Number One Air Conditioning Maker

Carrier

Division of Carrier Corporation

Carrier Parkway • Syracuse N.Y. 13221

Installation, Start-Up and Service Instructions

50BJ,BK

016 thru 064

Single-Package Cooling Units

SAFETY CONSIDERATIONS

The 50BJ,BK Single-Package Cooling Units are designed to provide safe and reliable service when operated within design specifications. However, due to system pressures, electrical components and equipment location, some aspects of installation, start-up and servicing of this equipment can be hazardous.

Only trained, qualified installers and service mechanics should install, start up and service this equipment.

When working on this equipment, observe all precautions on tags or labels attached to the unit, safety notes in the literature and any other safety precautions that apply.

- Follow all safety codes.
- Wear safety glasses and work gloves.
- Use care in handling, rigging and placing bulky equipment.

⚠ DANGER

NEVER reach into unit while fan is running. LOCK OPEN AND TAG fan motor power disconnect before working on a fan. Remove the fuses and take them with you after noting this on tag.

⚠ WARNING

CHECK assembly and component weights to be sure rigging equipment can handle them safely. Note also any specific rigging instructions.

WHEN STEAM CLEANING COILS, be sure area is clear of personnel.

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INSTALLATION

General — The 50BJ water-cooled condenser type units and the 50BK condenserless units are single-package, vertical air conditioning units designed specifically for application with 35B Modubox and 37A Moduline® variable volume air terminals. For air terminal installation and service refer to the separate 35B and 37A installation booklets.

Sizes 50BJ,BK016 and 024 units are shipped with all components assembled, piped and wired. Sizes 50BJ,BK028 and 034 are shipped as follows:

1. Base unit — containing evaporator coil unit, compressors and condensers (50BJ unit only).
2. Fan section.
3. Fan motor and drive.

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Sizes 50BJ,BK044,054 and 064 are shipped with all components assembled, piped and wired.

Step 1 — Receive and Inspect Unit

Check unit against shipping order. Inspect carefully for concealed shipping damage. *If shipment is damaged or incomplete, file claim with transportation company and advise Carrier immediately.*

Step 2 — Protect Unit From Damage

To maintain warranty, protect unit against adverse weather, theft or vandalism on jobsite.

Step 3 — Provide Unit Support

Refer to Fig. 1 — Unit Dimensions, and Table 1 — Unit Physical Data for unit size and weight. Floor unit loading should be adequate to support unit.

Step 4 — Rig and Place Unit With Accessories

Collect all unit parts together and move them to actual installation site. Provide space around unit for service, filter access and overhead clearance as indicated in Fig. 1.

Move and store unit in upright position. Do not remove shipping package and skids until unit is at final position. Use slings with spacer under base skid to prevent panel damage when using hoist. DO NOT USE CHAINS. Raise base skid on blocks and remove bolts. Unbolt fan section from skid (028 and 034 units only).

If any 39E accessories (eg. filters) are to be used on 50BJ,BK044—064 units, refer to latest 39E Installation Instructions. The 50BJ,BK044-064 units do not contain installed filters or racks. Bolts to secure filter rack are shipped secured to the unit compressor basepan.

Units as shipped are adequately dampened against vibration. If additional dampening is desired, place sponge rubber, rubber mat or fiberglass roof insulation between floor and base of unit or install vibration isolators.

Step 5 — Position Fan Section As Desired

UNIT SIZES 50BJ,BK016 and 024 are shipped for vertical discharge. To set up these units for top-mounted horizontal discharge, accessory filler panels must be field installed (see Fig. 1).

To set up unit Sizes 50BJ,BK016 and 024 for back-mounted horizontal discharge (Fig. 1), proceed as follows:

1. Remove:
   a. rear fan-section panel.
   b. upper rear coil-section panel.
   c. flexible conduit and wires from motor.
   d. corner bolts holding fan section to coil section.
2. Remove fan section and rotate it 180° lengthwise so that motor is on left side of unit.
3. Place fan section on rear of coil section and refasten.
4. Replace motor wire and conduit.
5. Adjust the following items per Installation Step 8:
   a. Shaft alignment.
   b. Fan wheel position.
   c. Pulleys.
   d. Fan belt.
6. Replace panels as follows:
   a. Upper rear coil-section panel on top of coil section and fasten.
   b. Rear fan-section panel on top of fan section and fasten.

UNIT SIZES 50BJ,BK028 AND 034 are shipped in sections as noted previously. They can be field assembled for either vertical or horizontal discharge.

NOTE: Fan section panels may be removed for easier lifting and to facilitate motor installation.

To set up Sizes 50BJ,BK028 and 034 units for horizontal discharge (Fig. 2), proceed as follows:

1. Remove:
   a. Upper rear and end panels of coil section.
   b. End panels on fan section.
   c. Fasteners holding lower rear edge of fan panel.
2. Lift and position fan section on rear of coil section (Fig. 2). Secure with fasteners provided.
3. Install the following per Installation Step 6:
   a. Motor mounting frame angles.
   b. Motor on plate assembly.
   c. Motor-plate assembly on frame angles.
   d. Balance of drive package components.
4. Adjust the following per Installation Step 8:
   a. Shaft alignment.
   b. Fan wheel position.
   c. Pulleys.
   d. Fan belts.
5. Replace panels as follows:
   a. Rear coil section panel on top of coil section. Rear holes will overlap fan section top panel. Fasten using hole vacated in step 1c (see Fig. 2).
   b. All end panels.

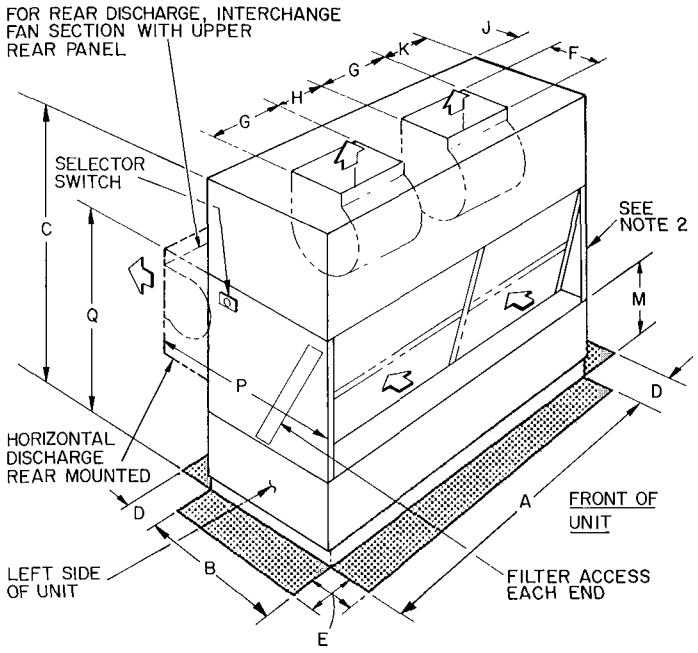
Table 1 — Unit Physical Data

MODEL 50	BJ	BK	BJ	BK	BJ	BK	BJ	BK
SIZE	016		024		028		034	
OPERATING WEIGHT (lb)	1420	1225	1900	1470	2500	2335	2610	2440
OPERATING CHARGE (lb)*	Refrigerant 22							
System 1	24	15	17	7	24	15	24	15
System 2	—	—	17	7	17	12	24	15
COMPRESSOR	Serviceable Hermetic, 1750 rpm							
System 1	06DC337	06DC537	06DC724	06DC824	06DC337	06DC537	06DC337	06DC537
System 2	—	—	06DA724	06DA824	06DA724	06DA824	06DA337	06DA537
No. Unloading Cyl	4		4		4		4	
No. Unloading Steps	3		6		6		6	
CONDENSER (BJ only)	Shell and Coil							
Number	1	—	2	—	2	—	2	—
Max Working Pressure† (psig)	385	—	150	—	385	—	385	—
INDOOR FAN	Adjustable, Belt Driven Centrifugal							
Number	2		2		2		2	
Size (in.)	15 x 11		15 x 11		18 x 18		18 x 18	
Nominal Cfm	6,000		8,000		10,000		12,000	
Max. Rpm	1,100		1,100		1,100		1,100	
Std FSR (rpm)	875-1069		894-1089		925 or 1073		925 or 1073	
Nominal Hp (1750 rpm)								
Standard Hp ... Frame Size	3 182T		5 184T		7½ 213T		7½ 213T	
Alternate Hp ... Frame Size	5 184T		7½ .. 213T		10 ... 215T		10 ... 215T	
EVAPORATOR COIL	Copper Tubes, Aluminum Plate Fins							
Rows ... Fins/in.	3 13		4 .. 11		4 .. 11		4 15	
Total Face Area (sq ft)	16 9		18.0		22.6		24.9	
RETURN AIR FILTERS	Factory Supplied — Throwaway							
Number ... Size (in.)	3 16 x 25 x 2				6 25 x 20 x 2			
	3 .. 20 x 25 x 2				2 ... 16 x 20 x 2			

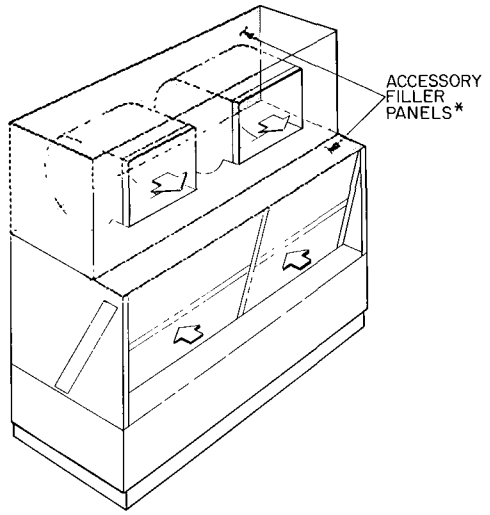
MODEL 50	BJ	BK	BJ	BK	BJ	BK
SIZE	044		054		064	
OPERATING WEIGHT (lb)	3560	3155	3860	3270	4000	3275
OPERATING CHARGE (lb)*	Refrigerant 22					
System 1	25 32	18	35	18	35	18
System 2	25 32	18	35	18	35	18
COMPRESSOR	Serviceable Hermetic, 1750 Rpm					
System 1	06E2150	06E2250	06E7265	06E7265	06E7175	06E7275
System 2	06EA150	06EA250	06EA150	06EA250	06EF175	06EF275
No. Unloading Cyl	2		4		4	
No. Unloading Steps	4		6		6	
CONDENSER (BJ only)	Tube in Tube					
Number	2	—	2	—	2	—
Max Working Pressure† (psig)	400	—	400	—	400	—
INDOOR FAN	Adjustable, Belt Driven Centrifugal					
Number	2		2		2	
Size (in.)	20 x 10		20 x 18		20 x 18	
Nominal Cfm	16,000		20,000		24,000	
Max. Rpm	1,200		1,200		1,200	
Std FSR (rpm)	1100-1300		1100-1300		1150-1300	
Nominal Hp (1750 rpm)						
Standard Hp ... Frame Size	15 245T		15 254T		20 256T	
Alternate Hp ... Frame Size	25 284T		25 ... 284T		30 ... 286T	
EVAPORATOR COIL	Copper Tubes, Aluminum Plate Fins					
Rows ... Fins/In.	3 15		4 . 15		4 15	
Total Face Area (sq ft)	37 5		37.5		37.5	
RETURN AIR FILTERS						
Number ... Size (in.)	None‡		None‡		None‡	

FSR — Fan Speed Range

1. *The 50BK operating charge does not include charge for matching air-cooled condenser or refrigerant connecting piping
2. †Water-side pressure on Model 50BJ024 is 385 psig if the factory-installed condenser header coupling is removed (field modification)
3. ‡Refer to 39E Series literature (size 39E32)
4. FAN MOTOR PULLEYS ON 50 BJ-BK 044, 054, AND 064 ARE FIXED PITCH TYPE.
5. MOTORS AND DRIVES OTHER THAN THOSE FURNISHED WITH UNIT MUST BE PURCHASED LOCALLY. INSTALLATION MAY REQUIRE FIELD MODIFICATION. CONTACT YOUR LOCAL CARRIER REPRESENTATIVE.

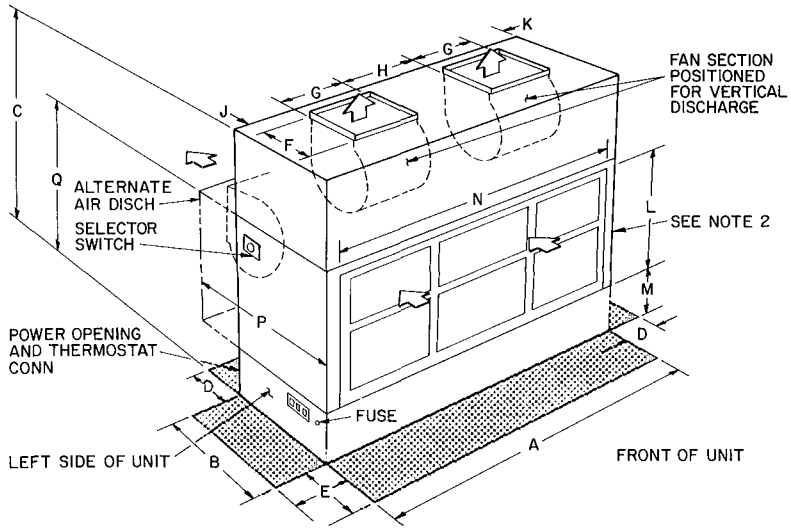


OPTIONAL TOP HORIZONTAL DISCHARGE



*For optional top-mounted horizontal discharge, use accessory filler panel package as shown

UNITS 50BJ,BK016 AND 024



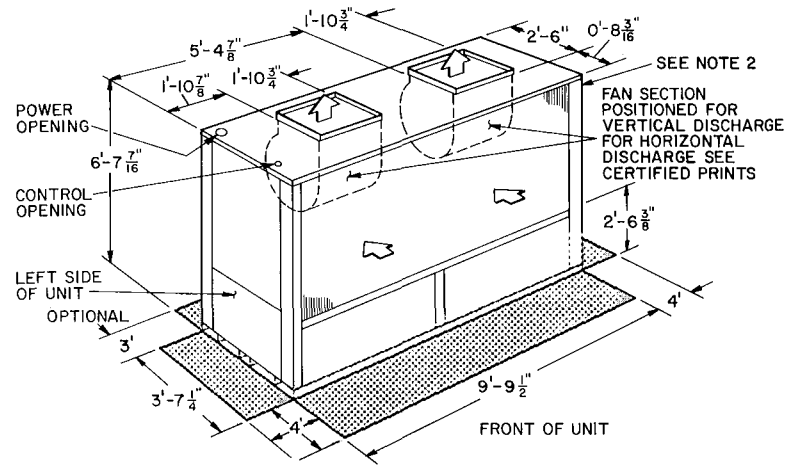
DIMENSIONS (ft-in)

UNIT 50BJ,BK	016	024	028	034
A	6- 8		7- 9¼	
B	2- 5¼		2-11¼	
C	6-10½		8- 0⅛	
D	2- 0		2- 0	
E	3- 0		3- 0	
F	1- 3¾		1- 8⅞	
G	1- 2⅝		1- 8⅛	
H	1- 4¼		1- 7⅞	

UNIT 50BJ,BK	016	024	028	034
J	0-1⅝		0-2⅜	
K	1-7		1-4	
L	—		3-2¼	
M	1-8		2-1⅛	
N	—		7-4¼	
P	4- 4⅝		5-4⅛	
Q	4-11½		5-7¼	

NOTES:
1 Certified dimension drawings available on request
2 Water and refrigerant connections located on right side of unit

UNITS 50BJ,BK028 AND 034



NOTES
1 Certified dimension drawings available on request
2 Water and refrigerant connections for Unit Sizes 50BJ,BK044 thru 064 are located on right side of unit See Fig 12 for connection details
3 Filters are not supplied with base unit All models are directly compatible with 39E (Size 32) air handling unit components Refer to 39E literature for physical data for accessories

ACCESS AREA

AIRFLOW

UNITS 50BJ,BK044, 054 and 064

Fig. 1 — Unit Dimensions

To set up Sizes 50BJ,BK028 and 034 units for vertical discharge (Fig. 2):

1. Remove:
   a. Front, rear and end panels of fan section.
   b. Upper-rear and end panels of coil section.
   c. Filters from coil section.
   d. Fasteners holding filter frame top. Push out frame away from coil section frame.
2. Lift up and position fan section on coil section (Fig. 2).
3. Fasten fan-section frame to coil-section frame with fasteners provided; then reposition and refasten the filter frame moved in step 1d.
4. Install the following per Installation Step 6:
   a. Motor mounting frame angles.
   b. Motor on motor-plate assembly.
   c. Motor-plate assembly on frame angles.
   d. Balance of drive package components.
5. Adjust the following per Installation Step 8:
   a. Fan wheel alignment.
   b. Shaft alignment.
   c. Pulleys.
   d. Fan belts.
6. Replace panels as follows:
   a. Rear coil-section panels, front and rear fan-section panels.
   b. All end panels.

→ Unit sizes 50BJ,BK044,054 and 064 are shipped with vertical discharge as standard. Other fan positions are available as a factory-installed option.

→ **Step 6 — Install Fan Motor.** Unit 50BJ,BK028 and 034 only. (All other units have factory installed motors.) Install items after fan section frame has been placed in position on coil section.

NOTE: Place plywood over evaporator coil to prevent damage while installing motor and mounts.

To install motor:

1. Fasten motor mounting angle bracket to fan section. Use Fig. 2 or 3 for position reference and Fig. 4 for assembly guidance. Be sure that lips of angle brackets are around fan section frame and that slots for motor mounting plate face each other.
2. Position motor on motor plate (Fig. 5) and fasten with fasteners provided.
3. Lift motor-plate assembly and slide into motor mounting angles as shown in Fig. 4. Plate fits in angle slots. On vertical mounts, the motor mounting assembly can be lowered to bottom of motor support channels.
4. Assemble and install motor adjusting screws as shown in Fig. 6. Drive roll pins into screws to

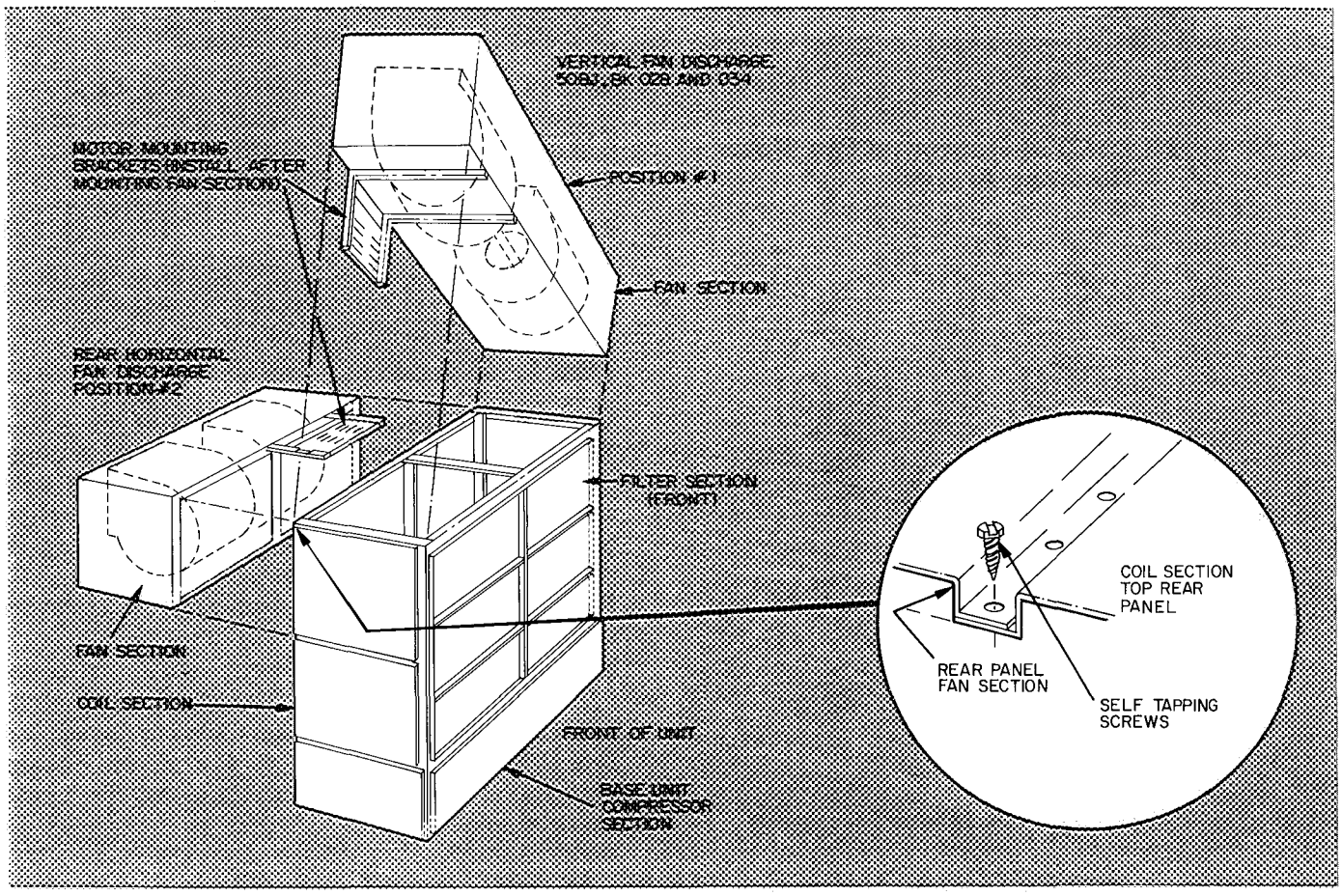
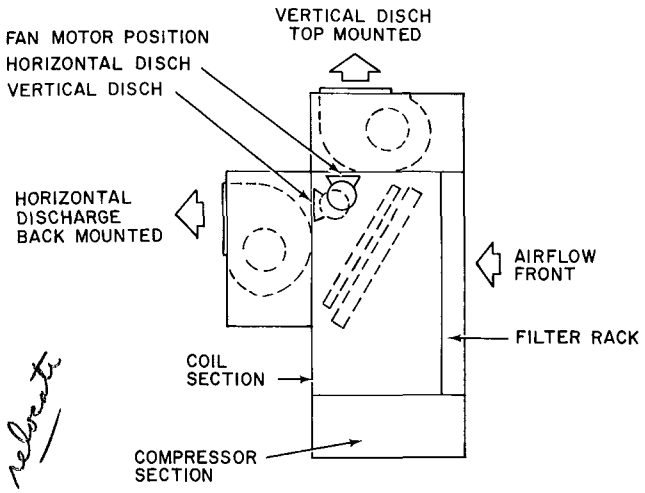


Fig. 2 — Fan Mounting (028,034 Units)



NOTE
Motor pulley on left side of unit — vertical discharge
Motor pulley on right side of unit — horizontal discharge

Fig. 3 — Fan and Motor Arrangements
50BJ,BK028,034

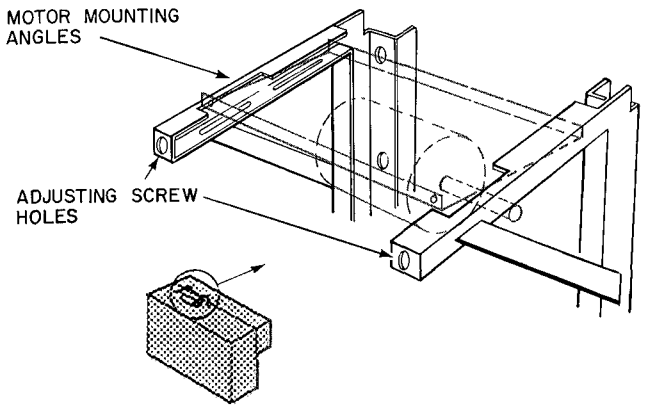
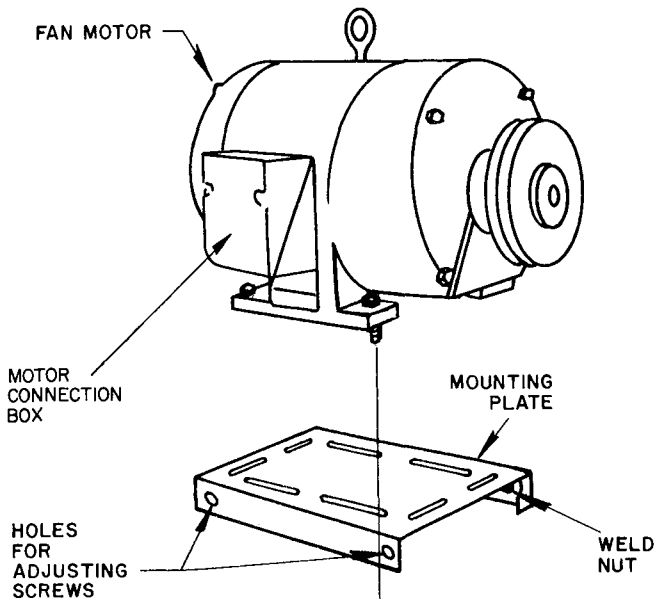


Fig. 4 — 028 and 034 Horizontal Fan Motor Mounting Angles



→ **Fig. 5 — 028 and 034 Motor Mounting**

prevent the screws from backing out during motor position adjustment.

5. Adjust motor position. Fasten motor mounting plate to mounting angles.

→ **Step 7 — Route Fan Motor Wire** (Unit 50BJ,BK 028 and 034 only)

Fan motor must be field wired. *Proper wire routing is essential to the operation of these units. Follow wire routing instructions carefully.*

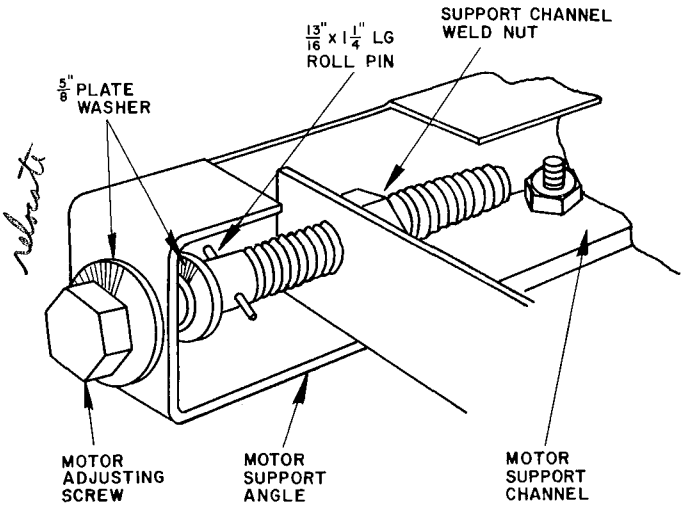


Fig. 6 — Assembled Fan Motor Adjusting Screw

CAUTION: Turn off electrical power to base unit before routing wiring to fan motor.

CHECK EQUIPMENT — Refer to Fig. 7 and 8 for location of base unit components. Fan motor wiring is shipped coiled on top of evaporator coil. Wire tie locations are shown in Fig. 7, 8 and 9.

ROUTE WIRING:

CAUTION: Route wiring with sufficient slack to permit motor adjustment. Wiring should not be pinched, touch any moving parts or sharp edges.

VERTICAL DISCHARGE (Fig. 2. Position #1) — Run wiring thru wire tie #1 (Fig. 9) on motor mounting bracket to the fan motor and secure. Route wiring from wire tie around motor side of mounting bracket to fan motor connection box on top of motor (Fig. 5). Cut off and discard excess wire. Refer to base unit label diagram for wiring connection details.

HORIZONTAL DISCHARGE (Fig. 2, Position #2) — Run wiring thru wire ties #2 and 3 (Fig. 9) to the fan motor and secure. Run wiring to connection box at back of motor (Fig. 5). Cut off and discard excess wire. Refer to unit label diagram for wiring connection details.

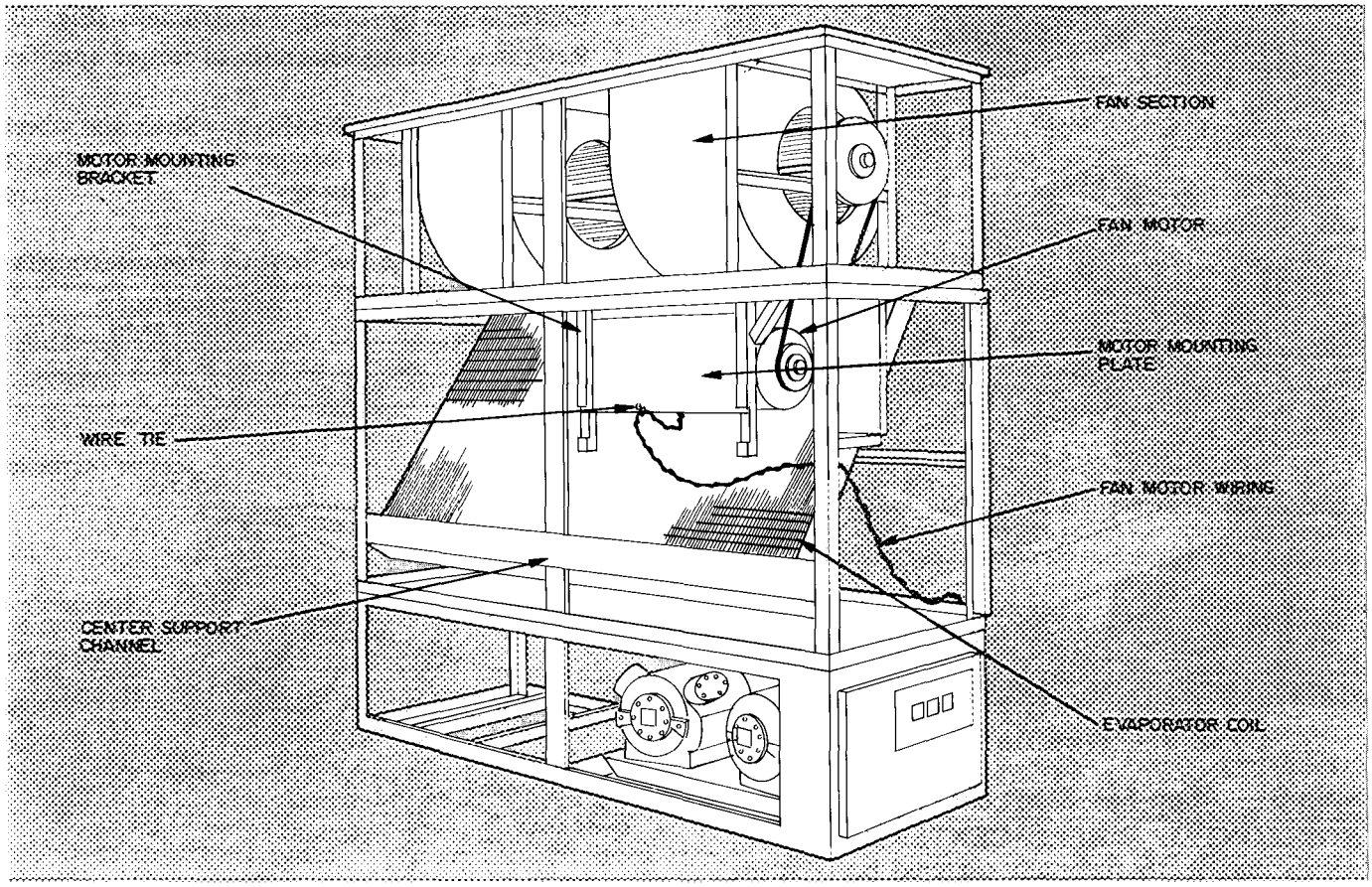


Fig. 7 — Typical 50BJ/BK028,034 Unit — Vertical Discharge

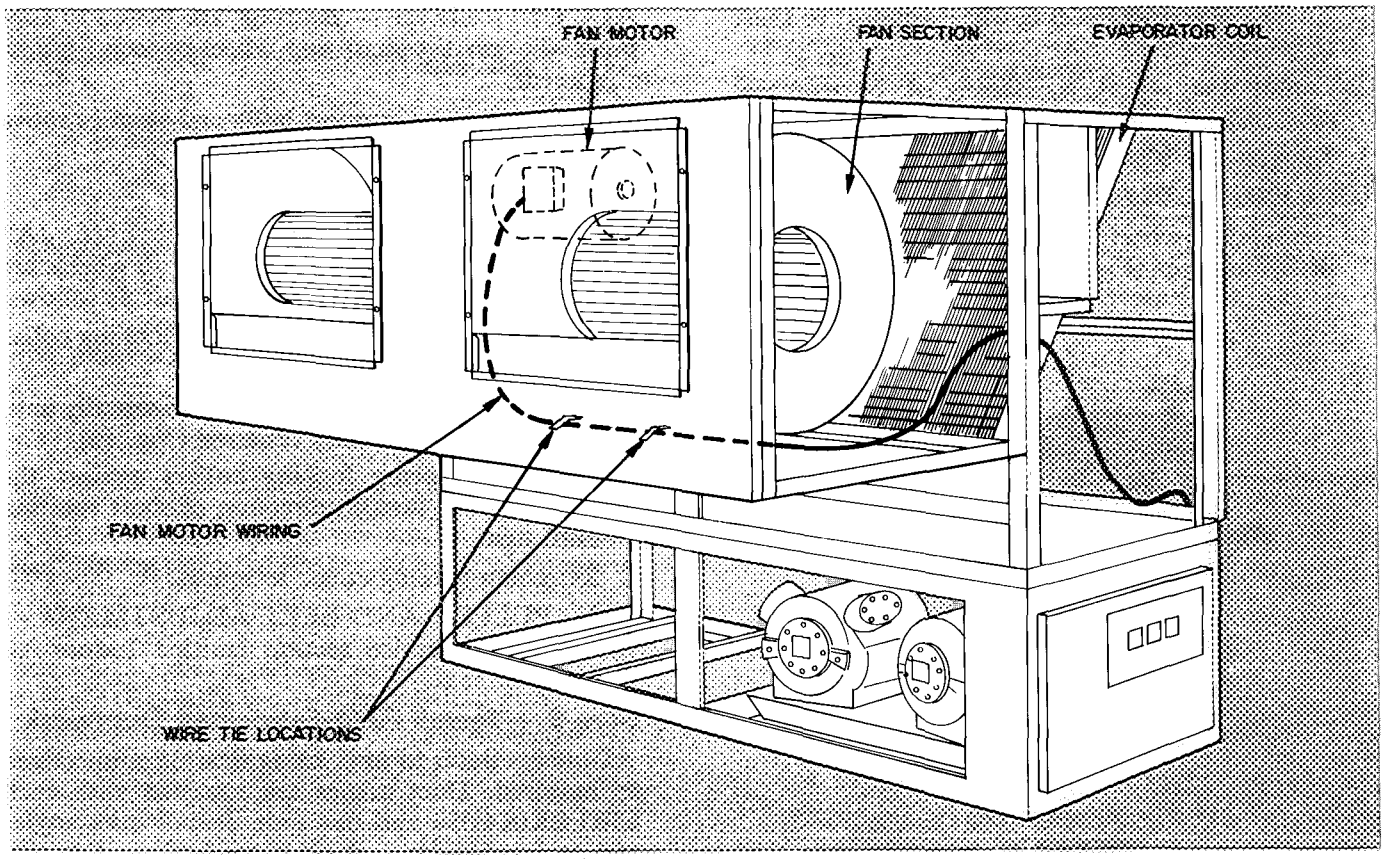


Fig. 8 — Typical 50BJ/BK028,034 Unit — Horizontal Discharge

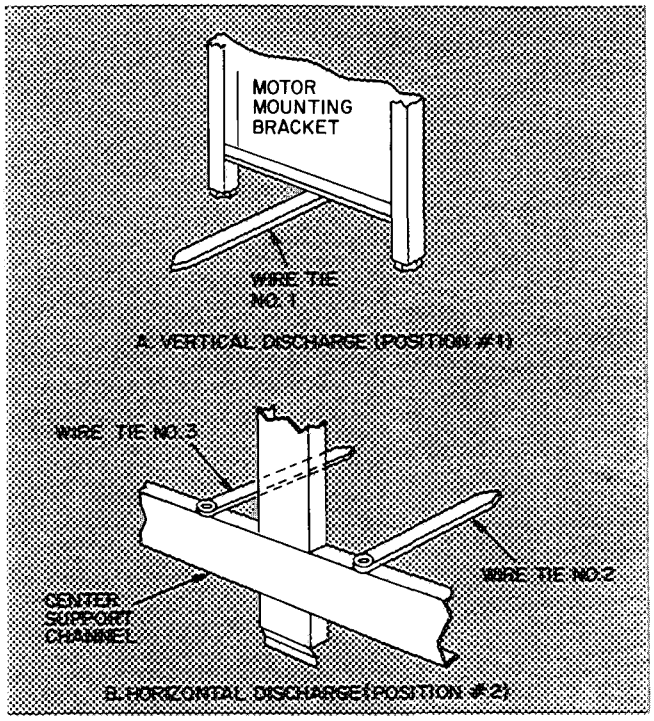


Fig. 9 — Wire Tie Locations

Step 8 — Align Fan Shaft and Wheel

HORIZONTAL WHEEL CENTERING — All wheels must be horizontally centered between the inside edges of their fan scroll venturis (Fig. 10). Adjust as follows:

Units 50BJ,BK016 and 024

1. Loosen setscrews holding wheel support to shaft (Fig. 11).
2. Center the wheel by sliding it horizontally (Fig. 10).
3. Retighten setscrews.

→ Units 50BJ,BK028,034,044,054 and 064

1. Loosen fan wheel sq hd setscrews on each side of fan support (Fig. 11).

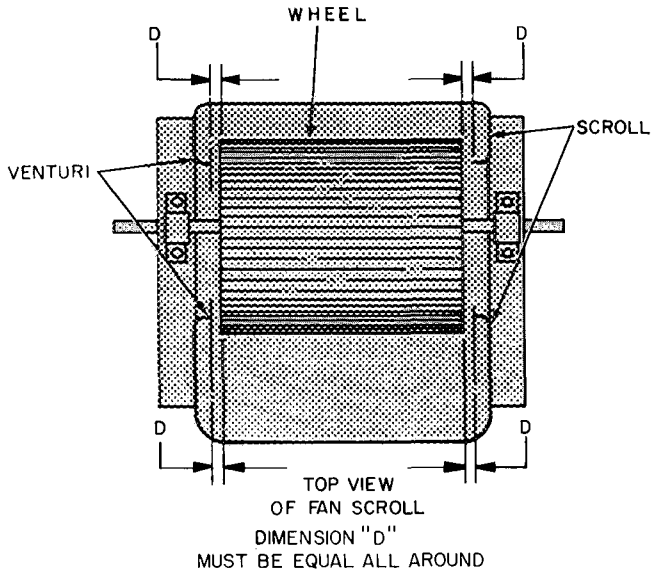


Fig. 10 — Horizontal Wheel Centering

2. Center wheel by sliding it horizontally (Fig. 10).
3. Retighten locking setscrews to torque specified in Table 2.

→ CONCENTRIC ALIGNMENT — Shaft and wheels must be concentrically centered with the venturi or air inlet of the fan housing.

Table 2 — Setscrew Torque Requirements

BOLT SIZE (in.)	RECOMMENDED TORQUE (lb-ft)
5/16	15-18
→ 3/8	22-25

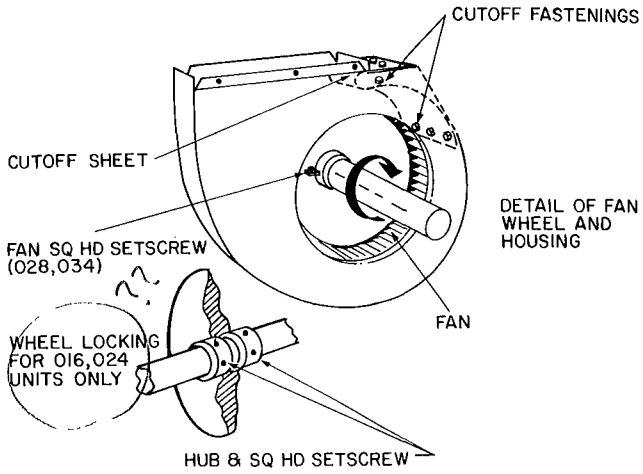


Fig. 11 — Fan Locking Detail

ALL UNIT SIZES — Bearings are bolted to supports. To correct shaft and wheel concentric misalignment:

1. Loosen bearing support bolts and shim or move as required.
2. Retighten bearing support bolts.

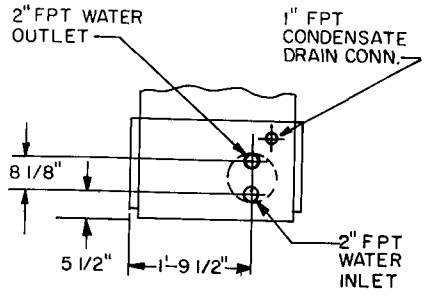
HORIZONTAL SHAFT ALIGNMENT (All Units) — If the shaft has moved and all wheels are off horizontal center, recenter the shaft as follows:

1. Loosen setscrews holding bearing locking collar at each end of shaft.
2. Slide shaft and wheel assembly horizontally until wheels are horizontally centered (Fig. 10).
3. Slide the bearing locking collars against the bearing race; turn in direction of shaft rotation until tight.
4. Retighten locking collar setscrews.

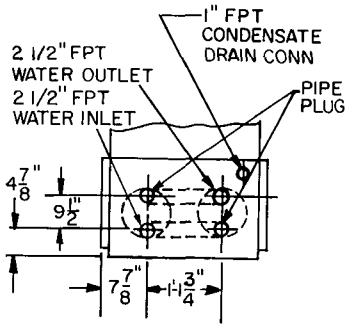
FAN, PULLEY AND BELT ADJUSTMENT — Refer to the Service section entitled Indoor-Air Fan Adjustment.

→ Step 9 — Install Field-Fabricated Ductwork

Connect ducts to unit, using flexible connections as required. Duct angles are supplied with each 50BJ,BK044,054 and 064 unit. Install duct angles at duct openings. Using flexible connections, connect supply ducts to flanges. Supply ducts should not be manifolded together for at least 4 feet.



50BJ016



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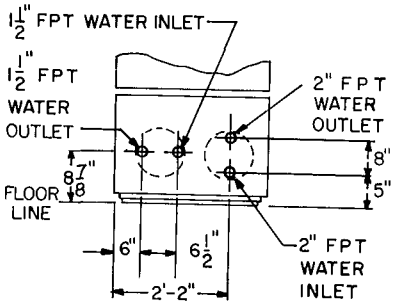

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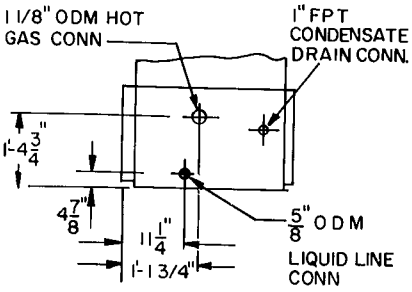

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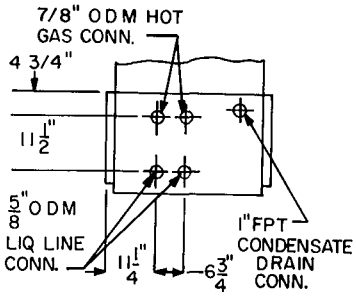
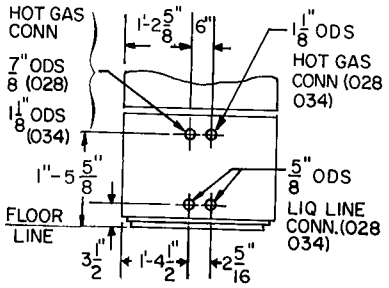
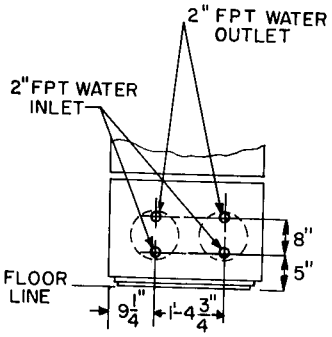


50BK024

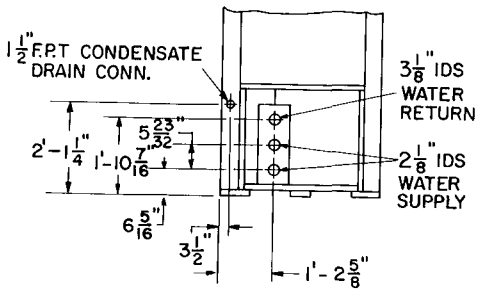


50BK028 & 034

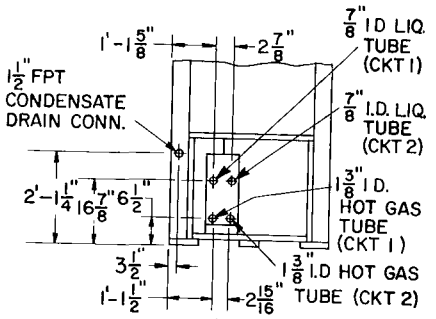


50BJ034

NOTE: RIGHT SIDE VIEW OF UNIT SHOWN



50BJ044,054,064



50BK044,054,064

Fig. 12 — Water and Refrigerant Connections

Attach ductwork to building structure and insulate with fiberglass and vapor barrier to prevent sound transmission and vapor condensation.

Weatherproof external ductwork, joints and openings with flashing and mastic in accordance with applicable codes.

Ducts passing thru an unconditioned space must be insulated and covered with a vapor barrier.

Step 10 — Check Return Air Filters Unit 50BJ,BK (016-034 only)

Be sure that the filters are the correct size; refer to Table 1. *Do not operate the unit without these filters in place.*

→ Step 11 — Check Compressor Spring Mounts

The compressors are held rigid in shipment by bolts extending thru a washer, lockwasher and compressor foot into a weld nut.

Loosen and remove each bolt (4 per compressor) until compressor floats free on springs. Remove and discard washer and lockwasher. Take plastic bag provided with compressor and remove grommet and new washer. Install grommet and new washer. Replace and tighten bolts so that there is slight pressure on grommet. This will steady compressor and prevent start and stop rocking.

The compressors have reversible oil pumps that operate in either direction; therefore the direction of rotation need not be checked.

→ Step 12 — Make Condenser Connections

WATER-COOLED (50BJ UNIT) — Condensers have water inlet and outlet connections as shown in Fig. 12. Piping arrangements for city, waste or recirculating water are shown in Fig. 13 thru 16.

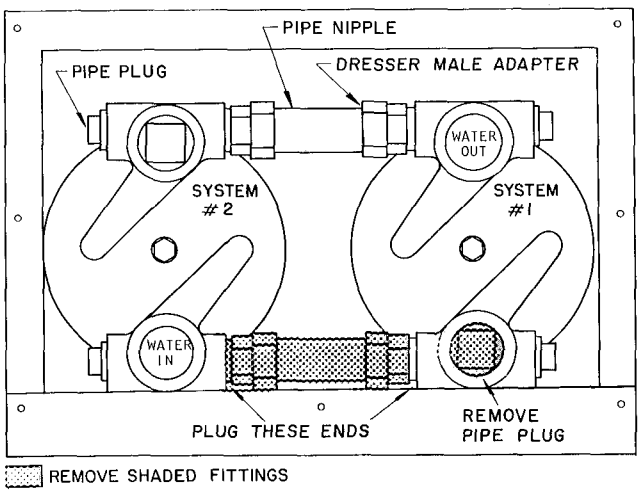


Fig. 13 — 50BJ024 City Water Condenser Piping Conversion

Recirculating systems with low-temperature water returning to the condenser may require a water regulating valve. Units used on waste or city water must have a regulating valve on the inlet of each condenser and will require field modification for separate condenser piping. Refer to Fig. 13, 14, 15, 16 and 17 for typical applications and conversions.

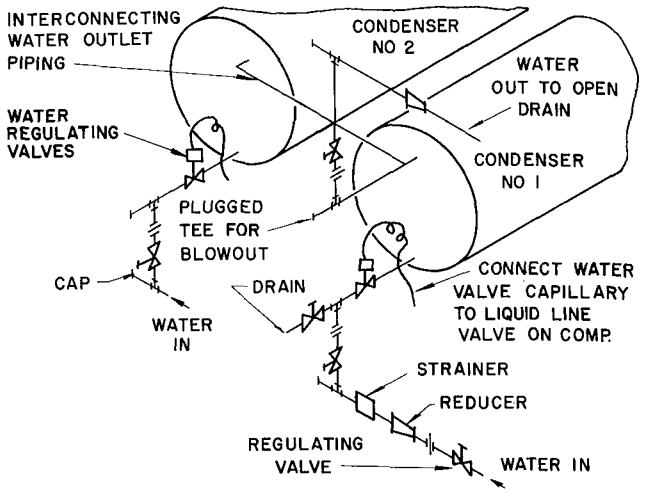


Fig. 14 — 50BJ024 Typical Waste or City Water Piping

Install a water regulating valve on the inlet of each condenser with any size unit used on waste or city water (Fig. 14, 15 and 16).

Connect the regulating valve capillary to a back-seated liquid service valve. Arrow on valve body must point in direction of water flow. After connecting capillary, open regulating valve one turn from back-seated position. Adjust valve as required to maintain proper condensing temperature.

Install full size gate valve and strainer in the water supply line. See max. working pressures in Table 3. Valve and strainer must be accessible.

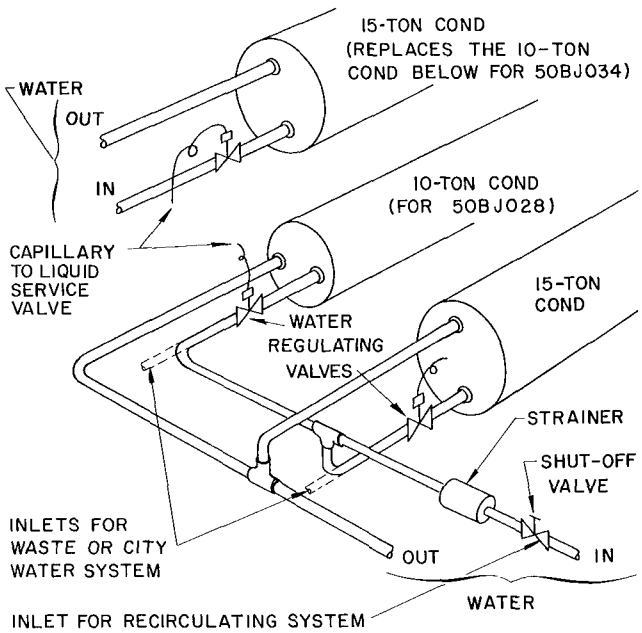
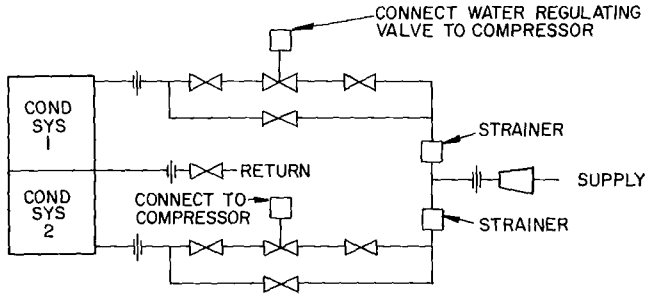


Fig. 15 — 50BJ028 and 034 Condenser Water Piping

Table 3 — Maximum Water-Side Working Pressure

UNIT SIZE 50BJ,BK	MAXIMUM WORKING PRESSURE (psig)
016	550*
024	150
028,034	550
044,054,064	400

*550 psig if factory-installed dresser adapters are removed and field-fabricated manifold is installed



Nominal supply and return lines must be sized to provide required gallons per minute at condenser All supply piping and valves are 2 in Return piping is 3 in Condensate drain is 1½ in FPT A field-supplied and installed external trap is required

Fig. 16 — 50BJ,BK044, 045 & 064 Condenser Water Piping

AIR-COOLED (50BK) UNITS — Install air-cooled condenser in accordance with the Installation Instructions shipped with condenser.

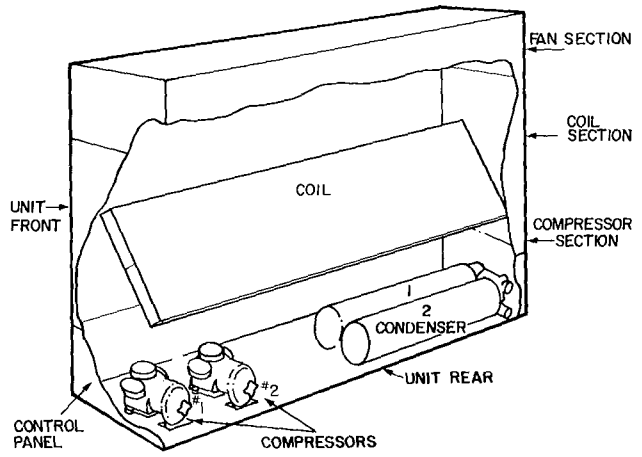
Consult Carrier System Design Manual for standard refrigerant piping techniques. Connection locations for liquid and hot gas service lines are shown in Fig. 12. Recommended line sizes are listed in Table 4.

Condenserless (50BK) units are shipped with a holding charge. After refrigerant connections are made, evacuate, leak test and charge the system as described in the Service section entitled Charging the System. (Refer to Table 1 for unit charge.)

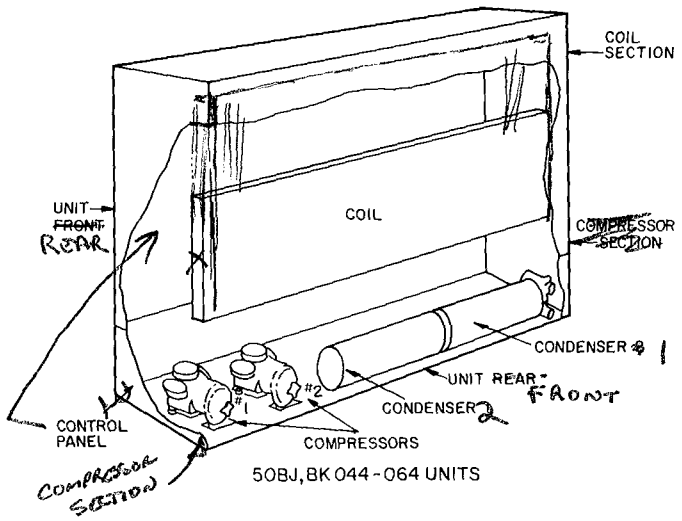
Table 4 — Recommended Line Sizes (in.) (50BK Condenserless Models)

UNIT 50BK	SYSTEM	CONN. SIZES*		LENGTH OF LINE (ft)					
				20		40		60-80	
		L	HG	L	HG	L	HG	L	HG
016	1	⅝	1⅛	⅝	1⅛	⅞	1⅛	⅞	1⅜
024	1 & 2	⅝	⅞	⅝	⅞	⅝	1⅛	⅞	1⅛
028	1	⅝	1⅛	⅝	1⅛	⅞	1⅛	⅞	1⅜
	2	⅝	⅞	⅝	⅞	⅝	1⅛	⅞	1⅛
034	1 & 2	⅝	1⅛	⅝	1⅛	⅞	1⅛	⅞	1⅜
044	1 & 2	⅞	1⅜	⅞	1⅜	⅞	1⅜	⅞	1⅝
054	1 & 2	⅞	1⅜	⅞	1⅜	⅞	1⅜	⅞	1⅝
064	1 & 2	⅞	1⅜	⅞	1⅜	⅞	1⅜	⅞	1⅝

HG — Hot Gas Line (OD in.)
L — Liquid Line (OD in.)
*Sweat connections



50BJ,BK016-034 UNITS



50BJ,BK044-064 UNITS

50BJ,BK*	COMPR NO.	COND NO.*
016	1	1
024,028,034 044,054,064	1,2	1,2

*50BK units are condenserless

Fig. 17 — Refrigerant Systems (016-064)

Step 13 — Install Unit Drain Line

Install a trapped condensate drain line at unit drain connection (Fig. 12). The drain requires standard pipe connected to condensate pan nipple as shown in Table 5. Figure 18 shows proper trap design.

Determine design negative static pressure. This pressure is not the same as fan total pressure, which includes pressure losses downstream as well as upstream from the indoor air fan. Always assume the worst conditions, such as having return air filters clogged with dirt.

Referring to Fig. 18, Differential 1 must be equal to or larger than negative static pressure at design operating conditions. Store enough water in trap to prevent losing seal (Differential 2). This differential must be equal to or larger than one-half the maximum negative static pressure. When the fan starts, Differential 3 is equal to the maximum negative static pressure.

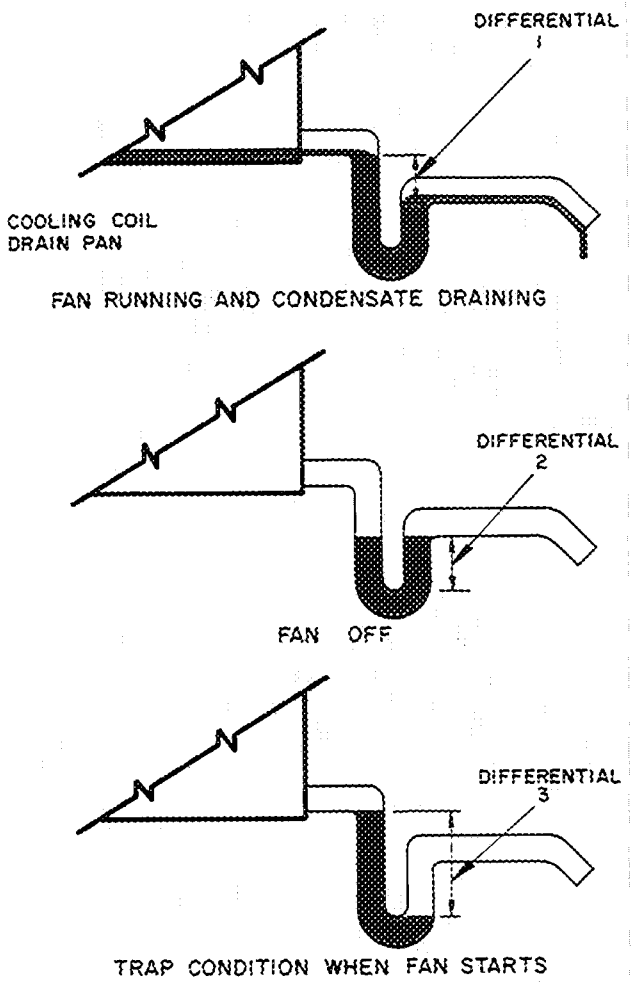


Fig. 18 — Condensate Drain

Do not use drain line smaller than size listed in Table 5. If required, cut hole in panel for drain line. Pitch drain downward toward an open drain sump. Provide a trap at least 3 in. high with plugged tee for cleaning. Fill trap with water to make an air seal. Observe all sanitary codes.

→ Table 5 — Condensate Drain Connections (in.)

UNIT SIZE	016,024	028,034	044,054,064
PIPE SIZE	1	1¼	1½

→ Step 14 — Make Electrical Connections

GENERAL — Provide an adequate fused disconnect switch per NEC within sight from the unit. Provision for locking switch open (OFF) is advisable to prevent power from being turned on when unit is being serviced.

On all units, power may be supplied thru a branch circuit. Branch circuit protection is provided in these units by manual reset circuit breakers. Branch circuit must be in accordance with NEC or local code, whichever takes precedence. Power supplied to auxiliary equipment, such as fan motors for air-cooled condenser or for cooling tower, must be run separately.

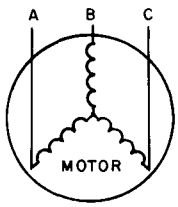
POWER WIRING — Conduit opening for all units is on back of unit near control box. On all sizes, field power connections are made at a terminal block within the control box (see Fig. 19). Refer to Table 6 for maximum wire size at terminal block.

Supply voltage must be in accordance with nameplate voltage. On 3-phase units, voltage between phases must be balanced within 2% and current within 10% with compressor running. If supply voltage is not in accordance with nameplate voltage, a phase unbalance may occur. Voltage at condenser must be within the minimum and maximum shown in Table 7.

Contact local power company for line voltage corrections. Never operate a motor where a phase unbalance in supply voltage is greater than 2%. Use the following formula to determine the % voltage unbalance:

$$\%\ \text{Voltage Unbalance} = 100 \times \frac{\text{max voltage deviation from average voltage}}{\text{average voltage}}$$

Example: Supply voltage is 240-3-60.



AB = 243 volts
BC = 236 volts
AC = 238 volts

$$\text{Average Voltage} = \frac{243 + 236 + 238}{3}$$

$$= \frac{717}{3} = 239 \text{ volts}$$

Determine maximum deviation from average voltage:

(AB) 243 — 239 = 4 volts
(BC) 239 — 236 = 3 volts
(AC) 239 — 238 = 1 volt

Maximum deviation is then 4 volts. To determine the % voltage unbalance:

$$\%\ \text{Voltage Unbalance} = 100 \times \frac{4}{239} = 1.7\%$$

This amount of phase unbalance is satisfactory since it is below the maximum allowable of 2%.

IMPORTANT: If supply voltage phase unbalance is more than 2%, contact your local electric utility company immediately.

Condenser operation on improper line voltage or excessive phase unbalance may be considered abuse and any resulting damage may not be covered by Carrier warranty.

All wiring must be in accordance with local or NEC regulations.

FIELD CONTROL WIRING — On extended voltage (208-230-v) units, control transformer is factory wired for 208-v usage. If unit is to be used on 230-v system, reconnect primary wiring on transformer as shown on unit wiring diagram.

When accessory timer control panel is used, connect panel to factory-supplied control panel as indicated on unit label diagram.

Table 6 — Maximum Wire Size for Power Terminal Block*

VOLTS/PHASE	UNIT 50BJ,BK				
	016	024	028,034	044†	054,064‡
208-230/3	2/0	2/0	350	350	500
460/3	2/0	2/0	2/0	350	350
575/3	2/0	2/0	2/0	350	350

*Select wire size per NEC and connect supply wires to factory-supplied pigtail wire connectors
†Max wire size for 50BJ,BK044 units with alternate drive package is 500 MCM
‡Max wire size for 50BJ,BK054 units with standard drive package is 350 MCM

Table 7 — Unit Electrical Data

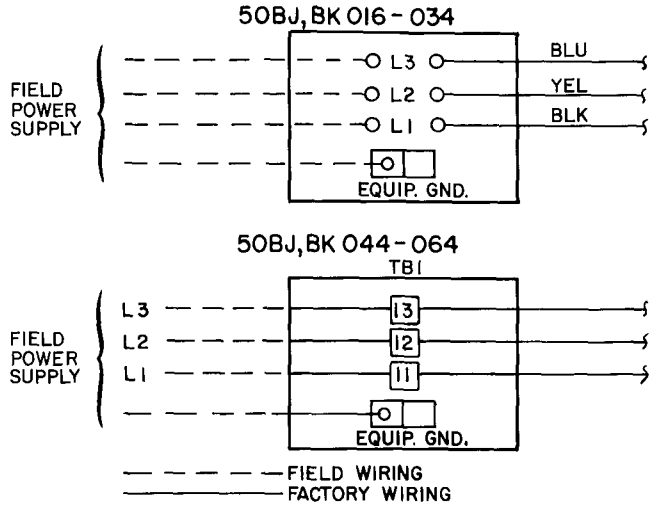
UNIT	VOLTS/PH/HZ	VOLTAGE RANGE		COMP #1		COMP # 2		INDOOR FAN MOTOR		POWER SUPPLY	
		Min	Max	RLA	LRA	RLA	LRA	Hp	FLA	MCA*	MOCP†
50BJ016	208-230/3/50	187	253	50 0	191	—	—	3	9 2	71 7	110
	460/3/60	414	528	22 1	86	—	—	3	4 6	32 2	50
	575/3/60	518	660	17 9	69	—	—	3	3 7	26 2	40
50BJ024	208-230/3/60	187	253	36 0	137	36 0	137	5	13 2	94 2	125
	460/3/60	414	528	16 0	62	16 0	62	5	6 6	42 6	50
	575/3/60	518	660	12 9	50	12.9	50	5	5 6	35 1	45
50BJ028	208-230/3/60	187	253	49 3	191	35 7	137	7½	22 0	120 0	150
	460/3/60	414	528	22 2	86	16 0	62	7½	11 0	54 8	70
	575/3/60	518	660	18 0	69	13 0	50	7½	8 7	44 2	45
50BJ034	208-230/3/60	187	253	49 3	191	49 3	191	7½	22 0	120 0	175
	460/3/60	414	528	22 2	86	22 2	86	7½	11 0	54 8	80
	575/3/60	518	660	18.0	69	18.0	69	7½	8.7	44.2	50
50BJ044	208/230/3/60	187	253	58 3	283	58 3	283	15	46 2	178 4	225
	460/3/60	414	506	26 4	142	26 4	142	15	21 0	81 4	100
	575/3/60	517	633	21.0	98	21.0	98	15	16.0	64.3	80
50BJ054	208/230/3/60	187	253	80 4	446	60 2	283	15	46 2	207 8	250
	460/3/60	414	506	36 3	223	27 2	142	15	21 0	94 6	125
	575/3/60	517	633	29 1	164	21 8	98	15	16.0	75.2	100
50BJ064	208/230/3/60	187	253	89 6	446	89 6	446	20	59 4	262 0	350
	460/3/60	414	506	40 5	223	40 5	223	20	27 0	119 1	150
	575/3/60	517	633	32 4	164	32 4	164	20	21 3	95 2	125
50BK016	208-230/3/60	187	253	64 0	266	—	—	3	9 2	89 2	150
	460/3/60	414	528	29 0	120	—	—	3	4 6	40 9	50
	575/3/60	518	660	23.0	96	—	—	3	3.7	32.5	35
50BK024	208-230/3/60	187	253	45 0	170	45 0	170	5	13 2	114 5	150
	460/3/60	414	528	20 0	77	20 0	77	5	6 6	51 6	60
	575/3/60	518	660	16.0	62	16.0	62	5	5.6	41.6	45
50BK028	208-230/3/60	187	253	64 0	266	45 0	170	7½	22 0	147 4	200
	460/3/60	414	528	29.0	120	20 0	77	7½	11 0	66 8	70
	575/3/60	518	660	23.0	96	17.0	62	7½	8.7	54.7	70
50BK034	208-230/3/60	187	253	64 0	266	64 0	266	7½	22 0	166 0	200
	460/3/60	414	528	29 0	120	29 0	120	7½	11 0	76 3	80
	575/3/60	518	660	23.0	96	23.0	96	7½	8.7	60.5	80
50BK044	208/230/3/60	187	253	77 1	345	77 1	345	15	46 2	220 7	250
	460/3/60	414	506	36.8	173	36 8	173	15	21 0	104 8	125
	575/3/60	517	633	29.4	120	29.4	120	15	16.0	83.2	110
50BK054	208/230/3/60	187	253	100 0	446	77 1	345	15	46 2	249 3	350
	460/3/60	414	506	47 9	223	38 4	173	15	21 0	120 3	150
	575/3/60	517	633	38.4	164	30.6	120	15	16.0	95.6	125
50BK064	208/230/3/60	187	253	120 0	506	120 0	506	20	59 4	331 0	450
	460/3/60	414	506	54 2	253	54 2	253	20	27 0	150 0	200
	575/3/60	517	633	43.4	176	43.4	176	20	21.3	120.0	150

FLA — Full Load Amps
Hp — Nominal Horsepower
LRA — Locked Rotor Amps
MCA — Minimum Circuit Amps
MOCP — Maximum Overcurrent Protection Device (amps)
RLA — Rated Load Amps

*Minimum circuit amps (MCA) for wire sizing complies with NEC Section 430-24

†In compliance with NEC requirements for multimotor and combination load equipment (Ref: NEC Articles 430 and 440), the overcurrent protective device for the unit shall be fuse only

NOTES:
1 Compressor circuit breakers are current sensitive and temperature compensated to ensure compressor cutoff if current draw becomes excessive Breakers must be manually reset
2 Discharge gas thermal protection with automatic reset de-energizes the control circuit if extreme compressor motor temperature should occur from excessive gas temperature or motor overloading
3 Low- and high-pressure switches automatically shut off compressor(s) if refrigerant pressure exceeds switch settings This action protects against loss of charge
4 Indoor fan motor circuit breaker protects against motor overload Breaker requires manual reset



→ **Fig. 19 — Field Power Wiring Connections**

→ START-UP

General — The 50BJ,BK units are designed for use in Modu-Vac Variable Air Volume Systems using Carrier 37A Moduline® and 35B Modubox Air Terminals. For air terminal installation and adjustment, refer to 37A or 35B literature as required.

CAPACITY CONTROL — The units are equipped with electric unloaders on the no. 1 compressor (Fig. 17) and hot gas bypass on the no. 1 refrigerant system. (Size 016 units have only one refrigerant system.)

Unit capacity is monitored and controlled by a Honeywell W7100 microprocessor (Fig. 20). This controller provides the number of capacity control steps as shown in Table 8.

→ **Table 8 — Capacity Control Steps**

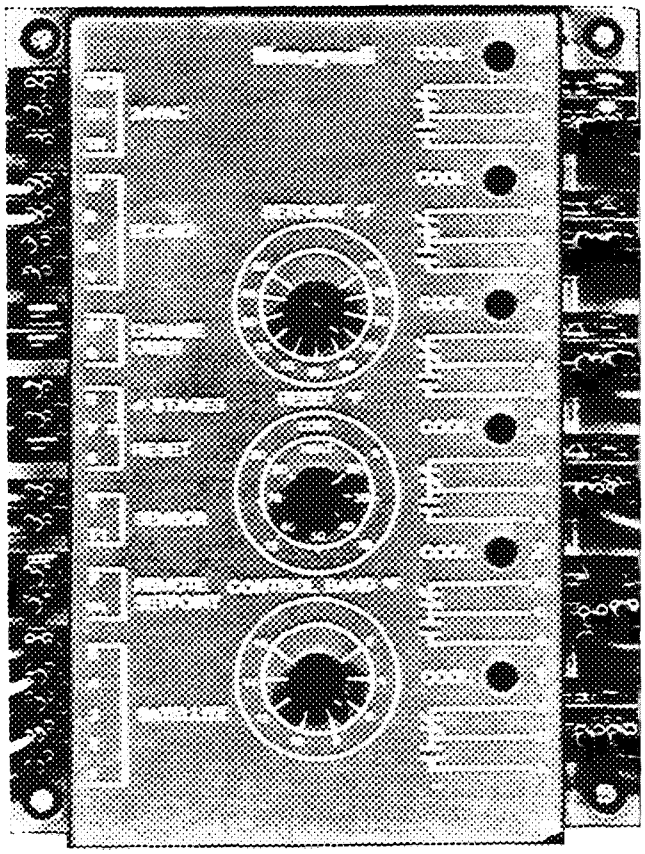
UNITS 50BJ,BK	CAPACITY CONTROL (No. Steps)	CONTROL BAND °F SETTING
016	3	10
024,028,034	6	6
044	4	8
054,064	6	6

TIMER CONTROL — Carrier strongly recommends use of an accessory timer control panel with the 50BJ,BK units. Installation and adjustment of this device (Fig. 21) is covered in separate Installation, Start-Up and Service Instructions included in the accessory package.

If accessory timer is not used, install field-supplied manual switch between TB3 terminals [1] and [8] in the variable volume control box for the 016-034 → units. Switch is factory-installed on the 044-064 units.

MOISTURE INDICATORS are located ahead of thermal expansion valves. They must be full of liquid to properly indicate moisture content. Operate system for 30 minutes before determining moisture content.

SERVICE VALVES (50BK) — Valves use teflon seat washers to ensure position seal with minimum stem torque (10 lb-ft max). Do not overtighten valve stem. Use wet rag on valve when soldering. If refrigerant has been lost, midseat valve. Always replace stem cap.



→ **Fig. 20 — Honeywell Microprocessor**

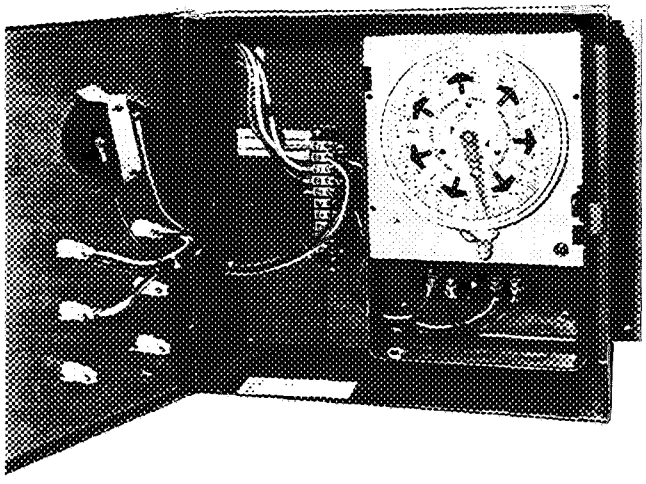


Fig. 21 — Accessory Timer Control Panel

Prior to Unit Start

1. Clean and inspect the unit.
2. Open (backseat) compressor service valves and liquid line shutoff valves. Replace and tighten valve caps to prevent leakage.
3. On 50BK (air-cooled condenser) units, turn on indoor fan motor circuit breaker. Check that compressor crankcase heaters are energized and crankcase oil level is half full.
4. Leave crankcase heaters energized for 24 hours to ensure safe oil/refrigerant mixture in crankcases for unit start-up.

Control Sequence Checkout

1. Perform all applicable steps described above under Prior to Unit Start.
2. Turn on unit main power supply.
3. Set the CPH (Cycles per Hour) knob on microprocessor (Fig. 20) at 6.
4. Turn on indoor fan motor circuit breaker.
5. If unit is equipped with accessory timer control panel and 7-day clock is not calling for cooling, turn on unit by overriding clock with manual bypass switch (see Start-Up General section entitled, TIMER CONTROL).
6. Close compressor circuit breakers.
7. Check for cooling by turning microprocessor SETPOINT knob to 40 F. Light-emitting diodes (LEDs) should glow as corresponding cooling stages come on. In addition, indicating lights on cover of accessory timer control panel should light.

   NOTE: Depending on job conditions and differential between setpoint and discharge temperatures, it may take as much as one hour for all cooling stages to come on.
8. Turn microprocessor SETPOINT knob to 90 F. The LEDs on microprocessor and indicating lights on accessory timer control panel should go off as corresponding cooling stages drop out. Ambient temperature must be less than 90 F for this test.
9. When checkout and unit operation are satisfactory, turn off manual bypass switch (step 5), position microprocessor SETPOINT knob at desired temperature (approximately 55 F) and replace all unit panels.

SERVICE

WARNING: Lock open and tag unit disconnect before servicing equipment.

CAUTION: Before servicing fan compartment:

1. Sharp edges of evaporator coil fins are exposed. To prevent arm injury, cover top edge of evaporator with strip of cardboard or a few layers of heavy tape.
2. To avoid coil damage, cover coil face with a piece of plywood or other suitable rigid sheet material. If any coil fins are mashed or bent, straighten with a coil fin comb. Check for refrigerant leaks.

Fan Rotation — Correct fan rotation in respect to fan outlet is shown in Fig. 22. To check for proper fan rotation, remove service access panels and jog fan motor switch. If fan rotation is incorrect, it must be reversed.

To reverse the direction of rotation of a 3-phase fan motor reverse any 2 of the power leads. Refer to the connection diagram on the inside of motor terminal box cover for proper reversing procedure of single-phase motor.

1. Pulleys and fan belts should be aligned and adjusted as shown in Fig. 23-25.
2. Tighten motor holddown bolts.
3. Replace service access panels.

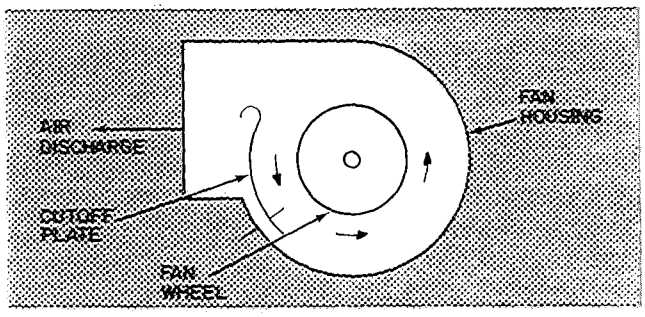


Fig. 22 — Fan Rotation

Indoor-Air Fan Adjustment — Fan motor pulley is factory set for speed shown in Table 1. Unit Sizes 028 and 034 have fixed pulleys. A second pulley is shipped with drive package.

TO CHANGE FAN SPEED (028)

1. Shut off power supply.
2. Loosen fan belt by loosening fan motor on mounting bracket. Do not loosen mounting bracket from unit.
3. Select motor pulley of 5-, 6- or 7-in. pitch diameter as desired to replace 6.5-in. PD pulley provided. A 5.6 in. PD pulley is shipped with the drive package.
4. Check pulley alignment and adjust belt tension as described below.
5. Check fan operation.

→ TO CHANGE FAN SPEED (016, 024, 034)

1. Shut off power supply.
2. Loosen fan belt by loosening fan motor on mounting bracket. do not loosen mounting bracket from unit.
3. Loosen movable pulley flange setscrew (Fig. 25).
4. To increase fan speed, screw movable flange towards fixed flange; to decrease speed, screw movable flange away from fixed flange. Use values shown in Table 1.

   Increasing fan speed increases load on motor. Do not exceed maximum allowable fan speed (Table 1) or motor full load amps shown on motor nameplate and in Table 7.
5. Set movable flange setscrew at nearest pulley hub flat and tighten.
6. Check pulley alignment and adjust belt tension as described in sections below.
7. Check fan operation. Repeat above procedure as required.

→ TO CHANGE FAN SPEED (044, 054, 064)

1. Shut off power supply.
2. Loosen fan belt by loosening fan motor mounting bracket. Do not loosen fan motor from unit.
3. Select motor pulley diameter. See Table 1.
4. Check pulley alignment and adjust belt tension as described below.
5. Check fan operation.

→ V-BELT INSTALLATION AND TENSIONING (See Fig. 23, 24, 25 and 26) — Use the following steps when installing drive belts:

Step 1 — Sheave Conditions — Check condition of all new and old sheaves. Sheave must have smooth finish and no sharp edges or burrs. Check for groove uniformity. *Excessively worn sheaves or improperly machined grooves can lead to early belt failure.* Non-uniformity of grooves will create an unequal load distribution in matched set of belts.

Step 2 — Mounting Sheaves — Mount sheaves as close to bearing as possible. *Excessive overlap may cause bearing failure.*

Step 3 — Matched Set of Belts — Always use matched set of belts. *NEVER mix new and used belts and/or mix belts from different manufacturers.*

Step 4 — Belt Installation:

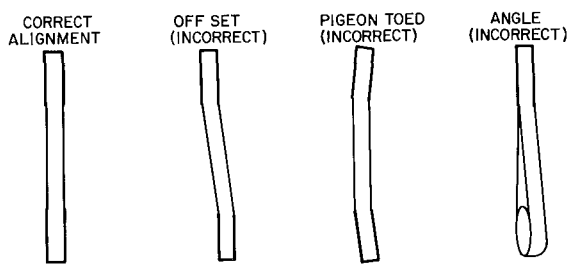


Fig. 23 — Fan Belt Alignment

a. Move pulleys together to facilitate belt installation. *NEVER pry or roll belt on to pulleys as this may cause serious damage to belts.*
b. Work belts around pulleys by hand. All belts should be slack on same side of drive. *Mixing slack and tight sides together may result in serious damage to belts when drive is tensioned.*

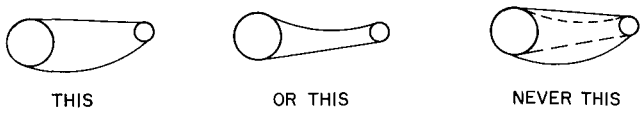


Fig. 24 — Fan Belt Adjustment

c. Move pulleys apart until they are snug. Make preliminary check of sheave and shaft alignment. Operate drive at no load for several minutes to seat belts and then check belt tension. *Excessively high or low tensions adversely affect the life and operation of V-belts.*
d. Check sheave and shaft alignment after belt tension is applied.

PULLEY ALIGNMENT — Shut off unit power supply. Make sure motor and fan shafts are parallel. Align shafts by loosening motor on mounting bracket if required. Then loosen fan pulley setscrews, slide pulley along fan shaft and align with straightedge as shown in Fig. 25.

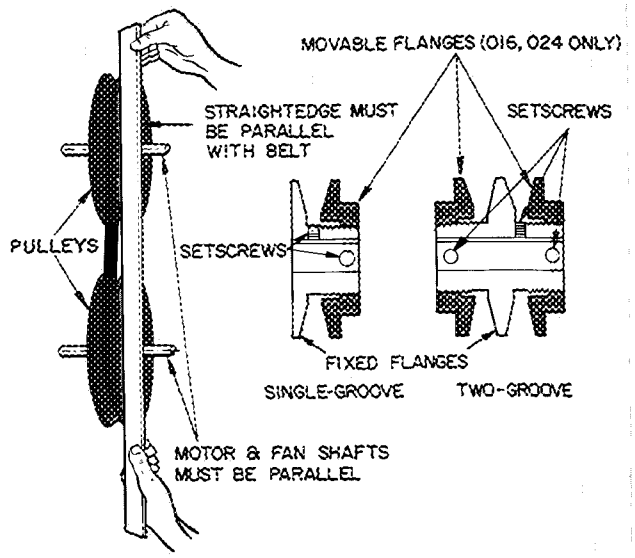


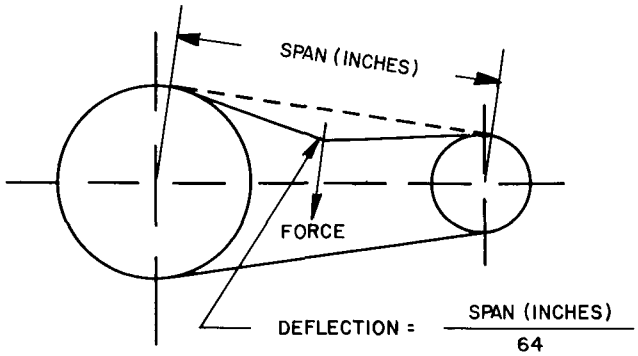
Fig. 25 — Indoor Air Fan Pulley Adjustment and Alignment

→ TENSIONING (See Fig. 26) — Use the following steps when adjusting belt tension:

Step 1 — Measure belt span in inches.

Step 2 — Use spring scale at center of span to deflect belt 1/64 inch for every inch of span length. Record scale reading.

Example: For span of 10 inches — deflection will be $\frac{10}{64}$ or $\frac{5}{32}$ inch.



→ **Fig. 26 — Fan Belt Tensioning**

Step 3 — Spring scale reading should be in range of 12 to 18 pounds. Maximum tension for a new belt is 18 pounds.

Step 4 — Adjust tension to maximum after 15 minutes. Check belt tension after 2 to 4 hours of operation.

Step 5 — After 24 to 48 hours of operation, check drive to see if normal tension is obtained. *Excessively high or low tension will adversely affect life and operation of a V-belt.*

→ **Lubrication**— Shut off power supply. *Protect coil from damage.*

Fan motor bearings are factory lubricated and will need no lubrication for the first 5 years of operation (3 years with continuous service or excessively dirty conditions).

Inspect bearings and relubricate or replace as required. Follow manufacturer's instructions for lubrication of special field-supplied motors.

Fan shaft bearings on 50BJ,BK016 and 024 units are lubricated for the life of the bearings. Bearings for 50BJ,BK028 thru 064 units have grease fittings. On 50BJ,BK044-064 units the fan shaft universal joint requires the same lubrication as the bearings. Lubricate annually with a good grade of mixed base grease or lithium base grease with rust inhibitor. Add grease until air bubbles form under the seal. Do not overgrease.

Return-Air Filters — Inspect filters twice monthly and replace as often as required by operating conditions. Filter type and size is given in Table 1.

If field-supplied, cleanable filters are used, flush them with hot water or steam, or soak them in a mild solution of soap or detergent and water. Refer to filter manufacturer's instructions as applicable.

Never operate the unit without return-air filters in place.

Condensate Drains — Clean drain line and unit drain pan at start of each cooling season. Check flow by pouring water into drain. Be sure trap is filled to maintain air seal (Fig. 18).

Evaporator Coil — Protect coil when working inside unit. (See screened CAUTION note, page 15.)

Remove dirt and debris from evaporator coil as required. Clean with a stiff brush, vacuum cleaner or compressed air. Straighten mashed or bent coil fins with a fin comb of the correct spacing. Table 1 lists the fins per inch for each coil.

→ **Water-Cooled Condenser(s)** may require cleaning of scale (water deposits). Contact local water treatment company for best results.

Air-Cooled Condensers — Periodically inspect and clean depending on operating conditions. Follow the service instructions provided with the air-cooled condenser used.

Sight Glasses are provided at the inlet of each expansion valve. Units may be field charged by using the sight glass (see Charging the System).

Charging the System

UNITS WITH WATER-COOLED CONDENSER 50BJ) — Units are shipped with a full operating charge of refrigerant. If recharging is necessary (complete charge lost) weigh in amount of refrigerant indicated on unit nameplate and Table 1.

If unit has a partial charge, unit may be charged with sight glass using standard charging techniques. See Carrier Standard Service Techniques Manual entitled Chapter 1, Refrigerants for applicable procedures.

Adjust the water regulating valve to proper saturated condensing temperature (168 to 226 psig).

UNITS WITH AIR-COOLED CONDENSER (50BK) — Units are shipped with a holding charge only. Open suction and discharge line service valves. Blow holding charge, evacuate and leak test system. Add sufficient refrigerant to permit continuous operation after starting unit. add step 4

→ **Indoor-Air Fan Motor Removal**

Shut off and lockout unit power supply.

⚠ CAUTION

Before attempting to remove fan motors or motor mounts, place a piece of plywood over evaporator coils to prevent coil damage.

ALL 50BJ,BK UNITS — Remove motor as follows:

1. Remove unit access panel and cover of motor junction box.
2. Disconnect motor wires and remove conduit connection.
3. Remove motor bolts and slide motor over so that fan belt can be removed.
4. Disconnect motor ground wire (if present) and remove motor.

TO REINSTALL MOTORS — Reverse the above procedures. Align pulleys and adjust belt tension as described in the section, Indoor-Air Fan Adjustment.

Pressure Relief Devices — The 50BK (condenserless) and 50BJ,BK044-064 units are equipped with a fusible-plug type safety relief device on the compressor. The relief setting is 197 or 203 F on all units.

All 50BJ (water-cooled) units have a frangible disc on each condenser. Disc setting is 385 ± 5% psig.

Crankcase Heaters are supplied on all 50BK (condenserless) units and on all 50BJ water-cooled units.

The heater prevents liquid refrigerant from accumulating in the compressor crankcase during extended shutdown periods. Heater is automatically energized whenever unit main power is on and compressor is stopped. Heater is de-energized when compressor starts.

Do not shut off unit main power supply for an extended period except for servicing unit. After an extended shutdown period, turn power supply on at least 24 hours prior to starting compressor.

If 50BJ units are installed in unheated rooms, they should be equipped with crankcase heaters. All units equipped with crankcase heaters require 24 hours warm up time.

High and Low Pressure Switches — The high pressure switch is located in the electrical panel. The low pressure switch is located on top of compressor.

Time Guard® Control Circuit provides automatic reset protection (except circuit breaker), time delay in starting and controlled cycling. If compressor shuts down for any reason, the control circuit prevents restart for time periods as follows:

UNIT 50BJ,BK	CIRCUIT NO.	A Full Cycle (minutes)	B Delayed Start (seconds)
016	1	5	15
024,028, 034	1 2	6 4 5	19 15
044,054, 064	1 2	5 6 4	15 19

Column B shows time delay between compressor starts under normal thermostat cycling.

CONTROL SEQUENCE

A. UNITS 50BJ,BK016,024,028 AND 034

When unit power supply is on and circuit breakers are engaged, the 7-day timer clock cycles the unit on and off at programmed times for a full 7-day cycle.

At each ON point, the indoor fans start immediately and remain on as long as the 7-day clock calls for cooling.

Upon initial start-up (with 7-day clock at unit operation position), there is a delay of from 20 to 30 minutes before the first stage of cooling starts. This time interval allows the microprocessor to develop a memory bank history and allows the fan to operate until a sensor can sense conditioned space temperature rather than initial unit ambients.

The microprocessor cycles compressors and unloaders to control discharge air temperature at a temperature close to a preselected setting.

On completion of the occupied mode on the time clock, the unit is switched to the unoccupied mode and indoor fan and compressor(s) stop.

The system can be placed temporarily in the occupied mode by means of a 5-hour spring driven bypass timer. This allows the building to be used during normally unoccupied hours without reprogramming the time clock.

B. UNITS 50BJ,BK044,054 AND 064

The indoor fan circuit breaker (IFCB) must be closed for the control circuit to be energized. When breaker is closed, the SYSTEM light will be energized.

All units are equipped with a switch labeled STANDBY. When switch is closed, the indoor fan contactor (IFC) is energized and the indoor fan will start and run continuously. A light labeled FAN will also be energized.

All units are equipped with the improved Honeywell W7100 discharge air controller. This controller is equipped with 3 control knobs: set point, reset and control band. Purpose of controller is to regulate the leaving air temperature to the set point. A setting below 50 F may decrease unit efficiency due to use of hot gas bypass at light loads. The reset knob is used to adjust reset control range from 5 F to 20 F. The control band knob allows controller to be adjusted for the required number of stages. The control band should be set at 8 F for 50BJ,BK044 units and 6 F for 50BJ,BK054 and 064 units. Increasing control band setting above these recommended settings will decrease compressor cycling and increase leaving air temperature variations. Decreasing setting will NOT reduce discharge air temperature variations but will increase compressor cycling.

The controller is also factory equipped with 2 fixed resistors. One resistor is used to correct for the number of steps. This is done by placing a 1/4-watt, 5% resistor across terminals [7] and [8] on microprocessor. A 4-stage, 400-ohm resistor is used on 044 units and a 600-ohm resistor is used on the 054 and 064 units. A second 510-ohm resistor is connected between terminals [A] and [Y] to indicate unit does not have an economizer. These units do not have a factory-supplied economizer. If a field supplied economizer is to be added, remove the 510-ohm resistor. Consult Carrier for more details.

If the discharge air deviates 1 F above or below the control band while unit is running, then a cooling capacity stage will either be added or removed according to the loading sequence table found on page 19. Additional capacity stages will either be turned on or off until discharge air temperature is within control band or changing at a rate that will allow it to be within control band within 10 minutes.

The controller also has a fixed guaranteed minimum on and off time of 4 minutes to prevent compressor cycling.

These units are additionally equipped with a Timeguard® circuit. This circuit prevents compressor no. 1 from restarting until 4 minutes, 45 seconds have elapsed from last shutdown. Compressor no. 2 will not restart until 6 minutes, 10 seconds have elapsed.

Each compressor is equipped with a high pressure switch (HPS), discharge gas thermostat (DGT) and low pressure switch (LPS). If any of these trips, then the compressor will shut down. If after 4 minutes, 45 seconds for compressor no. 1 and 6 minutes, 10 seconds for compressor no. 2, the switch resets, the compressor will restart within 15 seconds for compressor no. 1 or 19 seconds for compressor no. 2.

The 50BK condenserless units are equipped with a liquid line solenoid (LLS). When a stage calls for compressor shutdown, the liquid line solenoid will close first. The compressor will continue to run until the low-pressure switch opens.

Loading Sequence

MODEL	STAGE					
	1	2	3	4	5	6
044	25%	50%	75%	100%	—	—
054	19%	38%	57%	63%	84%	100%
064	17%	34%	50%	67%	84%	100%

For replacement items use Carrier Specified Parts

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

Book	1
Tab	2a

Form 50BJ,BK-2SI Supersedes 50BJ,BK-1SI Printed in U S A 12-82 PC 111 Catalog No. 535-031