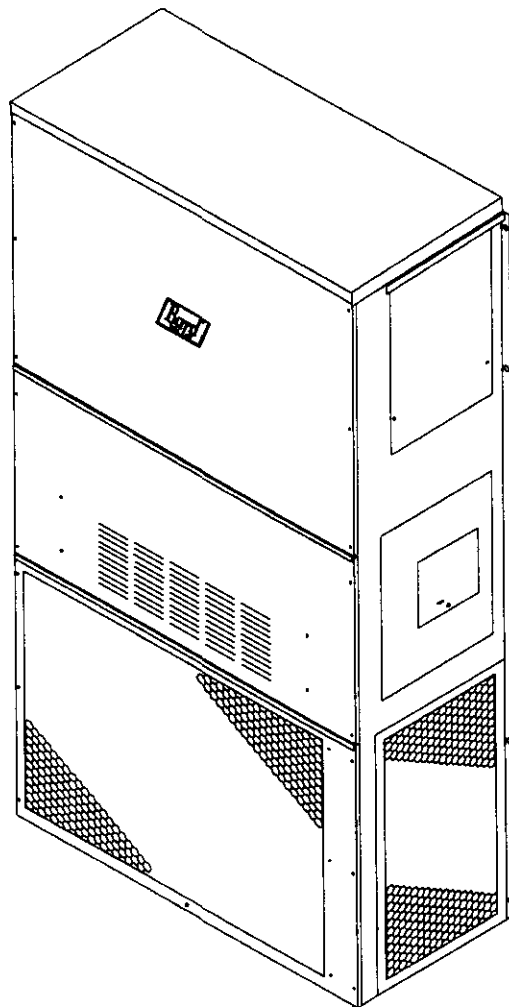

**Installation
Instructions**

**Wall Mounted
Packaged Air Conditioner**

Models: WA701, WA721



**Bard Manufacturing Company
Bryan, Ohio 43506**

*Since 1914...Moving ahead, just as
planned.*

**Manual No.: 2100-266 Rev. B
File: Volume III, Tab 16
Date: 01/16/96**

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Getting Other Information and Publications

These publications can help you install the air conditioner or heat pump. You can usually find these at your local library or purchase them directly from the publisher. Be sure to consult current edition of each standard.

- National Electrical Code ANSI/NFPA 70
- Standard for the Installation ANSI/NFPA 90A
of Air Conditioning and
Ventilating Systems
- Standard for Warm Air ANSI/NFPA 90B
Heating and Air
Conditioning Systems
- Load Calculation for ACCA Manual J or
Residential Winter and Manual N
Summer Air Conditioning
- Low Pressure, Low Velocity Duct ACCA Manual D or
System Design for Winter and Manual Q
Summer Air Conditioning

For more information, contact these publishers:

ACCA — Air Conditioning Contractors of America
1513 16th Street N.W.
Washington, DC 20036
Telephone: (202) 483-9370
Fax: (202) 234-4721

ANSI — American National Standards Institute
11 West Street, 13th Floor
New York, NY 10036
Telephone: (212) 642-4900
Fax: (212) 302-1286

**ASHRAE — American Society of Heating Refrigerating, and
Air Conditioning Engineers, Incorporated**
1791 Tullie Circle, N.E.
Atlanta, GA 30329-2305
Telephone: (404) 636-8400
Fax: (404) 321-5478

NFPA — National Fire Protection Association
Batterymarch Park
P.O. Box 9101
Quincy, MA 02269-9901
Telephone: (800) 344-3555
Fax: (617) 984-7057

Manufactured under the following U.S. patent numbers:
5,301,744; 5,002,116; 4,924,934; 4,875,520; 4,825,936; 4,432,409
Other patents pending.

Wall Mount General Information

Air Conditioner Wall Mount Model Nomenclature

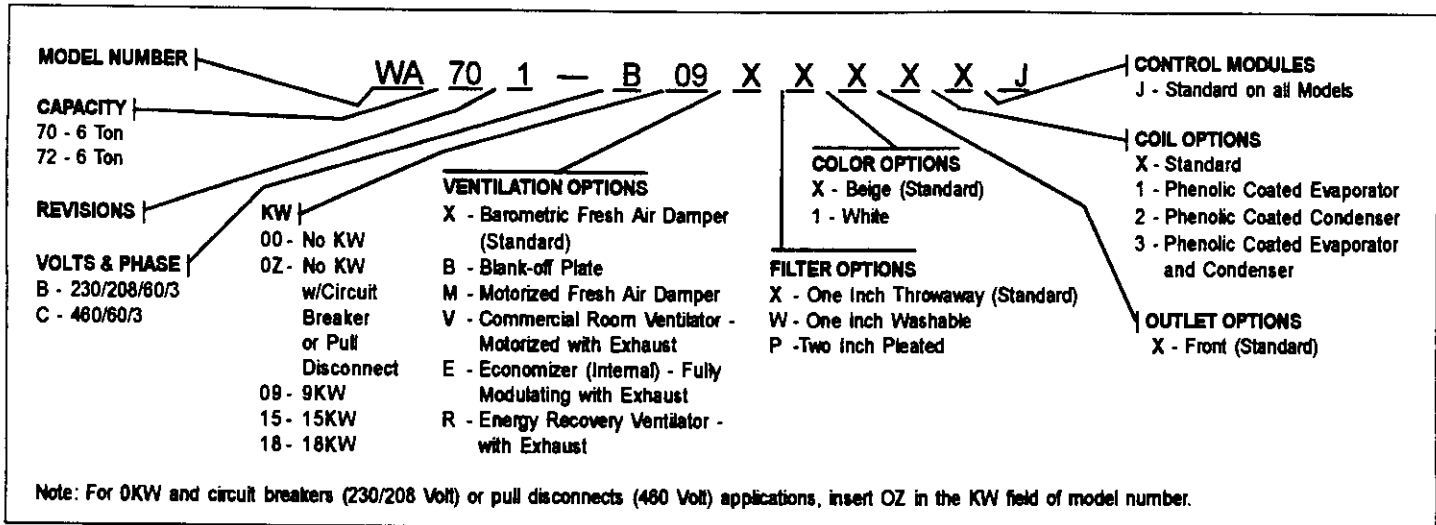


Table 1 — Electrical Specifications

MODELS	RATED VOLTS AND PHASE	NO. FIELD POWER CKTS.	MINIMUM CIRCUIT AMPACITY ③	MAXIMUM EXTERNAL FUSE OR CIRCUIT BREAKER ①	FIELD POWER WIRE SIZE ②	GROUND WIRE SIZE ②
WA701-B00, B0Z	230/208-3	1	36	50	8	10
B09		1	36	50	8	10
B15		1	52	60	6	10
B18		1	60	60	6	10
WA701-C00, C0Z	460-3	1	17	25	12	12
C09		1	17	25	12	12
C15		1	26	30	10	10
WA721-B00, B0Z	230/208-3	1	32	45	8	10
B09		1	34	45	8	10
B15		1	52	60	6	10
B18		1	60	60	6	10

① Maximum size of the time delay fuse or HACR type circuit breaker for protection of field wiring conductors.

② Based on 75°C copper wire. All wiring must conform to the National Electrical Code (NEC) and all local codes.

③ These "Minimum Circuit Ampacity" values are to be used for sizing the field power conductors. Refer to the National Electric Code (latest revision), article 310 for power conductor sizing. Caution: When more than one field power conductor circuit is run through one conduit, the conductors must be derated. Pay special attention to note 8 of Table 310 regarding Ampacity Adjustment Factors when more than 3 conductors are in a raceway.

Table 2 — Dimensions of Basic Unit for Architectural and Installation Requirements (Nominal)

UNIT	WIDTH (W)	DEPTH (D)	HEIGHT (H)	SUPPLY		RETURN		E	F	G	I	J	K	L	M	N	O	P	Q	
				A	B	C	B													
WA701	42	22-1/4	94-7/8	9-7/8	29-7/8	15-7/8	29-7/8	43-7/8	19	41-5/8	30	42-11/16	37	44-3/4	42-1/2	3-1/4	43	33-7/8	10	
WA721																				

All dimensions are in inches

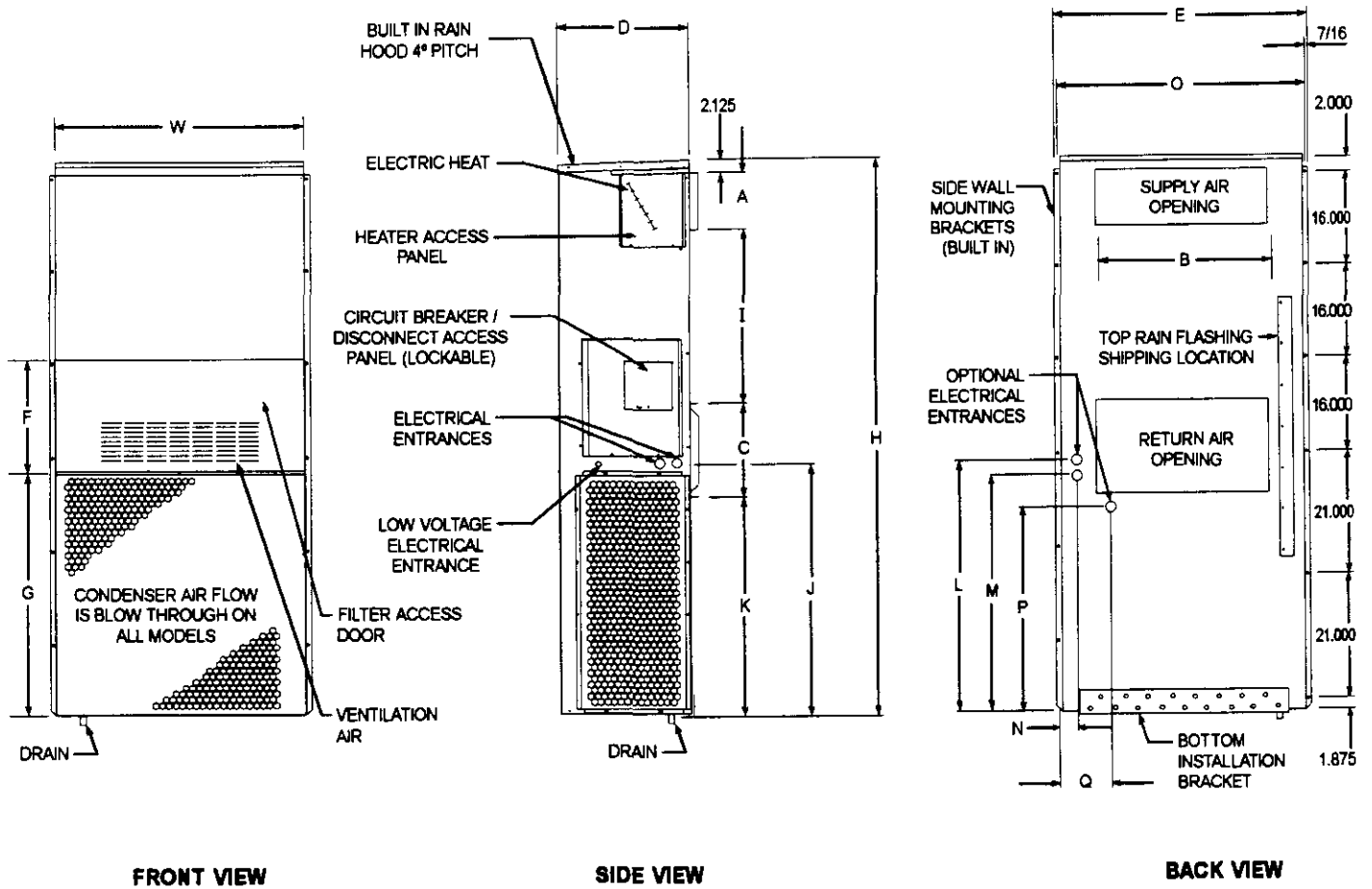


Figure 1 — Unit Dimensions

Table 3 — Electric Heat Table

MODELS	WA701-B WA721-B						WA701-C	
	240V-3		208V-3		480V-3		AMPS	BTUH
	AMPS	BTUH	AMPS	BTUH	AMPS	BTUH		
9.0	21.7	30,600	18.7	23,030	10.8	30,700		
15.0	36.2	51,200	31.2	38,400	17.3	47,000		
18.0	43.3	61,430	37.5	46,100				

Shipping Damage

Upon receipt of equipment, the carton should be checked for external signs of shipping damage. If damage is found, the receiving party must contact the last carrier immediately, preferably in writing, requesting inspection by the carrier's agent.

General

The equipment covered in this manual is to be installed by trained, experienced service and installation technicians.

The refrigerant system is completely assembled and charged. All internal wiring is complete.

The unit is designed for use with or without duct work. Flanges are provided for attaching the supply and return ducts.

These instructions explain the recommended method to install the air cooled self-contained unit and the electrical wiring connections to the unit.

These instructions and any instructions packaged with any separate equipment required to make up the entire air conditioning system should be carefully read before beginning the installation. Note particularly "Starting Procedure" and any tags and/or labels attached to the equipment.

While these instructions are intended as a general recommended guide, they do not supersede any national and/or local codes in any way. Authorities having jurisdiction should be consulted before the installation is made. See Page 1 for information on codes and standards.

Size of unit for a proposed installation should be based on heat loss calculation made according to methods of Air Conditioning Contractors of America (ACCA). The air duct should be installed in accordance with the Standards of the National Fire Protection Association for the Installation of Air Conditioning and Ventilating Systems of Other Than Residence Type, NFPA No. 90A, and Residence Type Warm Air Heating and Air Conditioning Systems, NFPA No. 90B. Where local regulations are at a variance with instructions, installer should adhere to local codes.

Duct Work

Any heat pump is more critical of proper operating charge and an adequate duct system than a straight air conditioning unit. All duct work, supply and return, must be properly sized for the design air flow requirement of the equipment. Air Conditioning Contractors of America (ACCA) is an excellent guide to proper sizing. All duct work or portions thereof not in the conditioned space should be properly insulated in order to both conserve energy and prevent condensation or moisture damage.

Refer to Table 13 for maximum static pressure available for duct design.

Design the duct work according to methods given by the Air Conditioning Contractors of America (ACCA). When duct runs through unheated spaces, it should be insulated with a minimum of 1-inch of insulation. Use insulation with a vapor barrier on the outside of the insulation. Flexible joints should be used to connect

the duct work to the equipment in order to keep the noise transmission to a minimum.

A 1/4-inch clearance to combustible material for the first three feet of duct attached to the outlet air frame is required. See Wall Mounting Instructions and Figures 2 and 3 for further details.

Ducts through the walls must be insulated and all joints taped or sealed to prevent air or moisture entering the wall cavity.



CAUTION

Some installations may not require any return air duct. A metallic return air grille is required with installations not requiring a return air duct. The spacing between louvers on the grille shall not be larger than 5/8 inches.

Any grille that meets the 5/8 inch louver criteria, may be used. It is recommended that Bard Return Air Grille Kit RG-2 thru RG-5 or RFG-2 thru RFG-5 be installed when no return duct is used. Contact distributor or factory for ordering information. If using a return air filter grille, filters must be of sufficient size to allow a maximum velocity of 400 fpm.

NOTE: If no return air duct is used, applicable installation codes may limit this cabinet to installation only in a single story structure.

Filters

A 1-inch throwaway filter is supplied with each unit. The filter slides into position making it easy to service. This filter can be serviced from the outside by removing the service door. A 1-inch washable filter and 2-inch pleated filter are also available as optional accessories. The internal filter brackets are adjustable to accommodate the 2-inch filter by bending down the tabs to allow spacing for the 2-inch filters.

Fresh Air Intake

All units are built with fresh air inlet slots punched in the service panel.

The fresh air damper assembly is standard equipment with the unit because of the variety of state or local codes requiring fresh air capability. It is shipped already attached to each unit.

All capacity, efficiency and cost of operation information as required for Department of Energy "Energyguide" Fact Sheets is based upon the fresh air blank-off plate in place and is recommended for maximum energy efficiency.

The blank-off plate is available upon request from the factory and is installed in place of the fresh air damper shipped with each unit.

Condensate Drain

A plastic drain hose extends from the drain pan at the top of the unit down to the unit base. There are openings in the unit base for the drain hose to pass through. In the event the drain hose is connected to a drain system of some type, it must be an open or vented type system to assure proper drainage.

Installation Instructions

Wall Mounting Information

1. Two holes, for the supply and return air openings, must be cut through the wall as shown in Figure 2.
2. On wood-frame walls, the wall construction must be strong and rigid enough to carry the weight of the unit without transmitting any unit vibration. See Figures 3 and 4.



WARNING

Fire hazard can result if 1/4-inch clearance to combustible materials for supply air duct is not maintained. See Figure 2.

3. Concrete block walls must be thoroughly inspected to insure that they are capable of carrying the weight of the installing unit. See Figure 3.

Mounting the Unit

1. These units are secured by wall mounting brackets which secure the unit to the outside wall surface at both sides. A bottom mounting bracket is provided for ease of installation.
2. The unit itself is suitable for "0" inch clearance, but the supply air duct flange and the first 3 feet of supply air duct require a minimum of 1/4-inch clearance to combustible material. If a combustible wall, use a minimum of 30-1/2" x 10-1/2" dimensions for sizing. However, it is generally recommended that a 1-inch clearance is used for ease of installation and maintaining the required clearance to combustible material. The supply air opening would then be 32" x 12". See Figures 2, 3 and 6 for details.



WARNING

Failure to provide the 1/4-inch clearance between the supply duct and a combustible surface for the first 3 feet of duct can result in fire.

3. Locate and mark lag bolt locations and bottom mounting bracket location. See Figure 2.
4. Mount bottom mounting bracket.
5. Hook top rain flashing under back bend of top. Top rain flashing is shipped secured to the right side of the back.
6. Position unit in opening and secure with 5/16 lag bolts; use 7/8-inch diameter flat washers on the lag bolts.
7. Secure rain flashing to wall and caulk across entire length of top. See Figure 2.
3. For additional mounting rigidity, the return air and supply air frames or collars can be drilled and screwed or welded to the

structural wall itself (depending upon wall construction). Be sure to observe required clearance if combustible wall.

9. On side by side installations, maintain a minimum of 20-inches clearance on right side to allow access to heat strips and control panel and to allow proper airflow to the outdoor coil. Additional clearance may be required to meet local or national codes.

Typical Installations

See Figure 5 for common ways to install the wall-mount unit.

Wiring — Main Power

Refer to the unit rating plate for wire sizing information and maximum fuse or "HACR Type" circuit breaker size. Each outdoor unit is marked with a "Minimum Circuit Ampacity". This means that the field wiring used must be sized to carry that amount of current. Depending on the installed KW of electric heat, there may be two field power circuits required. If this is the case, the unit serial plate will so indicate. All models are suitable only for connection with copper wire. Each unit and/or wiring diagram will be marked "Use Copper Conductors Only". These instructions **MUST BE** adhered to. Refer to the National Electrical Code (NEC) for complete current carrying capacity data on the various insulation grades of wiring material. All wiring must conform to NEC and all local codes.

The electrical data lists fuse and wire sizes (75°C copper) for all models, including the most commonly used heater sizes. Also shown are the number of field power circuits required for the various models with heaters.

The unit rating plate lists a "Maximum Time Delay Relay Fuse" or "HACR Type" circuit breaker that is to be used with the equipment. The correct size must be used for proper circuit protection and also to assure that there will be no nuisance tripping due to the momentary high starting current of the compressor motor.

The disconnect access door on this unit may be locked to prevent unauthorized access to the disconnect. To convert for the locking capability, bend the tab located in the bottom left hand corner of the disconnect opening under the disconnect access panel straight out. This tab will now line up with the slot in the door. When shut, a padlock may be placed through the hole in the tab preventing entry.

See startup section for information on three phase scroll compressor startups.

Wiring — Low Voltage Wiring

230/208V, 1 phase and 3 phase equipment dual primary voltage transformers. All equipment leaves the factory wired on 240V tap. For 208V operation, reconnect from 240V to 208V tap. The acceptable operating voltage range for the 240 and 208V taps are:

Table 4 — Operating Voltage Range

TAP	RANGE
240V	253 - 216
208V	220 - 187

NOTE: The voltage should be measured at the field power connection point in the unit and while the unit is operating at full load (maximum amperage operating condition).

Five (5) wires should be run from thermostat subbase to the 24V terminal board in the unit. A five conductor, 18 gauge copper, color-coded thermostat cable is recommended. The connection points are shown in Figure 4.

Table 5 — Thermostat Wire Size

TRANSFORMER VA	FLA	WIRE GAUGE	MAXIMUM DISTANCE IN FEET
55	2.3	20 gauge	45
		18 gauge	60
		16 gauge	100
		14 gauge	160
		12 gauge	250

Table 6 — Wall Thermostat and Subbase Combinations

THERMOSTAT	SUBBASE	PREDOMINATE FEATURES
8403-021	8404-012	2 stage cool, 2 stage heat
T874D1934	Q674A1001	System: heat-auto-cool Fan: on-auto
8403-019	8404-012	1 stage cool, 2 stage heat
T874C1760	Q674A1001	System: heat-auto-cool Fan: on-auto
8403-002	8404-003	1 stage heat, 1 stage cool
T87F3111	Q539A1220	System: heat-off-cool Fan: auto
8403-009	—	1 stage heat, 1 stage cool
IF56-318	—	—

NOTE: It is recommended that a bead of silicone caulking be placed behind the side mounting flanges and under the top flashing at the time of installation.

	A	B	C	D	E
REQUIRED DIMENSIONS TO MAINTAIN 1/4" MIN. CLEARANCE FROM COMBUSTIBLE MATERIALS	30 1/2	10 1/2	6 1/4	1 5/16	29 1/2
REQUIRED DIMENSIONS TO MAINTAIN RECOMMENDED 1" CLEARANCE FROM COMBUSTIBLE MATERIALS	32	12	5 1/2	9/16	28

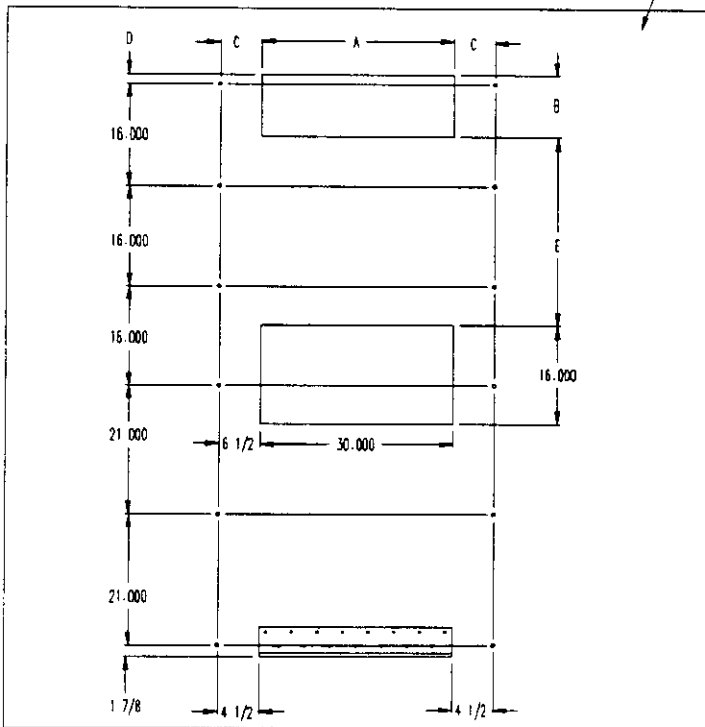
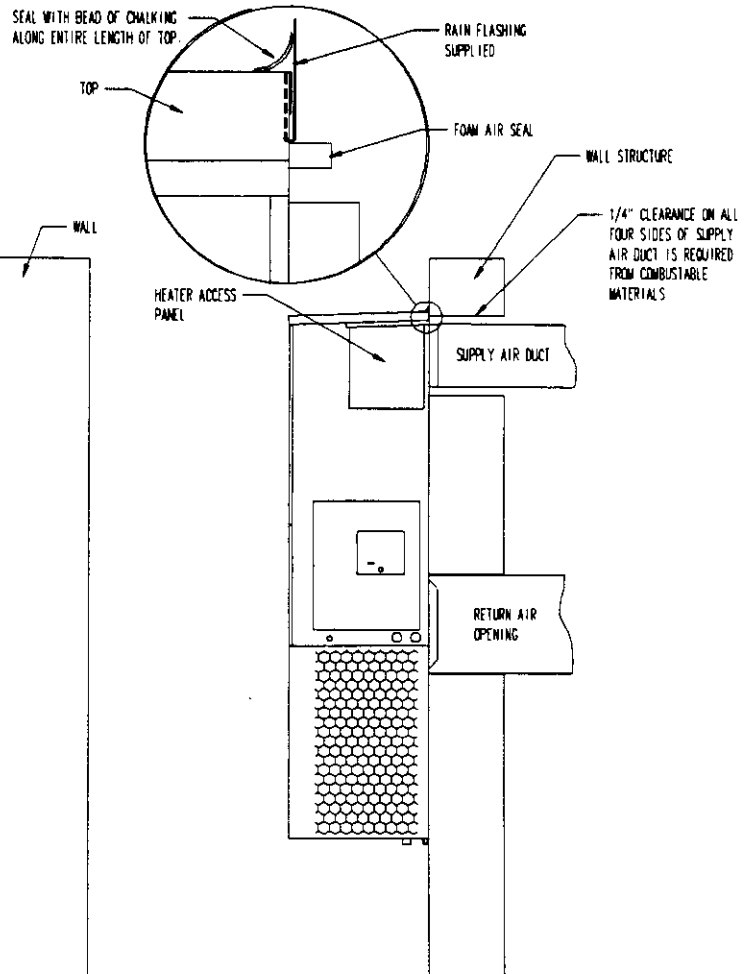


Figure 2 — Mounting Instructions

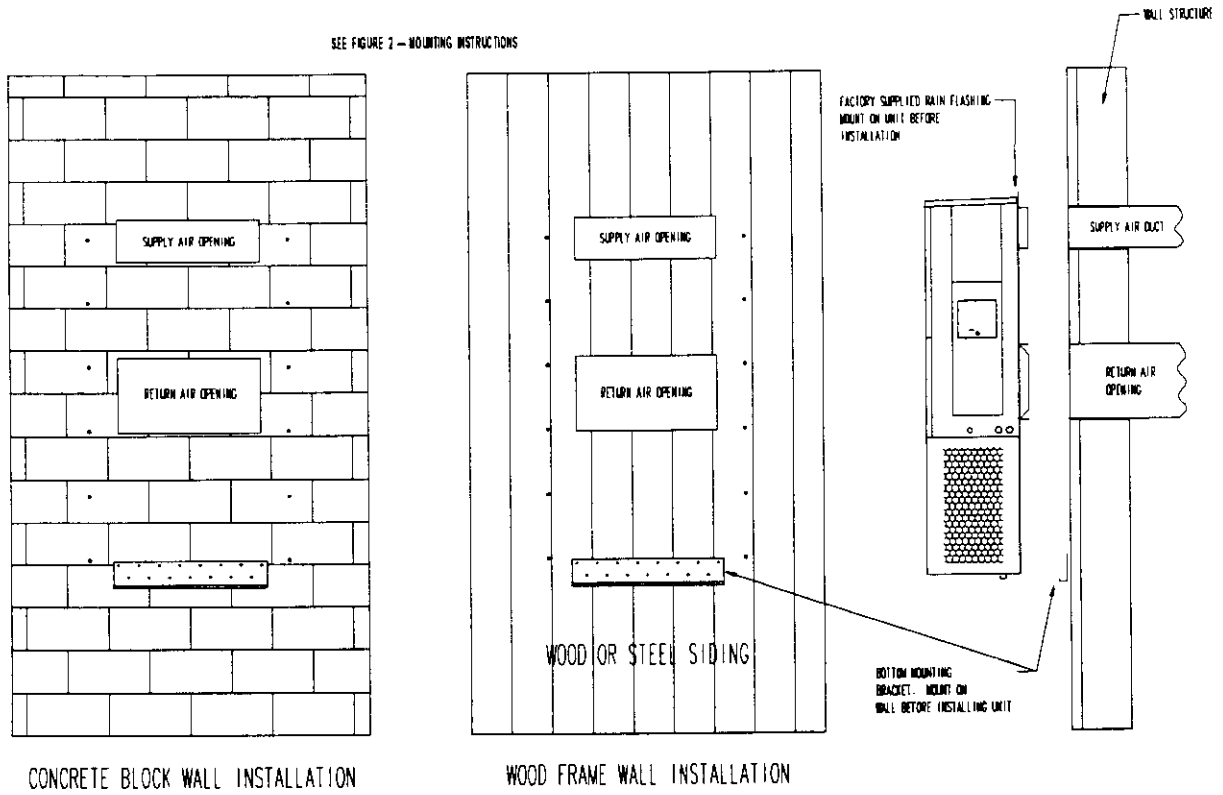


Figure 3 — Wall-Mounting Instructions

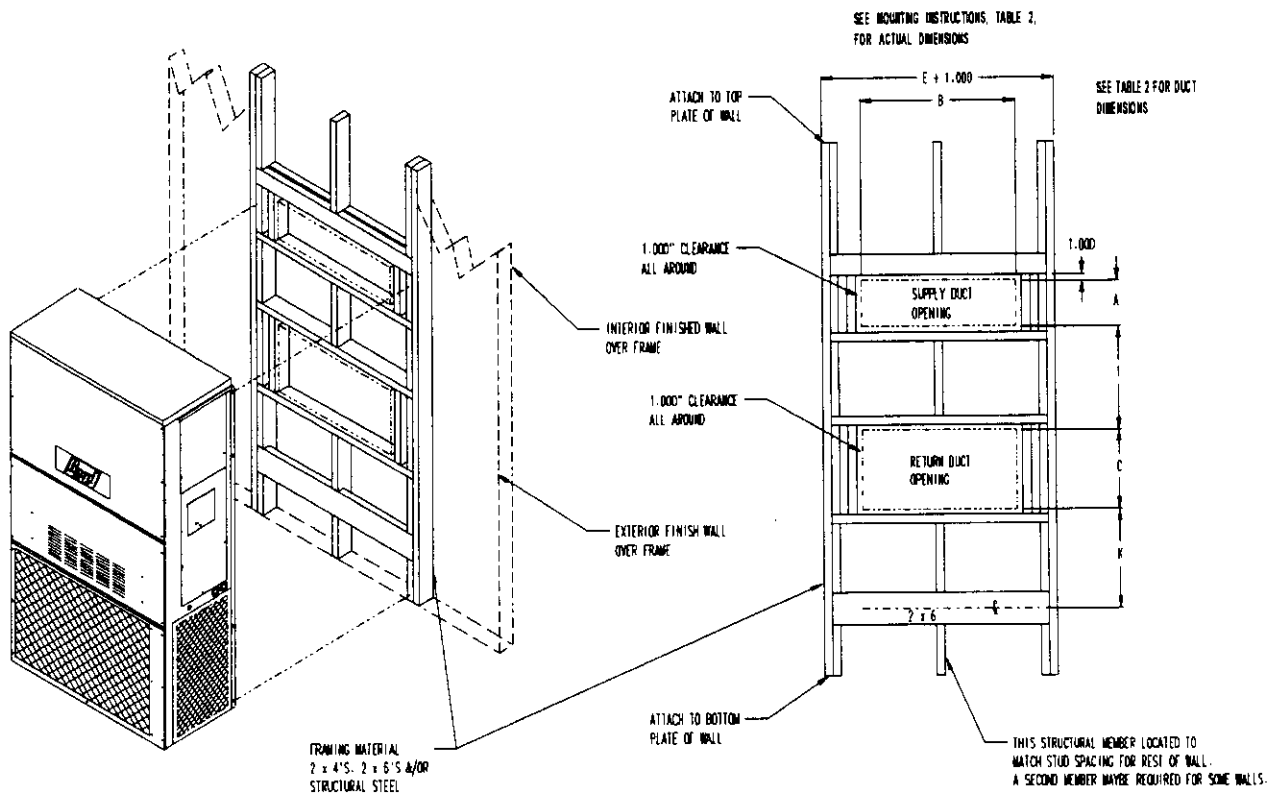
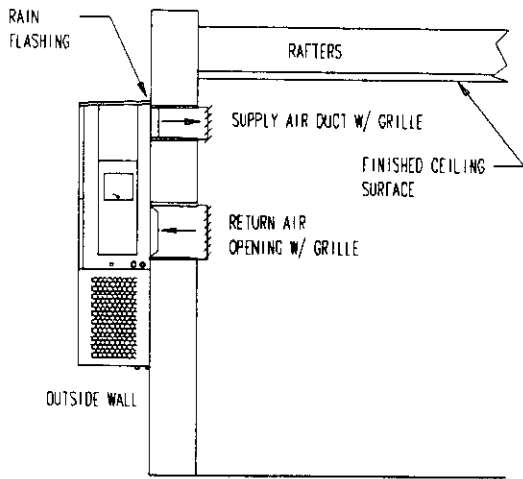
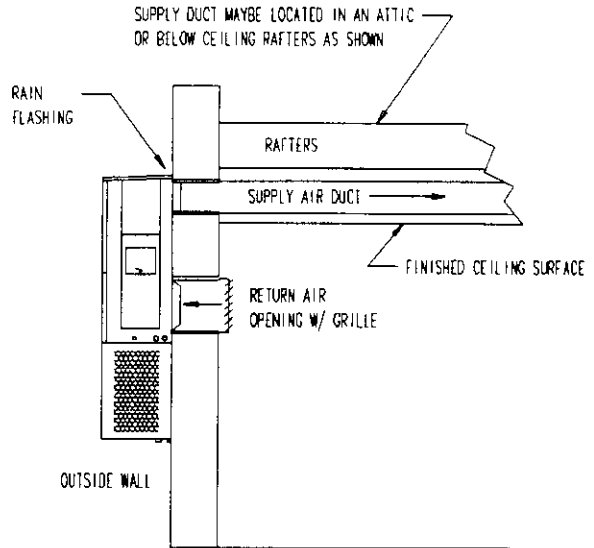


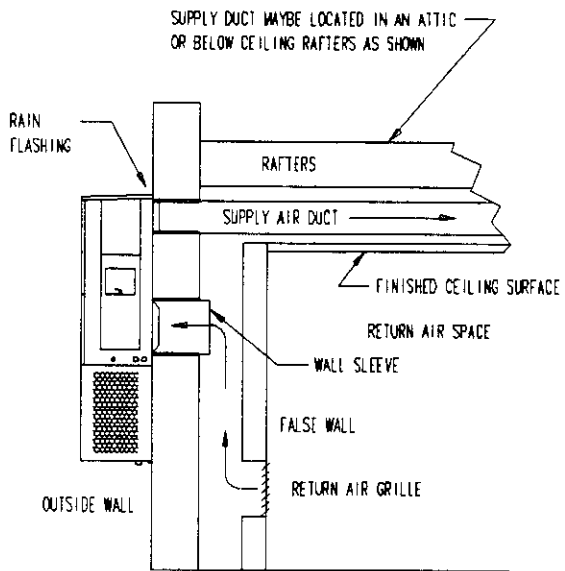
Figure 4 — Wall-Mounting Instructions



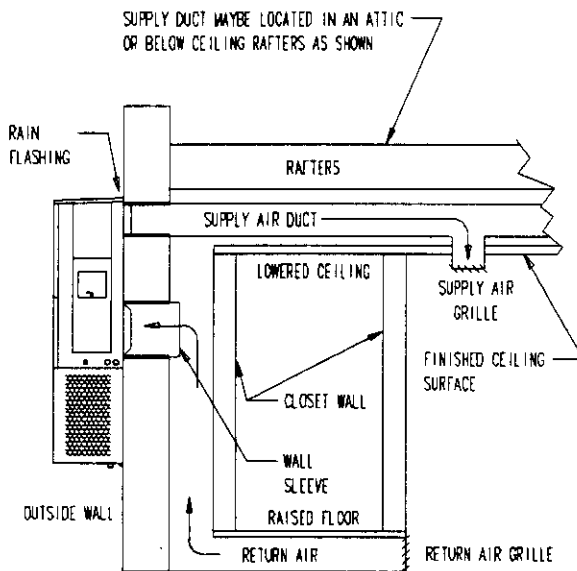
FREE AIR FLOW
NO DUCT



DUCTED SUPPLY
RETURN AT UNIT

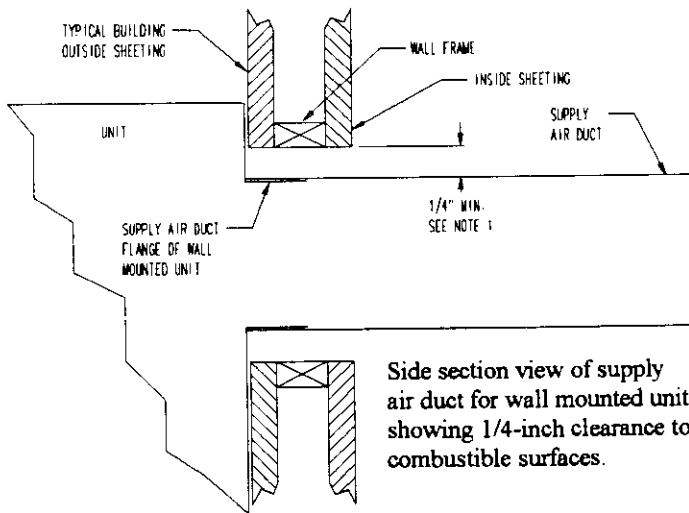


FALSE WALL INSTALLATION



CLOSET INSTALLATION

Figure 5 — Common Wall-Mounting Installations



WARNING

- A minimum of 1/4-inch clearance must be maintained between the supply air duct and combustible materials. This is required for the first 3-feet of ducting.
- It is important to insure that the 1/4-inch minimum spacing is maintained at all points.
- Failure to do this could result in overheating the combustible material and may result in fire.

Figure 6 — Electric Heat Clearance

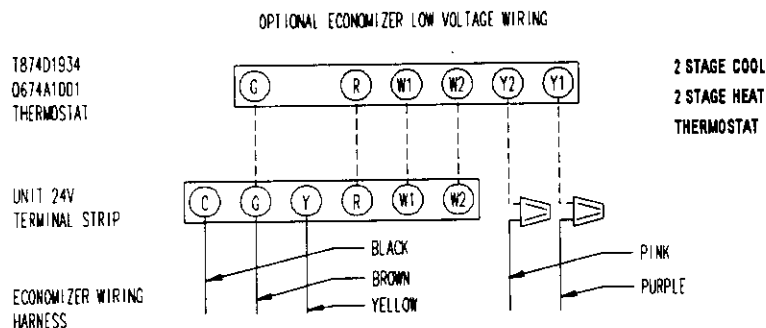
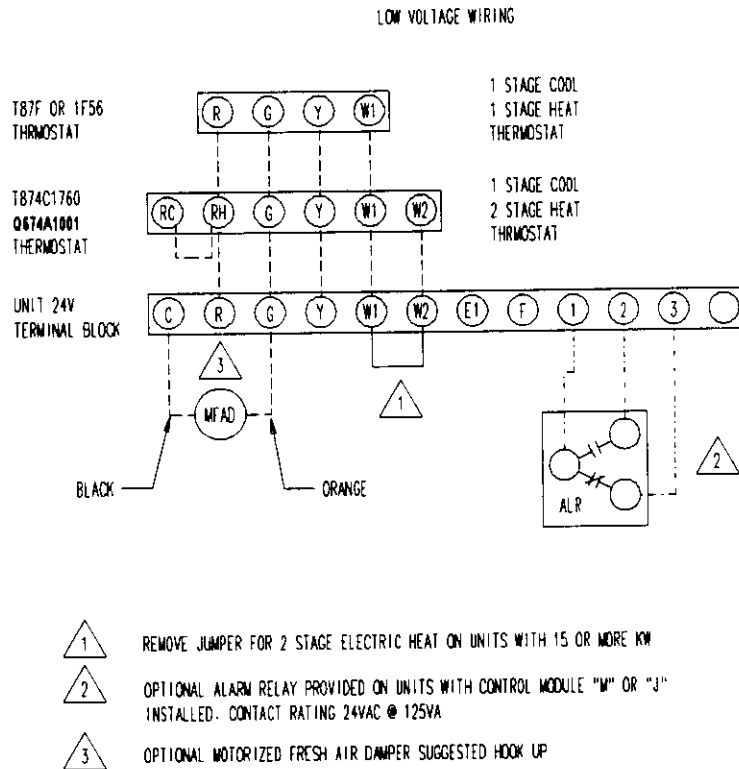


Figure 7 — Low Voltage Wiring

Start Up

Important Installer Note

For improved start-up performance, wash the indoor coil with a dishwasher detergent.

Crankcase Heaters

WA701 and WA721 units are provided with compressor crankcase heat.

The WA701 and WA721 models have a band type heater located around the bottom of the compressor. This heater is controlled by the crankcase heater relay. The heater is only energized when the compressor is not running.

Some form of crankcase heat is essential to prevent liquid refrigerant from migrating to the compressor, causing oil pump out on compressor start-up and possible valve failure due to compressing a liquid.

The decal in Figure 8 is affixed to all WA701 and WA721 units detailing start-up procedure. This is very important. Please read carefully.

Figure 8 — Start Up Label

IMPORTANT

These procedures must be followed at initial start-up and at any time power has been removed for 12 hours or longer.

To prevent compressor damage which may result from the presence of liquid refrigerant in the compressor crankcase.

1. Make certain the room thermostat is in the "off" position (the compressor is not to operate).
2. Apply power by closing the system disconnect switch. This energizes the compressor heater which evaporates the liquid refrigerant in the crankcase.
3. Allow 4 hours or 60 minutes per pound of refrigerant in the system as noted on the unit rating plate, whichever is greater.
4. After properly elapsed time, the thermostat may be set to operate the compressor.
5. Except as required for safety while servicing—Do not open system disconnect switch.

7961-061

High/Low Pressure Switch

The WA701 and WA721 models are supplied with a remote reset high pressure switch and low pressure switch. If tripped, this pressure switch may be reset by turning the thermostat off then back on again.

Three Phase Scroll Compressor Start Up Information

Scroll compressors, like several other types of compressors, will only compress in one rotational direction. Direction of rotation is not

an issue with single phase compressors since they will always start and run in the proper direction.

However, three phase compressors will rotate in either direction depending upon phasing of the power. Since there is a 50-50 chance of connecting power in such a way as to cause rotation in the reverse direction, verification of proper rotation must be made. Verification of proper rotation direction is made by observing that suction pressure drops and discharge pressure rises when the compressor is energized. Reverse rotation also results in an elevated sound level over that with correct rotation, as well as, substantially reduced current draw compared to tabulated values.

There is no negative impact on durability caused by operating three phase Compliant Scroll compressors in the reversed direction. However, after several minutes of operation, the compressor's internal protector will trip.

All three phase ZR3 compressors are wired identical internally. As a result, once the correct phasing is determined for a specific system or installation, connecting properly phased power leads to the same Fusite terminal should maintain proper rotation direction.

The direction of rotation of the motor may be changed by reversing any two line connections to the unit.

Service Hints

1. Caution homeowner to maintain clean air filters at all times. Also, not to needlessly close off supply and return air registers. This reduces air flow through the system, which shortens equipment service life as well as increasing operating costs.
2. Switching to heating cycle at 75°F or higher outside temperature may cause a nuisance trip of the remote reset high pressure switch. Turn thermostat off, then on to reset the high pressure switch.
3. Check all power fuses or circuit breakers to be sure they are the correct rating.
4. Periodic cleaning of the outdoor coil to permit full and unrestricted airflow circulation is essential.

Sequence of Operation

Cooling—Circuit R-Y makes at thermostat pulling in compressor contactor, starting the compressor and outdoor motor. The G (indoor motor) circuit is automatically completed on any call for cooling operation or can be energized by manual fan switch on subbase for constant air circulation. On a call for heating, circuit R-W1 make at the thermostat pulling in heat contact for the strip heat and blower operation. On a call for second stage heat, R-W2 makes bringing on second heat contactor, if so equipped.

Pressure Service Ports

High and low pressure service ports are installed on all units so that the system operating pressures can be observed. Pressure curves can be found later in the manual covering all models. It is imperative to match the correct pressure curve to the unit by model number.

Troubleshooting

Fan Blade Setting Dimensions

Shown in the drawing below are the correct fan blade setting dimensions for proper air delivery across the outdoor coil.

Any service work requiring removal or adjustment in the fan and/or motor area will require that the dimensions below be checked and blade adjusted in or out on the motor shaft accordingly.

Figure 9 — Fan Blade Setting

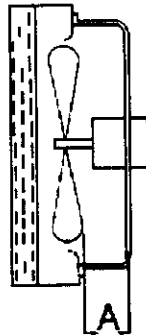


Table 7 — Fan Blade Dimensions

MODEL	DIMENSION A
WA721	.75
WA701	1.25

Removal of Fan Shroud

1. Disconnect all power to unit.
2. Remove the screws holding both grills — one on each side of unit — and remove grills.
3. Remove screws holding fan shroud to condenser and bottom — (9) screws.
4. Unwire condenser fan motor.
5. Slide complete motor, fan blade, and shroud assembly out the left side of the unit.
6. Service motor/fan as needed.
7. Reverse steps to reinstall.

Refrigerant Charge

The correct system R-22 charge is shown on the unit rating plate. Optimum unit performance will occur with a refrigerant charge resulting in a suction line temperature (6-inches from compressor) as shown in the following table:

Table 8 — Suction Line Temperatures

MODEL	RATED AIRFLOW	85°F	82°F
		OD TEMPERATURE	OD TEMPERATURE
WA701	1,800	58 - 60	56 - 58
WA721	1,850	59 - 61	57 - 59

The above suction line temperatures are based upon 80°F dry bulb/ 67°F wet bulb (50 percent R.H.) temperature and rated airflow across the evaporator during cooling cycle.

The suction line temperatures are based upon 80°F dry bulb 67°F wet bulb (50 percent relative humidity) temperature and rated airflow across the evaporator during cooling cycle.

Table 9 — Indoor Blower Performance — CFM at 230 Volts

E.S.P. In H ₂ O	WA701 WA721	
	HIGH SPEED	LOW SPEED
	DRY / WET COIL	DRY / WET COIL
.0	2,200 / 2,000	1,600 / 1,450
.1	2,100 / 1,900	1,525 / 1,375
.2	2,000 / 1,800	—
.3	1,875 / 1,700	—
.4	1,775 / 1,600	—
.5	1,650 / 1,475	—

Table 10 — CFM and ESP

RATED MODEL	RATED CFM [Ⓛ]	RECOMMENDED ESP [Ⓛ]	AIRFLOW RANGE
WA701	1,650	.20	1,750 - 1,375
WA721	1,800	.10	2,000 - 1,475

Ⓛ Rated CFM and ESP on high speed tap.

Table 11 — Maximum ESP of Operation Electric Heat Only

MODEL	WA701		WA721	
	LOW SPEED	HIGH SPEED	LOW SPEED	HIGH SPEED
-B00	.50	.50	.50	.50
-B09	.50	.50	.50	.50
-B15	.50	.50	.50	.50
-B18	.50	.50	.50	.50
-C09	.50	.50	.50	.50
-C15	.50	.50	.50	.50

Values shown are for units equipped with STD 1-inch throwaway filter or 1-inch washable filter. Derate ESP by .15 for 2-inch pleated filters.

Table 12 — Cooling Pressure

MODEL	RETURN AIR		75°	80°	82°	85°	90°	95°	190°	105°	110°	115°	120°	125°
	TEMPERATURE	PRESSURE												
WA701	75° DB	Low Side	62	63	63	64	65	66	67	68	69	70	—	—
	62° WB	High Side	214	230	236	247	265	280	299	316	333	351	—	—
	80° DB	Low Side	67	68	68	69	70	71	72	73	74	75	—	—
	67° WB	High Side	220	236	243	254	271	287	306	324	342	360	—	—
	85° DB	Low Side	72	73	73	74	75	76	77	78	79	80	—	—
	72° WB	High Side	225	243	250	261	279	297	316	335	353	372	—	—
WA721	75° DB	Low Side	63	64	64	65	66	67	68	69	70	71	72	73
	62° WB	High Side	205	222	228	237	254	268	286	302	318	336	348	360
	80° DB	Low Side	68	69	69	70	71	72	73	74	75	76	77	78
	67° WB	High Side	211	227	233	244	261	275	294	310	327	345	357	369
	85° DB	Low Side	73	74	74	75	76	77	78	79	80	81	82	83
	72° WB	High Side	216	234	240	251	268	285	303	321	339	357	370	383

Low side pressure ± 2 psig
High side pressure ± 5 psig

Tables are based upon rated CFM (airflow) across the evaporator coil. If there is any doubt as to correct operating charge being in the system, the charge should be removed, system evacuated and recharged to serial plate instructions.

Table 13 — Cooling Application Data — Outdoor Temperature °F ⊕

MODEL	Ⓠ D.B./W.B.	COOLING CAPACITY	75°	80°	85°	90°	95°	100°	105°	110°	115°	120°	125°
	62	Sensible Cooling	49,500	48,000	46,600	45,300	44,000	42,800	41,600	40,550	39,500	—	—
	80/	Total Cooling	74,550	72,850	71,050	69,100	67,000	64,800	62,400	59,900	57,250	—	—
	67	Sensible Cooling	48,050	47,100	46,200	45,300	44,450	43,600	42,750	41,950	41,150	—	—
	85/	Total Cooling	88,700	85,100	81,550	77,950	74,400	70,800	67,250	63,650	60,100	—	—
	72	Sensible Cooling	49,150	47,750	46,350	44,950	43,550	42,134	40,700	39,300	37,850	—	—
WA721	75/	Total Cooling	73,850	70,100	66,650	63,400	60,450	57,700	55,200	53,000	51,000	49,250	47,750
	62	Sensible Cooling	52,250	51,200	50,150	49,000	47,800	46,550	45,250	43,850	42,450	41,000	39,450
	80/	Total Cooling	78,200	76,150	74,050	71,950	69,500	67,650	65,500	63,300	61,450	58,850	56,400
	67	Sensible Cooling	51,100	50,400	49,650	48,900	48,250	47,250	46,350	45,400	44,200	43,400	42,400
	85/	Total Cooling	93,600	89,200	85,000	81,050	77,300	73,750	70,450	67,350	64,500	61,850	59,400
	72	Sensible Cooling	51,950	50,950	49,850	48,650	47,300	45,800	44,200	42,500	40,650	38,650	36,500

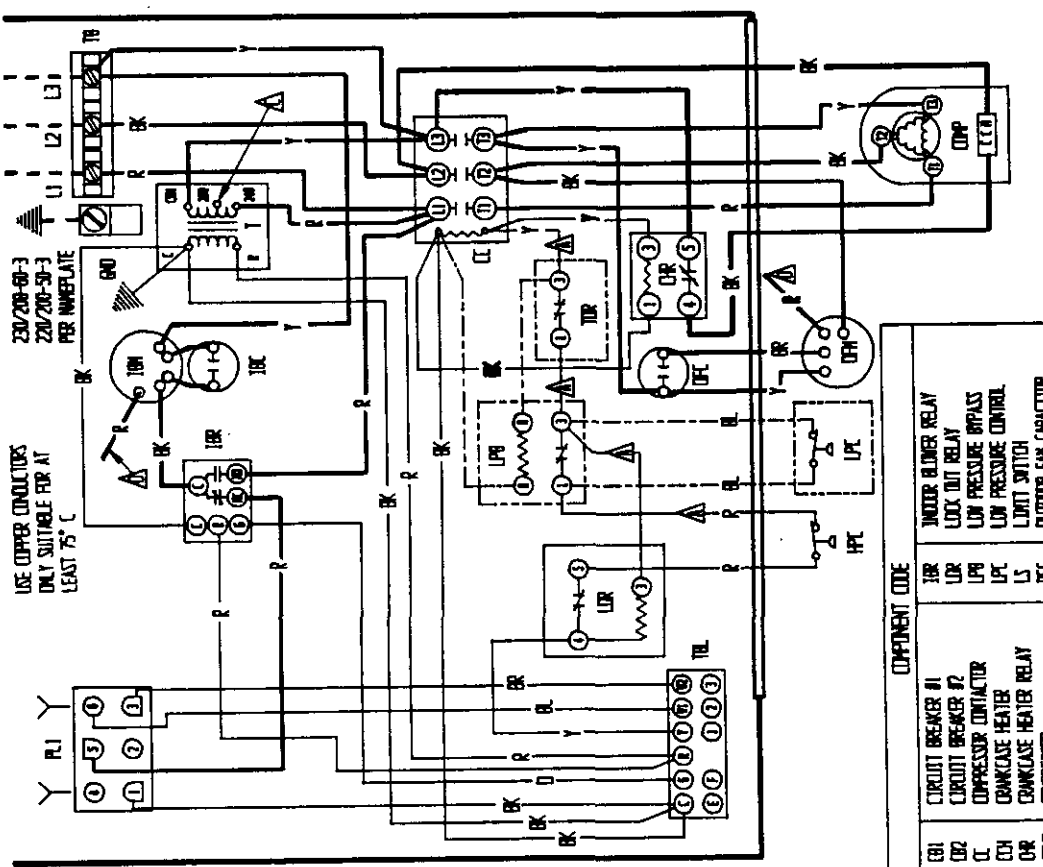
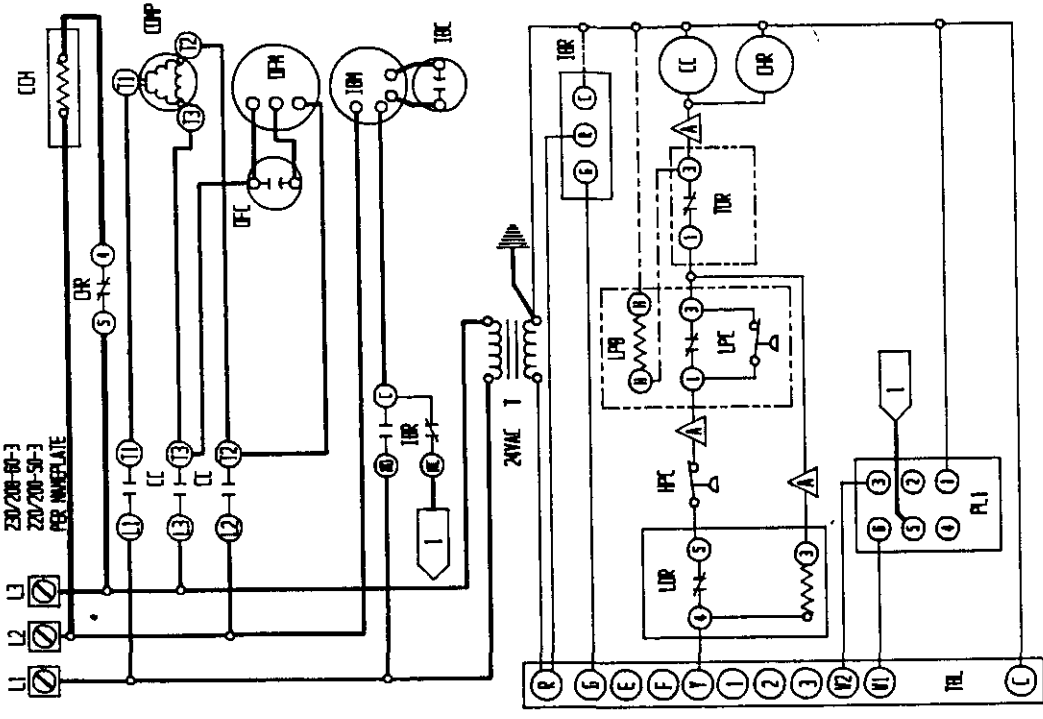
⊕ Below 65°F, unit requires a factory or field installed low ambient control.

Ⓠ Return air temp. °F.

CAPACITY MULTIPLIER FACTORS			
% of Rated Air Flow	-10	Rated	+10
Total BTUH	0.975	1.0	1.02
Sensible BTUH	0.950	1.0	1.05

Table 14 — Optional Accessories

MODEL	DESCRIPTION	WA701-B	WA701-C	WA721-B
EHWA05-B09	Heater Packages	•		•
EHWA05-B15	Heater Packages	•		•
EHWA05-B18	Heater Packages	•		•
EHWA05A-C09	Heater Packages		•	
EHWA05A-C15	Heater Packages		•	
BOP-5	Blank Off Plate	•	•	•
BFAD-5	Barometric Fresh Air Damper	•	•	•
MFAD-5	Motorized Fresh Air Damper	•	•	•
CRV-5	Classroom Ventilator with Exhaust	•	•	•
EIFM-5	Economizer with Exhaust	•	•	•
WERV-A5A	Energy Recovery Ventilator	•		
WERV-C5A	Energy Recovery Ventilator		•	
WMPPD-01C	Pull Disconnect Kit		•	



230/200-00-3
220/200-50-3
PER INVERTER

230/200-00-3
220/200-50-3
PER INVERTER

USE COPPER CONDUCTORS
ONLY SUITABLE FOR AT
LEAST 75°C

L1		L2		L3		L4		L5		L6		L7		L8		L9		L10		L11		L12		L13		L14		L15		L16		L17		L18		L19		L20		L21		L22		L23		L24		L25		L26		L27		L28		L29		L30		L31		L32		L33		L34		L35		L36		L37		L38		L39		L40		L41		L42		L43		L44		L45		L46		L47		L48		L49		L50		L51		L52		L53		L54		L55		L56		L57		L58		L59		L60		L61		L62		L63		L64		L65		L66		L67		L68		L69		L70		L71		L72		L73		L74		L75		L76		L77		L78		L79		L80		L81		L82		L83		L84		L85		L86		L87		L88		L89		L90		L91		L92		L93		L94		L95		L96		L97		L98		L99		L100	
L1		L2		L3		L4		L5		L6		L7		L8		L9		L10		L11		L12		L13		L14		L15		L16		L17		L18		L19		L20		L21		L22		L23		L24		L25		L26		L27		L28		L29		L30		L31		L32		L33		L34		L35		L36		L37		L38		L39		L40		L41		L42		L43		L44		L45		L46		L47		L48		L49		L50		L51		L52		L53		L54		L55		L56		L57		L58		L59		L60		L61		L62		L63		L64		L65		L66		L67		L68		L69		L70		L71		L72		L73		L74		L75		L76		L77		L78		L79		L80		L81		L82		L83		L84		L85		L86		L87		L88		L89		L90		L91		L92		L93		L94		L95		L96		L97		L98		L99		L100	

COMPONENT CODE	DESCRIPTION
CB1	CIRCUIT BREAKER #1
CB2	CIRCUIT BREAKER #2
CC	COMPRESSOR CONTACTOR
CH	CHAMBER HEATER
CH2	CHAMBER HEATER RELAY
COMP	COMPRESSOR
END	EQUIPMENT GROUND
HI	HEAT STRIP #1
H2	HEAT STRIP #2
H1	HEATER CONTACTOR #1
H2	HEATER CONTACTOR #2
HPC	HIGH PRESSURE CONTROL
IBC	INDOOR BLOWER CAPACITOR
IBM	INDOOR BLOWER MOTOR
IR	INDOOR BLOWER RELAY
UR	LOCK OUT RELAY
UP	LOW PRESSURE BYPASS
UPC	LOW PRESSURE CONTROL
LS	LIMIT SWITCH
DFC	OUTDOOR FAN CAPACITOR
DFM	OUTDOOR FAN MOTOR
PL1	PLUG #1
SK	START KIT
T	TRANSFORMER
TB	TERMINAL BLOCK
TBL	TERMINAL BLOCK
TDD	LOW VOLTAGE TERMINAL BLOCK
TDF	THERMAL CUTOFF
TDR	TIME DELAY RELAY

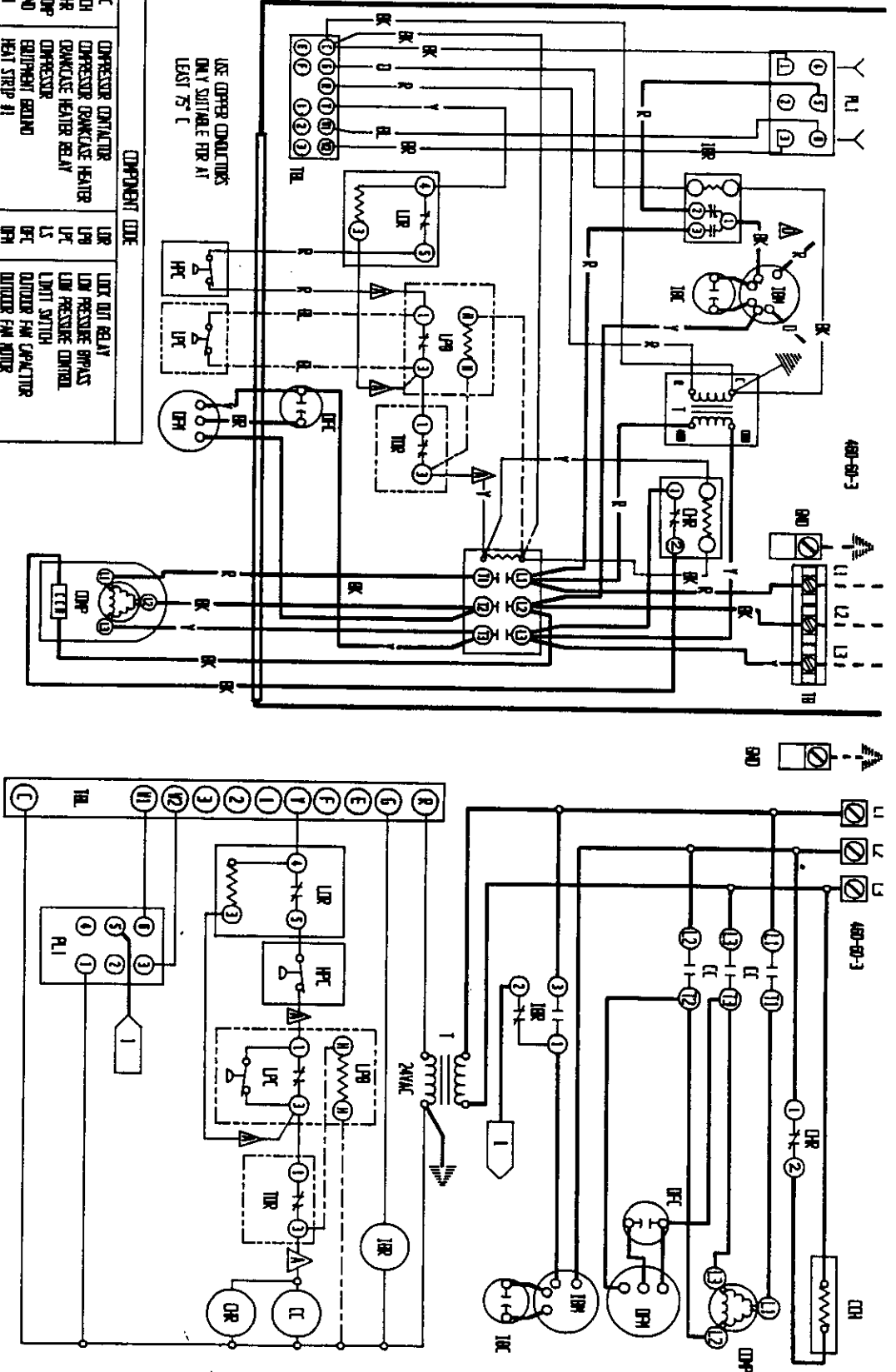
L1		L2		L3		L4		L5		L6		L7		L8		L9		L10		L11		L12		L13		L14		L15		L16		L17		L18		L19		L20		L21		L22		L23		L24		L25		L26		L27		L28		L29		L30		L31		L32		L33		L34		L35		L36		L37		L38		L39		L40		L41		L42		L43		L44		L45		L46		L47		L48		L49		L50		L51		L52		L53		L54		L55		L56		L57		L58		L59		L60		L61		L62		L63		L64		L65		L66		L67		L68		L69		L70		L71		L72		L73		L74		L75		L76		L77		L78		L79		L80		L81		L82		L83		L84		L85		L86		L87		L88		L89		L90		L91		L92		L93		L94		L95		L96		L97		L98		L99		L100	
L1		L2		L3		L4		L5		L6		L7		L8		L9		L10		L11		L12		L13		L14		L15		L16		L17		L18		L19		L20		L21		L22		L23		L24		L25		L26		L27		L28		L29		L30		L31		L32		L33		L34		L35		L36		L37		L38		L39		L40		L41		L42		L43		L44		L45		L46		L47		L48		L49		L50		L51		L52		L53		L54		L55		L56		L57		L58		L59		L60		L61		L62		L63		L64		L65		L66		L67		L68		L69		L70		L71		L72		L73		L74		L75		L76		L77		L78		L79		L80		L81		L82		L83		L84		L85		L86		L87		L88		L89		L90		L91		L92		L93		L94		L95		L96		L97		L98		L99		L100	

230/200-00-3
220/200-50-3
PER INVERTER

L1		L2		L3		L4		L5		L6		L7		L8		L9		L10		L11		L12		L13		L14		L15		L16		L17		L18		L19		L20		L21		L22		L23		L24		L25		L26		L27		L28		L29		L30		L31		L32		L33		L34		L35		L36		L37		L38		L39		L40		L41		L42		L43		L44		L45		L46		L47		L48		L49		L50		L51		L52		L53		L54		L55		L56		L57		L58		L59		L60		L61		L62		L63		L64		L65		L66		L67		L68		L69		L70		L71		L72		L73		L74		L75		L76		L77		L78		L79		L80		L81		L82		L83		L84		L85		L86		L87		L88		L89		L90		L91		L92		L93		L94		L95		L96		L97		L98		L99		L100	
L1		L2		L3		L4		L5		L6		L7		L8		L9		L10		L11		L12		L13		L14		L15		L16		L17		L18		L19		L20		L21		L22		L23		L24		L25		L26		L27		L28		L29		L30		L31		L32		L33		L34		L35		L36		L37		L38		L39		L40		L41		L42		L43		L44		L45		L46		L47		L48		L49		L50		L51		L52		L53		L54		L55		L56		L57		L58		L59		L60		L61		L62		L63		L64		L65		L66		L67		L68		L69		L70		L71		L72		L73		L74		L75		L76		L77		L78		L79		L80		L81		L82		L83		L84		L85		L86		L87		L88		L89		L90		L91		L92		L93		L94		L95		L96		L97		L98		L99		L100	

L1		L2		L3		L4		L5		L6		L7		L8		L9		L10		L11		L12		L13		L14		L15		L16		L17		L18		L19		L20		L21		L22		L23		L24		L25		L26		L27		L28		L29		L30		L31		L32		L33		L34		L35		L36		L37		L38		L39		L40		L41		L42		L43		L44		L45		L46		L47		L48		L49		L50		L51		L52		L53		L54		L55		L56		L57		L58		L59		L60		L61		L62		L63		L64		L65		L66		L67		L68		L69		L70		L71		L72		L73		L74		L75		L76		L77		L78		L79		L80		L81		L82		L83		L84		L85		L86		L87		L88		L89		L90		L91		L92		L93		L94		L95		L96		L97		L98		L99		L100	
L1		L2		L3		L4		L5		L6		L7		L8		L9		L10		L11		L12		L13		L14		L15		L16		L17		L18		L19		L20		L21		L22		L23		L24		L25		L26		L27		L28		L29		L30		L31		L32		L33		L34		L35		L36		L37		L38		L39		L40		L41		L42		L43		L44		L45		L46		L47		L48		L49		L50		L51		L52		L53		L54		L55		L56		L57		L58		L59		L60		L61		L62		L63		L64		L65		L66		L67		L68		L69		L70		L71		L72		L73		L74		L75		L76		L77		L78		L79		L80		L81		L82		L83		L84		L85		L86		L87		L88		L89		L90		L91		L92		L93		L94		L95		L96		L97		L98		L99		L100	

LABELLED WIRES CONNECT IF NO OPTIONS USED.
 Δ NINE RED WIRES TO 200V TAP FOR 200V OPERATION
 Δ RED (LOW) BLACK (HIGH)
 BARD MFG. CO.
 DWG. 4085-219 B5
 DRN. DUTCHER
 CHK./APPR.
 HIGH VOLTAGE LOW VOLTAGE NECESSARY
 FACTORY STD. FIELD OPTIONAL
 COLOR CODE
 Y BLACK BROWN RED ORANGE
 G GREEN BLUE WHITE
 V (PR) GRAY SLATE
 T PK L
 PINK LAVENDER
 4085-219 B5
 DUTCHER
 CK./APPR.



USE OTHER CONDUCTORS
ONLY SUITABLE FOR AT
LEAST 75 ° F

COMPONENT CODE	COMPONENT CODE	COMPONENT CODE
CC	COMPRESSOR CONTACTOR	LOW VOLTAGE RELAY
CH	COMPRESSOR CONTACTOR HEATER	LOW PRESSURE SWITCH
CR	COMPRESSOR CONTACTOR HEATER RELAY	LOW PRESSURE CONTROL
CP	COMPRESSOR	OUTDOOR FAN MOTOR
CPB	COMPRESSOR BELIND	OUTDOOR FAN MOTOR
HA	HEAT STRIP #1	RAIL DISCONNECT
HA2	HEAT STRIP #2	RAILS #1
HC1	HEATER CONTACTOR #1	TRANSFORMER
HC2	HEATER CONTACTOR #2	TERMINAL BLOCK
HP	HIGH PRESSURE CONTROL	LOW VOLTAGE TERMINAL BLOCK
IR	INDOOR BLOWER MOTOR	THEIR, OIL-DEF.
OR	INDOOR BLOWER MOTOR	THEIR RELAY
IRB	INDOOR BLOWER RELAY	

▲ LABELLED WIRES CONNECT IF NO OPTIONS USED.

▲ FOR LOW SPEED CONNECT BLACK AND ORANGE WIRES TOGETHER
▲ AND INSULATE. CONNECT RED WIRE TO TERMINAL I OF IR.

FACTORY STD.	FIELD	OPTIONAL
—	---	----
—	---	----
—	---	----

COLOR CODE		BAD0 MFG. CO.	
CR	BLACK	Y	VIOLET
GR	BROWN	G	PURPLE
R	RED	B	GRAY
O	ORANGE	W	SLATE
		Y	(GR)
		B	(R)
		W	(S)
		K	L
		P	LAVENDER
		OR	ORANGE
		OR	ORANGE