UPFLOW/DOWNFLOW COILS INSTALLATION INSTRUCTIONS

1. 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

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

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.

THIS EQUIPMENT IS NOT INTENDED FOR USE BY PERSONS (INCLUDING CHILDREN) WITH REDUCED PHYSICAL, SENSORY OR MENTAL CAPACITIES, OR LACK OF EXPERIENCE AND KNOWLEDGE, UNLESS THEY HAVE BEEN GIVEN SUPERVISION OR INSTRUCTION CONCERNING USE OF THE APPLIANCE BY A PERSON RESPONSIBLE FOR THEIR SAFETY.

CHILDREN SHOULD BE SUPERVISED TO ENSURE THAT THEY DO NOT PLAY WITH THE EQUIPMENT.

THE MANUFACTURER WILL NOT BE RESPONSIBLE FOR ANY INJURY OR PROPERTY DAMAGE ARISING FROM IMPROPER SUPERVISION, 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 SUPERVISION, 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 SUPERVISION OR TRAINING MAY RESULT IN PRODUCT DAMAGE, PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

WARNING

DO NOT BYPASS SAFETY DEVICES.

WARNING

IF ANY HOT WORK IS TO BE CONDUCTED ON THE REFRIGERATING EQUIPMENT OR AN ASSOCIATED PARTS, APPROPRIATE FIRE EXTINGUISHING EQUIPMENT SHALL BE AVAILABLE ON HAND. HAVE A DRY POWDER OR CO_2 FIRE EXTINGUISHER ADJACENT TO THE CHARGING AREA.

ENSURE THAT THE AREA IS IN THE OPEN OR THAT IT IS ADEQUATELY VENTILATED BEFORE BREAKING INTO THE SYSTEM OR CONDUCTING ANY HOT WORK. A DEGREE OF VENTILATION SHALL CONTINUE DURING THE PERIOD THAT THE WORK IS CARRIED OUT. THE VENTILATION SHOULD SAFELY DISPERSE ANY RELEASED REFRIGERANT AND PREFERABLY EXPEL IT EXTERNALLY INTO THE ATMOSPHERE.

2. Shipping Inspection

This equipment is approved for use with R32 refrigerant only. 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, 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.

2.1 Handling

Use caution when transporting/carrying unit. Do not carry unit with hooks or sharp object. The preferred method of carrying the unit after arrival at the job site is to carry by two-wheel hand truck from the back or sides or by hand by carrying at the cabinet corners. Take proper precautions when carrying unit to avoid any damage to the piping.

3. Codes & Regulations

This product is designed and manufactured to comply with national codes. The product shall be installed in accordance with national wiring regulations. Installation in accordance with such codes and/or prevailing local codes/regulations is the responsibility of the installer. Compliance with national gas regulations shall be observed. The manufacturer assumes no responsibility for equipment installed in violation of any codes or regulations.

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

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can lead to the imposition of substantial fines. Should you have any questions please contact the local office of the EPA.

4. Replacement 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. Make sure to include the full product model number and serial number when reporting and/or obtaining service parts. Replacement parts for this product are available through your contractor or local distributor. For the location of your nearest distributor consult the white business pages, the yellow page section of the local telephone book or contact:

HOMEOWNER SUPPORT
DAIKIN COMFORT TECHNOLOGIES
MANUFACTURING, L.P.
19001 KERMIER ROAD
WALLER, TEXAS 77484
877-254-4729

5. Pre-Installation Instructions

The appliance shall be installed in accordance with national wiring regulations. This product was tested at an external static pressure of 0.66 WC. None of the components in this product line are designed or approved to be suitable for outdoor use.

Refrigerant lines must be routed depending on configuration of unit to maintain the required 24” minimum clearance for service.

The A2L Sensor must be installed and powered for service. Ensure that the grommet is installed through the access panel knockout hole. Sensor bracket assemblies are shipped with two zip ties, one of which is designed for strain relief. The zip tie shown in Figure 1, detail A, must be kept attached to the sensor bracket assy. Detail B highlights the zip tie that must be cut during installation in order to release the wire bundle.

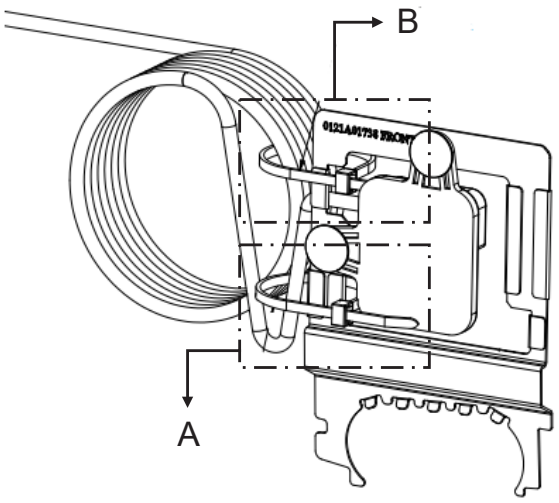


Figure 1 - Isometric view of sensor bracket assy (back view)

Follow routing diagram as shown in Figures 6 or 7 depending on orientation of install. This wiring is intended to be passed through the access hole on the furnace. If a hole must be cut into the furnace, ensure that the wiring is well protected from mechanical damage and that the hole is free from burrs or sharp edges. Utilize a protective coating for all exposed metallic edges.

This appliance is equipped with a leak detection sensor which must be wired through the connector on the furnace PCB or Non-A2L Furnace Integration Kit.

Scenario 1: Amana / Goodman / Daikin Furnace PCB with R32 sensor compatibility.
Verify that the A2L function is enabled on the furnace board PCB. Refer to the furnace IO for further instruction on how to toggle this function from disabled to enabled. The A2L verification step as described on the furnace IO must be completed before the unit is commissioned. If the test is not successful, call 1-855-DAIKIN1, option 3, for further assistance.

Scenario 2: Amana / Goodman / Daikin Furnace or Modular Blower PCB with no R32 sensor compatibility.
The leak detection sensor must be wired directly to the Non-A2L Furnace Integration Kit and installed as a pass-through to the non-A2L furnace control board. For instructions on how to correctly wire the Non-A2L Furnace Integration Kit refer to the kit IO.

Scenario 3: All other OEM Furnaces.
The availability of mitigation mode, or equivalent, must be checked through the furnace model manufacturer IO. Please follow relevant instructions to disable mitigation mode, or equivalent. Once this step is complete follow instructions of scenario 2. If mitigation mode, or equivalent, is present but can't be disabled the furnace must be replaced.

If mitigation mode, or equivalent, is not available follow the instructions on scenario 2.

Under no circumstance should the system be charged with refrigerant at a capacity greater than the refrigerant charge listed on the serial plate. This value indicates refrigerant charge at or above 30% GREATER than the intended charge with the longest line-sets.

If additional charge is required, you must contact Daikin Comfort’s Homeowner Support Line.

5.1 Preparation

Keep this document with the unit. 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.

5.2 Clearances

Consult all appropriate regulatory codes prior to determining final clearances. In installations that may lead to physical damage (i.e. a garage) it is advised to install a protective barrier to prevent such damage. Always install units such that a positive slope in condensate line (¼" per foot) is allowed.

Further, any joints made in the installation between parts of the refrigerating system must be accessible for maintenance purposes.

NOTE: Furnace application requires that the installer MUST review and strictly follow ALL furnace installation clearance guidelines. Failure to do so may result in property / equipment damage, personal injury or death.

CONSULT ALL APPROPRIATE REGULATORY CODES WHEN DETERMINING FINAL CLEARANCES.

WARNING

When installed in a room with an area less than that outlined in table 3, that room shall be without continuously operating open flames (for example an operating gas appliance) or other potential ignition sources (for example an operating electric heater, hot surfaces).

6. System Matches

The entire system (combination of indoor and outdoor sections) must be manufacturer approved and Air Conditioning, Heating, and Refrigeration Institute (AHRI) listed.

NOTE: Installation of unmatched systems is not permitted. Damage or repairs due to installation of unmatched systems is not covered under the warranty.

7. Application Information

WARNING

Auxiliary devices which may be a potential ignition source are not to be installed in the duct work. Such potential ignition sources include hot surfaces with a temperature exceeding 650°C and electric switching devices.

WARNING

Only auxiliary devices approved by the appliance manufacturer or declared suitable with the refrigerant shall be installed in connecting ductwork.

Coils are designed for indoor installation only and must be installed downstream (discharge air) of the furnace. The CAPTA product line may be installed in upflow or downflow orientations.

8. Condensate Drain Piping

In all cooling applications where condensate overflow may cause damage, a secondary drain pan must be provided by the installer and placed under the entire unit with a separate drain line properly sloped and terminated in an area visible to the owner. This secondary drain pan can provide extra protection to the area under the unit should the primary drain plug up and overflow. For coils with "A" cabinets (14" wide), use float switch if secondary drain line is not installed. Refer to product nomenclature from product specification literature to identify coil models with "A" cabinets. As expressed in our product warranty, we will not be liable for any damages, structural or otherwise due to the failure to follow this installation requirement.

Condensate drain connections are located in the drain pan at the bottom of the coil/enclosure assembly. Use the female (¾" FPT) threaded fitting that protrudes outside of the enclosure for external connections. The connectors required are ¾" NPT male, either PVC or metal pipe, and must be hand tightened to a torque of no more than 37 in-lbs. to prevent damage to the drain pan connection. An insertion depth between .36 to .49 inches (3-5 turns) should be expected at this torque. Insulate PVC drain lines/pipes with high heat resistive tape within 1" furnace flue/vent pipe. Foil-Mastic Sealant tape is the preferred wrapping material.

1. Ensure drain pan hole is NOT obstructed.
2. To prevent potential sweating and dripping on 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, now called for by many building codes, has been provided. Pitch the drain line ¼" per foot to provide free drainage. Provide required support to drain line to prevent bowing. Install a condensate trap in the primary drain line to ensure proper drainage. If the secondary drain line is required, run the line separately from the primary drain and end it where condensate discharge can be easily seen.

CAUTION

If secondary drain is not installed, the secondary access must be plugged.

9. Plastic Drain Pan Application

WARNING

Do not use the coil pan shipped with the unit on oil furnaces or any application where the temperature of the drain pan may exceed 300°F. A high temperature drain pan such as kits HTP-A, -B, -C, and -D for normal cabinet widths of 14, 17.5, 21 and 24.5 inches, respectively, should be used for applications where the temperature exceeds 300°F and below 450°F. A field fabricated metal drain pan can also be used for applications where temperature exceeds 300°F. Failure to follow this warning may result in property damage and/pr personal injury.

If the uncased coil is to be installed on top of a gas furnace, allow enough space between the top to the furnace and the bottom of the plastic coil drain pan to have a free flow of air. A minimum of 2.0” distance from the top of the furnace and the bottom of the coil pan is required.

NOTE: The coil must be installed with the line set and drain openings to the front of the furnace.

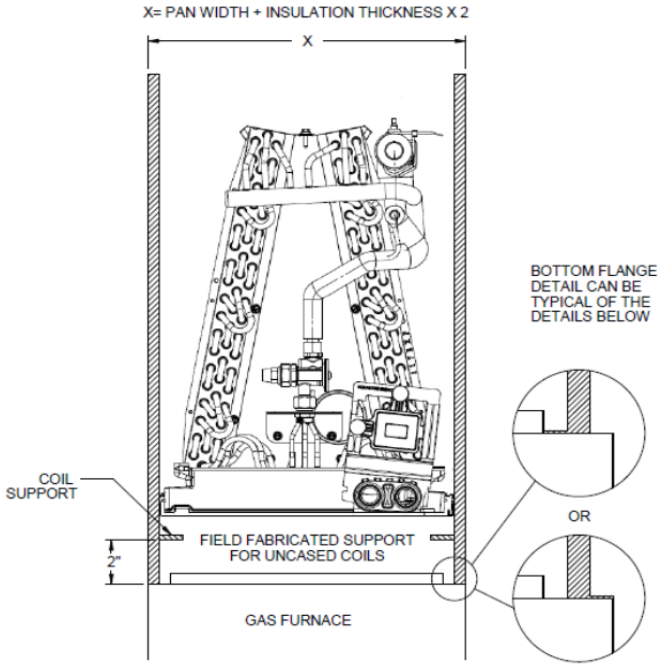


Figure 2

NOTE: Water coming from the secondary line means the coil primary drain is plugged and needs immediate attention. Install a trap in the drain line below the bottom of the drain pan (Figure 2). If using a copper drain line, solder a short piece of pipe, minimum 6” length, to the connector before installing a drain fitting.

DO NOT over torque the ¾” copper connector to the plastic drain connection. Using a wet rag or heatsink material on the short piece to protect the plastic drain pan, complete the drain line installation. Use Figure 3 as a template for typical drain pipe routing. This figure shows how to avoid interference with vent piping.

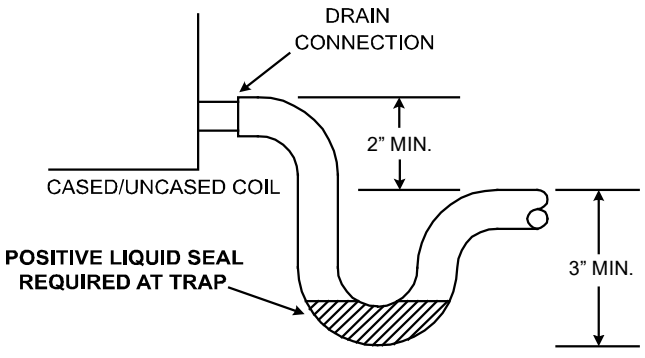


Figure 3

The appliance shall be stored so as to prevent mechanical damage from occurring.

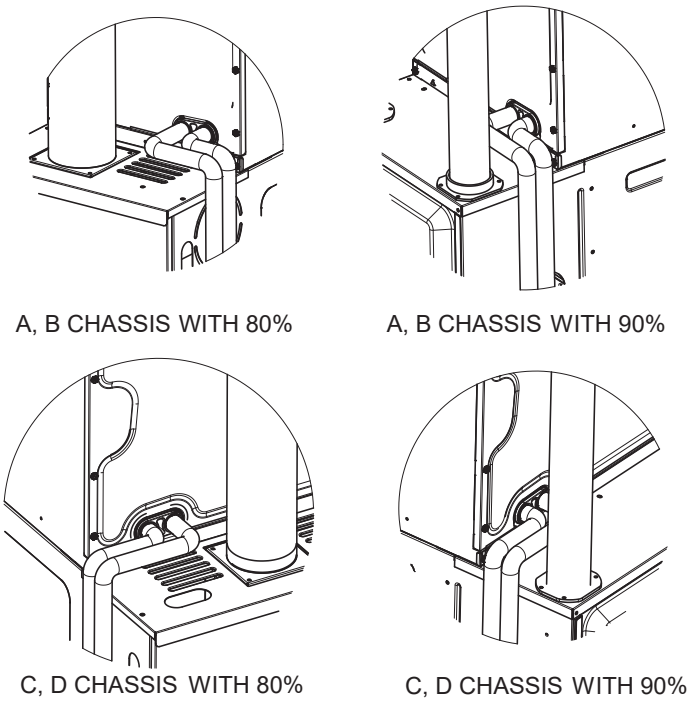


Figure 4

9.1 Condensate Drain Pan Break-away Feature

The drain pan (0161D00116) possesses a break-away feature on the lip located on the front-top and rear-top of the drain pan. This feature is to be used for uncased installations, as necessary. The force required to break the lip is 18lbf uniformly distributed over the feature. A force of 8lbf localized on the corner of the lip can also be applied. (Applies only for A-size cabinet) See Figure 5.

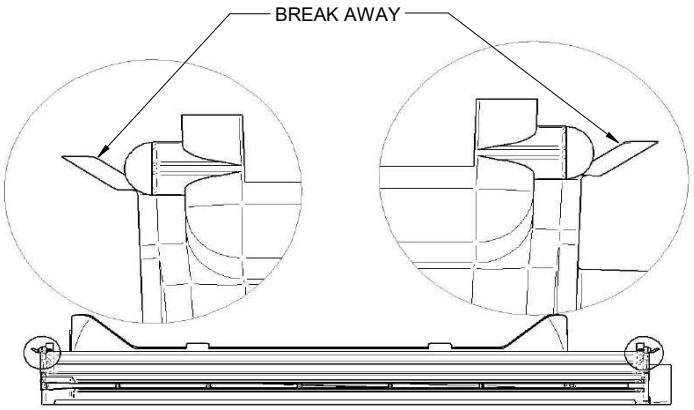


Figure 5

10. Sensor and Accessory Wiring

Refer to Table 3 for minimum conditioned room area requirements.

A2L sensor fault codes should be referenced through the corresponding A2L equipped furnace or accessory IO manuals. It is the installer's responsibility to ensure that mitigation mode is operational.

Sensor is not intended for service or repair. If the sensor is not functioning properly, mitigation mode will engage and the sensor must be replaced by removing the old sensor from the bracket and re-installing with new push-pins and a zip-tie. (Sensor replacement part can be determined through the homeowner support line provided earlier in this document.)

All wiring installed in the field to be used in conjunction of the sensor must meet the following minimum specification:

- 18 AWG
- 1.58mm insulation thickness or protected from damage

If the sensor used in this unit must be routed through the Non-A2L Furnace Integration Kit, then reference the Non-A2L Furnace Integration Kit installation manual for further instructions.

For any and all accessories which may become a potential ignition source, they must be installed to an accessory control board. Ensure that any additional wiring from the cased coil is done so as to protect from damage and wear, avoiding the flue pipe and any joints which may need to be brazed or broken for service. If a zone control system is installed in the ductwork attached to this system, the zone controller must be powered through a zoning kit to ensure that the zoning dampers actuate during mitigation mode.

Check that wiring 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.

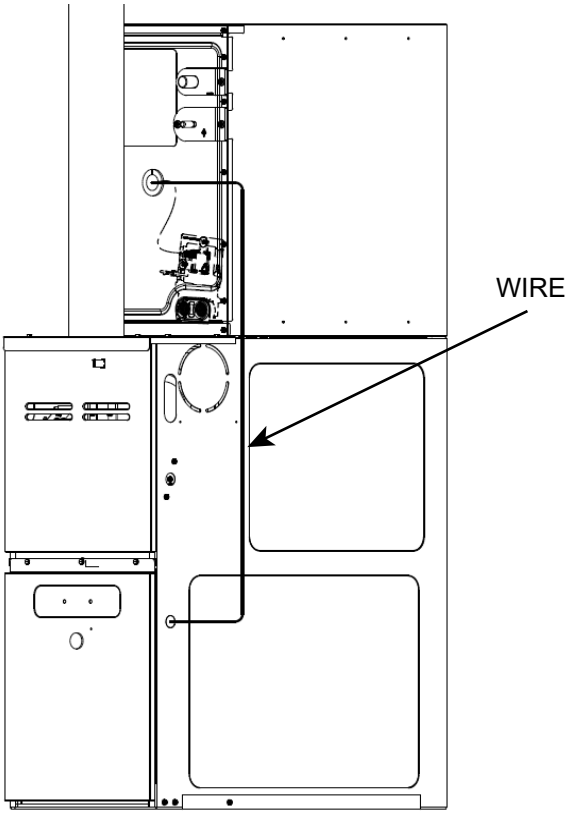


Figure 6 - Upflow Wire Routing

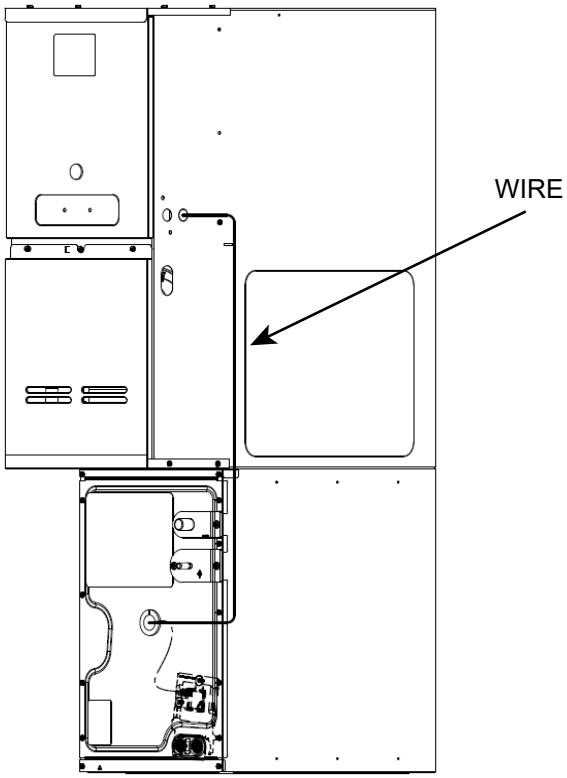
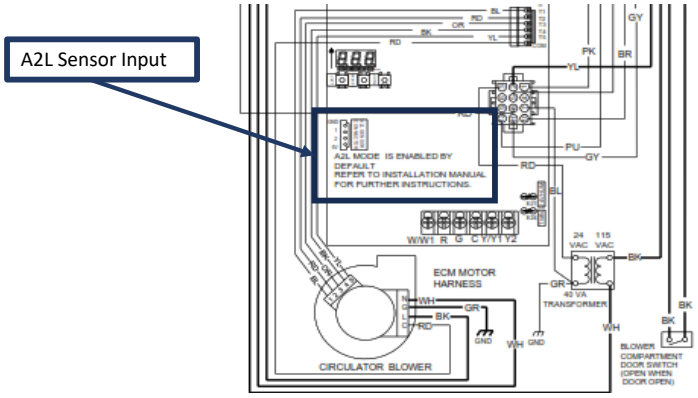


Figure 7 - Downflow Wire Routing



Typical Design for Refrigerant Detection Sensor connectors.
Figure 8

11. Refrigerant Lines

CAUTION

THE COIL IS SHIPPED UNDER PRESSURE WITH A DRY NITROGEN MIXTURE. USE APPROPRIATE SERVICE TOOLS AND FOLLOW THESE INSTRUCTIONS TO PREVENT INJURY.

WARNING

A QUENCHING CLOTH IS STRONGLY RECOMMENDED TO PREVENT SCORCHING OR MARRING OF THE EQUIPMENT FINISH WHEN BRAZING CLOSE TO THE PAINTED SURFACES. USE BRAZING ALLOY OF 5% MINIMUM SILVER CONTENT.

NOTE: Refrigerant tubing must be routed to allow adequate access for servicing and maintenance of the unit.

Do not handle coil assembly with manifold or flowrator tubes. Doing so may result in damage to the tubing joints. Always use clean gloves for handling coil assemblies.

Installation of pipe-work must be kept to a minimum. Pipe-work including piping material, pipe routing and installation must be protected from physical damage and shall not be installed in an unventilated space. Equipment piping in any occupied space shall be installed in such a way to protect against accidental damage in operation and service. Precautions must be taken to avoid excessive vibration or pulsation to refrigeration piping. Protection devices, piping and fittings shall be protected as far as possible against adverse environmental effects, for example, the danger of water collecting and freezing in relief pipes or the accumulation of dirt and debris. Steel pipes and components shall be protected against corrosion with a rustproof coating before applying any insulation. Any solenoid valves and piping in the refrigerant systems must be so designed and installed to minimize the likelihood of hydraulic shock damaging the system. Solenoid valves must not block in liquid refrigerant unless adequate relief is provided to the refrigerant system's low pressure side. Provisions must be made for expansion and contraction of long runs of piping.

Follow standards related to ASHRAE 15, ASHRAE 15.2, IAPMO Uniform Mechanical Code, ICC International Mechanical Code or CSA B52 during any installation. Piping must be accessible for inspection prior to being covered or enclosed in compliance with national and local codes.

Flexible pipe elements must be protected against mechanical damage, excessive stress by torsion, or other forces. They should be checked for mechanical damage annually. The indoor equipment and pipes must be securely mounted and guarded such that accidental rupture of equipment cannot occur from such events as moving furniture or reconstruction activities. Field-made refrigerant joints indoors shall be tightness tested.

Field pipework must be pressure tested with an inert gas and then vacuum tested prior to refrigerant charging according to the following requirements:

The minimum test pressure for the low side of the system shall be the low side design pressure and the minimum test pressure for the high side of the system shall be the high side design pressure. If the high side of the system cannot be isolated from the low side of the system, the entire system shall be pressure tested to the low side design pressure.

Field-made refrigerant joints indoors shall be tightness tested. The test method shall have a sensitivity of 5 grams per year of refrigerant or better under a pressure of at least 0,25 times the maximum allowable pressure. No leak shall be detected (Should be leak tight).

11.1 Tubing Size/Length

For the correct tubing size, follow the specification for the condenser/heat pump. Give special consideration to minimizing the length of refrigerant tubing when installing coils. Refer to Remote Cooling/Heat Pump Technical Publication TP-110* Long Line Set Application for guidelines for line lengths over 80'. Leave a minimum 3" straight in line set from braze joints before any bends.

11.2 Tubing Preparation

All cut ends are to be round, burr free, and cleaned. Any other condition increases the chance of a refrigerant leak. Use a pipe cutter to remove the closed end of the spun closed suction line.

WARNING

THIS UNIT MUST BE CHARGED WITH R-32 REFRIGERANT. ENSURE THAT SENSOR IS INSTALLED CORRECTLY AND IS OPERATIONAL.

11.3 Brazing

Braze joints should be made only with the connections provided external to the cabinet. Do not alter the cabinet nor braze inside the cabinet. To avoid overheating after brazing, quench all brazed joints with water or a wet rag.

This system must be charged with R32 refrigerant in order to operate safely.

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

1. Safely remove refrigerant following local and national regulations;
2. Evacuate;
3. Purge the circuit with inert gas;
4. Evacuate;
5. Continuously flush or purge with inert gas when using flame to open circuit; and
6. Open the circuit.

The refrigerant charge shall be recovered into the correct recovery cylinders if venting is not allowed by local and national codes. For appliances containing flammable refrigerants, the system shall 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 shall not be used for purging refrigerant systems.

For appliances containing flammable refrigerants, refrigerants purging shall be achieved by breaking the vacuum in the system with oxygen-free nitrogen and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum (optional for A2L). This process shall be repeated until no refrigerant is within the system (optional for A2L). When the final oxygen-free nitrogen charge is used, the system shall be vented down to atmospheric pressure to enable work to take place.

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

CAUTION

Applying too much heat to any tube can melt the tube. Torch heat required to braze tubes of various sizes must be proportional to the size of the tube. Service personnel must use the appropriate heat level for the size of the tube being brazed.

11.4 Tubing Connections for TXV Version

WARNING

Field installed TXV Metering devices, including Piston kits and EEV, must be housed within the cabinet. Do not install external of the unit.

TXV models come with factory installed adjustable TXV with the bulb permanently located on the suction tube.

1. Remove coil access panel and rubber grommets.
2. Remove access valve fitting cap and depress the valve stem in access fitting to release pressure. No pressure indicates possible leak.
3. Reinstall the Coil Access Panel & rubber grommets.
4. Remove the spin closure on both the liquid and suction tubes using a tubing cutter. DO NOT USE A CUTTING METHOD THAT WOULD RESULT IN THE GENERATION OF COPPER SHAVINGS OR COPPER DUST.

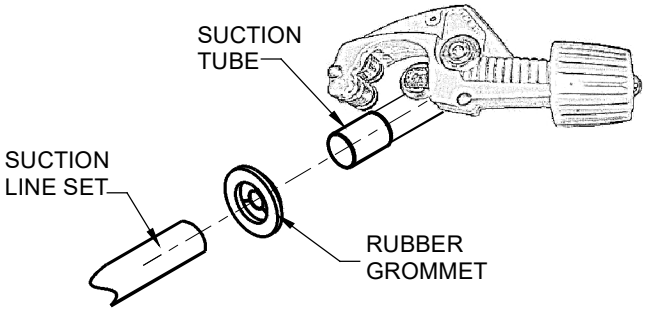


Figure 9A

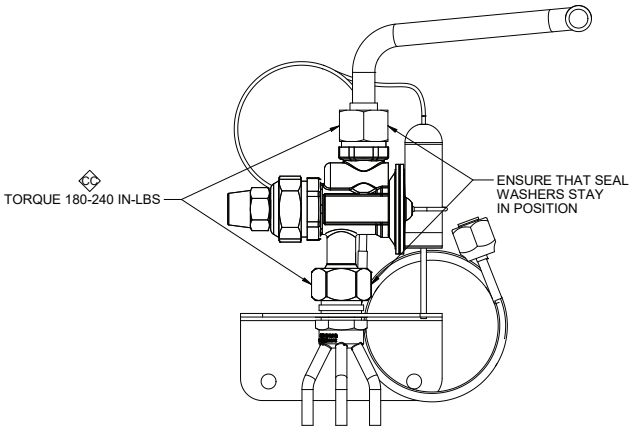


Figure 9B

CAUTION

Excessive torque can cause the TXV retaining ring to weaken & create a leak. This will make it difficult to re-install. The proper torque settings should be configured as below when adjusting. Oiled equalizer should be set to 10-12 ft/lbs. Outlet and inlet chat fitting should be set to 15-20 ft/lbs.

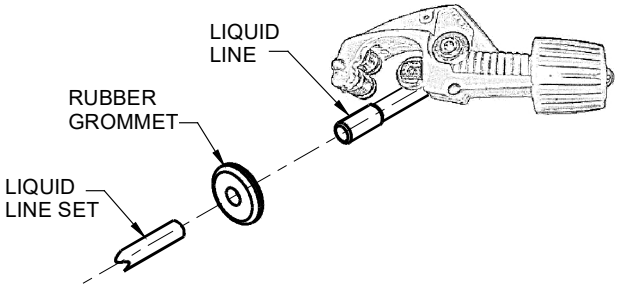


Figure 9C

Saturated Suction Pressure Temperature Chart	
Suction Pressure	Saturated Suction Temperature ºF
PSIG	R32
50	0.57
52	2.06
54	3.51
56	4.94
58	6.33
60	7.69
62	9.03
64	10.34
66	11.62
68	12.88
70	14.12
72	15.34
74	16.53
76	17.70
78	18.86
80	19.99
85	22.75
90	25.41
95	27.97
100	30.44
110	35.16
120	39.59
130	43.79
140	47.76
150	51.55
160	55.17
170	58.64

Table 1

Saturated Liquid Pressure Temperature Chart	
Suction Pressure	Saturated Liquid Temperature ºF
PSIG	R32
200	68.25
210	71.23
220	74.11
225	75.50
235	78.25
245	80.91
255	83.50
265	86.03
275	88.48
285	90.86
295	93.19
305	95.46
325	99.85
355	106.08
375	110.02
405	115.65
415	117.46
425	119.24
435	120.98
445	122.70
475	127.68
500	131.65
525	135.48
550	139.17
575	142.73
600	146.17
625	149.50

Table 2

Cased Coil Mitigation Chart						
Model	Maximum Total System Refrigerant Charge (oz)	Maximum Total System Refrigerant Charge (kg)	Minimum Air Conditioned Room Area (m^2)	Minimum Air Conditioned Room Area (ft^2)	Minimum Mitigation Airflow $\left(\frac{m^3}{hr}\right)$	Minimum Mitigation Airflow (CFM)
1.5T Match-up	157.90	4.48	13.26	142.68	437.43	257.46
2.0T Match-up	160.50	4.55	13.47	145.03	444.63	261.70
2.5T Match-up	172.20	4.88	14.46	155.60	477.05	280.78
3.0T Match-up	205.70	5.83	17.27	185.87	569.85	335.40
3.5T Match-up	225.20	6.38	18.91	203.49	623.87	367.20
4.0T Match-up	242.10	6.86	20.32	218.77	670.69	394.75
5.0T Match-up	248.60	7.05	20.87	224.64	688.70	405.35

It is the installer's responsibility to verify that actuation of mitigation procedures are operational with minimum required airflow according to the chart.

Table 3

5. Insert liquid line set into liquid tube expansion and slide grommet about 18” away from braze joint.
6. Insert suction line set into suction tube expansion and slide insulation and grommet about 18” away from braze joint.
7. Braze suction and liquid line joints.

11.5 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 .5” WC or less.
2. Airflow is correct for 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 thermostat 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. Before checking superheat run the unit in 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. **NOTE:** Charge two stage units on low stage.

In addition to conventional charging procedures, the following requirements shall be followed:

1. Ensure that contamination of different refrigerants does not occur when using charging equipment. Hoses or lines shall be as short as possible to minimize the amount of refrigerant contained in them.
2. A2L refrigerant cylinders shall be kept in an appropriate position according to the instructions.
3. Ensure that the refrigeration system is grounded prior to charging the system with refrigerant.
4. Label the system when charging is complete (if not already).
5. Extreme care shall be taken not to overfill the refrigerating system.

Prior to recharging the system, it shall be pressure-tested with the appropriate purging gas. The system shall 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.

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 thermometer makes adequate contact and is insulated for best possible readings. Use liquid line temperature to determine subcooling and vapor temperature to determine superheat.
3. For optimum system performance subcool and superheat should be matched as specified in outdoor installation manual with respective AHRI outdoor matchup. Any other system matchup shall have subcooling set to 8ºF ± 1ºF and superheat setting 12ºF ± 1ºF.

Superheat Adjustments (Only if necessary)

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. 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 than ¼ turn at a time. Allow the system to stabilize 15 to 20 minutes before making additional adjustments if necessary.
3. After adjustments are complete replace cap on adjustment stem and tighten ⅛ turn.
4. Remove gauges and check the Schrader ports for leaks and tighten valve cores if necessary. Install caps finger tight.

NOTE: In situations where the TXV must be removed and replaced or re-installed into the system, the TXV should be hand tightened first and then apply a half turn to fully set the TXV. No more than 20 ft-lb torque should be applied to the joints of the TXV.

NOTE: Do NOT adjust the charge based on suction pressure unless there is a gross undercharge.

5. Disconnect manifold set, installation is complete.

NOTE: Check the Schrader ports for leaks and tighten valve cores if necessary. Install caps finger-tight.

SUBCOOL FORMULA = SAT. LIQUID LINE TEMP. - LIQUID LINE TEMP.

SUPERHEAT FORMULA = SUCT. LINE TEMP. - SAT. SUCT. TEMP.

Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) shall not be used. If a leak is suspected, all naked flames shall be removed/extinguished. If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak.

The following leak detection methods have been deemed acceptable, provided proper care is taken in their implementation:

1. Electronic leak detectors rated for use with R32 refrigerant. Ensure the detection equipment is calibrated in a refrigerant-free area and that the leak detector itself is not a potential source of ignition. Leak detection equipment shall be set at a value of no more then 0.075 kg/m3.
2. Leak detection fluids - such as the bubble method or fluorescent method. Ensure that the use of detergents containing chlorine are avoided as the chlorine may react with the refrigerant and corrode the pipe-work.

The cased coil mitigation requirements are calculated at sea level. For altitudes higher then 800m, please adjust the minimum room area by the corresponding altitude adjustment factor shown below. This chart is provided as reference.

Height in Meters	Height in Feet	Altitude Adjustment Factor
0	0	1.00
200	660	1.00
400	1320	1.00
600	1970	1.00
800	2630	1.02
1000	3290	1.05
1200	3940	1.07
1400	4600	1.10
1600	5250	1.12
1800	5910	1.15
2000	6570	1.18
2200	7220	1.21
2400	7880	1.25
2600	8540	1.28
2800	9190	1.32
3000	9850	1.36
3200	10500	1.40

Do not apply any permanent inductive or capacitance loads to the circuit without ensuring that this will not exceed the permissible voltage and current permitted for the equipment in use.

Intrinsically safe components are the only types that can be worked on while live in the presence of a flammable atmosphere. The test apparatus shall be at the correct rating

Check that cabling (wiring) 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.

11.6 Piston Charge Instructions

If the unit is not equipped with a TXV metering device follow the steps below:

1. Ensure the piston size present on the unit is rated for use with the outdoor matchup as shown on the piston kit chart. If it does not match, replace the provided piston with the piston size listed on the piston kit chart.
2. For optimum system performance, superheat should be matched as specified in outdoor installation manual with respective AHRI outdoor matchup.

12. Supply Duct Connection

1. Top flanges can be bent for ease in installation to the duct flanges. (See Figure 10)

WARNING

ALL REQUIRED VENTILATION OPENINGS MUST BE CLEAR OF OBSTRUCTION AND ALL DUCTS CONNECTED TO THE APPLIANCE FREE OF POTENTIAL IGNITION SOURCES.

For appliances using A2L REFRIGERANTS, connected via an air duct system to one or more rooms, the supply and return air shall be directly ducted to the space. Open areas such as false ceilings shall not be used as a return air duct

The air extraction opening from the room shall be located equal or below the refrigerant release point. For floor mounted units, it shall be as low as practicable. The air extraction openings shall be located in a sufficient distance from the air intake openings to prevent re-circulation to the space.

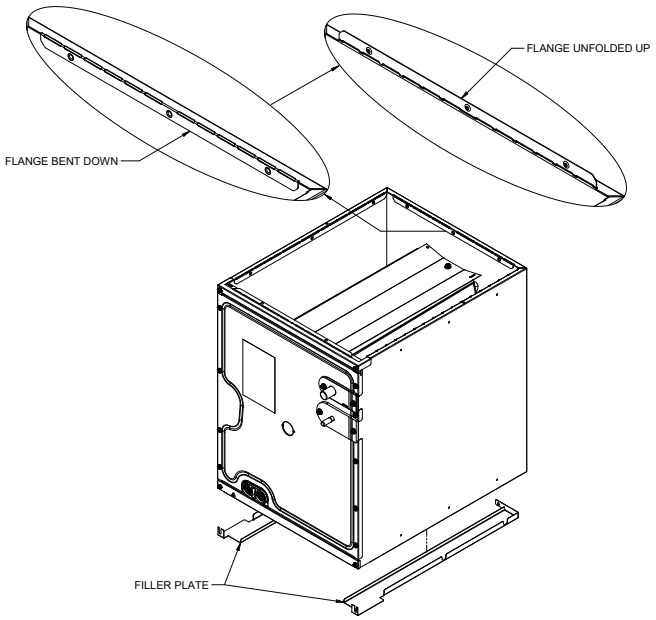


Figure 10

2. A duct flange kit can also be purchased from your distributor. (See Figure 11)
   - 14 inch chassis - CLDUCTFLGA

- 17.5 inch chassis - CLDUCTFLGB
- 21 inch chassis - CLDUCTFLGC
- 24.5 inch chassis - CLDUCTFLGD

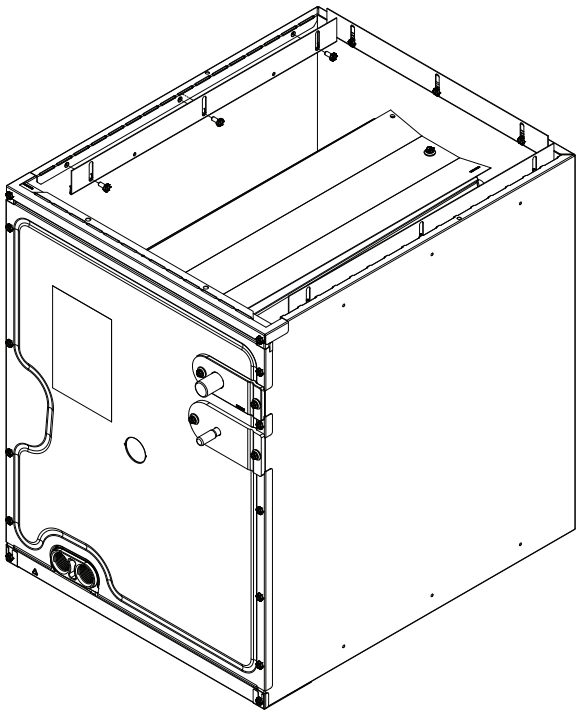


Figure 11

13. Filler Plates

Filler plates are supplied on all 17.5, 21, & 24.5 inch chassis to be used for adapting the unit to a furnace one size smaller. If the plenum and furnace openings are the same size, the filler plates must be removed. See Figure 10.

14. Return Ductwork

DO NOT TERMINATE THE RETURN DUCTWORK IN AN AREA THAT CAN INTRODUCE TOXIC OR OBJECTIONABLE FUMES/ODORS INTO THE DUCTWORK.

15. Sealing Along The Panel Gap

IMPORTANT NOTE: To prevent cabinet sweating and airflow leak, apply field provided insulation tape along all joining surfaces between the coil, gas furnace, duct work and panels. See Figure 10.

16. Removing Coil from Cabinet

In an event of removing taller coils from cabinet to service or replace; remove access panel, remove top tie rail to allow the coils to slide out of the cabinet.

After service or replacement slide the coil back in the cabinet and secure the top tie rail and re-install access panel. See Figure 12.

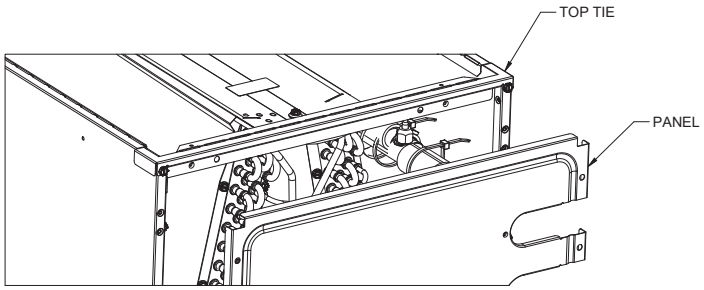


Figure 12

17. UV Accessory (optional)

Clean Comfort brand UV coil purifiers also can be purchased from distributor. Maximum UV lamp diameter to be used per delta plate knockout design is 1.375” to reduce the possibility of air leak.

The power source must be installed external of the unit. Ensure that the wiring is routed through the access panel knockout with the grommet included. The magnetic door switch must be installed to avoid any accidental Ultraviolet exposure during service.

Refer to UV coil purifiers product specification and installation manual for additional details.

UV-C Part Numbers	
Models	**Lamp**
UC18S15-24	UCP-16013
UC18S15-24B	UCP-16012

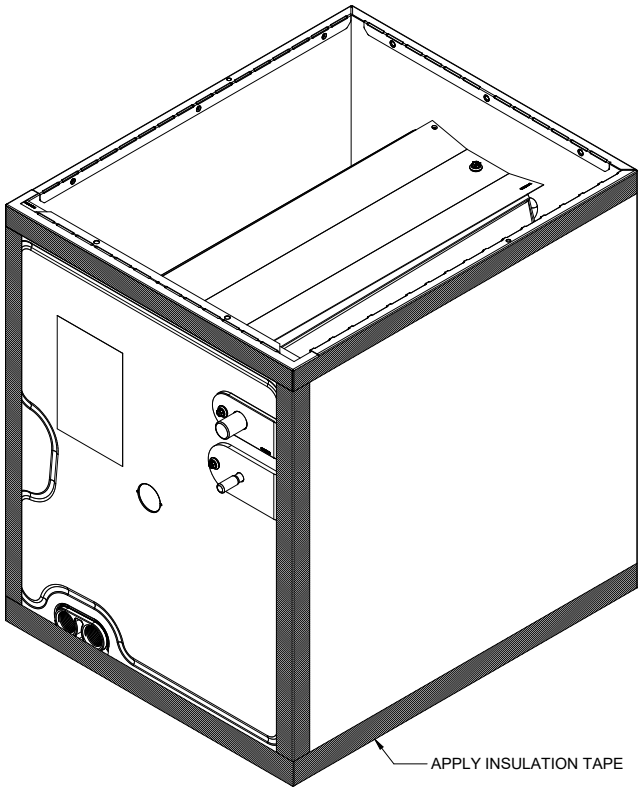


Figure 13

18. 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.

WARNING

DO NOT USE MEANS TO ACCELERATE THE DEFROSTING PROCESS OR TO CLEAN, OTHER THAN THOSE RECOMMENDED BY THE MANUFACTURER. THE APPLIANCE SHALL BE STORED IN A ROOM WITHOUT CONTINUOUSLY OPERATING IGNITION SOURCES (FOR EXAMPLE: OPEN FLAMES, AN OPERATING GAS APPLIANCE OR AN OPERATING ELECTRIC HEATER). DO NOT PIERCE OR BURN. BE AWARE THAT REFRIGERANTS MAY NOT CONTAIN AN ODOR.

19. Start-Up Procedure

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.



- Prior to start-up, ensure that all electrical wires are properly sized and all connections are properly tightened.
- All panels must be in place and secured. For air tight application, gasket must be positioned at prescribed locations to achieve 1.4% leakage.
- Tubing must be leak free.
- Condensate line must be trapped and pitched to allow for drainage.
- Low voltage wiring is properly connected.
- Auxilliary drain is installed when necessary and pitched to allow for drainage.
- Unit is protected from vehicular or other physical damage.
- Return air is not obtained from, nor are there any return air duct joints that are unsealed in, areas where there may be objectionable odors, flammable vapors or products of combustion such as carbon monoxide (CO), which may cause serious personal injury or death.
- Ensure that the equipped A2L sensor is wired to the furnace PCB and that there are no sources of potential ignition within the system.

IMPORTANT: The A2L verification step as described on the furnace IO or the Non-A2L Integration Kit IO must be completed.

20. Refrigerant 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 into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge are available. All cylinders to be used are designated for the recovered refrigerant and labeled for that refrigerant (i.e. special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure-relief valve and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.

The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of the flammable refrigerant. If in doubt, the manufacturer should be consulted. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good condition. The recovered refrigerant shall 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.

If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable refrigerant does not remain within the lubricant. The compressor body shall not be heated by an open flame or other ignition sources to accelerate this process. When oil is drained from a system, it shall be carried out safely.

21. 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 installation 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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We are very interested in all product comments.
Please fill out the feedback form on one of the following links:
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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 and Florida differs in some cases.

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