

Installation Instructions

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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 cleaning and replacing filters. All other operations should be performed by trained service personnel. When working on air conditioning equipment, observe the precautions in the literature and on the tags and labels attached to the unit.

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

Recognize safety information. This is the safety-alert symbol, (Δ) when you see this symbol on the unit and in instructions or manuals, be alert to the potential for personal injury.

Understand the signal word—DANGER, WARNING OR CAUTION. 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 on the other hand could result in personal injury or death. Caution is used to identify unsafe practices, which would result in minor personal injury or product and property damage.

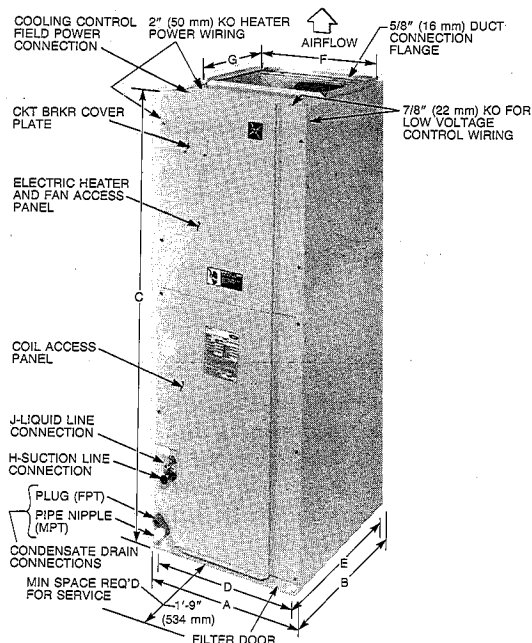
⚠ WARNING

BEFORE PERFORMING SERVICE MAINTENANCE OPERATIONS ON THE SYSTEM, TURN OFF THE MAIN POWER SWITCHES TO THE INDOOR AND OUTDOOR UNITS. TURN OFF THE ACCESSORY HEATER POWER SWITCH IF APPLICABLE. ELECTRICAL SHOCK CAN CAUSE PERSONAL INJURY OR DEATH.

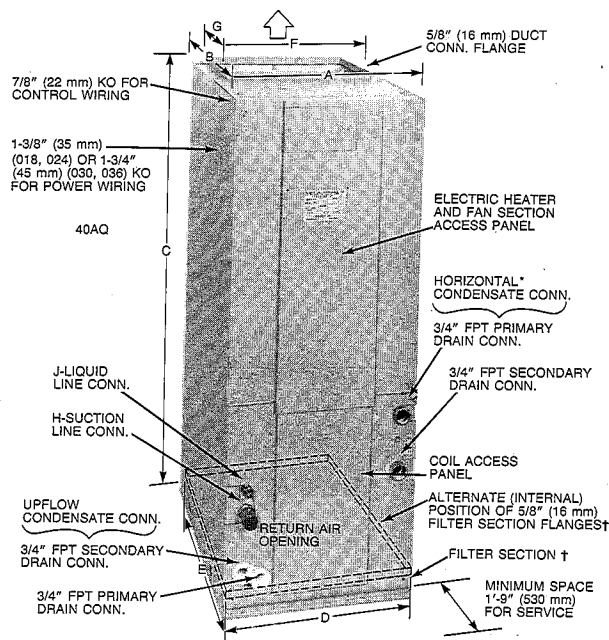
GENERAL

Use standard models 40QE in cooling only, electric heat and heat pump systems. Units consist of a coil (with condensate pan), a variable speed motor, a variable speed control panel and a filter section with cleanable filter—all within an insulated cabinet. Units may only be mounted as described in the installation section of these instructions. Units are offered as bare box only. Cooling controls and electric heater combinations (see Tables 2 and 3) are offered as accessories.

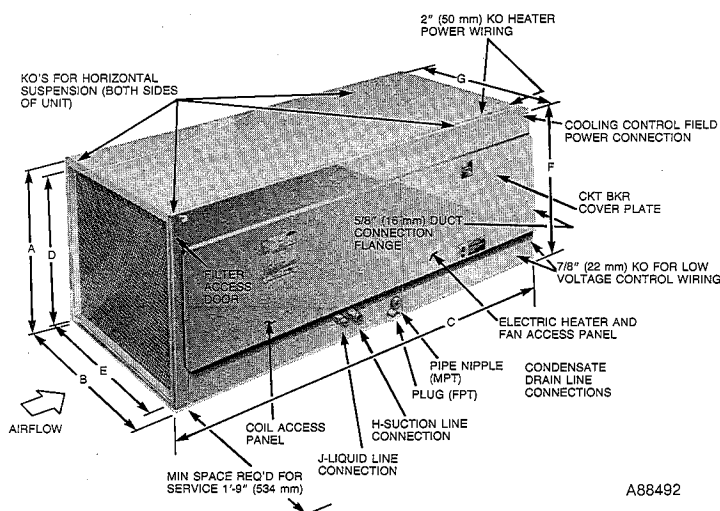
All 40QE units may be used with ductwork; or for freeblow applications when not equipped with electric heaters. Install units in conditioned or unconditioned indoor spaces only. All units are tested for installation in unconditioned indoor spaces per ARI standards (80 F [26.7C] db, 75 F [23.9C] wb indoor temperature, 80 F [26.7C] db outdoor temperature). This approximates 80% relative humidity operation. Condensation on cabinet may occur if relative humidity is above 80%. Insulate supply and return air ductwork in unconditioned spaces. Cover insulation with a vapor barrier.



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Fig. 1—Dimensions and Connections

→ **THERMOSTAT**—This fan coil is designed to operate with Carrier/Parker Home-Zone® model thermostats. The Parker VVT-II thermostat will not operate this system. Monitor thermostats used with this unit must be Homezone model HZMTE or HZME version 3.2 or greater (with or without electronic clock). Slave thermostats for multi-zone applications must be model HZS. A bypass must be used in applications consisting of four or more zones. Use bypass controller model BCE. The bypass controller must be powered from an independent transformer.

On single-zone applications, the Carrier/Parker Home-Zone® or Relay Pack accessory TSR-01 must be used to power the thermostat.

Filter Section—The filter section comes mounted on the return end of the fan coil. The 40QE024 filter section includes a reversible filter rack with a 5/8-in. (16-mm) duct flange connection on one side. The filter section is attached to the unit either with flanges exposed or turned over with flanges inside of the unit. The permanent filter media pulls out for easy removal and cleaning.

Accessory cooling control kit—See Table 3 for fan coil/cooling control kit combinations. The cooling control kit is a field installed option required on 40QE units installed with-

out an electric heater package. The kit contains a 60-va transformer, an indoor fan relay, and low-voltage connections. The cooling control kit is not required when an electric heater package is used as the heater packages are equipped with cooling and heating controls.

Accessory Electric Heater Package—See Table 4 for fan coil/electric heater combinations. Electric heaters have both heating and cooling controls including a control circuit transformer, indoor fan relay and low-voltage connection area.

Expansion Valve Assembly—If an expansion valve is required, it is shipped with the matching compressor bearing unit. Assembly may be required. Consult the installation instructions for the compressor bearing unit.

Accessory Air Cleaner—The 40QE, and 40QEH model fan coils provide control for a field-installed accessory air cleaner. The maximum input rating for the air cleaner selected must not exceed 10-amp at 240-volts.

Accessory Humidistat/Humidifier—Connections are provided for humidistat input and for control of an accessory humidifier, both field-supplied. Control input ratings for the humidifier must not exceed 13-VA at 24-v.

Table 1—Physical Data and Dimensions (Fig. 1)

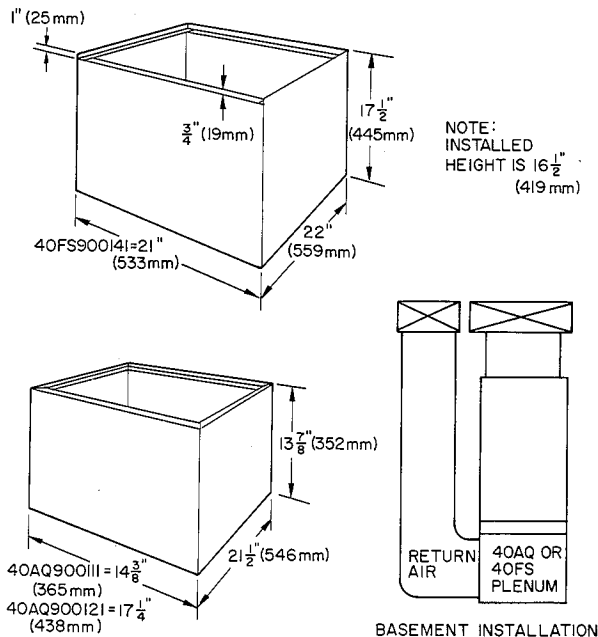
MODEL		40QE 024	40QE/40QEH 036
OPERATING WEIGHT Standard Units (Bare Box)	(lb) (Kg)	122 55	183 83
FAN		Centrifugal/Direct Drive	
Rpm		700	800
Nominal	(Cfm) (L/s)	850	1310
ECM Motor/Controller	(Hp) (kW)	401	618
DIMENSIONS			
	A (ft-in.) (mm)	1-9 533	
	B (ft-in.) (mm)	1-9-1/2 546	2-2-1/2 673
	C (ft-in.) (mm)	3-6 1067	4-8 1422
DUCT INLET			
	D (ft-in.) (mm)	1-6-3/8 467	1-7 483
	E (ft-in.) (mm)	1-6-3/4 476	2-0-1/2 622
DUCT OUTLET			
	F (ft-in.) (mm)	1-6-5/8 473	1-6 457
	G (ft-in.) (mm)	9-11/16 246	1-5-1/2 444
CONNECTIONS			
Suction ODF (Compatible Fitting)	H (in.) (mm)	3/4 19.1	
Liquid ODF (S.A.E. Flare Fitting)	J (in.) (mm)	3/8 9.5	
Condensate Plug (FPT)	(in.)	3/4	
Pipe Adapter (MPT)	(in.)	3/4	

Utility Demand Limit—The 40QE and 40QEH model fan coils are equipped to receive a demand limit signal from the local power utility to reduce the power demand during peak load periods. A contact open input to the demand limit terminal will initiate the demand limit function.

INSTALLATION

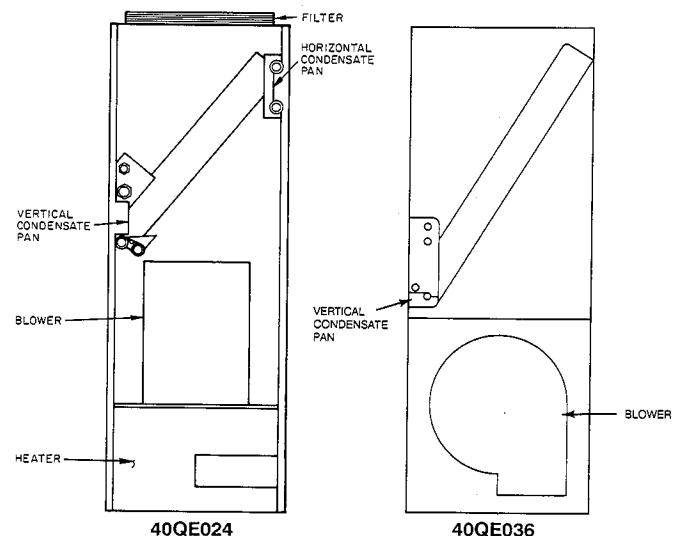
NOTE: This equipment generates and uses radio frequency energy. If not installed properly in strict accordance with

these installation instructions, it may cause interference with television and/or radio reception. It has been type-tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC rules (which are designed to provide protection against such interference in a residential installation). However, there is no guarantee that there will not be interference in a particular installation. If this equipment does cause interference to television and/or radio reception, which can be determined by turning the equipment off and on, the homeowner should refer to the Operation and Troubleshooting Guide for the compressor bearing unit.



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Fig. 2—Accessory Return Air Plenum



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Fig. 3—Downflow Arrangement

Step 1—Inspect Equipment—File a claim with shipper if equipment is damaged.

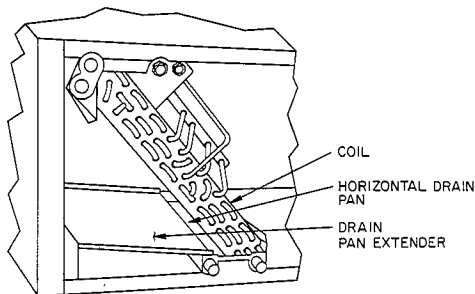
Step 2—Mount Fan Coil Unit—The 40QE024 can be floor or base mounted vertically or horizontally (left-hand or right-hand application) or be hung from a ceiling or a wall. The 40QE036 can be floor or base mounted vertically only. 40QEH models can be floor or base mounted or hung from the ceiling for horizontal right-hand applications only. Allow space for wiring, piping, and servicing unit (see Fig. 1). Before mounting 40QE024 unit, adjust filter section as required. The filter section can be mounted with its 5/8-in. (16-mm) return air duct connection flange inside or outside of the unit casing. When flanges are required, remove filter section from unit, turn it over so that flanges are exposed and reinstall on unit. Remove filter media and turn it over so that cross-sectional binding faces upward toward coil.

Floor Mounting In Vertical Upflow Airflow Position (filter section flange must be outside unit casing on 40QE024 units)—Size floor opening large enough to accept duct connection flange on filter section. Make duct flush with floor. Set unit on floor over opening with filter section flange inserted through floor and into duct. Use fireproof resilient gasket, 1/8-in. (3-mm) to 1/4-in. (6-mm) thick between duct, unit and floor.

NOTE: A drain pan extender is taped under the 40QE024 coil unit. For vertical upflow applications, remove and discard this part.

Accessory Return Air Plenum—An accessory return air plenum is available for 40QE024 units where a return air inlet is required. Set 40QE024 unit in place on top of plenum and make return air ductwork connection. See Fig. 2.

Utility Room Installation—When a 40QE model is located in a utility room that has louvered doors are mounted for free air return, a field-fabricated side inlet and filter assembly is recommended.



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Fig. 4—Installing Drain Pan Extender, Horizontal Position (024 size only)

Floor, Wall or Ceiling Mounting in Horizontal Airflow Position (40QE024 and 40QEH models only)—Place unit on its side by turning it 90 degrees clockwise (do not install unit on its back). This provides horizontal airflow to the right.

For horizontal airflow to the left (40QE024 units only) or vertical downflow applications (40QE models only), reposition coil and variable speed control panel as follows:

1. Lay unit on its back and remove front access panels.
2. Remove Indoor Coil and Return Air Thermistors from their mounting positions, marking each to be sure they are replaced properly. (Switching the locations of the thermistors will cause system malfunction and false error codes during operation.)
3. Unplug six-pin connector from blower motor.
4. Remove the two screws that assemble variable speed control panel to the left side mounting bracket, then disassemble the variable speed control panel and the left side mounting bracket by removing the two screws fastening each to cabinet. Set these parts aside for reassembly later.
5. Remove screws fastening coil and condensate pans in cabinet.
6. Remove coil and condensate pans from cabinet and rotate 180 degrees.
7. Leave both condensate pans in place, reinstall coil in cabinet as shown in Fig. 3. Be sure that the coil positioning tabs enter the slots provided in rear of cabinet.
8. For horizontal application, install drain pan extender (see Fig. 4).
9. Rotate mounting bracket 180 degrees and reinstall on right side of cabinet using the two screws removed above.
10. Rotate the variable speed control panel 180 degrees and reassemble it to left side of cabinet and mounting bracket using the four screws removed above.
11. Replace six-pin blower motor connector.
12. Replace Indoor Coil and the Return Air thermistors to their original positions. See Fig. 12. Resecure any insulation device around thermistors using wire ties. Do not overtighten wire ties around thermistor wires as this will cause the thermistors to short electrically. Be sure to remove return air thermistor and replace both the clip and the thermistor on the return-air side of the coil.
13. On vertical downflow applications, refer to installation instructions in downflow kit.
14. Replace access panels.

IMPORTANT: To ensure proper condensate drainage in horizontal applications, the unit must be installed so that it is level within 1/8-in. (3-mm) in both the length and the width of the unit.

A drain pan extender is taped under the 40QE024 coil unit. Remove this pan and reposition as shown in Fig. 3. Insert the 3/8-in. (9.5-mm) flange into the standard horizontal drain pan exercising care to avoid damage to coil fins. Be sure that pan is installed straight and in proper position.

When suspending unit from ceiling or wall, isolate the unit vibration from the structure as required and provide adequate support along entire length of unit.

When suspending 40QEH unit from ceiling, 1/2-in. (12.5-mm) knockouts are provided on unit sides for 3/8-in. (9.5-mm) suspension rods.

MOUNTING IN DOWNFLOW AIRFLOW POSITION (40QE024 AND 40QE036 only)—An accessory condensate pan and fireproof base must be used in downflow applications. Part numbers vary with models and application. Contact a Carrier distributor for the correct part numbers. Separate installation instructions are packaged in the downflow kits. Refer to the instructions for floor, wall, or ceiling mounting in horizontal airflow position above, to reposition the variable speed control panel.

Step 3—Connect Ductwork to Unit Supply and Return Air Openings—Duct connection flanges are provided on unit discharge connection and filter section, see Fig. 1. On the 40QE024 unit, when filter section is installed on fan coil with duct connection flange inside of unit casing, field fabricate a return air duct connection. For a return air connection through the floor, see Floor Mounting instructions.

⚠ CAUTION

DO NOT SCREW DUCTWORK DIRECTLY TO THE FILTER SECTION. SCREWS PREVENT THE REMOVAL OF THE FILTER

DUCTWORK SPECIFICATIONS—When the fan coil is installed with an accessory electric heater, install air ducts in accordance with standards of National Fire Protection Association (NFPA), No. 90B and in compliance with paragraph 46.1-E of U.L. Standard 1096. If necessary, refer to the Carrier System Design Manual, Part 2, for system air duct design. Use flexible connectors between the ductwork and the unit to prevent transmission of vibration (see Ductwork Acoustical Treatment). When an electric heater is installed, use heat resistant material for the flexible connec-

tor. Ductwork passing through an unconditioned space must be insulated and covered with a vapor barrier. External ductwork must be weatherproofed.

DUCTWORK ACOUSTICAL TREATMENT—On metal duct systems that do not have one 90° elbow and 10 ft. (3-m) of main duct to the first branch takeoff, install an internal acoustical insulation lining per the following procedure.

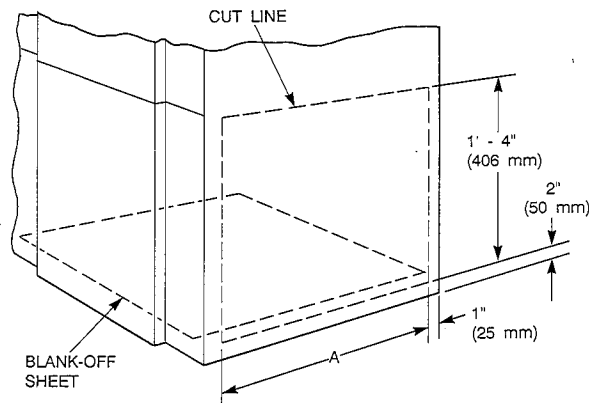
Line inside of plenum, branch runs, and main duct with acoustical insulation in accordance with the latest edition of the SMACNA (Sheet Metal and Air Conditioning Contractors Association) application standard for duct liners. Duct liners should be U.L. classified batts and blankets with a fire hazard classification working of FHC-25/50 or less. Be sure that main duct lining is extended 6-8 ft. (1.8 to 2.3-m) down the duct from plenum.

Fibrous glass ductwork may also be used if constructed and installed in accordance with the latest SMACNA construction standard on fibrous glass duct.

Acoustical lining and fibrous ductwork must comply with NFPA as tested by U.L. Standard 181 for Class 1 air ducts.

RIGHT SIDE RETURN—A return air connection may be made directly into the right side only on 40QE models. It is recommended when a right side connection is made, that the standard return air opening be blanked-off with sheet metal even when not required by local code. To make a right side return air opening:

1. Cut opening as indicated in Fig. 5.
2. Blank-off standard return air opening in bottom of unit.
3. Install return air filter section on right side return air opening. Use field supplied sheet metal screws as required.



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Fig. 5—Right-Side Return Air Connection Details

Table 2—Dimensions for Return Air Connection

MODEL	HEIGHT (A)		WIDTH (B)	
	(ft-in.)	(mm)	(ft-in.)	(mm)
40QE				
024	1-6-9/16	472	1-7-1/2	495
036	1-4	406	1-11-1/4	590

Step 4—Install Expansion Valve If Required—The expansion valve used with the 40QE fan coil is shipped with the matching compressor bearing unit. For assembly instructions please consult the installation instructions for the compressor bearing unit.

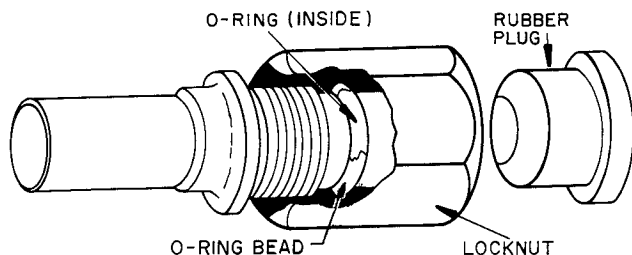
Step 5—Connect Refrigerant Liquid and Suction Lines—See Fig. 1 and Table 1 for line connection sizes, type, and location. Use Carrier accessory tubing package or field-supplied tubing of refrigerant grade. Insulate entire suction line if field-supplied tubing is needed. Do not use damaged, dirty, or contaminated tubing; it may plug up the solenoid expansion valve refrigerant flow control. Always evacuate or purge indoor coil and lines.

The 40QE unit has a Compatible Fitting suction line connection and a 3/8-in. (9.5-mm) S.A.E. male flare fitting liquid line connection. Make suction line connection first. Compatible Fittings permit mechanical or sweat connections to be made as described later in this section. When making liquid line connection, slide the flare nut onto liquid line, then flare the tubing and connect to unit.

NOTE: The use of a tubing cutter is recommended when cutting refrigerant tubing to prevent contamination of the system with copper filings.

MECHANICAL CONNECTION (Mate one set of connections at a time.)

1. Loosen locknut on Compatible Fitting one turn. Do not remove. See Fig. 6.
2. Remove plug and be sure o-ring is in the groove inside of Compatible Fitting.
3. Cut tubing to correct length, deburr and size as necessary.
4. Insert tube into Compatible Fitting until it bottoms.
5. Keeping tube bottomed, tighten nut until it is seated on back coupler flange.



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Fig. 6—Compatible Fitting

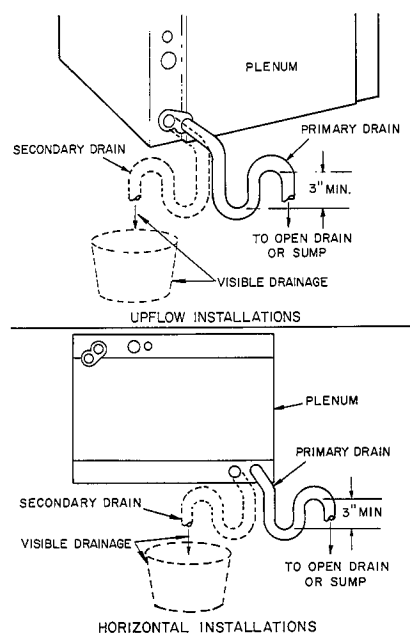
SWEAT CONNECTION (Use refrigerant grade tubing.)

1. Remove locknut and rubber o-ring from inside the Compatible Fitting. See Fig. 6.
2. Cut tubing to correct length.
3. Insert tube into Compatible Fitting until it bottoms.
4. Wrap a wet cloth around rear of Compatible Fitting to prevent damage to factory-made joints. Solder with low-temperature 430°F (221°C) silver alloy solder. When applying flux, apply a minimal amount of flux to male fitting only.
5. Evacuate or purge coil and tubing system with field-supplied refrigerant.

Step 6—Make Primary Condensate Drain Line Connection—Make primary condensate drain line connection to connection provided on the 40QE unit. See Fig. 7. On 40QE036 and 40QEH036 units, install 3/4-in. (26.7-mm) nipple taped to outside of unit. Install a trap in condensate line as close to unit as possible. Trap must be at least 5 in. (127-mm) deep and not higher than the bottom of unit condensate drain opening. Pitch condensate line to an open drain or sump. The minimum recommended drain line size is 7/8-in. (22.2-mm) OD copper or plastic tubing, or 3/4-in. (26.7-mm OD) galvanized pipe. Insulate condensate drain line when it is located above the living space.

Step 7—Make Secondary Condensate Drain Line Connection—Make a secondary condensate drain line connection if required. A connection is provided on the unit. If a secondary drain is used, it must be trapped similar to the primary drain. Plug secondary drain connection if it is not used. Connect piping to secondary drain so that the discharge is visible to the owner as applicable to FHA or local code requirements.

If the unit is installed above occupied or usable space, it is recommended that a field-fabricated auxiliary drain pan be installed under the entire unit. The secondary drain should then be piped into the auxiliary pan. The pan should be piped so that any drainage from it is noticeable to the owner.



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Fig. 7—Condensate Trap

ELECTRICAL DATA AND WIRING

NOTE: When installing accessory electric heaters in 40QE fan coil units, refer only to these instructions along with the wiring label attached to the unit access panel. It is recommended that the instructions supplied with the accessory heaters be discarded, and the schematic section of the wiring diagram (attached to the electric heater package) be crossed-out with a permanent marker or pen in order to eliminate confusion during the installation or during a service call.

Field wiring must comply with local and national fire, safety, and electric codes. Voltage to the unit must be within $\pm 10\%$ of the voltage as indicated on the unit nameplate. These are the permissible limits of voltage range at which the unit will operate satisfactorily. Contact the local power company for correction of improper line voltage.

NOTE: Operation of this unit on improper line voltage constitutes abuse and could affect the Carrier warranty.

See Tables 3 and 4 for available accessory cooling control kits and electric heater packages, and for recommended wire and fuse sizes. See Table 5 for minimum airflow data when installing an electric heater package.

Step 8—Install Accessory Cooling Control Kit or Electric Heater Package

1. Remove unit access panel and top panel (optional).
2. When installing heaters above 10 kW in 40QE024 unit, remove baffle at bottom of heat shield. When installing cooling control or heaters of 10 kW or less, leave baffle in place. There is no baffle on the 40QE036 or 40QEH models. See Fig. 8.
3. Slide cooling control or heater assembly into front of unit. Make sure that when installing heater assembly, heater element support bars engage holes in heat shield.
4. Attach cooling control or heater package to fan coil cabinet as shown.
5. On 40QE036 and 40QEH models, attach low-voltage terminal board with two screws. Wiring to back of terminal board may be completed before installing.
6. Model 40QE024 has two shipping straps secured between the blower housing and unit top panel. Remove and discard shipping straps before installation of unit.

CONNECT ACCESSORY COOLING CONTROL OR HEATER WIRING TO UNIT—Refer to the fan coil wiring diagram on the unit access panel.

1. Remove wire tie securing control power leads (red, violet, black and brown) in bundle hanging below variable speed control panel.

2. Route red, violet, black, and brown leads behind variable speed control panel and up through blower deck access hole (and through the low-voltage access hole in the side of the heater package on 40QE024 units). Connect leads to back side of heater package terminal strip at: R (red lead), C (brown lead), G (black lead) and W (violet lead). Use push-on terminals provided on these leads for making connections. When installing a cooling control package, cut off the push-on terminals, strip insulation 1/2 in. back from wire and make R, C, and G connections using wire nuts. Insulate the W push on terminal as it will not be used. Secure W lead to keep it clear of the blower inlet.
3. Cut wire tie securing black and yellow power leads in bundle below variable speed control panel. Route these leads from blower motor high-voltage connector behind control panel and up through the hole in fan deck (and through the high voltage side access hole in heater package on 40QE024 units). Remove and discard red, black, and violet motor leads provided with cooling control or electric heater package. Do not cut the wire tie used to bundle these wires with other wires. Slide wires through wire tie (cut terminals off if necessary), then discard wires, leaving wire tie in place. Slide yellow and black power leads through wire tie, then connect to L1 and L2 at the wiring points shown on fan coil wiring diagram. See Fig. 9.

Step 9—Install Thermostat and Connect Control Wiring

NOTE: During the thermostat installation procedure, DO NOT turn on power to the indoor or outdoor sections.

The Carrier/Parker Home-Zone® relay-pack accessory must be used on systems installed for single-zone applications to power the thermostat only. Do not wire the relay board outputs to the indoor or outdoor units. Thermostats installed on multiple-zone applications are powered from the zone damper boards.

MOUNT THERMOSTAT—The thermostat is designed to be located within a conditioned area and should be located:

1. Approximately 5 feet from the floor,
2. On an interior wall of the building, and
3. Where it will obtain readings representative of the room temperature.

Do not install thermostat:

1. Where the supply air will blow directly on it,
2. Over heat generating devices, or in direct sunlight.
3. On an outside-interior wall.

→ After deciding on the location of the thermostat(s), install using the instructions included with each control. Connect wiring as described. See Fig. 11.

**Table 3—40QE, 40QEH Fan Coil Electrical Data
(Unit Equipped With Cooling Control Kit)**

MODEL W/COOLING CONTROL KIT	VOLTS (1-PH)	FLA	MIN WIRE SIZE* (AWG)	BRANCH CIRCUIT MAX WIRE LENGTH		FUSE AMPS
				ft	m	
40QE024/ 40AS901000	208/230	3.5	14	100	30.5	15
40QE036, 40QEH036/ 40QB900131	208/230	3.5	14	100	30.5	15

FLA—Full Load Amps

*Copper wire sizes based on 75 C insulation rating. Use National Electric Code for wire sizing. Use copper wire only.

- NOTES:**
1. Fan motor line power supplied from electric heat line power circuit.
 2. See Table 3 for units equipped with electric heaters.

Table 4—Fan Coil Electric Heaters/Electrical Data (208/240-v, 1-Ph, 60-Hz)

40QE024																							
HEATER 40AQ	KW		HEATER AMPS				MOTOR FLA	AMPACITIES				MIN WIRE SIZE (AWG)*				MAX CIRCUIT PROTECTION				MAX WIRE LENGTH (ft)			
	208-v	240-v	SINGLE	DUAL				SINGLE	DUAL			SINGLE	DUAL		SINGLE	DUAL		SINGLE	DUAL				
				L1, L2	L3, L4			L1, L2	L3, L4			L1, L2	L3, L4		L1, L2	L3, L4		L1, L2	L3, L4				
901190	5.6	7.5	27.1/30.0	—	—	3.5	37.4/41.0	—	—	8/8	—	—	—	40/45	—	—	85/85	—	—				
901200	7.5	10	36.1/39.9	—	—	3.5	48.6/53.4	—	—	8/8	—	—	50/60	—	—	100/100	—	—					
903100	9.0	12	—	25.2/27.9	18.1/20.0	3.5	—	35.0/38.4	22.6/25.0	8/8	10/10	—	—	40/40	25/25	—	90/90	90/90					
903060	11.3	15	—	36.1/39.9	18.1/20.0	3.5	—	48.6/53.4	22.6/25.0	6/6†	10/10	—	—	50/60	25/25	—	100/100	90/90					
903080	15.0	20	—	36.1/39.6	36.1/39.9	3.5	—	48.6/53.4	45.1/49.9	—	6.6†	6/6	—	50/60	50/50	—	100/100	105/105					
40QE036, 40QEH036																							
HEATER 40QB	KW		HEATER AMPS				MOTOR FLA	AMPACITIES				MIN WIRE SIZE (AWG)*				MAX CIRCUIT PROTECTION				MAX WIRE LENGTH (ft)			
	208-v	240-v	SINGLE	DUAL				SINGLE	DUAL			SINGLE	DUAL		SINGLE	DUAL		SINGLE	DUAL				
				L1, L2	L3, L4			L1, L2	L3, L4			L1, L2	L3, L4		L1, L2	L3, L4		L1, L2	L3, L4				
900010	5.6	7.5	27.1/30.0	—	—	3.5	37.4/41.0	—	—	8/8	—	—	—	40/45	—	—	80/80	—	—				
900020	7.5	10	36.1/39/9	—	—	3.5	48.6/53.4	—	—	6/6†	—	—	50/60	—	—	95/95	—	—					
901060	11.3	15	—	36.1/39.9	18.1/20.0	3.5	—	48.6/53.4	22.6/25.0	—	6/6	10/10	—	50/60	25/25	—	95/95	90/90					
901100	15.0	20	—	36.1/39.9	36.1/39.9	3.5	—	48.6/53.4	45.1/49.9	—	6/6	6/6	—	50/60	50/50	—	95/95	105/105					

*40QB heaters minimum wire size based on using copper wire with a minimum 90C insulation rating. Use copper wire only. 40AQ heaters minimum wire size based on using copper wire with a minimum 75 C insulation rating. Wire size must not create a voltage drop between service panel and unit in excess of 2% of unit rated voltage.

†For 240V operation, if more than three conductors are used in conduct or raceway, increase wire size to 4AWG.

NOTE: Motor FLA peak at 208-v operation with a severely restricted duct system. Nominal amp draws range from 0% to 90% of FLA.

Table 5—Minimum Airflow Data

MODEL	HEATER KW		MIN TORQUE PIN FOR SAFE HEATER OPERATION	MIN AIRFLOW TO PREVENT NUISANCE HEATER CYCLING	
	240-v	208-v		CFM	L/S
40QE024	7.5	5.6	5*	950	448
	10	7.5			
	12	9.0			
	15	11.3			
	20	15.0			
40QE036 40QEH036	7.5	5.6	7*	1250	590
	10	7.5			
	15	11.3			
	20	15.0			

*Factory Settings

→ Route and connect Carrier/Parker Home-Zone® relay pack accessory wiring as described in the Installation Instructions supplied from Parker except: for single zone applications only, using 2-wire thermostat cable, route the 24v supply wiring through the fan coil side access hole or knockout and into the variable speed control panel. Make connections to the R and C screw terminals.

⚠ CAUTION

TAKE EXTREME CARE NEVER TO MAKE OR TAMPER WITH THE COMMUNICATIONS CONNECTIONS WITH THE CIRCUIT POWER ON. THE SHORTING OR GROUNDING OF THESE LEADS, OR THE INTERCONNECTION OF BUS #1 (TO COMPRESSOR UNIT) AND BUS #2 (TO THERMOSTAT) TO ANY OF THE 24 VAC CIRCUIT LEADS MAY CAUSE SEVERE DAMAGE TO ANY OR ALL ELECTRONIC DEVICES IN THE CIRCUIT.

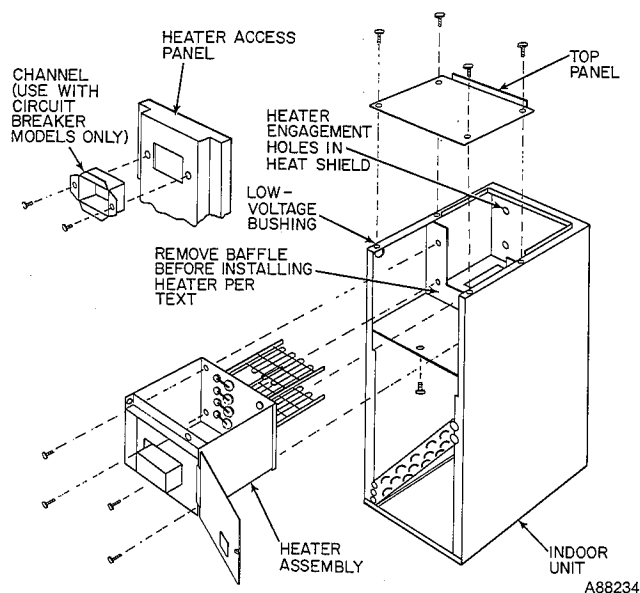
1. Route 3-wire field-supplied thermostat communications cable from thermostat terminal board, RED, BLK, and GRN communication terminals, through fan coil cabinet knockout and into variable speed control panel. Make screw terminal connections for thermostat at terminal board A2 (RED), B2 (BLK), and C2 (GRN) terminals.

nals. To prevent interference, maintain at minimum 12 in. separation between thermostat cables and radio, television antenna, or power cables.

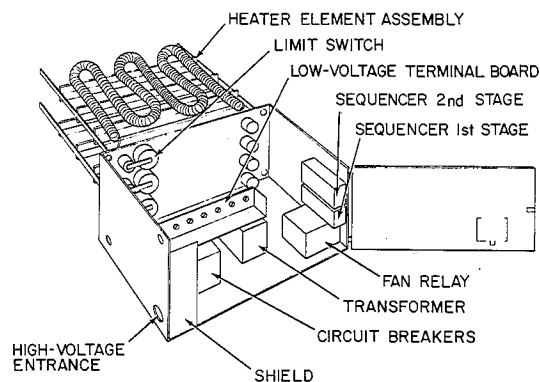
2. Route 3-wire field-supplied thermostat cable from compressor bearing unit through fan coil cabinet knockout and into variable speed control panel. Make screw terminal connections for compressor bearing unit at terminal board A1 (RED), B1 (BLK), and C1 (GRN) terminals. Route and secure cable along refrigerant lines to minimize radio or television interference.

Step 10—Connect Miscellaneous Accessories

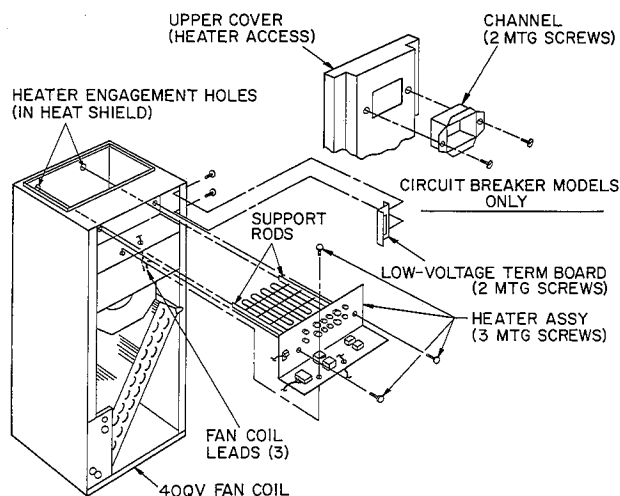
1. Route electronic air cleaner pigtail leads (orange) from variable speed control panel up through hole in fan deck. Make connections to electronic air cleaner relay (field-supplied) in the heater package or cooling control area. See Figs. 9 and 10.
2. Route humidistat contact wiring through fan side access hole or coil knockout into variable speed control panel. Remove factory installed jumper, then connect the wiring to screw terminals marked R and HS.
3. Route humidifier control wiring through fan coil side access hole knockout into variable speed control panel. Connect the wiring to two screw terminals marked H.
4. Route demand limit signal wiring through fan coil knockout into variable speed control panel. Remove factory installed jumper across terminals R and DL, then connect the wiring to screw terminals marked R and DL.



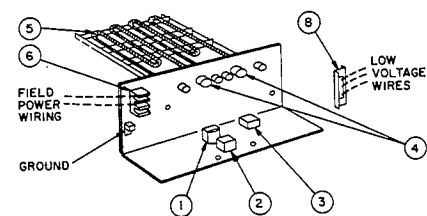
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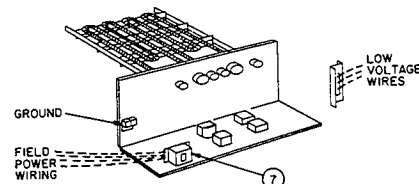
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A88237



NON-FUSED TYPE



CIRCUIT BREAKER TYPE

A88235

Fig. 8—Electric Heater Installations

Step 11—Install Branch Circuit Disconnect Switch(es) per NEC (National Electric Code)—Install branch circuit disconnect switch(es), per NEC, of adequate size to handle unit current. Locate the disconnect switch(es) within sight from and readily accessible from the unit per Section 440-14 of the NEC.

If one line power circuit using one disconnect switch is required, attach an accessory line power connection conversion lug set to fuse terminals in electric heater package. See Fig. 10.

Units with 11 to 20 kW heaters may be wired for operation with two power circuits by removing jumpers from heater line power connection terminals. See Fig. 10. Dual-circuited units require 2 disconnect switches.

Step 12—Bring Power Leads into Unit—Extend power leads from disconnect, per NEC, through hole provided (Fig. 1) to cooling control or electric heater line power connections. Be sure that the power is off before making connections.

Step 13—Connect Power Leads and Ground—For safety, make ground lead connection to ground lug provided in cooling control or electric heater package. See Fig. 10.

Splice power leads to pigtails or connect leads to fuse terminals, circuit breaker terminals, or terminal block provided for line power connection. Use wire nuts for splice connections and tape each connection.

IMPORTANT: HEATERS WITH FACTORY-INSTALLED FUSES OR CIRCUIT BREAKERS MAY BE INSTALLED ON A BRANCH CIRCUIT PROTECTED BY EITHER A FUSE OR A CIRCUIT BREAKER. FOR ALL OTHER HEATERS, THE BRANCH CIRCUIT MUST BE PROTECTED BY A FUSE OR A HACR-TYPE CIRCUIT BREAKER.

Model 40QE units and accessory electric heaters are both factory-wired for 230/24-v transformer operation. For 208/24-v operation, interchange the blue (208-v) and the red (230-v) transformer leads at the primary connection. Cap unused transformer lead with a wire nut and tape or, if the unused transformer lead has a push-on terminal, tape and protect any exposed metal on the terminal.

Step 14—On Circuit Breaker Models, Install Channel—On circuit breaker models, install circuit breaker channel by removing the small cover plate from the heater access panel (see Fig. 8). Attach the channel assembly, supplied loose with heater package, in the opening in access panel using the two sheet metal screws supplied.

IMPORTANT: ON 40QE036 AND 40QEH036, AFFIX THE ALUMINUM FOIL RATING PLATE SHIPPED WITH THE ELECTRIC HEATER PACKAGE BELOW THE UNIT RATING PLATE TO COMPLY WITH U.L. REQUIREMENTS. ON 40QE024 UNITS PLACE A CHECK MARK IN THE APPROPRIATE BOX ON THE FAN COIL RATING PLATE TO INDICATE THE HEATER MODEL NUMBER.

→ THERMOSTAT CONFIGURATION AND START-UP

This procedure contains basic instructions for configuration and start-up of the Carrier/Parker Home-Zone® thermostat. For detailed information on adjusting setpoints or setback/setup, refer to the instructions inside the thermostat cover. If the thermostat appears to malfunction during this procedure, refer to the appropriate Carrier/Parker Home-Zone® Operation Manual or to the Start-up and Service Manual for the compressor bearing system.

Make sure thermostat heating and cooling mode switches are set to OFF, and FAN switch is set to AUTO.

The address on the Indoor and Outdoor Control Modules are factory set as follows: the Indoor Control Module (SW1) to 2, and the Compressor Section Control Module (SW1) to 1. Be sure addresses are set properly prior to applying power.

Turn indoor unit main disconnect switch ON (Note: Transformers supply power to zone dampers and thermostats may be on a separate circuit from the indoor unit.). When the thermostat is powered-up, the display will show the cooling and heating setpoints. If the display is blinking on and off, it is indicating incorrect wiring connections or inadequate power. Check wiring connections and supply voltage from the transformer. The voltage must be 22-v minimum. Make certain that the thermostat ribbon cable has been inserted into the terminal board correctly.

If the thermostat displays a hardware, software, heat pump, fan coil, or air conditioner error code (HF, SF, HP, FC, or

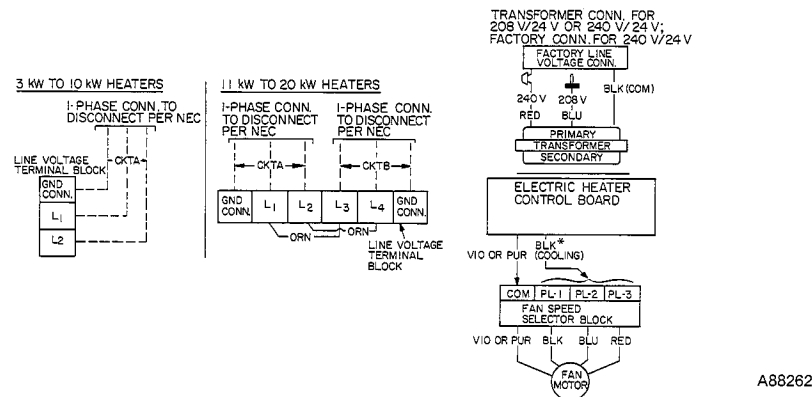


Fig. 9—Heating and Cooling Unit Line Power Connections

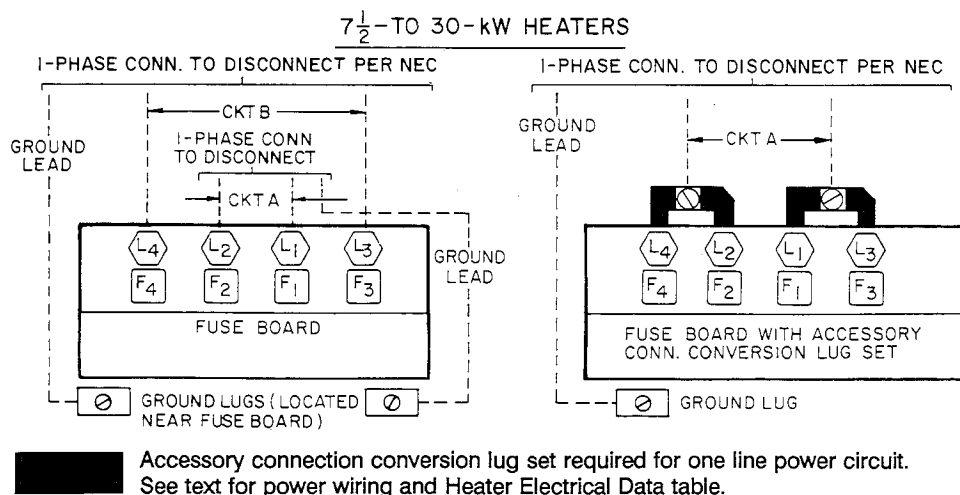


Fig. 10—Heating and Cooling Unit Line Power Connections

→ Table 6—Carrier/Parker Home-Zone® Thermostat Configuration

ROTARY SWITCH POSITION	DISPLAY		FUNCTION DESCRIPTION
	SINGLE ZONE	MULTIPLE-ZONE	
0	SETPOINTS	SETPOINTS	NORMAL OPERATION SETTING
1	3	(see note)	COMMUNICATIONS DEVICE ADDRESS
2	60	60	SETBACK OVERRIDE (MINUTES)
3	85 65	85 65	SETBACK SETPOINTS (COOL HEAT)
4	15 00	15 00	ZONE DAMPER POSITION
5	AMBIENT	AMBIENT	ZONE TEMPERATURE SENSOR
6	AMBIENT	AMBIENT	SUPPLY AIR TEMP. SENSOR (ONLY WHEN CONNECTED TO ZONE DAMPER)
7	OFF	OFF	COMMUNICATIONS CHECK (MULTIPLE-ZONE)
8	00 00	00 00	CALIBRATE PRESSURE SENSOR
9	02 57	02 57	PRESSURE SENSOR SETPOINT
A	00	00	HUMIDITY SETPOINT
B	1	1	DEMAND SETPOINT
C*	01 00	01 00	VSE PARAMETERS
D	BLANK	BLANK	NOT USED
E	BLANK	BLANK	NOT USED
F1	OFF	OFF	TIMEGUARD OVERRIDE
F2	OFF	OFF	ON FOR CELCIUS TEMP. DISPLAY
F3	ON	ON	ERROR DISPLAY ON
F4	ON	ON	ON FOR 2400 BAUD RATE COMM.
F5	ON	ON	HEAT PUMP SYSTEM (OFF-COOL ONLY)
F6	OFF	OFF	OUTSIDE AIR TEMP. SENSOR
F7	OFF	OFF	Dx COIL TEMP. SENSOR
F8	OFF	ON	ON FOR MULTIPLE-ZONE
F9	ON	ON	ON FOR VARIABLE SPEED EQUIPMENT
F10	OFF	OFF	ON FOR ELECTRONIC HUMIDITY SENSOR
F11	ON	ON	ON FOR VAR. SPD. EFFICIENCY MODE
F12	OFF	OFF	ON FOR ALTERNATE DISPLAY
F13	OFF	ON	LAT CHECKING
F14	OFF	OFF	ON FOR FAN-ON IN COOLING ONLY
F15	ON	ON	ON FOR COMFORT TREND STAGING
F16	OFF	OFF	ON FOR SETBACK LOCKOUT

*VSE PARAMETERS ARE USED TO CONFIGURE OR TROUBLESHOOT THE VARIABLE SPEED SYSTEM. FOR DETAILS, REFER TO THE START-UP AND SERVICE MANUAL FOR THE COMPRESSOR BEARING SYSTEM.

NOTE: ADDRESS THERMOSTAT FOR MULTIZONE OPERATION AS FOLLOWS:

MONITOR ADDRESS = m
 BYPASS CONTROL ADDRESS = m-1 (IF USED)
 SLAVE 1 ADDRESS = m-2

SLAVE 2 ADDRESS = m-3

SLAVE x ADDRESS = 3

x = NO. OF ZONES-1

8 ZONES MAX. (MONITOR + SLAVES)

(REFER TO COMPRESSOR UNIT INSTRUCTIONS FOR OTHER ZONING LIMITATIONS)

AC followed by a two digit number), refer to the Start-up and Service Manual for the compressor bearing unit for instructions for isolating and clearing system problems.

When the Indoor and Compressor Section Control Modules are powered-up, the red status LED will light for approximately 5 seconds, then blink on and off indicating a ready condition. If this does not happen, or the red and green error code LED's are flashing (near SW1, see Fig. 12), consult the Start-up and Service Manual for the compressor bearing system for instructions for isolating and clearing system problems.

At initial start-up, the thermostat and bypass controller functions must be manually configured. Refer to instructions located under the thermostat cover or in Table 6. The values listed must be set to enable the Carrier/Parker Home-Zone® thermostat to operate with the 40QE or 40QEH Indoor Fan Coil.

After all device features have been set or checked, return the rotary switch to position 0.

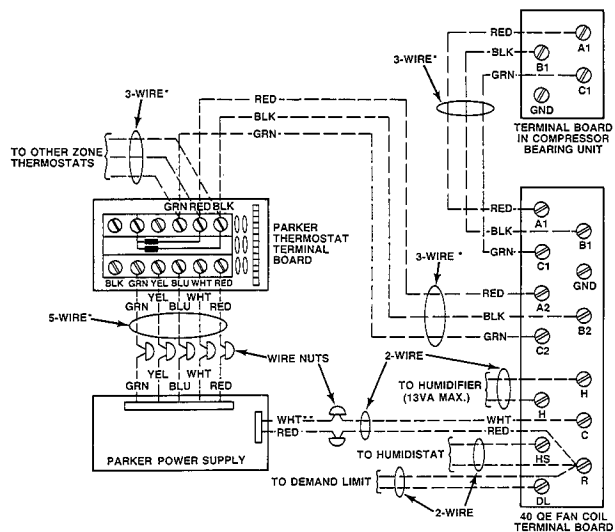
To check the operation of the 40QE or 40QEH blower, set the thermostat FAN switch to the ON position. The blower should begin operation within 60 seconds. Set the FAN

switch to auto and the blower should cease operation within 30 seconds.

→ Check the electric heat operation by setting the thermostat heat mode switch to AUTO and move setpoint above room temp. at least 6°. The electric heaters and blower should operate within 60-90 seconds. To cease heat operation, return heat switch to the OFF position. The system should cease operation within 3 minutes.

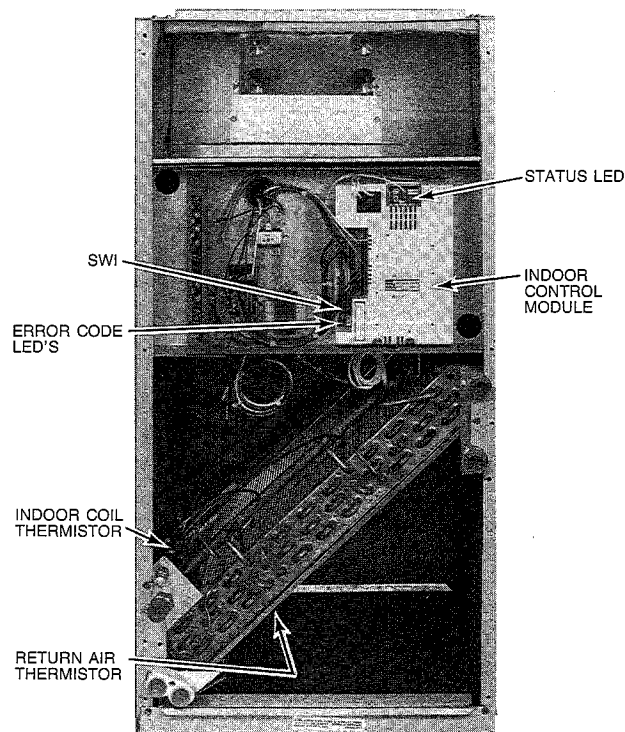
If the system or the thermostat malfunctions during the above checks, refer to the Start-up and Service Manual for the compressor bearing system or to the Carrier/Parker Home-Zone® Operation Guide for instructions for isolating and clearing problems.

NOTE: If the 40QE or 40QEH Fan Coil is operated for heating without the compressor section, the thermostat will display an FC-12 error code (compressor unavailable). Moving the setpoint above room temperature will initiate emergency heat as indicated by the heating setpoint alternating between the setpoint and an EH display. The display will continue to alternate the FC-12 display. This is normal and should not be considered a failure for this type of operation.



A89009

Fig. 11—Control Wiring connections



A89011

Fig. 12—Typical Component Location