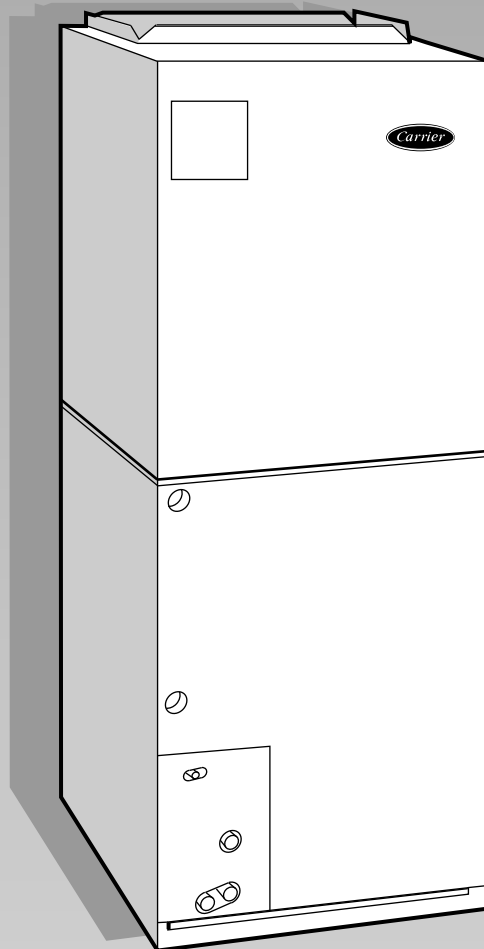




FB4A



CE

Mod. FB4A
018 - 024 - 030 - 036
042 - 048 - 060 - 070

DIRECT EXPANSION FAN COIL UNITS
Installation, operation and maintenance instructions

Safety consideration

Installation, start up and service should be only done by trained qualified installers due to system pressure and electrical components.

When working on equipment observe precautions in the literature, on tags, stickers and labels attached to equipment and any other safety precautions that apply.

Follow all safety codes, wear safety glasses and work gloves; when brazing wear protection equipment and have a fire extinguisher ready.

Use care in handling, rigging and setting down bulky equipment.

WARNING:

Before installing, modifying, or servicing system, main electrical disconnect switch must be in the OFF position. Lock out and tag switch with a suitable warning label.

Generalities

Model FB4A fan coil units are designed for flexibility in situations requiring an upflow or horizontal installation. The unit can be modified for downflow operation using a factory-authorized accessory kit.

All units are available in 6 through 18 kW nominal capacities.

Contact local Carrier distributor for available accessory kits.

Installation

- Inspect the shipment. Check to see if it has been damaged or if there are missing parts. In case of damage or missing parts, a claim must be made immediately to the company responsible for shipment.
- Ensure that the characteristics of the available power supply agree with the electrical data on the unit nameplate.

SITING THE UNIT

Unit can stand or lie on floor, or hang from ceiling or wall. Allow space for wiring, piping, and servicing unit.

IMPORTANT:

- **When fan coil is installed over a finished ceiling and/or living area, building codes may require a field supplied secondary condensate pan to be installed or unit to have a secondary condensate line (both field supplied). The fan coils are equipped with primary and secondary 3/4" (19 mm) FPT drain connections.**
- **When installing any fan coil (of any manufacturer) over a finished ceiling and/or living space, installation of a secondary drain pan under entire unit is recommended to avoid damage to ceiling.**
- **The multipoise fan coils can be installed for upflow and horizontal-left applications as factory shipped. Multipoise units can be installed for horizontal-right applications with field modifications. Vertical-only units can be installed as shipped in the upflow position or they may be converted to horizontal application with the use of a horizontal conversion kit. All units may be converted for downflow applications using factory-authorized accessory kits.**

NOTES:

- Downflow conversion kit available upon request.
- To ensure proper drainage for horizontal installations, unit must be installed level with its long direction and pitched slightly toward the unit front (1.5 ÷ 6.0 mm).

UPFLOW INSTALLATIONS

If return air is to be ducted, install duct flush with floor. Set unit on floor over opening. Use fire proof resilient gasket, 3 ÷ 6 mm thick, between duct, unit, and floor. Use only return-air opening provided. All air must pass through the coil.

HORIZONTAL INSTALLATIONS

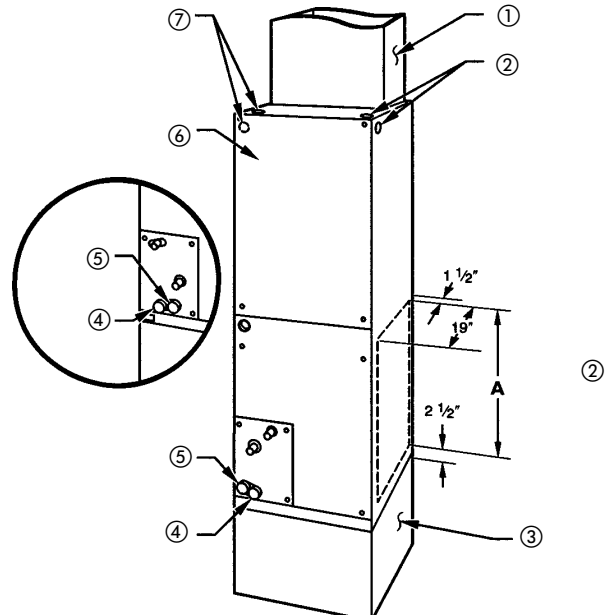
Be sure installation complies with all applicable building codes.

- Arrange support for unit, setting it in or above secondary condensate pan.
- When suspending unit from ceiling, dimples in casing indicate proper location of screws for mounting metal support straps.

- ① Supply duct (field supplied)
- ② Low volt entry options
- ③ Return plenum (field supplied)
- ④ Upflow / downflow primary drain
- ⑤ Upflow / downflow secondary drain
- ⑥ 610 mm front service clearance
- ⑦ Power entry options
- ⑧ Unit
- ⑨ Hanging straps (field supplied)
- ⑩ Optional return air flange kit
- ⑪ 5 mm filter access clearance
- ⑫ Secondary condensate drain
- ⑬ Primary condensate drain
- ⑭ Primary
- ⑮ Secondary

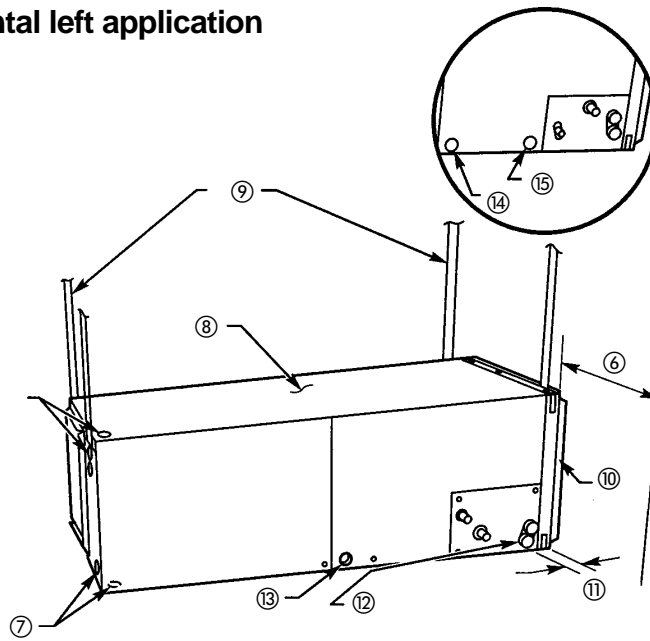
Slope coil unit in upflow application

Unit	A
018 - 024	305 mm
030 - 036	432 mm
042	483 mm



Installation

Slope coil unit in horizontal left application

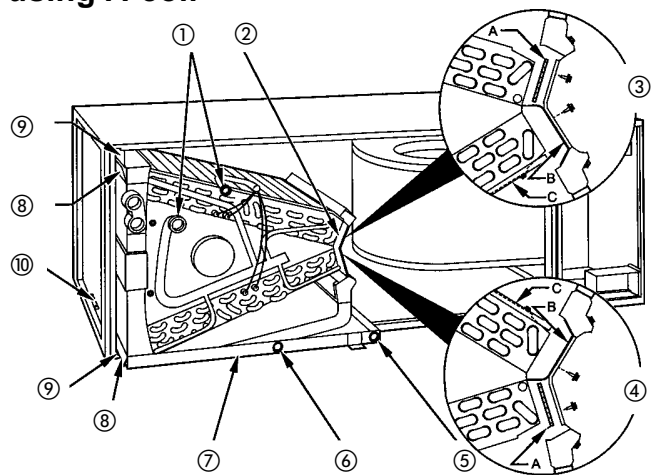


HORIZONTAL RIGHT CONVERSION OF UNITS WITH SLOPE COILS

To convert FB4A units with slope coils for horizontal right installations:

- 1 Remove blower and coil access panels and refrigerant connection panels.
- 2 Remove screws securing coil assembly to right-side casing flange.
- 3 Remove coil assembly.
- 4 Lay fancoil unit on its right side and reinstall coil assembly with condensate pan down.
- 5 Attach coil to casing flange using coil mounting screw removed in No. 2 above.
- 6 Reinstall access panels and refrigerant connection panel, aligning holes with tubing connections and condensate pan connections.

Conversion for horizontal right applications using A-coil

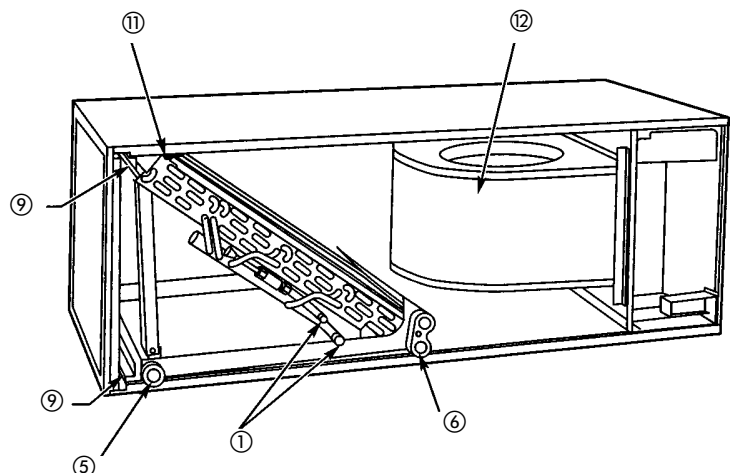


Make sure liquid and suction line grommets are in place to prevent air leaks and cabinet sweating.

DOWNFLOW INSTALLATION

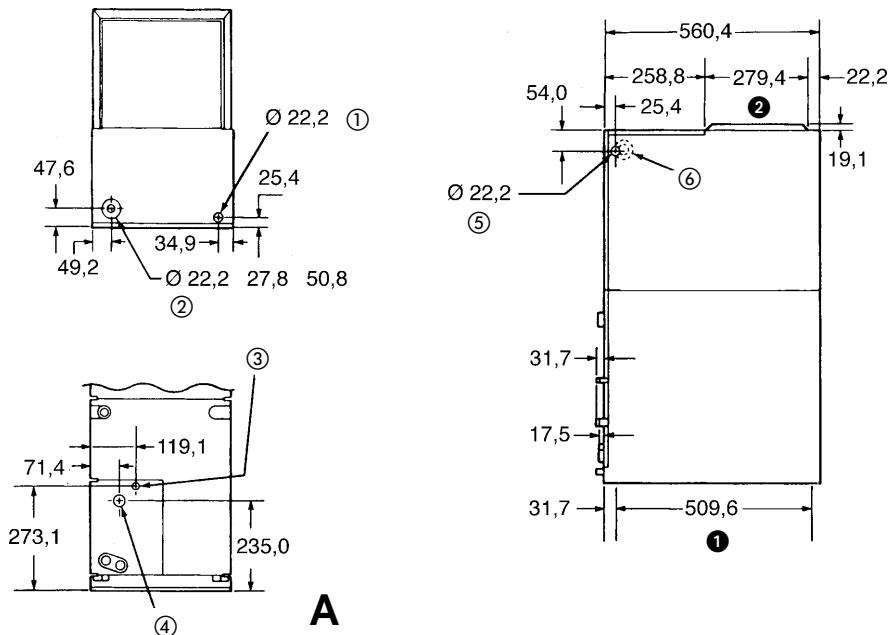
Refer to installation instructions supplied with kit to properly convert units for downflow application.

Conversion for horizontal right applications using a slope coil



- ① Refrigerant connections
- ② Air seal assembly
- ③ Horizontal right application
- ④ Factory shipped horizontal left application
- ⑤ Primary condensate drain
- ⑥ Secondary condensate drain
- ⑦ Metal horizontal drain pan
- ⑧ Coil bracket
- ⑨ Coil support rail
- ⑩ Drain pan support bracket
- ⑪ Coil mounting screw
- ⑫ Blower assembly

FBA4 018, 024, 030, 036, 042, 048, 060
Dimensions (mm)



A SLOPE COIL DETAILS
 Connection locations shown for upflow or horizontal left applications

B HORIZONTAL LEFT SLOPE COIL
 (Application: as shipped)

C UPFLOW SLOPE COIL
 ① Suction line
 ② Discharge line

Suction connection sizes
 • 018: Ø 5/8" (16 mm) ID sweat;
 • 024 through 036: Ø 3/4" (19 mm) ID sweat;
 • 042, 060: Ø 7/8" (22.2 mm) ID sweat

Liquid connection:
 Ø 3/8" (10 mm) ID sweat.

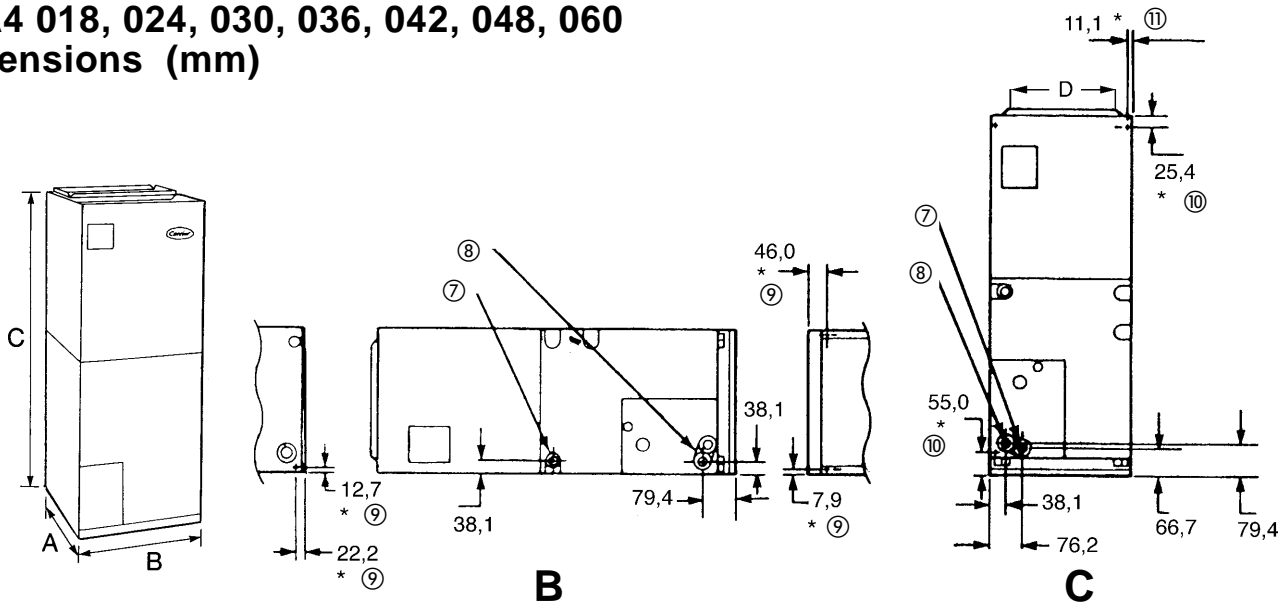
Condensate drains: Ø 3/4" (19 mm) FPT

- ① Knockout for low voltage control wiring
- ② Knockouts for high voltage power wiring
- ③ Liquid line connection
- ④ Suction line connection
- ⑤ Alternate knockout for low voltage control wiring
- ⑥ Alternate Ø 22.2 - 27.8 - 50.8 mm dia knockouts for high voltage power wiring opposite side.
- ⑦ Primary drain

- ⑧ Secondary drain
- ⑨ Typical *
- ⑩ Typical * (2 places)
- ⑪ Typical * (4 places)

* Dimples provided in top panel and back of cabinet. In cabinet bottom, holes provided 3.45 mm dia. Horizontal hanging hardware to be field-supplied.

FBA4 018, 024, 030, 036, 042, 048, 060
Dimensions (mm)



Physical data

FB4A		018	024	030	036	042	048	060	070	
Nominal capacity *	kW	6.4	8.2	10.2	12.3	14.1	17.3	17.6	17.6	
Operating weight	kg	43	45	57	58	67	72	76	90	
Dimensions - vertical unit										
Height (C)	mm	1084	1084	1212	1260	1357	1260	1357	1503	
Width (B)	mm	364	364	448	448	536	536	536	612	
Depth (A)	mm	560	560	560	560	560	560	560	560	
(D)	mm	316	316	400	400	489	489	489	578	
Unit arrangement	Upflow / Downflow / Horizontal (LH)									
Fan										
Direct-drive centrifugal										
Wheel diameter	mm	229	229	229	254	254	254	279	279	
Width	mm	152	152	178	178	178	229	229	229	
Nominal airflow	l/s	275	350	475	550	600	750	825	825	
Motor power input	kW	0.15	0.15	0.24	0.24	0.24	0.56	0.56	0.56	
Motor speed	r/s	16.7 / 15.0 / 13.3								
Indoor coil										
Copper tube, aluminium fin with lanced sine wave fins										
Face area	m ²	0.21	0.21	0.33	0.28	0.32	0.41	0.55	0.69	
Arrangement	slope	slope	slope	slope	slope	slope	"A"	"A"	"A"	
Rows		2	3	2	3	3	3	3	3	
Fins	No./m	551	551	551	551	551	551	551	551	
Air filter	Permanent / 25 mm thick									
Coil connection										
Sweat-type										
Vapour (ODS)		5/8" (16 mm)	3/4" (19 mm)	3/4" (19 mm)	3/4" (19 mm)	7/8" (22 mm)	7/8" (22 mm)	7/8" (22 mm)	7/8" (22 mm)	
Liquid (ODS)		3/8" (10 mm)	3/8" (10 mm)	3/8" (10 mm)	3/8" (10 mm)	3/8" (10 mm)	3/8" (10 mm)	3/8" (10 mm)	3/8" (10 mm)	

NOTE: *Based on nominal airflow rates, 19.4°C entering wet bulb and 7.2°C sat suction temperature.

Air ducts

Connect the supply-air duct over the outside of the 3/4" (19 mm) flange provided on the supply-air opening. Secure the duct to the flange, using proper fasteners for the type of duct used, and tape the duct-to-unit joint.

Duct connection flanges are provided on unit air-discharge connection. If return-air flanges are required, install factory-authorized accessory kit. Refer to installation instructions supplied with kit for proper installation.

When using electric heaters, maintain a clearance from combustible materials to discharge plenum and ductwork. Use an accessory downflow base to maintain proper clearance on downflow installations.

Use flexible connectors between ductwork and unit to prevent transmission of vibration. When electric heater is installed, use heat resistant material for flexible connector between ductwork and unit at discharge connection.

Ductwork passing through unconditioned space must be insulated and covered with vapour barrier.

Ductwork acoustical treatment

Metal duct systems that do not have one 90° elbow and 3 m of main duct to first branch takeoff may require internal acoustical insulation lining.

Line the inside of plenum, branch runs, and main duct with acoustical insulation in accordance with local codes application standard for duct liner. Ensure main duct lining is extended 1.8 ÷ 2.4 m down the duct from the plenum.

As an alternative to above, fibrous ductwork may be used if constructed and installed in accordance with local codes.

Electrical connections

CONNECTING THE UNIT

Before proceeding with electrical connections, make certain that supply voltage, frequency, and phase are as specified on the unit rating plate. Be sure that electrical service provided by the utility company is sufficient to handle the additional load imposed by this equipment.

CAUTION:

- **Before installing or servicing fan coil, always turn off all power to unit. There may be more than one disconnect switch. Turn off accessory heater power if applicable. Electrical shock can cause personal injury or death.**
- **If a disconnect switch is to be mounted on the unit, select a location where drill or fastener will not contact electrical or refrigerant components.**
- **See outdoor unit wiring label for proper field high- and low-voltage wiring.**
- **Make all electrical connections in accordance with any local codes or ordinances that may apply.**
- **Use copper wire only.**
- **The unit must have a separate branch electric circuit with a field-supplied disconnect switch located within sight from, and readily accessible from, the unit.**

24-VOLT CONTROL SYSTEM CONNECTIONS TO UNIT PRINTED-CIRCUIT BOARD

Refer to unit wiring instructions for recommended wiring procedures.

Use at least 1 mm² dia colour-coded, insulated wire to make the low-voltage connections between the thermostat and the unit. If the thermostat is located more than 30 m from the unit, use 1.5 mm² dia colour-coded, insulated wire.

Printed-circuit board is circuited for single-stage heater operations. When additional heater staging is desired using two-stage or outdoor thermostats, break off jumper tabs on printed-circuit board (see figure).

Connect low-voltage leads to thermostat and outdoor unit.

NOTE:

Where local codes require thermostat wiring be routed through conduit or raceways, splices can be made inside the fan coil unit. All wiring must be separated from incoming power leads.

TRANSFORMER

Transformer is factory wired for 230 V operation (see figure for transformer connections). When using 208 V supply, connect red primary lead to T2 and connect blue primary lead to T3.

The secondary circuit of the transformer is protected by a 5 A fuse mounted on the printed circuit board.

GROUND CONNECTIONS

WARNING:

- **According to local codes, the cabinet must have an interrupted or unbroken ground, to minimize personal injury if an electrical fault should occur.**
- **The ground may consist of electrical wire or metal conduit when installed in accordance with existing electrical codes.**
- **Failure to follow this warning could result in an electric shock, fire or death.**

Use conduit and conduit connector for connecting supply wire(s) to unit and obtaining proper grounding.

Grounding may also be accomplished by using grounding lug provided in control box. Use of dual or multiple supply circuits will require grounding of each circuit to ground lugs provided on unit and heaters.

MINIMUM AIR FLOW AND MOTOR SPEED SELECTION

WARNING:

Unit power must be disconnected before proceeding with motor speed selection. Make sure control compartment access panel is closed before restoring power to unit. Failure to follow this warning could cause personal injury or death resulting from electrical shock or moving parts.

Fan coil units with or without electric heaters require minimum air flow.

Refer to the fan coil wiring label or table "Minimum air flow..." to ensure that the fan speed selected is no lower than the minimum fan speed indicated (see table "Colour code" for identification of speed taps).

Factory-selected speed tap is connected to terminal F4. Unused fan speed taps are connected to terminals F2 and F3 (see table "Fan speed taps").

Select desired speed and attach to terminal F4. Attach unused speed tap to terminal F2 and F3.

PRINTED CIRCUIT BOARD

The low voltage terminals are used to connect the control to the 24 V side of the transformer and it serves as common terminal board between control and outdoor unit.

LOW VOLTAGE terminal description

- Terminal R connects secondary side of transformer. Red wire is used to give 24V power to the card and control. On HK61GA003 card terminal R is located under the fuse.
- Terminal C is connected to the earth terminal and can be closed through the secondary transformer. On HK61GA001 card terminal C is under the fuse.
- Terminal G is used to control fan motor relay
- Terminal Y is used to connect outdoor unit and controller, it serves to control compressor relay
On HK61GA003 card there is a relay which deactivates the fan motor relay 90 seconds after the compressor stops.
- Terminal O is used to connect the internal card control and reversing valve coil
- Terminals W2 e W3 are used to control the first and second stage of the electric heating
- Terminal L is used to connect the signal wire alarm/thermostat

Electrical connections

Legend

- RD** Low speed
- BU** Medium speed
- BK** High speed

- FR** Electric card (fancoil)
- FU** 2A fuse
- CAP** Capacitor
- TC** Transformer
- Ø** Terminal

- ① Supply 230V 50HZ
- ② Connector
- ③ To condensing unit
- ④ Room thermostat
- ⑤ Fan coil motor*

- ① Electronic card
- ② Auxiliary terminal board
- ③ Power terminal board
- ④ Capacitor
- ⑤ Motor
- ⑥ Fan

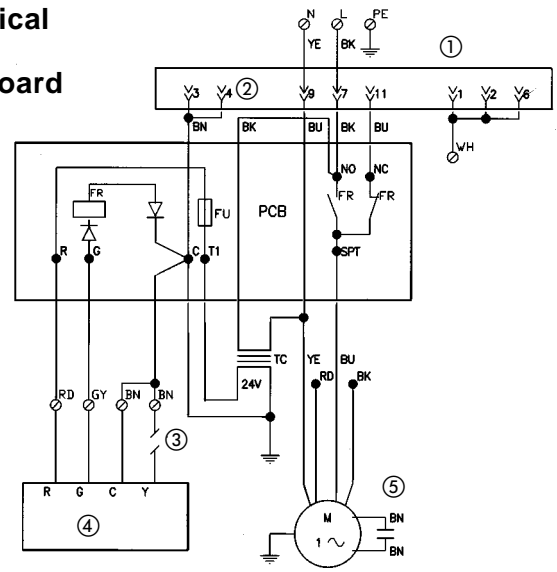
Colour code

- BN** Brown
- BL** Black
- RD** Red
- YE** Yellow
- VT** Violet
- GN** Yellow/Green
- WH** White
- BU** Blue

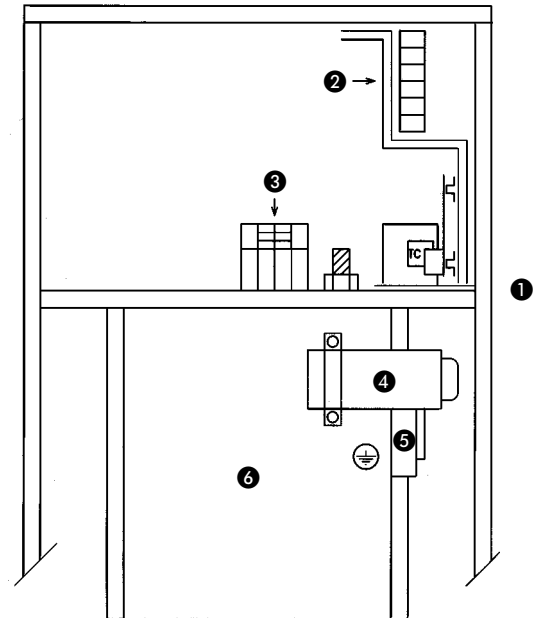
NOTES:

* The fan coil motor has internal thermal protection

Control wiring electrical connection to the unit printed circuit board



Transformer electrical connection



Colour code for motor lead wires

Motor speed tap	Wire colour
Common	Yellow
High	Black
Medium	Blue (3-speed only)
Low	Red (blue – 2-speed motors)

Fan speed taps

FB4A	Motor speeds	Factory-selected speed
018 - 024 - 030 - 036	2	Low
042 - 048 - 060 - 070	3	Medium

Minimum airflow (l/s) and motor speed selection

FB4A	Heater (kW)									
	3	5	8	9	10	15	18	20	24	30
018	248	248	248	–	283 *	–	–	–	–	–
024	330	330	330	–	330	366	–	–	–	–
030	–	413	413	–	413	413	–	500 *	–	–
036	–	496	458	458	458	458	–	491	–	–
042	–	–	578	578	578	578	583	578	–	–
048	–	–	661	661	661	661	661	661	661	661
060 - 070	–	–	826	826	826	826	826	826	826	826

NOTES:

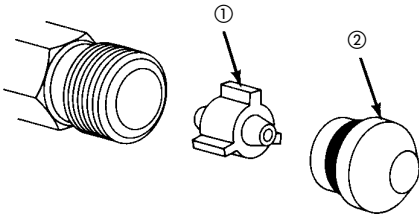
All motor speeds at low tap unless indicated.

* Indicates medium-speed tap for 3-speed motors.

Refrigerant connections

Start-up

• Refrigerant flow-control device



See the figure for tube connection sizes, type and locations. Use accessory tubing package or field-supplied tubing of refrigerant grade. Insulate entire suction tube if field-supplied tubing is used. Tubing package has an insulated suction line. Do not use damaged, dirty, or contaminated tubing because it may plug refrigerant flow control device.

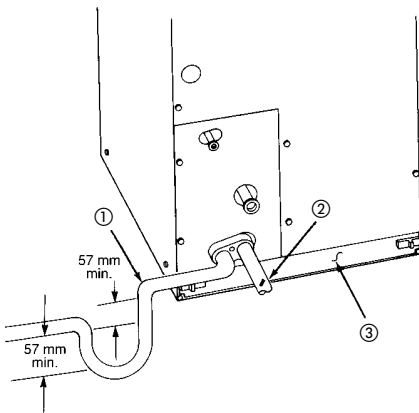
When refrigerant lines have been installed, they must be evacuated and dehydrated, before they are filled with refrigerant.

NOTE:

Braze shield may be required to prevent damage to unit surface when tubing sets are being brazed to unit connections.

- ① Piston
- ② Retainer

• Condensate drain



- ① Primary
- ② Secondary (trap required)
- ③ Filter access panel

Condensate drain pipe

The condensate pan has a primary and secondary drain connections to meet all applicable codes, and building requirements. These connections have 3/4" (19 mm) female pipe threads (FPT). All condensate drains should be a minimum of 7/8" (22 mm) OD copper or plastic tubing or 3/4" (19 mm) galvanized iron pipe.

The drain should be pitched downward at a minimum slope of 1%. If the coil is located in or above a living space where damage may result from condensate overflow, a separate 3/4" (19 mm) drain must be provided from the secondary drain connection. Run secondary drain to a place where it is noticeable when used.

NOTE:

When connecting condensate drains, avoid blocking filter access panel, thus preventing removal of filter.

Install a trap in condensate drains as close to coil as possible. Make sure that top of trap is below connection to coil to prevent condensate from overflowing drain pan. Prime trap with water, test for leaks, and insulate drain if located above a living area. Consult local codes for additional restrictions or precautions.

CAUTION:

Never operate unit without a filter or with filter access panel removed. Damage to blower motor or unit may result.

Refer to outdoor unit installation instructions for system start-up instructions and refrigerant charging method details.

SEQUENCE OF OPERATION

CONDENSING UNIT

• Cooling

When the thermostat "calls for cooling", the circuit between R and G is completed and the single-pole single-throw relay (FR) is energized. The normally open contacts will close, causing the blower to operate. The circuit between R and Y is also completed; this completed circuit causes the contactor in the outdoor unit to close and start the compressor and outdoor fan.

• Heating

When the thermostat "calls for heat" and the FAN switch is set on AUTO, the circuit between R and W is completed. The heater sequencer (SEQ) will then be energized, which in turn will close the contacts of the relay. (There will be a time delay). This completed circuit energizes all heating elements (HTR) and the blower motor.

HEAT PUMP

• Cooling

On a "call for cooling", the thermostat makes circuits R-O, R-Y and R-G. Circuit R-O energizes the reversing valve, switching it to the cooling position. Circuit R-Y energizes the contactor, starting the outdoor fan motor and the compressor. Circuit R-G energizes the indoor unit blower relay, starting the indoor blower motor.

When the thermostat is satisfied, its contacts open, de-energizing the contactor reversing valve and blower relay. This will stop the compressor and fan motors.

• Heating

On a "call for heat", the thermostat makes circuits R-Y and R-G. Circuit R-Y energizes the contactor, starting the outdoor fan motor and the compressor. Circuit R-G energizes the indoor blower relay, starting the blower motor.

Should the temperature continue to fall, R-W is made through the second-stage room thermostat bulb. Circuit R-W energizes a sequencer, bringing on the supplemental electric heat. When the thermostat is satisfied, its contacts open, de-energizing the contactor and sequencer. All heaters and motors should stop.

Maintenance and care

To continue high performance and minimize possible equipment failure, it is essential that periodic maintenance be performed on this equipment.

Consult your local dealer as to the proper frequency of maintenance and the availability of a maintenance contract. The ability to properly perform maintenance on this equipment requires certain mechanical skills and tools. If you do not possess these, contact your dealer for maintenance. The only consumer service recommended or required is filter maintenance.

The minimum maintenance requirements for this equipment are as follows:

- 1 Inspect and clean or replace air filter each month or as required.
- 2 Inspect cooling coil, drain pan, and condensate drain each cooling season for cleanliness. Clean as necessary. An inspection port is provided on all A-coil delta plates. Remove plastic plug to inspect. Replace plug after inspection.
- 3 Inspect blower motor and wheel for cleanliness each heating and cooling season. Clean as necessary.
- 4 Inspect electrical connections for tightness controls for proper operation each heating and cooling season. Service as necessary.

WARNING:

- **As with any mechanical equipment, personal injury can result from sharp metal edges, etc.; therefore, be careful when removing parts.**
- **Disconnect all power to the unit before servicing the field wires or removing the control package. The disconnect (when used) on the access panel does not disconnect power to the line side of the disconnect, but does allow safe service to all other parts of the unit.**
- **If the unit does not have a disconnect, disregard the previous instruction. Instead, make sure that a disconnecting means is within sight from, and is readily accessible from, the unit. Disconnect all electrical power to the unit before performing any maintenance or service on it.**

A failure to follow this warning can cause electrical shock, fire, personal injury or death.

FILTER ASSEMBLY

To clean or replace air filter, push plastic connectors toward center of unit and remove filter access panel outward. Push filter up and back into unit. Then slide filter out, clean with cold water and allow filter to dry. No oiling or coating of filter is required. New filters are available from your local distributor.

COOLING COIL, DRAIN PAN, AND CONDENSATE DRAIN

The cooling coil is easily cleaned when it is dry. To check or clean the cooling coil, remove the coil access panel. If the coil is coated with dirt or lint, vacuum it with a soft brush attachment.

Be careful not to bend coil fins. If the coil is coated with oil or grease, clean it with a mild detergent and water solution. Rinse the coil thoroughly with clear water. Be careful not to splash water on the insulation.

Inspect the drain pan and condensate drain at the same time the cooling coil is checked. Clean the drain pan and condensate drain by removing any foreign matter from the pan. Flush the pan and drain tube with clear water.

If the drain tube is restricted, it generally can be cleared by high-pressure water. Cut the plastic line and work outside the condensate pan and away from the coil to clean the drain tube.

CAUTION:

Do not use caustic household drain cleaners in the condensate pan or near the coil. They can quickly destroy a coil.

BLOWER MOTOR AND WHEEL

Clean the blower motor and wheel when the cooling coil is cleaned.

CAUTION:

Disconnect electrical power before removing any access panel.

To clean blower motor or blower wheel, remove blower access panel.

- Remove motor leads from printed-circuit board. Note lead location for ease of reassembly.
- Remove two outside screws holding blower/motor assembly against the blower-deck flange and slide assembly out of cabinet.
- Remove screw in strap holding motor capacitor to blower housing and slide capacitor out from under strap.
- Remove screw with green wire from blower housing. Mark the blower wheel, motor and motor support in relation to the blower housing before disassembly to ensure proper reassembly. (Note position of blades on wheel). Loosen setscrew holding blower wheel onto motor shaft.
- Remove three bolts holding motor mount to blower housing and slide motor and mount out of housing. Further disassembly should not be necessary, as adequate clearance is available. Remove blower wheel from housing by removing cutoff plate from blower housing outlet. Note wheel orientation and cutoff location for reassembly. The blower motor and wheel may be cleaned by using a vacuum cleaner with a soft-brush attachment.
- Remove grease with a mild solvent such as hot water and detergent. Be careful not to disturb the balance weights (clips) on the blower-wheel vanes. Also, do not drop or bend wheel, as balance will be affected.
To reassemble blower, place blower wheel back into housing. Be sure to position correctly for proper location. Reassemble cutoff plate to housing, using identified holes from disassembly procedure. Position motor and mount in same position as when blower housing was in unit. Secure motor mount on housing, using bolts removed. Make sure mount or motor is grounded to blower housing.

Maintenance and care

- Locate blower wheel setscrew over flat on motor shaft. Rotate wheel in housing. It should not rub housing and should be centered in inlet opening. If not, loosen setscrew and align as necessary. Attach green wire to blower housing with screw. Secure motor capacitor under strap and tighten strap screw. Slide blower assembly to blower deck.
- Make sure (once blower is within the unit casing) to force blower assembly toward control box while sliding assembly into unit to ensure that blower assembly engages deck properly. Fasten blower assembly to deck with screws previously removed.
- Reconnect electrical leads to printed-circuit board. Reconnect electrical power to unit and test fan for proper rotation.

ELECTRICAL CONTROLS AND WIRING

WARNING:

Be sure ALL electrical power to the equipment is turned off. Electrical shock can cause injury or death.

With all power disconnected, inspect all electrical connections for tightness. Tighten all screws on electrical connections. If any discolored or burned connections are noticed, disassemble the connection, clean all parts and stripped wire, and reassemble properly and securely. Electrical controls are difficult to check without proper instrumentation; therefore, reconnect electrical power to unit and observe unit through one complete operating cycle. If there are any discrepancies in the operating cycle, contact your local dealer and request service.

REFRIGERANT CIRCUIT

The refrigerant circuit is difficult to check for leaks without proper equipment. Therefore, if low cooling performance is suspected, contact your local dealer for service.

Refrigerant flow-control device cleaning or replacement

Refer to figure "Refrigerant flow-control device".

- Pump down outdoor unit. Close service valves at outdoor unit.

CAUTION:

Damage may occur to the scroll compressor if operated at a negative suction pressure during a system pump down.

- Bleed and (if possible) recover remaining refrigerant from tubing and coil through gage port on vapour-tube service valve.
- Disconnect liquid refrigerant tube from refrigerant flow-control device.
- Remove refrigerant flow-control device piston retainer. Avoid damaging O-ring or machined surfaces on piston, bore, and retainer.
- Using small wire with a hook on end of it, remove piston from refrigerant flow-control device body.

CAUTION:

When cleaning the piston orifice, be careful not to scratch or enlarge the opening, as this will affect operation.

- Install new or cleaned piston in refrigerant flow-control device body.
- Install new retainer (because of probable damage which occurred in initial removal).
- Reconnect refrigerant tube to refrigerant flow-control device.
- Pressurize tubing and coil, then leak-check.
- Evacuate tubing and coil as necessary.

CAUTION:

Use a backup wrench and do not overtighten, as deformation of the refrigerant flow-control device body will occur, causing the piston to lodge in a partially open or closed position.

Troubleshooting chart

A series of possible faults is related below, as well as the probable causes and suggested solutions. However, in the event of a unit malfunction, it is advisable to disconnect the power supply and ascertain the cause.

(Symptom / Cause / REMEDY)

The fan does not start with the control on "FAN"

- Voltage loss or wrong connections.
CHECK ELECTRICAL WIRING BETWEEN CONNECTOR AND BOARD. THE YELLOW WIRE MUST BE CONNECTED BETWEEN PIN No. 9 AND FUSE. A BLACK WIRE MUST BE CONNECTED BETWEEN PIN No. 7 AND SEQUENCER No. 1.
- Wrong voltage.
CHECK THAT POWER SUPPLY BETWEEN R AND C TERMINALS IS 24 V.
CHECK THE LOW VOLTAGE FUSE.
CHECK 5 A MAXIMUM LOAD, IF FUSE BREAKS.

Compressor does not start

- Wrong or broken connections.
CHECK THAT THE VOLTAGE BETWEEN C AND Y TERMINALS IS 24 V. IF NOT, CHECK THE WIRING REFERRING TO THE WIRING DIAGRAM.

Reversing cycle valve does not work

- Wrong or broken connections.
CHECK THAT THE VOLTAGE BETWEEN O AND C TERMINALS IS 24 V DURING COOLING OPERATION. IF NOT, CHECK THE WIRING REFERRING TO THE WIRING DIAGRAM.



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The manufacturer reserves the right to change any product specifications without notice.