Carrier

40UV,UH
Floor and Ceiling Mounted Unit Ventilators

Installation, Start-Up and Service Instructions

Part No. 5H1060560000

CONTENTS

SAFETY CONSIDERATIONS

Installation and servicing of air-conditioning equipment can be hazardous due to system pressure and electrical components. Only trained and qualified service personnel should install, repair, or service air-conditioning equipment.

Untrained personnel can perform basic maintenance functions of cleaning coils and filters and replacing filters. All other operations should be performed by trained service personnel. When working on air-conditioning equipment, observe precautions in the literature, tags and labels attached to the unit, and other safety precautions that may apply.

Follow all safety codes. Wear safety glasses and work gloves. Use quenching cloth for unbrazing operations. Have fire extinguisher available for all brazing operations.

It is important to recognize safety information. This is the safety-alert symbol ⚠. When you see this symbol on the unit and in instructions or manuals, be alert to the potential for personal injury.

Understand the signal words DANGER, WARNING, CAUTION, and NOTE. These words are used with the safety-alert symbol. DANGER identifies the most serious hazards which **will** result in severe personal injury or death. WARNING signifies hazards which **could** result in personal injury or death. CAUTION is used to identify unsafe practices, which **may** result in minor personal injury or product and property damage. NOTE is used to highlight suggestions which **will** result in enhanced installation, reliability, or operation.

IMPORTANT: The use of this manual is specifically intended for a qualified installation and service agency. A qualified installation and service agency must perform all installation and service of these appliances.

Units with DX evaporator coils contain the refrigerant R-410A. Review the R-410A Material Safety Data Sheet (MSDS) for hazards and first aid measures.

Refrigerant charging should only be carried out by an EPA-certified air conditioning contractor.

⚠ WARNING

Before performing service or maintenance operations, turn off main power switch to the unit. Electrical shock could cause personal injury.

⚠ WARNING

Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death, and could cause exposure to substances which have been determined by various state agencies to cause cancer, birth defects or other reproductive harm. Read the installation, operating and maintenance instructions thoroughly before installing or servicing this equipment.

This unit contains R-410A high pressure refrigerant. Hazards exist that could result in personal injury or death. Installation, maintenance, and service must only be performed by an HVAC technician qualified in R-410A refrigerant and using proper tools and equipment. Due to much higher pressure of R-410A refrigerant, DO NOT USE service equipment or tools designed for refrigerants other than R-410A.

⚠ CAUTION

Sharp edges, coil surfaces and rotating fans are a potential injury hazard - avoid contact.

⚠ DANGER

Appliances must not be installed where they may be exposed to potentially explosive or flammable atmosphere.

⚠ WARNING

1. Disconnect power supply before making wiring connections to prevent electrical shock and equipment damage.
2. All appliances must be wired strictly in accordance with the wiring diagram furnished with the appliance. Any wiring different from the wiring diagram could result in a hazard to persons and property.
3. Any original factory wiring that requires replacement must be replaced with wiring material having a temperature rating of at least 105°C.
4. Ensure that the supply voltage to the appliance, as indicated on the serial plate, is not 5% greater than rated voltage.
5. When servicing or repairing this equipment, use only factory-approved service replacement parts. Refer to the rating plate on the appliance for complete appliance model number, serial number, and company address. Any substitution of parts or controls not approved by the factory will be at the owner's risk.

⚠ CAUTION

1. Ensure that the supply voltage to the appliance, as indicated on the serial plate, is not 5% less than the rated voltage.
2. Units not approved for use in potable water systems.
3. Hot water supplied to the hot water heating option must not exceed 200°F temperature or 125 psig pressure.
4. Do not operate the units within steam pressure greater than 10 psig. Steam pressure must be 10 psig or lower to avoid excessive discharge air temperatures that could cause burns or personal injury.
5. Do not overcharge the refrigeration system. This can lead to elevated compressor discharge pressure and possibly flooding the compressor with liquid.
6. When servicing the unit, some components may be hot enough to cause pain or injury. Allow time for cooling of hot components before servicing.
7. Do not attempt to reuse any mechanical or electrical component which has been wet. Such component must be replaced.

IMPORTANT: Start-up and adjustment procedures should be performed by a qualified service agency.

No water-flow can cause a freeze condition resulting in damage to the coil.

Never leave the unit filled with water in a building without heat unless antifreeze has been added.

All refrigeration checks must be made by a qualified R-410A refrigeration technician.

Do not release refrigerant to the atmosphere. When adding or removing refrigerant, all national, state/province, and local laws must be followed. Refer to Fig. 1 for Proposition 65 Warning.

To check most of the Possible Remedies in the Troubleshooting table on page 23, refer to the applicable sections of the manual.

⚠ WARNING

This product can expose you to chemicals including Lead, lead compounds, and formaldehyde, 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

⚠ AVERTISSEMENT

Ce produit peut vous exposer à des agents chimiques, y compris le plomb et les composes de plomb, et formaldéhyde, identifiés par l'État de Californie comme pouvant causer le cancer et des malformations congénitales ou autres troubles de l'appareil reproducteur. Pour de plus amples informations, prière de consulter www.P65Warnings.ca.gov

⚠ ADVERTENCIA

Este producto puede exponerlo a químicos que incluyen plomo y compuestos de plomo, y formaldehído, los cuales son conocidos en el Estado de California como causantes de cáncer y defectos de nacimiento, u otros daños reproductivos. Para mayor información, visite www.P65Warnings.ca.gov

Fig. 1 — Proposition 65 Warning Label

INTRODUCTION

This document contains general installation instructions for the 40UV, UH unit ventilators. Refer to the unit wiring diagram or to specific manufacturer literature for any other type of factory-mounted controls.

See submittal drawings for unit configurations, dimensions, clearances, and pipe connections. Refer to unit wiring label for all electrical connections; follow NEC (National Electrical Code) and local codes.

IMPORTANT: Units can be requested with special features by requesting an ETO. This manual only covers standard features and does not include any changes made for special feature requests by the customer. Units built with special features are noted with a 5-digit SPO (Special Product Order) Number on the Serial Plate.

PRE-INSTALLATION

Unpack and Inspect Units

Inspect unit upon arrival. In case of damage, report it immediately to transportation company and your local factory sales representative.

Check rating plate on unit to verify that power supply meets available electric power at the point of installation.

Inspect unit received for conformance with description of product ordered (including specifications where applicable).

⚠DANGER

Appliances must not be installed where they may be exposed to potentially explosive or flammable atmosphere.

IMPORTANT: The installation and maintenance instructions in this manual must be followed to provide safe, efficient, and trouble-free operation.

In addition, particular care must be exercised regarding the special precautions listed below.

Failure to properly address these critical areas could result in property damage or loss, personal injury, or death. These instructions are subject to any more restrictive local or national codes.

Protect Units from Damage

Each unit will be shipped to the site secured to a wood skid using metal brackets. Whenever possible, all lifting and handling of the unit should be done with the packing and skid in position.

Due to the length of the unit, 72 in. forklift tines are recommended to avoid damaging the unit. Remove the metal brackets prior to lifting the unit off of the skid. When slinging or using a forklift to lift the unit, the support points should be sufficiently apart to give stability when lifting. Unless otherwise noted the lifting points should be equidistant from the centerline. Extreme care should be taken not to drop the unit. Considerable damage can occur to the unit during positioning, in particular, to the paneling and exterior paint. Use an adequate number of personnel and the correct tools when moving the unit.

A lifting device such as a forklift is needed to install this product. A special key is provided with the unit for use with the tamper-proof cabinet locks on the top and front panels. The use of torque screwdrivers on panel, cover, or component mounting screws is not recommended. Hand-start all screws. If electric drills are used, set at the lowest possible torque.

Prepare Jobsite for Unit Installation

To save time and to reduce the possibility of costly errors, set up a complete sample installation in a typical room at jobsite. Check all critical dimensions such as pipe, wire, and duct connection requirements. See figures in Step 1 on page 5 for mounting locations. Refer to job drawings and product dimension drawings on pages 6-9. Confirm that building construction is adequate to support the unit. See Table 1 for unit weight data. Instruct all trades in their part of the installation.

1. Select the unit location. Ensure the wall or ceiling structure is adequate for the required mounting provisions as outlined in the "INSTALLATION" section. For Ceiling Mounted units, check that ceiling is capable of supporting the weight of the unit.
2. Before installation, ensure that the correct electrical power supplies are available for the unit.
3. Each unit requires an independently fused and isolated power supply.
4. If the installation has multiple units, check that unit model and tagging corresponds with the installation plans. Please contact your Carrier representative immediately if discrepancies are noted.
5. Check to make sure that the units will have adequate installation clearance around them.
6. Note that units with cooling coils will have a condensate connection at the rear and suitable provisions should be made for draining. If multiple units tee into a common drain manifold, it must be sized to ensure free draining with all the units in operation.
7. For units with outside air, inspect the wall sleeve installation for gaps that would allow leakage of outdoor air into the space. All joints and abutments should be sealed with waterproof sealant.

Identify and Prepare Units

1. Be sure power requirements match available power source. Refer to the unit nameplate and wiring diagram.
2. Remove front (40UV) or bottom (40UH) access panels from the unit. Retain the 5/32 in. socket head fasteners and panels for re-installation later.
3. Rotate the fan shaft by hand to ensure that fans are unrestricted and can rotate freely. Check for shipping damage and fan obstructions.

Drainage

Units with cooling coils have a condensate drain pan connection and 3/4 in. ID (Inside Dimension) condensate line. The condensate drain pan connection is field changeable and can be mounted on either the left or right side of the unit. To change the connection location, remove the condensate line from the elbow. Remove the elbow from the drain pan and remove the plug from the opposite side of the drain pan. Re-install the elbow and the plug on the opposite sides of the drain pan. Re-connect the condensate line.

Table 1 — Physical Data

UNIT 40UV, UH	0750	1000	1250	1500
NOMINAL AIRFLOW (cfm)	0750	1000	1250	1500
UNIT OPERATING WEIGHT				
Floor Mounted, 16-5/8 in. Units (lbs)	410	470	525	580
Floor Mounted, 21-7/8 in. Units (lbs)	445	510	570	630
Ceiling Mounted Units (lbs)	510	580	645	710
SUPPLY FANS				
Type	Direct Drive Centrifugal			
Quantity	2	3	4	4
Diameter (in.)	8.06			
Width (in.)	7.15			
AIR FILTERS				
Nominal Size (in.)	10 x 36 x 1	10 x 24 x 1	10 x 30 x 1	10 x 36 x 1
Quantity	1	2	2	2
SUPPLY FAN MOTOR				
Standard Motor				
Type	PSC with Thermal Overload Protection			
Size (hp)	1/4			
Airflow				
High/Med/Low - CW/HW and DX (cfm)	750/650/500	1000/750/600	1250/900/750	1500/1100/900
Max. External Static Pressure (in. wg)	0.05			
High Static Motor				
Type (Premium High Static)	ECM - Electronically Commutated Motor			
Size (hp)	1/2			
Airflow				
High/Med/Low - CW/HW (cfm)	750/650/500	1000/750/600	1250/900/750	1500/1100/900
High/Med/Low - DX Cooling (cfm)	750/700/650	1000/850/750	1250/1050/900	1500/1300/1100
Max. External Static Pressure (in. wg)	0.25			
COIL WATER WEIGHT (gal)				
1-Row	0.32	0.38	0.44	0.5
2-Row	0.51	0.63	0.76	0.88
4-Row	0.92	1.17	1.42	1.66
COIL CONNECTIONS (in. OD)				
Water Coils - Standard Units	Unions with 3/4 in. female solder joint			
Water Coils - Units with Piping Package	Chilled Water: 3/4 in. NPT drop ear, Hot Water: 1/2 in. NPT drop ear			
Evaporator Coil	3/4 in. OD Suction, 1/2 in. OD Liquid			
Steam Coils (All Units)	1 in. NPT			
Condensate Line	3/4 in. ID condensate line			

LEGEND

CW — Chilled Water
DX — Direct Expansion
HW — Hot Water
ID — Inside Dimensions
OD — Outside Dimensions

INSTALLATION

⚠ CAUTION

Units must be installed level and plumb. Failure to do so may result in excessive vibration and/or premature failure.

Step 1 — Place Units in Position

FLOOR MOUNTED UNITS

The instructions detailed below are for the Installation of a Standard unit. Accommodations and adjustments will be required for the usage of additional unit accessories. Should assistance be required for the installation of these additional items, contact the factory at the phone number listed on the back cover of this manual. Refer to Fig. 4 and 5 for unit dimensions.

1. Check the walls and floor for straightness and check to ensure that the wall is at a right angle to the floor. Should there be any irregularity, the placement of foam tape on the outside edges of the unit will fill the gaps between the unit and the wall, allowing for the use of a sealant, to create a smooth transition from the unit to the wall.
2. Remove the backing strip from the gasket on the wall sleeve. Place the unit in the correct location, ensuring a tight seal with the wall sleeve and the wall.
3. Place the unit in position and use the leveling legs to ensure that the unit is level in both directions and also plumb. Remove the front kick panel to access the leveling legs (see Fig. 2). Make sure that the foam gasket on the back of the unit forms a tight seal between the unit and the wall.
4. After adjusting for any irregularity in the location site, the cabinet must be secured to the back wall. The back of the cabinet has four holes, two on each side. The type of materials used for the walls will determine the type of fastener to use. Use 3/8 in. diameter fasteners with 1-1/2 in. diameter washers. Securing the cabinet to the wall helps to reduce movement and noise due to vibration. Drill the appropriate sized holes for the fasteners that are to be utilized, and insert the anchors that are to be used.
5. Make the condensate drain connection and the electrical connections to the unit. For standard units the condensate connection will be located in the left end compartment when left hand cooling is selected, and in the right end compartment when right hand cooling is selected. For units with a cooling piping package, condensate drain connection will always be located in the right end compartment.

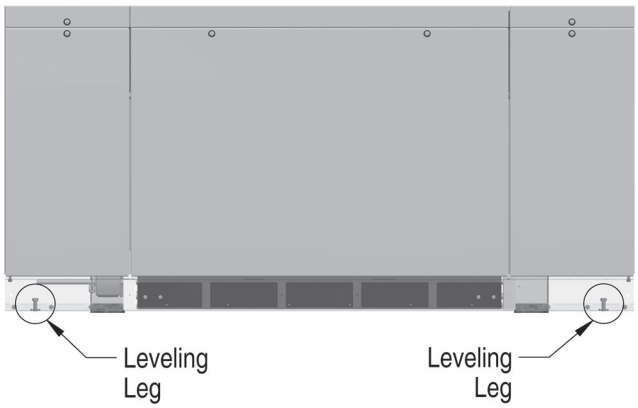


Fig. 2 — Leveling Leg Location

CEILING MOUNTED UNITS

The instructions detailed below are for the Installation of a Standard unit. Accommodations and adjustments will be required for the usage of additional unit accessories. Should assistance be required for the installation of these additional items, contact the factory at the phone number listed on the back cover of this manual. Refer to Fig. 6 and 7 for unit dimensions.

1. It is recommended that the rear of unit be positioned at least 2 in. away from a wall or structure to ensure bottom access panel containing filter and electrical box can fully open.
2. Remove both end panels to allow for access to the mounting holes. If installation does not allow for access through the end of the unit, remove bottom panels prior to placing unit on lifting device.
3. Place protective material on the supports of the lifting device to prevent scratching or denting of the unit. Place unit on the lifting device supporting the unit across its entire length.
4. Raise the unit to the mounting position. Use field supplied rods and fasteners with 1-1/2 in. diameter washers to suspend the unit at the mounting holes located at the top of the unit (Fig. 3 and Table 2). The unit must be suspended at each of the (4) 1 in. mounting holes. Do not suspend from any other locations.
5. Install unit level and plumb to prevent excessive vibration and premature failure. To ensure proper drainage unit must be level. Do not mount unit on a slope. Tighten all fasteners.
6. Make the condensate drain connection to the unit.

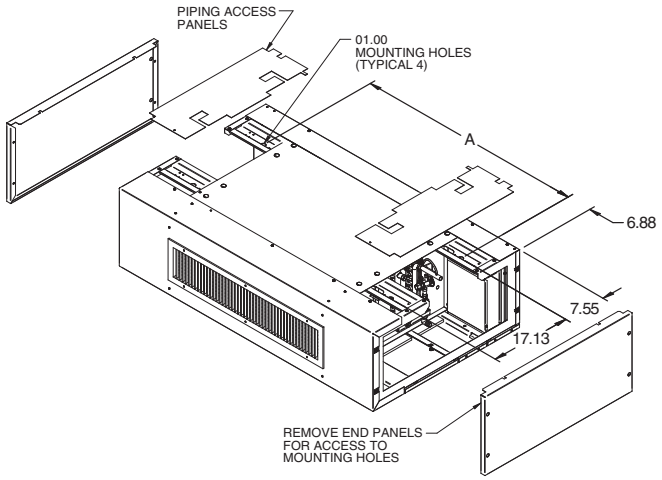
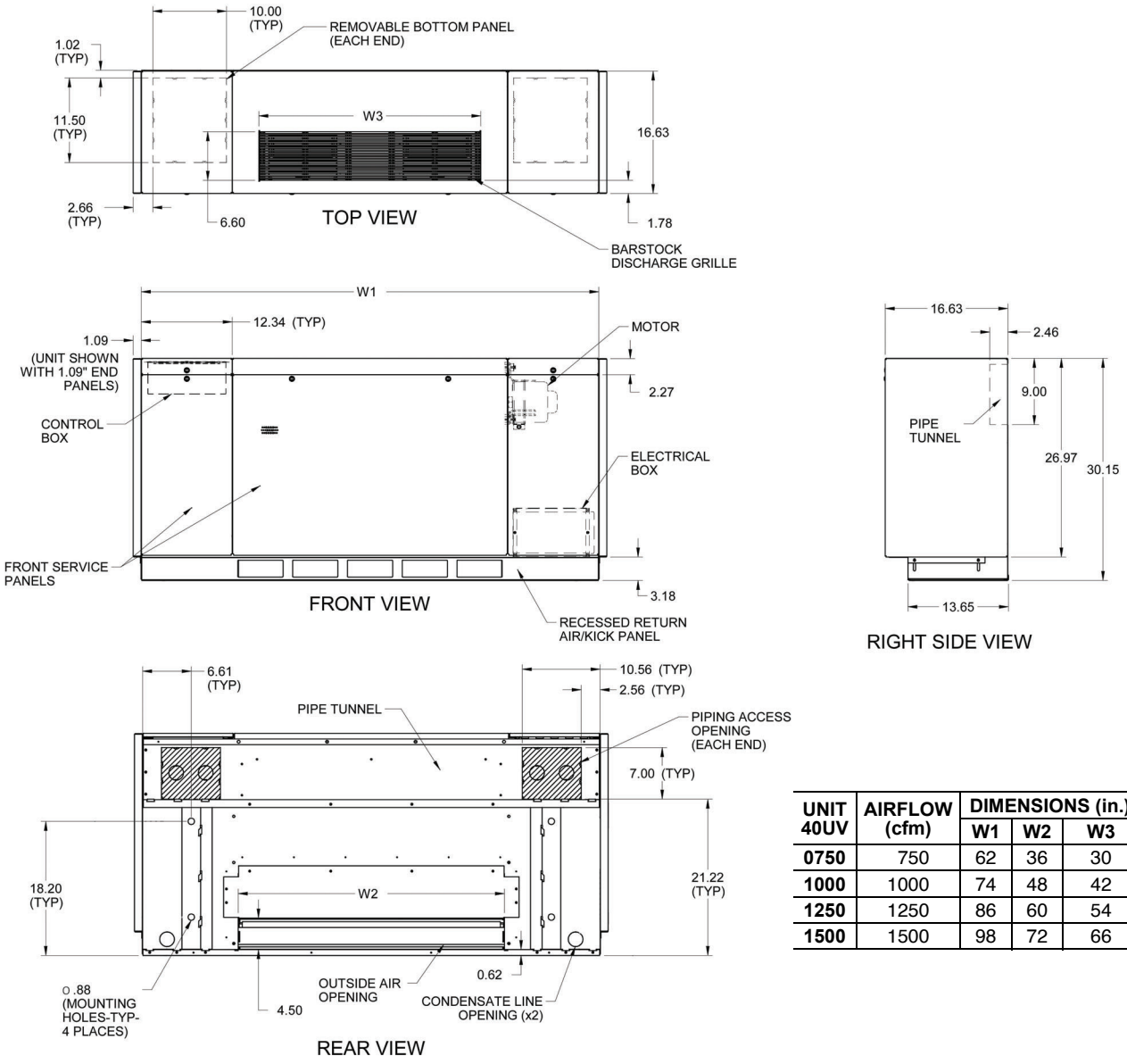


Fig. 3 — Mounting Hole Locations

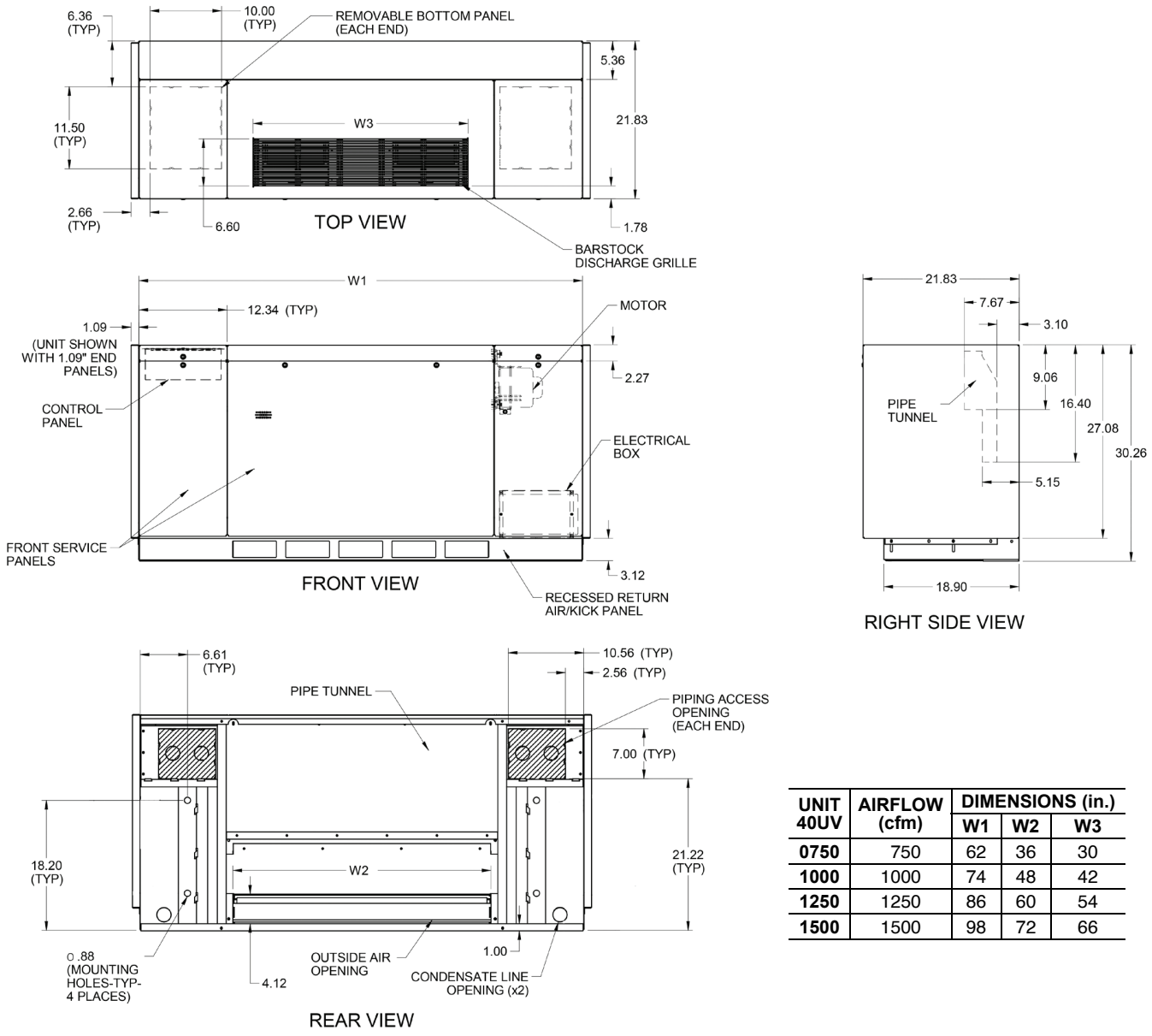
Table 2 — Mounting Hole Locations Dimension A

40UHV, UH MODEL SIZE	DIMENISIONS A (in.)
0750	48.25
1000	60.25
1250	72.25
1500	84.25



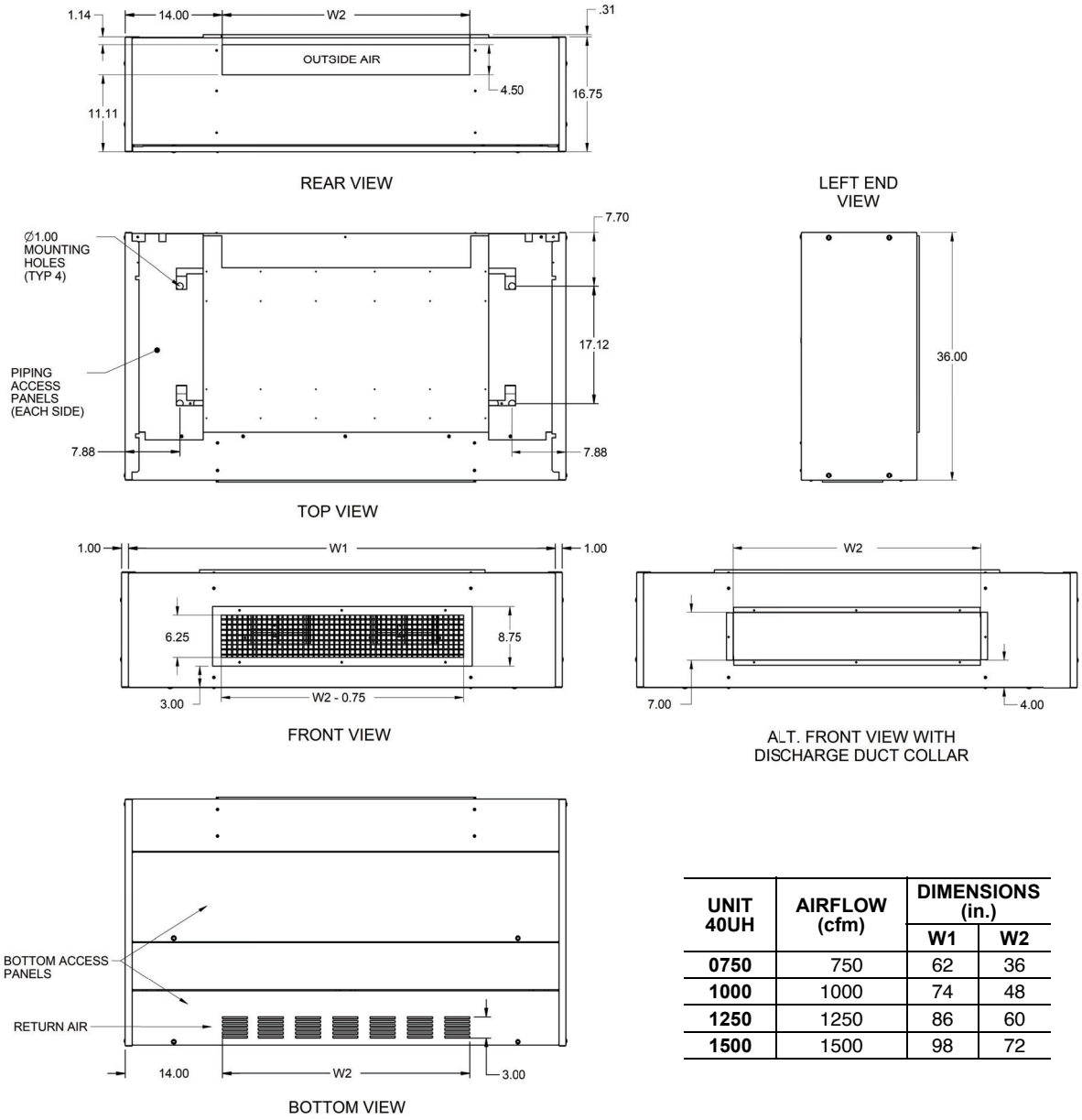
UNIT 40UV	AIRFLOW (cfm)	DIMENSIONS (in.)		
		W1	W2	W3
0750	750	62	36	30
1000	1000	74	48	42
1250	1250	86	60	54
1500	1500	98	72	66

Fig. 4 — 40UV Dimensions — 16-5/8 in. Depth — Floor Mounted Units (Standard)



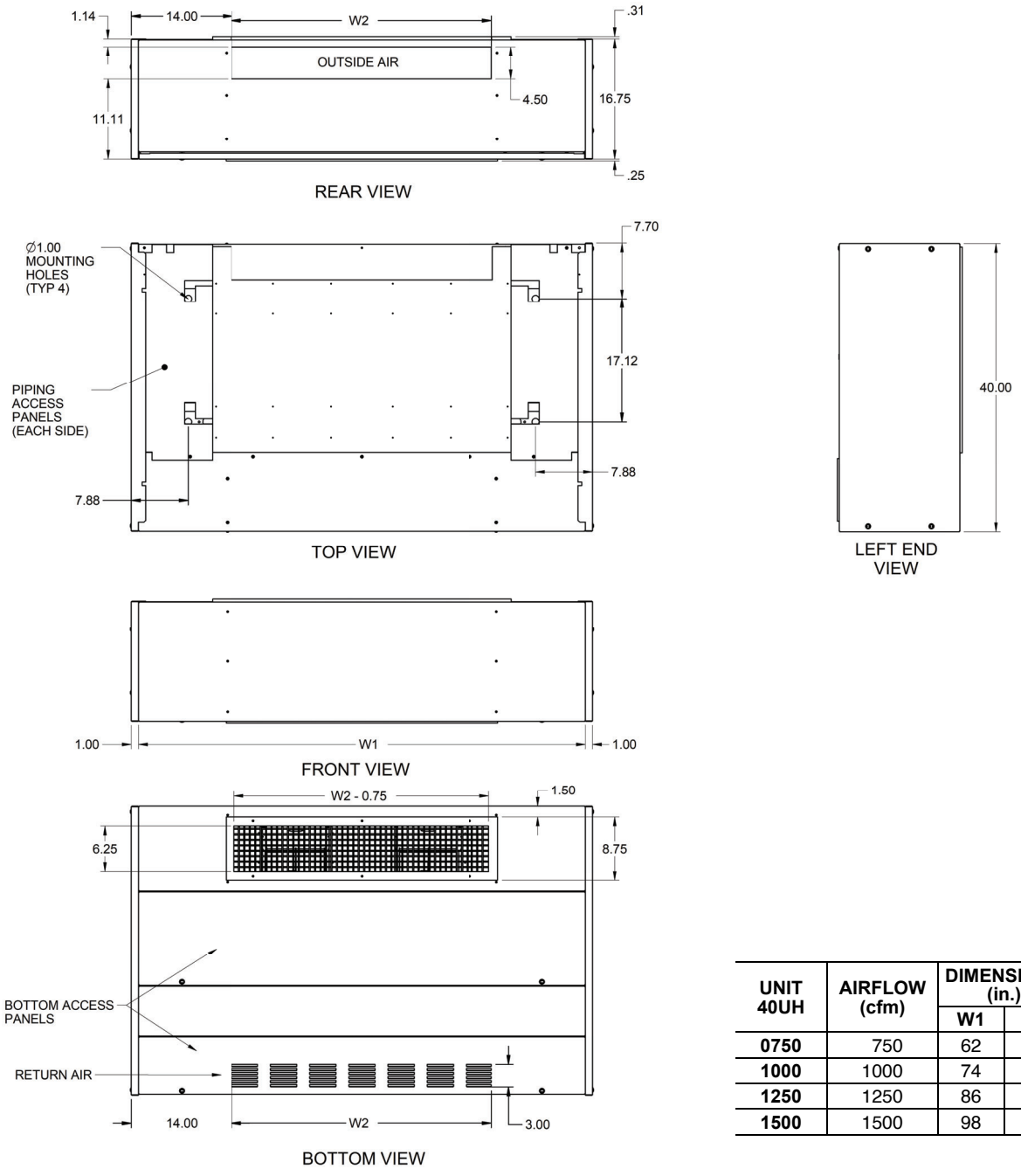
UNIT 40UV	AIRFLOW (cfm)	DIMENSIONS (in.)		
		W1	W2	W3
0750	750	62	36	30
1000	1000	74	48	42
1250	1250	86	60	54
1500	1500	98	72	66

Fig. 5 — 40UV Dimensions — 21-7/8 in. Depth —Floor Mounted Units



UNIT 40UH	AIRFLOW (cfm)	DIMENSIONS (in.)	
		W1	W2
0750	750	62	36
1000	1000	74	48
1250	1250	86	60
1500	1500	98	72

Fig. 6 — 40UH Dimensions — Front Discharge — Ceiling Mounted Units



UNIT 40UH	AIRFLOW (cfm)	DIMENSIONS (in.)	
		W1	W2
0750	750	62	36
1000	1000	74	48
1250	1250	86	60
1500	1500	98	72

Fig. 7 — 40UH Dimensions —Down Discharge — Ceiling Mounted Units

Step 2 — Make Piping Connections

Piping installation is described in the following sections on pages 10-16 and illustrated in Fig. 8-29.

CHILLED/HOT WATER COILS (NO PIPING PACKAGE)

⚠ CAUTION

1. Units not approved for use in potable water systems.
2. Hot water supplied to the hot water heating option must not exceed 200°F temperature or 125 psig pressure.
3. Do not attempt to reuse any mechanical or electrical component which has been wet. Such component must be replaced.

Units without Piping Package

1. Chilled water and hot water coils are supplied, from the factory, with unions. Field installed piping can be mounted to the supplied unions with 3/4 in. female sweat connections.
2. Install shut-off valves in lines to and from each coil to allow maintenance or replacement of unit without shutting down and draining entire system (see Fig. 8 and 9).
3. Include a circuit setter in the return line for water flow regulation.
4. A drain valve (hose bib) should also be provided for each coil to allow removal of water from the coil if located in an area subject to freezing.
5. It is advisable to use a pipe line strainer before each coil.
6. Provide adequate pipe hangers, supports, or anchors to secure the piping system independently of the coil.
7. See Fig. 10-13 and Tables 3-6 for supply and return connection locations.

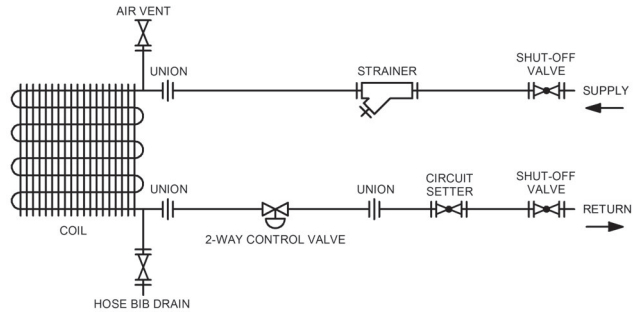


Fig. 8 — Typical 2-way Piping Installation

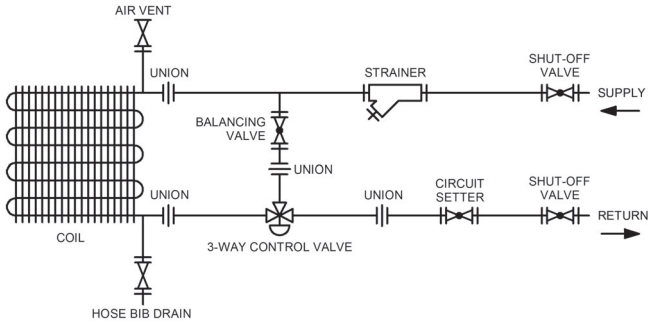
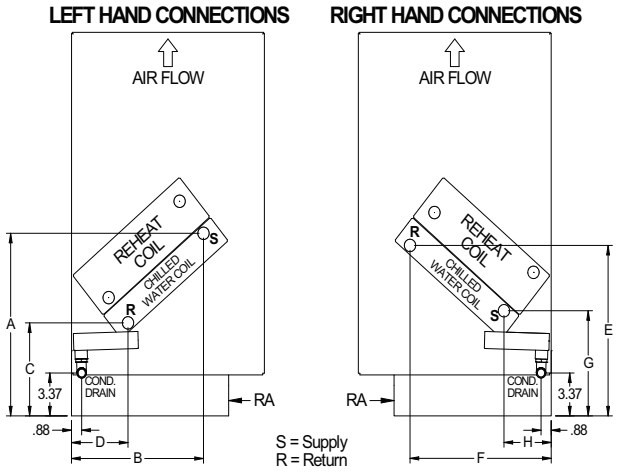


Fig. 9 — Typical 3-way Piping Installation



NOTE: Supply and Return connection locations represent counterflow orientation (recommended). Unit should be piped in accordance with good plumbing practices.

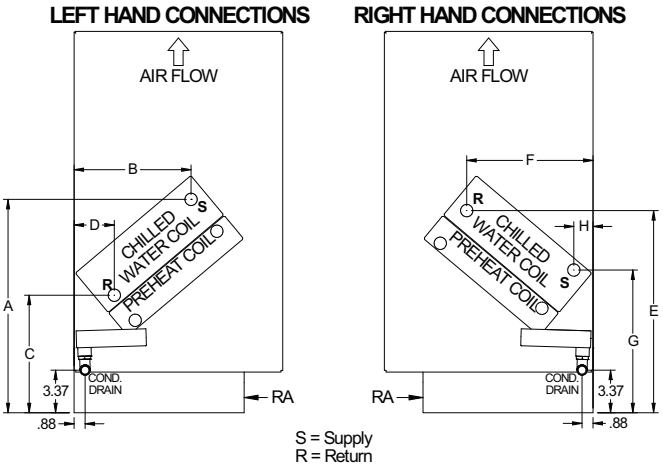
Fig. 10 — Chilled Water Coil with or Without Optional Re-Heat Coil (No Piping Package)

Table 3 — Piping Location Dimensions (Chilled Water Optional Re-Heat Coil)[a]

UNIT DEPTH (in.)	COIL ROWS	DIMENSIONS (in.)							
		A	B	C	D	E	F	G	H
16-5/8	2-row	14.25	11.25	7.25	4.75	13.50	12.25	8.25	4.00
	4-row	15.00	11.00	7.50	4.75	14.00	11.75	9.50	3.00
21-7/8	2-row	14.25	16.50	7.25	10.00	13.50	17.50	8.25	10.00
	4-row	15.00	16.25	7.50	10.00	14.00	17.00	9.50	8.25

NOTE(S):

a. For Hot Water Reheat piping locations see Fig. 13. For Steam Reheat piping locations see Fig. 27.



NOTE: Supply and Return connection locations represent counterflow orientation (recommended). Unit should be piped in accordance with good plumbing practices.

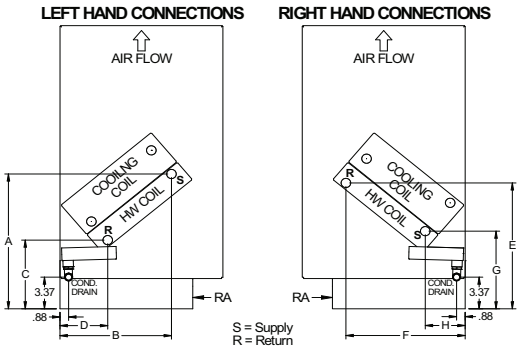
Fig. 11 — Chilled Water Coil with Pre-Heat Coil (No Piping Package)

Table 4 — Piping Location Dimensions (Chilled Water Pre-Heat Coil)[a]

UNIT DEPTH (in.)	COIL ROWS	DIMENSIONS (in.)							
		A	B	C	D	E	F	G	H
16-5/8	2-row	17.50	8.75	10.50	2.25	16.50	9.50	11.50	1.50
	4-row	16.75	9.25	9.25	3.25	16.00	10.00	11.25	1.50
21-7/8	2-row	17.50	14.00	10.50	7.50	16.50	14.75	11.50	6.75
	4-row	16.75	14.50	9.25	8.50	16.00	15.25	11.25	6.75

NOTE(S):

a. For Hot Water Pre-heat piping locations see Fig. 12. For Steam Pre-heat piping locations see Fig. 26.



NOTE: Supply and Return connection locations represent counterflow orientation (recommended). Unit should be piped in accordance with good plumbing practices. Refer to Hot water heating coil Piping locations table dimensions.

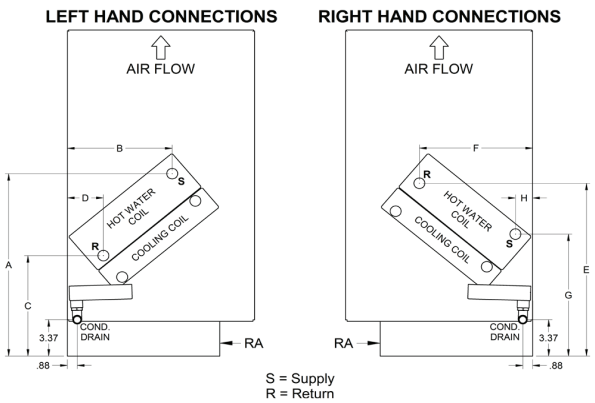
Fig. 12 — Hot Water Only or Chilled Water/DX Cooling Coil with Hot Water Pre-Heat Coil (No Piping Package)

Table 5 — Hot Water Heating Coil Piping Locations[a]

UNIT DEPTH (in.)	COIL ROW	DIMENSIONS (in.)							
		A	B	C	D	E	F	G	H
16-5/8	1-row	14.25	11.50	7.00	5.00	13.50	12.00	8.25	4.00
	2-row	14.25	11.25	7.25	4.75	13.50	12.25	8.25	4.00
21-7/8	1-row	14.25	16.75	7.00	10.25	13.50	17.25	8.25	9.25
	2-row	14.25	16.50	7.25	10.00	13.50	17.50	8.25	9.25

NOTE(S):

a. For Chilled Water piping location see Fig. 11. For DX Cooling piping location see Fig. 19 and 21.



NOTE: Supply and Return connection locations represent counterflow orientation (recommended). Unit should be piped up in accordance with good plumbing practices. Refer to Hot Water Heating Coil Piping locations table dimensions.

Fig. 13 — Hot Water Re-Heat Coil with Chilled Water/ DX Cooling Coil (No Piping Package)

Table 6 — Hot Water Re-Heat Coil Piping Locations[a]

UNIT DEPTH (in.)	COIL ROW	DIMENSIONS (in.)							
		A	B	C	D	E	F	G	H
16-5/8	1-row	17.50	8.75	10.25	2.25	16.75	9.50	11.50	1.25
	2-row	17.50	8.75	10.50	2.25	16.50	9.50	11.50	1.50
21-7/8	1-row	17.50	14.00	10.25	7.50	16.75	14.75	11.50	6.50
	2-row	17.50	14.00	10.50	7.50	16.50	14.75	11.50	6.75

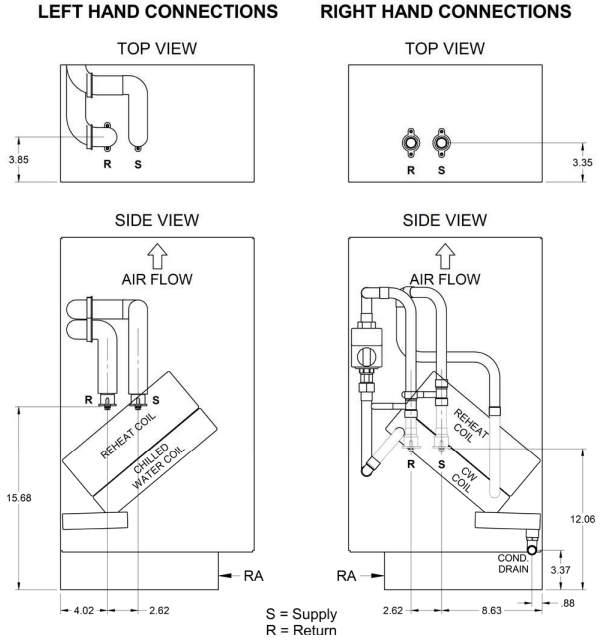
NOTE(S):

a. For Chilled Water piping location see Fig. 10. For DX Cooling piping location see Fig.18 and 20.

CHILLED/HOT WATER COILS (PIPING PACKAGE)

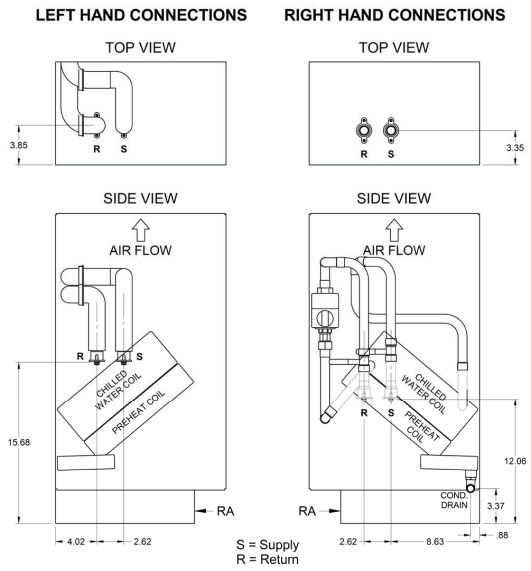
Units with Piping Package

1. Chilled water and hot water piping packages are supplied factory assembled and installed to the coil. All piping packages include the following: control valve, shut-off valves, strainer, circuit setter, PT ports, and balancing valve (when 3-way control valve is selected).
2. Piping package terminations are threaded drop ear connections, and are 3/4 in. for chilled water and 1/2 in. for hot water. Drop ear connections are attached to fixed plates, and along with the coil provide support for the piping package.
3. Piping package termination locations are set such that field piping can be routed through the bottom knock out, back knock out, or out the side of the unit.
4. See Fig. 14 -17 for supply and return connections.



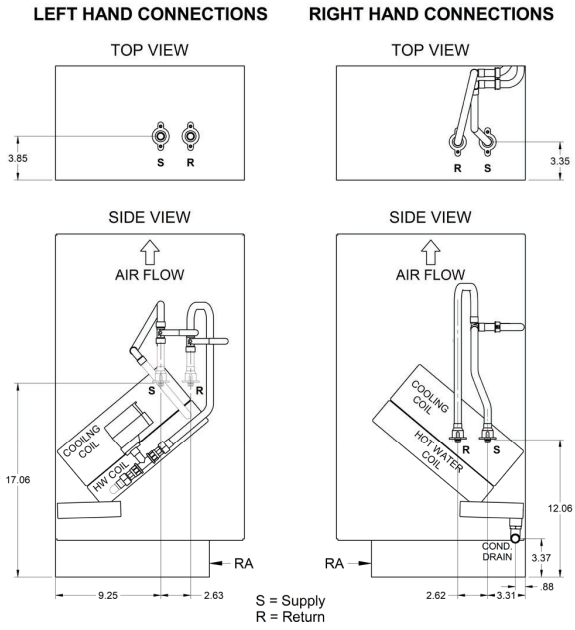
NOTE: Condensate drain connection located in right end compartment.

Fig. 14 — Chilled Water Coil With or Without Optional Re-Heat Coil (With Piping Package)



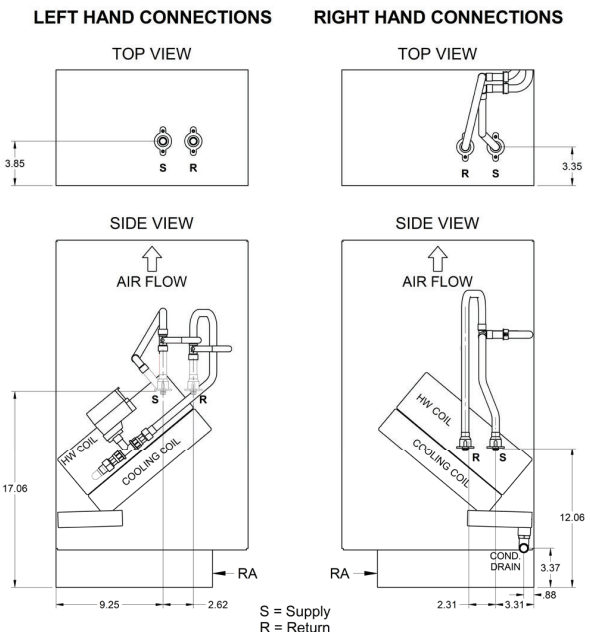
NOTE: Condensate drain connection located in right end compartment.

Fig. 15 — Chilled Water Coil with Pre-Heat Coil (With Piping Package)



NOTE: Condensate drain connection located in right end compartment when unit is equipped with a cooling coil.

Fig. 16 — Hot Water Heating Coil Only or Chilled Water/DX Cooling Coil with Hot Water Pre-Heat Coil (With Piping Package)



NOTE: Condensate drain connection located in right end compartment when unit is equipped with a cooling coil.

Fig. 17 — Chilled Water/DX Cooling Coil With Hot Water Re-Heat Coil (With Piping Package)

DIRECT EXPANSION (DX) COILS (NO PIPING PACKAGE)

⚠ CAUTION

1. Units with DX evaporator coils contain the refrigerant R-410A. Review the R-410A Material Safety Data Sheet (MSDS) for hazards and first aid measures.
2. Refrigerant charging should only be carried out by an EPA-certified air conditioning contractor.

NOTE: R-410A refrigerant is the only approved refrigerant for this system. The unit should be piped up in accordance with good refrigeration and/or plumbing practices.

See Fig. 18-21 for suction and liquid line connections. For units with a heating pipe package, see Fig. 22-25 for suction and liquid line connections. Refer to Tables 7-9.

The outdoor condensing unit must be connected to the indoor unit coil using field supplied refrigerant grade (ACR) copper tubing that is internally clean and dry. Units should be installed only with the tubing sizes for the approved system combination as specified in the Troubleshooting table on page 23.

Condensing unit is typically factory charged for a 15 ft lineset. For additional lineset lengths please refer to manufacturer's charging chart.

See the installation and maintenance manual provided with the condensing unit for installation, evacuation and system charge information.

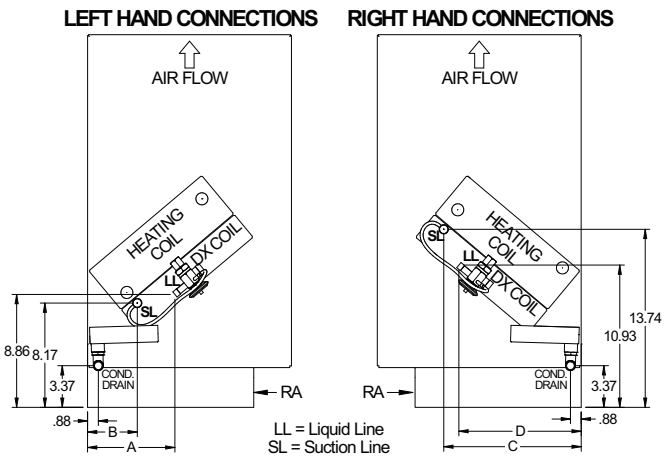


Fig. 18 — DX Cooling (Size 0750) With or Without Optional Reheat Coil (No Piping Package)

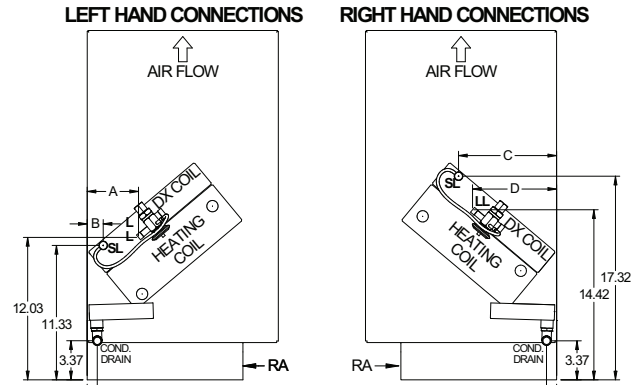


Fig. 19 — DX Cooling (Size 0750) with Pre-Heat Coil (No Piping Package)

Table 7 — DX Cooling Coil Piping Locations[a,b]

UNIT DEPTH (in.)	MODEL SIZE	DIMENSIONS (in.)			
		A	B	C	D
16-5/8	0750	14.25	11.25	7.25	4.75
21-7/8	0750	14.25	16.50	7.25	10.00

NOTE(S):

a. For Hot Water Reheat piping location see Fig.13. For Steam Reheat piping location see Fig. 27.
b. For Hot Water Pre-Heat piping location see Fig. 12. For Steam Pre-Heat piping location see Fig. 26.

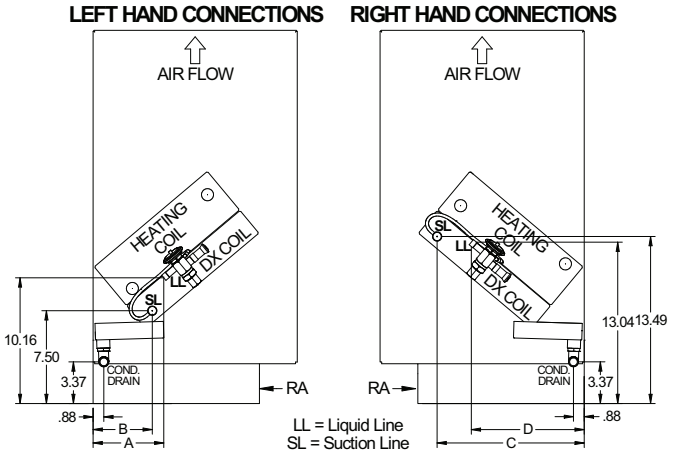


Fig. 20 — DX Cooling (Size 1000-1500) With or Without Optional Re-Heat Coil (No Piping Package DX)

Table 8 — DX Cooling Coil Piping Locations[a]

UNIT DEPTH (in.)	MODEL SIZE	DIMENSIONS (in.)			
		A	B	C	D
16-5/8	1000/1250/1500	7.50	4.50	11.75	10.50
21-7/8	1000/1250/1500	12.75	9.75	17.00	15.75

NOTE(S):

a. For Hot Water Reheat piping location see Fig. 13. For Steam Reheat piping location see Fig. 27.

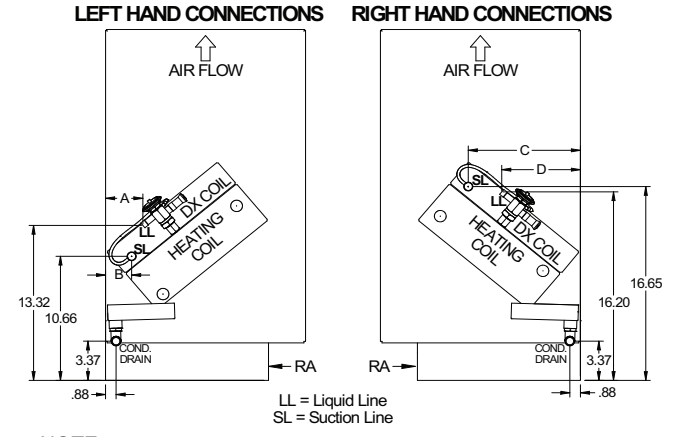


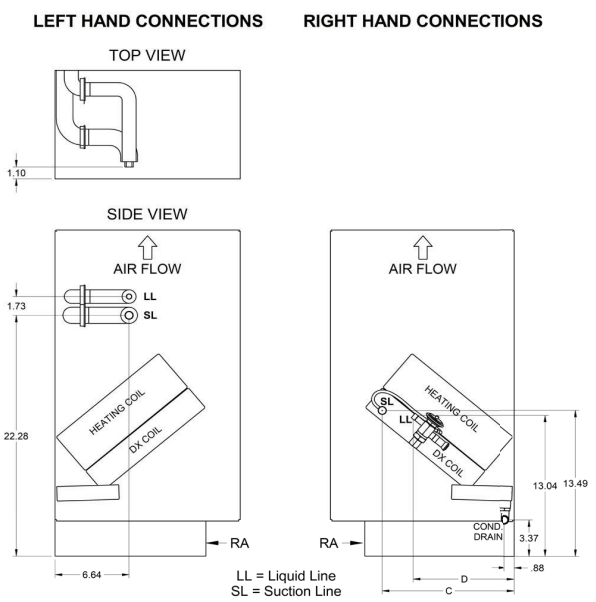
Fig. 21 — DX Cooling (Size 1000-1500) with Pre-Heat Coil (No Piping Package DX)

Table 9 — DX Coil with Pre-Heat Piping Locations[a]

UNIT DEPTH (in.)	MODEL SIZE	DIMENSIONS (in.)			
		A	B	C	D
16-5/8	1000/1250/1500	4.50	1.75	875	7.75
21-7/8	1000/1250/1500	9.75	7.00	14.00	13.00

NOTE(S):

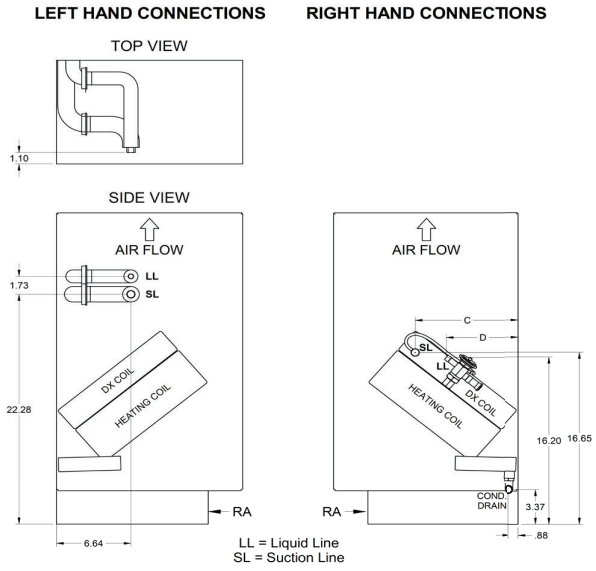
a. For Hot Water Pre-Heat piping location see Fig. 12. For Steam Pre-Heat piping location see Fig. 26.



Unit Size 0750

NOTE(S):
1.For dimensions C and D refer to DX Cooling (Size 0750) with or without Optional Re-heat Coil Table on page 30.
2.Condensate drain connection located in right end compartment.

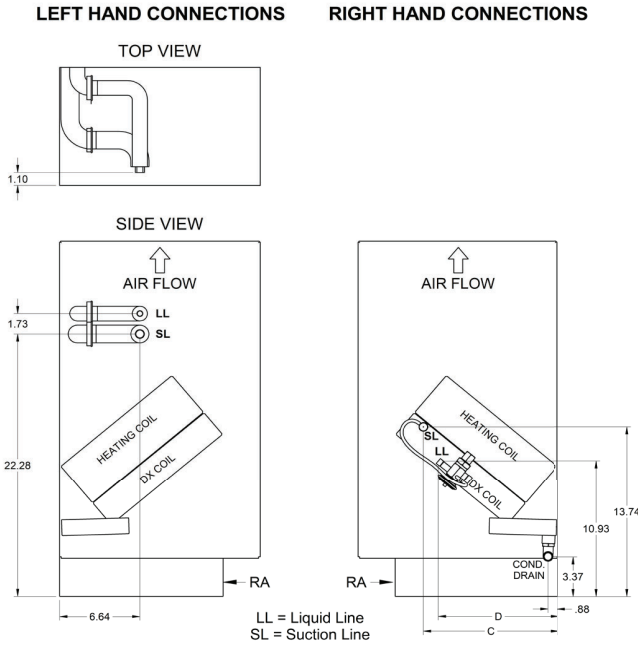
Fig. 22 — DX Cooling Coil Only or DX Cooling with Re-Heat Coil (Size 0750 With Piping Package)



Unit Size 0750

NOTE(S):
1.For dimensions C and D refer to DX Cooling (Size 0750) with or without Optional Re-heat Coil Table on page 30.
2.Condensate drain connection located in right end compartment.

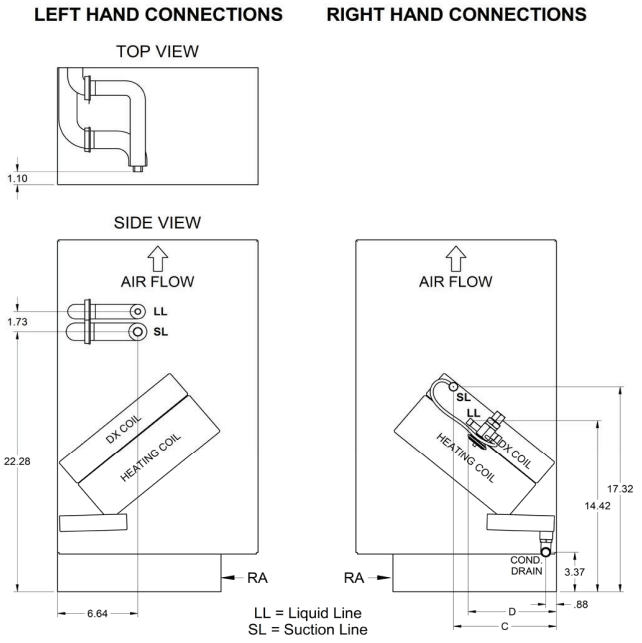
Fig. 23 — DX Cooling Coil with Pre-Heat Coil Only (Size 0750 With Piping Package)



Unit Size 1000 / 1250 / 1500

NOTE(S):
1.For dimensions C and D refer to DX Cooling (Size 1000-1500) with or without Optional Re-heat Coil Table on page 31.
2. Condensate drain connection located in right end compartment.

Fig. 24 — DX Cooling Coil Only or DX Cooling with Re-Heat Coil (Size 1000-1500 With Piping Package)



Unit Size 1000 / 1250 / 1500

NOTE(S):
1.For dimensions C and D refer to DX (Size 1000-1500) with Pre-heat Coil Table on page 31.
2.Condensate drain connection located in right end compartment.

Fig. 25 — DX Cooling Coil with Pre-Heat Coil Only (Size 1000-1500 With Piping Package)

STEAM COILS (NO PIPING PACKAGE)

⚠ CAUTION

Do not operate the units within steam pressure greater than 10 psig. Steam pressure must be 10 psig or lower to avoid excessive discharge air temperatures that could cause burns or personal injury.

1. Steam coils are supplied from the factory with 1 in. NPT connections.
2. A steam trap should be provided with a trap of sufficient size and capacity to pass a minimum of two times the normal condensate released by the unit at the minimum differential pressure in the system.
3. See Fig. 26-27 and Table 10 for supply and return connections. For units with a heating pipe package, see Fig. 28-29 and Table 11 for supply and return connections.

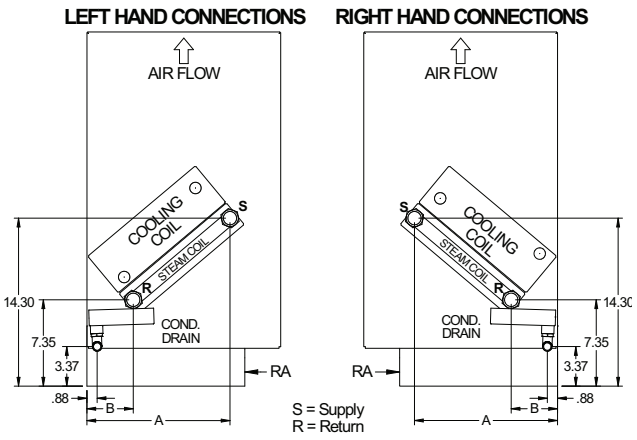


Fig. 26 — Steam Heating Coil Only or Chilled Water/ DX Cooling Coil With Steam Pre-Heat Coil (No Piping Package)

Table 10 — Steam Heating Coil Piping Locations[a]

UNIT DEPTH (in.)	COIL ROW	DIMENSIONS (in.)	
		A	B
16-5/8	1-Row	12.25	4.00
21-7/8	1-Row	17.50	9.25

NOTE(S):

a. For Chilled Water piping location see Fig. 11. For DX Cooling piping location see Fig.19 and 21.

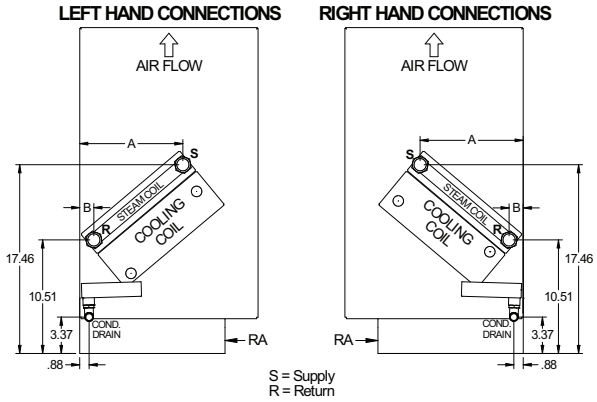


Fig. 27 — Steam Re-Heat Coil With Chilled Water/DX Cooling Coil (No Piping Package)

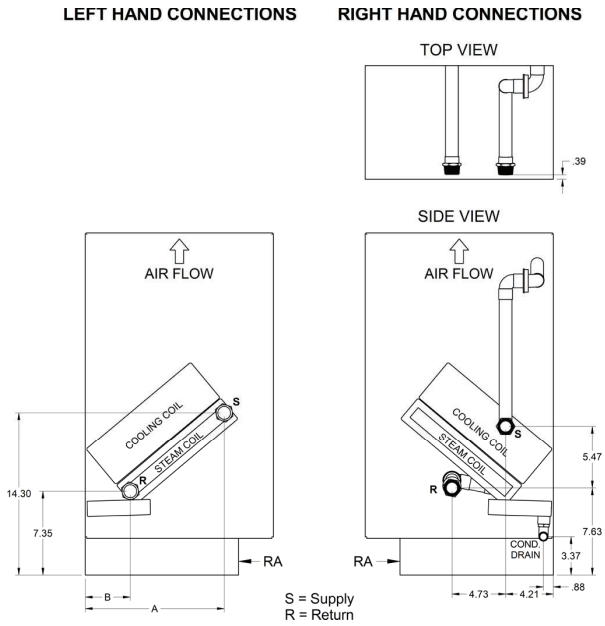
Table 11 — Steam Re-Heat Coil Piping Locations[a]

UNIT DEPTH (in.)	COIL ROW	DIMENSIONS (in.)	
		A	B
16-5/8	1-Row	9.50	1.25
21-7/8	1-Row	14.75	6.50

NOTE(S):

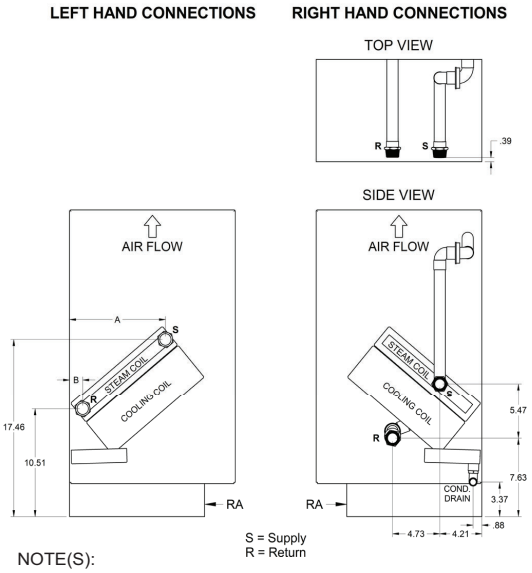
a. For Chilled Water piping location see Fig. 10. For DX Cooling piping location see Fig. 18 and 20.

STEAM COILS (PIPING PACKAGE)



NOTE(S):
1. Condensate drain connection located in right compartment when unit is equipped with a cooling coil.
2. For dimensions A and B refer to Steam Heating Coil or Chilled Water/DX Cooling with steam pre-heat coil Table on page 32.

Fig. 28 — Steam Heating Coil Only or Chilled Water/ DX Cooling Coil With Steam Pre-Heat Coil (With Piping Package)



NOTE(S):
1. Condensate drain connection located in right compartment when unit is equipped with a cooling coil.
2. For dimensions A and B refer to Steam Re-heat Coil with Chilled Water/DX Cooling Coil Table.

Fig. 29 — Chilled Water/DX Cooling Coil With Steam Re-Heat Coil (With Piping Package)

Piping Insulation

STANDARD UNITS

Chilled water and condensate pipes should be insulated right up to the coil to prevent condensation which can damage objects located below the piping. Chilled water valves must also be insulated to prevent sweating. Hot water pipes should be insulated to reduce heat loss and to prevent overheating of the end compartment.

NOTE: For units with piping package, not available on Ceiling Mounted units. Chilled water piping package will not be insulated except when piping is routed through pipe tunnel. Chilled water piping package shall be positioned over drain pans to catch condensate that forms on piping.

Step 3 — Make Electrical Connections

WIRING

Refer to Table 12 for electrical data.

⚠ WARNING

1. Disconnect power supply before making wiring connections to prevent electrical shock and equipment damage.
2. All appliances must be wired strictly in accordance with the wiring diagram furnished with the appliance. Any wiring different from the wiring diagram could result in a hazard to persons and property.
3. Any original factory wiring that requires replacement must be replaced with wiring material having a temperature rating of at least 105°C.
4. Ensure that the supply voltage to the appliance, as indicated on the serial plate, is not 5% greater than rated voltage.

⚠ CAUTION

Ensure that the supply voltage to the appliance, as indicated on the serial plate, is not 5% less than the rated voltage.

Do not attempt to reuse any mechanical or electrical component which has been wet. Such component must be replaced.

Installation of wiring must conform with local building codes, or in the absence of local codes, with the National Electric Code ANSI/NFPA 70 – Latest Edition. Unit must be electrically grounded in conformance to this code. In Canada, wiring must comply with CSA C22.1, Part 1, Electrical Code.

A wiring diagram is provided with each unit. Refer to this diagram for all wiring connections.

When installing any wiring into the control box, extra cable must be left outside the panel to allow the panel to open fully. Failure to follow these instructions may cause damage to the wiring and/or the unit.

Control wiring may consist of both 24V analog control wiring and low current digital control signal wiring. To avoid signal interference, the two types should be run in separate conduits. If run in the same conduit, the digital signal wiring should be shielded at one end of the wiring run. Wiring should be twisted, stranded, and shielded communication wire.

The wire gauge must be sized according to the National Electric Code or CSA code based on amp draw and length of run. Use only copper wire.

A knockout with strain relief is provided on the electrical box for power wiring. Each unit is supplied with terminal strip for power connection.

TERMINAL STRIP CONNECTIONS

The terminal strip connections are designed to clamp down on the wires. To properly connect the wires to the terminal strip:

1. Push a small flat-head screwdriver into the square hole on the terminal. Press firmly until the screwdriver hits the back stop and opens the terminal (see Fig. 30).
2. Remove approximately 3/8 in. of insulation from the end of the wire and push the stripped wire into the oval hole in the terminal.
3. Remove the screwdriver. Pull on the wire to make sure that it is securely clamped in the terminal.
4. Make sure that the terminal clamp is in contact with bare wire (insulation removed).

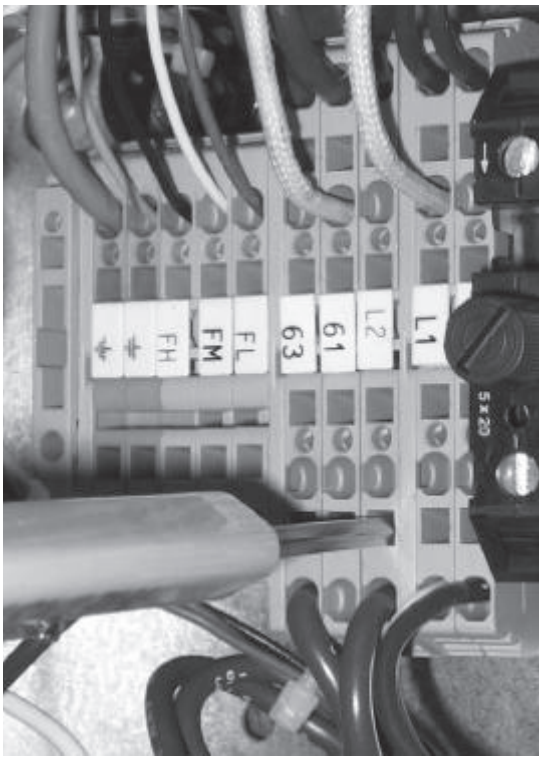


Fig. 30 — Terminal Strip

Table 12 — Electrical Data

UNIT	CONDENSATE PUMP	NOMINAL V/Ph/Hz	FLA	MCA	MOP
Standard – PSC	no	115/1/60	4.4	5.5	15
	yes		5.9	7.0	15
	no	208/1/60	2.4	3.0	15
	yes		3.0	3.6	15
	no	230/1/60	2.2	2.8	15
	yes		2.7	3.3	15
	no	277/1/60	1.8	2.3	15
	yes		2.3	2.8	15
High Static – ECM	no	115/1/60	6.8	8.5	15
	yes		8.3	10.0	15
	no	208/1/60	4.5	5.6	15
	yes		5.1	6.2	15
	no	230/1/60	4.1	5.1	15
	yes		4.6	5.6	15
	no	277/1/60	3.7	4.6	15
	yes		4.2	5.1	15

LEGEND

ECM — Electronically Commutated Motor
FLA — Full Load Amps
MCA — Unit Minimum Circuit Ampacity
MOP — Maximum Overcurrent Protection (Maximum Fuse Size or Circuit Breaker Amps)
PSC — Permanent Split Capacitor

PRE-START-UP

NOTE: Refer to start-up sheets.

> IMPORTANT: Start-up and adjustment procedures should be performed by a qualified service agency. No water-flow can cause a freeze condition resulting in damage to the coil. Never leave the unit filled with water in a building without heat unless antifreeze has been added.

Pre-start Checks

1. Check that the supply voltage matches the unit supply voltage listed on the Unit Serial Plate. Verify that all wiring is secure and properly protected. Trace circuits to ensure that the unit has been wired according to the wiring diagram.
2. Check that the unit has no visible damage and that all the components are secure.
3. Check that all field electrical and mechanical work has been performed according to all applicable Federal, State, and Local codes.
4. Check the supply voltage to the unit is within ± 5% of the voltage on the unit serial plate.
5. Check that the system has been correctly flushed.
6. Check for any water leaks.

The unit and interconnecting piping have been evacuated correctly and the condensing unit service valves are open (DX Cooling units only).

7. Check that the plug is installed for the condensate connection that is not being used.
8. Check that the motor is secure and the shaft and blower set screws are tight. Rotate the blower shaft by hand.
9. Check that the filters have been properly installed.

START-UP

NOTE: For models with DX Cooling, see the installation and maintenance manual provided with the condensing unit for start-up information.

DX Cooling models only:

1. Ensure that the condensing unit start-up procedure (DX Cooling models only) has been carried out, as detailed in the condensing unit installation and maintenance manual.
2. The compressor should be isolated by removing the connection at the Y1 terminal on the indoor unit. Main power can now be applied to the indoor and outdoor units. A system electrical check can now be carried out.

All models:

3. Switch the 3-speed switch to position 1, 2 or 3.
4. Switch the disconnect switch to the “ON” position.
5. Confirm that the blower motor is rotating in the correct direction and blowing air out of the supply air grill.
   a. (Units with Chilled Water, Hot Water and Steam Coils only) Ensure all valves are open to the unit.
   b. (Units with Chilled Water and Hot Water only) Check water flow rates and pressure drops and compare to design.
6. Check that the dampers are not obstructed and move through their full range of motion.

During the unit operation, measure and record all the information that is required to complete the Start-Up Sheets that are supplied with the unit. Copy the information onto the Start-Up Sheets in this manual for your records.

DX Cooling models only:

Shut unit down and disconnect the main power. The compressor signal Y1 (disconnected from the indoor unit in Step 2) can now be re-connected and main power applied to the system.

NOTE: The 24V power for the indoor unit control circuit is supplied from a unit factory-installed transformer. When the indoor and outdoor units are supplied from separate main supplies, care must be taken to ensure that the outdoor unit is isolated whenever the indoor unit power is removed. Failure to do so may result in freeze ups and other damage to the unit.

OPERATION

The supply fan shall run at all times when unit is in occupied mode. When in unoccupied mode, the supply fan shall run only on a call for heating or cooling. The supply fan speed can be adjusted using the standard equipped manual 3-speed switch.

Freeze Stat (Optional)

On units equipped, an adjustable auto-resetting freeze stat is factory set to trip at 35°F. If the coil temperature reaches the limit and the freeze stat trips, it shall automatically reset when the coil temperature rises 5°F above the setpoint. The freeze stat shall be wired so that upon tripping, power is removed from the supply fan, the outside air damper closes, and either the HW (Hot Water) valve opens or the face and bypass damper goes to full bypass.

Outside Air and Return Air Dampers (Optional)

The outside air and return air dampers control the mixture of return air and outside air drawn through the unit. Both dampers are linked together and are controlled by an actuator requiring a 2-6VDC proportional signal. At 2V, the dampers are positioned for full return air and no outside air. At 6V, the dampers are positioned for full outside air and no return air. The outside air damper shall open to a minimum position to provide ventilation requirements when the room is occupied. When in heating mode, if the space temperature is more than 4°F from the heating setpoint, the outside air damper shall fully close. The outside air damper shall also be fully closed during unoccupied mode. NOTE: Sequence of operations are a factory recommendation.

The dampers can act as economizers for free-cooling. If cooling is required and the outside air temperature is below the economizer outside air lockout temperature (60°F recommended) and above 35°F (adjustable), the outside air damper shall modulate open. NOTE: Sequence of operations is a factory recommendation.

CONTROLS

Chilled Water with Valve Control

Units with a chilled water coil and 24v controls by others desiring valve control shall use a non-spring return modulating valve operated by either a proportional (2-10VDC) or a tri-state (24VAC) signal.

Chilled Water with Face and Bypass Control

Units equipped with a chilled water coil and face and bypass control shall modulate the face and bypass damper via a spring return actuator, controlled by a proportional signal (2-5.5V). The face and bypass damper regulates the amount of return air and outside air passing through the chilled water coil. On a call for cooling, the damper shall open to the face of the coil proportionally based on how many degrees the room temperature is from the setpoint.

Direct Expansion (DX) Cooling Control

When the room temperature is above the cooling setpoint, the compressor will be energized. The compressor will de-energize when the room temperature falls below the cooling setpoint. If the factory installed low limit stat detects indoor evaporator coil temperatures below its set point, the compressor will be disabled.

Hot Water or Steam with Valve Control

Units with 24V by others or DDC Ready controls that are equipped with hot water or steam coil using valve control are spring-return, normally open modulating valves operated by a proportional signal (2-10VDC) or a tri-state (24VAC).

Hot Water with Face and Bypass Control

Units equipped with a Hot Water or Steam Coil and face and bypass control shall modulate the face and bypass damper via a spring return actuator, controlled by a proportional signal (2-5.5V). The face and bypass damper regulates the amount of return air and outside air passing through the heating coil. On a call for heating, the damper shall open proportionally based on how many degrees the room temperature is from the setpoint.

Hot Water and Chilled Water (2-Pipe) with Valve Control

Units with valve control to provide heating and cooling on a single water coil (2-pipe system) and using DDC ready controls shall use a spring-return, normally open modulating valve operated by a proportional signal (2-10VDC) or a tri-state (24VAC) signal.

Hot Water and Chilled Water (2-Pipe) with Face and Bypass Control

Units with face and bypass control to provide heating and cooling on a single water coil (2-pipe system) shall modulate the face and bypass damper via a spring return actuator, controlled by a proportional signal (2-5.5V). The face and bypass damper regulates the amount of return air and outside air passing through the water coil. On a call for heating or cooling (depending on the season), the damper shall open proportionally based on how many degrees the room temperature is from the setpoint.

2-Position Control Valves

Optional spring-return, 2-position control valves can be used to control the end of cycle flow on both chilled and hot water coils. On a chilled water coil, a normally closed valve is used. On a hot water coil or 2-pipe changeover system, a normally open valve is used.

NOTE: Controls sequence is a factory recommendation; when units are ordered with field installed controls by others or DDC Ready it is up to the installing contractor to fulfill the controls sequence that is required.

Condensate Pump (Optional)

On units equipped with a condensate pump, the pump shall begin to run once the condensate reaches a set level. The pump comes with an internal safety switch that can be wired either normally open or normally closed. The safety switch shall be wired such that the chilled water valve closes when it trips.

Condensate Pan Float Switch (Optional)

On units equipped with a condensate pan float switch, the normally closed switch shall be wired such that the chilled water valve closes or the outdoor condensing unit is disabled (DX Cooling Models Only) upon tripping.

SERVICE

⚠ WARNING

1. When servicing or repairing this equipment, use only factory-approved service replacement parts. A complete replacement parts list may be obtained by contacting the factory. Refer to the rating plate on the appliance for complete appliance model number, serial number, and company address. Any substitution of parts or controls not approved by the factory will be at the owner's risk.
2. This unit contains R-410A high pressure refrigerant. Hazards exist that could result in personal injury or death. Installation, maintenance, and service must only be performed by an HVAC technician qualified in R-410A refrigerant and using proper tools and equipment. Due to much higher pressure of R-410A refrigerant, DO NOT USE service equipment or tools designed for refrigerants other than R410A.

⚠ CAUTION

1. Do not attempt to reuse any mechanical or electrical controllers which have been wet. Replace defective controller.
2. When servicing the unit, some components may be hot enough to cause pain or injury. Allow time for cooling of hot components before servicing.

IMPORTANT: Start-up and adjustment procedures must be performed by a qualified service agency.

To check most of the possible remedies in the Troubleshooting table on page 23, refer to the applicable sections of the manual.

Maintenance

The routine care and maintenance of this unit will increase longevity, provide for the proper operational performance, and reduce the probability of failure.

Once the unit is operational, it will be necessary to perform certain routine maintenance/service checks. The following is a Maintenance Schedule with the recommended checks. If your unit is equipped with special features, there may be additional checks that are required. Consult Carrier for assistance.

The use of torque screwdrivers on panel, cover or component mounting screws is not recommended. Hand-start all screws. If electric drills are used, set at the lowest possible torque.

Access

Access to the unit is gained by opening the front panels and hinged top side covers using the key that is provided on Floor Mounted units or by opening the bottom access panels on Ceiling Mounted units. Refer to Components Layout in Fig. 31-33.

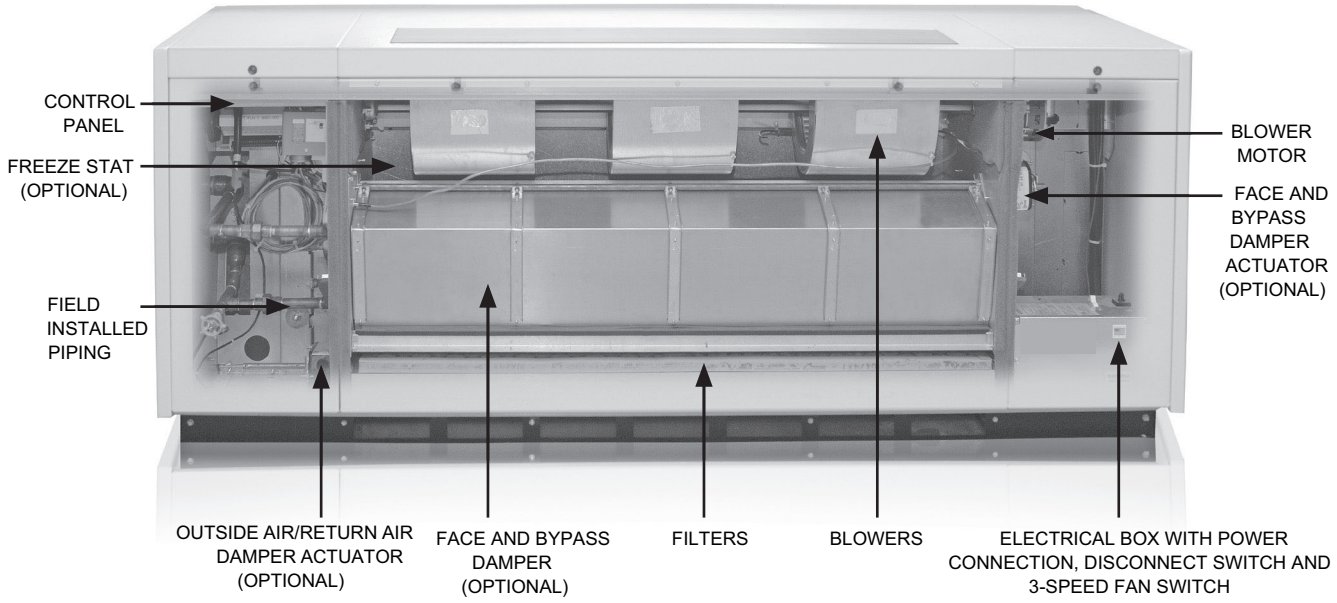


Fig. 31 — Component Layout (Floor Mounted)

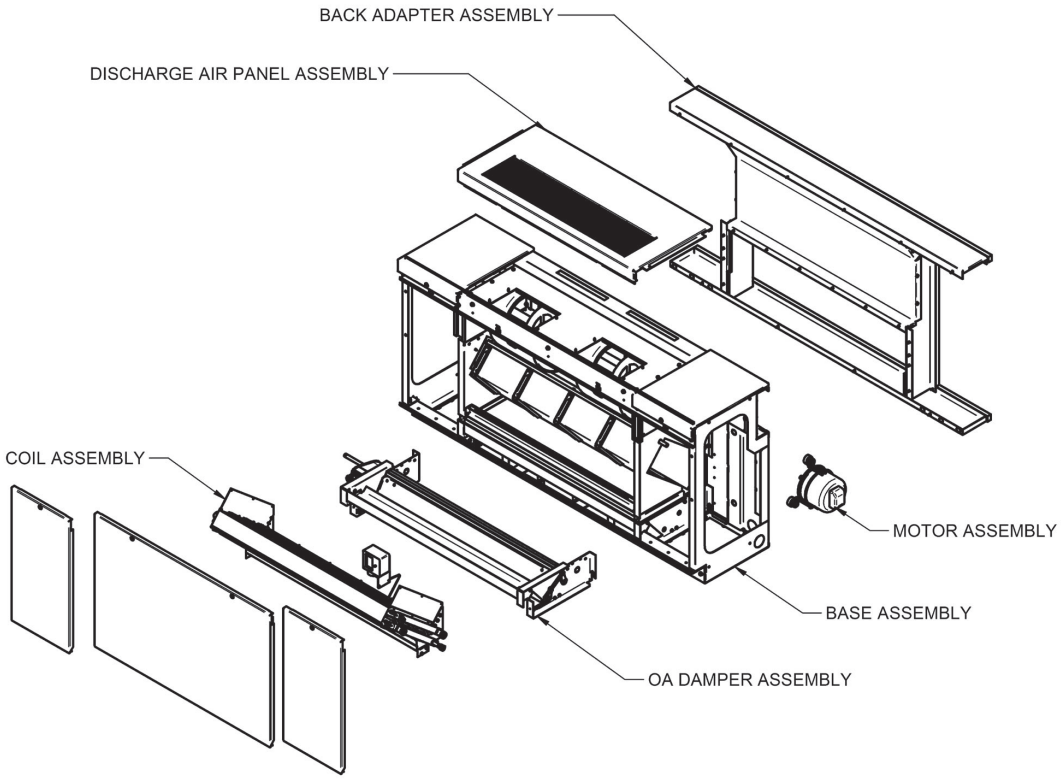


Fig. 32 — Component Layout Exploded View (Floor Mounted)

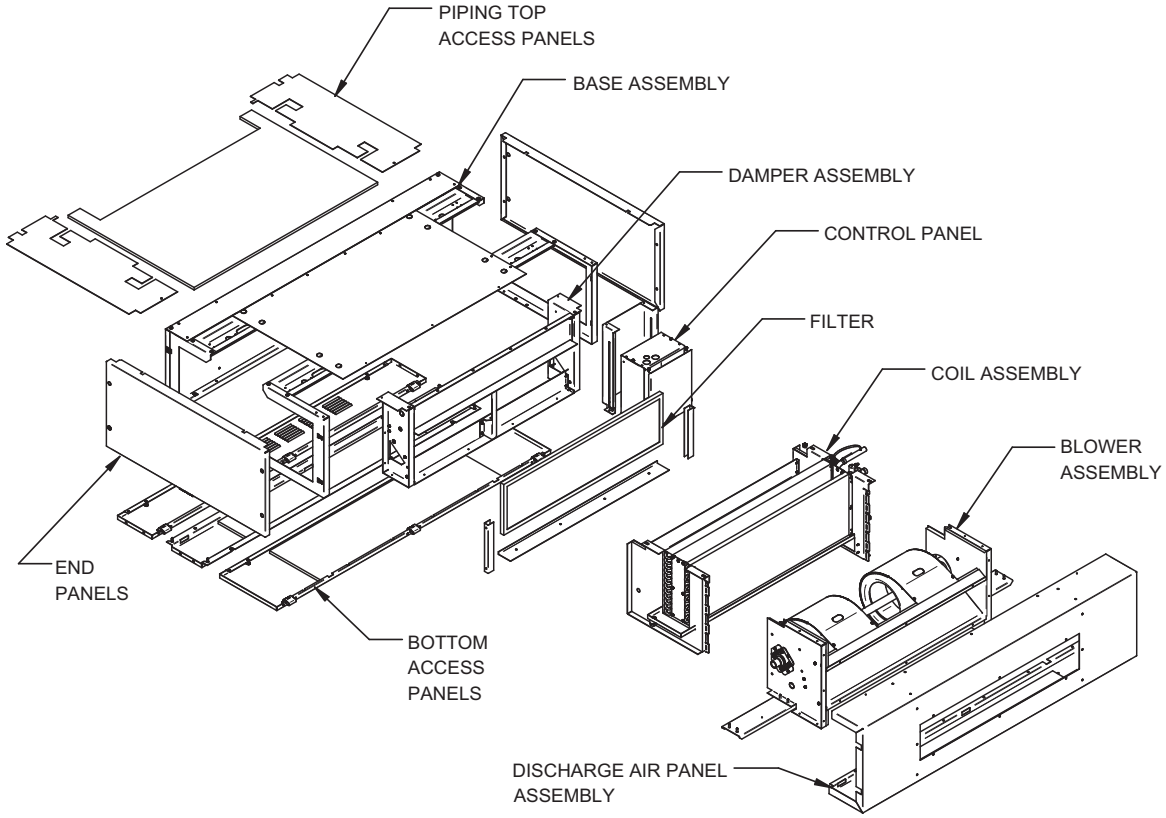


Fig. 33 — Component Layout Ceiling Mounted Units (Exploded View)

Maintenance Schedule

NOTE: Refer to Table 13 for troubleshooting.

Monthly:

- With the Disconnect in the "OFF" position: check the filter(s) and replace if necessary. Slide the filter(s) out of the track and replace with new filter(s). Refer to Fig. 34-35. The filters are positioned under the coil assembly. Never run the unit without filters.

Six Months (Before heating and cooling season):

1. Check for correct fan operation, no excessive noise vibrations.

With the disconnect switch in the "OFF" position:

2. Inspect all electrical circuits including optional components and sensors for loose connections and signs of overheating, arcing, chafing or other physical damage. The electrical control section should also be wiped clean of all dirt that may affect the unit operation.
3. Check the filter(s) and replace if necessary. Slide the filter(s) out of the track and replace with new filter(s) (see Fig. 34-35). The filters are positioned under the coil assembly. Never run the unit without filters.
4. Check the control wiring and sensors. Check the operation and sequencing of controls and ensure that all relevant set points are recorded.
5. Check all warning labels to ensure they can be read and that they have not been removed.
6. Inspect condensate hose for any possible clogs.
7. Check for general obstructions to inlet and discharge openings.
8. Oil the fan motor by adding 3 drops of SAE 20 weight detergent oil to the two oil holes on the fan motor.
9. Fill the fan shaft bearing cup with oil. The fan shaft bearing is located in the housing at the opposite end of the fan shaft from the motor (see Fig. 36-37). Additional bearing cup in middle of unit on 1250 and 1500 cfm units is accessible through the front panel.

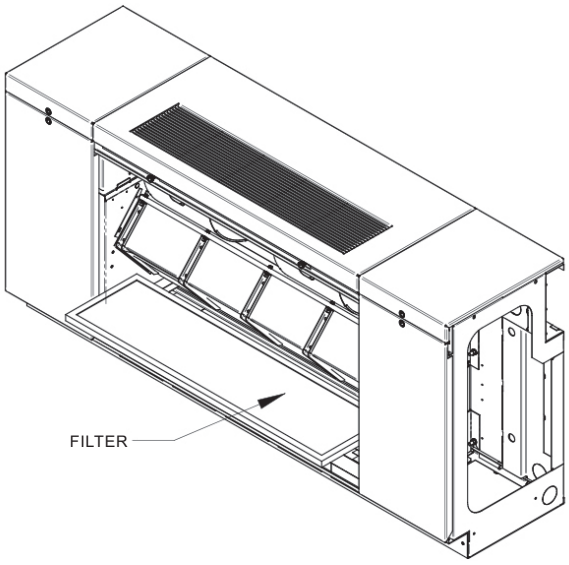


Fig. 34 — Filter Location

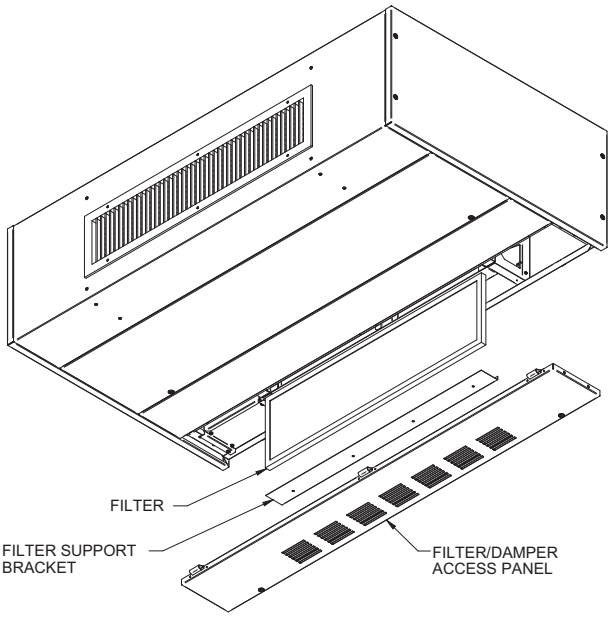


Fig. 35 — Filter Location

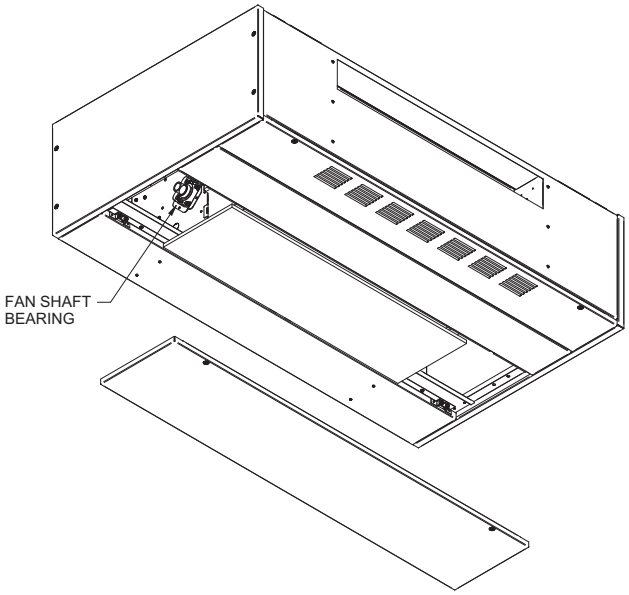


Fig. 36 — End Shaft Bearing Cup Location

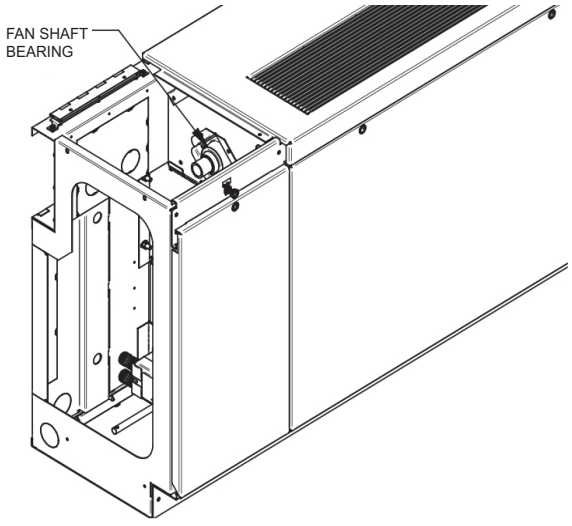


Fig. 37 — End Shaft Bearing Cup Location

Table 13 — Troubleshooting

Trouble	Possible Cause	Possible Remedy
Unit Not Operating - Power On	Unit mounted disconnect in the “OFF” position.	Turn the disconnect switch to the “ON” position.
	Unit mounted 3-speed selector switch in the “0” position (if equipped with a 4-position switch).	Turn the 3-speed selector switch to the “1, 2, or 3” position.
	Unit switched OFF in the microprocessor.	Consult microprocessor documentation.
	Delay on start set incorrectly.	Consult microprocessor documentation.
	Unit not in occupied mode.	Consult microprocessor documentation, and consult microprocessor occupied setpoints.
	Fire/smoke alarm tripped.	De-energize and re-energize unit.
	Tripped circuit breakers.	Reset the tripped circuit breaker(s).
	Loose mains or control wiring.	With power OFF from distribution panel inspect the field wiring connections in the electrical panel.
	Occupancy sensor malfunction.	Inspect connections beginning with sensor input from the microprocessor.
	Hot water freeze protection (optional) stat tripped.	Manually reset at stat.
Unit Operating - No Mechanical Heating / Cooling	Heating/cooling not required.	Verify applicable set point with return air temperature.
	No output from microprocessor.	Consult microprocessor documentation.
	DX Split Units Only: HP/LP pressure safety switch(es) tripped (open).	Inspect high and low system pressures and wiring. Check for dirty filters in Heat Pump mode.
	DX Split Units Only: Internal overload switch on compressor tripped (open).	Wait for compressor motor windings to cool down (This switch is automatic reset).
	Loose control wiring connections.	Inspect connections beginning with compressor output from the microprocessor.
	Tripped circuit breakers.	Reset the tripped circuit breaker(s).
	Low temperature unit lockout.	Consult microprocessor setpoints.
	DX Split Units Only: Compressor faulty.	Replace compressor.
	Condensate pan/pump float switch tripped.	Check condensate pan/pump and piping for blockage.
No Indoor Fan	Motor tripped on internal overload.	Let motor cool down and reset - possible bad motor or blocked filter.
	Fan not required.	Consult microprocessor documentation, or set thermostat to “ON”. Check if unit is in unoccupied and standby mode.
	No power to the fan.	Check to make sure plugs are locked in place and all pins are secure. Check for 24V control signal.
	Current sensor fault.	Make sure sensor is functioning correctly.
Hot Water / Chilled Water Valve Not Operational (Option)	Heating not required.	Consult microprocessor documentation.
	Loose wiring connections.	Inspect connections beginning with valve output from the microprocessor. Check to ensure 24V supply power is present at actuator.
	Faulty heating actuator.	Replace actuator if faulty.
	Isolation valves are open.	Check for additional external isolation valves.
	Check for DC control signal.	Check for 2-10VDC signal from microprocessor.

Table 13 — Troubleshooting (cont)

Trouble	Possible Cause	Possible Remedy
DX Split Units Only: Low Suction Pressure (LP Switch Tripped)	Low refrigeration charge.	Measure unit operating pressures. Add charge and check for leaks.
	Clogged filter(s).	Replace filter(s) as necessary.
	Clogged liquid line filter drier.	Replace drier with a direct replacement. Follow proper procedure.
	Improper expansion valve setting or valve malfunctioning.	Check operation and superheat settings.
	Low/restricted supply airflow.	Check diffusers, filters and supply motor to ensure appropriate airflow.
DX Split Units Only: Low Discharge Pressure	Low refrigeration charge.	Measure unit operating pressures. Add charge and check for leaks.
	Faulty compressor.	Replace compressor.
	Faulty reversing valve.	Evacuate system and replace reversing valve.
	Outdoor air sensor out of calibration.	Check outdoor air sensor for accuracy.
DX Split Units Only: High Suction Pressure	Excessive load.	Check occupancy of space.
	Expansion valve malfunctioning (overfeeding).	Check remote bulb is secure and vapor sealed, and regulate superheat.
	Faulty compressor.	Replace compressor.
DX Split Units Only: High Discharge Pressure	Improper installation of wall sleeve and louver.	Ensure splitter plate is in contact with the back of the louver blade and the unit to ensure no re-circulation of exhaust air takes place.
	Dirty condenser coils.	Clean condenser coil.
	System overcharged.	Remove excess refrigerant.
	Noncondensables in system.	Evacuate refrigerant circuit and recharge.
	Condenser fan speed is too slow (cooling mode).	Not applicable, refer to manufacturer's Technical Manual.
Condensate Leaking	Condensate drain not piped up.	Pipe condensate drain.
	Condensate pan/line plugged.	Clean drain pan and piping.
	Condensate pump (optional) faulty.	Check operation of condensate pump. Replace pump if necessary.
Microprocessor Not Working-Faulty Operation	Loose sensor wire connectors.	Inspect sensor connections at the microprocessor.
	Strategy file corrupted.	Consult microprocessor documentation.
	Loose control wiring.	Check 24V power supply wiring.
Hot Water / Chilled Water Valve Not Operational (Option)	Heating not required.	Consult microprocessor documentation.
	Loose wiring connections.	Inspect connections beginning with valve output from the microprocessor. Check to ensure 24V supply power is present at actuator.
	Faulty heating actuator.	Replace actuator if faulty.
	Isolation valves are open.	Check for additional external isolation valves.
	Check for DC control signal.	Check for 2-10VDC signal from microprocessor.

REPLACEMENT PARTS

When servicing, repairing or replacing parts on these units, locate the model serial plate on the unit and always give the complete Model Number and Serial Number from the unit see example in Fig. 38.

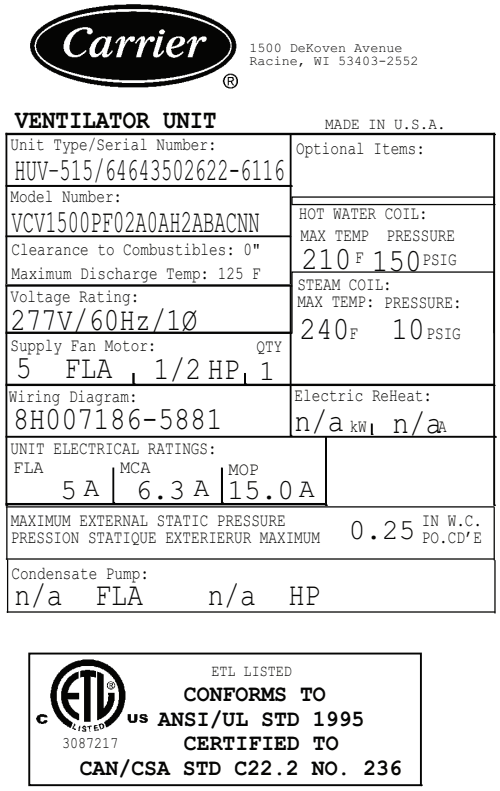


Fig. 38 — Serial Plate Example

Manufacturer reserves the right to discontinue, or change at any time, specifications or designs without notice and without incurring obligations.

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UNIT VENTILATOR START-UP SHEET

Date		Job Reference		TAG ID	
Serial #		Unit Type		Room ID	
SPO #		Drawing #			
Installer		Sales Rep			

Installation Checks

Unit mounted level		Condensate drain installed correctly	
Unit floor mounted		Gravity flow or Pump assisted	
Unit ceiling mounted		All electrical connection tight	
Wall sleeve correct		All Mechanical connections tight	
Any visual damage		Supply, Return and Outside air vents unobstructed	

Dry Nitrogen Pressure Test (DX Units Only)	Initial Test Pressure		Psig
	Final Test Pressure		Psig
	Test Duration		Psig

Supply Fan Motor

Motor Size	HP		FLA		Make	
Amps	High		Medium		Low	
RPM	High		Medium		Low	

Main Voltage

L1+N

XFMR Voltage

Primary Secondary

Controller information

Make		Model		Program Version	
BACnet Card		MS/TP Address		Device Instance	
Loncard		Neuron ID			
Occupied Set point					
Unoccupied Set point					

Air Temperatures	*Cooling*		*Heating*	
Return Air Temp		°F		°F
Supply Air Temp		°F		°F
Out door Air Temp		°F		°F

Component Tests (If Applicable)

Airflow Switch tested		
Aqua Stat tested		
Chilled Water valve tested		
Condensate pump tested		
Remote shutdown link tested		
Face & Bypass damper tested		
Drain pan high limit switch tested		
Fresh air & and return air damper tested		
Electromechanically tested		
Filter change switch tested		
Smoke detector tested		
Freeze stat set at 35°F and tested		
Freeze stat auto or manual reset		
Hot Water/Steam valve tested		
Fire stat / link tested		
OA / Return air Damper tested		

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UNIT VENTILATOR START-UP SHEET (OUTDOOR UNIT)

Outdoor Unit Check List (DX Units Only)

Brand		Model		Serial Number	
Supply Voltage		Primary		Secondary	
Suction Pressure		Psig			
Liquid Pressure		Psig			
Superheat @ Compressor		°F			
Outdoor Air Temperature		°F			
Indoor Air Temperature		°F			

Technicians Notes:

Customer Feedback: Please relay any comments regarding quality and service

Service Technician	
Service Company	
Service Company Telephone	

UNIT START-UP CHECKLIST

NOTE: To avoid injury to personnel and damage to equipment or property when completing the procedures listed in this start-up checklist, use good judgment, follow safe practices, and adhere to the safety considerations/information as outlined in preceding sections of this Installation, Start-Up, and Service document.

MODEL NO.: _____ SERIAL NO.: _____

SOFTWARE VERSION _____ TECHNICIAN: _____

DATE: _____

INITIAL CHECKLIST:

☐ DOES ELECTRICAL SERVICE CORRESPOND TO UNIT NAMEPLATE?

☐ ARE ALL ELECTRICAL CONNECTIONS TIGHT?

☐ DOES ALL FIELD WIRING CONFORM TO UNIT WIRING DIAGRAM?

☐ IS UNIT INSTALLED PER IOM (LEVEL, CABINET PAINT CONDITION ACCEPTABLE, ETC.)?

☐ IS THE CONDENSATE DISPOSAL SYSTEM OPERATING CORRECTLY?

☐ PROPER SLOPE OF FIELD REVERSIBLE DRAIN PAN?

☐ ARE END BEARING BOLTS ON FAN SHAFT TIGHT?

☐ ARE DAMPERS OPERATING PROPERLY?

☐ IS THE FILTER CLEAN?

☐ IS EXPANSION VALVE BULB PROPERLY INSTALLED AND INSULATED?

PIPING CHECKLIST:

☐ IS EXPANSION VALVE BULB PROPERLY INSTALLED AND INSULATED?

☐ IS UNIT PIPING CORRECT AND INSULATED TO PREVENT CONDENSATION?

☐ ARE THE CONTROL VALVE PACKAGES PIPED CORRECTLY?

☐ ARE VALVE PACKAGES PROPERLY INSULATED?

☐ ARE THERE ANY LEAKS DETECTED?

CONTROLS CHECKLIST:

☐ DOES THE UNIT HAVE CARRIER CONTROLS ? IF SO, CONTINUE.

☐ CHECK THAT THE UNIT OPERATES PER SEQUENCE OFOPERATION AS STATED IN THE CONTROLLER IOM.

☐ RECORD THE THERMOSTAT READINGS IN TABLE BELOW.

Please Fill Out the Following:	Reading
Controller Points	
Space Temperature	
Discharge Air Temperature	
Outdoor Air Temperature	
Outdoor Air Damper Position	
Set Points	
Space Setpoint	
Unoccupied Offset	
Minimum Position	
Deadband	
Position (Open / Closed / %)	
Outdoor Air Damper	
Face/Bypass Damper	

CUT ALONG DOTTED LINE

CUT ALONG DOTTED LINE

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