

INSTALLATION MANUAL

SINGLE PIECE AIR HANDLERS

HEAT PUMP MODELS:
F2RP / F2FP018-060, F3RP / F3FP018-060,
FXRP024-060

COOLING MODELS: F2RC / F2FC024-036



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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 indicates 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 for additional information, consult a qualified contractor, installer or service agency.

CAUTION

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

SPECIFIC SAFETY RULES AND PRECAUTIONS



FIRE OR ELECTRICAL HAZARD

Failure to follow the safety warnings exactly could result in serious injury, death or property damage.

A fire or electrical hazard may result causing property damage, personal injury or loss of life.

1. Install this air handler only in a location and position as specified in SECTION I of these instructions.
2. Always install the air handler to operate within the air handler's intended maximum outlet air temperature. Only connect the air handler to a duct system which has an external static pressure within the allowable range, as specified on the air handler rating plate.
3. When an air handler is installed so that supply ducts carry air circulated by the air handler to areas outside the space containing the air handler, the return air shall also be handled by duct(s) sealed to the air handler casing and terminating outside the space containing the air handler.
4. The air handler is not to be used for temporary heating of buildings or structures under construction.
5. The size of the unit should be based on an acceptable heat loss calculation for the structure. ACCA, Manual J or other approved methods may be used.

SAFETY REQUIREMENTS

1. This air handler should be installed in accordance with all national and local building/safety codes and requirements, local plumbing or wastewater codes, and other applicable codes.
2. Refer to the unit rating plate for the air handler model number, and then see the dimensions page of this instruction for supply air plenum dimensions in Figure 1. The plenum must be installed according to the instructions.
3. Provide clearances from combustible materials as listed under Clearances to Combustibles.
4. Provide clearances for servicing ensuring that service access is allowed for both the burners and blower.
5. Failure to carefully read and follow all instructions in this manual can result in air handler malfunction, death, personal injury and/or property damage.
6. Check the rating plate and power supply to be sure that the electrical characteristics match.
7. Air handler shall be installed so the electrical components are protected from water.
8. Installing and servicing heating equipment can be hazardous due to the electrical components. Only trained and qualified personnel should install, repair, or service heating equipment. Untrained service personnel can perform basic maintenance functions such as cleaning and replacing the air filters. When working on heating equipment, observe precautions in the manuals and on the labels attached to the unit and other safety precautions that may apply.
9. These instructions cover minimum requirements and conform to existing national standards and safety codes. In some instances these instructions exceed certain local codes and ordinances, especially those who have not kept up with changing residential and non-HUD modular home construction practices. These instructions are required as a minimum for a safe installation.

GENERAL INFORMATION

This Single Piece Air Handler provides the flexibility for installation in any upflow or horizontal application. These versatile models may be used for cooling or heat pump operation with or without electric heat. The variable-speed (ECM) motors provide a selection of air volume to match any application. **BRAND LABEL** (available from Distribution) apply to center of the blower access panel.

The unit can be positioned for bottom return air in the upflow position, and right or left return in the horizontal position.

Top and side power wiring and control wiring, accessible screw terminals for control wiring, easy to install drain connections and electric heaters all combine to make the installation easy, and minimize installation cost.

INSPECTION

As soon as a unit 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 freight bill. A separate request for inspection by the carrier's agent should be made in writing. Also, before installation the unit should be checked for screws or bolts, which may have loosened in transit. There are no shipping or spacer brackets which need to be removed.

Also check to be sure all accessories such as heater kits, suspension kits, and coils are available. Installation of these accessories or field conversion of the unit should be accomplished before setting the unit in place or connecting any wiring, electric heat, ducts or piping.

LIMITATIONS

These units must be wired and installed in accordance with all national and local safety codes.

Voltage limits are as follows:

Air Handler Voltage	Voltage code	¹ Normal Operating Voltage Range
208/230-1-60	06	187-253
220/240-1-50	93	198-264

1. Rated in accordance with ARI Standard 110, utilization range "A".

Airflow must be within the minimum and maximum limits approved for electric heat, evaporator coils and outdoor units.

Entering Air Temperature Limits			
Wet Bulb Temp. °F		Dry Bulb Temp. °F	
Min.	Max.	Min.	Max.
57	72	65	95

CLEARANCES

Clearance must be provided for:

1. Refrigerant piping and connections - minimum 12" recommended.
2. Maintenance and servicing access - minimum 36" from front of unit recommended for blower motor / coil replacement.
3. Condensate drain line.
4. Filter removal - minimum 36" recommended.

LOCATION

Location is usually predetermined. Check with owner's or dealer's installation plans. If location has not been decided, consider the following in choosing a suitable location:

1. Select a location with adequate structural support, space for service access, clearance for air return and supply duct connections.
2. Use hanging brackets to wall mount unit as shown below.
3. Normal operating sound levels may be objectionable if the air handler is placed directly over some rooms such as bedrooms, study, etc.
4. Precautions should be taken to locate the unit and ductwork so that supply air does not short circuit to the return air.
5. Select a location that will permit installation of condensate line to an open drain.

NOTE: Select a location that will permit installation of condensate line to When the coil is installed in a draw-thru application, it is recommended to trap the primary and secondary drain line. If the secondary drain line is not used, it must be capped. 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.

6. Proper electrical supply must be available.
7. If unit is located in an area of high humidity (ie: an unconditioned garage or attic), nuisance sweating of casing may occur. On these installations, unit duct connections and other openings should be properly sealed and a wrap of 2" fiberglass insulation with vinyl vapor barrier should be used.

CAUTION

When an evaporator coil is installed in an attic or above a finished ceiling, an auxiliary drain pan should be provided under the coil as is specified by most local building codes.

CAUTION

If electric heat is used, a minimum clearance of 1" must be maintained on all sides of the supply air duct and/or plenum continuously for up to 3 feet (See Figure 1).

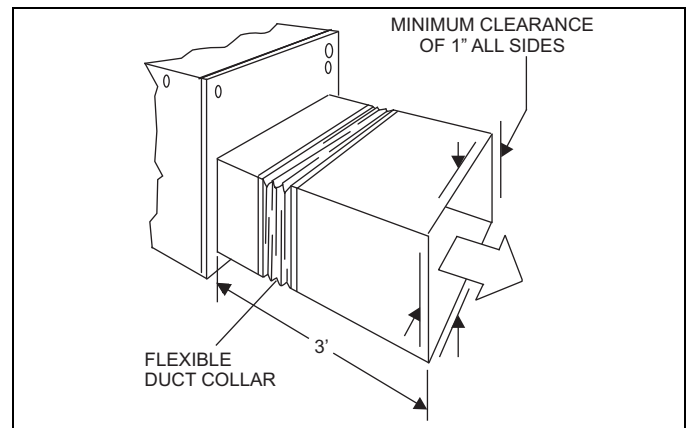


FIGURE 1: Plenum Clearances

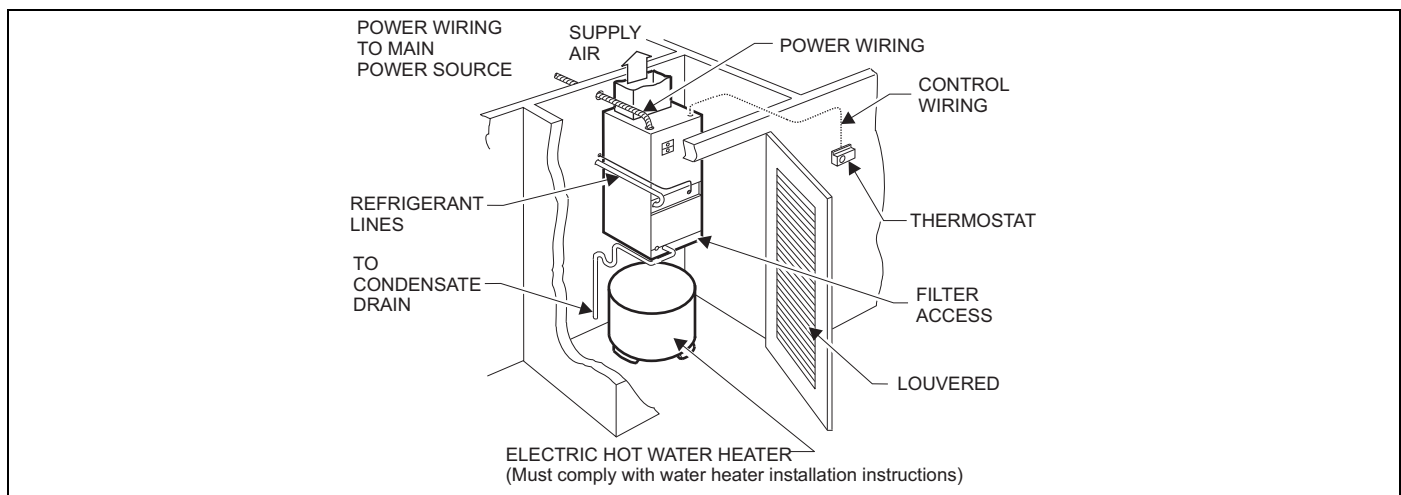


FIGURE 2: Typical Installation

HORIZONTAL DRAIN PAN CONVERSION

These air handler units are supplied ready to be installed in a right hand horizontal position. If unit requires left hand positioning, the unit must have the pan installed in the correct position. Conversion must be made before brazing the refrigerant connections to the coil.

1. Remove blower access, coil access, and center access panels.
2. See Figure 3, remove two screws from horizontal drain pan, to remove pan from position "3A" if factory installed.
3. Position horizontal pan, as required in either "A" or "B" position, locking it into the vertical drain pan as shown.
4. Horizontal drain pans have 4 plugged drains. Remove plugs from connections being used. If this step is overlooked, it can lead to a water problem later.
5. Use removed plug to plug primary of upflow drain pan.
6. Attach horizontal pan with 2 screws removed in step no. 2 or supplied with the unit. Ensure that the drain pan is lying flat against the insulation of the cabinet.
7. Horizontal drain cutout in the center access panel should be removed by using a utility knife (if not previously cut out).
8. Re-position and replace access panels.

CAUTION

DO NOT TRY TO KNOCK OUT PANEL OPENING FOR SECONDARY DRAIN PAN. SEE ITEM 7.

CAUTION

Models F(2,3,XRP)FP045,048,060 have a coil baffle and support bracket factory installed for right hand horizontal application (refer to Figure 3C). For left hand applications the coil support bracket must be moved to the right side of the coil, and the coil baffle must be rotated to avoid water blow-off.

To rotate baffle, remove the coil assembly from the unit (remove front two screws holding the coil support bracket and the two screws holding the drain pan). Remove four screws in coil baffle and remove the coil baffle and rotate ends.

Resecure the baffle and reinstall the coil assembly ensuring that the rear of the drain pan is secured under the back flange of the unit. Reinstall the coil support bracket on the right side of the coil.

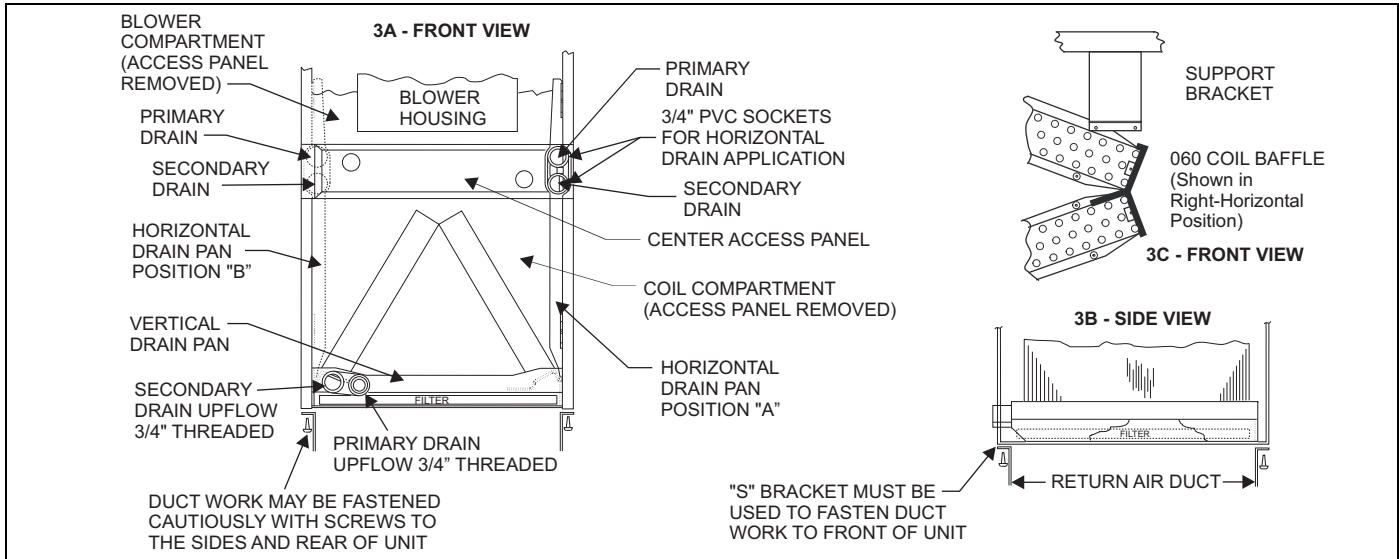


FIGURE 3: Filter Access & Drain Pan Conversion / Coil Baffle

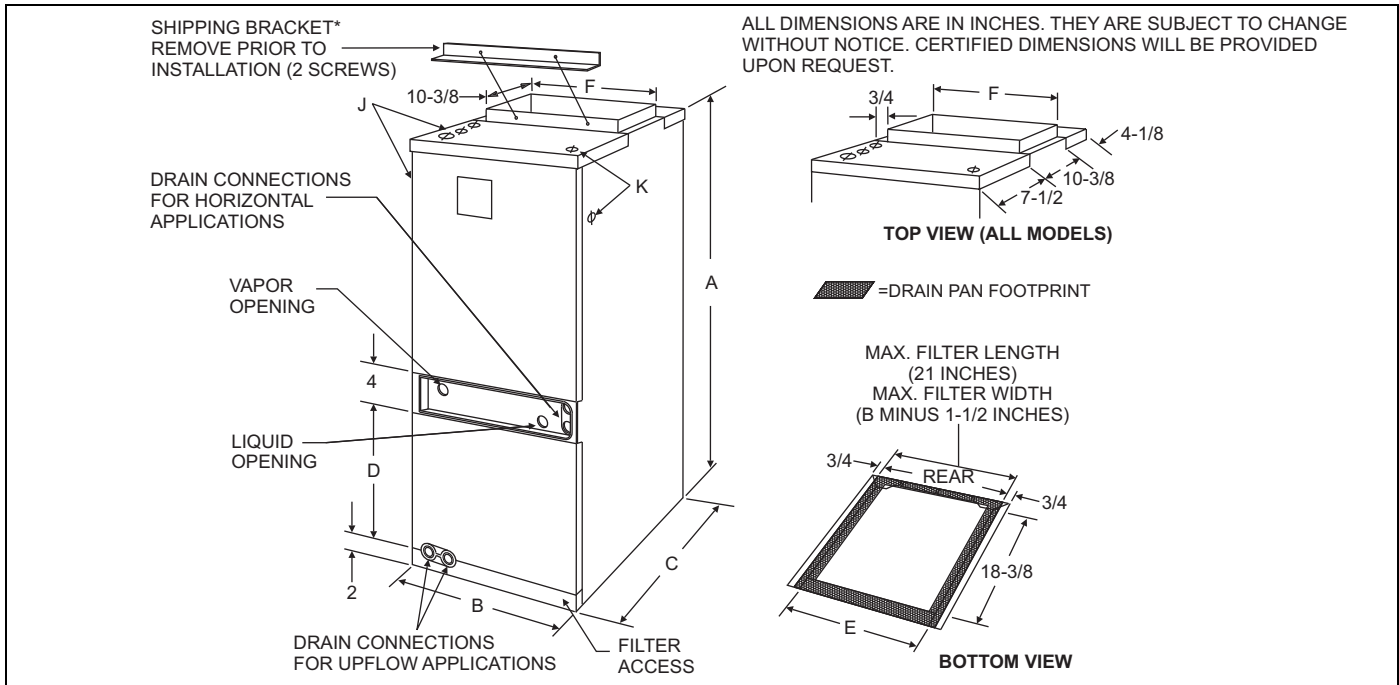


FIGURE 4: Dimensions & Duct Sizes

TABLE 1: Dimensions

MODELS F2RP / F2FP / F3RP(T) / F3FP(T) F2RC / F2FC / FXRP ¹	Dimensions						Wiring K.O.'s*		Refrigerant Connections Line Size	
	A	B	C	D	E	F	J	K	Liquid	Vapor
	Height	Width	Depth				Power	Control		
018	40-3/4	18	22	12-1/8	14-7/8	16-1/2	7/8 (1/2) 1-3/8 (1)	7/8 (1/2)	3/8	5/8
024	40-3/4	18			14-7/8	16-1/2				5/8
030	40-3/4	18			14-7/8	16-1/2				3/4
036(RC)	40-3/4	18			14-7/8	16-1/2				3/4
036(RP)	40-3/4	21-1/2			18-3/8	20				3/4
040	40-3/4	21-1/2			18-3/8	20				7/8
042	40-3/4	21-1/2			18-3/8	20				7/8
045	50-3/4	24			17-3/8	20-7/8				22-1/2
048	50-3/4	24	20-7/8	22-1/2		7/8				
060	50-3/4	24	20-7/8	22-1/2		7/8				

1. FXRP available only in 024, 036, 048 & 060 models.

DUCT CONNECTORS

▲ WARNING

Use 1/2" screws to connect ductwork to bottom of unit. Longer screws will pierce the drain pan and cause leakage. If pilot holes are drilled, drill only through field duct and unit bottom flange.

NOTE: The electric heat accessory should be installed before the supply air duct is attached to the supply air openings. Refer to the electric heater kit instructions for proper installation.

Air supply and return may be handled in one of several ways best suited to the installation. See Figure 4 for dimensions for duct inlet and outlet 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. If electric heat is used, non-flammable material must be used.

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. This unit is not designed for non-ducted (freeblow) applications. Size outlet plenum or transition to discharge opening sizes shown in Figure 4.

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.

AIR FILTERS

Air filters must be field supplied. A 1" filter access rack has been built into the unit. See Figure 4. Remove filter access cover shown. Install proper size filter. Standard 1" size permanent or throw away filter may be used, or, permanent washable filters are available using model numbers: 1PF0601, 602, 603BK. See Table 3 for filter size.

▲ CAUTION

Equipment should never be operated without filters.

SUSPENSION KITS

A suspension kit is available. Models 1BH0601 (unit sizes 018-060) is designed specifically for the units contained in this instruction (upflow application only). For installation of these accessory kits, see the instructions packed with the kit.

For suspension of these units in horizontal applications, it is recommended to use angle steel support brackets with threaded rods, supporting the units from the bottom, at the locations shown in Figure 5.

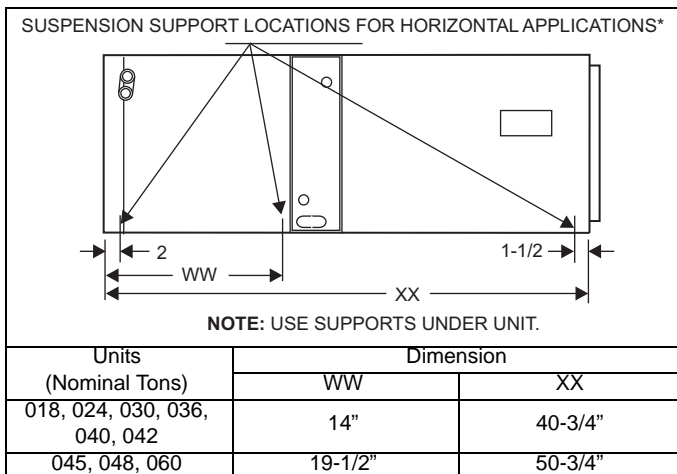


FIGURE 5: Typical Horizontal Installation

COIL METERING DEVICES

The coil in this Air Handler unit will have a metering device installed at the factory.

If the model number is of the following format:

F3RPxxxH06T or F3FPxxxH06T - The coil will have a Thermal Expansion Valve (TXV) installed. Please refer to the TXV Metering Device section for installation notes.

If the model number is of the following model series:

F2RP/FP, F2RC/FC or FXRP - The coil will have an orifice installed in the distributor housing. Please refer to the Orifice Metering Device section for selection & installation notes.

TABLE 2: Installed Orifice or TXV Sizes

Indoor Coil Model	Metering Device
F2RP018 / F2FP018	Orifice - 53
F2RP024 / F2FP024 / FXRP024	Orifice - 61
F3RP024(T) / F3RP030(T)	TXV 701
F2RP030 / F2FP030	Orifice - 65
F2RP036 / F2FP036 / FXRP036	Orifice - 75
F3RP036(T) / F3RP042(T)	TXV 702
F2FP040	Orifice - 63
F3FP040(T) / F3FP045(T)	TXV 702
F2RP042 / F2FP042	Orifice - 78
F2FP045	Orifice - 78
F2FP048 / FXRP048	Orifice - 84
F3FP048(T) / F3FP060(T)	TXV 703
F2FP060 / FXRP060	Orifice - 90
F2RC024 / F2FC024	Orifice - 61
F2RC030 / F2FC030	Orifice - 65
F2RC036 / F2FC036	Orifice - 73

TXV Metering Device

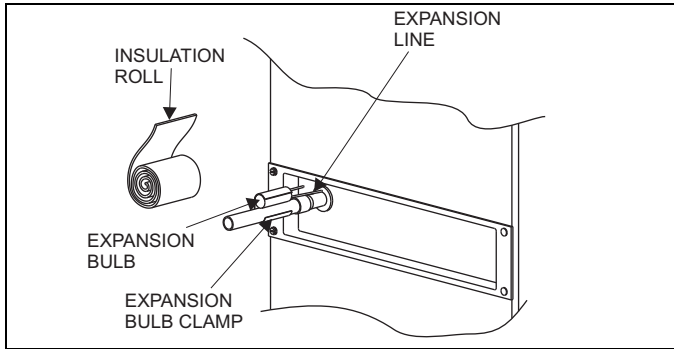


FIGURE 6: TXV Bulb Installation

Please refer to Table 2 to verify which TXV is installed in this Air Handler unit and that this AHU is a valid system match for the AC or HP unit installed.

The TXV is fully brazed into the coil assembly of this Air Handler unit at the factory. The temperature sensing bulb will need to be attached to the coil suction header line after the line set is brazed to the coil.

1. Make sure the TXV bulb is outside of the Air Handler cabinet. Excess tubing should remain inside the cabinet.
2. Take caution not to apply high temperatures to the TXV assembly or equalizer line while brazing.
3. Attach field line sets and braze to coil connections. Replace access panels & secure.
4. Secure the TXV bulb to the suction line with the clamp provided. Choose a horizontal location as close to the cabinet as possible, but not directly on the brazed connection joint. Refer to Figure 7.
5. The bulb should be in direct contact with the coil suction line along the length of the bulb.
6. If the suction line is 3/4" diameter - position the bulb near the top of the copper tube as shown. If the tube is 7/8" diameter - position the bulb near the bottom of the tube. Refer to Figure 7.
7. Wrap the clamp, bulb & line securely with insulation provided.

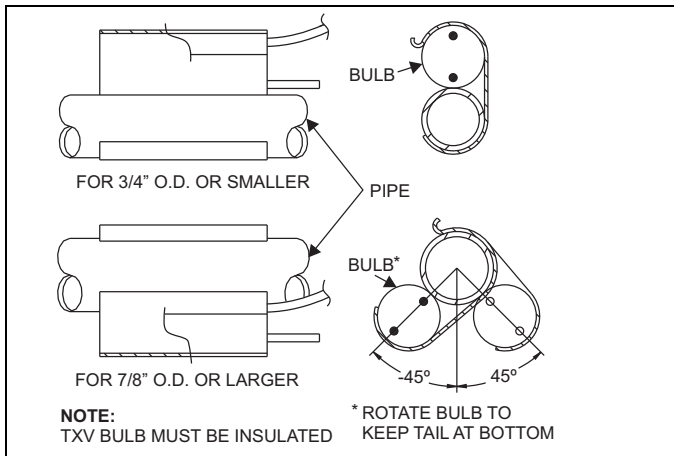


FIGURE 7: Bulb Location

Orifice Metering Device

All non-TXV coils will have an orifice installed in the fitting between the liquid line connection and distributor. See Figure 8. The factory installed orifice is identified on the unit data plate. Also it is listed in Table 2.

The orifice that is shipped with the coil is based on the “most sold” combination, but it may have to be changed, depending on the capacity and efficiency of the outdoor unit, elevation differences of the indoor and outdoor sections, and/or long total line lengths. An additional orifice is shipped with the outdoor unit in the literature packet for most requirements. Other sizes must be ordered from the parts department if required.

Orifice Installation

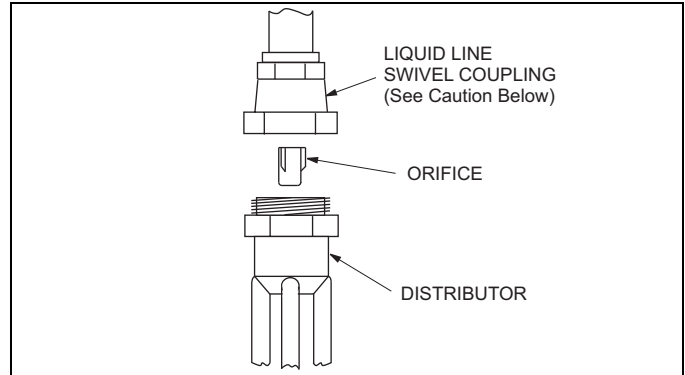


FIGURE 8: Orifice Installation

A standard orifice is pre-installed in the unit and is marked on the unit data plate. Refer to the outdoor unit instruction and application data to determine the proper orifice required for your particular system combination and piping conditions.

If the orifice sizes match, nothing further is required and the refrigerant lines may be connected per the outdoor unit instruction. However, if another orifice should be used, change the orifice in the coil with the following procedure:

⚠ WARNING

Coil is under 30 PSIG inert gas pressure. Relieve pressure from schrader valve on liquid line side.

⚠ CAUTION

This fitting is a right-hand thread, turn counter-clockwise to remove.

1. Remove the liquid line fitting using 3/4" wrenches, and remove the pre-installed orifice with a small diameter wire or paper clip.
2. Remove the new orifice from the packet and verify that it is the correct number required. Install this orifice with the rounded end toward the coil and the flat end outward per Figure 8.
3. Thread the liquid line fitting back in place on the coil. Tighten the fitting hand tight and turn an additional 1/8 turn to seal.

⚠ CAUTION

Use 3/4" wrenches to turn fittings. Using pliers will cause internal damage to the fitting.

NOTE: This procedure should be done within 2 minutes to keep air and contaminants from entering the coil. If the orifice cannot be replaced and the coil resealed within 2 minutes, then it should be temporarily closed to air using masking tape (short term delay) or plugging/ capping (long term delay). There is no need to purge the coil if this procedure is done within the time limit.

4. Mark the data plate with the orifice installed.

REFRIGERANT LINE CONNECTION

NOTE: Confirm the orifice size before connecting lines.

See the outdoor unit installation instructions for the procedure to install field supplied tubing for systems with sweat fittings.

Stub adapters are available to adapt sweat connections to quick connections.

Connect lines as follows:

NOTE: Route the refrigerant lines to the coil in a manner that will not obstruct service access to the coil, air handling system or filter.

1. Suction line connections are made outside the center access panel. Cut off the suction line as close to the end as possible. Center access panel is recessed to assure sufficient room for brazing or it can be removed and slid over the suction line during brazing.
2. Braze the suction line. Re-attach the center access panel, if it had been removed.
3. Cut the liquid line at the groove in the bell, removing the schrader fitting.
4. Braze the liquid line.
5. Install supplied grommets on both the suction and liquid lines to complete the air seal.

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

When field supplied lines are used be sure to insulate the suction line only.

ELECTRIC HEATERS & OPERATING CONTROLS

The low voltage transformer and fan / heater control, are standard on all models. See Figure 9. The air handlers are shipped pre-wired to operate as cooling only applications. To complete the installation for cooling only, install the 6-pin jumper plug to the control board to bypass the heater limit controls. This jumper plug is secured to the duct cover near the 4-pin power plug harness. Failure to install the plug will cause the blower to run continuously. (See Figure 9).

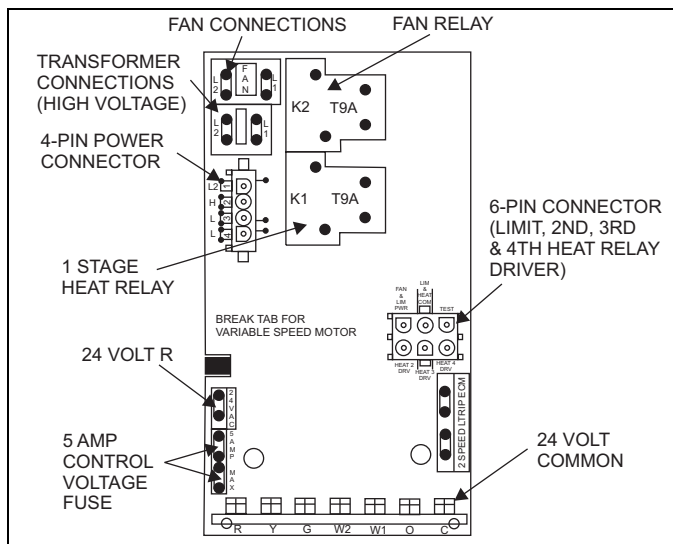


FIGURE 9: Control Board

Mark the unit nameplate with the appropriate heater selection on the space provided or NONE to indicate cooling only. To operate these units with electric heat, it is necessary to field install an electric heater kit (2HK). See Electric Heater Kit Accessory Installation instructions for

proper installation procedure. Prior to installing electric heat, it is necessary to perform the following procedure:

1. Remove the 4-pin power plug from the control board (See Figure 9).

NOTE: This pin must not be used when electric heaters are installed.

2. Remove the four (4) screws from the duct cover and remove the duct cover from the air handler.

Right-hand Airflow Application Only - Models with Circuit Breakers - See Figure 10

If unit is to be installed for right hand air flow, the circuit breakers in the heat kit will need to be removed and rotated 180°, so the OFF position will be down when the cabinet is positioned on the right side. This is an NEC requirement. **Do One Set Of Breakers At A Time - to make sure wires are reconnected properly.** Loosen terminal screws on the wires and gently pull the wires back from the breaker. Remove screws securing the breaker plate and rotate 180°, then secure the breaker plate and reconnect the wires to the breaker. See Figure 10.

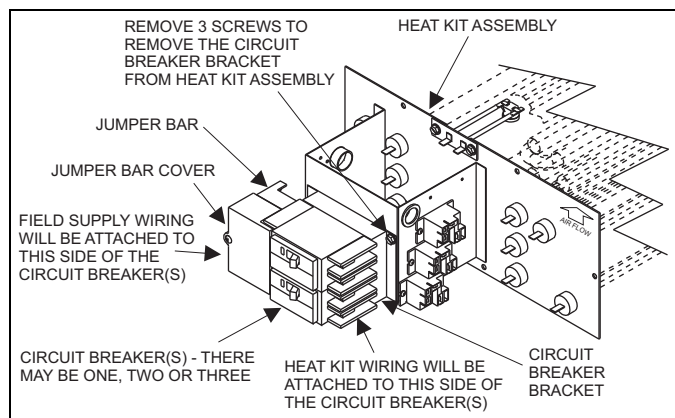


FIGURE 10: Electric Heaters in Horizontal Configuration - Right Hand Air Flow

LOW VOLTAGE CONTROL CONNECTION

The 24 volt power supply is provided by an internally wired low voltage transformer which is standard on all models. However, if the unit is connected to a 208 volt power supply the low voltage transformer must be rewired to the 208 volt tap. See the unit wiring label.

Field supplied low voltage wiring can exit the unit on the top right hand corner or the right hand side panel (see Fig. 5, item K).

Install a 7/8" plastic bushing in the selected hole and keep low voltage wiring as short as possible inside the control box.

The field wiring is to be connected at the screw terminals of the control board. Refer to Figure's 13, 14 and 15.

NOTE: All wiring must comply with local and national electrical code requirements. Read and heed all unit caution labels.

NOTE: It is possible to vary the amount of electric heat turned on during the defrost cycle of a heat pump. Standard wiring will only bring on 5 kW of electric heat during defrost see Table 6 and Figures 13, 14 and 15 for alternate staging.

LINE POWER CONNECTIONS

Power may be brought into the unit through the supply air end of the unit (top when unit is vertical) or the left side panel. Use the hole appropriate to the unit's orientation in each installation to bring conduit from the disconnect. The power lead conduit should be terminated at the electrical control box. Refer to Tables 4, 8 & 10 for wire requirements. Also see Figure 11.

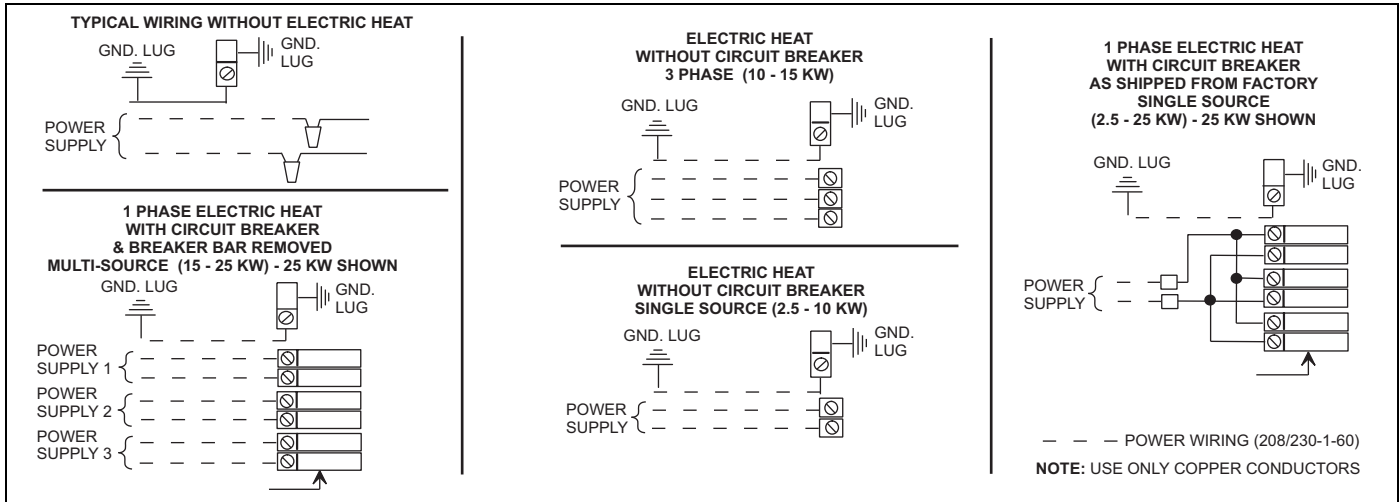


FIGURE 11: Line Power Connections

BLOWER SPEED CONNECTIONS

Except for F2FP/F3FP045(T), which has a 4-speed motor, all air handlers contain three speed blower motors which are prewired to the control board.

Adjust blower motor speed to provide airflow within the minimum and maximum limits approved for evaporator coil, electric heat and outdoor unit. Speed tap adjustments are made at the motor terminal block. See Figure 12. Airflow data is shown in Tables 6, 11 and 14.

Higher efficiencies will be obtained if the indoor air volume is as high as possible provided the CFM does not exceed limitations and the sound level is not objectionable.

Connect motor wires to motor speed tap receptacle for speed desired. See wiring label for motor wiring details. See Figure 12.

The unit control is designed for the addition of a two speed fan kit. See accessory for details.

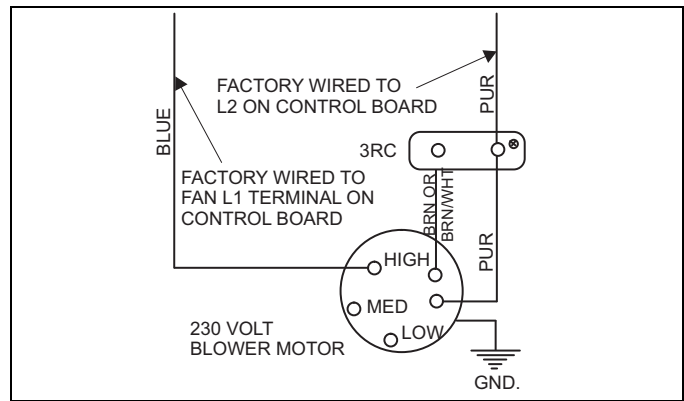


FIGURE 12: Blower Speed Connections

TABLE 3: Physical and Electrical Data

Models: F2RC/F2FC/F2RP/F2FP/F3RP(T)/FXRP ¹		018	024	030	036(RP/FP)	036(RC/FC)
Blower - Diameter x Width		9 x 6	10 x 6	10 x 8	10 x 8	10 x 8
Motor	HP	1/4	1/4	1/3	1/2	1/2
	Nominal RPM	1075	1075	1075	1075	1075
Voltage		208/230				
Amps	Full Load (208/230)	1.6 / 1.4	1.6/1.4 (50 Hz:2.1)	2.5 / 2.2	3.3/2.9 (50 Hz:2.3)	3.3 / 2.9
	Locked Rotor (208/230)	3.3 / 2.9	3.3 / 2.9	6.2 / 5.5	7.4 / 6.5	7.4 / 6.5
Filter ²	Type	DISPOSABLE OR PERMANENT				
	Size	16 x 20 x 1	16 x 20 x 1	16 x 20 x 1	20 x 20 x 1	16 x 20 x 1
	Permanent Type Kit	1PF601BK	1PF601BK	1PF601BK	1PF602BK	1PF601BK
Shipping / Operating Weight (lbs.) - RP/FP		92 / 87	98 / 93	105 / 100	115 / 109	—
Shipping / Operating Weight (lbs.) - RC/FC		—	95 / 90	95 / 90	—	105 / 100

Models: F2RP/F2FP/F3RP(T)/F3FP(T)/F2FV/F3FV(T)/FXRP ¹		040	042	045	048	060
Blower - Diameter x Width		10 x 8	10 x 8	10 x 10	11 x 10	11 x 10
Motor	HP	1/3	3/4	1/3	1/2	3/4
	Nominal RPM	1075	1130	925	1085	1100
Voltage		208/230				
Amps	Full Load (208/230)	2.5 / 2.2	4.4 / 3.8	3.0 / 2.7	3.4/3.3 (50 Hz:2.4)	4.5/4.4 (50 Hz:5.7)
	Locked Rotor (208/230)	6.2 / 5.5	11.9 / 10.3	4.8 / 4.1	4.6 / 4.0	8.4 / 7.3
Filter ¹	Type	DISPOSABLE OR PERMANENT				
	Size	20 x 20 x 1	20 x 20 x 1	22 x 20 x 1	22 x 20 x 1	22 x 20 x 1
	Permanent Type Kit	1PF602BK	1PF602BK	1PF603BK	1PF603BK	1PF603BK
Shipping / Operating Weight (lbs.) - RP/FP		121 / 115	115 / 121	150 / 144	148 / 142	155 / 149
Shipping / Operating Weight (lbs.) - RC/FC		—	—	—	—	—

1. FXRP available only in 024, 036, 048 & 060 models.
2. Field Supplied

TABLE 4: Electrical Data - Cooling Only (50 & 60 Hz)

Models F2RP, F3RP(T), F2RC, F2FC, F2FP, F3FP(T), FXRP ¹	Total Motor Amps		Minimum Circuit Ampacity				Max. O.C.P. ² Amps/Type	Minimum Wire Size A.W.G.
	60 Hz		60 Hz		50 Hz			
	208V	230V	208V	230V	220V	240V		
018(N/H)06	1.6	1.4	2.0	1.8	--	--	15	14
024(N/H)06*	1.6	1.4	2.0	1.8	2.9	2.7	15	14
030(N/H)06	2.5	2.2	3.2	2.8	--	--	15	14
036(N/H)06*	3.3	2.9	4.2	3.7	3.2	2.9	15	14
040H06	2.5	2.2	3.2	2.8	--	--	15	14
042(N/H)06	4.4	3.8	5.5	4.8	--	--	15	14
045H06	3.0	2.7	3.9	3.4	--	--	15	14
048(N/H)06*	3.4	3.3	4.9	4.3	3.3	3.0	15	14
060(N/H)06*	4.5	4.4	6.4	5.5	7.8	7.2	15	14

1. FXRP available only in 024, 036, 048 & 060 models.
 2. OCP = Over Current Protection device, must be HACR type Circuit Breaker or Time Delay fuse.
- * Indicates models available in 50 Hz. Models designated by "93" volt code.

TABLE 5: Conversion Table

kW & MBH Conversions - for Total Power Input Requirement					
FOR	208V	OPERATION MULTIPLY	240V	TABULATED kW & MBH BY	.751
	230V		240V		.918
	220V		240V		.840

TABLE 6: Electrical Data - 1 Ø - 208/230-1-60¹

Models F2RP/F3RP(T)/F2RC F2FP/F3FP(T)/F2FC/FXRP ²	Heater* Model	Max. Static & Min. CFM		Total Heat ³				kW Staging**					
				kW		MBH		W1 Only		W2 Only		W1 + W2	
		Static	Tap	208V	230V	208V	230V	208V	230V	208V	230V	208V	230V
018(N/H)06	2HK*6500206B	0.5	LO	1.9	2.5	6.5	8.5	1.9	2.5	1.9	2.5	1.9	2.5
	2HK*6500506B		LO	3.8	5.0	13.0	17.1	3.8	5.0	3.8	5.0	3.8	5.0
	2HK*6500806B		LO	5.6	7.5	19.1	25.6	3.8	5.0	5.6	7.5	5.6	7.5
024(N/H)06	2HK*6500506B	0.5	LO	3.8	5.0	13.0	17.1	3.8	5.0	3.8	5.0	3.8	5.0
	2HK*6500806B		LO	5.6	7.5	19.1	25.6	3.8	5.0	5.6	7.5	5.6	7.5
	2HK*6501006B		LO	7.5	10.0	25.6	34.1	3.8	5.0	7.5	10.0	7.5	10.0
030(N/H)06	2HK*6500506B	0.5	LO	3.8	5.0	13.0	17.1	3.8	5.0	3.8	5.0	3.8	5.0
	2HK*6500806B		LO	5.6	7.5	19.1	25.6	3.8	5.0	5.6	7.5	5.6	7.5
	2HK*6501006B		LO	7.5	10.0	25.6	34.1	3.8	5.0	7.5	10.0	7.5	10.0
	2HK16501506B		HI	11.3	15.0	38.6	51.2	3.8	5.0	7.5	10.0	11.3	15.0
036(N/H)06	2HK*6500506B	0.5	LO	3.8	5.0	13.0	17.1	3.8	5.0	3.8	5.0	3.8	5.0
	2HK*6500806B		LO	5.6	7.5	19.1	25.6	3.8	5.0	5.6	7.5	5.6	7.5
	2HK*6501006B		LO	7.5	10.0	25.6	34.1	3.8	5.0	7.5	10.0	7.5	10.0
	2HK16501506B		MED	11.3	15.0	38.6	51.2	3.8	5.0	7.5	10.0	11.3	15.0
	2HK16501906B ⁴	0.5	HI	13.2	17.6	45.1	60.1	2.8	3.8	10.4	13.8	13.2	17.6
040H06	2HK*6500506B	0.5	LO	3.8	5.0	13.0	17.1	3.8	5.0	3.8	5.0	3.8	5.0
	2HK*6500806B		LO	5.6	7.5	19.1	25.6	3.8	5.0	5.6	7.5	5.6	7.5
	2HK*6501006B		LO	7.5	10.0	25.6	34.1	3.8	5.0	7.5	10.0	7.5	10.0
	2HK16501506B		HI	11.3	15.0	38.6	51.2	3.8	5.0	7.5	10.0	11.3	15.0
042(N/H)06	2HK*6500506B	0.5	LO	3.8	5.0	13.0	17.1	3.8	5.0	3.8	5.0	3.8	5.0
	2HK*6500806B		LO	5.6	7.5	19.1	25.6	3.8	5.0	5.6	7.5	5.6	7.5
	2HK*6501006B		LO	7.5	10.0	25.6	34.1	3.8	5.0	7.5	10.0	7.5	10.0
	2HK16501506B		LO	11.3	15.0	38.6	51.2	3.8	5.0	7.5	10.0	11.3	15.0
045H06	2HK*6500506B	0.5	LO	3.8	5.0	13.0	17.1	3.8	5.0	3.8	5.0	3.8	5.0
	2HK*6500806B		LO	5.6	7.5	19.1	25.6	3.8	5.0	5.6	7.5	5.6	7.5
	2HK*6501006B		MED	7.5	10.0	25.6	34.1	3.8	5.0	7.5	10.0	7.5	10.0
	2HK16501506B		HI	11.3	15.0	38.6	51.2	3.8	5.0	7.5	10.0	11.3	15.0
048(N/H)06	2HK*6500506B	0.5	LO	3.8	5.0	13.0	17.1	3.8	5.0	3.8	5.0	3.8	5.0
	2HK*6500806B		LO	5.6	7.5	19.1	25.6	3.8	5.0	5.6	7.5	5.6	7.5
	2HK*6501006B		LO	7.5	10.0	25.6	34.1	3.8	5.0	7.5	10.0	7.5	10.0
	2HK16501506B		LO	11.3	15.0	38.6	51.2	3.8	5.0	7.5	10.0	11.3	15.0
	2HK16502006B		LO	15.0	20.0	51.2	68.3	3.8	5.0	7.5	10.0	15.0	20.0
	2HK16502506B		LO	18.8	25.0	64.2	85.3	3.8	5.0	11.3	15.0	18.8	25.0
060(N/H)06	2HK*6500506B	0.5	LO	3.8	5.0	13.0	17.1	3.8	5.0	3.8	5.0	3.8	5.0
	2HK*6500806B		LO	5.6	7.5	19.1	25.6	3.8	5.0	5.6	7.5	5.6	7.5
	2HK*6501006B		LO	7.5	10.0	25.6	34.1	3.8	5.0	7.5	10.0	7.5	10.0
	2HK16501506B		LO	11.3	15.0	38.6	51.2	3.8	5.0	7.5	10.0	11.3	15.0
	2HK16502006B		LO	15.0	20.0	51.2	68.3	3.8	5.0	7.5	10.0	15.0	20.0
	2HK16502506B		LO	18.8	25.0	64.2	85.3	3.8	5.0	11.3	15.0	18.8	25.0

1. Heat amps shown at 240V represents maximum heater rating.
 2. FXRP available only in 024, 036, 048 & 060 models.
 3. See conversion Table 5.
 4. 2HK16501906B only applies to F(2,3)RP and F(2,3)FP036 Models.
 * May be 0 (no breaker) or 1 (with breaker).
 ** If first stage heat or 66 is connected to W1, otherwise refer to this table.

TABLE 7: Electrical Data - (For Single Source Power Supply) - Copper Wire 1 Ø - 208/230-1-60¹

Models F2RP/F3RP(T)/F2RC F2FP/F3FP(T)/F2FC/FXRP ²	Heater* Model	Heater Amps 240V	Field Wiring					
			Min. Circuit Ampacity		Max. O.C.P. ³ Amps/Type		75°C Wire Size - AWG	
			208V	230V	208V	230V	208V	230V
018(N/H)06	2HK*6500206B	10.4	13.3	14.6	15	15	14	14
	2HK*6500506B	20.8	24.7	27.7	25	30	10	10
	2HK*6500806B	31.3	35.5	40.7	40	45	8	8
024(N/H)06	2HK*6500506B	20.8	24.7	27.7	25	30	10	10
	2HK*6500806B	31.3	35.5	40.7	40	45	8	8
	2HK*6501006B	41.7	46.9	53.7	50	60	8	6
030(N/H)06	2HK*6500506B	20.8	25.8	28.7	30	30	10	10
	2HK*6500806B	31.3	36.7	41.7	40	45	8	8
	2HK*6501006B	41.7	48.1	54.7	50	60	8	6
	2HK16501506B	62.5	70.9	80.8	80	90	4	3
036(N/H)06	2HK*6500506B	20.8	26.8	29.5	30	30	10	10
	2HK*6500806B	31.3	37.7	42.6	40	45	8	8
	2HK*6501006B	41.7	49.1	55.6	50	60	8	6
	2HK16501506B	62.5	71.9	81.6	80	90	4	3
	2HK16501906B ⁴	73.3	83.3	95.2	90	100	3	3
040H06	2HK*6500506B	20.8	25.8	28.7	30	30	10	10
	2HK*6500806B	31.3	36.7	41.7	40	45	8	8
	2HK*6501006B	41.7	48.1	54.7	50	60	8	6
	2HK16501506B	62.5	70.9	80.8	80	90	4	3
042(N/H)06	2HK*6500506B	20.8	28.1	30.5	30	35	10	8
	2HK*6500806B	31.3	38.9	43.6	40	45	8	8
	2HK*6501006B	41.7	50.3	56.6	60	60	6	6
	2HK16501506B	62.5	73.2	82.6	80	90	4	3
045H06	2HK*6500506B	20.8	26.6	29.3	30	30	10	10
	2HK*6500806B	31.3	37.4	42.3	40	45	8	8
	2HK*6501006B	41.7	48.8	55.3	50	60	8	6
	2HK16501506B	62.5	71.7	81.4	80	90	4	3
048(N/H)06	2HK*6500506B	20.8	27.6	30.2	30	35	10	8
	2HK16500806B	31.3	38.4	43.2	40	45	8	8
	2HK16501006B	41.7	49.8	56.2	50	60	8	6
	2HK16501506B	62.5	72.7	82.3	80	90	4	3
	2HK16502006B	83.3	94.9	108.3	100	110	3	2
	2HK16502506B	104.2	117.7	134.3	125	150	1	1/0
060(N/H)06	2HK*6500506B	20.8	29.0	31.3	30	35	10	8
	2HK16500806B	31.3	39.8	44.3	40	45	8	8
	2HK16501006B	41.7	51.2	57.3	60	60	6	6
	2HK16501506B	62.5	74.0	83.4	80	90	4	3
	2HK16502006B	83.3	96.3	109.4	100	110	3	2
	2HK16502506B	104.2	119.1	135.5	125	150	1	1/0

- Heat amps shown at 240V represents maximum heater rating.
 - FXRP available only in 024, 036, 048 & 060 models.
 - O.C.P. = Over Current Protection device, must be HACR type Circuit Breaker or Time Delay fuse.
 - 2HK16501906B only applies to F(2,3)RP and F(2,3)FP036 Models.
- * May be 0 (no breaker) or 1 (with breaker).

TABLE 8: Electrical Data - (For Multi-Source Power Supply) - Copper Wire 1 Ø - 208/230-1-60¹

Models F2RP/F3RP(T)/ F2RCF2FP/ F3FP(T)/F2FC/FXRP ²	Heater Model	Min. Circuit Ampacity			Max. O.C.P. ⁵ Amps/Type			75°C Wire Size - AWG		
		Circuit			Circuit			Circuit		
		1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd
		208/230	208/230	208/230	208/230	208/230	208/230	208/230	208/230	208/230
030(N/H)06	2HK16501506B	25.8/28.7	45.1/52.1	-	30/30	50/60	-	10/10	8/6	-
036(N/H)06	2HK16501506B	26.8/29.7	45.1/52.1	-	30/30	50/60	-	10/10	8/6	-
	2HK16501906B ⁴	38.3/42.6	45.7/52.6	-	40/45	50/60	-	8/8	8/6	-
040H06	2HK16501506B	25.8/28.7	45.1/52.1	-	30/30	50/60	-	10/10	8/6	-
042(N/H)06	2HK16501506B	28.1/30.5	45.1/52.1	-	30/35	50/60	-	10/8	8/6	-
045H06	2HK16501506B	26.6/29.3	45.1/52.1	-	30/30	50/60	-	10/10	8/6	-
048(N/H)06	2HK16501506B	27.6/30.2	45.1/52.1	-	30/35	50/60	-	10/8	8/6	-
	2HK16502006B	49.8/56.2	45.1/52.1	-	50/60	50/60	-	8/8	8/6	-
	2HK16502506B	27.6/30.2	45.1/52.1	45.1/52.1	30/35	50/60	50/60	10/8	8/6	8/6
060(N/H)06	2HK16501506B	29.0/31.3	45.1/52.1	-	30/35	50/60	-	10/8	8/6	-
	2HK16502006B	51.2/57.3	45.1/52.1	-	60/60	50/60	-	6/6	8/6	-
	2HK16502506B	29.0/31.3	45.1/52.1	45.1/52.1	30/35	50/60	50/60	10/8	8/6	8/6

For notes See Table 10.

TABLE 9: Electrical Data - 3 Ø - 208/230-3-60¹

Models F2RP/F3RP(T)/F2RC F2FP/F3FP(T)/F2FC/FXRP	Heater ⁶ Model	Max. Static & Min. CFM		Total Heat				kW Staging ³					
				kW		MBH		W1 Only		W2 Only		W1 + W2	
				Static	Tap	208	230	208	230	208	230	208	230
024(N/H)06	2HK06501025B	0.5	LO	7.5	10.0	25.6	34.1	3.8	5.0	7.5	10.0	7.5	10.0
	2HK06501525B	0.5	HI	11.3	15.0	38.6	51.2	3.8	5.0	7.5	10.0	11.3	15.0
030(N/H)06	2HK06501025B	0.5	LO	7.5	10.0	25.6	34.1	3.8	5.0	7.5	10.0	7.5	10.0
	2HK06501525B	0.5	HI	11.3	15.0	38.6	51.2	3.8	5.0	7.5	10.0	11.3	15.0
036(N/H)06	2HK06501025B	0.5	LO	7.5	10.0	25.6	34.1	3.8	5.0	7.5	10.0	7.5	10.0
	2HK06501525B	0.5	HI	11.3	15.0	38.6	51.2	3.8	5.0	7.5	10.0	11.3	15.0
040H06	2HK06501025B	0.5	LO	7.5	10.0	25.6	34.1	3.8	5.0	7.5	10.0	7.5	10.0
	2HK06501525B	0.5	HI	11.3	15.0	38.6	51.2	3.8	5.0	7.5	10.0	11.3	15.0
042(N/H)06	2HK06501025B	0.5	LO	7.5	10.0	25.6	34.1	3.8	5.0	7.5	10.0	7.5	10.0
	2HK06501525B	0.5	LO	11.3	15.0	38.6	51.2	3.8	5.0	7.5	10.0	11.3	15.0
045H06	2HK06501025B	0.5	MED	7.5	10.0	25.6	34.1	3.8	5.0	7.5	10.0	7.5	10.0
	2HK06501525B	0.5	HI	11.3	15.0	38.6	51.2	3.8	5.0	7.5	10.0	11.3	15.0
048(N/H)06	2HK06501025B	0.5	LO	7.5	10.0	25.6	34.1	3.8	5.0	7.5	10.0	7.5	10.0
	2HK06501525B	0.5	LO	11.3	15.0	38.6	51.2	3.8	5.0	7.5	10.0	11.3	15.0
060(N/H)06	2HK06501025B	0.5	LO	7.5	10.0	25.6	34.1	3.8	5.0	7.5	10.0	7.5	10.0
	2HK06501525B	0.5	LO	11.3	15.0	38.6	51.2	3.8	5.0	7.5	10.0	11.3	15.0

For notes See Table 10.

TABLE 10: Electrical Data - (For Single Source Power Supply) - Copper Wire 3 Ø - 208/230-3-60¹

Models F2RP/F3RP(T)/F2RC F2FP/F3FP(T)/F2FC/FXRP ²	Heater ⁶ Model	Field Wiring					
		Min. Circuit Ampacity		Max. O.C.P. ⁵ Amps/Type		75°C Wire Size - AWG	
		208V	230V	208V	230V	208V	230V
024(N/H)06	2HK06501025B	41.2	46.5	45	50	8	8
	2HK06501525B	42.2	47.4	45	50	8	8
030(N/H)06	2HK06501025B	42.2	47.4	45	50	8	8
	2HK06501525B	42.2	47.4	45	50	8	8
036(N/H)06	2HK06501025B	43.1	48.2	45	50	8	8
	2HK06501525B	43.1	48.2	45	50	8	8
040H06	2HK06501025B	42.2	47.4	45	50	8	8
	2HK06501525B	42.2	47.4	45	50	8	8
042(N/H)06	2HK06501025B	44.2	49.1	45	50	8	8
	2HK06501525B	44.2	49.1	45	50	8	8
045H06	2HK06501025B	42.8	47.9	45	50	8	8
	2HK06501525B	42.8	47.9	45	50	8	8
048(N/H)06	2HK06501025B	43.7	48.7	45	50	8	8
	2HK06501525B	43.7	48.7	45	50	8	8
060(N/H)06	2HK06501025B	45.0	49.7	50	50	8	8
	2HK06501525B	45.0	49.7	50	50	8	8

- Heat amps shown at 230V represents maximum heater rating.
- FXRP available only in 024, 036, 048 & 060 models.
- If first stage heat or 66 is connected to W1, otherwise refer to this table.
- 2HK16501906B only applies to F(2,3)RP and F(2,3)FP036 Models.
- O.C.P. = Over Current Protection device, must be HACR type Circuit Breaker or Time Delay fuse.
- Heaters are 3 Phase.

TABLE 11: Electrical Data - 1 Ø - 220/240-1-50

Model	Heater Model	Max. Static & Min. CFM		Total Heat ¹				kW Staging					
				kW		MBH		W1 Only		W2 Only		W1 + W2	
				220V	240V	220V	240V	220V	240V	220V	240V	220V	240V
F2RP024(N,H)93	2HK*6500506B	0.5	LO	4.2	5.0	14.3	17.1	4.2	5.0	4.2	5.0	4.2	5.0
	2HK*6500806B		LO	6.3	7.5	21.5	25.6	4.2	5.0	6.3	7.5	6.3	7.5
	2HK*6501006B		LO	8.4	10.0	28.7	34.1	4.2	5.0	8.4	10.0	8.4	10.0
F2RP036(N,H)93	2HK*6500506B	0.5	LO	4.2	5.0	14.3	17.1	4.2	5.0	4.2	5.0	4.2	5.0
	2HK*6500806B		LO	6.3	7.5	21.5	25.6	4.2	5.0	6.3	7.5	6.3	7.5
	2HK*6501006B		LO	8.4	10.0	28.7	34.1	4.2	5.0	8.4	10.0	8.4	10.0
	2HK16501506B		MED	12.6	15.0	43.0	51.2	4.2	5.0	8.4	10.0	12.6	15.0
	2HK16501906B		HI	14.8	17.6	50.5	60.1	3.2	3.8	11.6	13.8	14.8	17.6
F2RP048(N,H)93	2HK*6500506B	0.5	LO	4.2	5.0	14.3	17.1	4.2	5.0	4.2	5.0	4.2	5.0
	2HK*6500806B		LO	6.3	7.5	21.5	25.6	4.2	5.0	6.3	7.5	6.3	7.5
	2HK*6501006B		LO	8.4	10.0	28.7	34.1	4.2	5.0	8.4	10.0	8.4	10.0
	2HK16501506B		LO	12.6	15.0	43.0	51.2	4.2	5.0	8.4	10.0	12.6	15.0
	2HK16502006B		LO	16.8	20.0	57.3	68.3	4.2	5.0	8.4	10.0	16.8	20.0
	2HK16502506B		LO	21.0	25.0	71.7	85.3	4.2	5.0	12.6	15.0	21.0	25.0
F2RP060(N,H)93	2HK*6500506B	0.5	LO	4.2	5.0	14.3	17.1	4.2	5.0	4.2	5.0	4.2	5.0
	2HK*6500806B		LO	6.3	7.5	21.5	25.6	4.2	5.0	6.3	7.5	6.3	7.5
	2HK*6501006B		LO	8.4	10.0	28.7	34.1	4.2	5.0	8.4	10.0	8.4	10.0
	2HK16501506B		LO	12.6	15.0	43.0	51.2	4.2	5.0	8.4	10.0	12.6	15.0
	2HK16502006B		LO	16.8	20.0	57.3	68.3	4.2	5.0	8.4	10.0	16.8	20.0
	2HK16502506B		LO	21.0	25.0	71.7	85.3	4.2	5.0	12.6	15.0	21.0	25.0

1. See conversion Table 5.

* May be 0 (no breaker) or 1 (with breaker).

TABLE 12: Electrical Data - (For **Single Source** Power Supply) - Copper Wire 1Ø - 220/240-1-50

Model	Heater Model	Field Wiring					
		Min. Circuit Ampacity		Max. O.C.P. ¹ Amps/Type		75°C Wire Size - AWG	
		220V	240V	220V	240V	220V	240V
F2RP024(N,H)93	2HK06500506B	26.7	28.7	30	30	10	10
	2HK06500806B	38.7	41.7	40	45	8	8
	2HK06501006B	50.6	54.7	60	60	6	6
F2RP036(N,H)93	2HK06500506B	27.0	28.9	30	30	10	10
	2HK06500806B	38.9	41.9	40	45	8	8
	2HK06501006B	50.9	55.0	60	60	6	6
	2HK16501506B	74.7	81.0	80	90	4	3
	2HK16501906B	87.2	94.5	90	100	3	3
F2RP048(N,H)93	2HK06500806B	39.1	42.1	40	45	8	8
	2HK06501006B	51.0	55.1	60	60	6	6
	2HK16501506B	74.9	81.1	80	90	4	3
	2HK16502006B	98.7	107.2	100	110	3	2
	2HK16502506B	122.6	133.2	125	150	1	1/0
F2RP060(N,H)93	2HK06500806B	43.6	46.2	45	50	8	8
	2HK06501006B	55.5	59.2	60	60	6	6
	2HK16501506B	79.4	85.3	80	90	3	3
	2HK16502006B	103.2	111.3	110	125	2	2
	2HK16502506B	127.1	137.3	150	150	1	1/0

1. OCP = Over Current Protection device, must be HACR type Circuit Breaker or Time Delay fuse.

TABLE 13: Electrical Data - (For **Multi-Source** Power Supply) - Copper Wire 1Ø - 220/240-1-50

This Table For Single Phase Air Handlers with Single Phase Heaters

Model	Heater Model	Min. Circuit Ampacity			Max. O.C.P. ¹ Amps/Type			75°C Wire Size - AWG		
		Circuit			Circuit			Circuit		
		1st	2nd	3rd	1st	2nd	3rd	1st	2nd	3rd
		220/240V	220/240V	220/240V	220/240V	220/240V	220/240V	220/240V	220/240V	220/240V
F2RP036(N,H)93	2HK16501506B	27.0/28.9	47.7/52.1	-	30/30	50/60	-	10/10	8/6	-
	2HK16501906B	38.9/41.9	48.3/52.6	-	40/45	50/60	-	8/8	8/6	-
F2RP048(N,H)93	2HK16501506B	27.1/29.0	47.7/52.1	-	30/30	50/60	-	10/10	8/6	-
	2HK16502006B	51.0/55.1	47.7/52.1	-	60/60	50/60	-	6/6	8/6	-
	2HK16502506B	27.1/29.0	47.7/52.1	47.7/52.1	30/30	50/60	50/60	10/10	8/6	8/6
F2RP060(N,H)93	2HK16501506B	31.6/33.2	47.7/52.1	-	35/35	50/60	-	8/8	8/6	-
	2HK16502006B	55.5/59.2	47.7/52.1	-	60/60	50/60	-	6/6	8/6	-
	2HK16502506B	31.6/33.2	47.7/52.1	47.7/52.1	35/35	50/60	50/60	8/8	8/6	8/6

1. OCP = Over Current Protection device, must be HACR type Circuit Breaker or Time Delay fuse.

TABLE 14: Electrical Data - 3Ø -220/240-3-50

This Table For Single Phase Air Handlers with 3Ø Heaters

Model	Heater Model	Min. CFM & Max. Static		Total Heat ¹				kW Staging					
				kW		MBH		W1 Only		W2 Only		W1 + W2	
		Static	Tap	220V	240V	220V	240V	220V	240V	220V	240V	220V	240V
F2RP024(N,H)93	2HK06501025B	0.5	LO	8.4	10.0	28.7	34.1	4.2	5.0	8.4	10.0	8.4	10.0
F2RP036(N,H)93	2HK06501025B	0.5	LO	8.4	10.0	28.7	34.1	4.2	5.0	8.4	10.0	8.4	10.0
	2HK06501525B		MED	12.6	15.0	43.0	51.2	4.2	5.0	8.4	10.0	12.6	15.0
F2RP048(N,H)93	2HK06501025B	0.5	LO	8.4	10.0	28.7	34.1	4.2	5.0	8.4	10.0	8.4	10.0
	2HK06501525B		LO	12.6	15.0	43.0	51.2	4.2	5.0	8.4	10.0	12.6	15.0
F2RP060(N,H)93	2HK06501025B	0.5	LO	8.4	10.0	28.7	34.1	4.2	5.0	8.4	10.0	8.4	10.0
	2HK06501525B		LO	12.6	15.0	43.0	51.2	4.2	5.0	8.4	10.0	12.6	15.0

1. See Conversion Table 5.

TABLE 15: Electrical Data - (For Multi-Source Power Supply) - Copper Wire 3 Ø - 220/240-3-50
This Table For Single Phase Air Handlers with 3 Ø Heaters

Model	Heater Model	Field Wiring					
		Min. Circuit Ampacity		Max. O.C.P. ² Amps/Type		75°C Wire Size - AWG	
		220V	240V	220V	240V	220V	240V
F2RP024(N,H)93	2HK06501025B	43.8	47.4	45	50	8	8
F2RP036(N,H)93	2HK06501025B	44.1	47.6	45	50	8	8
	2HK06501525B	44.1	47.6	45	50	8	8
F2RP048(N,H)93	2HK06501025B	44.2	47.7	45	50	8	8
	2HK06501525B	44.2	47.7	45	50	8	8
F2RP060(N,H)93	2HK06501025B	48.2	51.4	50	60	8	6
	2HK06501525B	48.2	51.4	50	60	8	6

2. O.C.P. = Over Current Protection device, must be HACR type Circuit Breaker or Time Delay fuse.

TABLE 16: Air Flow Data - (Heat Pump Models)

Models F2RP/F2FP/F3RP(T)/ F3FP(T)/FXRP ¹	Blower Motor Speed	230 Volt					208 Volt				
		CFM ² @ External Static Pressure - IWC									
		0.10	0.20	0.30	0.40	0.50	0.10	0.20	0.30	0.40	0.50
018	High	855	810	765	710	650	770	729	689	639	585
	Med.	765	730	695	650	590	689	657	626	585	531
	Low	645	620	590	555	505	581	558	531	500	455
024	High	950	910	865	835	775	855	819	779	752	698
	Med.	845	815	785	745	705	760	733	706	670	634
	Low	650	630	605	575	540	585	567	545	518	486
030	High	1,270	1,210	1,150	1,085	1,015	1,143	1,089	1,035	977	914
	Med	1,050	1,040	995	930	855	941	936	895	837	770
	Low	855	820	780	735	680	770	738	702	662	612
036	High	-	1310	1250	1175	1120	1235	1179	1125	1058	1008
	Med	1200	1150	1100	1040	985	1080	1035	990	936	887
	Low	1060	1015	970	925	860	954	914	873	833	774
040	High	-	1575	1500	1420	1350	1400	1418	1350	1278	1215
	Med	1460	1295	1330	1260	1190	1314	1166	1197	1135	1071
	Low	1250	1200	1155	1100	1050	1125	1080	1040	990	945
042	High	-	1575	1500	1420	1350	1400	1418	1350	1278	1215
	Med	1460	1295	1330	1260	1190	1314	1166	1197	1135	1071
	Low	1250	1200	1155	1100	1050	1125	1080	1040	990	945
045	High	1575	1535	1475	1390	1310	1418	1382	1328	1251	1179
	Med-high	1375	1315	1255	1185	1110	1238	1184	1130	1067	999
	Med-low	1210	1160	1110	1050	980	1089	1044	999	945	882
	Low	1035	990	940	890	825	932	891	846	801	743
048	High	1,855	1,795	1,730	1,670	1,605	1,670	1,616	1,557	1,503	1,445
	Med	1,685	1,630	1,575	1,520	1,470	1,517	1,467	1,418	1,368	1,323
	Low	1,465	1,435	1,405	1,370	1,335	1,319	1,292	1,265	1,233	1,202
060	High	2,285	2,195	2,105	2,015	1,920	2,057	1,976	1,895	1,814	1,728
	Med	2,125	2,020	1,910	1,805	1,705	1,913	1,818	1,719	1,625	1,535
	Low	1,655	1,605	1,550	1,500	1,450	1,490	1,445	1,395	1,350	1,305

1. FXRP available only in 024, 036, 048 & 060 models.

2. Includes return air filter, wet coil and largest electric heater.

Table 17: Air Flow Data - (Cooling Models)

MODELS F2RC/F2FC	BLOWER MOTOR SPEED	230 VOLT					208 VOLT				
		CFM ¹ @ External Static Pressure - IWC									
		0.10	0.20	0.30	0.40	0.50	0.10	0.20	0.30	0.40	0.50
024	High	925	885	850	805	750	833	797	765	725	675
	Med.	820	800	765	720	680	738	720	688	648	612
	Low	645	620	595	570	535	581	558	536	513	482
030	High	1205	1150	1090	1025	990	1085	1035	981	923	891
	Med	1020	1010	960	895	825	919	909	864	805	742
	Low	840	805	760	715	660	756	725	684	644	594
036	High	1305	1250	1195	1150	1065	1175	1125	1076	1035	959
	Med	1225	1175	1125	1070	1000	1103	1058	1013	963	900
	Low	1055	1015	980	930	880	950	914	882	837	792

1. Includes return air filter, wet coil and largest electric heater.

Table 18: Air Flow Data - (50 Hz Models)

MODEL	Blower Motor Speed	240 Volt - 50 Hz									
		CFM ¹ or M ³ /H @ External Static Pressure - IWC or PA									
		0.10	25	0.20	50	0.30	75	0.40	100	0.50	125
		CFM	M ³ /H	CFM	M ³ /H	CFM	M ³ /H	CFM	M ³ /H	CFM	M ³ /H
F2RP024(N,H)93	High	950	1615	910	1547	865	1471	835	1420	775	1318
	Med.	845	1437	815	1386	785	1335	745	1267	705	1199
	Low	650	1105	630	1071	605	1029	575	978	540	918
F+RP036(N,H)93	High	-	-	1310	2227	1250	2125	1175	1998	1120	1904
	Med	1200	2040	1150	1955	1100	1870	1040	1768	985	1675
	Low	1060	1802	1015	1726	970	1649	925	1573	860	1462
F2RP048(N,H)93	High	1855	3154	1795	3052	1730	2941	1670	2839	1605	2729
	Med	1685	2865	1630	2771	1575	2675	1520	2584	1470	2499
	Low	1465	2491	1435	2440	1405	2389	1370	2329	1335	2270
F2RP060(N,H)93	High	2285	3885	2195	3732	2105	3579	2015	3426	1920	3264
	Med	2125	3613	2020	3434	1910	3247	1805	3069	1705	2899
	Low	1655	2814	1605	2729	1550	2635	1500	2550	1450	2465
MODEL	Blower Motor Speed	220 Volt - 50 Hz									
		CFM or M ³ /H @ External Static Pressure - IWC or PA									
		0.10	25	0.20	50	0.30	75	0.40	100	0.50	125
		CFM	M ³ /H	CFM	M ³ /H	CFM	M ³ /H	CFM	M ³ /H	CFM	M ³ /H
F2RP024(N,H)93	High	855	1454	819	1392	779	1324	752	1278	698	1187
	Med.	760	1292	733	1246	706	1200	670	1139	634	1078
	Low	585	994.5	567	937	545	927	518	881	486	826
F2RP036(N,H)93	High	1235	2100	1179	2004	1125	1913	1058	1799	1008	1714
	Med	1080	1836	1035	1760	990	1683	936	1591	887	1508
	Low	954	1622	914	1554	873	1484	833	1416	774	1319
F2RP048(N,H)93	High	1670	2839	1616	2747	1557	2647	1503	2555	1445	2457
	Med	1517	2579	1467	2494	1418	2411	1368	2326	1323	2250
	Low	1319	2242	1292	2196	1265	2151	1233	2096	1202	2043
F2RP060(N,H)93	High	2057	3497	1976	3359	1895	3222	1814	3184	1728	2938
	Med	1913	3252	1818	3091	1719	2922	1625	2763	1535	2610
	Low	1490	2533	1445	2457	1395	2372	1350	2295	1305	2219

1. Includes return air filter, wet coil and largest electric heater.

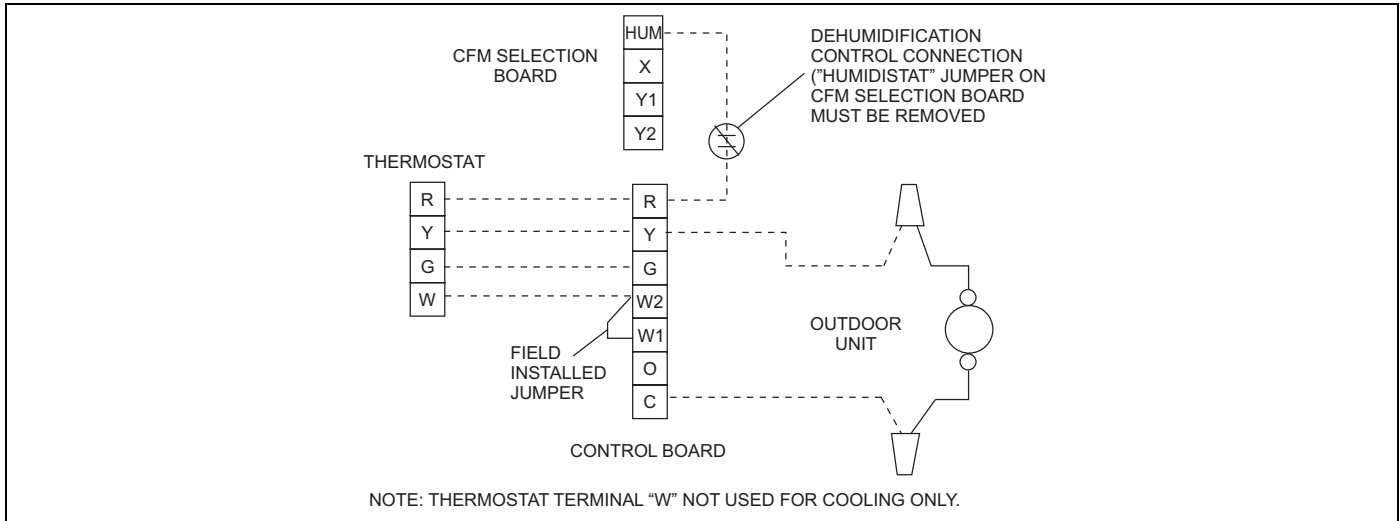


FIGURE 13: Cooling Models with Electric Heat Wiring

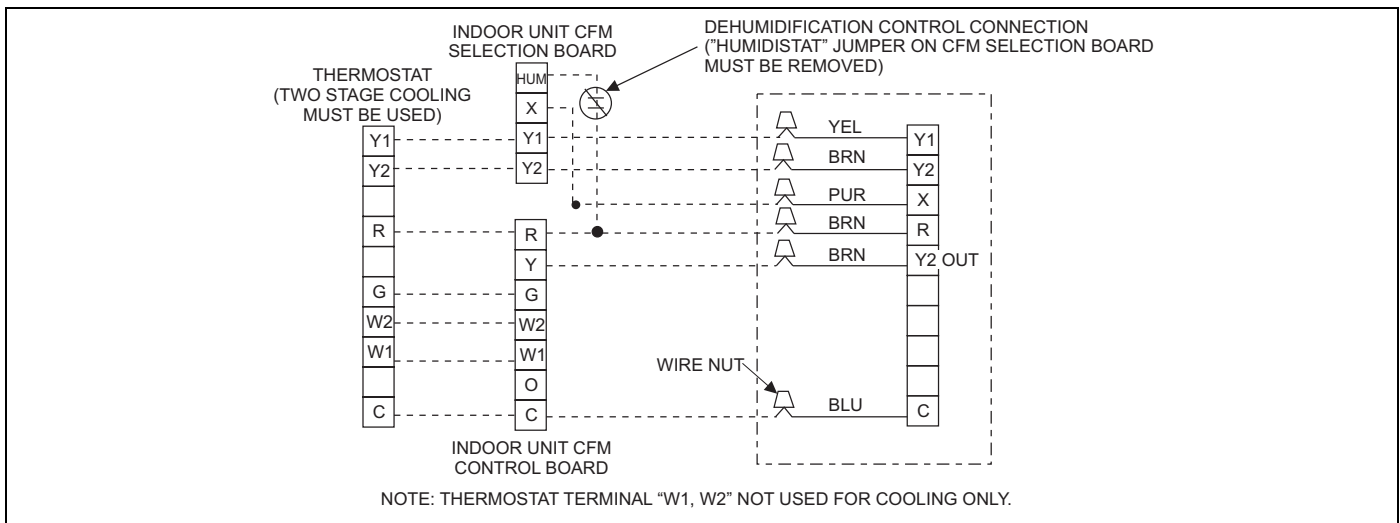


FIGURE 14: Two-Stage Cooling Wiring

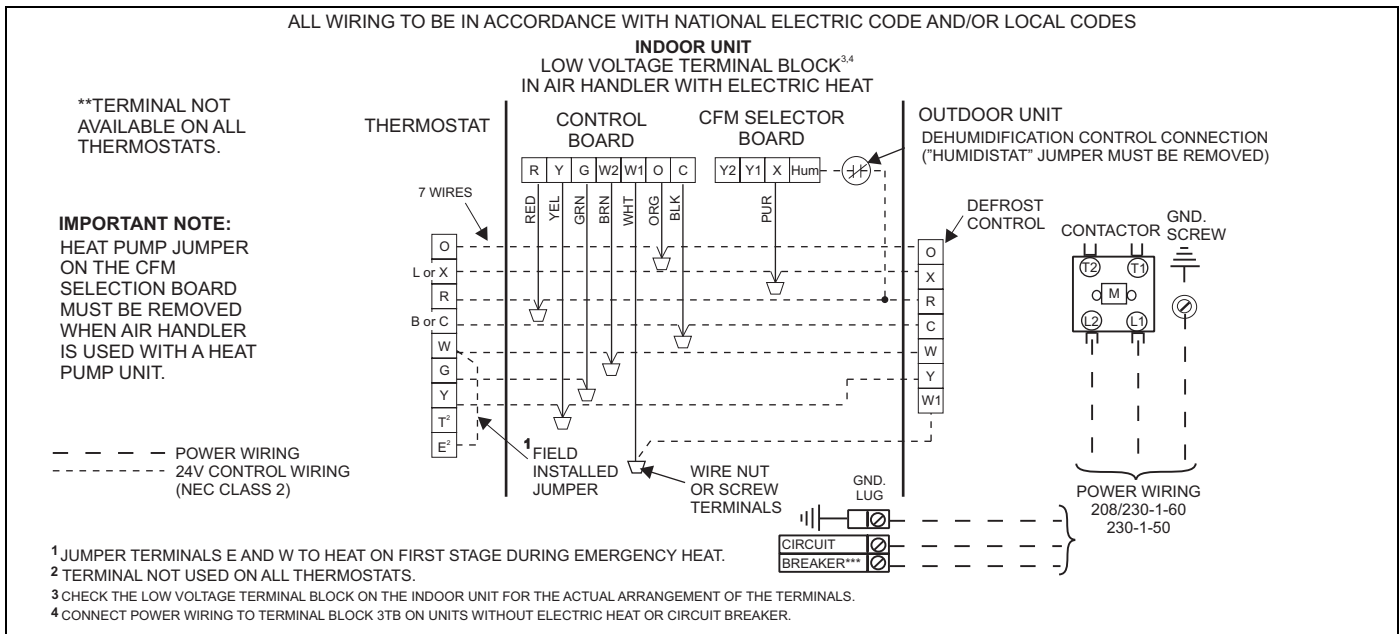


FIGURE 15: Heat Pump Wiring

DRAIN CONNECTIONS

All drain lines should be trapped a minimum of three inches, should be pitched away from unit drain pan and should be no smaller than the coil drain connection.

CAUTION

Threaded drain connection should be hand-tightened, plus no more than 1/16 turn.

CAUTION

Horizontal drain cutout in the center access panel should be removed by using a utility knife. DO NOT TRY TO KNOCK OUT.

Route the drain line so that it does not interfere with accessibility to the coil, air handling system or filter and will not be exposed to freezing temperatures. See Figures 2, 3 and 4.

CAUTION

When the coil is installed in an attic or above a finished ceiling, an auxiliary drain pan should be provided under the coil as is specified by most local building codes. When this exterior secondary drain pan is used that drain should be piped to a location that will give the occupant a visual warning that the primary drain is clogged.

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

The coil is provided with a secondary drain that should be trapped and 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.

The drain pan connections are designed to ASTM Standard D 2466 Schedule 40. Use 3/4" PVC or steel threaded pipe. Since the drains are not subject to any pressure it is not necessary to use Schedule 40 pipe for drain lines.

It is recommended that all drain connections be sealed with teflon tape or equivalent.

MAINTENANCE

Filters must be cleaned or replaced when they become dirty. Inspect at least once per month. The frequency of cleaning depends upon the hours of operation and the local atmospheric conditions. Clean filters keep unit efficiency high.

COIL CLEANING

If the coil needs to be cleaned or replaced, it should be washed with Calgon coilclean (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.

LUBRICATION

The bearings of the blower motor are permanently lubricated.

CONDENSATE DRAINS

During the cooling season check the condensate drain lines to be sure that condensate is flowing from the primary drain but not from the secondary drain. If condensate ever flows from the secondary drain the unit should be promptly shut off and the condensate pan and drains cleaned to insure a free flowing primary drain.

TROUBLESHOOTING GUIDE

PROBLEM	POSSIBLE CAUSE
Blower Runs all of the time	<ol style="list-style-type: none"> 1. No heat units do not have 6-pin connector installed. 2. Limit open or not connected. 3. Variable speed break-out tab broken out. 4. Blower OFF delay (approx. 1 min). 5. Thermostat fan switch in "ON" position.
Blown Fuse	<ol style="list-style-type: none"> 1. Low voltage short to C or ground from R, Y, G, W, or O.
No 24V	<ol style="list-style-type: none"> 1. 4-pin connector loose. 2. Loose wire from control to transformer (24V and 230V). 3. Blown fuse on control board.
No 2nd stage heat	<ol style="list-style-type: none"> 1. Check 6-pin connector and connections to panel mount relays. 2. Verify that both W1 & W2 are connected at the terminal strip.
No Heat or Limited Heating	<ol style="list-style-type: none"> 1. Check filter. 2. Closed registers. 3. Restricted airflow (supply registers or return registers) 4. Check blower motor operation. 5. If the safety limit opens 4 times, the control will not permit the heating element to operate for 1 hour.

NOTES