CEILING MOUNT AIR HANDLERS
INSTALLATION INSTRUCTIONS

IMPORTANT SAFETY INSTRUCTIONS

The following symbols and labels are used throughout this manual to indicate immediate or potential safety hazards. It is the owner's and installer's responsibility to read and comply with all safety information and instructions accompanying these symbols. Failure to heed safety information increases the risk of personal injury, property damage, and/or product damage.

WARNING

ONLY PERSONNEL THAT HAVE BEEN TRAINED TO INSTALL, ADJUST, SERVICE, MAINTENANCE OR REPAIR (HEREINAFTER, "SERVICE") THE EQUIPMENT SPECIFIED IN THIS MANUAL SHOULD SERVICE THE EQUIPMENT. THE MANUFACTURER WILL NOT BE RESPONSIBLE FOR ANY INJURY OR PROPERTY DAMAGE ARISING FROM IMPROPER SERVICE OR SERVICE PROCEDURES. IF YOU SERVICE THIS UNIT, YOU ASSUME RESPONSIBILITY FOR ANY INJURY OR PROPERTY DAMAGE WHICH MAY RESULT. IN ADDITION, IN JURISDICTIONS THAT REQUIRE ONE OR MORE LICENSES TO SERVICE THE EQUIPMENT SPECIFIED IN THIS MANUAL, ONLY LICENSED PERSONNEL SHOULD SERVICE THE EQUIPMENT.
IMPROPER INSTALLATION, ADJUSTMENT, SERVICING, MAINTENANCE OR REPAIR OF THE EQUIPMENT SPECIFIED IN THIS MANUAL, OR ATTEMPTING TO INSTALL, ADJUST, SERVICE OR REPAIR THE EQUIPMENT SPECIFIED IN THIS MANUAL WITHOUT PROPER TRAINING MAY RESULT IN PRODUCT DAMAGE, PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

WARNING

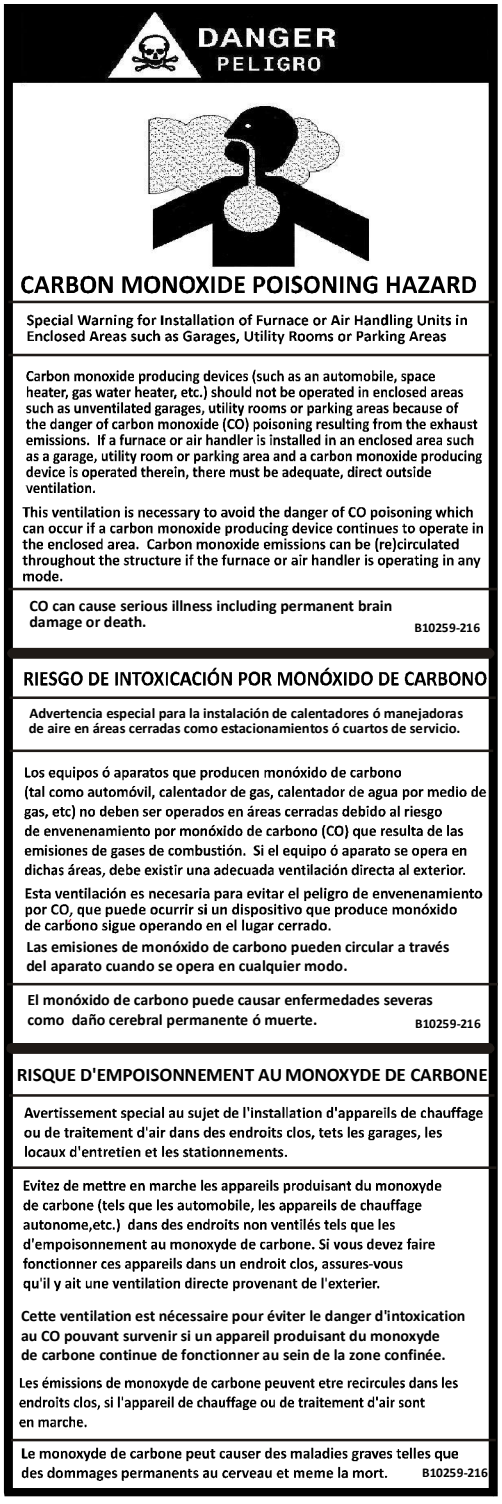
DO NOT BYPASS SAFETY DEVICES

WARNING

HIGH VOLTAGE!
Disconnect all power before servicing or installing this unit. Multiple power sources may be present. Failure to do so may cause property damage, personal injury or death.

WARNING

Do not connect to or use any device that is not design certified by the manufacturer for use with this unit. Serious property damage, personal injury, reduced unit performance and/or hazardous conditions may result from the use of such non-approved devices.



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02/2023

CAUTION

IDENTIFY ALL THE VARIOUS CUTOFF SWITCHES AND DEVICES THAT SERVICE THIS UNIT. KNOW WHERE THE SWITCH IS THAT WILL CUT OFF ENERGY TO THE HEATING SYSTEM IN THE EVENT OF OVERHEATING.

WARNING

APPLIANCE NOT ACCESSIBLE TO THE GENERAL PUBLIC.
CHECK SERIAL PLATE FOR MAXIMUM OPERATING CONDITIONS.

WARNING

PARTIAL UNITS SHALL ONLY BE CONNECTED TO AN APPLIANCE SUITABLE FOR THE SAME REFRIGERANT. THIS UNIT IS A PARTIAL UNIT AIR CONDITIONER, COMPLYING WITH PARTIAL UNIT REQUIREMENTS OF THIS INTERNATIONAL STANDARD, AND MUST ONLY BE CONNECTED TO OTHER UNITS THAT HAVE BEEN CONFIRMED AS COMPLYING TO CORRESPONDING PARTIAL UNIT REQUIREMENTS OF THIS INTERNATIONAL STANDARD.

WARNING

THIS APPLIANCE IS NOT INTEDED FOR USE BY PERSONS (INCLUDING CHILDREN) WITH REDUCED PHYSICAL, SENSORY OR MENTAL CAPABILITIES, OR LACK OF EXPERIENCE AND KNOWLEDGE, UNLESS THEY HAVE BEEN GIVEN SUPERVISION OR INSTRUCTION CONCERNING THE USE OF THE APPLIANCE.

SHIPPING INSPECTION

Upon receiving the product, inspect it for damage from shipment. Shipping damage, and subsequent investigation is the responsibility of the carrier. Verify the model number, specifications, electrical characteristics, and accessories are correct prior to installation. The distributor or manufacturer will not accept claims from dealers for transportation damage or installation of incorrectly shipped units.

Parts

Inspect the unit to verify all required components are present and intact. Report any missing components immediately to the manufacturer or to the distributor. Use only factory authorized replacement parts. Make sure to include the full product model number and serial number when reporting and/or obtaining service parts.

Handling

Use caution when transporting / carrying the unit. Do not move unit using shipping straps. Do not carry unit with hooks or sharp objects. The preferred method of carrying the unit after arrival at the job site is to carry via a two-wheel hand truck.

Shipping Material Removal

IMPORTANT: All Shipping Material used to protect the equipment, and the equipment's components, during transit should be removed before final installation.

CODES & REGULATIONS

This product is designed and manufactured to comply with national codes. Installation in accordance with such codes and/or prevailing local codes/regulations is the responsibility of the installer. The manufacturer assumes no responsibility for equipment installed in violation of any codes or regulations. The standard test ambient operating conditions for cooling and heating mode are 80°F and 70°F, respectively.

The United States Environmental Protection Agency (EPA) has issued various regulations regarding the introduction and disposal of refrigerants. Failure to follow these regulations may harm the environment and can lead to the imposition of substantial fines. These regulations may vary by jurisdiction. A certified technician must perform the installation and service of this product. Should you have any questions please contact the local office of the EPA and / or refer to EPA's website www.epa.gov.

REPLACEMENT PARTS

When reporting shortages or damages, or ordering repair parts, give the complete product model and serial numbers as stamped on the product. Replacement parts for this product are available through your contractor or local distributor. Your nearest distributor can be located online at **https://partner.goodmanmfg.com/** or by contacting:

HOMEOWNER SUPPORT
DAIKIN COMFORT TECHNOLOGIES MANUFACTURING, L.P.
19001 KERMIER ROAD
WALLER, TEXAS 77484
(855) 770-5678

APPLICATION INFORMATION

CAUTION

HEAT PUMP PREMATURE FAILURE NOTICE
RUNNING THE UNIT WITHOUT HPSK-1 KIT INSTALLED ON THE HEAT PUMP CAN CAUSE PREMATURE UNIT FAILURE. A HPSK-1 KIT MUST BE INSTALLED ON ALL HEAT PUMP APPLICATIONS.

This ceiling mount air handler is available in cooling capacities of 1.5, 2 and 2.5 nominal tons of cooling with a constant torque (EEM) motor. Electric heat models are available in capacities of 5, 6, 8 and 10 kW.

The unit is designed to be installed only in a horizontal position above a dropped ceiling. **Do NOT install this unit outside the structure. These models are designed for INDOOR USE ONLY.**

PRE-INSTALLATION INSTRUCTIONS

Carefully read all instructions for the installation prior to installing product. Make sure each step or procedure is understood and any special considerations are taken into account before starting installation. Assemble all tools, hardware and supplies needed to complete the installation. Some items may need to be purchased locally. Make sure everything needed to install the product is on hand before starting.

Before attempting any installation, the following points should be considered:

- Structural strength of supporting members
- Clearances and provision for servicing
- Power supply and wiring
- Air duct connections
- Drain facilities and connections

Verify Components

Inspect the unit to verify all required components are present and intact. Report any missing components immediately to the manufacturer or to the distributor. Use only factory authorized replacement parts. Make sure to include the full product model number and serial number when reporting and/or obtaining service parts.

Installation Clearances

Place this unit as close to the space to be air conditioned as possible. These units are U.L. listed for installations with zero clearance to combustible materials. If this unit is installed in a removable ceiling panel, ensure adequate space is available for servicing. Run ducts as direct as possible to supply and return outlets. Use non-flammable weatherproof flexible connectors on both supply and return connections at unit to reduce noise transmission.

Ducting

Duct work should be fabricated by the installing contractor in accordance with local codes. Use industry manuals such as such as NESCA (National Environmental Systems Contractors Association, 1501 Wilson Blvd., Arlington, Virginia 22209) as a guide when sizing and designing the duct system.

To ensure correct system performance, the ductwork is to be sized to accommodate 375-425 CFM per ton of cooling with the static pressure not to exceed 0.5" W.C. Inadequate ductwork that restricts airflow can result in improper performance and compressor or heater failure.

⚠ WARNING

TO PREVENT POSSIBLE EQUIPMENT DAMAGE, PROPERTY DAMAGE, FIRE, CARBON MONOXIDE POISONING, EXPLOSION, PERSONAL INJURY OR DEATH, DO NOT CONNECT DUCTWORK TO ANY HEAT PRODUCING DEVICE SUCH AS A FIREPLACE INSERT OR STOVE.

Filters

Filters are not provided with unit, and must be supplied and installed in the return air system by the installer. A field installed filter grille is recommended for easy and convenient access to the filters for periodic inspection and cleaning. Filters must have adequate face area for the rated air quantity of the unit. The minimum filter size is 20" x 20" x 1".

Condensate Drain Piping

The coil drain pan has a primary and a secondary drain with 3/4" NPT female connections. The connectors required are 3/4" NPT male, either PVC or metal pipe, and should be hand tightened to a torque of approximately 37 in-lbs. to prevent damage to the drain pan connection. An insertion depth between .143 to .355 inches (2-5 turns) should be expected at this torque. Use the female (3/4 NPT) threaded fitting that protrudes outside of the enclosure for external connections.

1. Ensure drain pan hole is NOT obstructed.
2. To prevent potential sweating and dripping on to finished space, it may be necessary to insulate the condensate drain line located inside the building. Use Armaflex® or similar material.

A Secondary Condensate Drain Connection has been provided for areas where the building codes require it. Pitch the drain line 1/4" per foot to provide free drainage. Insulate drain lines located inside the building to prevent sweating. Install a condensate trap to ensure proper drainage. If the secondary drain line is required, run the line separately from the primary drain and end it where it can be easily seen.

NOTE: Water coming from this line means the coil primary drain is plugged and needs clearing.

⚠ CAUTION

IF SECONDARY DRAIN IS NOT INSTALLED, THE SECONDARY ACCESS MUST BE PLUGGED.

The installation must include a "P" style trap that is located as close as is practical to the evaporator coil. See **Figure 1** for details of a typical condensate line "P" trap.

NOTE: Trapped lines are required by many local codes. In the absence of any prevailing local codes, please refer to the requirements listed in the Uniform Mechanical Building Code.

In a **blow-through** application the drain trap prevents conditioned air from escaping. It is permissible in this application to use a shallow trap design sometimes referred to as a running trap.

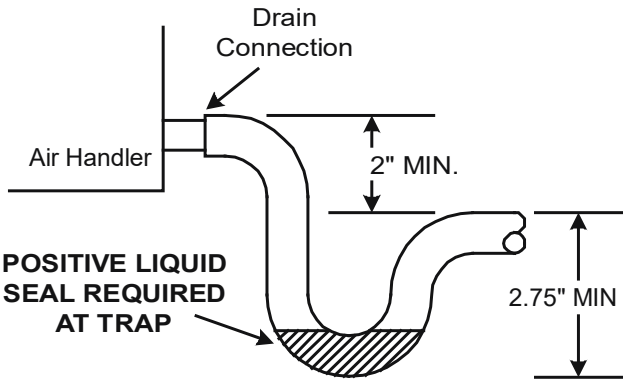


Figure 1

The depth of a running trap (Figure 2) should be either 1" or a depth that permits unrestricted condensate drainage without excessive air discharge.

Field experience has shown condensate drain traps with an open vertical Tee between the air handler and the condensate drain trap can improve condensate drainage in some applications, but may cause excessive air discharge out of the open Tee. We do not prohibit this type of drain but we also do not recommend it due to the resulting air leakage. Regardless of the condensate drain design used, it is the installer's responsibility to ensure the condensate drain system is of sufficient design to ensure proper condensate removal from the coil drain pan.

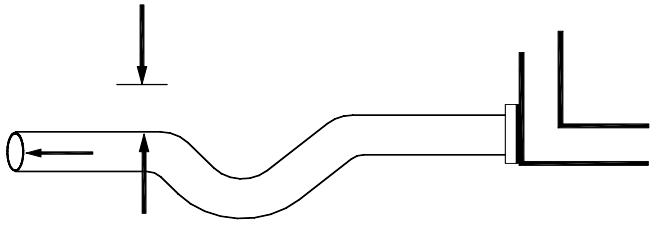


Figure 2

When coils are installed above ceilings, or in other locations where damage from condensate overflow may occur, it is **MANDATORY** to

install a field fabricated auxiliary drain pan under the coil cabinet enclosure. Drain lines from the auxiliary pan must be installed and terminated so that the homeowner can see water discharges. A primary condensate drain connection is located in the drain pan on the bottom of the coil / enclosure assembly. The female (3/4 fpt) threaded fitting that protrudes outside of the enclosure is used for external connections.

LAYOUT FOR CEILING MOUNT AIR HANDLERS

NOTE: These air handlers are designed for indoor installation only at a max altitude of 10,500 feet above sea level or a min altitude of -184 feet below sea level.

If the unit is located in an unconditioned area with high ambient temperature and/or high humidity, the air handler may be subject to nuisance sweating of the casing. On these installations, a wrap of 2" fiberglass insulation with a vapor barrier is recommended. A secondary drain pan below the unit is also recommended to protect the installation site.

1. Before locating the unit on the dropped ceiling, ensure the strength of the ceiling and beams is adequate to support the weight involved. This is an important step and the installers responsibility. See the table below for approximate weight of unit.

MODEL	WEIGHT (lb.)
1.5 TON	64
2 TON	68
2.5 TON	68

Table 2

2. Mount the unit in a horizontal position above a dropped ceiling of adequate strength. Refer to Figure 3. Refer to Figure 4 for proper mounting methods.

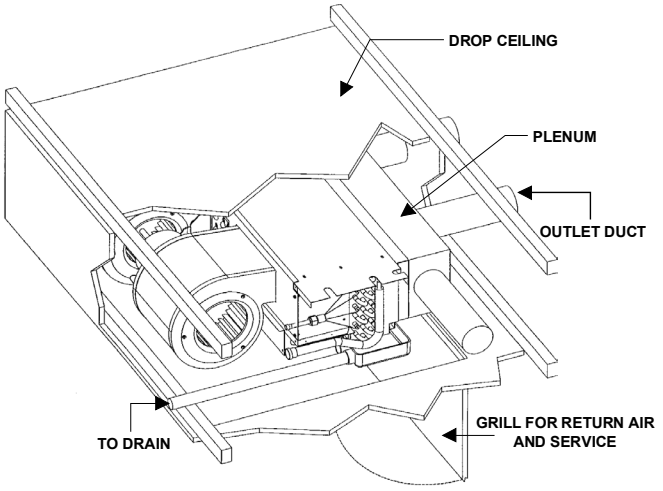


Figure 3

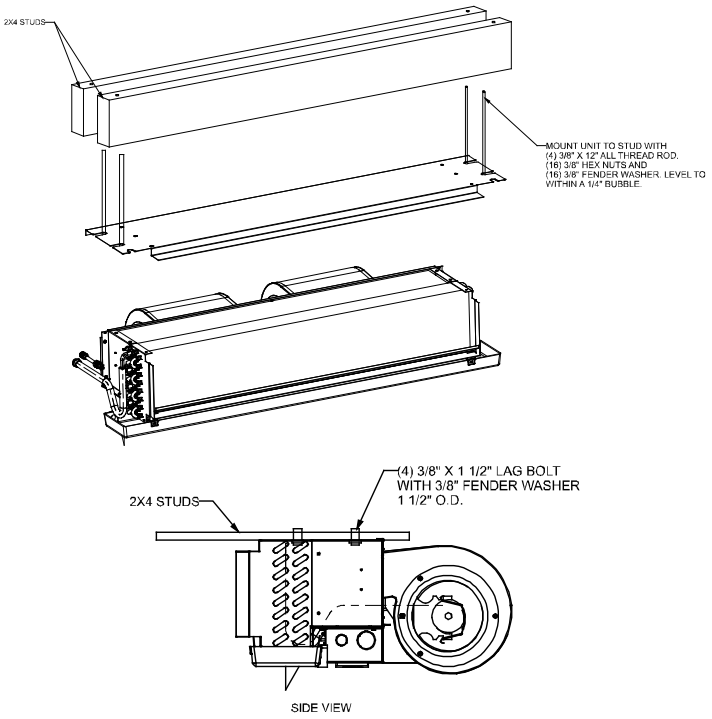
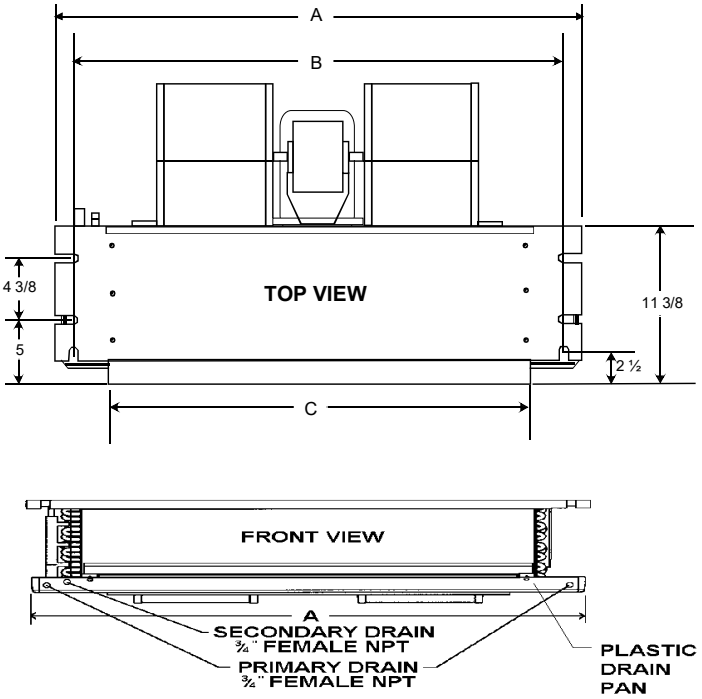


Figure 4

3. The location of the unit should provide proper access for inspection and servicing.

MODEL	A	B	C	D
1.5 TON	43 1/4	40 11/16	36	6 1/2
2 TON	49 1/4	46 11/16	42	6 1/2
2.5 TON	49 1/4	46 11/16	42	6 1/2

Table 3



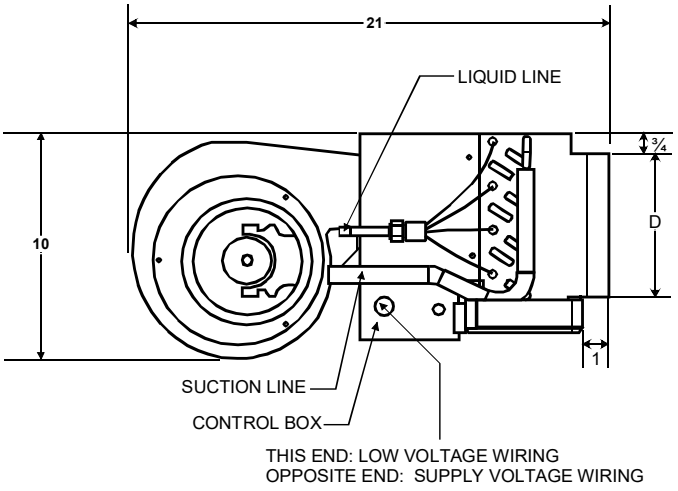


Figure 5

IMPORTANT: Installation of Air Handler must follow any local codes/regulations. The manufacture recommends that when a heater kit is not installed, a field supplied disconnect switch or breaker should be installed in the electrical circuit that will allow power to be shut-off for service or maintenance.

SPECIAL INSTRUCTIONS

This air handler comes equipped with an evaporator coil with a check style flowrator assembly, an indoor blower and all necessary internal electrical wiring. Remove the piston from the flowrator. For the rated performance a Thermal Expansion Valve (TXV) is required. Follow the instruction below for TXV installation and adjustment procedure.

⚠ WARNING

THE EVAPORATOR COIL IS SHIPPED FROM THE FACTORY WITH APPROXIMATELY 120 PSI TRACER GAS CHARGE. USE CAUTION WHEN RELIEVING PRESSURE.

IMPORTANT NOTE: Torch heat required to braze tubes of various sizes is proportional to the size of the tube. Tubes of smaller size require less heat to bring the tube to brazing temperature before adding brazing alloy. Applying too much heat to any tube can melt the tube. Service personnel must use the appropriate heat level for the size of the tube being brazed.

NOTE: The use of a heat shield when brazing is recommended to avoid burning the serial plate, insulation or the finish on the unit. Heat trap or wet rags should be used to protect heat sensitive components such as service valves and TXV valves. Use insulation present in the service kit to prevent condensation on the TXV.

Tubing Connections

Note: The TXV must be adjustable to meet the outdoor unit's target superheat value. During the superheat adjustment on the TXV, the torque applied on the nut cannot exceed 25 in-lbs. Refer to the EXPANSION VALVE TROUBLESHOOTING section of this manual for assistance with the adjustable TXV.

⚠ CAUTION

TO PREVENT FEEDER TUBE DAMAGE, HOLD THE DISTRIBUTOR BODY WITH A ¾" OPEN END WRENCH WHEN REMOVING OR REPLACING THE 13/16" FLARE NUT.

1. Remove the valve core to allow high pressure tracer gas to escape. No gas indicates a possible leak.
2. Remove the 13/16" flare nut and tailpiece.
3. Unsweat the access fitting on the tailpiece
4. Remove the check piston and install the appropriate TXV. See the TXV service kit for instructions.
5. Unsweat the cap on the suction line.
6. Slide the 13/16" flare nut over the tailpiece**.**
7. Braze tailpiece to the lineset liquid tube.
8. Insert the suction line into the connection, slide the insulation at least 18" away from the braze joint. Braze suction line.
9. **AFTER THE TAILPIECE HAS COOLED**, confirm position of the white Teflon® seal and hand tighten the 13/16" flare nut.
10. Torque the 13/16" flare nut to 7-25 ft-lbs. or tighten 1/6 of a turn. Do not overtighten.

⚠ CAUTION

EXCESSIVE TORQUE CAN CAUSE ORIFICES TO STICK. USE THE PROPER TORQUE SETTINGS WHEN TIGHTENING ORIFICES.

11. Replace suction line insulation.
12. After installation, evacuation and charging of the low side is complete, check fittings for leaks.

Thermal Expansion Valve System Adjustment

The following information for the indoor unit should be verified before attempting to charge system or adjust TXV if necessary.

1. Total static pressure is 0.3" WC or less.
2. Airflow is correct for the installed unit.
3. Airflow tables are in the installation manual and Spec Sheet for Indoor Unit.
4. Complete airflow tables and charging information are in Service Manual RS6200006
5. The outdoor temperature must be 60°F or higher.
6. Set the room termostat to COOL, fan switch to AUTO
7. Set the temperature control well below room temperature.

Superheat adjustments should not be made until indoor ambient conditions have stabilized. This could take up to 24 hours depending on indoor temperature and humidity. Befor checking superheat run the unit cooling for 10 minutes or until refrigerant pressures stabilize. Use the following guidelines and methods to check unit operation and ensure that the refrigerant charge is within limits.

1. Purge gauge lines. Connect service gauge manifold to base-valve service ports.
2. Temporarily install a thermometer on the liquid line at the liquid line service valve and 4-6" from the compressor on the suction line. Ensure the themometer makes adequeate contact and is insulated for best possible readings. Use liquid line temperature to determine subcooling and vapor temperature to determine superheat.
3. Check subcooling and superheat. The system should have a subcooling of 8°F +/- 1°F. If subcooling and superheat are low, adjust TXV to 8°F +/- 1°F superheat, then check subcooling.
   a. If subcooling is low and superheat is high, add charge to raise subcooling to 8°F +/- 1°F. Then check superheat.
   b. If subcooling and superheat are high, adjust TXV valve to 8°F +/- 1°F superheat, then check subcooling.

Superheat Adjustments <u>(Only if necessary)</u>

1. Attach a pipe clamp thermometer near the suction line service valve at the outdoor unit.
   a. Ensure the Thermometer makes adequate contact for the best possible readings.
2. TXV-based systems should have a Superheat value of 8°F +/- 1°F.
3. Adjust Superheat by turning the TXV valve stem clockwise to increase and counterclockwise to decrease. Adjustments should be made opening or closing the valve by no more thatn 1/4 turn at a time. Allow the system to stabilize 15 to 20 minutes before making additional adjustments if necessary.
4. After adjustments are complete replace cap on adjustment stem and tighten 1/6 turn.
5. Remove gauges and check the Scrader ports for leaks and tighten valve cores if necessary. Install caps finger tight.

ELECTRICAL CONNECTIONS

⚠ WARNING

HIGH VOLTAGE!
DISCONNECT ALL POWER BEFORE SERVICING. MULTIPLE POWER SOURCES MAY BE PRESENT. FAILURE TO DO SO MAY CAUSE PROPERTY DAMAGE, PERSONAL INJURY OR DEATH DUE TO ELECTRIC SHOCK. WIRING MUST CONFORM WITH NEC OR CEC AND ALL LOCAL CODES. UNDERSIZED WIRES COULD CAUSE POOR EQUIPMENT PERFORMANCE, EQUIPMENT DAMAGE OR FIRE.

Wire Sizing

Wire size is important to the operation of your equipment. Use the following check list when selecting the appropriate wire size for your unit.

Wire used must carry the Minimum Circuit Ampacity (MCA) listed on the unit's Series and Rating Plate.

Refer to the NEC (USA) or CSA (Canada) for wire sizing. The unit MCA for the air handler and the optional electric heat kit can be found on the unit Series and Rating Plate.

Wire must be sized to allow no more than a 2% voltage drop from the building breaker/fuse panel to the unit.

Wires with different insulation temperature rating have varying ampacities - be sure to check the temperature rating used.

Refer to the latest edition of the National Electric Code or in Canada the Canadian Electric Code when determining the correct wire size.

Determine the availability of sufficient power to operate the unit. The voltage at the power supply must correspond to the unit RATED VOLTAGE REQUIREMENT.

Determine wire sizes from the unit nameplate ampacity and in accordance with the National Electrical Code. Wiring should never be sized smaller than is recommended by either of these two sources.

The unit must be permanently grounded in accordance with local codes, or in the absence of local codes, with the N.E.C. ANSI/NFPA NO. 70-1987 or latest edition in the U.S.A.

MAXIMUM OVERCURRENT PROTECTION (MOP)

Every installation must include an NEC (USA) or CEC (Canada) approved overcurrent protection device. Also, check with local or state codes for any special regional requirements.

Protection can be in the form of fusing or HACR style circuit breakers. The Series and Rating Plate can be used as a guide for selecting the MAXIMUM overcurrent device.

NOTE: Fuses or circuit breakers are to be sized larger than the equipment MCA but not to exceed the MOP.

IMPORTANT NOTE: Torch heat required to braze tubes of various sizes is proportional to the size of the tube. Tubes of smaller size require less heat to bring the tube to brazing temperature before adding brazing alloy. Applying too much heat to any tube can melt the tube. Service personnel must use the appropriate heat level for the size of the tube being brazed.

NOTE: The use of a heat shield when brazing is recommended to avoid burning the serial plate or the finish on the unit. Heat trap or wet rags should be used to protect heat sensitive components such as service valves and TXV valves.

Internal Wiring

A diagram of the internal wiring of this unit is located under the electrical box cover. If any of the original wire as supplied with the appliance must be replaced, the wire gauge and insulation must be same as original wiring.

Transformer is factory wired for 230 volts on 208/ 230 volt models. See wiring diagram for 208 volt wiring. For 208V operation, move the red wire lead from 240V to 208V tap.

Make the following high and low voltage connections at either location to wire units.

High Voltage Wiring

This unit is designed for Single phase 208/230 Volt only. Connect the two leads to terminals L1 and L2 on the disconnect in the electrical control section, using wire sizes specified in wire sizing section.

Low Voltage Wiring

Refer to Figure 6 for cooling unit with electric heat and refer to Figure 7 for heat pump with electric heat.

NOTE: HPSK-01 Heat Pump Shut-Off Relay Kit (C.R.I.) must be used when ACSF with electric heat installed with heat pump.

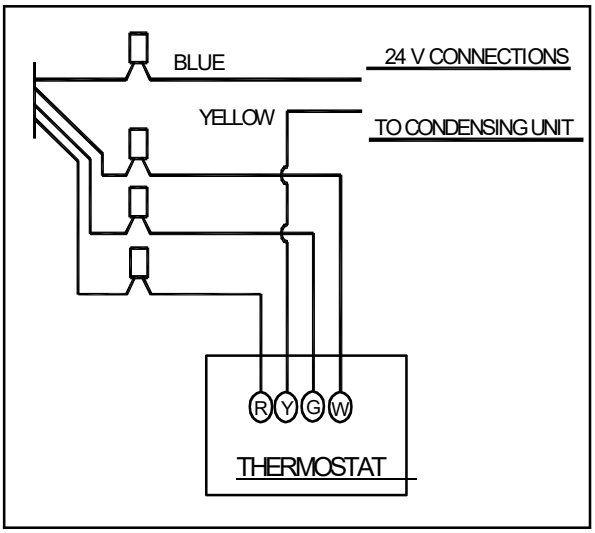
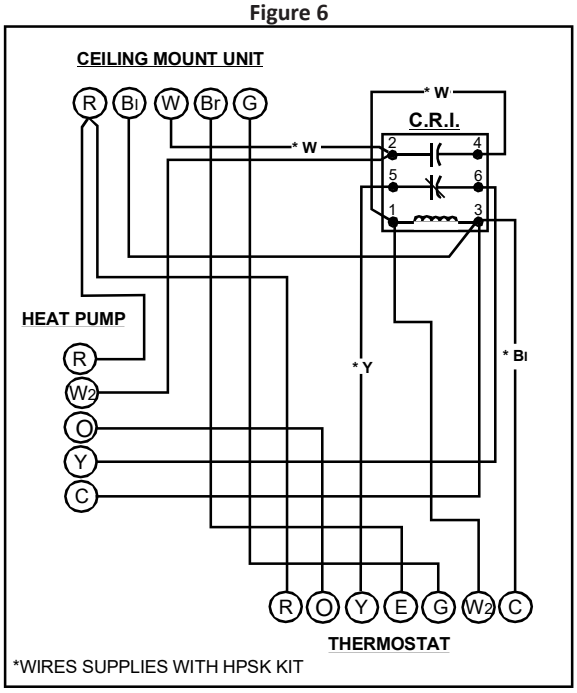


Figure 6



Note: in case of heat pump failure, switch to "E" on Thermostat for emergency heat. See note under Low Voltage Wiring

Figure 7

Connect low voltage wires from the thermostat to the corresponding wires in the Ceiling Mount unit and outdoor unit using No. 18 AWG wires as follows:

LEAD	THERMOSTAT	NOTES
RED	R (24V)	-
GREEN	G (FAN)	-
-	Y	TO CONDENSING UNIT 24V CONNECTIONS
WHITE	W	-
BLUE	-	TO CONDENSING UNIT 24V CONNECTIONS
BROWN	E	TO BE USED FOR EMERGENCY HEAT ONLY

Table 5

CONSTANT TORQUE (EEM) MOTORS

ACSF models utilize constant torque (EEM) motors. These motors come with a separate control box which is mounted on the side of the unit as shown in Figure 8. The harness from the motor is inserted into the control box which has another harness leading into the control panel of the unit.

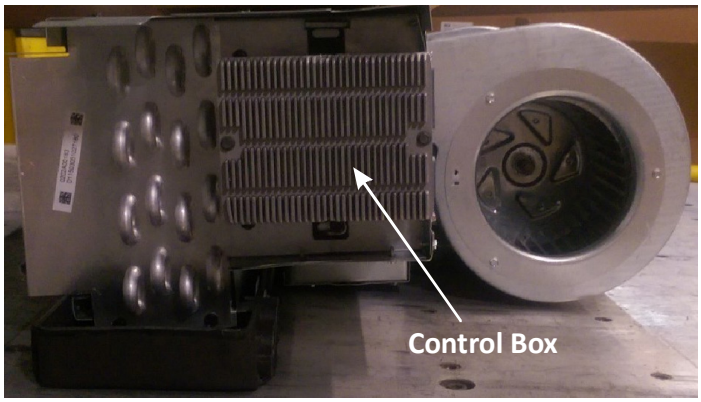
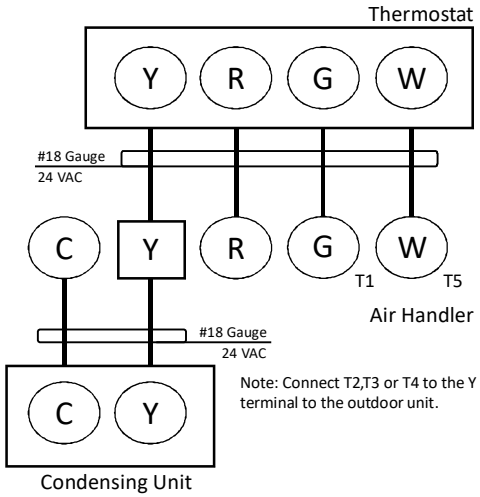


Figure 8

The high voltage wiring is the same as the other ACSF models.

The low voltage wiring connections are shown in Figure 9. The wire from the motor, T2 (purple,) T3 (pink) or T4 (yellow), connects to "Y" from the thermostat/condenser depending on the application.



CONFIRM SPEED TAP SELECTED (T2, T3, OR T4)
IS APPROPRIATE FOR THE APPLICATION BASED ON THIS TABLE.

WIRE COLOR	BTUh
PURPLE	18000
PINK	24000
YELLOW	HIGH CFM OPTION

Figure 9

MAINTENANCE

Room Thermostat

The room thermostat controls the operation of your heating and/or cooling unit. It senses the indoor temperature and signals the equipment to start or stop maintaining the temperature you have selected for your comfort. The room thermostat should be in a central, draft free inside wall location for best operation. Do not place any heat producing apparatus such as lights, radio, etc., near the thermostat as this will cause erratic operation of the comfort system.

Air Filter(s)

All central air moving comfort systems must include air filter(s). Locate these filters in either the equipment or return air duct system upstream of the equipment. The filter(s) removes dust and debris from the air thus helping to keep your conditioned space clean. More important, the filter keeps dust and debris from collecting on heat transfer surfaces thus maintaining optimum equipment efficiency and performance. Inspect and clean or replace filters every month. This routine maintenance procedure will pay big dividends in reduced operating cost and reduced service expense. Never operate comfort equipment without filter(s).

Fuses and/or Circuit breakers

This comfort equipment should be connected to the building electric service in accordance with local and National Electric codes. This electrical connection will include over current protection in the form of fuses or circuit breakers. Have your contractor identify the circuits and the location of over current protection so that you may be in a position to make inspections or replacements in the event the equipment fails to operate. Keep replacement fuses of the proper size on hand.

Periodic Checkup and Service

This unit is designed to provide many years of dependable, trouble-free comfort when properly maintained. Proper maintenance will consist of annual checkups and cleaning of the internal electrical and heat transfer components by a qualified service technician. Failure to provide periodic checkup and cleaning can result in excessive operating cost and/or equipment malfunction.

Aluminum Indoor Coil Cleaning (Qualified Servicer Only)

This unit is equipped with an aluminum tube evaporator coil. The safest way to clean the evaporator coil is to simply flush the coil with water. This cleaning practice remains as the recommended cleaning method for both copper tube and aluminum tube residential evaporator coils.

It has been determined that many coil cleaners and drain pan tablets contain corrosive chemicals that can be harmful to aluminum tube and fin evaporator coils. Even a one-time application of these corrosive chemicals can cause premature aluminum evaporator coil failure. Any cleaners that contain corrosive chemicals including, but not limited to, chlorine and hydroxides, should not be used.

An alternate cleaning method is to use one of the products listed in TP-109* to clean the coils. The cleaners listed are the only agents deemed safe and approved for use to clean round tube aluminum coils. TP-109 is also available on the web site in Partner Link > Service Toolkit.

NOTE: Ensure coils are rinsed well after use of any chemical cleaners.

Heater Kit Service

This comfort equipment comes pre-installed with a UL 2-40 certified heater kit. In times of replacement, please ensure that only a UL 2-40 certified kit is utilized.

The primary limit and the backup protection device on ther electric heating element are the two components that can be replaced.

The normal limit and backup protection device installed on this product will be the below:

TOD 60TX11 Matte finish, open temperature: 140°F, close temperature: 95°F (primary limit)

TOD - Microtemp G5AM0600093C

The alternates below can be used:

5kW - (**140-45 °F + limits, 93 °C fuse-links**),

(130-30 °F+, 84 °C), (130-30 °F+, 93 °C), (130-30 °F+, 98 °C), (130-30 °F+, 104 °C), (130-30 °F+, 110 °C),

(140-45 °F+, 84 °C), (140-45 °F+, 93 °C), (140-45 °F+, 98 °C), (140-45 °F+, 104 °C), (140-45 °F+, 110 °C)

(150-50 °F+, 84 °C), (150-50 °F+ , 93 °C), (150-50 °F+, 98 °C), (150-50 °F+, 104 °C), (150-50 °F+, 110 °C),

(160-60 °F+, 84 °C), (160-60 °F+, 93 °C), (160-60 °F+, 98 °C), (160-60 °F+, 104 °C), (160-60 °F+, 110 °C)

(170-70 °F+, 84 °C), (170-70 °F+, 93 °C), (170-70 °F+, 98 °C), (170-70 °F+, 104 °C), (170-70 °F+, 110 °C)

6kW - (**140-45 °F+ limits, 93 °C fuse-links**),

(130-30 °F+, 84 °C), (130-30 °F+, 93 °C)

(140-45 °F+, 84 °C), (140-45 °F+, 93 °C)

8kW - (**140-45 °F+ limits, 93 °C fuse-links**),

No alternates

10kW - (**140-45 °F+ limits, 93 °C fuse-links**),

(130-30 °F+, 93 °C)

AIRFLOW DATA

Model	Speed Tap	CFM @ STATIC PRESSURE (IN W.C.)		
		0.1	0.2	0.3
ACSF18MN16**AA	T1	698	645	577
	T2	698	645	577
	T3	710	677	625
	T4	842	805	746
	T5	842	805	746
ACSF24LN16**AA ACSF30LN16**AA	T1	781	732	668
	T2	781	732	668
	T3	856	804	755
	T4	927	877	833
	T5	927	877	833

NOTE:

1. Airflow data indicated is at 230V without air filter in place.
2. Select a speed tap that provides a minimum 300 CFM per outdoor ton. For satisfactory operation, external static pressure must not exceed 0.3”WC (for electric heater only).

Expansion Valve Troubleshooting

Before replacing an expansion valve, check the following items:

1. **Bulb location**: Must be tightly securred to the suction line upstream of the equalizer connection.
2. **Insulation**: Bulb must be properly insulated.
3. **Equalizer**: Must be connected to the 1/4: SAE connection on the suction line.
4. **Charge**: Ensure the system is properly charged. there MUST be a minimum of 10°F Sub-Cooled liquid at the valve inlet.

If the system appears to be “starving” (low suction pressure but insufficient cooling):

1. Check the Superheat (SH) at the evaporator outlet. If SH is between 5°F - 12°F the TXV is controlling properly.

   -Verify that there is proper airflow to the evaporator (fan is operating and filter is unrestricted).

2. If SH is above 12°F, the setting of the TXV may be too high.

   -Adjust the SH by turning counter-clockwise to decrease SH.

   -Wait 20 minutes for the system to balance and adjust again, as required.

   -If adjusting the valve has no effect on the SH, the valve may be stuck because of dirt debris or it may have lost the Power Element charge.

   i. After properly reclaiming the refrigerant, remove the TXV and check for dirt and debris. Clean, if possible, or replace the TXV and filter/drier.

If the system appears to be “flooding”(compressor frosting or moisture is condensing at the suction connection):

1. Check the SH at the evaporator outlet. If SH is between 5°F - 12°F, the TXV is controlling properly.
2. If SH is less than 5°F, the SH adjustment may be too low.

   -Adjust the SH by turning the adjustment stem clock-wise to increase the SH.

   -Wait 20 minutes for the system to balance and adjust again as required.

   -If adjusting the valve has no effect on the SH, the valve may be stuck open because of dirt of debris or moisture in the refrigerant.

   i. After properly reclaiming the refrigerant, remove the TXV and check for dirt and debris. Clean, if possible, or replace the TXV and filter/drier. Add a moisture indicator to allow checking of moisture if this believed to be a probable cause.

START-UP CHECKLIST

Air Handler / Coil				
	Model Number			
	Serial Number			
ELECTRICAL				
Line Voltage (Measure L1 and L2 Voltage)	L1 - L2			
Secondary Voltage (Measure Transformer Output Voltage)	R - C			
Blower Amps				
Heat Strip 1 - Amps				
Heat Strip 2 - Amps				
BLOWER EXTERNAL STATIC PRESSURE				
Return Air Static Pressure			IN. W.C.	
Supply Air Static Pressure			IN. W.C.	
Total External Static Pressure (Ignoring +/- from the reading above, add total here)			IN. W.C.	
TEMPERATURES				
Return Air Temperature (Dry bulb / Wet bulb)			DB °F	WB °F
Cooling Supply Air Temperature (Dry bulb / Wet bulb)			DB °F	WB °F
Heating Supply Air Temperature			DB °F	
Temperature Rise			DB °F	
Delta T (Difference between Supply and Return Temperatures)			DB °F	
Air Handler / Coil - (Inverter Matched)				
INVERTER AH / COIL ONLY				
Check EEV and EEV wiring is secure (no adjustment required)				
Additional Checks				
Check wire routings for any rubbing				
Check product for proper draining				
Check screw tightness on blower wheel				
Check factory wiring and wire connections				
Check product for proper clearances as noted by installtion instructions				
°F to °C formula: (°F - 32) divided by 1.8 = °C	**°C to °F formula: (°C multiplied by 1.8) + 32 = °F**			

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CUSTOMER FEEDBACK

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Amana® Brand Products: (http://www.amana-hac.com/about-us/contact-us).
You can also scan the QR code on the right for the product brand you purchased to be directed to the feedback page.

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PRODUCT REGISTRATION

Thank you for your recent purchase. Though not required to get the protection of the standard warranty, registering your product is a relatively short process, and entitles you to additional warranty protection, except that failure by California and Quebec residents to register their product does not diminish their warranty rights. The duration of warranty coverages in Texas differs in some cases.

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You can also scan the QR code on the right for the product brand you purchased to be directed to the Product Registration page.

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NOTE: SPECIFICATIONS AND PERFORMANCE DATA LISTED HEREIN ARE SUBJECT TO CHANGE WITHOUT NOTICE

Quality Makes the Difference!

All of our systems are designed and manufactured with the same high quality standards regardless of size or efficiency. We have designed these units to significantly reduce the most frequent causes of product failure. They are simple to service and forgiving to operate. We use quality materials and components. Finally, every unit is run tested before it leaves the factory. That's why we know. . .**There's No Better Quality.**

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