

# INSTALLATION MANUAL

UN-CASED "A" COILS  
UPFLOW FOR COOLING/HEAT PUMPS  
FLEX COILS FOR FIELD INSTALLED TXV  
MODELS: UC



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## SECTION I: SAFETY



This is a safety alert symbol. When you see this symbol on labels or in manuals, be alert to the potential for personal injury.

Understand and pay particular attention to the signal words **DANGER**, **WARNING**, or **CAUTION**.

**DANGER** indicates an **imminently** hazardous situation, which, if not avoided, **will result in death or serious injury**.

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

**CAUTION** indicated a potentially hazardous situation, which, if not avoided may result in minor or moderate injury. It is also used to alert against unsafe practices and hazards involving only property damage.

### WARNING

*Improper installation may create a condition where the operation of the product could cause personal injury or property damage. Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage. Refer to this manual for assistance or additional information, consult a qualified installer or service agency.*

### CAUTION

*This product must be installed in strict compliance with the enclosed installation instructions and any applicable local, state, and national codes including, but not limited to building, electrical, and mechanical codes.*

### WARNING

*The furnace area must not be used as a broom closet or for any other storage purposes, as a fire hazard may be created. Never store items such as the following on, near or in contact with the furnace.*

1. Spray or aerosol cans, rags, brooms, dust mops, vacuum cleaners or other cleaning tools.
2. Soap powders, bleaches, waxes or other Cleaning compounds; plastic items or containers; gasoline, kerosene, cigarette lighter fluid, dry cleaning fluids or other volatile fluid.
3. Paint thinners and other painting compounds.
4. Paper bags, boxes or other paper products

*Never operate the furnace with the blower door removed. To do so could result in serious personal injury and/or equipment damage.*

## SECTION II: GENERAL INFORMATION

This instruction covers the installation of the following coils with 80+ or 90+ AFUE furnaces.

The coils have sweat connect fittings. All coils are shipped with a low pressure inert gas holding charge.

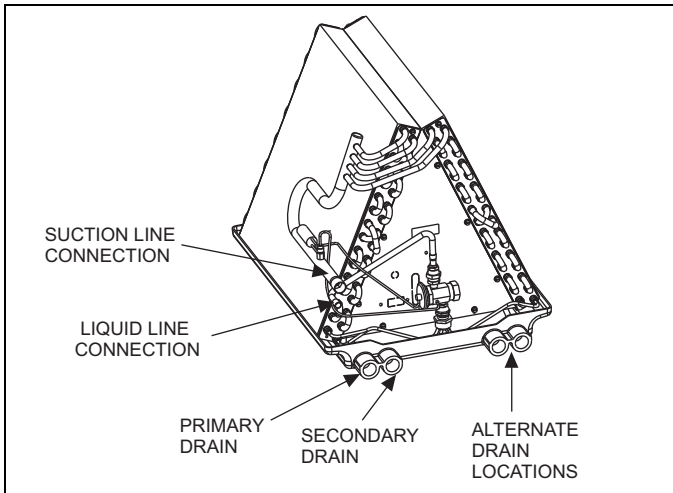


FIGURE 1: Component Location - Coil UC

## INSPECTION

As soon as a coil is received, it should be inspected for possible damage during transit. If damage is evident, the extent of the damage should be noted on the carrier's delivery receipt. A separate request for inspection by the carrier's agent should be made in writing. See Local Distributor for more information. Check drain pan for cracks or breakage.

## CLEARANCES

### DURING INSTALLATION

Clearance must be provided for:

1. Refrigerant piping and connections
2. Maintenance and servicing access - including cleaning the coil
3. Condensate drain line
4. Filter removal / change
5. Removal of coil assembly

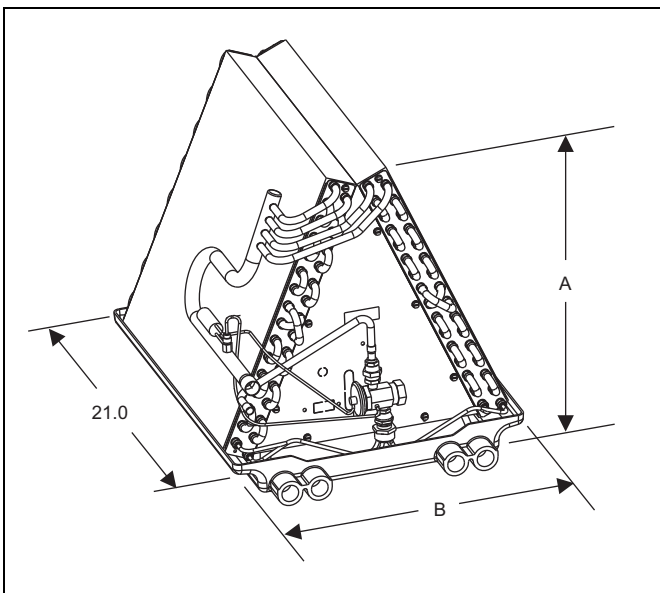


FIGURE 2: Coil - UC

Models	Dimensions <sup>1</sup>		Refrigerant Connections <sup>2</sup>	
	Height	Width	Line Size	
	A	B	Liquid	Vapor
UC18A	17	13	3/8	3/4
UC18B	16 1/2	16		
UC24A	21	13		
UC24B	20 1/2	16		
UC30A	21	13		
UC30B	20 1/2	16		
UC36A	23 1/2	13	7/8	
UC36B	22 1/2	16		
UC36C	22	19 1/2		
UC42B	26 1/2	16		
UC42C	25 1/2	19 1/2		
UC48C	23 1/2	19 1/2		
UC48D	23	23		
UC60C	25 1/2	19 1/2		
UC60D	25	23		

TABLE 1: Dimensions - UC Coils

1. All dimensions are in inches.
2. Refrigerant line sizes may require larger lines for extended line lengths. See Application Data part number 247077.

**LIMITATIONS**

These coils should be installed in accordance with all national and local safety codes.

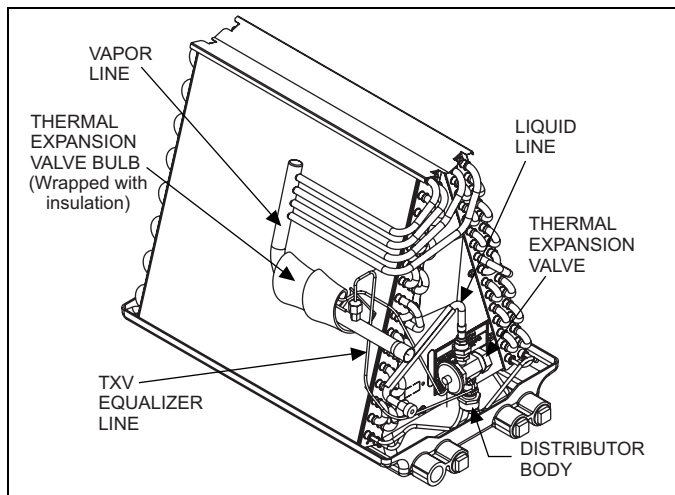
**TABLE 2: Coil Air Flow Limits**

Coil Size	Outdoor Unit Tons	CFM Limits	
		Minimum	Maximum
18	1-1/2	525	675
24	1-1/2	525	675
	2	700	900
30	2	700	900
	2-1/2	875	1125
36	2-1/2	875	1125
	3	1050	1350
42	3	1050	1350
	3-1/2	1225	1575
48	3	1050	1350
	3-1/2	1225	1575
60	4	1400	1800
	4	1600	1800
	5	1750	2250

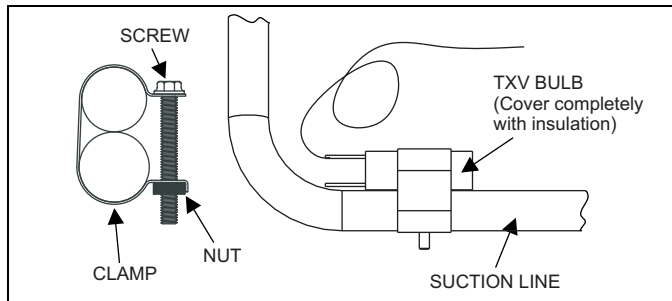
**SECTION III: COIL METERING DEVICES**

The coil will require a TXV or orifice to be installed in the field. Refer to installation manual with TXV kit. It is recommended to install the TXV kit prior to installation of coil in cabinet and brazing line sets.

**TXV METERING DEVICE**



**FIGURE 3: TXV Bulb Installation**



**FIGURE 4: Proper Bulb Location**

**CAUTION**

**COIL UNDER PRESSURE.**  
Relieve pressure by depressing schrader core. Coil requires TXV or orifice to be added. See outdoor unit documentation for correct TXV to be used. Refer to coil nameplate for TXV identification for this unit.

**NOTICE**

The coil should be open to the air for no more than 2 minutes to keep moisture and contaminants from entering the system. If the coil cannot be brazed into the refrigeration system in that time, the ends should be temporarily closed or plugged. For a short term delay, use masking tape over the ends of the copper tubing to close the tube to the air. For a longer term delay, use plugs or caps. There is no need to purge the coil if this procedure is followed.

**COIL INSTALLATION - UC**

These upflow coils are designed for installation on top of upflow furnaces only.

If the coil is used with a furnace of a different size, use a 45° transition to allow proper air distribution through the coil.

1. Create opening in furnace duct large enough to allow coil installation (See Figure 5). See Figure 2 for coil dimensions.
2. Install field fabricated support brackets using screws or rivets (See Figure 5). Brackets should be installed level or pitched slightly toward the drain end (high in the back, low in the front). Pitch should not exceed 1/4" per length of coil.
3. Position the coil over the furnace opening as shown in Figure 5.
4. Check for air leakage between the coil drain pan and supply duct and seal appropriately.

**CAUTION**

Do not drill any holes or drive any screws into the front duct flange on the coil in order to prevent damaging coil tubing (see Figure 5).

**NOTICE**

Refer to the heat pump add-on control instruction before installing an add-on heat pump coil.

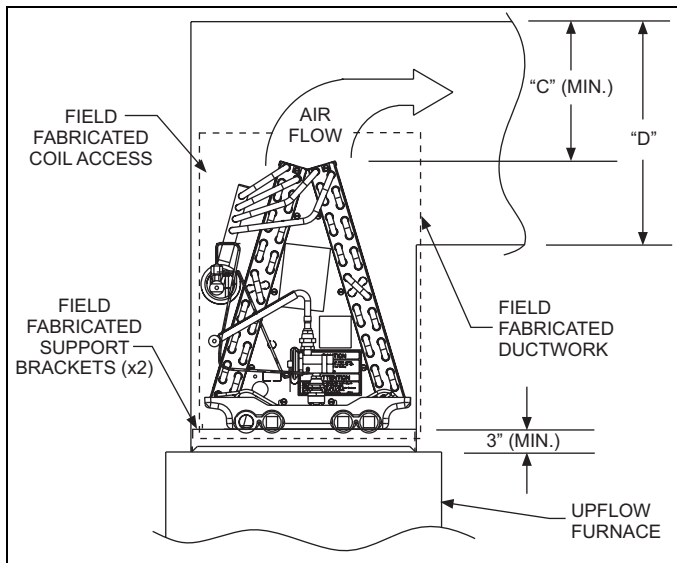


FIGURE 5: Upflow Coil Installation

TABLE 3: Coil Projection Dimensions - UC Coils

COIL SIZE	DIMENSION "C" INCH
UC18	3-1/2
UC24	4-1/2
UC30	4-1/2
UC36	5-1/2
UC48	6-1/2
UC60	9

**NOTICE**  
Dimension "C" should be at least 2/3 of dimension "D". See Figure 5.

**CRITICAL COIL PROJECTION**

The coil assembly must be located in the duct such that a minimum distance is maintained between the top of the coil and the top of the duct. Refer to Table 4.

**SECTION IV: DUCT CONNECTIONS**

The vast majority of problems encountered with combination heating and cooling systems can be linked to improperly designed or installed duct systems. It is therefore highly important to the success of an installation that the duct system be properly designed and installed.

Use flexible duct collars to minimize the transmission of vibration/noise into the conditioned space.

Where return air duct is short, or where sound may be a problem, sound absorbing glass fiber should be used inside the duct. Insulation of duct work is a must where it runs through an unheated space during the heating season or through an uncooled space during the cooling season. The use of a vapor barrier is recommended to prevent absorption of moisture from the surrounding air into the insulation. The supply air duct should be properly sized by use of a transition to match unit opening. All ducts should be suspended using flexible hangers and never fastened directly to the structure. Duct work should be fabricated and installed in accordance with local and/or national codes. This includes the standards of the National Fire Protection Association for Installation of Air-Conditioning and Ventilating Systems, NFPA No. 90B.

**CAUTION**  
Equipment should never be operated without filters.

**SECTION V: CONDENSATE DRAIN CONNECTIONS**

All drain lines should be pitched away from unit drain pan and should be no smaller than the coil drain connection.

Route the drain line so that it doesn't interfere with accessibility to the coil, furnace, air handling system or filter and will not be exposed to freezing temperatures.

Instruct the owner that the evaporator coil drain pan should be inspected and cleaned regularly to prevent odors and assure proper drainage.

Coils should be installed level or pitched slightly toward the drain end. Suggested pitch should not exceed 1/4-inch per foot of coil.

If the coil is provided with a secondary drain it should be piped to a location that will give the occupant a visual warning that the primary drain is clogged. If the secondary drain is not used it must be capped.

**CAUTION**  
Avoid Double Trapping.

**CAUTION**  
Threaded drain connections should be hand tightened, plus no more than 1 turn.

**DO NOT** use Teflon™ tape, "pipe dope", or other sealants. The use of a sealant may cause damage and premature failure of the drain pan.

**SECTION VI: REFRIGERANT LINE CONNECTION**

**CAUTION**  
Coil is under inert gas pressure. Relieve pressure from coil by depressing schrader core.

**CAUTION**  
Dry nitrogen should always be supplied through the tubing while it is being brazed, because the temperature required is high enough to cause oxidation of the copper unless an inert atmosphere is provided. The flow of dry nitrogen should continue until the joint has cooled. Always use a pressure regulator and safety valve to insure that only low pressure dry nitrogen is introduced into the tubing. Only a small flow is necessary to displace air and prevent oxidation.

Connect lines as follows:

**NOTICE**  
Route the refrigerant lines to the coil in a manner that will not obstruct service access to the coil, air handling system, furnace flue or filter.

1. Suction and liquid line connections are made outside the duct.
2. Wrap a water soaked rag around the coil connection tubes inside the duct to avoid damaging the TXV bulb.
3. Purge refrigerant lines with dry nitrogen.
4. Braze the suction and liquid lines.
5. Attach the duct access panel to the duct.

Refer to Outdoor unit Installation Manual for evacuation, leak check and charging instructions.

Lines should be sound isolated by using appropriate hangers or strapping.

All evaporator coil connections are copper-to-copper and should be brazed with a phosphorous-copper alloy material such as Silfos-5 or equivalent. DO NOT use soft solder.

### SECTION VII: COIL CLEANING

If the coil needs to be cleaned, it should be washed with Calgon Coil-clean (mix one part Coilclean to seven parts water). Allow solution to remain on coil for 30 minutes before rinsing with clean water. Solution should not be permitted to come in contact with painted surfaces.

### SECTION VIII: AIR SYSTEM ADJUSTMENT

To check the CFM, measure the static pressure drop across the coil using a portable manometer and static pressure tips. To prepare coil for static pressure drop measurements - the system should have been recently operational in cooling mode.

## NOTICE

Table 5 below has WET coil data. Run system for approximately 15 minutes in cooling mode prior to taking measurements.

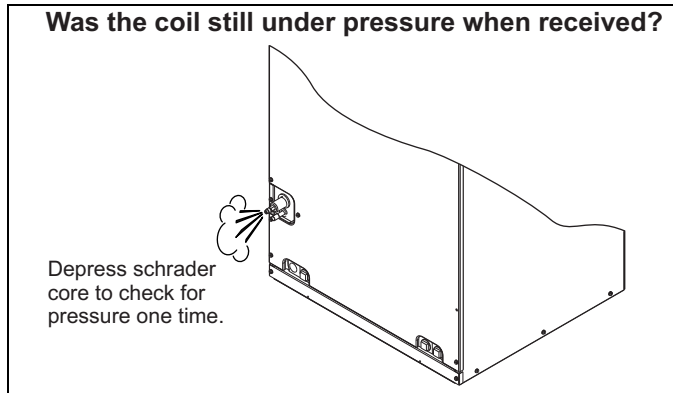
Drill 2 holes, one 3" after the coil (before any elbows in the ductwork) and one 3" before the coil. Insert the pressure tips and read the pressure drop from the manometer. See Table 5 to determine the air flow, and make the necessary adjustments to keep the CFM within the air flow limitations of the coil.

**TABLE 4: Air Flow Data - Static Pressure Drop**

Coil Size	CFM @ Static Pressure Drop - IWG (Based on wet coil)				
	0.10	0.15	0.20	0.25	0.30
18A	400	550	710	880	1000
18B	425	620	830	970	1125
24A	400	600	800	950	1075
24B	425	725	900	1075	1215
30A	425	600	800	950	1075
30B	450	725	900	1075	1215
36A	625	775	925	1025	1125
36B	825	976	1174	1300	1450
36C	975	1225	1375	1575	1775
42B	825	1000	1175	1325	1450
42C	1025	1275	1475	1650	1850
48C	900	1075	1300	1475	1600
48D	1008	1224	1451	1620	1788
60D	1160	1432	1598	1750	1870

### SECTION IX: INSTALLATION VERIFICATION

**Was the coil still under pressure when received?**



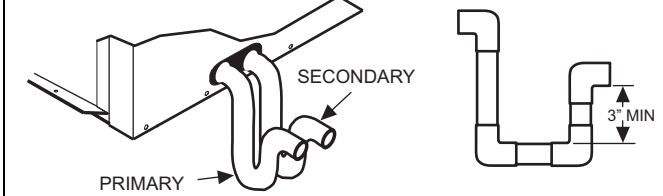
**FIGURE 6: Pressure Check**

### Is coil metering device installed correctly?

- Was the correct TXV installed per the outdoor unit instructions?
- Is the TXV Bulb positioned correctly?
- Is Bulb Insulated?
- Is Equalizer Line connected?

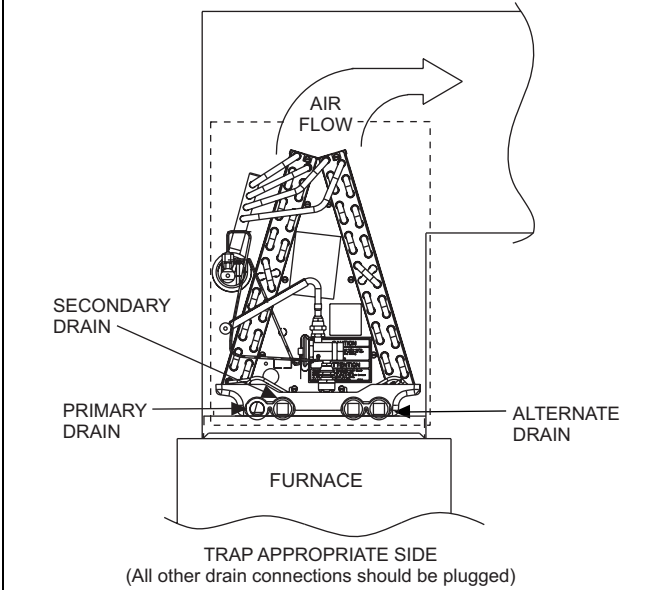
**FIGURE 7: TXV Check List**

### Were the primary and secondary drains trapped correctly?



**FIGURE 8: Drain Traps**

### Were all drains trapped or plugged?



**FIGURE 9: Location of Trapped and Plugged Drain Connections**

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# NOTES

