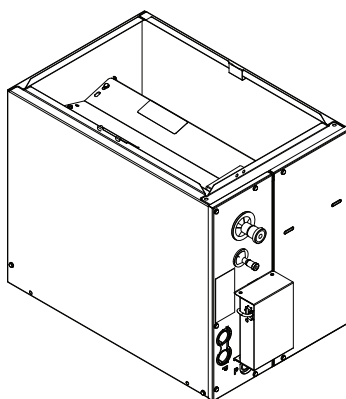


# Installer's Guide

## Dedicated Upflow/Downflow Cased Aluminum Coils



### Upflow / Downflow Models:

5PXCA001AS3HAA  
5PXCA002AS3HAA  
5PXCBD003AS3HAA  
5PXCBD004AS3HAA  
5PXCC005AS3HAA  
5PXCBD006AS3HAA  
5PXCC007AS3HAA  
5PXCD008AS3HAA  
5PXCC009AS3HAA  
5PXCD010AS3HAA

### Downflow Only Models:

5PXCBD03AS3HDA  
5PXCBD04AS3HDA  
5PXCCD05AS3HDA  
5PXCBD06AS3HDA  
5PXCCD07AS3HDA  
5PXCCD09AS3HDA  
5PXCDD10AS3HDA

### **⚠ SAFETY WARNING**

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

# Introduction

Read this manual thoroughly before operating or servicing this unit.

This document is customer property and is to remain with this unit. Return to the service information pack upon completion of work.

## Warnings, Cautions, and Notices

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

The three types of advisories are defined as follows:



### WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



### CAUTION

Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It could also be used to alert against unsafe practices.

### NOTICE

Indicates a situation that could result in equipment or property-damage only accidents.

## Important Environmental Concerns

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

## Important Responsible Refrigerant Practices

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

## ⚠ WARNING

### Proper Field Wiring and Grounding Required!

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

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

## ⚠ WARNING

### Personal Protective Equipment (PPE) Required!

Failure to wear proper PPE for the job being undertaken could result in death or serious injury.

Technicians, in order to protect themselves from potential electrical, mechanical, and chemical hazards, **MUST** follow precautions in this manual and on the tags, stickers, and labels, as well as the instructions below:

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

**⚠ WARNING****Follow EHS Policies!**

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

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

**⚠ WARNING****Cancer and Reproductive Harm!**

This product can expose you to chemicals, including lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

**⚠ WARNING****Safety Hazard!**

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

This unit is not to be used 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 by a person responsible for their safety.

Do not allow children to play or climb on the unit or to clean or maintain the unit without supervision.

**⚠ WARNING****Safety Hazard!**

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

Connect coil to an outdoor unit suitable for use with R-454B refrigerant only.

**⚠ WARNING****Fire Hazard!**

Failure to follow instructions could result in equipment damage or injury.

In systems using flammable refrigerants, observe all safety instructions and markings on the cased coil. Ensure all safety devices are in place and functional. Do not puncture refrigerant tubing. Repair with trained professionals only and dispose properly in accordance with federal and local regulations.

**⚠ WARNING****Refrigerant under High Pressure!**

Failure to follow instructions below could result in an explosion which could result in death or serious injury or equipment damage.

System contains oil and refrigerant under high pressure. Recover refrigerant to relieve pressure before opening the system. See unit nameplate for refrigerant type. Do not use non-approved refrigerants, refrigerant substitutes, or refrigerant additives.

**⚠ CAUTION****Hazardous Vapors!**

Failure to follow instructions could result in property damage or personal injury.

To prevent shortening its service life, the air handler should not be used during the finishing phases or construction or remodeling. The low return air temperatures can lead to the formation of condensate. Condensate in the presence of chlorides and fluorides from paint, varnish, stains, adhesives, cleaning compounds, and cement creates a corrosive condition which may cause rapid deterioration of the cabinet and internal components.

### **⚠ WARNING**

#### **Risk of Fire!**

Failure to follow instructions below could cause a fire which could result in death, serious injury, and equipment or property damage.

Confirm the following requirements apply to the room where the cased coil is installed:

- All combustion appliances located in the same room that have continuous pilot lights must be equipped with an effective flame arrest.
- Auxiliary devices which may be a potential ignition source, such as hot surfaces or electric switching devices, shall not be installed in the connecting ductwork unless they have been approved by the manufacturer or declared suitable with the refrigerant used.
- All indoor field-made joints of the field piping must be checked for refrigerant leaks after charging using an electronic leak detector calibrated for R-454B with sensitivity of 5 grams per year or better.
- The room must be constructed to avoid stagnation or fire hazard in the event of a refrigerant leak.

### **⚠ CAUTION**

#### **Sharp Edges!**

Failure to follow instructions below could result in minor to moderate injury or property damage.

Be careful of sharp edges on equipment or any cuts made on sheet metal while installing or servicing.

### **⚠ CAUTION**

#### **Coil Damage!**

Failure to follow instructions below could result in minor to moderate injury or coil damage.

Confirm coil is pressurized with 8–12 psi dry air and factory-checked for leaks. Carefully release the pressure by removing the rubber plug on the liquid line. If no pressure is released, check for leaks.

### **⚠ CAUTION**

#### **Contamination Risk!**

Failure to follow instructions below could result in equipment damage.

Do NOT open the refrigerant valve at the outdoor unit until the refrigerant lines and coil have been brazed, evacuated, and leak checked. This could cause contamination of the refrigerant or possible discharge of refrigerant into the atmosphere.

#### **Important:**

- Installation of this unit shall be made in accordance with the National Electric Code, NFPA No. 90A and 90B, and any other local codes or utilities requirements.
- Cased coils do not require repositioning of the refrigerant leak detection sensor for upflow or downflow installations. Horizontal applications require sensor repositioning. See conversion instructions section for details.

#### **Notes:**

- This unit is a PARTIAL UNIT AIR CONDITIONER, complying with PARTIAL UNIT requirements of Standard UL 60335-2-40/GSA 22.2 NO. 60335-2-40, and must only be connected to other units that have been confirmed as complying to corresponding PARTIAL UNIT requirements of this Standard.
- There is no declared maximum altitude for operating the appliance.
- Charging of the refrigerating system shall be according to the instructions provided by the manufacturer of the outdoor unit.
- Both the drain pans and the refrigerant detection sensor installed on this unit are designed to be heat resistant to temperatures produced by all residential Trane and American Standard furnaces. Oil drum type furnaces may be used for upflow installations only, and must have a minimum coil drain pan clearance of 3 inches unless otherwise specified by the individual furnace manufacturer.

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## **Trademark**

All trademarks referenced in this document are the trademarks of their respective owners.

## **Revision History**

Update maximum airflow setting tables to confirm no water management problems for model CC009. Updates to installation orientation instructions on CC009 model to accommodate differences in production assemblies for different manufacturing locations.

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# General

These coils are designed for use in combination with a heat pump or cooling outdoor section using R-454B refrigerant.

The 5PXC equipment has been evaluated in accordance with the *Code of Federal Regulations*, Chapter XX, Part 3280 or the equivalent. Equipment is suitable for manufactured (mobile) home use. The height of the Furnace, Coil and discharge duct work must be 7 feet or less.

Inspect the coil for shipping damage. Notify the transportation company immediately if the coil is damaged.

## Application Information

**Note:** 5PXC upflow coils may be installed in Upflow, Downflow, Horizontal Right with kit, and Horizontal Left with kit. 5PXC downflow coils may be installed in Downflow and Horizontal Right with kit.

- **Furnace and coil:** The coil must be installed downstream (in the outlet air) of the furnace.
- **Indoor unit airflow:** Indoor unit must provide the required airflow for the heat pump or cooling combinations approved for these coils.

**Note:** The manufacturer recommends installing matched indoor and outdoor systems that are A.H.R.I. approved. Some of the benefits of installing approved matched indoor and outdoor split systems are maximum efficiency, optimum performance, and the best overall system reliability.

**Important:** Review the installation requirements. Check the table on the outline drawings and note all dimensions for the coil before beginning the installation.

## Information on Servicing

All replacement parts shall be in accordance with the manufacturer's specifications.

### Before Starting Work

Before working on systems that contain flammable refrigerants, it is essential to perform safety checks to minimize any risk of ignition. Prior to beginning repairs on the refrigeration system, the following steps must be completed:

- Work must be carried out using a controlled procedure to minimize the presence of flammable gases or vapors during the task.
- All maintenance personnel and others in the surrounding area must be informed about the work being performed. Work in confined spaces should be avoided whenever possible.
- The area must be checked with an appropriate refrigerant detector both before and during the work to confirm the technician is aware of any potentially toxic

or flammable atmospheres. Verify that the leak-detection equipment used is compatible with all applicable refrigerants and is non-sparking, properly sealed, or intrinsically safe.

- If any hot work is conducted on the refrigerating equipment or associated parts, appropriate fire extinguishing equipment must be available. Have a dry powder or CO<sub>2</sub> fire extinguisher near the charging area.
- Personnel working on refrigeration systems that expose pipework must not use any ignition sources that could pose a fire or explosion risk. Keep all ignition sources, including cigarettes, at a safe distance from areas where refrigerant may be released during installation, repair, removal, or disposal. Inspect the area beforehand to confirm the absence of flammable hazards or ignition risks, and post "No Smoking" signs.
- Before breaking into the system or performing hot work, confirm the area is in the open or sufficiently ventilated. Maintain appropriate ventilation for the duration of the work to confirm any released refrigerant is safely dispersed and, ideally, exhausted to the outside environment.
- The following checks shall be applied to installations using flammable refrigerants:
  - Marking on the equipment continues to be visible and legible. Illegible markings and signs shall be corrected.
  - Refrigerating pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being so corroded.

## Repairs to Electrical Components

Any electrical components being replaced must be appropriate for the intended purpose and conform to the required specifications. Adhere to the manufacturer's maintenance and service instructions at all times. When in doubt, seek guidance from the manufacturer's technical department.

All repair and maintenance work on electrical components must include initial safety checks and component inspection procedures. If any fault is detected that could affect safety, the electrical supply should remain disconnected until the fault is fully rectified. If immediate correction is not possible and operation must continue, a suitable temporary measure must be implemented. Notify the equipment owner to confirm all parties are aware.

Initial safety checks must include:

- Capacitors are discharged; this shall be done in a safe manner to avoid possibility of sparking.

- No live electrical components and wiring are exposed while charging, recovering or purging the system.
- Continuity of earth bonding.

Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects. The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

## Detection of Flammable Refrigerants

Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. Do not use a halide torch (or any other detector using a naked flame).

The following leak detection methods are deemed acceptable for all refrigerant systems:

- Electronic leak detectors may be used to detect refrigerant leaks but, in the case of flammable refrigerants, the sensitivity may not be adequate, or may need re-calibration. (Detection equipment shall be calibrated in a refrigerant-free area.) Confirm the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment must be set at a percentage of the LFL of the refrigerant and calibrated to the refrigerant employed, and the appropriate percentage of gas (25 % maximum) is confirmed.
- Bubble method leak detection fluids are suitable for use, but the use of detergents containing chlorine should be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work.

It is not recommended to detect leaks using fluorescent method agents due to the uncertainty in dye formulations and how these may react with refrigerants at high compression and discharge temperatures.

If a leak is suspected, all naked flames must be removed/extinguished.

If a leakage of refrigerant is found which requires brazing, all of the refrigerant must be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak.

## Removal and Evacuation

When breaking into the refrigerant circuit to make repairs-or for any other purpose-conventional procedures must be used. However, for flammable refrigerants it is important that best practice be followed, since flammability is a consideration. The following procedure must be followed:

- Safely remove refrigerant following local and national regulations
- Evacuate
- Purge the circuit with inert gas (optional for A2L)
- Evacuate (optional for A2L)

- Continuously flush or purge with inert gas when using flame to open circuit
- Open the circuit.

The refrigerant charge must be recovered into the correct recovery cylinders if venting is not allowed by local and national codes. For appliances containing flammable refrigerants, the system must be purged with oxygen-free nitrogen to render the appliance safe for flammable refrigerants.

This process might need to be repeated several times. Compressed air or oxygen should not be used for purging refrigerant systems.

For appliances charged with flammable refrigerants, purging must be conducted by introducing oxygen-free nitrogen to break the system vacuum, continuing to fill the system to working pressure, venting to atmosphere, and subsequently drawing a vacuum (vacuum step optional for A2L). This cycle should be repeated until no refrigerant remains in the system (optional for A2L). Following the final oxygen-free nitrogen charge, the system must be vented to atmospheric pressure to permit safe work.

The outlet for the vacuum pump should not be close to any potential ignition sources, and ventilation shall be available.

## Charging Procedures

In addition to conventional charging procedures, the following requirements must be followed.

- Confirm contamination of different refrigerants does not occur when using charging equipment. Hoses or lines should be as short as possible to minimize the amount of refrigerant contained in them.
- Cylinders should be kept in an appropriate position according to the instructions.
- Confirm the refrigerating system is earthed prior to charging the system with refrigerant.
- Label the system when charging is complete (if not already).
- Extreme care must be taken not to overfill the refrigerating system.

Prior to recharging the system, it must be pressure tested with the appropriate purging gas. The system should be leak-tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site.

See installation instructions below for further details.

## Recovery

When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely.

When transferring refrigerant to cylinders, confirm only appropriate refrigerant recovery cylinders are used. Confirm a sufficient number of cylinders are available to accommodate the total system charge. All cylinders must

be designated for the recovered refrigerant and properly labeled. Cylinders must be fitted with a pressure-relief valve and fully operational shut-off valves. Empty recovery cylinders must be evacuated and, when feasible, cooled before recovery begins.

Recovery equipment must be maintained in proper working condition, provided with the relevant operating instructions, and approved for use with flammable refrigerants. When in doubt, seek guidance from the manufacturer. A calibrated set of weighing scales should be available and operational. All hoses must have leak-free disconnect couplings and remain in good condition.

The recovered refrigerant must be processed according to local legislation in the correct recovery cylinder, and the relevant waste transfer note arranged. Do not mix refrigerants in recovery units and especially not in cylinders.

When removing compressors or compressor oils, confirm that they have been evacuated to an acceptable level to confirm no flammable refrigerant remains within the lubricant. The compressor body should not be heated with an open flame or any ignition source to accelerate evacuation. Oil removal must be performed safely.

**Decommissioning**

Before carrying out this procedure, it is essential the technician is completely familiar with the equipment and all details, including safe recovery of refrigerants. Prior to conducting the task, an oil and refrigerant sample should be collected to allow for analysis, if needed, before the recovered refrigerant is reused. It is essential to confirm that electrical power is available before work begins.

1. Become familiar with the equipment and its operation.
2. Isolate system electrically.
3. Before attempting the procedure, confirm:
  - a. Mechanical handling equipment is available, if required, for handling refrigerant cylinders.
  - b. All personal protective equipment is available and being used correctly.
  - c. The recovery process is supervised at all times by a competent person.
  - d. Recovery equipment and cylinders conform to the appropriate standards.
4. Pump down refrigerant system, if possible.
5. If a vacuum is not possible, make a manifold so refrigerant can be removed from various parts of the system.
6. Make sure the cylinder is situated on the scales before recovery takes place.

7. Start the recovery machine and operate in accordance with instructions.
8. Do not overfill cylinders (no more than 80 % volume liquid charge).
9. Do not exceed the maximum working pressure of the cylinder, even temporarily.
10. When the cylinders have been filled correctly and the process completed, confirm the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off.
11. Recovered refrigerant should not be charged into another refrigerating system unless it has been cleaned and checked.

Equipment must be labelled stating it has been decommissioned and emptied of refrigerant. The label must be dated and signed. For appliances containing flammable refrigerant, confirm there are labels on the equipment stating the equipment contains flammable refrigerant.

**Coil Recommendations**

If a coil is part of the total system installation, use the Installer’s Guide packaged with the furnaces, outdoor sections, and thermostat for physically installing those components.

**Important:** *If installing the coil in the horizontal position, the horizontal kit listed below must be used. Follow the instructions in the installation guide provided with the conversion kit.*

**Note:** *5PXC upflow coils may be installed in Upflow, Downflow, Horizontal Right with kit, and Horizontal Left with kit. 5PXC downflow coils may be installed in Downflow and Horizontal Right with kit.*

**Table 1. Model and associated kit**

Model Number	Horizontal Kit Number
5PXCA001AS3HAA 5PXCBD003AS3HAA 5PXCBD03AS3HDA	BAYCONV18B
5PXCA002AS3HAA 5PXCBD004AS3HAA 5PXCC005AS3HAA 5PXCBD04AS3HDA 5PXCCD05AS3HDA	BAYCONV23B
5PXCBD006AS3HAA 5PXCC007AS3HAA 5PXCBD008AS3HAA 5PXCBD06AS3HDA 5PXCCD07AS3HDA	BAYCONV27B
5PXCC009AS3HAA 5PXCBD010AS3HAA 5PXCCD09AS3HDA 5PXCCD10AS3HDA	BAYCONV30C

# Furnace Configuration

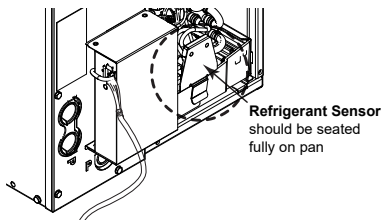
## Furnace in Upflow Position

**Important:** Only upflow/downflow coils may be installed in the upflow position - 5PXCA001AS3HAA, 5PXCA002AS3HAA, 5PXC003AS3HAA, 5PXC004AS3HAA, 5PXCC005AS3HAA, 5PXC006AS3HAA, 5PXCC007AS3HAA, 5PXC008AS3HAA, 5PXCC009AS3HAA, 5PXC010AS3HAA

### Upflow coil conversion:

Confirm the refrigerant sensor is attached to the primary pan (Figure 1, p. 9) with the sensor facing the coil. Sensor can be placed anywhere along the front lip but confirm bracket pressed fully down on the pan.

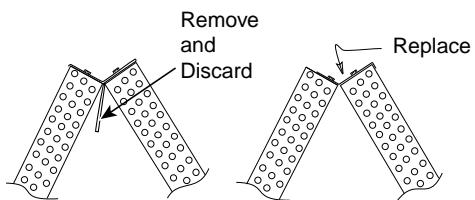
Figure 1. Sensor location



### Optional for optimum airflow efficiency in upflow:

1. Models with an inner water baffle: remove the top baffle, discard the inner baffle, and reinstall the top baffle. See Figure 2, p. 9.
2. If present, remove and discard the two outer water diverter baffles. See Figure 4, p. 9.

Figure 2. Baffle removal

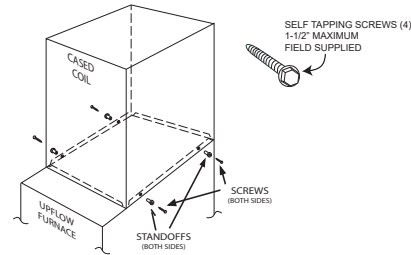


### Upflow gas furnace:

1. Apply gasket material (duct seal field supplied) to all mating surfaces between the furnace and the coil case.
2. Set the coil case on top of the furnace. Connect the ductwork to the coil case using field supplied screws. See Figure 3, p. 9.
3. Seal for air leaks as required.

Oil drum furnaces run hotter and may overheat coil drain pans. Maintain at least 3 inches of clearance between the oil drum furnace outlet and coil inlet unless the furnace manufacturer specifies otherwise.

Figure 3. For upflow installations

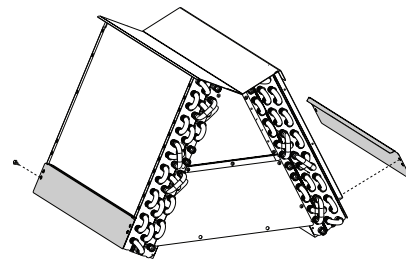


## Furnace in Downflow Position

### Downflow coil conversion:

1. On models 5PXCC009, 5PXCC009, 5PXC010, and 5PXCDD10, installing the water diverter baffles is required for water management in downflow installations. Install the two outer water baffles provided in the documentation package to the drainpan using the provided 5/16-inch hex screws. These should be located as close as possible to the drainpan. See Figure 4, p. 9.
2. Confirm the refrigerant sensor is attached to the primary pan. See Figure 1, p. 9. The sensor should face inward toward the coil and may be positioned anywhere of the front lip of the pan. Confirm the mounting bracket is seated as far down on the pan as possible.

Figure 4. Water diverter baffles



### Optional for optimum airflow efficiency in upflow:

On models with an inner water baffle: remove the top baffle, discard the inner baffle, and reinstall the top baffle. See Figure 2, p. 9.

**Optional for high humidity:** Downflow Gasket kit BAYGSKT001A0 may be used for high-humidity applications (over 70% RH) to prevent condensation on the drain pan. See Figure 5, p. 10.

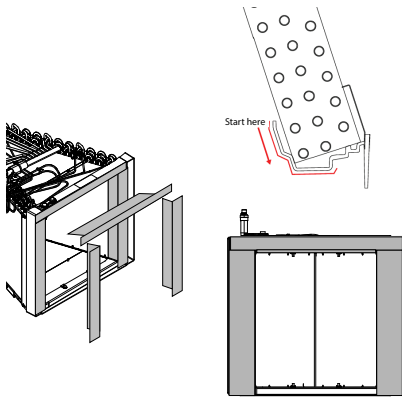
1. Remove the coil from the cabinet and lay on its back.
2. Attach gasket in the kit to three sides of the drain pan bottom, starting at the inner edge near the coil fins and working outward.
3. Cut or tear gasket as needed to ensure it fully covers all three sides of the drainpan.

## Furnace Configuration

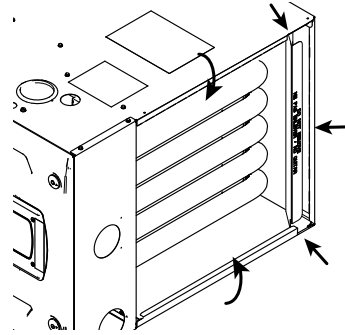
**Downflow Gas Furnace:** A subbase is not needed between the coil case and combustible flooring.

1. Place the coil case on the furnace supply-air plenum.
2. Secure the coil case to the plenum.
3. Set the furnace on top of the coil case, ensuring the rear discharge opening fits tightly against the coil-case duct flange.
4. Secure the coil case to the furnace and seal any air leaks.
5. When installing on an S-series furnace in downflow, bend the furnace flanges inward for a flush fit. See [Figure 6, p. 10](#).

**Figure 5. Attach downflow bottom gasket**



**Figure 6. Installing coil onto an S-series furnace**



**Note:** When installing coil onto an S-Series furnaces in downflow configuration, bend the flanges downward for a flush fit.

# Maximum and Minimum Airflow Settings

**Note:** Water blow-off could occur in certain installation positions if the airflow setting exceeds the maximum values listed.

**Table 2. Maximum airflow setting, CFM**

Coil	Upflow	Horizontal Left <sup>(a)</sup>	Horizontal Right <sup>(a)</sup>	Downflow
5PXCA001	900	800	900	750
5PXCA002	1350	1000	1350	1200
5PXCBD003	1125	1125	1125	925
5PXCBD03	N/A	N/A	1125	925
5PXCBD04 5PXCC005	1350	1200	1350	1100
5PXCCD04 5PXCCD05	N/A	N/A	1350	1100
5PXCBD006 5PXCC007 5PXCD008	1800	1600	1800	1475
5PXCBD06 5PXCCD07	N/A	N/A	1800	1475
5PXCC009 5PXCD010	2250	2000	1900	1850
5PXCCD09 5PXCD010	N/A	N/A	1900	1850

<sup>(a)</sup> Only with BAYCONV Kit.

When a refrigerant leak of the indoor coil is detected, the refrigerant leak detection system turns on the blower of the furnace to dilute leaked refrigerant.

The installer must verify that the indoor airflow setting is sufficient to dilute leaked refrigerant. The nominal airflow settings for first-stage cooling, first-stage heat pump, and first-stage furnace heat should not be less than shown in the minimum airflow table below.

**Note:** The airflow setting should be verified by comparison to the airflow at the lowest listed external static pressure for the setting. See the airflow table provided by the manufacturer of the furnace.

**Table 3. Minimum airflow setting**

System refrigerant charge (lb) <sup>(a)</sup>	Minimum Airflow Setting (CFM)
less than 4	no minimum
4	108
5	135
6	162
7	189
8	216
9	244
10	271
11	298
12	325
13	352
14	379
15	406
16	433
17	460
18	487
19	514
20	541

<sup>(a)</sup> The system refrigerant charge is the total system charge which is marked on the system according to the instructions provided by the manufacturer of the outdoor unit.

# Pressure Drop Table

**Table 4. Pressure drop characteristics for cooling and heat pump coils airflow (cfm) vs. pressure drop across wet coil**

Pressure drop (inches of water column)								
Model (5PXC)	0.05	0.1	0.15	0.2	0.25	0.3	0.35	0.4
A001AS3HAA	225	340	430	510	585	650	715	775
A002AS3HAA	300	475	620	750	870	980	1085	1185
B003AS3HAA	350	525	665	790	900	1000	1095	1185
B004AS3HAA	440	655	825	970	1100	1220	1330	1435
C005AS3HAA	520	775	770	1145	1300	1440	1570	1695
B006AS3HAA	430	645	815	965	1095	1220	1335	1445
C007AS3HAA	510	760	965	1140	1300	1445	1580	1710
D008AS3HAA	580	870	1100	1305	1485	1650	1805	1950
C009AS3HAA	490	740	945	1120	1280	1425	1565	1695
D010AS3HAA	555	835	1065	1265	1445	1615	1770	1915
D03AS3HDA	340	510	645	760	870	965	1055	1140
D04AS3HDA	435	645	810	950	1080	1200	1305	1410
D05AS3HDA	510	760	955	1125	1275	1415	1540	1665
D06AS3HDA	405	605	765	905	1035	1150	1255	1360
D07AS3HDA	480	715	910	1075	1225	1360	1490	1610
D09AS3HDA	480	720	920	1095	1250	1395	1525	1655
D10AS3HDA	540	815	1040	1235	1410	1575	1725	1870

# Installation

## Brazing Refrigerant Lines

The following steps must be considered when installing the refrigerant lines:

- Determine the most practical way to run the lines.
- Consider types of bends to be made and space limitations.
- Route the tubing making all required bends and properly secure the tubing before making final connections.

**Note:** Refrigerant lines must be isolated from the structure and the holes must be sealed weather tight after installation.

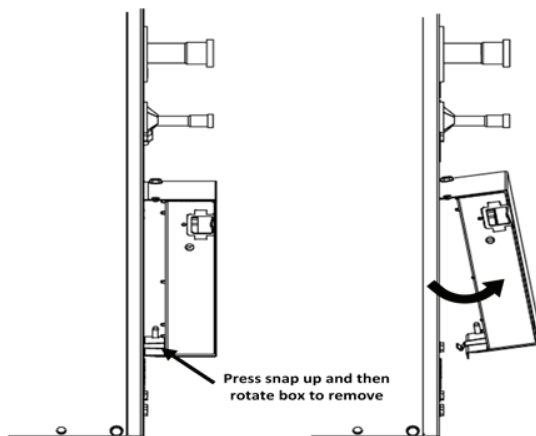
**Important:** Do not unseal refrigerant tubing until ready to fit refrigerant lines.

There is only a holding charge of dry air in the indoor coil, therefore no loss of operating refrigerant charge occurs when the sealing plugs are removed.

**Note:** TXV bulb **MUST** be protected (wrapped with wet rag) or removed, while brazing the tubing. Overheating of the sensing bulb will affect the functional characteristics and performance of the comfort coil.

1. Clear all A2L sensor wires well away from the braze connections both inside and outside the coil cabinet. If needed, the control box may be removed from the lineset panel by pressing on snap and rotation out for clearance. See Figure 7, p. 13.

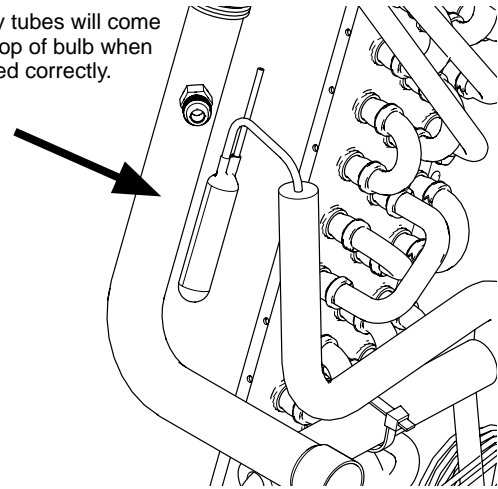
**Figure 7. Control box removal**



2. Remove both rubber plugs from the indoor coil.
3. Field supplied tubing should be cut square, round and free of burrs at the connecting end. Clean the tubing to prevent contaminants from entering the system.
4. Run the refrigerant tubing into the stub tube sockets of the indoor unit coil.

**Figure 8. Vertical TXV bulb mount**

Capillary tubes will come out the top of bulb when positioned correctly.



5. Flow a small amount of nitrogen through the tubing while brazing.

**Note:** Painted areas of the unit must be shielded during brazing.

6. Use good brazing technique to make leakproof joints.
7. Minimize the use of sharp 90 degree bends.
8. Insulate the suction line and its fittings.
9. Do not allow non-insulated lines to come into contact with each other.

**Note:** When replacing the TXV bulb, reinstall the bulb in the proper orientation. Some models will use a spring steel clip to attach the TXV bulb, and some models will use a hose clamp. When supplied with a hose clamp, the clamp should be "snug" but not "tight" - (clamp screw torque 20 +/- 5 in-lbs).

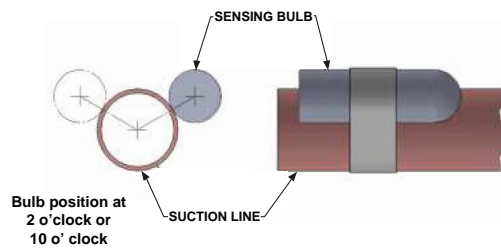
10. Rewrap the TXV bulb, spring clip or hose clamp, and suction line with insulation after the bulb is reinstalled.
11. For optimal performance, the TXV bulb may be relocated outside the coil cabinet after the field line brazing is complete.
  - a. Remove the bulb insulation and bulb clip/hose clamp.
  - b. Lace the TXV bulb through the large coil panel grommet.
  - c. Assemble the TXV bulb to the field provided suction line outside the unit.
    - For models with a hose clamp factory mounted with the bulb, reuse the hose clamp to attach the bulb outside the unit.
    - For models with a factory mounted spring steel clamp with the bulb, discard the spring steel clip and use the hose clamp provided with the documentation pack.

## Installation

Confirm the bulb is mounted on a straight, smooth section of the copper line. The bulb should be clear of any field braze joints and located away from any bends in the pipe.

- d. The recommended installation position for the TXV bulb is parallel to the ground (on a horizontal plane). The bulb position should be at 2 o'clock or 10 o'clock. See Figure 9, p. 14.

**Figure 9. TXV bulb mount**

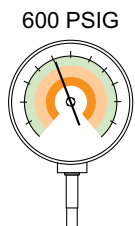


- e. Wrap the bulb and suction with field provided insulation after the hose clamp is installed.

## Pressure Test

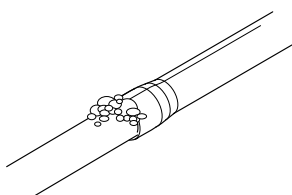
1. Using dry nitrogen, pressurize the field piping and indoor coil to the lower of the maximum operating pressures listed on the name plates of the indoor and outdoor units (likely 600 psi).

**Figure 10. Pressure test**



2. The test pressure after removal of the pressure source shall be maintained for at least one (1) hour with no decrease of pressure indicated by the test gauge, with the test gauge resolution not exceeding 30 psi.
3. Check for leaks by using a soapy solution at each field-made joint.

**Figure 11. Check for leaks**



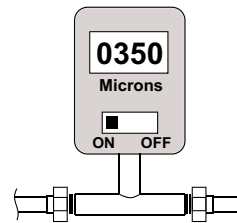
**Note:** Remove nitrogen pressure and repair any leaks before continuing.

## Vacuum Test

**Important:** Do not open the service valves until the refrigerant lines and indoor coil leak check and evacuation are complete.

1. Evacuate until the micron gauge reads no higher than 350 microns, then close off the valve to the vacuum pump.

**Figure 12. Observe micron gauge reading**



2. Observe the micron gauge. Evacuation is complete if the micron gauge does not rise above 500 microns in one minute and 1500 microns in ten minutes.
3. Once evacuation is complete, blank off the vacuum pump and micron gauge, and close the valve on the manifold gauge set.

All procedures for charging the system with refrigerant must be according to the instructions provided by the manufacturer of the outdoor unit.

**Important:** Do not use potential sources of ignition to detect refrigerant leaks.

After charging the system, all indoor field-made joints of the field piping must be checked for refrigerant leaks using an electronic leak detector calibrated for R-454B having a sensitivity of 5 grams per year or better.

## Condensate Drain Piping

Condensate drain connections are located in the drain pan at the bottom of the coil/enclosure assembly. The threaded fitting protrudes outside of the enclosure for external connection. A field fabricated trap is not required for proper drainage due to the positive pressure of the furnace; it is recommended to prevent efficiency loss of conditioned air.

1. The drain hole in the drain pan must be cleared of all insulation.
2. Insulate the primary drain line to prevent sweating where dew point temperatures may be met (optional depending on climate and application needs).
3. Connect the secondary drain line to a separate drain line (no trap is needed in this line).

## Cleaning the Coil

The two piece door allows removal of the outer casing doors without interference from refrigerant or condensate lines.

The foil covered insulation on 5PXC coils should be wiped down and residual dirt and dust should be vacuumed up to maintain good air quality.

The manufacturer's recommendation for coil cleaning is to initially use only water to wash away debris that may have collected on and in the coil fin surface. Removing an

evaporator coil is the best way to effectively clean a coil that is heavily contaminated. This is accomplished by removing the coil from the cabinet, sealing the liquid and vapor line and using a strong water stream such as from a garden hose, being careful to prevent fin damage. Use chemical cleaners only when necessary.

**Note:** See *Evaporator Coil Cleaning and Condensate Drain Maintenance Guidelines – Service Guideline (UN-SVG001\*-EN)* for important information on cleaning coils with chemical treatments.

# Wiring

The Mitigation Control Board (MCB), [Figure 22, p. 21](#), must be wired to the furnace, thermostat, and outdoor unit in order for the Refrigerant Detection System to function as intended.

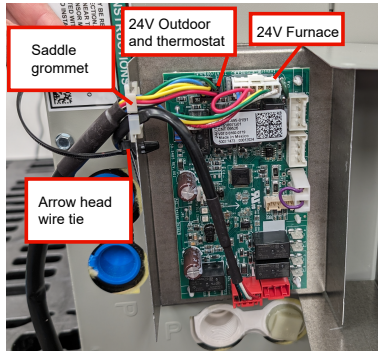
For 24Vac systems, use the wiring harness supplied with this guide.

For communicating/Link systems, no harness is provided. Use the extra CAN connectors provided in the HUB kit or communicating furnace and field supplied wiring.

**Note:** For communicating systems, only the CAN bus connection is required for connection to the furnace, thermostat, and OD.

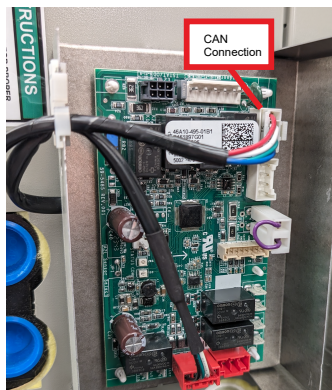
- **24Vac only:** Connect the white (furnace) connector and the black (Thermostat and OD) connector to the MCB as shown in [Figure 13, p. 16](#).

**Figure 13. 24Vac harness connection to MCB**



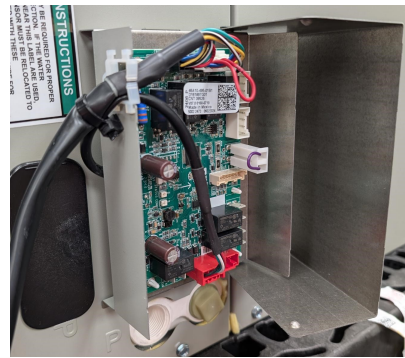
- **Communicating/Link only:** Connect the white field supplied CAN harness to the white CAN connector on the MCB as shown in .

**Figure 14. Comm/Link harness connection to MCB**



- Press the harness through the saddle grommet on the side of the MCB control box.
- Insert the arrow head wire tie provided in the documentation pack through the hole on the side of the MCB control box near the saddle grommet.
- Wrap the tie around both the 24V harness/CAN harness and the A2L sensor harness, and pull the wire tie tight. This ensures MCB connections are not strained or damaged due to harness weight. See [Figure 15, p. 16](#).

**Figure 15. Wrap tie for strain relief**

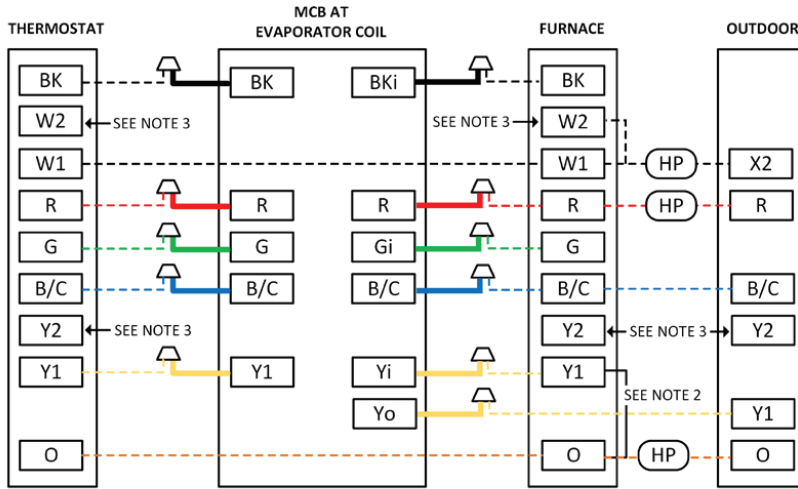


Check that the 24Vac harness is connected properly to the furnace, thermostat, and OD units. See "[Field Wiring Diagrams,](#)" [p. 17](#) for further information.

1. Wires bundled with "To Furnace" flag label should be wired to the furnace low voltage terminal strip.
2. Wires bundled with "To Thermostat" flag label should be spliced to field provided thermostat wire within the furnace cabinet.
3. Wires bundled with "To Outdoor" flag label should be spliced to field provided outdoor wire within the furnace cabinet.

## Field Wiring Diagrams

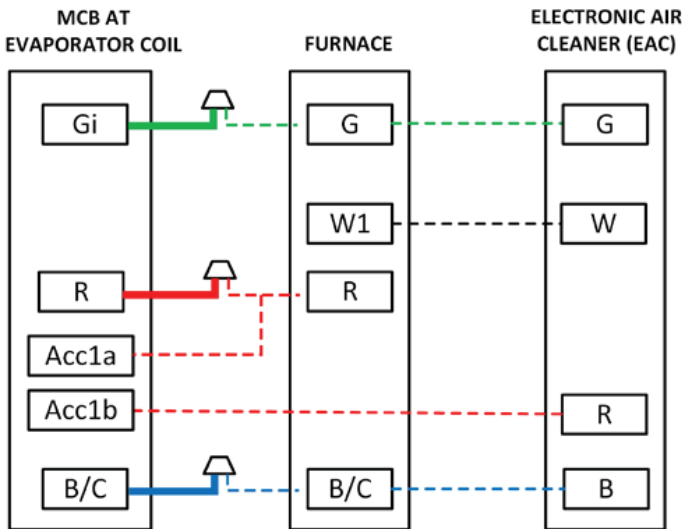
Figure 16. 24V field wiring diagram for heating thermostat +AC/HP



**Notes:**

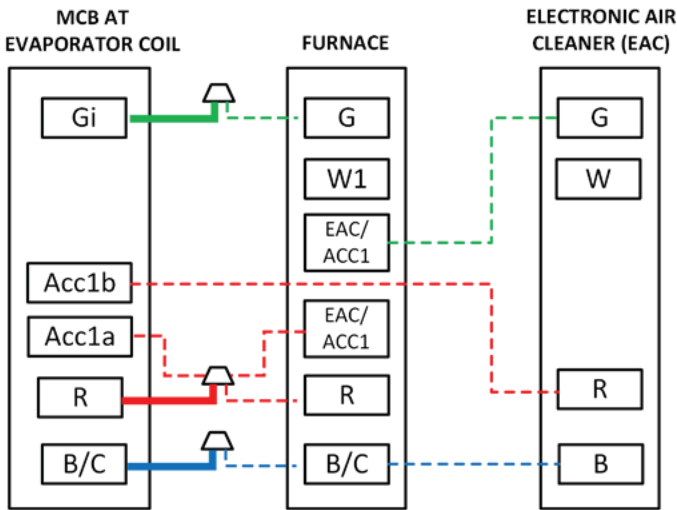
1. For 24V control, connect factory supplied harness to circuit board at evaporator. Complete all other wiring connections at furnace.
2. For heat pump systems, remove factory Y1-O jumper at furnace.
3. For 2-stage systems, connect W2 to W2 and Y2 to Y2.

Figure 17. Accuclean® or CleanEffects® air cleaner 24VAC



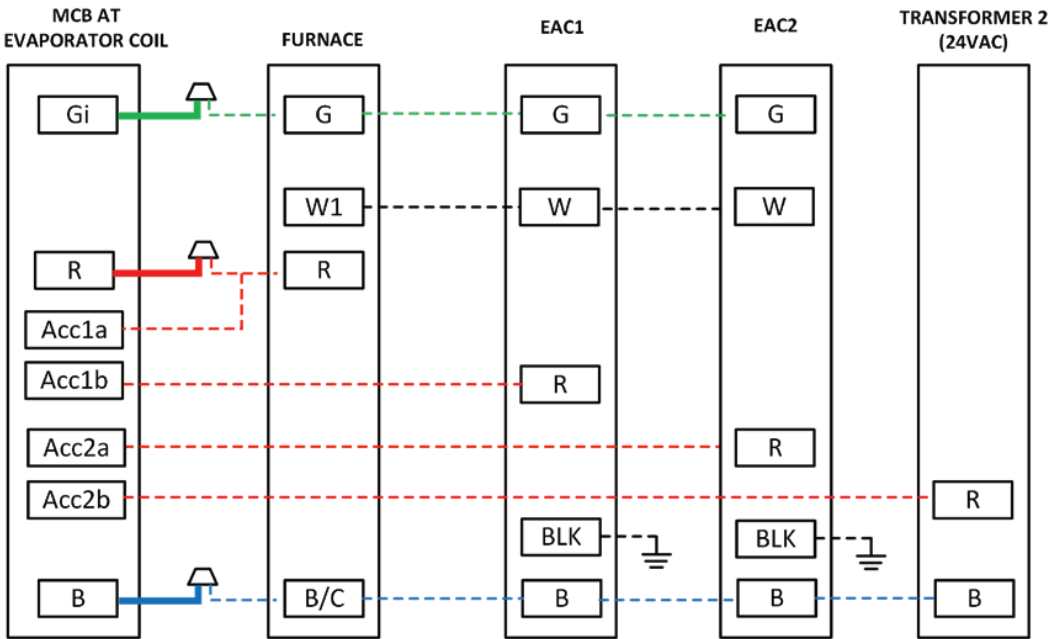
**Note:** Installation of air cleaner will require replacement of the furnace transformer. See air cleaner literature. For legacy 40-inch furnaces (models \*UD, UH, \*DD, \*DH), do not use EAC wire on the furnace control board. Wire as shown in this diagram.

**Figure 18. Accuclean® or CleanEffects® air cleaner furnace with dry contact EAC terminals, typical**



**Note:** Installation of air cleaner will require replacement of furnace transformer. See air cleaner literature. S\*X, S\*V, A9, L8, OR P0 furnace models include EAC or ACC dry contacts as shown. (\*UD, \*UH, \*DD, \*DH, or S\*B furnace models do not utilize dry contact accessory connections).

**Figure 19. Secondary transformer of second Accuclean® or CleanEffects® air cleaner+ 24 VAC furnace (if equipped)**



**Note:** Refer to air cleaner literature to determine if second air cleaner and/or secondary transformer is required. See the other air cleaner wiring diagrams for control wiring connections. Line and low voltage of the furnace and second transformer must be phased correctly.

Figure 20. Audible alarm

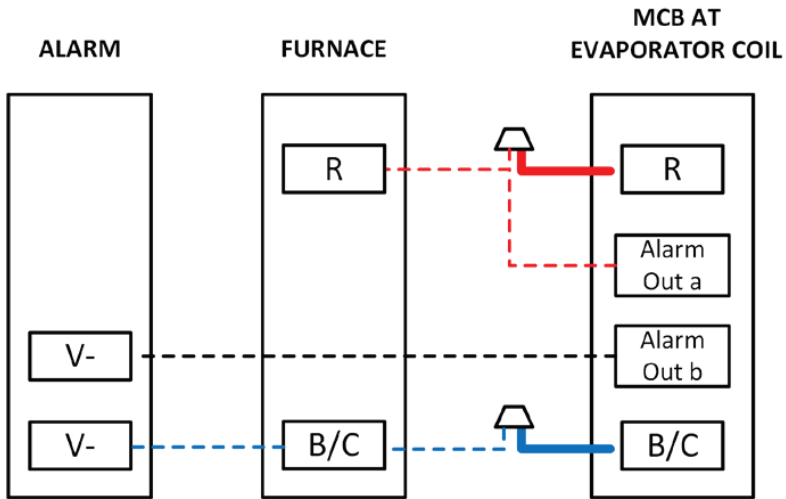
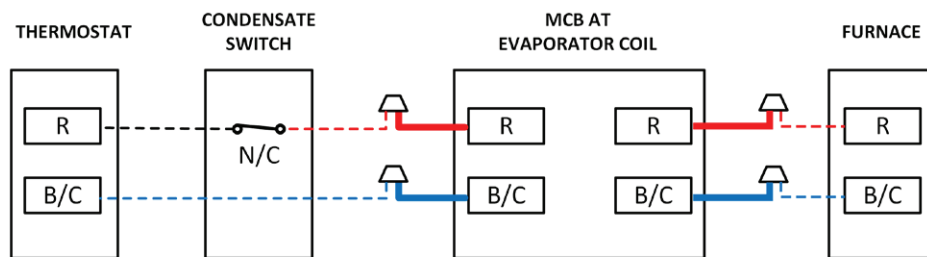


Figure 21. Condensate switch, typical



**Note:** Do not break R between the MCB and furnace to confirm the MCB remains powered for leak detection.

# Refrigerant Leak Detection System

## ⚠ WARNING

### Risk of Fire — Flammable Refrigerant!

Failure to follow instructions below could result in death or serious injury, and equipment damage.

- To be repaired only by trained service personnel.
- Do not puncture refrigerant tubing.
- Dispose of properly in accordance with federal or local regulations.

## ⚠ WARNING

### Leak Detection System Installed!

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

The unit is equipped with electrically powered safety measures and must be powered at all times after installation, except during servicing, to detect any leak.

For the safety of the building occupants, the unit is equipped with a refrigerant leak detection system. The system is comprised of a refrigerant sensor and a mitigation control board. The system automatically detects leaks in the indoor coil and initiates actions to mitigate the risk of ignition of the leaked refrigerant, including:

- Turning on the blower of the indoor unit to dilute leaked refrigerant
- Fully opening any zoning dampers, when applicable
- Turning off the compressor of the outdoor unit
- De-energizing potential sources of ignition connected to the system
- Energizing an audible alarm, if so equipped

Refrigerant sensors for refrigerant leak detection systems shall only be replaced as specified by the manufacturer.

## Minimum Conditioned Space

The installer must verify that the total space conditioned by the system is large enough to safely dilute any leaked refrigerant in the event of a refrigerant leak of the indoor coil.

The minimum space conditioned by the appliance must be according to the table below. The conditioned space includes any parts of the space connected via an air duct system. The altitude of installation is the altitude above sea level of the site where the equipment is installed.

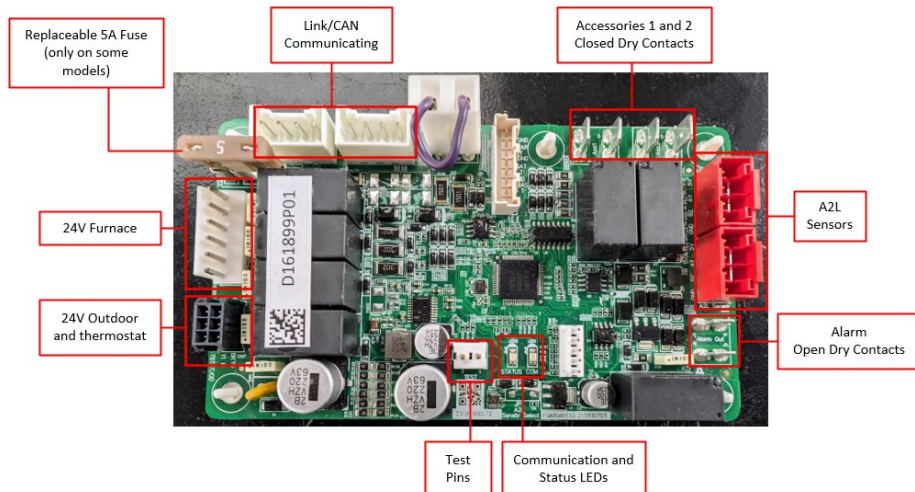
**Table 5. Minimum space conditioned by the appliance**

	Altitude (ft)								
	sea level-2,000	2,001-4,000	4,001-6,000	6,001-8,000	8,001-10,000	10,001-12,000	12,001-14,000	14,001-15,000	above 15,000
<b>Charge (lb)<sup>(a)</sup></b>	<b>Minimum Conditioned Space (ft<sup>2</sup>)</b>								
4	63	66	70	74	79	85	91	94	98
5	79	83	88	93	99	106	113	118	122
6	95	100	105	112	119	127	136	141	147
7	110	116	123	130	138	148	159	165	171
8	126	133	140	149	158	169	181	188	196
9	142	149	158	167	178	190	204	212	220
10	158	166	175	186	198	211	227	235	245
11	173	183	193	205	218	232	249	259	269
12	189	199	211	223	237	254	272	282	294
13	205	216	228	242	257	275	295	306	318
14	221	232	246	260	277	296	318	330	343
15	236	249	263	279	297	317	340	353	367
16	252	266	281	298	317	338	363	377	392
17	268	282	298	316	336	359	386	400	416
18	284	299	316	335	356	380	408	424	440
19	299	315	333	353	376	402	431	447	465
20	315	332	351	372	396	423	454	471	489

<sup>(a)</sup> The refrigerant charge is the total system charge which is marked on the system according to the instructions provided by the manufacturer of the outdoor unit.

## Verification and Troubleshooting Refrigerant Detection System

Figure 22. Mitigation control board (MCB) connections



After installation, the installer must verify that the refrigerant leak detection system actuates all mitigating actions listed above.

Test Pins: Force Test: (See [Figure 22, p. 21](#))

- The test can be initiated by shorting the two test pins on the header of the mitigation control board inside of the unit.
- The mitigating actions will continue for two minutes with the jumper in place.
- The control will resume normal operation after two minutes or when the jumper is removed.

If any of the mitigating actions are not actuated by the system during the test, please check the following:

- All field wiring connections should be checked against the diagrams in the “[Field Wiring Diagrams,](#)” p. 17 section of this manual.
- The diagnostic indicators on the mitigation control board should be checked against the diagnostic codes given in [Table 6, p. 22](#).
- Scan the QR code for more information on field troubleshooting of the refrigerant leak detection system.

Figure 23. QR code

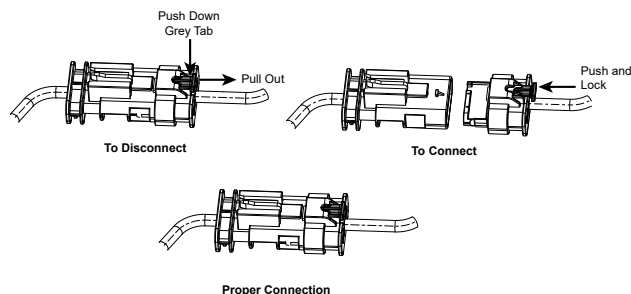


If the MCB is showing an active alarm at startup (see [Table 6, p. 22](#)):

- Check the RED A2L sensor is fully connected at MCB.
- Check the BLACK A2L sensor to sensor harness connection inside the unit and ensure fully connected. (See [Figure 24, p. 21](#) on how to connect/disconnect the sensor harness.)
  1. To disconnect the black connector, first pull out the grey tab, and then actively push down on the grey tab while simultaneously pulling the connection apart to get it loose.
  2. To connect the black connector, press together and push in grey tab to lock.
- Ensure no refrigerant is present.

The MCB will take approximately 20 seconds to reboot when power is cycled in 24Vac mode. The 5 minute mitigation timer can be reset by cycling power to the unit.

Figure 24. Connect/Disconnect sensor harness



If power is on but MCB LEDs are not lit, verify fuse is not blown on MCB (select models).

# Refrigerant Leak Detection System

**Table 6. MCB diagnostic codes**

Green LED	Status Condition (Software version 9.0 or earlier) <sup>(a)</sup>
Off	No Power/Off
On	Start up
Slow Blink	Normal operation
3 Flash	Active alarm (refrigerant leak, sensor comm error, or sensor error)
4 Flash	Past refrigerant detected alarm
5 Flash	Past sensor comm error
6 Flash	Past sensor error

Green LED	Status Condition (Software version 9.1 or later) <sup>(a)</sup>
Off	No Power/Off
On	Start Up
Slow Blink	Normal operation
2 Flash	Active alarm - Sensor comm error
3 Flash	Active Alarm - Refrigerant Leak or Sensor Failure
4 Flash	Past refrigerant detected alarm
5, 6, or 7 Flash	Past sensor comm or sensor error

Amber LED	MCB Communicating Condition
Off	No Power/Off
On	24V mode active
Fast Blink	CAN communication lost
Node Count	Communication mode active/normal operation

<sup>(a)</sup> Software version is indicated on the barcode label located on the MCB. Software versions can also be verified for Link systems via the Technician App.

**Note:** All past alarm flash codes will remain present for 30 days post occurrence unless manually cleared.

## Clearing Alarms

- With power OFF to the mitigation control board, place a jumper across the test pins.
- Turn power ON, wait until the control fully boots up and remove the jumper.

## Control Box Relocation (Optional)

The control box may be relocated from the coil cabinet to allow for clearance to braze connections, condensate connections, or other space constraints, with use of extension kit optional accessory BAYMCBHARNES. To avoid puncturing refrigerant tubes, it is not recommended to screw control box to coil cabinet.

**Note:** For communicating systems, only the can bus connection is required for connection to the furnace, thermostat, and OD.

# Dimensional Data

Figure 25. Models 5PXC

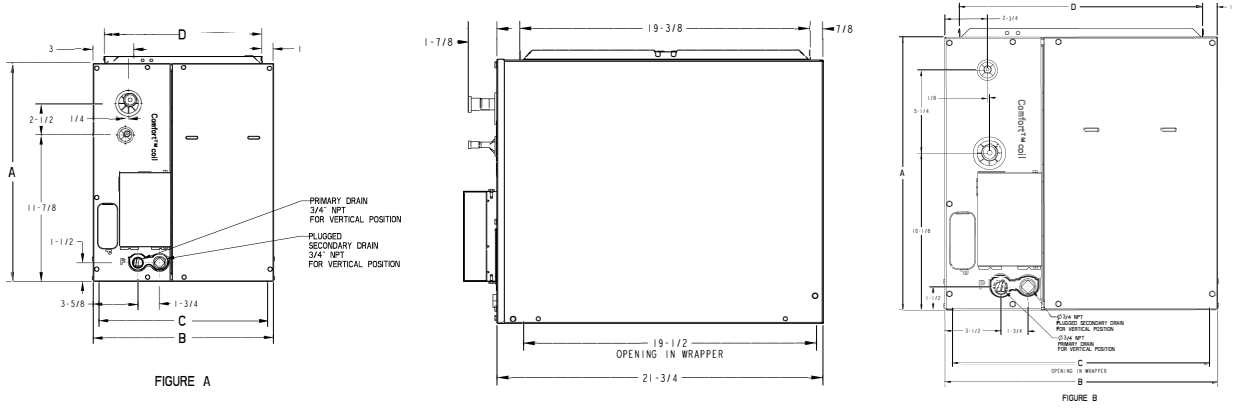


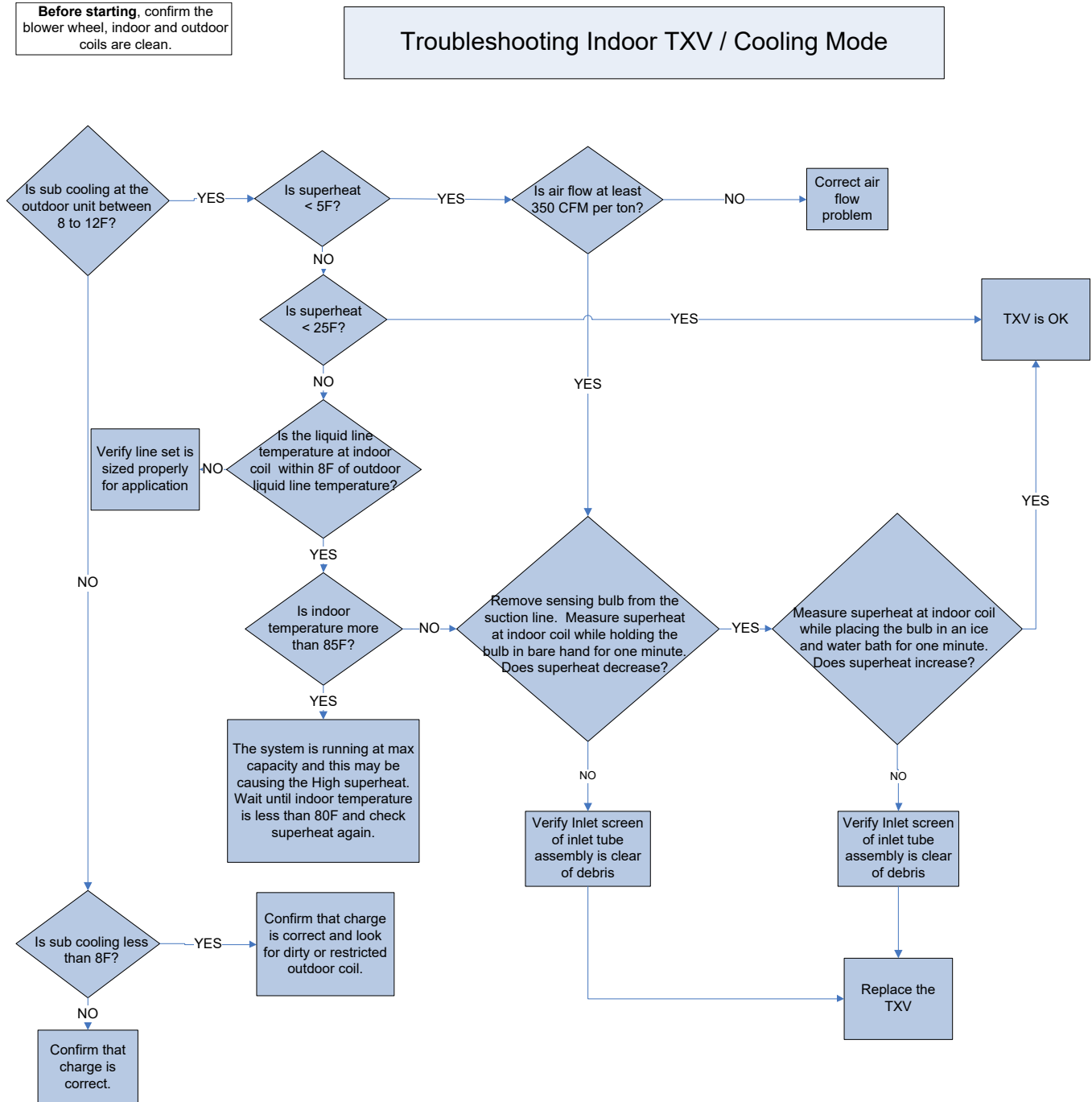
Table 7. Dimensional data per model

Model (5PXC)	A001AS3	A002AS3	B003AS3 BD03AS3	B004AS3 BD04AS3	C005AS3 CD05AS3	B006AS3 BD06AS3	C007AS3 CD07AS3	D008AS3	C009AS3 CD09AS3	D010AS3 DD10AS3
Figure	A	A	B	A	A	A	A	A	A	A
Ship Weight	39 pounds	43 pounds	54 pounds	54 pounds	56 pounds	61 pounds	64 pounds	68 pounds	73 pounds	77 pounds
Refrig. Control	TXV (Non-bleed)									
Height "A"	17-1/2"	22-1/2"	17-1/2"	22-1/2"	22-1/2"	26-7/8"	26-7/8"	26-7/8"	30-3/4"	30-3/4"
Width "B"	14-1/2"	14-1/2"	17-1/2"	17-1/2"	21"	17-1/2"	21"	24-1/2"	21"	24-1/2"
Opening Width "C"	13-5/8"	13-5/8"	16-5/8"	16-5/8"	20-1/8"	16-5/8"	20-1/8"	23-5/8"	20-1/8"	23-5/8"
Top Open "D"	12-3/4"	12-3/4"	15-3/4"	15-3/4"	19-1/4"	15-3/4"	19-1/4"	22-3/4"	19-1/4"	22-3/4"
Gas Connection	3/4"	3/4"	7/8"	7/8"	7/8"	7/8"	7/8"	7/8"	7/8"	7/8"
Liquid Connection	3/8"									
Furnace Width (no adapter)	14-1/2"	14-1/2"	17-1/2"	17-1/2"	21"	17-1/2"	21"	24-1/2"	21"	24-1/2"

Note: Drain pan is plastic for all models

# Troubleshooting

Figure 26. Troubleshooting



# Checkout Procedures

The final phase of the installation is the system Checkout Procedures. The following list represents the most common items covered in a Checkout Procedure. Confirm all requirements in this document have been met.

- All wiring connections are tight and properly secured.
- Voltage and running current are within limits.
- All refrigerant lines (internal and external to equipment) are isolated, secure, and not in direct contact with each other or structure.
- All braze connections have been checked for leaks. A vacuum of 350 microns provides confirmation that the refrigeration system is leak free and dry. Additional refrigerant weight is recorded on a label by the unit nameplate.
- If unit is installed in horizontal, the refrigerant sensor is relocated to the horizontal drain pan.
- Final unit inspection to confirm factory tubing has not shifted during shipment. Adjust tubing if necessary so tubes do not rub against each other or any component when unit runs.
- Ductwork is sealed and insulated.
- All drain lines are clear with joints properly sealed. Pour water into drain pan to confirm proper drainage. Provide enough water to ensure drain trap is primed.
- Supply registers and return grilles are open, unobstructed, and air filter is installed.
- Indoor blower and outdoor fan are operating smoothly and without obstruction.
- Indoor blower motor set on correct speed setting to deliver required CFM. "Blower and fan set screws are tight."
- Cover panels are in place and properly tightened.
- System functions safely and properly in all modes.
- Refrigerant leak detection system mitigation actions are verified.
- All refrigerant safety procedures have been verified.
- Owner has been instructed on use of system and given manual.





## About Trane and American Standard Heating and Air Conditioning

Trane and American Standard create comfortable, energy efficient indoor environments for residential applications. For more information, please visit [www.trane.com](http://www.trane.com) or [www.americanstandardair.com](http://www.americanstandardair.com).

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