	0.102	0.111	0.034	0.130	0.140	0.150
GET018	A	712	0.097	0.109	0.121	0.134	0.148	0.163	0.178	0.193	0.208	0.223	0.239	0.109	0.130	0.140	0.150
	B	648	0.077	0.087	0.098	0.110	0.123	0.136	0.150	0.163	0.177	0.191	0.205	0.087	0.268	0.282	0.282
	C	584	0.056	0.066	0.076	0.087	0.099	0.111	0.123	0.135	0.148	0.160	0.172	0.066	0.230	0.242	0.242
	D	522	0.039	0.048	0.058	0.069	0.080	0.091	0.102	0.114	0.125	0.136	0.147	0.048	0.194	0.204	0.204
GET024	A	903	0.100	0.118	0.135	0.152	0.168	0.185	0.201	0.216	0.232	0.247	0.261	0.118	0.290	0.303	0.303
	B	827	0.081	0.096	0.111	0.125	0.140	0.154	0.168	0.182	0.196	0.209	0.222	0.096	0.248	0.261	0.261
	C	746	0.060	0.073	0.085	0.098	0.110	0.123	0.136	0.148	0.161	0.173	0.185	0.073	0.210	0.222	0.222
	D	659	0.041	0.052	0.063	0.074	0.085	0.097	0.109	0.121	0.133	0.145	0.157	0.052	0.182	0.194	0.194
GET036	A	1293	0.285	0.306	0.328	0.349	0.370	0.392	0.413	0.433	0.454	0.475	0.496	0.306	0.537	0.557	0.557
	B	1178	0.214	0.233	0.253	0.272	0.292	0.311	0.330	0.349	0.369	0.388	0.406	0.233	0.444	0.463	0.463
	C	1063	0.158	0.175	0.193	0.210	0.227	0.245	0.262	0.279	0.296	0.313	0.331	0.175	0.365	0.382	0.382
	D	950	0.117	0.133	0.148	0.163	0.178	0.193	0.208	0.223	0.238	0.254	0.269	0.133	0.299	0.314	0.314

Note: The ECM is programmed for constant CFM. The CFM is factory set on Profile B. The ECM reduces the airflow to 80% in fan only mode for additional energy savings.

Table 15. Pressure drop due to return air door (RAD)

Model No.	CFM	DP	CFM	DP	CFM	DP
GET009	272	0.04	340	0.05	408	0.08
GET012	303	0.04	380	0.07	456	0.11
GET015	432	0.06	540	0.09	648	0.12
GET018	520	0.08	650	0.12	780	0.16
GET024	656	0.06	820	0.08	984	0.12
GET036	936	0.10	1170	0.16	1404	0.23

Note: The pressure drop across the RAD door should be included in the TOTAL ESP when determining airflow and fan motor power usage. If the door is supplied by another vendor, the pressure drop across that door must be included in the TOTAL ESP when determining airflow and fan motor power usage.

Electrical Data

Table 16. Electrical performance

Model No.	Motor Option	Unit Volts	Total FLA	Comp RLA (ea)	Comp LRA	Blower Motor FLA	Blower Motor HP	Minimum Circuit Ampacity	Maximum Overcurrent Protective Device
GET009	PSC Motor	208/60/1	4.3	3.7	16.0	0.60	1/20	5.23	15
		230/60/1	4.1	3.5	17.0	0.60	1/20	4.98	15
		265/60/1	3.3	2.8	13.0	0.50	1/20	4.00	15
	ECM	208/60/1	4.3	3.7	16.0	0.55	1/3	5.18	15
		230/60/1	4.1	3.5	17.0	0.55	1/3	4.93	15
		265/60/1	3.4	2.8	13.0	0.55	1/3	4.05	15
GET012	PSC Motor	208/60/1	7.0	6.3	30.0	0.70	0.13	8.58	15
		230/60/1	7.0	6.3	30.0	0.70	0.13	8.58	15
		265/60/1	5.6	5.0	23.0	0.60	0.13	6.85	15
	ECM	208/60/1	6.9	6.3	30.0	0.60	1/3	8.48	15
		230/60/1	6.9	6.3	30.0	0.60	1/3	8.48	15
		265/60/1	5.6	5.0	23.0	0.60	1/3	6.85	15
GET015	PSC Motor	208/60/1	8.6	7.9	36.0	0.70	1/8	10.58	15
		230/60/1	8.6	7.9	36.0	0.70	1/8	10.58	15
		265/60/1	7.0	6.4	30.0	0.60	1/8	8.60	15
	ECM	208/60/1	8.5	7.9	36.0	0.60	1/2	10.48	15
		230/60/1	8.5	7.9	36.0	0.60	1/2	10.48	15
		265/60/1	7.0	6.4	30.0	0.60	1/2	8.60	15
GET018	Free Discharge PSC Motor	208/60/1	10.3	9.6	42.0	0.70	1/8	12.70	20
		230/60/1	10.3	9.6	42.0	0.70	1/8	12.70	20
		265/60/1	8.3	7.7	35.0	0.60	1/8	10.23	15
	ECM	208/60/1	10.2	9.6	42.0	0.60	1/2	12.60	20
		230/60/1	10.2	9.6	42.0	0.60	1/2	12.60	20
		265/60/1	8.3	7.7	35.0	0.60	1/2	10.23	15
	Ducted PSC Motor	208/60/1	11.3	9.6	42.0	1.70	1/5	13.70	20
		230/60/1	11.3	9.6	42.0	1.70	1/5	13.70	20
		265/60/1	8.8	7.7	35.0	1.10	1/5	10.73	15
GET024	PSC Motor	208/60/1	15.7	13.5	58.3	2.20	1/3	19.08	30
		230/60/1	15.7	13.5	58.3	2.20	1/3	19.08	30
		265/60/1	10.8	9.0	54.0	1.80	1/3	13.05	20
	ECM	208/60/1	14.5	13.5	58.3	0.95	1/2	17.83	30
		230/60/1	14.5	13.5	58.3	0.95	1/2	17.83	30
		265/60/1	10.0	9.0	54.0	0.95	1/2	12.20	20
GET036	PSC Motor	208/60/1	17.7	14.1	77.0	3.60	1/2	21.23	35
		230/60/1	17.7	14.1	77.0	3.60	1/2	21.23	35
		265/60/1	15.0	12.2	72.0	2.77	1/2	18.02	30
	ECM	208/60/1	16.1	14.1	77.0	2.00	3/4	19.63	30
		230/60/1	16.1	14.1	77.0	2.00	3/4	19.63	30
		265/60/1	14.2	12.2	72.0	2.00	3/4	17.25	25

Pre-Start-up

Checklist

Before energizing the unit, the following system devices must be checked:

____ Is the high voltage power supply correct and in accordance with the nameplate ratings?

____ Is the field wiring and circuit protection the correct size?

____ Is the low voltage control circuit wiring correct per the unit wiring diagram?

____ Is the piping system clean/complete and correct? (A recommendation of all system flushing of debris from the water-to-refrigerant heat exchanger, along with air purging from the water-to-refrigerant heat exchanger be done in accordance with the Closed-Loop/Ground Source Heat Pump Systems Installation Guide).

____ Is vibration isolation provided? (i.e. unit isolation pad, hose kits)

____ Is unit serviceable? (See "Unit Location and Clearances," p. 9.)

____ Are the low/high-side pressure temperature caps secure and in place?

____ Are all the unit access panels secure and in place?

____ Is the thermostat in the OFF position?

____ Is the water flow established and circulating through all the units?

____ Is the duct work (if required) correctly sized, run, taped, insulated and weather proofed with proper unit arrangement?

____ Is the condensate line properly sized, run, trapped and pitched?

____ Does the indoor blower turn freely without rubbing?

____ Has all work been done in accordance with applicable local and national codes?

____ Has heat transfer fluid been added in the proper mix to prevent freezing in closed system application?

____ Are the compressor bolts removed from the chassis?

____ Have the chassis isolation rails been released?

____ Is there a good seal between the front air panel and the coil?

Initial Unit Start-up

Start-up with deluxe controls is included below:

Notes:

- *Reference BAS-SVX065*-EN for Tracer® UC400, UC400-B start-up.*
- *Reference BAS-SVX40*-EN for Trane® Air-Fi® start-up.*
- *Reference BAS-SVX092*-EN for Symbio™ 400-B start-up.*

1. Set the thermostat to the highest position. Set the thermostat system switch to COOL with the fan control to AUTO. *The compressor should NOT run*.
2. Reduce the temperature control setting until the compressor, reversing valve, solenoid valve, and loop pump are energized. *Adjust water flow utilizing pressure/temperature plugs and comparing to tables contained in specification sheet data. Water leaving the heat exchanger should be warmer than the entering water temperature (approximately 9°F - 12°F); blower operation should be smooth; compressor and blower amps should be within data plate ratings; the suction line should be cool with no frost observed in the refrigerant circuit.*
3. Check the cooling refrigerant pressures against values in Table 17, p. 26.
4. Turn the thermostat switch to the OFF position. *Unit should stop running and the reversing valve should de-energize.*
5. Leave unit off for approximately FIVE minutes to allow for pressure equalization.
6. Turn the thermostat to the lowest setting. Set the thermostat system switch to the HEAT position.
7. Adjust the temperature setting upward until the unit is energized. *Warm air should blow from the register. A water temperature decrease of approximately 5°F - 9°F leaving the heat exchanger should be noted. The blower and compressor operation should be smooth with no frost observed in the refrigeration circuit.*
8. Check the heating refrigerant pressures against values in Table 17, p. 26.
9. Set the thermostat to maintain the desired space temperature.
10. Instruct the owner on system operation.

Operating Pressures

Use the form on p. 29 to log system and unit temperatures during start-up.

General: There are many variables (airflow, air temperatures) in an air conditioning system that will affect operating refrigerant pressures and temperatures. The chart below shows approximate conditions and is based on airflow at the rated SCFM, entering air at 80.6°F DB, 66.2 °F WB in cooling, 68°F DB in heating. (+)Heating data with 35°F EWT is based on the use of an anti-freeze solution having a freezing point 20 °F lower than the minimum expected entering temperature.

Table 17. Operating pressures

Model	Entering Water Temp °F	Water Flow GPM	Operating Data							
			Cooling				Heating			
			Suction Pressure, PSIG	Discharge Pressure, PSIG	Water Temp Rise °F	Air Temp Drop °F DB	Suction Pressure PSIG	Discharge Pressure PSIG	Water Temp Drop °F	Air Temp Rise °F DB
GET*009	35	1.80	—	—	—	—	93-107	298-379	6-8	11-15
GET*009	35	2.25	—	—	—	—	96-111	300-382	5-6	12-15
GET*009	45	1.80	138-159	177-226	12-15	11-15	111-128	315-401	6-8	13-17
GET*009	45	2.25	137-157	171-217	9-12	12-15	114-131	316-403	5-7	14-18
GET*009	55	1.80	140-161	203-258	11-14	11-14	129-149	331-421	8-10	15-19
GET*009	55	2.25	139-160	197-250	9-12	12-15	133-153	332-423	6-8	16-20
GET*009	68	1.80	143-164	244-310	11-14	11-14	156-179	354-450	9-11	18-22
GET*009	68	2.25	142-164	237-301	9-11	12-15	161-185	357-454	7-9	18-23
GET*009	75	1.80	144-166	269-342	11-14	11-14	172-197	367-467	10-12	19-24
GET*009	75	2.25	144-165	262-333	9-11	11-15	177-204	372-473	8-10	19-25
GET*009	86	1.80	146-168	313-399	11-14	11-14	199-229	389-496	11-14	21-26
GET*009	86	2.25	146-168	306-389	8-11	11-15	206-237	394-501	9-12	21-27
GET*009	95	1.80	148-170	355-452	11-13	11-14	—	—	—	—
GET*009	95	2.25	147-170	347-441	8-11	11-14	—	—	—	—
GET*012	35	2.40	—	—	—	—	91-104	279-355	6-8	19-24
GET*012	35	3.00	—	—	—	—	94-108	281-358	4-6	19-24
GET*012	45	2.40	144-166	170-216	11-14	18-23	109-125	294-374	6-8	21-27
GET*012	45	3.00	144-166	164-208	9-11	19-24	111-128	295-375	5-6	21-27
GET*012	55	2.40	145-167	197-251	11-14	18-23	127-146	308-392	7-9	24-31
GET*012	55	3.00	145-167	191-243	9-11	18-23	130-149	311-396	6-7	25-31
GET*012	68	2.40	146-168	240-305	11-14	17-22	153-176	329-419	8-10	27-35
GET*012	68	3.00	146-168	233-296	9-11	18-23	158-181	332-423	7-9	28-36
GET*012	75	2.40	147-169	266-338	11-14	17-21	169-195	341-434	9-11	29-37
GET*012	75	3.00	146-169	259-329	9-11	17-22	174-200	345-438	7-9	29-37
GET*012	86	2.40	148-170	312-397	11-14	16-20	197-226	362-460	10-13	30-39
GET*012	86	3.00	148-170	304-387	9-11	16-21	203-234	365-465	8-10	31-39
GET*012	95	2.40	149-172	357-454	11-14	15-19	—	—	—	—
GET*012	95	3.00	149-172	348-443	9-11	15-19	—	—	—	—
GET*015	35	2.80	—	—	—	—	90-103	272-346	6-8	19-24
GET*015	35	3.80	—	—	—	—	94-108	275-350	4-6	19-24
GET*015	45	2.80	146-168	173-220	12-15	18-23	108-124	286-364	6-8	21-27
GET*015	45	3.80	145-167	165-210	9-11	19-24	111-128	288-367	5-6	21-27
GET*015	55	2.80	146-169	202-257	12-15	18-23	125-144	299-381	7-9	24-31
GET*015	55	3.80	146-168	193-245	9-11	18-23	130-149	302-385	6-7	25-31
GET*015	68	2.80	148-170	245-312	12-15	17-22	151-174	317-404	9-11	27-35
GET*015	68	3.80	147-170	235-299	9-11	18-23	157-181	321-409	7-9	28-36
GET*015	75	2.80	148-171	272-346	12-15	17-21	167-192	328-417	10-12	29-37
GET*015	75	3.80	148-171	261-332	9-11	17-22	174-200	333-423	7-9	29-37

Table 17. Operating pressures (continued)

Model	Entering Water Temp °F	Water Flow GPM	Operating Data							
			Cooling				Heating			
			Suction Pressure, PSIG	Discharge Pressure, PSIG	Water Temp Rise °F	Air Temp Drop °F DB	Suction Pressure PSIG	Discharge Pressure PSIG	Water Temp Drop °F	Air Temp Rise °F DB
GET*015	86	2.80	150-172	319-406	12-15	16-20	193-222	345-440	11-14	30-39
GET*015	86	3.80	150-172	307-390	9-11	16-21	202-232	351-447	8-11	31-39
GET*015	95	2.80	151-174	364-463	12-15	15-19	—	—	—	—
GET*015	95	3.80	151-174	351-446	9-11	15-19	—	—	—	—
GET*018	35	3.60	—	—	—	—	89-103	282-358	7-8	19-24
GET*018	35	4.60	—	—	—	—	93-107	284-361	5-6	19-24
GET*018	45	3.60	140-161	174-221	11-14	18-23	107-123	299-380	7-8	21-27
GET*018	45	4.60	140-161	167-213	8-11	19-24	110-126	302-384	5-7	21-27
GET*018	55	3.60	139-160	203-258	11-14	18-23	125-143	317-404	8-10	24-31
GET*018	55	4.60	139-160	196-250	9-11	18-23	128-147	320-407	6-8	25-31
GET*018	68	3.60	140-161	246-313	11-14	17-22	150-173	341-434	9-11	27-35
GET*018	68	4.60	140-161	238-304	9-11	18-23	155-179	343-437	7-9	28-36
GET*018	75	3.60	141-162	272-346	11-14	17-21	166-191	354-450	10-12	29-37
GET*018	75	4.60	141-162	264-336	9-11	17-22	172-198	357-455	8-10	29-37
GET*018	86	3.60	142-163	317-404	11-14	16-20	193-222	373-475	11-14	30-39
GET*018	86	4.60	142-163	309-393	9-11	16-21	201-231	376-479	9-11	31-39
GET*018	95	3.60	143-165	359-457	11-14	15-19	—	—	—	—
GET*018	95	4.60	143-165	350-445	9-11	15-19	—	—	—	—
GET*024	35	4.70	—	—	—	—	84-97	272-346	6-8	19-24
GET*024	35	6.10	—	—	—	—	87-100	275-350	4-6	19-24
GET*024	45	4.70	136-156	177-226	11-15	18-23	101-116	286-364	6-8	21-27
GET*024	45	6.10	136-156	171-218	9-11	19-24	104-119	288-367	5-6	21-27
GET*024	55	4.70	137-158	205-261	11-14	18-23	118-135	299-381	7-9	24-31
GET*024	55	6.10	137-158	197-251	9-11	18-23	121-139	302-384	6-7	25-31
GET*024	68	4.70	139-160	246-313	11-14	17-22	142-164	318-405	8-11	27-35
GET*024	68	6.10	139-160	238-303	9-11	18-23	147-169	321-409	7-8	28-36
GET*024	75	4.70	140-162	271-345	11-14	17-21	157-181	328-418	9-12	29-37
GET*024	75	6.10	140-161	263-334	9-11	17-22	163-188	332-422	7-9	29-37
GET*024	86	4.70	142-164	314-399	11-14	16-20	183-211	345-439	10-13	30-39
GET*024	86	6.10	142-163	305-388	8-11	16-21	191-219	349-444	8-10	31-39
GET*024	95	4.70	144-166	352-448	11-14	15-19	—	—	—	—
GET*024	95	6.10	144-165	343-437	8-11	15-19	—	—	—	—
GET*036	35	7.10	—	—	—	—	89-103	283-361	6-8	19-24
GET*036	35	9.10	—	—	—	—	93-107	284-361	5-6	19-24
GET*036	45	7.10	136-157	177-226	11-14	18-23	107-123	297-378	6-8	21-27
GET*036	45	9.10	136-157	171-218	9-11	19-24	109-126	298-379	5-6	21-27
GET*036	55	7.10	138-159	206-262	11-14	18-23	125-144	313-398	7-9	24-31
GET*036	55	9.10	138-158	199-253	9-11	18-23	128-147	313-399	6-7	25-31
GET*036	68	7.10	140-161	248-315	11-14	17-22	151-173	334-425	9-11	27-35
GET*036	68	9.10	140-161	240-306	9-11	18-23	155-178	335-426	7-9	28-36
GET*036	75	7.10	141-162	273-347	11-14	17-21	166-191	347-442	9-12	29-37
GET*036	75	9.10	141-162	265-337	9-11	17-22	171-197	347-442	7-9	29-37
GET*036	86	7.10	143-165	316-402	11-14	16-20	193-222	368-468	10-13	30-39
GET*036	86	9.10	143-165	308-392	8-11	16-21	200-230	369-470	8-10	31-39

Operating Pressures

Table 17. Operating pressures (continued)

Model	Entering Water Temp °F	Water Flow GPM	Operating Data							
			Cooling				Heating			
			Suction Pressure, PSIG	Discharge Pressure, PSIG	Water Temp Rise °F	Air Temp Drop °F DB	Suction Pressure PSIG	Discharge Pressure PSIG	Water Temp Drop °F	Air Temp Rise °F DB
GET*036	95	7.10	145-167	355-452	11-14	15-19	—	—	—	—
GET*036	95	9.10	145-167	347-441	8-11	15-19	—	—	—	—

Water Pressure Drop

The following table should be used to define feet of head/ pressure drop.

Note: *To calculate feet of head, when using gauges that read in PSIG, multiply PSI by 2.31.*

Table 18. Water pressure drops (WPD) in feet of head

Unit	GPM	Cooling		Heating	
		EWT °F	Ft. Head Pressure	EWT °F	Ft. Head Pressure
GET*009	1.1	77	1.8	55	2.1
GET*009	2.1	77	5.3	55	6.1
GET*009	2.6	77	7.9	55	9.0
GET*012	1.5	77	3.9	55	5.2
GET*012	2.8	77	11.9	55	15.3
GET*012	3.5	77	17.6	55	22.5
GET*015	1.9	77	3.9	55	4.7
GET*015	3.5	77	11.8	55	13.8
GET*015	4.4	77	17.5	55	20.3
GET*018	2.3	77	3.2	55	3.9
GET*018	4.2	77	9.7	55	11.5
GET*018	5.3	77	14.3	55	17.0
GET*024	3.0	77	2.9	55	3.6
GET*024	5.6	77	8.6	55	10.5
GET*024	7.0	77	12.8	55	15.4
GET*036	4.5	77	4.7	55	5.7
GET*036	8.4	77	14.2	55	16.9
GET*036	10.5	77	21.1	55	24.9

Water Volume

Table 19. Model flow option GPM press drop (feet)

GET*009	Low	1.0	5.5
GET*009	High	1.5	6.6
GET*012	Low	1.5	6.6
GET*012	High	2.0	8.1
GET*015	Low	2.5	10.1
GET*015	High	3.5	15.4
GET*018	Low	3.0	12.6
GET*018	High	4.0	18.7
GET*024	Low	4.0	7.6

Table 19. Model flow option GPM press drop (feet)

GET*024	High	6.0	11.4
GET*036	Low	6.0	11.4
GET*036	High	8.0	16.7

The following table is provided for use in calculating glycol requirements for the unit.

Table 20. Water volume

Unit	Water Side Volume Cubic In.	Water Side Volume Cubic Ft.	Water Side Volume Gallons
GET*009	18.7	0.011	0.081
GET*012	24.9	0.014	0.108
GET*015	37.2	0.022	0.161
GET*018	40.9	0.024	0.177
GET*024	62.6	0.036	0.271
GET*036	85.0	0.049	0.368

Flow Checks

For the operating temperature drop (heating) and rise (cooling), refer to Table 17, p. 26 for the proper water temperature change. Depending on the unit size, entering water temperature and water flow rate, the cooling temperature rise is from 8°F - 16°F. Based on the same criteria for heating, the temperature drop is from 2°F - 13°F.

Pressure

Using the P/T ports and one 0-60 psi pressure gauge with the P/T port adapter, measure the pressure difference between the water-in and water-out connections. Compare the pressure differential to Table 18, p. 28 to determine flow.

Start-up

Installing Contractor: Use this form to thoroughly check-out the system and units before and during start-up. (This form need not be returned to the factory unless requested during technical service support).

Job Name:
Model Number:
Date:
Serial Number:

In order to minimize troubleshooting and costly system failures, complete the following checks and data entries before the system is put into full operation.

MODE	Heat	Cool
Entering fluid temperature	F	F
Leaving fluid temperature	F	F
Temperature differential	F	F
Return-air temperature DB/WB	F	F
Supply-air temperature DB/WB	F	F
Temperature differential	F	F
Water coil heat exchanger (Water Pressure IN)	PSIG	PSIG
Water coil heat exchanger (Water Pressure OUT)	PSIG	PSIG
Pressure Differential	PSIG	PSIG
	PSIG	PSIG
	PSIG	PSIG
COMPRESSOR		
Amps		
Volts		
Discharge line temperature (after 10 minutes)	F	F

Maintenance

Preventive Maintenance

Maintenance on the unit is simplified with the following preventive suggestions:

Filter maintenance must be performed to assure proper operation of the equipment. Filters should be inspected at least every three months, and replaced when it is evident they are dirty. Filter sizing includes:

Table 21. Filter sizing

Model GET	Filter Size (nominal)
009-012	14 x 20
015-018	18 x 25
024-036	20 x 30

⚠WARNING

Hazardous Voltage!

Failure to disconnect power before servicing could result in death or serious injury.
Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. Verify that no power is present with a voltmeter.

Check the contactors and relays within the control panel at least once a year. It is good practice to check the tightness of the various wiring connections within the control panel.

A strainer (60 mesh or greater) must be used on an open loop system to keep debris from entering the unit heat exchanger and to ensure a clean system.

For units on well water, it is important to check the cleanliness of the water-to-refrigerant heat exchanger. Should it become contaminated with dirt and scaling as a result of bad water, the heat exchanger will have to be back flushed and cleaned with a chemical that will remove the scale. This service should be performed by an experienced service person.

⚠WARNING

Hazardous Chemicals!

Failure to follow this safety precaution could result in death or serious injury. Coil cleaning agents can be either acidic or highly alkaline and can burn severely if contact with skin or eyes occurs.
Handle chemical carefully and avoid contact with skin. ALWAYS wear Personal Protective Equipment (PPE) including goggles or face shield, chemical resistant gloves, boots, apron or suit as required. For personal safety refer to the cleaning agent manufacturer's Materials Safety Data Sheet and follow all recommended safe handling practices.

It should be noted that the water quality should be checked periodically.

Table 22. Water quality table

Scaling	
Calcium and magnesium (total hardness)	Less than 350 ppm
Corrosion	
pH	7-9.5
Hydrogen Sulfide	Less than 1 ppm
Sulfates	Less than 25 ppm
Chlorides	Less than 125 ppm
Carbon Dioxide	Less than 75 ppm
Total dissolved solids (TDS)	Less than 1000 ppm
Biological Growth	
Iron Bacteria	Low
Erosion	
Suspended Solids	Low

Troubleshooting

⚠WARNING

Hazardous Service Procedures!

Failure to follow all precautions in this manual and on the tags, stickers, and labels could result in death or serious injury.
Technicians, in order to protect themselves from potential electrical, mechanical, and chemical hazards, MUST follow precautions in this manual and on the tags, stickers, and labels, as well as the following instructions: Unless specified otherwise, disconnect all electrical power including remote disconnect and discharge all energy storing devices such as capacitors before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized.When necessary to work with live electrical components, have a qualified licensed electrician or other individual who has been trained in handling live electrical components perform these tasks.

Preliminary Trouble Inspection

- If operational difficulties are encountered, be sure to perform the preliminary checks before referring to the Table 23, p. 32.
- Verify that the unit is receiving electric supply power.
- Ensure that the fuses in the fused disconnect are intact.
- After completing the preliminary checks, inspect the unit for other obvious problems such as leaking connection, broken or disconnected wires, etc. If everything appears to be in order, but the unit still fails to operate properly, refer to the troubleshooting chart on p. 32.

General Operation

The standard model is designed for indoor installation. When the unit is installed in an unconditioned space, the unit may not start in cool weather (approximately 45°F). It may then be necessary to start the unit in the cooling mode for three to five minutes. The unit may then be shut-off (there will be a two minute time-out of the unit), and restarted in the heating mode. The freeze protection thermostat should also be checked as it may be adversely affected by ambient temperature.

Like any other type of mechanical equipment, the unit performs best when it is well maintained.

Operation with a Conventional Thermostat

The unit is equipped with safety controls, including high pressure control, low pressure control and a freeze protection thermostat, set to shut off the compressor under abnormal temperature or pressure conditions. If the safeties shut off the compressor, a lockout relay prevents short cycling from the abnormal condition. When conditions are corrected, the lockout control can be reset by setting the thermostat system switch to OFF wait a few minutes for the system pressure to equalize, and then return to HEAT or COOL. If the condition continues, an authorized service person should check out the unit.

Table 23. Troubleshooting checklist

Problem	Heating	Cooling	Cause	Correction
No response to any thermostat setting	X	X	Main power off	Check fuses
	X	X	Defective control transformer	Replace
	X	X	Broken or loose connection	Repair
	X	X	Defective thermostat	Replace
	X	X	Transformer	Reset Transformer
Unit short cycles	X	X	Thermostat or sensor improperly located	Relocate
Blower runs, but compressor does not	X	X	Defective compressor overload	Replace (if external)
	X	X	Defective compressor contactor	Replace
	X	X	Supply voltage too low	Correct
	X	X	Defective compressor capacitor	Replace
	X	X	Defective windings	Replace
	X	X	Limit switches open	Check cause/Replace or repair
Insufficient capacity	X	X	Dirty filter	Replace/clean
	X	X	Blower RPM too low	Correct
	X	X	Loss of conditioned air due to leaks in ductwork	Repair leaks
		X	Introduction of excessively hot return-air	Correct
	X		Introduction of excessively cold return-air	Correct
	X	X	Low on refrigerant charge	Locate leak, repair and recharge by weight (not by superheat)
	X	X	Restricted thermal expansion valve	Replace
	X	X	Defective reversing valve	See WSHP-IOM-# for touch test chart
	X	X	Thermostat improperly located	Relocate
	X	X	Unit undersized	Recalculate heat gains/losses
	X	X	Inadequate water flow	Increase GPM
	X	X	Scaling in heat exchanger	Clean or replace
		X	Water too hot	Decrease temperature
	X		Water too cold	Increase temperature
High pressure switch open		X	Inadequate GPM	Increase water flow to unit
		X	Water too hot	Decrease temperature
	X		Inadequate airflow	Check, clean blower and coil
	X		Dirty filter	Clean/replace
	X	X	Overcharged with refrigerant	Decrease charge
	X	X	Defective pressure switch	Check or replace
High head pressure		X	Trash in heat exchanger	Back flush
		X	Low water flow	Increase GPM
	X	X	Overcharge of refrigerant	Decrease charge
	X	X	Non-condensable in system	Evacuate and recharge by weight
	X	X	Water too hot	Decrease temperature
	X		Dirty filter	Clean / replace
	X		Inadequate airflow	Check, clean blower and coil
Low suction pressure	X	X	Undercharged	Locate leak, repair and recharge
	X	X	Restricted thermal expansion valve	Repair / replace
		X	Inadequate airflow	Check, clean blower and coil
		X	Dirty filter	Clean/replace
	X		Inadequate GPM	Increase GPM

Unit Wiring

Figure 20. Deluxe 24V with PSC motor

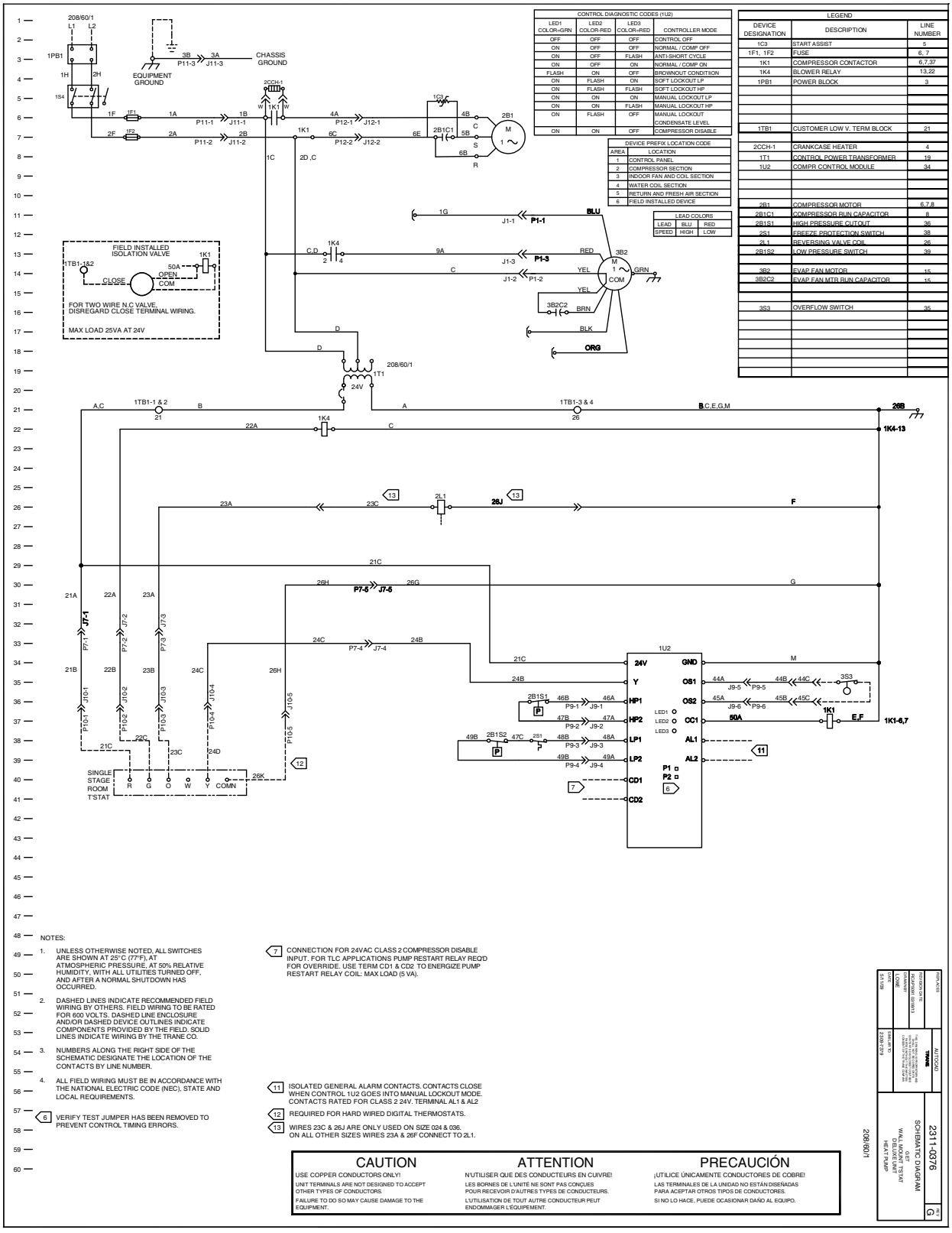


Figure 21. Deluxe 24V with ECM

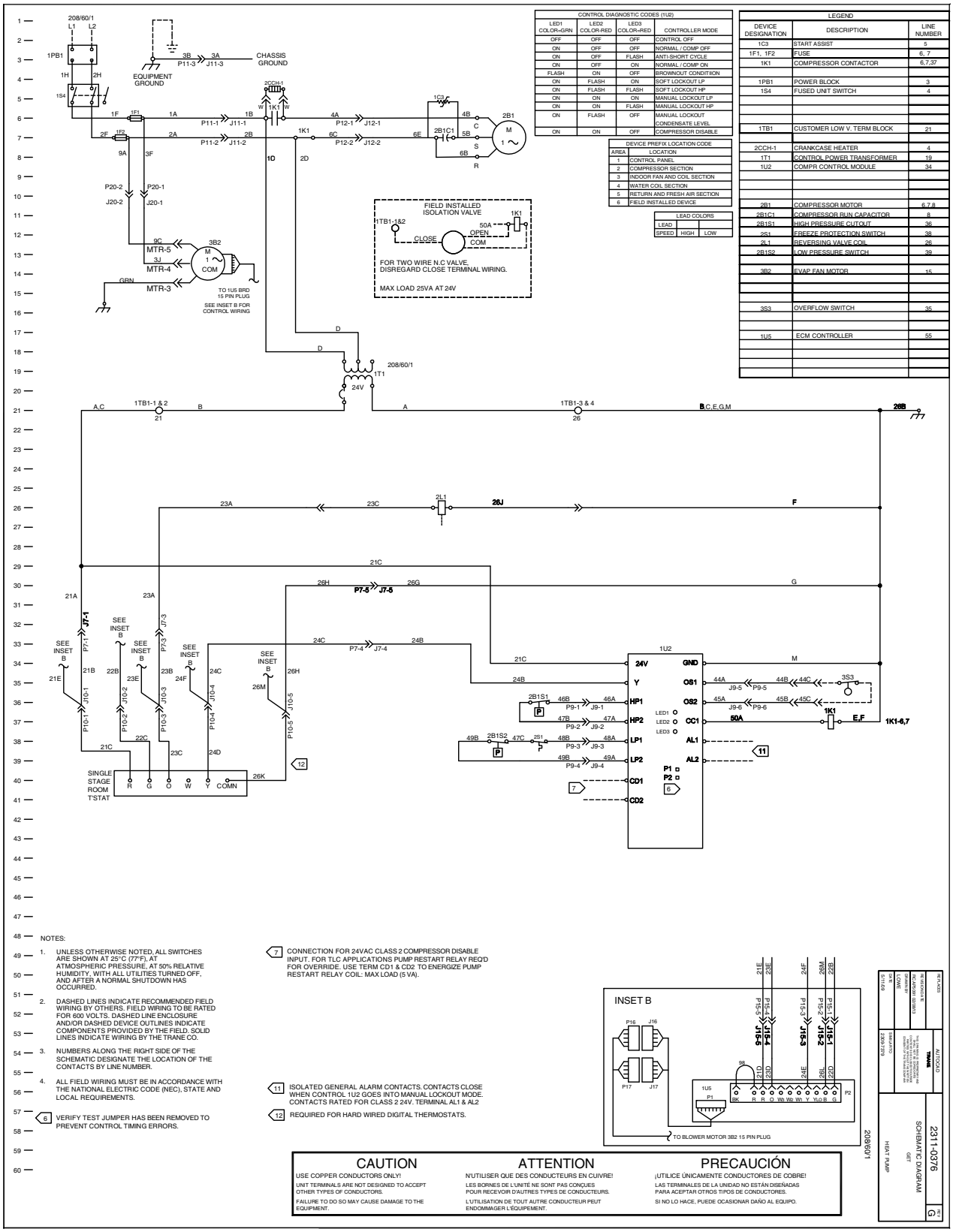


Figure 22. Symbio™ 400-B/Tracer® UC400-B with ECM

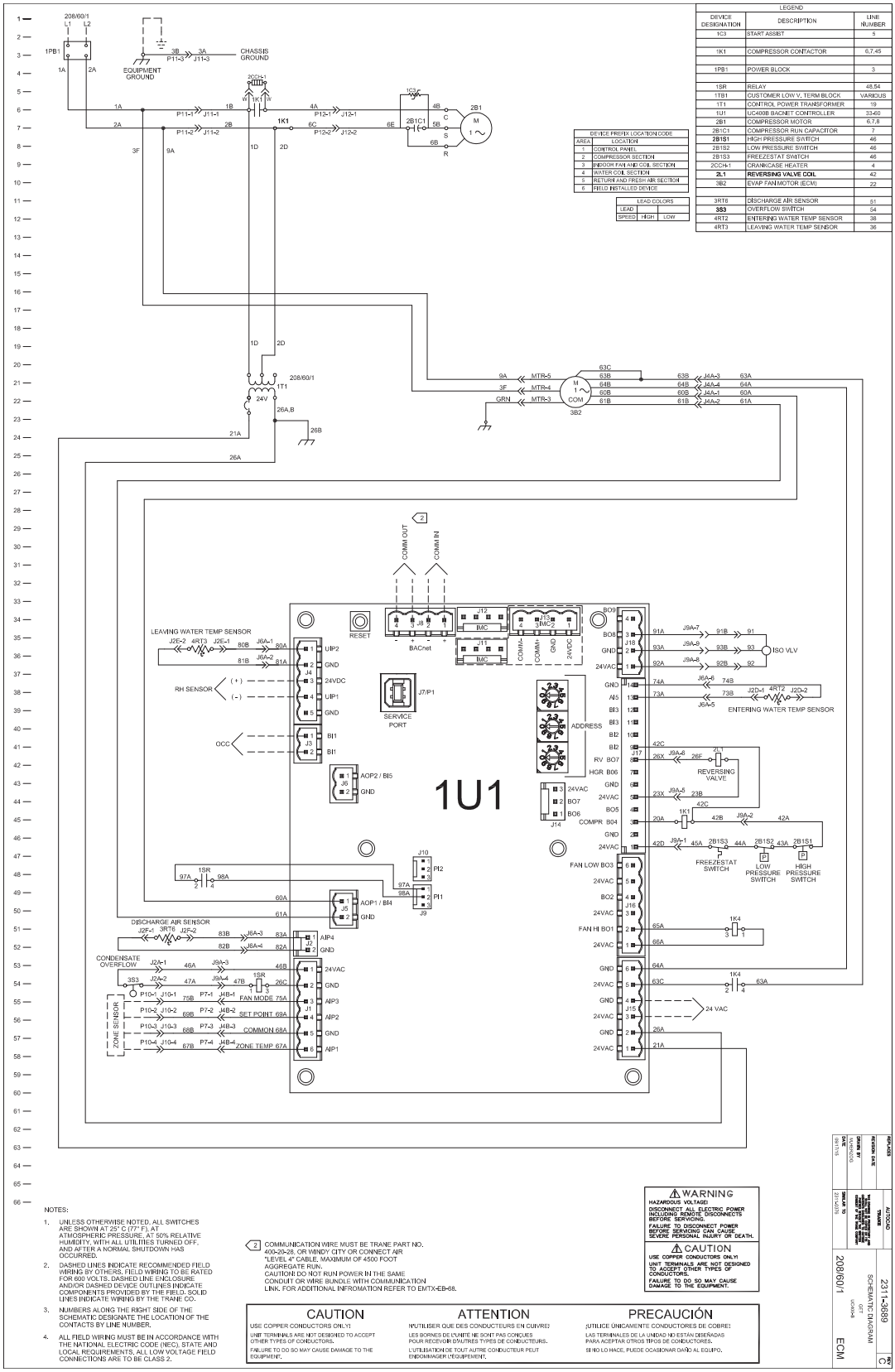
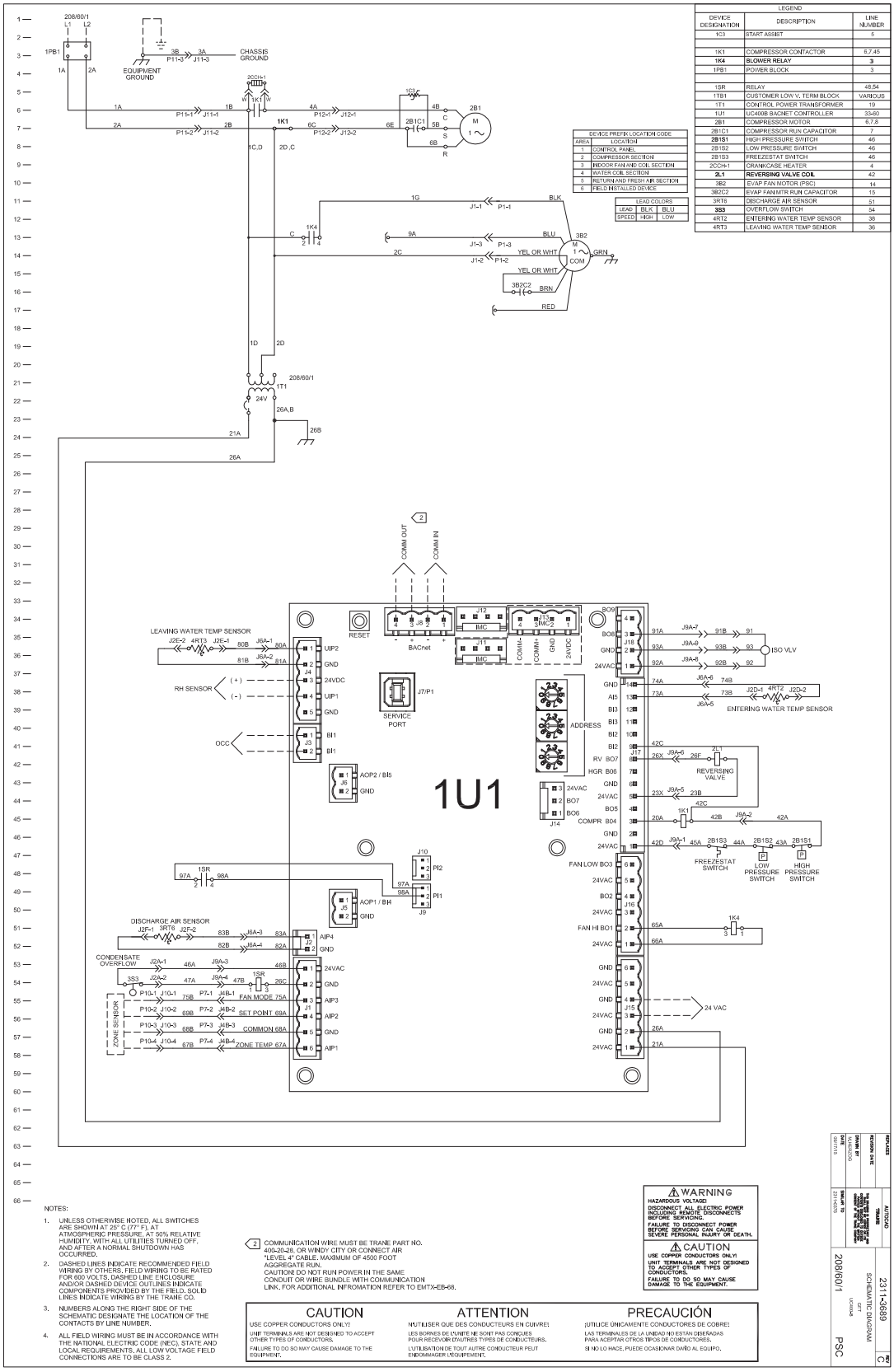


Figure 23. Symbio 400-B/Tracer UC400-B with PSC motor



Warranty

Standard Warranty

The standard water-source heat pump warranty is Trane's parts-only warranty, running 12-months from startup, not to exceed 18-months from shipment.

There is a standard five year compressor parts warranty.

Extended Warranty

The *optional* extended warranty is a second through fifth year warranty. The time starts at the end of standard 1-year coverage through the fifth year.

These extended warranties apply only to new equipment installed in domestic Trane Commercial sales territories and must be ordered prior to start-up.

Notes

Trane - by Trane Technologies (NYSE: TT), a global climate innovator - creates comfortable, energy efficient indoor environments for commercial and residential applications. For more information, please visit trane.com or tranetechnologies.com.

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