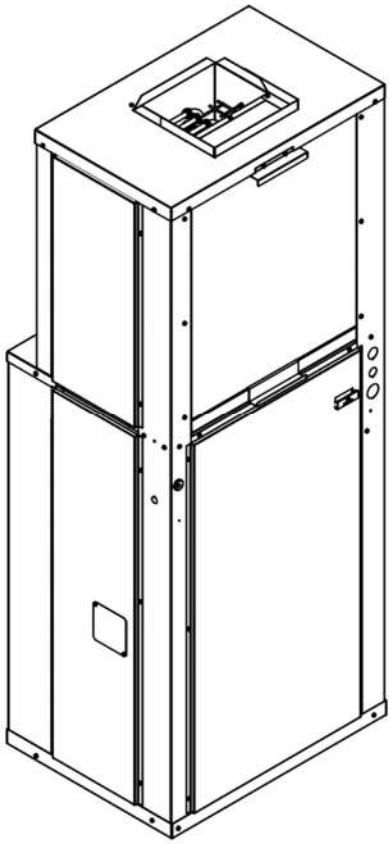
Installation, Operation, & Maintenance

IOM 7201
Rev. A 12/23

COOLPAK HP (EHE)
SPACE CONSTRAINED HEAT PUMP

ATTENTION:

Read all instructions thoroughly and retain all manuals for future reference.



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AHRI Standard 210/240
Certification applies only when the complete system is listed with AHRI.

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The Manufacturer works to continually improve its products and as a result, it reserves the right to change design and specifications without notice.

The warranty may be void unless the Startup & Performance Checklist is completed and returned to the warrantor. If the COOL-PAK HP unit is not installed properly the warranty will be void as the manufacturer cannot be held accountable for problems that stem from improper installation.

******WARNING TO INSTALLER, SERVICE PERSONNEL AND OWNER******

Altering the product or replacing parts with non-authorized factory parts voids all warranty or implied warranty and may result in adverse operational performance and/or a possible hazardous condition to service personnel and occupants. Company employees and/or contractors are not authorized to waive this warning.

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SAFETY CONSIDERATIONS

1. READ THE ENTIRE MANUAL BEFORE STARTING THE INSTALLATION.
2. These instructions are intended as a general guide and do not supersede national, state, or local codes in any way.
3. Altering the product, improper installation, or the use of unauthorized factory parts voids all warranty or implied warranty and may result in adverse operation and/or performance or may result in hazardous conditions to service personnel and occupants. Company employees or contractors are not authorized to waive this warning.
4. This product should only be installed and serviced by a qualified, licensed, and factory authorized installer or service agency.
5. All "kits", parts, and "accessories" used must be factory authorized when modifying this product. Refer and follow instructions packaged with the kits or accessories when installing.

RECOGNIZE THE FOLLOWING SAFETY NOTATIONS THROUGHOUT THIS MANUAL AND POSTED ON THE EQUIPMENT:

WARNING

Indicates a potentially hazardous situation or unsafe practices that could result in severe personal injury or death and/or damage to property.

WARNING

ELECTRIC SHOCK HAZARD

Signifies potential electrical shock hazards that could result in personal injury or death.

CAUTION

Indicates a potentially hazardous situation that may result in minor or moderate personal injury.

IMPORTANT

Suggests important procedure steps to insure proper installation, reliability, or operation.

NOTE

Used to highlight suggestions, which may result in enhanced installation, reliability or operation.

MODEL NOMENCLATURE

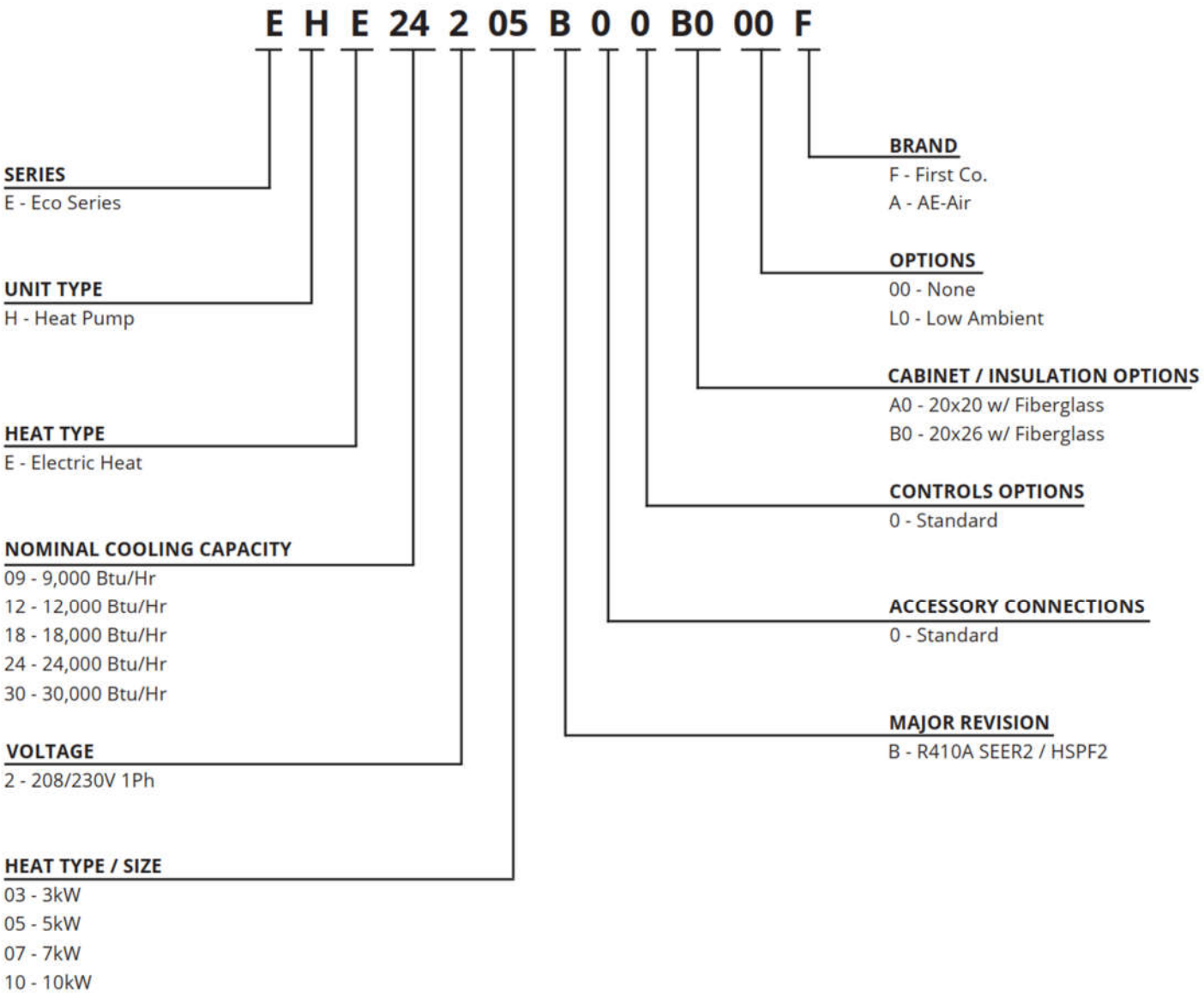


Figure 1 - Model Nomenclature

GENERAL INFORMATION

The Eco-series COOL-PAK heat pump is a space constrained package heat pump unit with integrated electric heat. The unit is tested to AHRI 210/240 2023 and is in compliance with UL 1995 Rev 5.

These instructions are given for the installation of the Eco Series COOL-PAK HP specifically. For any other related equipment, refer to the appropriate manufacturer's instructions.

CAUTION

DO NOT use units during any phase of construction.

Mechanical components and filters can become clogged with dirt and debris, which can cause damage to the system.

The manufacture does not warrant equipment subjected to abuse. Construction debris can void warranties and liability for equipment failure, personal injury, and property damage.

WARNING

ELECTRIC SHOCK HAZARD

ALWAYS turn off all power to the unit before servicing equipment. There may be more than one disconnect switch. All lockout/tag out procedures should be followed.

Electrical shock can cause personal injury or death.

NOTE

Material in this shipment has been inspected at the factory and released to the transportation agency in good condition.

Upon receipt, a visual inspection of all cartons should be made immediately. Any evidence of rough handling or apparent damage should be noted on the delivery receipt in the presence of the carrier's representative.

If damage is found, a claim should be immediately filed against the carrier.

CAUTION

Extreme caution must be taken to ensure that no internal damage will result from screws that are drilled into the cabinet.

UNIT OPERATION

Operating Range °F [°C]				
Condition	Cooling		Heating	
	Min	Max	Min	Max
Outdoor DB	60 [15.6]	115 [46.1]	5 [-15]	75 [23.8]
Indoor DB	60 [15.6]	90 [32.2]	50 [10]	80 [26.6]

Table 1 - Unit Operating Range

Note:

1) Unit does not come standard with an outdoor low temperature lockout. If heating operation is intended below 5°F provisions must be made for an external lockout
2) Operating ranges based off standard installation with 0" external static. Operation with non-standard louvers may lower unit operating range.
3) In ambients that experience temperatures significantly below freezing, it is recommend to add additional insulation and external heating to the internal condensate p-trap. See **Figure 10 - Low Ambient Insulation** and **Low Ambient Operation on page 16** for more information.

STORAGE

Equipment should be stored in a clean dry, conditioned area with maximum temperatures up to 120°F [48.89°C] and minimum temperatures to 32°F [0°C]. Units should be stored upright and in an indoor environment. It is recommended to leave packaging on the unit until the installation is to begin.

WARNING

Stacking the COOL-PAK systems is strictly prohibited. Failure to follow this directive may result in system and/or property damage.

DO NOT operate units during the construction process. Mechanical components and filters could become clogged with dirt and debris, which can cause damage to the system.

The manufacture does not warrant equipment subjected to abuse. Construction debris can void warranties and liability for equipment failure, personal injury, and property damage.

UNIT INSPECTION CHECKLIST

Before preparing unit for installation, complete the inspection procedures below.

1) Visually inspect unit for any shipping damage. Damage must be reported immediately to the shipping company to make a claim.
2) Ensure that the carrier makes proper notation of any shortages or damage on all copies of the freight bill and completes a common carrier inspection report.
3) Verify that unit nameplates on the data label match the sales order or bill of lading (including, unit configuration, size and voltage).
4) Immediately before installation, remove unit front panel and verify that all electrical connections are tight and that there are no loose wires.
5) Verify that the refrigerant piping is free from any kinks and there is no interference between unit piping and sheet metal or electrical wires.
6) Remove the blower access panel and remove the Styrofoam packaging mount underneath the blower.
7) Check that the blower spins freely within the housing and there are no obstructions between the wheel and housing. The wheel can sometimes come loose in shipping.
8) Ensure that evaporator distributor tubes are not touching one another and that they are over the drain pan.
9) Check the air-coil fins for any damage during shipping.
10) Ensure that shipping brackets and screws are removed from condensing section. Refer to **Figure 2 - Shipping Bracket Removal**

NOTE

Check the unit nameplate for correct voltage with the plans before installing the equipment.

Ensure that all electrical ground, connections are made in accordance with local code.

NOTE

Remove the Styrofoam shipping block supporting the blower assembly.

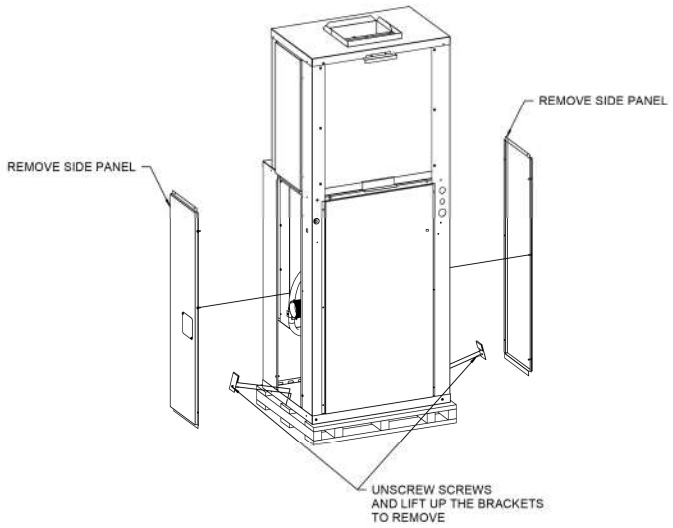
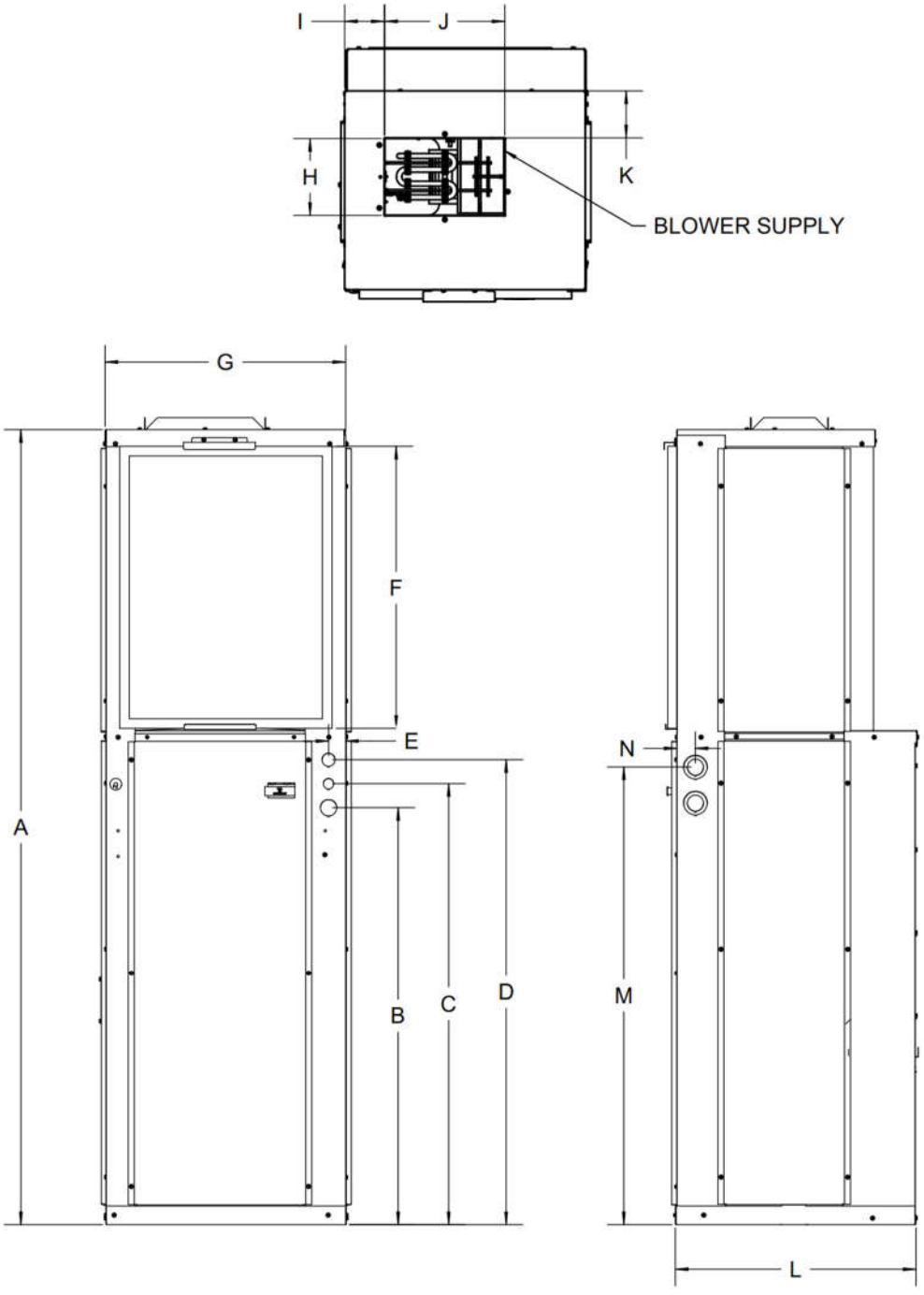


Figure 2 - Shipping Bracket Removal

UNIT DIMENSIONAL DATA



DIMENSIONAL DATA														
MODEL	A	B	C	D	E	F	G	H	I	J	K	L	M	N
	CABINET DIMENSIONS							SUPPLY CONNECTIONS						
EHE09	66.5	34.9	36.9	38.9	1.4	23.6	20.9	6.4	3.3	10.0	3.9	20.1	38.2	1.6
EHE12	66.5	34.9	36.9	38.9	1.4	23.6	20.9	6.4	3.3	10.0	3.9	20.1	38.2	1.6
EHE18	66.5	34.9	36.9	38.9	1.4	23.6	20.9	6.4	3.3	10.0	3.9	20.1	38.2	1.6
EHE24	66.5	34.9	36.9	38.9	1.4	23.7	26.9	10.0	7.9	10.0	3.9	20.1	38.2	1.6
EHE30	66.5	34.9	36.9	38.9	1.4	23.7	26.9	10.0	7.9	10.0	3.9	20.1	38.2	1.6

Table 2 – EHE Dimensional Data

UNIT PHYSICAL DATA

PHYSICAL DATA					
COOL-PAK Model	EHE092**B	EHE122**B	EHE182**B	EHE242**B	EHE302**B
Compressor (Quantity)	Rotary (1)		Scroll (1)		
Factory Charge (R410A) lb. [kg]	3.4 [1.53]	4.1 [1.85]	4.9 [2.25]	5.3 [2.39]	5.5 [2.48]
ID MOTOR					
Motor (Quantity)	1	1	1	1	1
Fan Motor Type	ECM	ECM	ECM	ECM	ECM
Motor HP	1/4	1/4	1/3	1/3	1/2
OD MOTOR					
Motor (Quantity)	1	1	1	1	1
Fan Motor Type	ECM	ECM	ECM	ECM	ECM
Motor HP	1/4	1/4	1/4	1/4	1/3
ID BLOWER					
Blowers (Quantity)	1	1	1	1	1
Blower Wheel Size (D x W) in. [cm]	6 x 4 [15.2 x 10.16]	6 x 4 15.2 x 10.16]	10 x 4 [25.4 x 10.16]	10 x 4 [25.4 x 10.16]	10 x 4 [25.4 x 10.16]
EVAPORATOR COIL					
Dimensions (H x W) in. [cm]	24 x 16 [61 x 41]	24 x 16 [61 x 41]	24 x 16 [61 x 41]	24 x 22 [61 x 56]	24 x 22 [61 x 56]
Face Area ft² [m²]	2.6 [0.24]	2.6 [0.24]	2.6 [0.24]	3.6 [0.33]	3.6 [0.33]
Rows	2	3	4	4	4
OD COIL					
Dimensions (H x W) in. [cm]	26 x 16.5 [66 x 42]	26 x 16.5 [66 x 42]	26 x 16.5 [66 x 42]	26 x 22.5 [66 x 57]	26 x 22.5 [66 x 57]
Face Area ft² [m²]	2.9 [0.27]	2.9 [0.27]	2.9 [0.27]	4.1 [0.38]	4.1 [0.38]
MISCELLANEOUS					
Throwaway Filter Dim. in. [cm]	24 x 24 [61 x 61]	24 x 24 [61 x 61]	24 x 24 [61 x 61]	24 x 24 [61 x 61]	24 x 24 [61 x 61]
Throwaway Filter Quantity	1	1	1	1	1
Operating Weight lb. [kg]	288 [131]	289 [131]	290 [131]	305 [138]	315 [142]
Packaged Weight lb. [kg]	310 [141]	310 [141]	310 [141]	325 [147]	335 [152]

Table 3 – EHE Physical Data

ELECTRICAL DATA

Electrical Data EHE (208/230 1PH 60HZ)														
Model Number	COMPRESSOR		OUTDOOR MOTOR		INDOOR MOTOR		MIN. CIRCUIT AMPACITY (MCA)				MAX. OVERCURRENT PROTECTION (MOP)			
	RLA	LRA	FLA	HP	FLA	HP	CIRCUIT 1* (L1-L2)		CIRCUIT 2* (L3-L4)		CIRCUIT 1* (L1-L2)		CIRCUIT 2* (L3-L4)	
							240V	208V	240V	208V	240V	208V	240V	208V
EHE09203B	4.4	20	2.3	1/4	2.3	1/4	25.7	23.6	-	-	30	25	-	-
EHE12203B	4.7	26	2.3	1/4	2.3	1/4	26.1	24.0	-	-	30	25	-	-
EHE12205B	4.7	26	2.3	1/4	2.3	1/4	33.9	30.8	-	-	35	35	-	-
EHE18203B	9	56	2.3	1/4	2.8	1/3	32.0	29.9	-	-	35	35	-	-
EHE18205B	9	56	2.3	1/4	2.8	1/3	39.6	36.1	-	-	45	40	-	-
EHE18207B	9	56	2.3	1/4	2.8	1/3	34.4	31.6	19.1	17.0	35	35	20	20
EHE18210B	9	56	2.3	1/4	2.8	1/3	39.6	36.1	29.5	26.0	40	40	30	30
EHE24205B	10.7	55	2.3	1/4	2.8	1/3	41.7	38.2	-	-	50	45	-	-
EHE24207B	10.7	55	2.3	1/4	2.8	1/3	36.5	33.7	19.1	17.0	40	40	20	20
EHE24210B	10.7	55	2.3	1/4	2.8	1/3	41.7	38.2	29.5	26.0	45	40	30	30
EHE30205B	12.8	68	2.8	1/3	4.1	1/2	44.8	41.3	-	-	60	50	-	-
EHE30207B	12.8	68	2.8	1/3	4.1	1/2	39.6	36.8	20.8	18.6	45	45	25	20
EHE30210B	12.8	68	2.8	1/3	4.1	1/2	44.8	41.3	31.2	27.7	50	45	35	30

Table 4 – EHE Electrical Data

Notes

1) Circuits 1 and 2 require seperate sets of power wires connected to the unit, each backed by an independent circuit braker
2) For 3kW and 5kW models, Circuit 1 is used for compressor power, condenser fan power, evaporator motor power and first stage of electric heat
3) For 7kW and 10kW models, Circuit 1 is used for compressor power, condenser fan power and the first stage of electric heat. Circuit 2 is used for the 2nd stage of electric heat and the evaporator motor
4) Refer to wiring diagrams In the EHE IOM for additional details
5) Wire size should be determined in accordance with National Electric Codes
6) Unit are rated for 208/230V, but MOP, MCA values are calculated at 208/240V
7) For all models, Minumum voltage is 197V. Maximum voltage is 252V

INSTALLATION

INSTALLATION PRECAUTIONS

CAUTION

Always wear all appropriate personal protection Equipment when installing and servicing units.

WARNING

Use multiple people to team lift when moving and installing these units. Failure to properly lift units may result in personal injury or death.

CAUTION

Contact with metal edges and corners can result in personal injury. Protective gloves should be worn when handling. Exercise caution when installing and servicing unit.

Observe the following precautions for typical installation.

- Always use proper tools and equipment
- No wiring or any work should be attempted without first ensuring the unit is completely disconnected from the power source and locked out. Also, verify that a proper permanent and uninterrupted, ground connection exists prior to energizing power to the unit.
- Review unit nameplate and wiring diagram for proper voltage and control configurations. This information may vary from unit to unit.
- Units must be installed leveled to ensure proper drainage and operation.
- Be sure that the drain pan is free from foreign material prior to start up.

CAUTION

Components rotate at high speeds when the unit is in operation.

- Check filter media installation to ensure that it is installed correctly. Use the directional arrows or other information on the filter to determine the proper flow direction.
- Ensure air distribution system does not exceed the external static rating of the unit.

WARNING

When soldering and brazing, it is recommended that fire extinguishers be available. When soldering and brazing close to valves or sensitive components, heat shields or wet rags are required to prevent damage to the valves or components.

NOTE

Insulation is installed in the unit to provide a barrier between varying atmospheres outside and within the unit. If insulation is damaged condensation can occur and can lead to corrosion, component failure, and possible property damage.

Damaged insulation must be repaired prior to the operation of the unit. Insulation will lose its effectiveness and value when wet, torn, separated, and/or damaged.

CAUTION

When servicing this equipment, ensure that the reversing valve, expansion device, filter drier and other components are specifically designed for R-410A refrigerant.

ONLY USE service equipment specifically designated for use with R-410A.

WARNING

R-410A can become combustible if mixed with air at elevated temperature and/or pressure.

Failure to observe this warning may result in property damage, personal injury, or death.

NOTE

For heat pump operation below freezing temperatures, field installed freeze protection is required to prevent condensate from freezing in the outdoor condensate lines. Applying self-regulating heat tape and pipe insulation is the recommended method for freeze protection.

INSTALLATION (continued)

UNIT LOCATION

The COOL-PAK is designed for through-the-wall installation. The interior portion of the unit is surrounded by a closet with a rear access **Figure 5**. The vertical discharge allows for ducting to the top of the room for best air circulation and elimination of cold drafts on occupants.

Provisions should be made to allow access to the indoor side of the unit for installation and inspection. The closet or access panel opening must be centered with the exterior wall opening and must me large enough to accomidate the installation of the Cool-pak Sleeves. Refer to figures 4-6 for sleeve size.

3-in. of unobstructed clearance must be maintained around the COOL-PAK chassis on all sides for adequate airflow to achieve optimum performance. These guidelines give minimum spacing requirements only. It is acceptable to go beyond these limits at any time. At least 27 in. of unobstructed space should be provided in front of the access door to permit removal of the unit, should repair and inspection be required.

The installer must adhere strictly to all local and national code requirements pertaining to the installation of this equipment. All units are designed for indoor use only, and are agency listed for installation with clearances specified in ***Table 5 - Clearance Requirements***. This includes the cabinet, discharge plenum and connecting ducts.

NOTE

Do not locate two units adjacent to each other on an inside corner or where they may exhaust into each other.

NOTE

The COOL-PAK units are designed for quiet operation. However, all air conditioning equipment will transfer a level of noise to the conditioned space.

This should be considered when planning the location of the equipment.

NOTE

The Architectural Grille must be installed prior to the installation of the COOL-PAK unit into the sleeve.

UNIT CLEARANCE REQUIREMENTS

Service clearance must be provided for future maintenance and service. A minimum of 29 in. [73.66 cm] open area must be left unobstructed in front of the access panels.

The grille side must be kept free from any obstructions to air flow. The unit must be installed at least 4 feet [1.22m] from electric meters, gas meters, regulators, and relief equipment.

CLEARANCE REQUIREMENTS		
MINIMUM CLEARANCE	INCHES	CM
Horizontal distance between units	12	30
Vertical distance between units	60	152
Distance above ground level	6	15
Distance above finished floor	6	15
Distance above a garage floor	18	46

Table 5 - Clearance Requirements

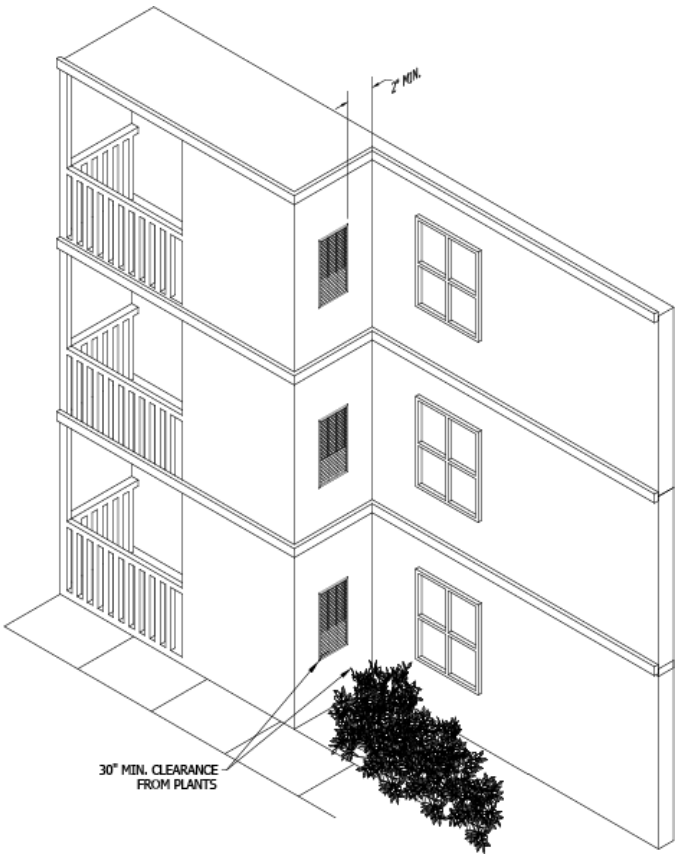


Figure 3 - Clearance Requirements

INSTALLATION (continued)

WALL SLEEVE INSTALLATION

Refer to installation instruction packed with the wall sleeve to assemble and mount into the wall. Before unit installation, verify that sleeve components are not damaged and that the drain line is unobstructed free of leaks.

Check all seals to ensure that they are in position and un-damaged. Ensure that the wall sleeve is sloped toward the exterior of the building. Securely fasten the Architectural grille to the front of the sleeve using the supplied hardware.

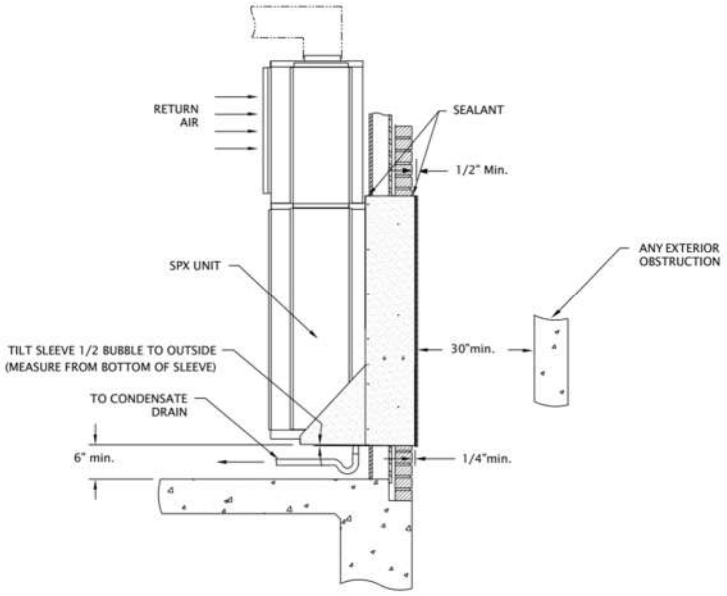


Figure 4 – Wall Sleeve Mounting

IMPORTANT

After sleeve installation, ensure that the gap in-between the wall and seal is insulated and is in contact with the sleeve sides.

IMPORTANT

Apply a high grade non-hardening sealant approved for exterior at the following locations to prevent air and water from migrating inside:

1. Between edge of the sleeve and the structure
2. On the inside/outside walls.

IMPORTANT

Units are ONLY intended for indoor installation applications.

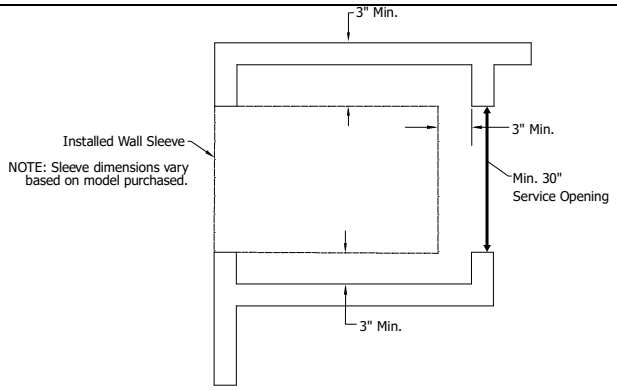


Figure 5 - Rear Sleeve Installation

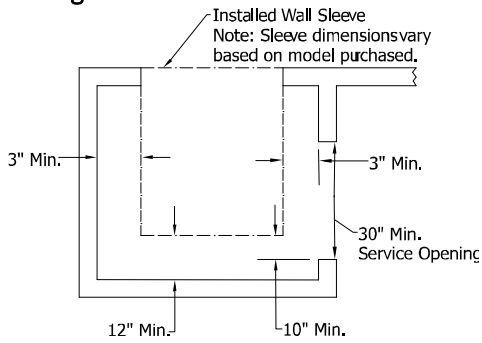


Figure 6 - Side Sleeve Installation

- "A" CabientSleeve rough-in opening is 43-1/2 in. (H) [110.49 cm] x 26-3/4 in. (W) [67.94 cm].
- "B" CabientSleeve rough-in opening is 43-1/2 in. (H) [110.49 cm] x 26-3/4 in. (W) [67.94 cm].
- Bottom of opening should be approximately 6 in. [15.24 cm] above the floor.

IMPORTANT

Sleeve should be installed in exterior wall prior to constructing closet

NOTE

Additional insulation is required on the internal condensate connections whenever the unit is operated in an area subject to freezing temperatures.

NOTE

Locate the unit in an area that provides minimum clearance to all service access panels. Consider all additional clearances needed for water connections, electrical connections, duct connections and sufficient return airflow.

INSTALLATION (continued)

PACKAGED UNIT INSTALLATION

1) Before installing the unit in the sleeve be sure to go through the unit inspection check-list
2) Open the rear access door to grab loose items such as a electrical disconnect.
3) Ensure that properly sized ductwork is in place to mate to the connections on the Cool-pak.
4) Ensure that the wall sleeve is installed correctly into the wall and is secured before installing unit. Also ensure that the sleeve has the proper slope towards the exterior of the building.
5) After removing the construction debris guard, check the bottom of the sleeve pan to ensure that it is sloped toward the building exterior. Ensure that the bottom of the pan and drain are clear of obstruction and are operational.
6) Slide the unit on to the sleeve and push from the bottom until the front of the unit is aligned with the front of the sleeve.
7) Inspect the sleeve seal to ensure that it is properly secured and aligned.
8) Use a high-grade non-hardening sealant to close any gaps that may exist between the seal and the wall of the sleeve.
9) Check that the unit is completely settled on all four sides against the wall sleeve and seals.

NOTE

The unit is fully enganged in the sleeve if the top sleeve is in contact with the blower section of the unit. The condensing section should sit 3.5” deep into the sleeve.

CAUTION

If unit is not sealed properly, water and/or outside air will infiltrate the closet which may cause improper unit operation and can cause damage to the unit and/or property.

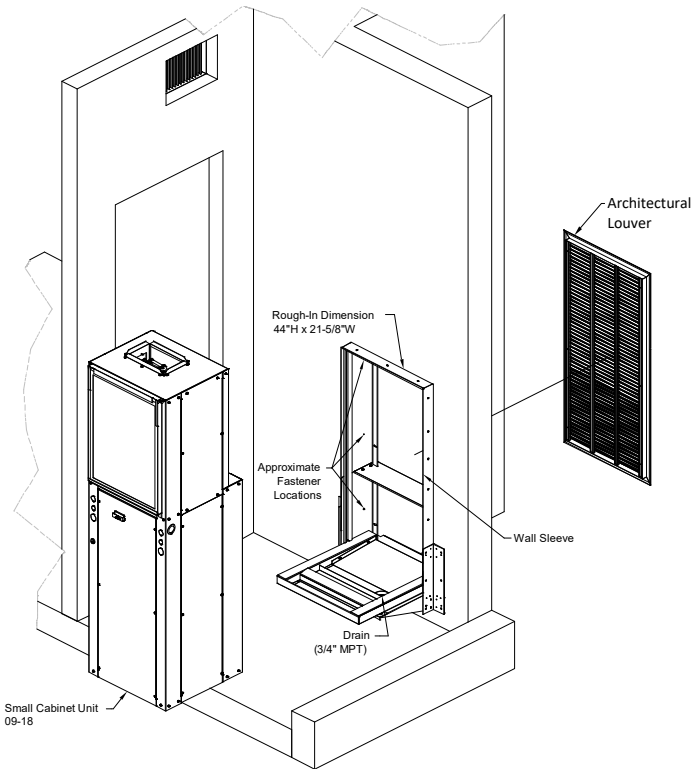


Figure 7 - Small Cabinet Installation

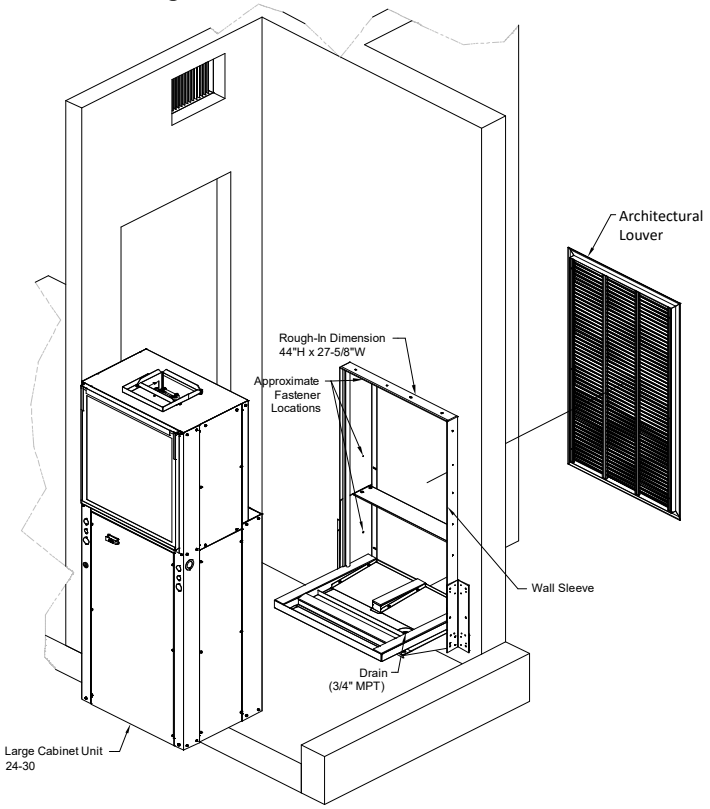


Figure 8 - Large Cabinet Installation

INSTALLATION (continued)

DUCTWORK

Discharge ductwork is normally used with these units. When return air ductwork is required, the unit is supplied with 1 in. [5.08 cm] thick filter rack/duct collar for connection of return air ductwork. All ductwork must be installed in accordance with National Fire Protection Assoc. Codes 90A and 90B.

Supply and Return ducts must be sized properly as to not exceed static pressure capabilities of the unit. Ducts should be adequately insulated to prevent condensation and to minimize heat loss. A flexible connector is recommended for supply air connections on metal duct systems.

DISCHARGE DUCTING

All Ductwork must conform to industry standards of good practice as described in ASHRAE System Guide. The transition piece from the unit discharge to the duct distribution system must not have an angle greater than 30° or severe loss of air performance can result.

Do not connect the full duct size to the unit discharge collar without using a transition piece down to the size of the unit discharge collar. With metal material, the sides of the elbow and entire branch duct should be internally lined with acoustic insulation for sound attenuation.

The ductwork should be configured such that there is no line of sight between the unit discharge and the distribution diffusers.

RETURN AIR DUCTING

Return air duct can be brought in through a wall grille and then to the unit. The return duct system will normally consist of flexible connector at the unit and a trunk duct to the return air grille. With metal duct material, the return air duct should be internally lined with acoustic insulation for sound attenuation.
A 1 in. [5.08 cm] air duct collar flange is included on the filter rack for ducted return air application. A flexible duct collar can then be attached between a duct transition and the return air ductwork. The return air duct transition must be the same size as the return air coil face area. Be sure to allow for proper clearance to allow for filter change outs.

AIR FILTER

All indoor return air must be filtered. The preferred methods are listed below.

1. Use the factory supplied filter kit which attaches to the inlet of the evaporator.
2. Use the filter kit supplied with the access panel which accepts an 24 in. [60.96 cm] x 24 in. [60.96 cm] x 1 in. [2.54 cm] throwaway type of filter.
3. Any field installation of an air filter, means must be provided, for use of a disposable filter which is no smaller than the face area of the evaporator coil.

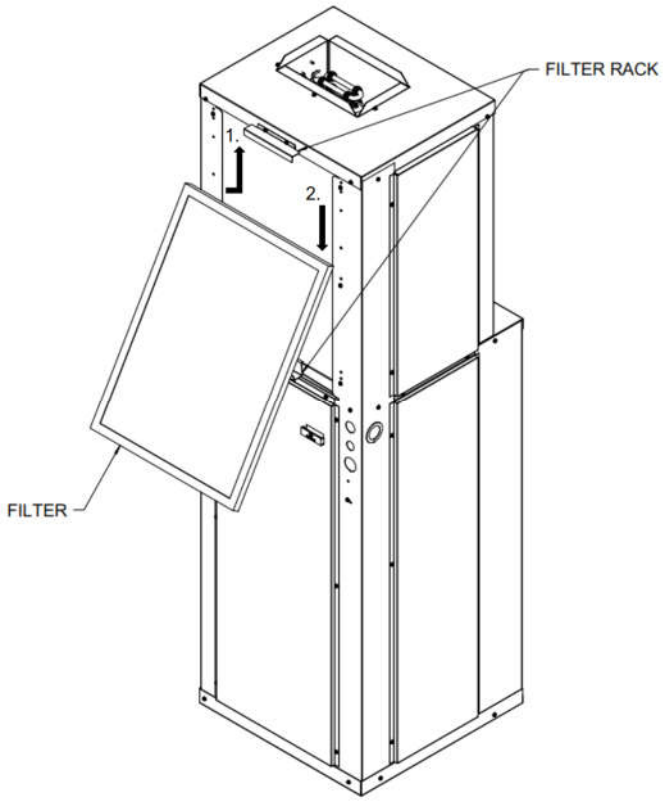


Figure 9 - Air Filter Installation

INSTALLATION (continued)

CONDENSATE DRAIN

The COOL-PAK is designed so that the wall sleeve is the principle drain pan. Drain tubing is factory installed which drains evaporator condensate though the bottom of the unit which then is allowed to drain into the wall sleeve pan.

Condensate drain lines must be installed with adequate slope to ensure positive drainage. Prior to unit installation ensure that the drain is unobstructed and leak free.

CAUTION

On units with plastic drain pans, the drain connection must be made hand tight only.

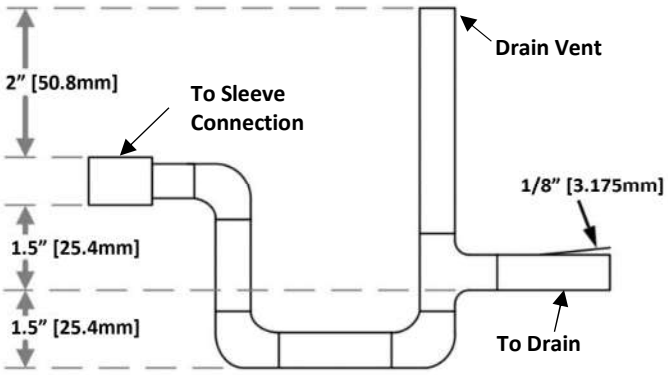


Figure 10 - Condensate Drain

NOTE

While preparing unit for installation, ensure that the drain tubing from the evaporator is securely attached to the copper nipple in the pan under the compressor. The wall sleeve has a 3/4 in. NPT nipple located in the bottom for connection to a drain. A trap is required in the condensate drain line from the wall sleeve to prevent sewer gas from escaping into the room.

LOW AMBIENT OPERATION

When operating in condition significantly below freezing, it is required to add additional insulation and heat tape to the internal indoor condensate p-trap to avoid freezing concerns.

Minumum of 1/2" pipe insulation and electric heat tape should be added to the condensate lines inside of the condensing section. Refer to Figure 10 - Low Ambient Insulation for more information.

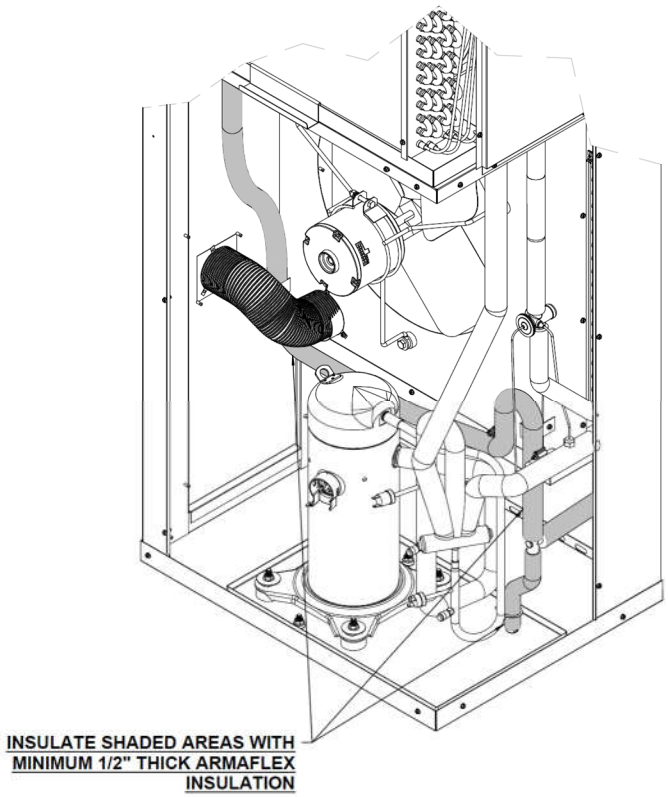


Figure 10 - Low Ambient Insulation

FRESH AIR VENT

The COOL-PAK heat pumps come standard with an optional fresh-air vent that can be used to provide ventation to the condition space.

If the panel is removed, the condenser fan pushes outdoor air into the indoor space. The amount of conditioned air depends on the unit size and cannot be adjusted.

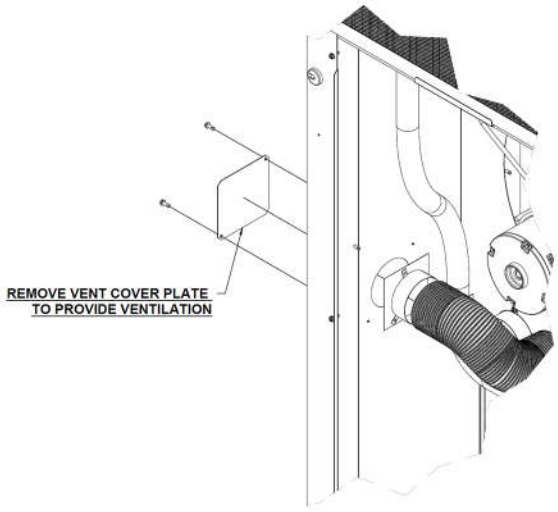


Figure 11 - Fresh Air Vent

ELECTRICAL

HIGH VOLTAGE

All wiring must comply with local and national code requirements. Units are provided with wiring diagrams and nameplate data to provide information required for necessary field wiring.

WARNING

ELECTRIC SHOCK HAZARD

Disconnect all power supplies before servicing. Lock out/tag out to prevent accidental electrical shock.

NOTE: There may be multiple power sources supplying the unit.

WARNING

Use copper conductors only. Install all parts and panels before operation of unit. Failure to follow these warnings can result in personal injury or death.

Units are provided with a class 2 transformer for 24VAC control circuits. Should any add-on accessory or component also have a class 2 transformer furnished, care must be taken to prevent interconnecting outputs of the two transformers by using a thermostat with isolating contacts.

WARNING

Connect ground wire to ground terminal marked "GND". Failure to properly ground the unit may result in personal injury or death.

CAUTION

Any device that has been furnished by the factory for field installation must be wired in strict accordance with the associated wiring diagram. Failure to properly wire the unit may damage components and void warranties.

208V OPERATION

All 208-240 Volt units are factory wired for 240 Volt operation. For 208 Volt operation, moving, changing, or rewiring the line voltage tap on the 24 Volt control transformer is required. See note on unit wiring diagram for instructions.

THERMOSTAT

THERMOSTAT REQUIREMENTS

A minimum of a 1C/2H heat pump thermostat is required to operate the CoolPak HP. Thermostat connections are as follows:

THERMOSTAT CONNECTIONS KEY		
LETTER	COLOR	DESCRIPTION
C	BROWN	Transformer 24VAC Common
R	RED	Transformer 24VAC Hot
G	GREEN	Evaporator Blower
Y1	YELLOW	Compressor Contactor
W1	WHITE	First Stage Heating
W2*	Purple	Second Stage Heating
O	ORANGE	Reversing Valve (energized in cooling)

Table 6 - Thermostat Connections Key

*7kW and 10kW units only

THERMOSTAT INSTALLATION

The Thermostat should be located on an interior wall in a larger room, away from supply duct draft. Position the thermostat back plate against the wall so that it appears level and so the thermostat wires protrude through the middle of the back plate mounting holes and drill holes with a 3/16 in. bit. Install supplied anchors and secure plate to the wall. Thermostat wire must be 18 AWC wire.

SECOND STAGE ELECTRIC HEAT

7kW and 10kW Coolpak models are equipped with 2 stages of electric heat. In order to use the 2nd stage, a 2C/3H heat pump thermostat must be used and the W2 thermostat call must be wired to the W2 thermostat connection on the unit. The jumper wire between the 1st stage sequencer and 2nd stage sequencer must be removed. Refer to the system wiring diagram for more information.

CONTROLS (continued)

ECO SERIES CONTROL MODULE

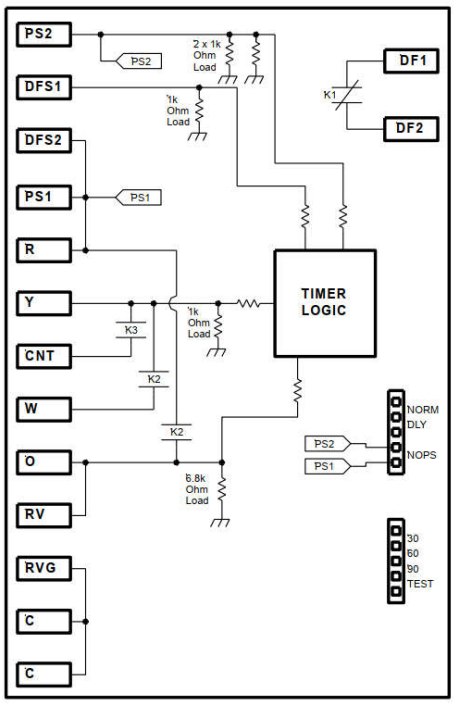


Figure 12 - ECO Series Control Module

POWER-UP

When power is first applied to the control, the board will enter a 5 minute random start delay before allowing normal operation of system ouputs.
The defrost timers are reset to the beginning of the interval between defrost cycles and the short cycle timer is cleared.

FIELD TEST MODE

Test mode is recognized when the .025” pin header "TEST" pins are shorted together for more than 1 second. Test mode is exited when the short is removed from the "TEST" pins. The control automatically cancels the test mode if the "TEST" pins remain shorted together for more than 5 minutes.
The test mode operates the same as normal operation except for all operations are executed at 120 times the normal speed.

REVERSING VALVE OPERATION

The reversing valve will be energized in cooling mode in the presence of an “O” call. The reversing valve will be de-energized in heating mode in absence of the “O” call.

ANTI-SHORT CYCLE DELAY

The anti-short cycle timer prevents the compressor from being re-started unless it has been off for at least 3 minutes. The restart delay timer is activated on power-up and whenever the compressor is turned off. If the thermostat calls for compressor (“Y” energized) before the timer has expired, the control keeps the compressor off until the timer expires. If the thermostat calls for compressor (”Y” energized) on after the timer has expired, the control immediately turns on the compressor.

POWER INTERRUPTIONS

If the power to the control is interrupted for less than 20 milliseconds, the control shall resume operation at the same point in the timing cycle. The control shall not change modes of operation due to a power interruption of less than 20 milliseconds. Relays may temporarily drop out during the power interruption. Power interruptions over 20 to 50 milliseconds are to reset the short cycle timer. If the compressor was energized, it de-energizes for the short cycle time period. Defrost timing is not to be affected below 100mS.

CONTROLS (continued)

COOLING OPERATION

STEADY STATE COOLING

If the control recognizes cooling mode (“Y” and “O” energized), the reversing valve energizes when the thermostat energizes the "O" terminal through the physical connection of the control, and the compressor will energize after the short cycle period. The reversing valve is immediately de-energized when "O" is deenergized (unless in defrost).

The control ignores the defrost sensor and keeps the defrost interval timers cleared while "O" is energized. The control ignores the pressure switch input for the first 3 minutes after the compressor is energized

HEATING OPERATION

FIRST STAGE HEATING

The control recognizes heating mode when a call for heat is made (“Y” input is energized). When the 3 minute short cycle time has been satisfied, the control energizes the compressor. The control ignores the pressure switch input for the first 3 minutes after the compressor is energized.

INTERVAL BETWEEN DEFROSTS

When the defrost switch is open or the thermostat is in cooling mode ("O" energized) the defrost interval timers remain reset at zero and the control is not in defrost. If the defrost switch opens or the thermostat has a call for cool mode before a defrost cycle initiates, the defrost interval timer is cleared.

When the defrost switch is closed and the thermostat "O" is de-energized, a timer on the control accumulates compressor run time. When the compressor run time reaches the selected defrost interval time (30, 60, or 90 minutes), the control places the heat pump in defrost. The “Y” input may cycle on and off during the accumulation time without resetting the accumulation timer.

If the shorting jumper that selects the defrost interval time is not present, a default of 90 minutes will be selected.

DEFROST CYCLE

While in defrost, the control de-energizes the outdoor fan, energizes the reversing valve and auxiliary heat outputs. A timer on the control accumulates defrost compressor run time.

If the indoor thermostat is satisfied (“Y” de-energizes), the compressor, reversing valve, and auxiliary heat de-energize and the fan re-energizes, suspending the defrost mode until the compressor is re-energized. When the compressor is re-energized, the defrost mode is resumed at the same point, unless the defrost switch has opened, or the thermostat “O” has been energized.

The control ignores the pressure switch input for the first 3 minutes of defrost. If the control has been in defrost past the initial 3 minutes, and the pressure switch opens, the compressor, reversing valve, and auxiliary heat de-energize and the fan re-energizes. The short cycle timer resets and the defrost timer holds the value of defrost time. After the pressure switch re-closes and the short cycle period is over, the control will re-energize the compressor, reversing valve, and auxiliary heat and de-energize the fan. The control will then continue to run the defrost mode from the time left on the defrost timer.

If compressor delay ("DLY") operation is selected, when the defrost mode is initiated, the compressor is de-energized for 10 seconds starting when the reversing valve and auxiliary heat are energized.

DEFROST TERMINATION

The control terminates defrost when the defrost switch opens or the control finishes the 10 minutes of defrost time. The control immediately de-energizes the auxiliary heat, the reversing valve, and energizes the outdoor fan. The control resets the defrost interval timer. The compressor may still run depending upon the current call from the thermostat.

The control ignores the pressure switch input for the first 3 minutes after defrost is terminated.

If compressor delay ("DLY") operation is selected, when the defrost mode is terminated, the compressor is de-energized for 10 seconds starting when the reversing valve and auxiliary heat are de-energized input.

AUXILIARY HEATING OPERATION

THERMOSTAT CALL FOR AUXILIARY HEAT

Depending on the thermostat control, the thermostat may energize both “Y” and “W1/W2” during low ambient heat operation to provide additional system heat. During this time both the compressor and electric heat will operate together and the system will energize the high fan speed.

BLOWER DATA

EHE Airflow Data

EHE AIRFLOW DATA											
MODEL	Motor Tap	Motor Speed	IWC STATIC PRESSURE									
			0.10		0.20		0.30		0.40		0.50	
			SCFM	W	SCFM	W	SCFM	W	SCFM	W	SCFM	W
EHE09203B	1	**T1**	305	45	290	45	270	45	250	45	235	45
	2	**T2^{C}**	350	55	330	55	315	60	295	60	275	60
	3	**T3**	390	70	370	70	350	70	335	70	315	70
	4	**T4^{H}**	450	95	435	95	415	95	395	95	380	95
EHE12203B	1	**T1**	315	50	300	45	280	45	260	45	240	45
	2	**T2^{C}**	450	100	435	95	415	95	395	95	375	95
	3	**T3**	425	85	410	85	390	85	370	85	355	85
	4	**T4^{H}**	510	125	490	125	470	125	455	125	435	125
EHE12205B	1	**T1**	315	50	300	45	280	45	260	45	240	45
	2	**T2^{C}**	450	100	435	95	415	95	395	95	375	95
	3	**T3**	425	85	410	85	390	85	370	85	355	85
	4	**T4^{H}**	550	150	535	150	515	150	495	150	475	145
EHE182203B	1	**T1**	390	45	365	45	340	45	310	40	265	30
	2	**T2^{C}**	720	150	695	150	670	155	640	150	595	140
	3	**T3**	625	110	600	110	575	110	545	105	500	95
	4	**T4^{H}**	720	150	695	150	670	155	640	150	595	140
	5	**T5**	815	205	790	205	765	205	735	200	690	190
EHE182205B	1	**T1**	390	45	365	45	340	45	310	40	265	30
	2	**T2^{C}**	720	150	695	150	670	155	640	150	595	140
	3	**T3**	625	110	600	110	575	110	545	105	500	95
	4	**T4^{H}**	720	150	695	150	670	155	640	150	595	140
	5	**T5**	815	205	790	205	765	205	735	200	690	190
EHE182207B	1	**T1**	390	45	365	45	340	45	310	40	265	30
	2	**T2^{C}**	720	150	695	150	670	155	640	150	595	140
	3	**T3**	625	110	600	110	575	110	545	105	500	95
	4	**T4^{H}**	720	150	695	150	670	155	640	150	595	140
	5	**T5**	815	205	790	205	765	205	735	200	690	190
EHE182210B	1	**T1**	390	45	365	45	340	45	310	40	265	30
	2	**T2^{C}**	720	150	695	150	670	155	640	150	595	140
	3	**T3**	625	110	600	110	575	110	545	105	500	95
	4	**T4^{H}**	815	205	790	205	765	205	735	200	690	190
	5	**T5**	930	270	905	270	885	270	850	265	805	255
EHE24205B	1	**T1**	395	45	365	45	335	40	305	40	265	35
	2	**T2^{C}**	880	220	850	220	820	220	785	215	750	210
	3	**T3**	785	165	755	165	725	165	690	160	655	155
	4	**T4^{H}**	880	220	850	220	820	220	785	215	750	210
	5	**T5**	935	260	905	260	875	260	845	260	805	255

Table 7 – EHE Airflow Data

EHE AIRFLOW DATA

EHE BLOWER DATA											
MODEL	Motor Tap	Motor Speed	IWC STATIC PRESSURE									
			0.10		0.20		0.30		0.40		0.50	
			SCFM	W	SCFM	W	SCFM	W	SCFM	W	SCFM	W
EHE24207B	1	**T1**	395	45	365	45	335	40	305	40	265	35
	2	**T2[C]**	880	220	850	220	820	220	785	215	750	210
	3	**T3**	785	165	755	165	725	165	690	160	655	155
	4	**T4[H]**	880	220	850	220	820	220	785	215	750	210
	5	**T5**	935	260	905	260	875	260	845	260	805	255
EHE24210B	1	**T1**	395	45	365	45	335	40	305	40	265	35
	2	**T2[C]**	880	220	850	220	820	220	785	215	750	210
	3	**T3**	785	165	755	165	725	165	690	160	655	155
	4	**T4[H]**	895	230	865	230	835	230	805	225	765	225
	5	**T5**	935	260	905	260	875	260	845	260	805	255
EHE30205B	1	**T1**	545	80	515	75	480	70	440	60	395	50
	2	**T2[C]**	890	230	860	225	825	215	790	205	745	195
	3	**T3**	980	295	950	290	915	280	875	270	835	260
	4	**T4[H]**	890	230	860	225	825	215	790	205	745	195
	5	**T5**	1000	310	970	305	935	300	895	290	855	280
EHE30207B	1	**T1**	545	80	515	75	480	70	440	60	395	50
	2	**T2[C]**	890	230	860	225	825	215	790	205	745	195
	3	**T3**	980	295	950	290	915	280	875	270	835	260
	4	**T4[H]**	890	230	860	225	825	215	790	205	745	195
	5	**T5**	1000	310	970	305	935	300	895	290	855	280
EHE30210B	1	**T1**	545	80	515	75	480	70	440	60	395	50
	2	**T2[C]**	890	230	860	225	825	215	790	205	745	195
	3	**T3**	980	295	950	290	915	280	875	270	835	260
	4	**T4[H]**	980	295	950	290	915	280	875	270	835	260
	5	**T5**	1000	310	970	305	935	300	895	290	855	280

Table 8 – EHE Airflow Data Continued

[C] Factory Default Cooling and Heat Pump Airflow

[H] Factory Default Electric Heat Airflow

T1 is reserved for Fan Only Operation (All models)

T2, T3 are reseved for cooling and heat pump opreation only

T4 and T5 are reserved for electric heat operation only

Blower performance data based on a dry coil at 70°F DB EAT with a standard 1" clean air filter

Do not run the unit at higher then .5 IWC

For information on how to change the blower speed, review the unit wiring diagram

WARNING

ELECTRIC SHOCK HAZARD

High efficiency brushless DC motors are wired with power applied at all times, see illustration above.
Low voltage thermostat demand and board algorithms will control its use.

WIRING DIAGRAMS

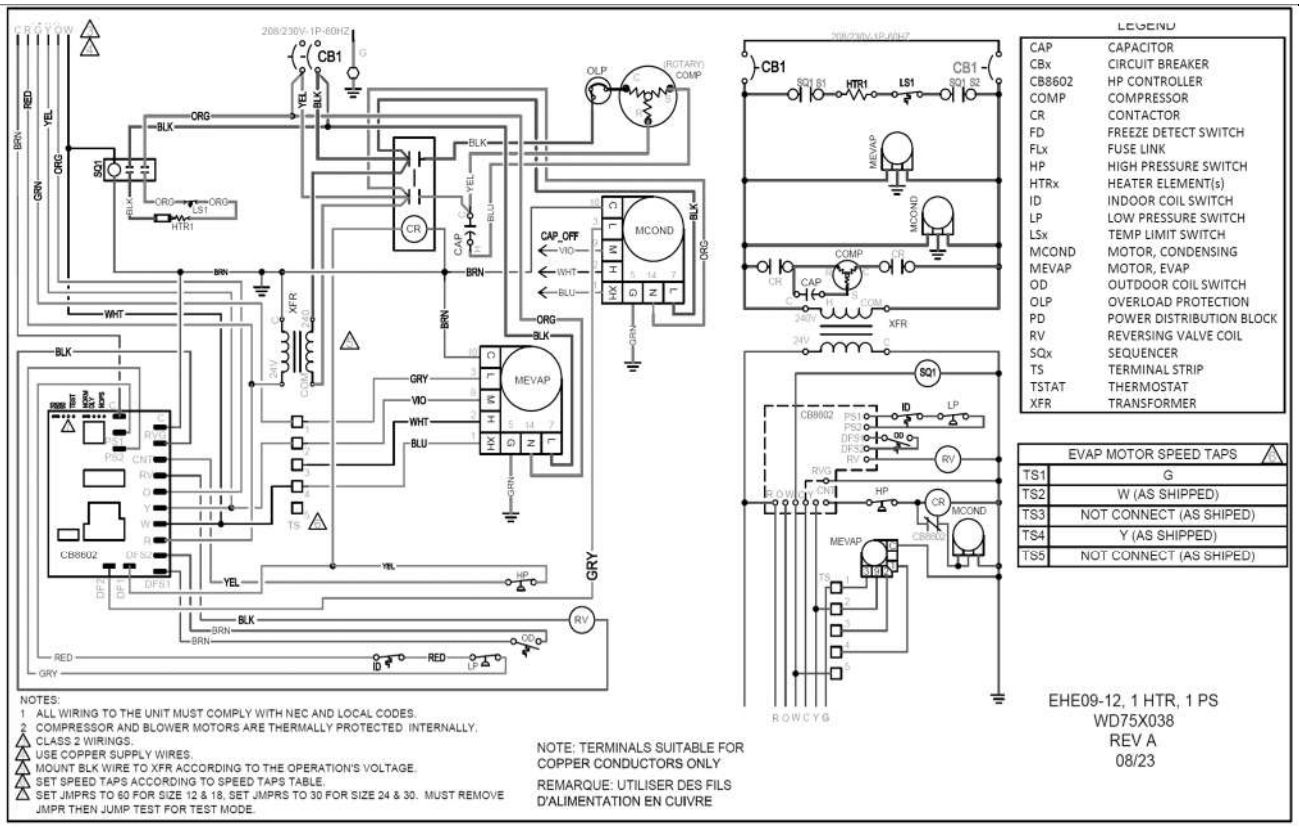


Figure 13- EHE09-12. 1HTR, 1PS

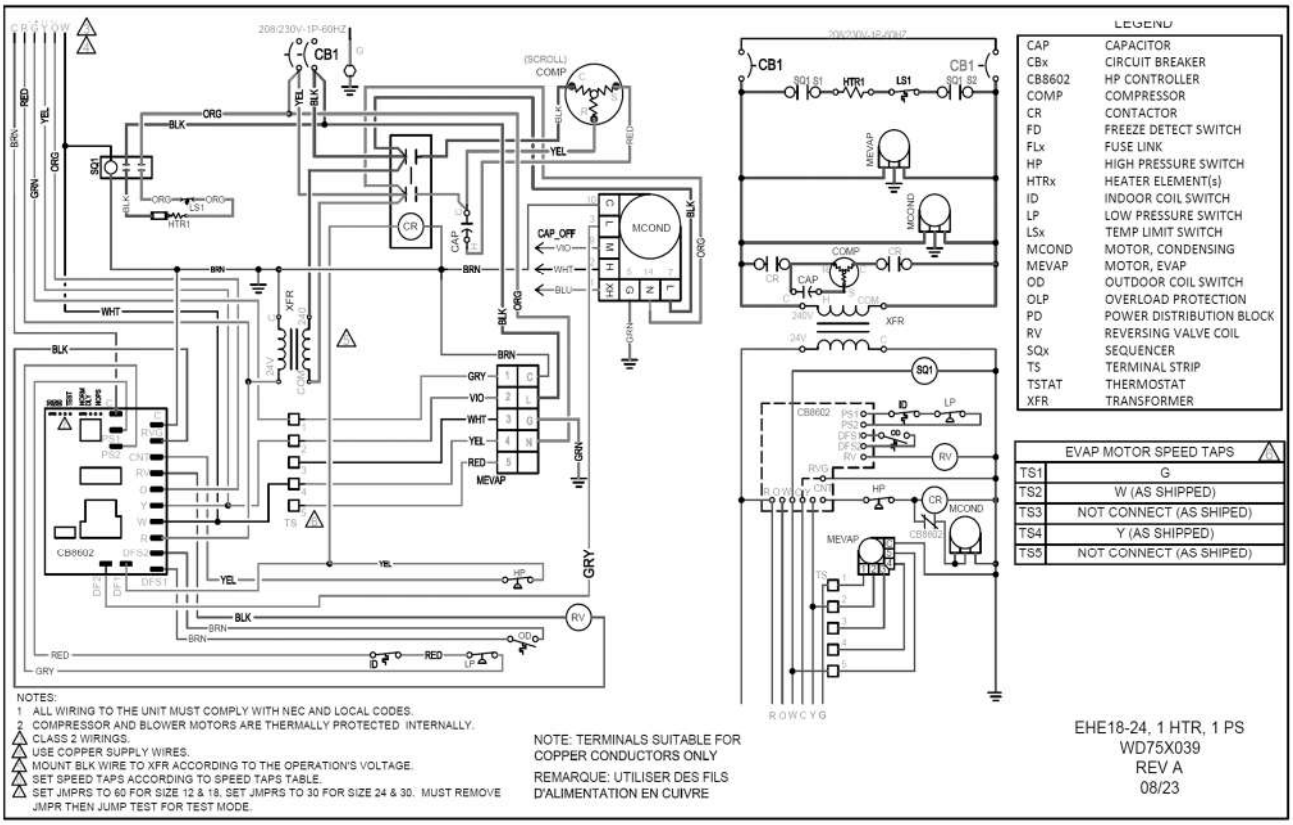


Figure 14- EHE18-24. 1HTR, 1PS

Wiring Diagrams

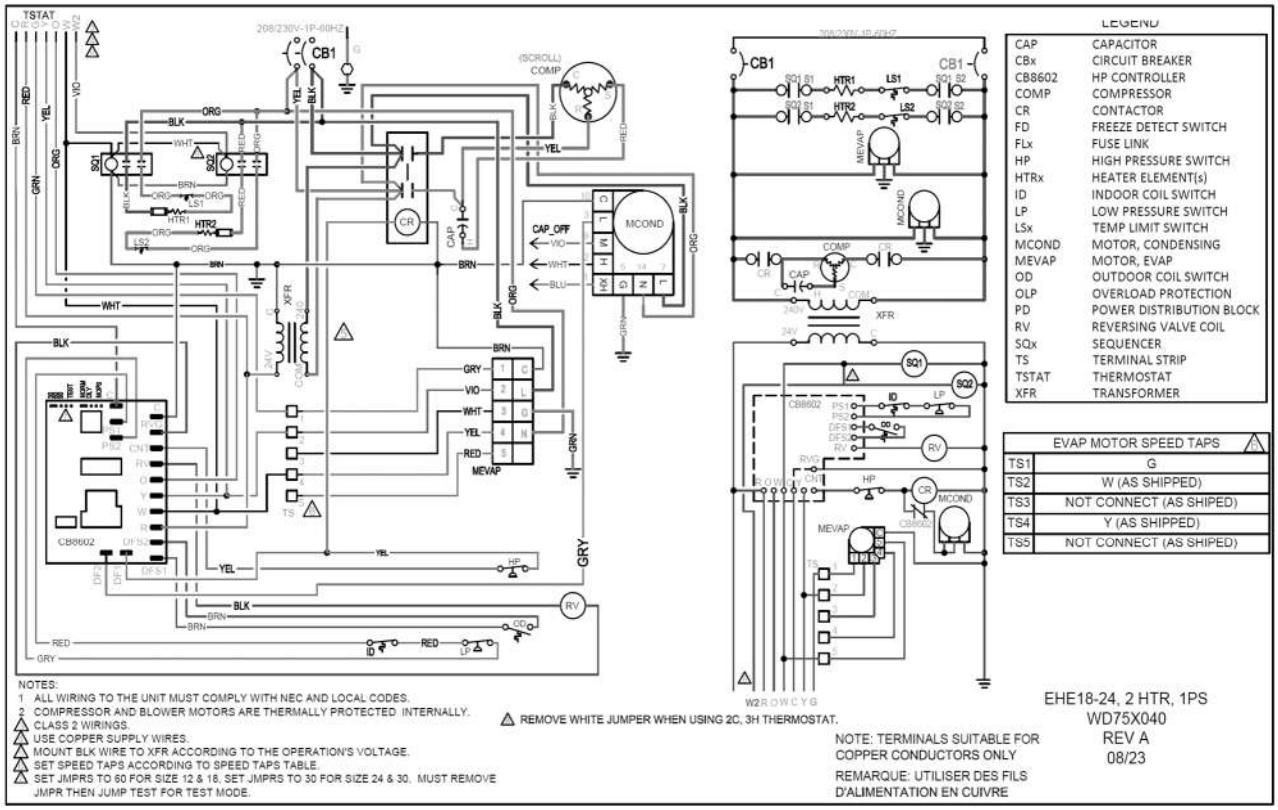


Figure 15- EHE18-24. 2HTR, 1PS

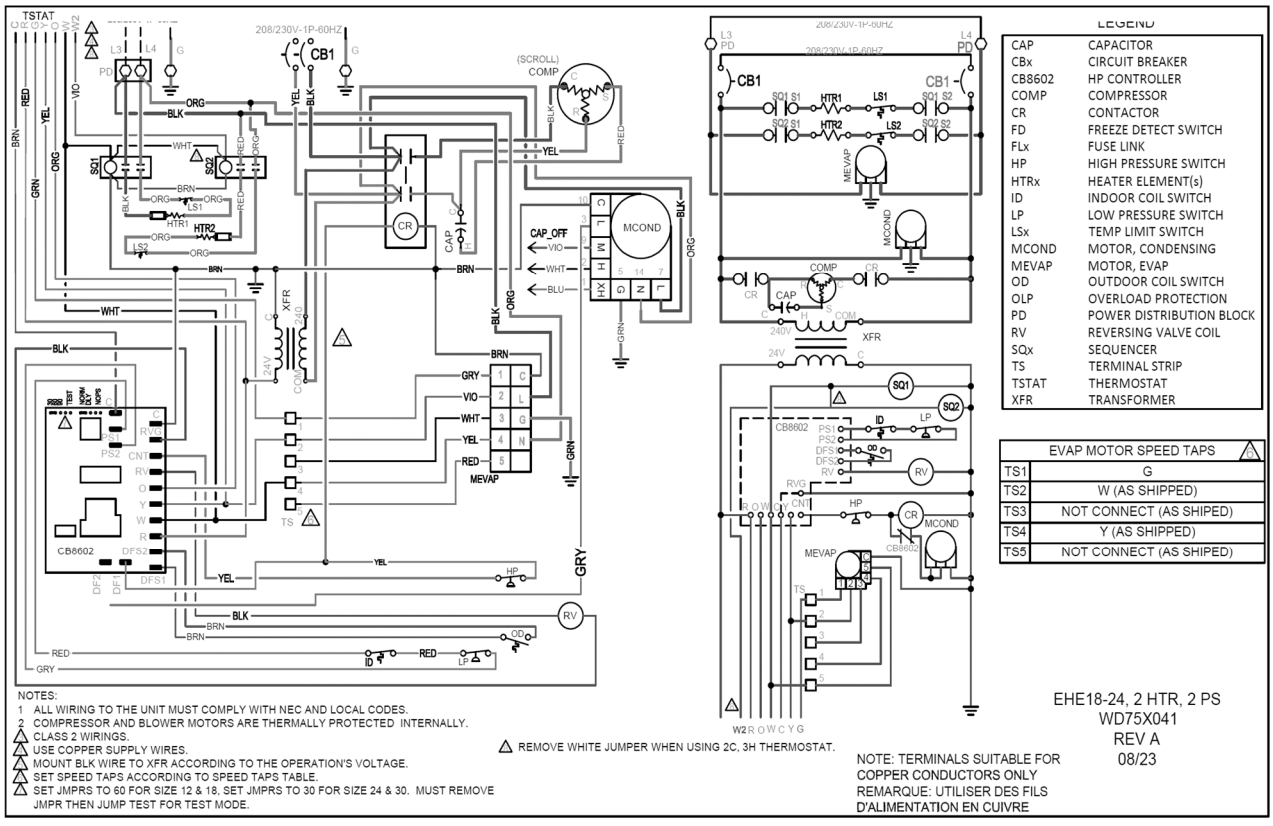


Figure 16- EHE18-24. 2HTR, 2PS

Wiring Diagrams

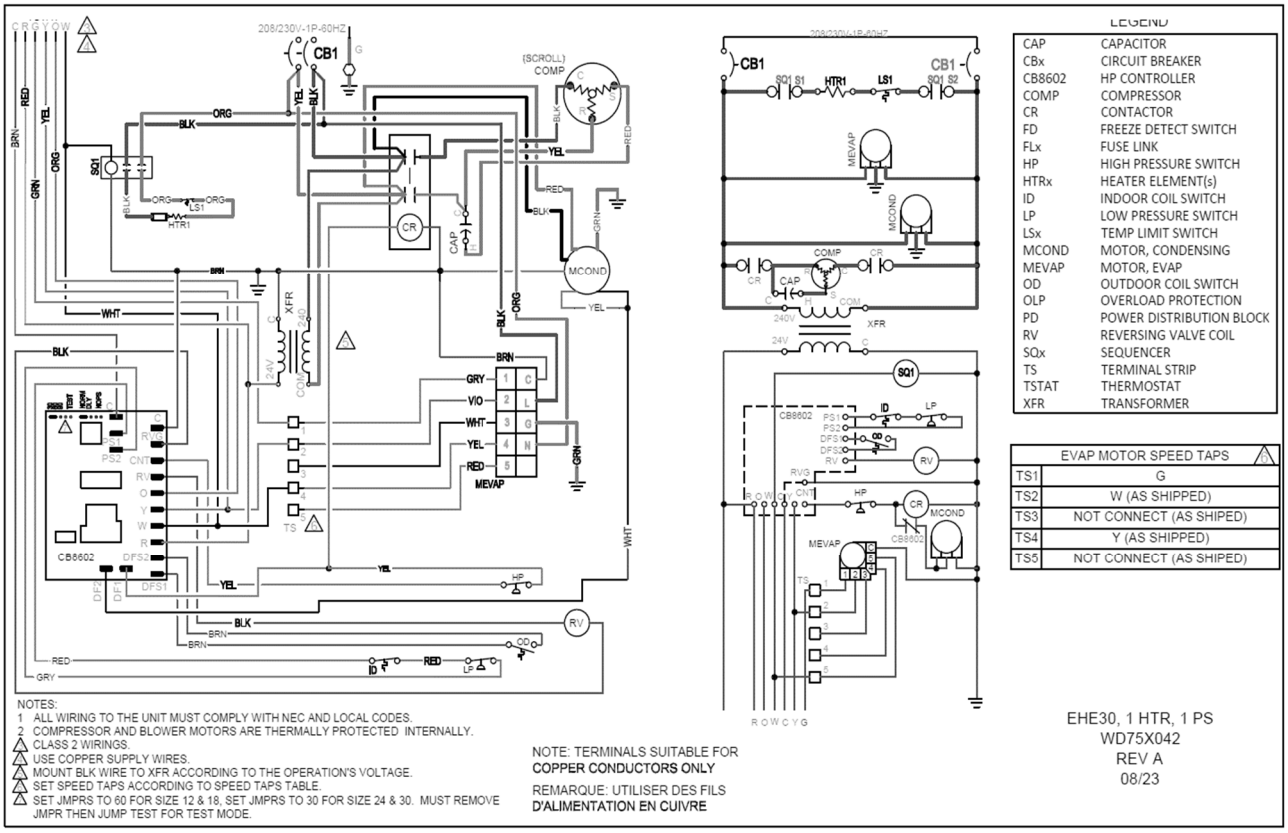


Figure 17- EHE18-24. 1HTR, 1PS

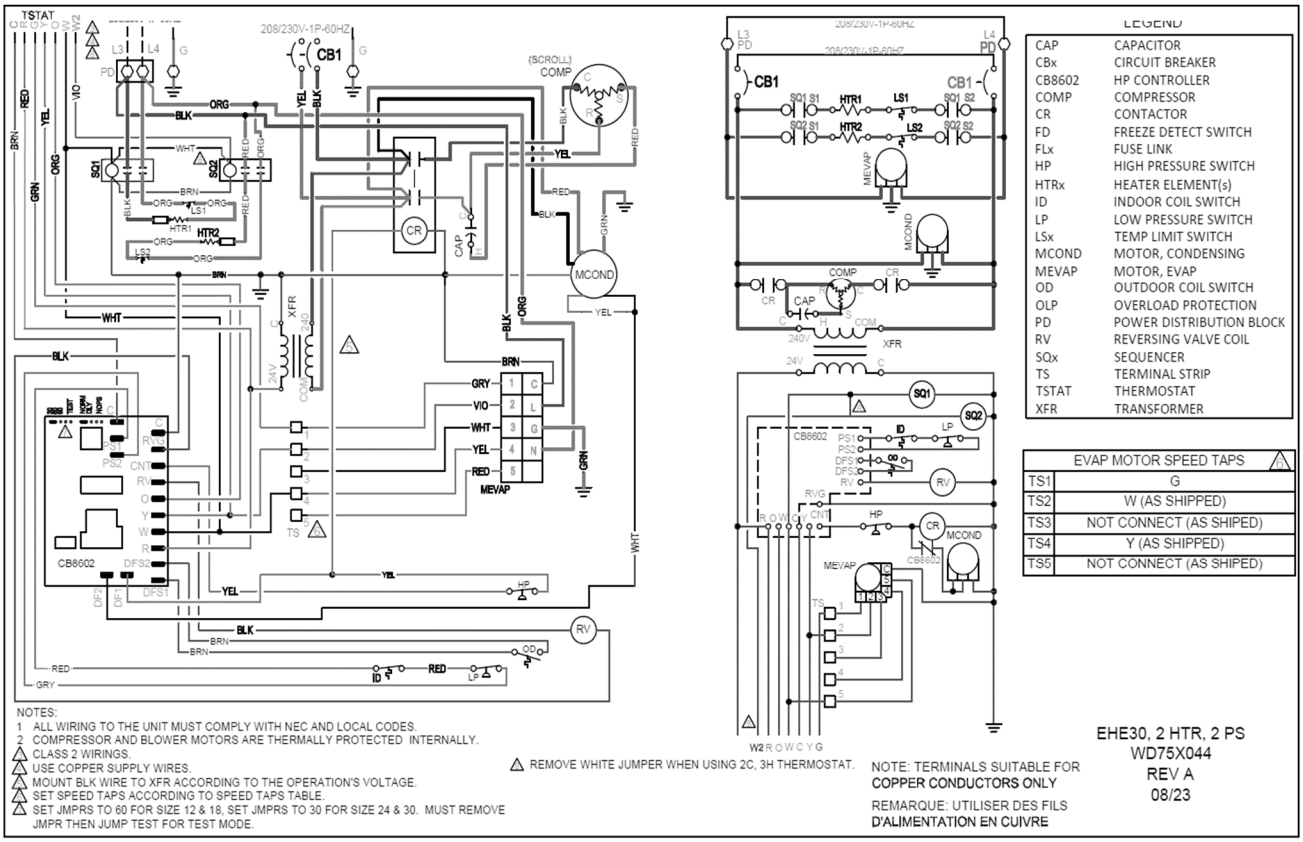


Figure 18- EHE18-24. 2HTR, 2PS

STARTUP INSTRUCTIONS

PRE-STARTUP CHECKS

Before start-up, thoroughly check all the components. Optimal operation of equipment requires cleanliness. Often after installation of the equipment, additional construction activities occur. Protect the equipment from debris during these construction phases.

WARNING

Electrically ground the unit by connecting ground wire to ground lug. Failure to properly ground the unit may result in personal injury or death.

CAUTION

Wire any field installed device such as a fan switch or thermostat furnished by the factory in strict accordance with the wiring diagram supplied with the unit. Failure to properly wire the unit could result in damage to components and will void all warranties.

PRIOR TO THE STARTUP OF THE UNIT

1. Ensure supply voltage matches nameplate data.
2. Ensure the unit is properly grounded
3. With the power off, check blower wheel set screws for proper tightness and that the blower wheel rotates freely.
4. Ensure unit will be accessible for servicing.
5. Ensure condensate line is properly sized, run, trapped, pitched and tested.
6. Ensure all cabinet openings and wiring connections have been sealed.
7. Ensure clean filters are in place.
8. Ensure all access panels are in place and secured.
9. Verify that all electrical connections are tight and secure.
10. Check the electrical overcurrent protection and wiring for the correct size.
11. Verify that the low voltage wiring between the thermostat and the unit matches the wiring diagram.

START PROCEDURE

1. Set thermostat system switch to “OFF” position and fan switch to “Auto” position. Apply power to the COOL-PAK Unit.
2. Set fan switch to “On”, indoor blower should operate.
3. Return fan switch to “Auto”, indoor blower should de-energize.
4. Set system switch to “Cool” and lower the thermostat set point to coldest setting. The compressor should energize as well as the outdoor fan and indoor blower.
5. Return thermostat set-point to a temperature warmer than room temperature and the compressor, indoor and outdoor fan should de-energize.

NOTE

The COOL-PAK employs a compressor short cycle delay (approx. 3 minutes) which will not allow the compressor to immediately restart following shut down. Additional delays may be experienced if using an electronic digital thermostat.

6. Move system switch to “Heat: and raise thermostat to a set point slightly higher than room temperature (less than 2 degrees). The compressor, outdoor fan and indoor blower should energize.
7. Raise set point to more than 2 degrees and the electric heaters should also energize.

NOTE

The COOL-PAK Low Ambient heat pumps DO NOT have a low ambient cut-off switch.

WARNING

COOL-PAK Heat Pump units operate with the reversing valve energized in the COOLING mode. The thermostat must be wired or configured accordingly or the unit will not operate properly.

STARTUP & PERFORMANCE CHECKLIST INSTRUCTIONS:

The warranty may be void unless the **FIGURE 20 – Startup & Performance Checklist** is completed and returned to the warrantor. If the unit is not installed properly, the warranty will be void, as the manufacturer will not be held accountable for problems that stem from improper installation.

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	CHECKS & CORRECTIONS
ENTIRE UNIT DOES NOT RUN	Power supply off	Apply power; close disconnect.
	Blown Fuse	Replace fuse or reset circuit breaker. Check for correct fuses.
	Voltage supply low	If voltage is below minimum voltage specified on unit data plate, contact lower power company.
	Thermostat	Set the fan to “ON”, the fan should run. Set thermostat to “COOL” and lowest temperature setting, the unit should run in the cooling mode (reversing valve energized). Set unit to “HEAT” and the highest temperature setting, the unit should run in the heating mode. If neither the blower nor compressor run in all three cases, the thermostat could be mis-wired or faulty. To ensure mis-wired or faulty thermostat verify 24 volts is available on the condenser section low voltage terminal strip between “R” and “C”, “Y” and “C”, and “B” and “C”. If blower does not operate, verify 24 colts between terminals “G” and “C” in the air handler. Replace the thermostat if defective.
BLOWER OPERATES BUT COMPRESSOR DOES NOT RUN	Thermostat	Check setting, calibration and wiring.
	Wiring	Check for loose or broken wires at compressor, capacitor or contractor.
	Compressor overload open	If the compressor is cool and the overload will not reset, replace the compressor.
	Compressor motor grounded	Internal wiring grounded to the compressor shell. Replace compressor. If compressor burnout, install new filter dryer.
	Compressor windings open	After compressor has cooled, check continually of compressor windings. If the windings are open, replace the compressor.
UNIT OFF ON HIGH PRESSURE CONTROL	Discharge pressure too high	In “COOLING” mode: Lack of or inadequate air flow. Entering air temperature too warm. Blower inoperative, clogged filter or restriction in ductwork. In “HEATING” mode: Lack of or inadequate airflow. Entering air temperature too cold. Blower inoperative, clogged filter or restriction in ductwork.
	Refrigerant charge	The unit is overcharged with refrigerant. Reclaim refrigerant, evacuate and recharge with factory recommended charge.
	High pressure switch	Check for defective or improperly calibrated high-pressure switch.
UNIT OFF ON LOW PRESSURE CONTROL	Suction Pressure too low	In “COOLING” mode: Lack of or inadequate air flow. Entering air temperature too cold. Blower inoperative, clogged filter or restriction in ductwork. In “HEATING” mode: Lack of or inadequate airflow. Entering air temperature too warm. Blower inoperative, clogged filter or restriction in ductwork.
	Refrigerant charge	The unit is low on refrigerant. Check for refrigerant leak, repair, evacuate and recharge with factor recommended charge.
	Low pressure switch	Check for defective or improperly calibrated low-pressure switch.
UNIT SHORT CYCLES	Unit oversized	Recalculate heating and cooling loads.
	Thermostat	Thermostat installed near a supply air register, relocate thermostat. Check heat anticipator.
	Wiring and controls	Loose connections in the wiring or a defective compressor contactor.

Table 9 - Troubleshooting Table (1 of 2)

TROUBLESHOOTING (continued)

PROBLEM	POSSIBLE CAUSE	CHECKS & CORRECTIONS
INSUFFICIENT COOLING OR HEATING	Unit undersized	Recalculate heating and cooling loads. If not excessive, possibly adding insulation will rectify the situation.
	Loss of conditioned air by leaks	Check for leaks in ductwork or introduction of ambient air through doors or windows.
	Airflow	Lack of adequate airflow or improper distribution of air. Replace dirty air filter.
	Refrigerant charge	Low on refrigerant charge causing inefficient operation.
	Compressor	Check for defective compressor. If discharge is too low and suction pressure is too high, compressor is not pumping properly. Replace compressor.
	Reversing valve	Defective reversing valve creating bypass of refrigerant from discharge to suction side of compressor. Discharge is too low and suction is too high. Replace reversing valve.
	Operating pressures	Compare unit operating pressures to the pressure / temperature chart for the unit.
	Refrigerant metering device	Check for possible restriction or defect. Replace if necessary.
	Moisture, non-condensable	The refrigerant system may be contaminated with moisture or non-condensable. Reclaim refrigerant, evacuate and recharge with factory recommended charge.
UNIT DOES NOT DEFROST	Loose Defrost Sensor	Ensure that the Defrost sensor is secured tightly to the return bend on the outdoor coil.
	Defrost Sensor not closed	The unit will not defrost if the defrost sensor is open.

Table 10 - Troubleshooting Table (2 of 2)

MAINTENANCE & SERVICE

PREVENTIVE MAINTENANCE

To ensure maximum performance and service life of equipment, a formal schedule of regular preventative maintenance must be established and adhered to.

Failure to do establish and perform preventative maintenance program can void the manufactures warranty.

If servicing or major repairs are required, the complete unit can be removed as follows:

1. Disconnect the electrical power circuit supplying the unit.
2. Remove line and low voltage wiring from unit,
3. Remove rear access panel.
4. Remove supply duct from top of unit.
5. Slide unit back out of sleeve.
6. Unit may be removed from closet.

To reinstall unit, use the installation procedure outlined above.

WARNING

It is a violation of federal law to discharge refrigerant into the atmosphere. Use proper reclaiming methods and equipment when installing or servicing this unit. Service should be performed by a **QUALIFIED** service agency.

The refrigerant system contained in the unit normally requires no maintenance since it is a closed, self-contained system.

CAUTION

All appropriate personal protection equipment should be worn when servicing or maintaining this unit.

Personal injury can result from contact with sharp metal edges, moving parts, and hot or cold surfaces.

FAN

The fan should be inspected and cleaned annually in conjunction with maintenance of the motor and bearings. It is important to keep the fan section and motor clean and free from obstruction to prevent imbalance, vibration, and improper operation.

WARNING

ELECTRIC SHOCK HAZARD

Check motor connections to ensure they are secure and in accordance with the unit wiring diagram.

ECM motors have line voltage power applied at all times.
VERIFY THAT POWER IS DISCONNECTED BEFORE SERVICING.

FILTER

The air filter should be cleaned or replaced every 30 days or more frequently if severe operating conditions exist. Always replace the filter with the same type and size as originally furnished.

COIL

Clean all heat transfer surfaces and remove all dirt, dust, and contaminates that potentially impairs air flow using industry accepted practices. Care should be taken not to bend coil fin material.

CONDENSATE DRAIN PAN AND PIPE

Check and clean all dirt and debris from pan. Ensure drain line is free flowing and unobstructed.

MAINTENANCE UPDATES

Check regularly for a current copy of the maintenance program log which can be found at under “product information”.

UNIT PERFORMANCE

Record performance measurements of volts, amps and air temperature differences (both heating and cooling). A comparison of logged data with start-up and other annual data is useful as an indicator of general equipment condition.

UNIT LOCKOUT

Air flow problems could cause periodic lockouts. The lockout (shutdown) of the units is a normal protective result. Check for airflow rates (may be caused by dirty filter) and air temperatures.

LABORATORY TESTING

When the unit has less than 100 operational hours and the coils have not had sufficient time to be “seasoned”, it is necessary to clean the coils with mild surfactant such as calgon to remove the oils left by manufacturing processes.

STARTUP CHECKLIST

CUSTOMER _____ **STARTUP DATE** _____ **JOB #** _____

ADDRESS _____ **SERVICING COMPANY** _____

_____ **TECHNICIAN** _____

MODEL # _____ **SERIAL #** _____ **PHONE #** _____

INSTALLATION CHECK LIST

- ☐ Inspect the unit for transit damage and report any damage on the carrier's freight bill.
- ☐ Check model number to insure it matches the job requirements.
- ☐ Install field accessories and unit adapter panels as required. Follow accessory and installation manuals.
- ☐ Verify field wiring, including the wiring to any accessories.
- ☐ Check all multi-tap transformers, to ensure they are set to the proper incoming voltage.
- ☐ Power the unit. Bump the motor contractor to check rotation. Three phase motors are synchronized at the factory. If the blower fans are running backwards, de-energize power to the unit, then swap two of the three incoming electrical lines to obtain proper phasing. Re-check.
- ☐ Perform all start up procedures outline in the installation manual shipped with the unit.
- ☐ Fill in the Start Up information as outlined below and on the following page.
- ☐ Provide owner with information packet. Explain the thermostat and unit operation.

START UP INFROMATION SHEET

ELECTRICAL

Supply Voltage L1-L2 _____ Compressor Amps _____

Running Voltage L1-L2 _____ Blower Amps _____

Secondary Voltage _____ Condenser Fan Amps _____

C (black) to G (green) Volts* _____

C (black) t W (white) Volts* _____

AIRFLOW

Intake Design CFM	**Exhaust Design CFM**
Pressure Drop _____	Pressure Drop _____
Calculated CFM _____	Calculated CFM _____
Amb db Temp _____	Amb db Temp _____
Return Air db Temp* _____	Return Air db Temp* _____
Tempered Air db Temp* _____	Tempered Air db Temp* _____

TEMPERATURES

Outdoor Air Temperature

_____DB_____WB

Return Air Temperature

_____DB_____WB

Cooling Suppply Air Temperature

_____DB_____WB

Heating Supply Air Temperature

_____DB_____WB

Figure 20 – Startup & Performance Checklist

NOTES

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The manufacturer works to continually improve its products. It reserves the right to change design and specifications without notice.

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