

INSTALLATION INSTRUCTIONS

WALL MOUNTED PACKAGE AIR CONDITIONERS

MODELS

WA181

WA241

**MANUAL 2100-200 REV. B
SUPERSEDES REV. A
FILE VOL. III, TAB 16**

SECTION 1 --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 Of Air Conditioning and Ventilating Systems	-ANSI/NFPA 90A
Standard For Warm Air Heating and Air Conditioning Systems	-ANSI/NFPA 90B
Load Calculation For Residential Winter and Summer Air Conditioning	-ACCA Manual J
Duct Design For Residential Winter and Summer Air Conditioning and Equipment Selection	-ACCA Manual O

FOR MORE INFORMATION, CONTACT THESE PUBLISHERS

ACCA:	AIR CONDITIONING CONTRACTORS OF AMERICA 1513 16th Street NW Washington, DC 20036 Telephone: (202) 483-9370	Fax: (202) 234-4721
ANSI:	AMERICAN NATIONAL STANDARDS INSTITUTE 1430 Broadway New York, NY 10018 Telephone: (212) 354-3300	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

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PART 1 -- WALL MOUNT GENERAL INFORMATION

AIR CONDITIONER WALL MOUNT MODEL NOMENCLATURE

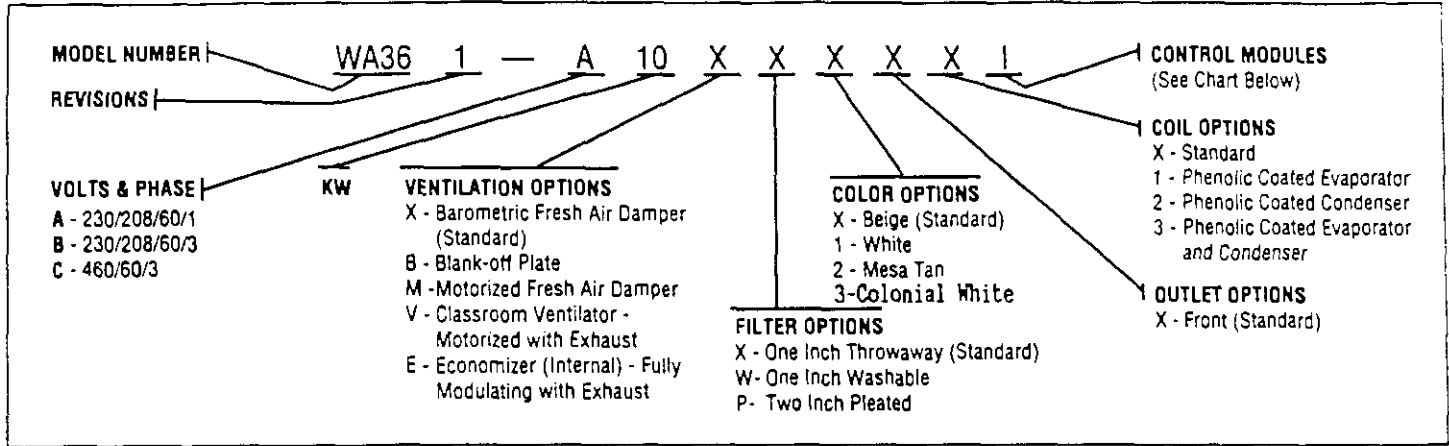


TABLE 1 ELECTRIC HEAT TABLE

Models	WA181-A				WA241-A				WA241-B			
	240-1		208-1		240-1		208-1		240-3		208-3	
	KW	A	BTU	A	BTU	A	BTU	A	BTU	A	BTU	A
5	20.8	17065	18.1	12799	20.8	17065	18.1	12799				
8	33.3	27300	28.8	20475	33.3	27300	28.8	20475				
10	41.6	34130	36.2	25598	41.6	34130	36.2	25598				
6									14.4	20500	12.5	15360
9									21.7	30600	18.7	23030

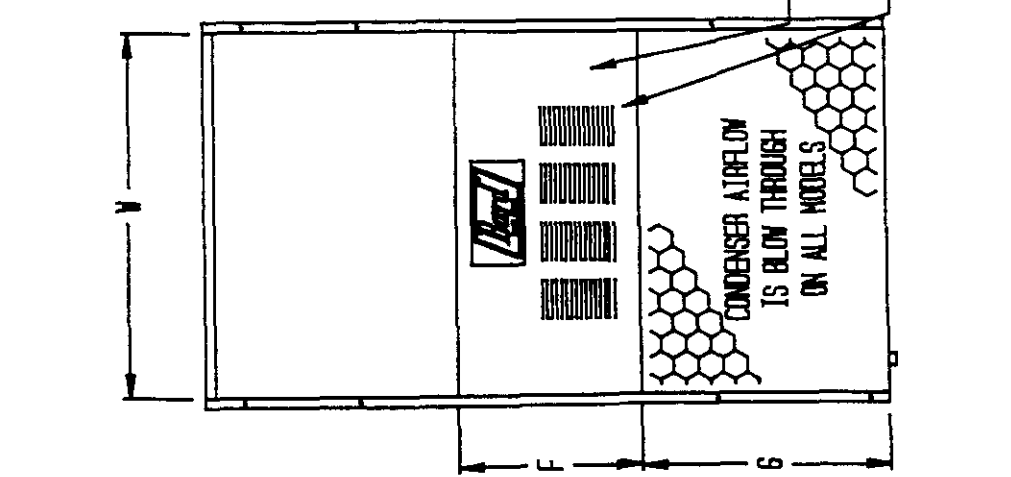
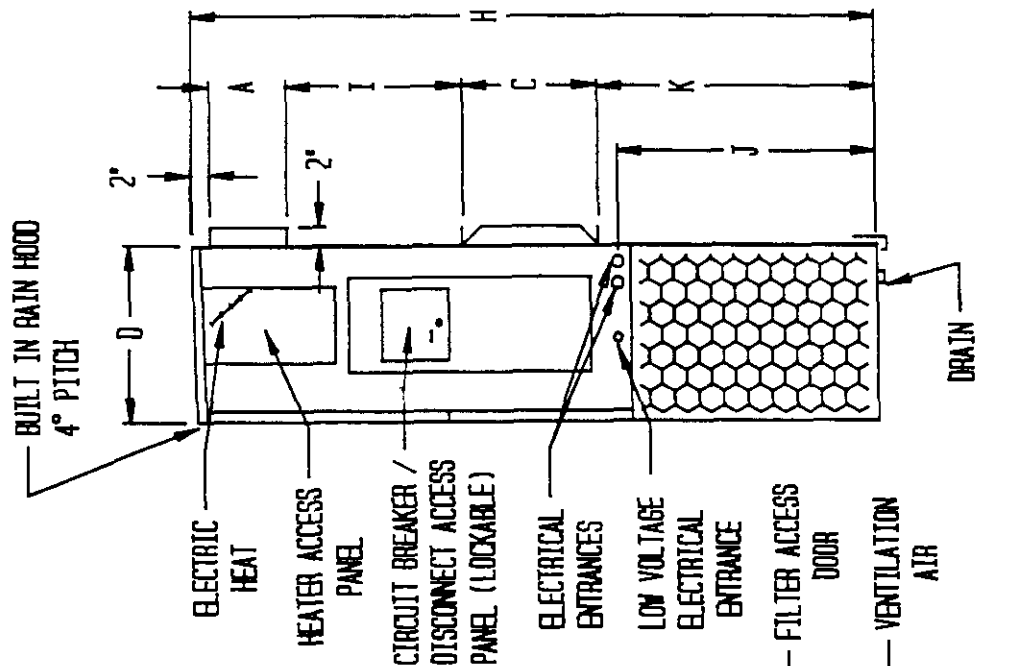
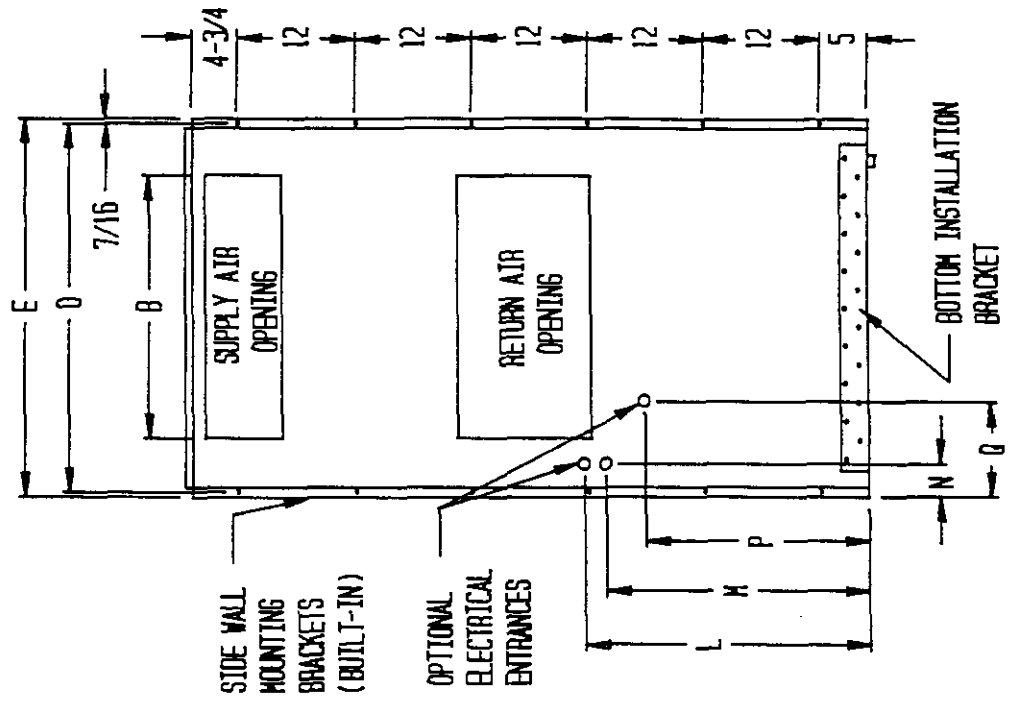
SHIPPING DAMAGE

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.

FIGURE 1

SIZE SPECS FOR HIS-278

UNIT	WIDTH (W)	DEPTH (D)	HEIGHT (H)	SUPPLY		RETURN		E	F	G	I	J	K	L	M	N	O	P	D
				A	B	C	B												
18 & 24	32-7/8	16-7/8	70-1/2	7-7/8	19-7/8	11-7/8	19-7/8	34-7/8	18-1/4	25-3/4	20-3/4	26-3/4	28	29-1/4	27	2-9/16	34	22-1/16	10-1/2



FRONT VIEW

SIDE VIEW

BACK VIEW

TABLE 2

SINGLE CIRCUIT						
Model	Rated Volts and Phase	No. Field Power Ckts.	(3) Minimum Circuit Ampacity	(1) Maximum External Fuse Or Circuit Breaker	(2) Field Power Wire Size	(2) Ground Wire Size
WA181-A00, A0Z	230/208-1	1	14	20	14	12
A05		1	28	30	10	10
A08		1	44	45	8	10
A10		1	54	60	6	10
WA241-A00, A0Z	230/208-1	1	15	20	14	12
A05		1	28	30	10	10
A08		1	44	45	8	10
A10		1	54	60	6	10
WA241-B00, B0Z	230/208-3	1	11	15	14	12
B06		1	20	20	12	12

(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 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 Electrical Code (latest revision), article 310 for power conductor sizing. Caution: When more than one field power conductor circuit is run thru 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.

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

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 8 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 one 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.

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

Some installations may not require any return air duct. It is recommended that on this type of installation that a filter grille be located in the wall. 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 loosening 2 screws in each bracket assembly and sliding the brackets apart to the required width and retightening the 4 screws.

FRESH AIR INTAKE

All units are built with a 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.

PART 2 -- INSTALLATION INSTRUCTIONS

WALL MOUNTING INFORMATION

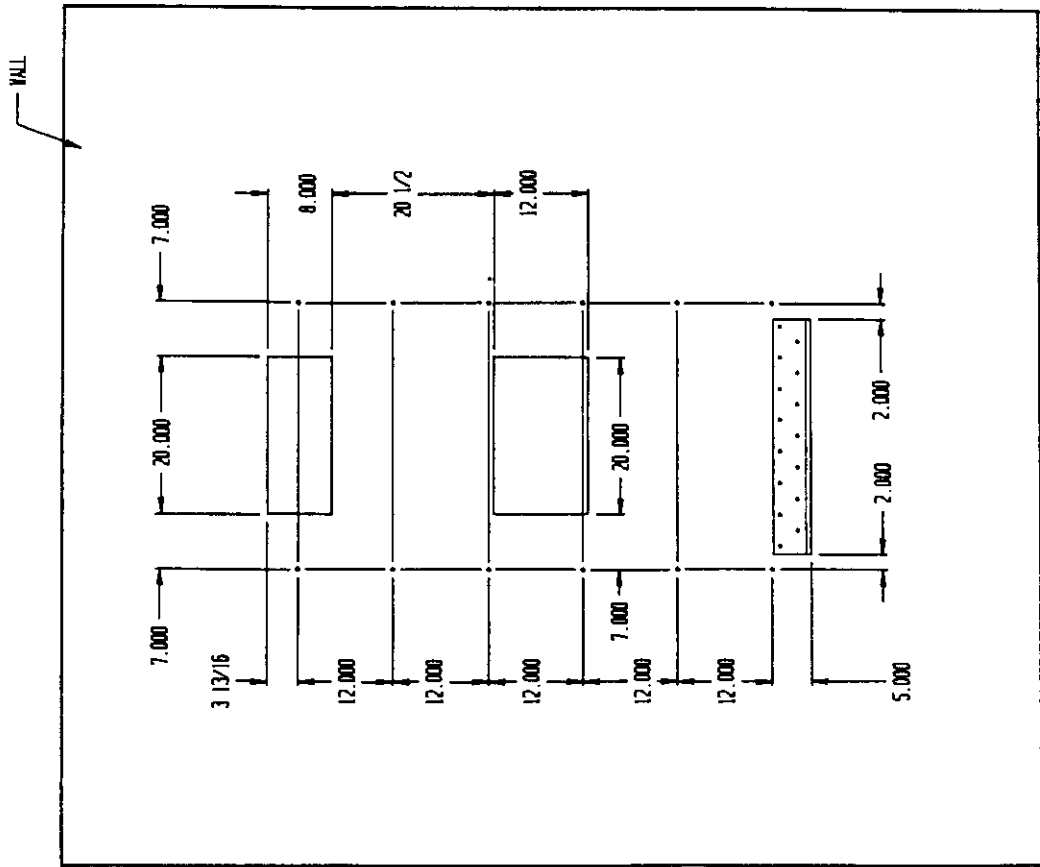
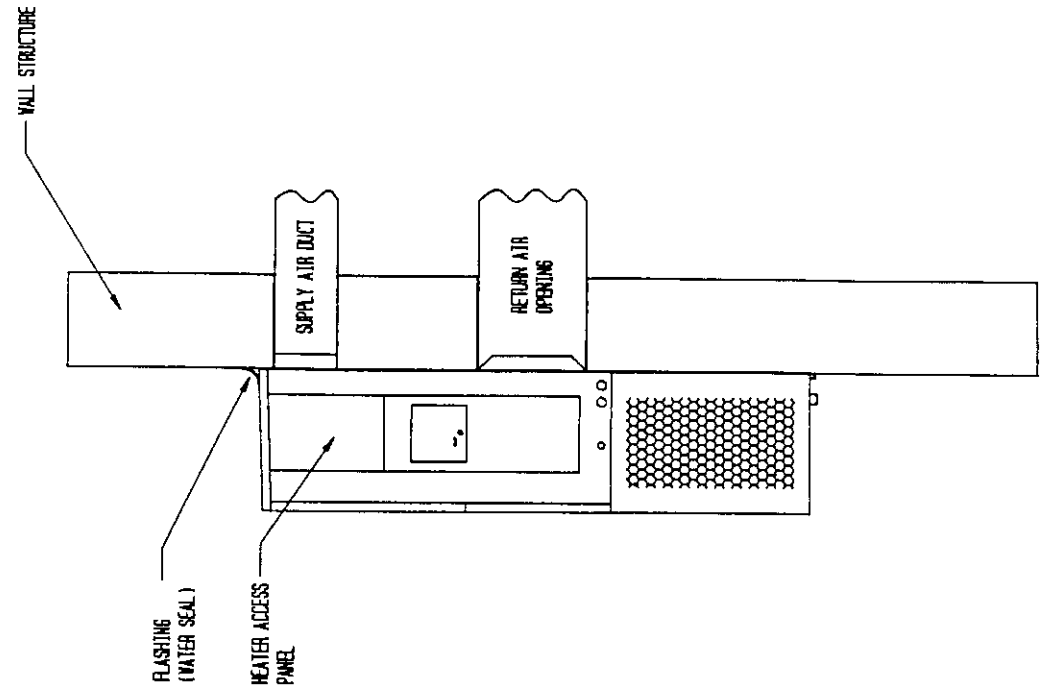
1. These units are secured by wall mounting brackets which secure the unit to the outside wall surface at both sides. A bottom mounting bracket is provided for ease of installation, but is not required.
2. On wood-frame walls, the wall construction must be strong and rigid enough to carry the weight of the unit without transmitting any unit vibration. **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.

MOUNTING THE UNIT

1. Two holes, for the supply and return air openings, must be cut through the wall as shown in Figure 2.
2. Locate and mark lag bolt locations and bottom mounting bracket location, if desired. See Figure 2.
3. Mount bottom mounting bracket, if used.
4. Position unit in opening and secure with 5/16 lag bolts; use flat washers on the lag bolts.
5. 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.
6. On side by side installations, maintain a minimum of 20 inches clearance on right side to allow access to control panel and heat strips and allow proper airflow to outdoor coil.

FIGURE 2
MOUNTING INSTRUCTIONS

NOTE: IT IS RECOMMENDED THAT A BEAD OF SILICONE CAULKING BE PLACED BEHIND THE SIDE MOUNTING FLANGES AND UNDER THE TOP FLASHING AT TIME OF INSTALLATION.



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.

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:

<u>TAP</u>	<u>RANGE</u>
240	253 - 216
208	220 - 187

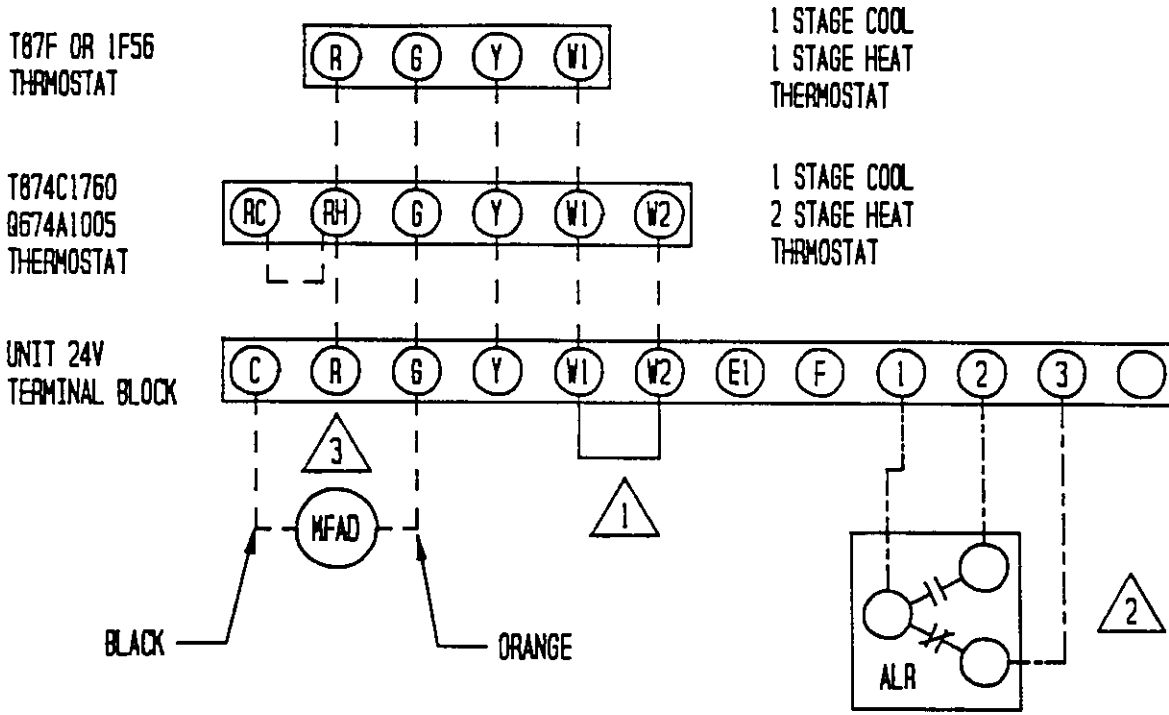
NOTE: The voltage should be measured at the field power connection point in the unit and while the unit is operating at full load (maximum amperage operating condition).

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 3.

<u>TABLE 3</u>		<u>THERMOSTAT WIRE SIZE</u>	
<u>Transformer VA</u>	<u>FLA</u>	<u>Wire Gauge</u>	<u>Maximum Distance In Feet</u>
55	2.3	20 Gauge	45
		18 "	60
		16 "	100
		14 "	160
		12 "	250

FIGURE 3

LOW VOLTAGE WIRING



REMOVE JUMPER FOR 2 STAGE ELECTRIC HEAT ON UNITS WITH 15 OR MORE KW



OPTIONAL ALARM RELAY PROVIDED ON UNITS WITH CONTROL MODULE "M" OR "J" INSTALLED. CONTACT RATING 24VAC @ 125VA



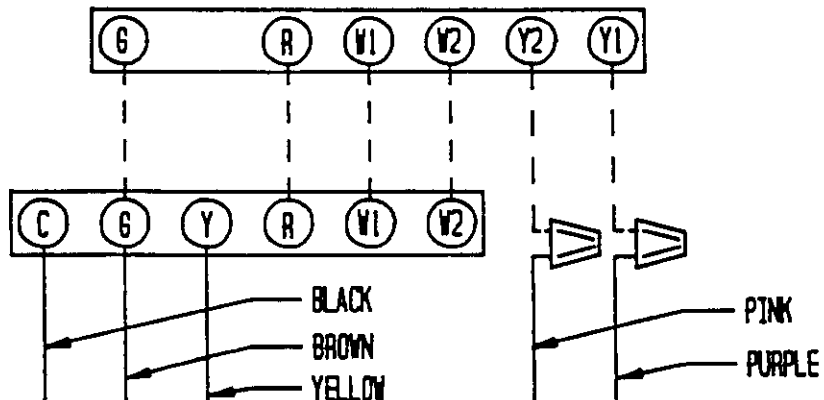
OPTIONAL MOTORIZED FRESH AIR DAMPER SUGGESTED HOOK UP

OPTIONAL ECONOMIZER LOW VOLTAGE WIRING

T874D1934
Q674A1001
THERMOSTAT

UNIT 24V
TERMINAL STRIP

ECONOMIZER WIRING
HARNES



PART 3 -- START-UP

IMPORTANT INSTALLER NOTE

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

CRANKCASE HEATERS

All units are provided with some form of compressor crankcase heat.

All single and three phase models have an insertion well-type heater located in the lower section of the compressor housing. This is a self-regulating type heater that draws only enough power to maintain the compressor at a safe temperature.

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 4 is affixed to all outdoor units detailing start-up procedure. This is very important. Please read carefully.

FIGURE 4

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

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. The heat pump wall thermostats perform multiple functions. Be sure that all function switches are correctly set for the desired operating mode before trying to diagnose any reported service problems.
4. Check all power fuses or circuit breakers to be sure they are the correct rating.
5. 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.

PART 4 -- 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 5

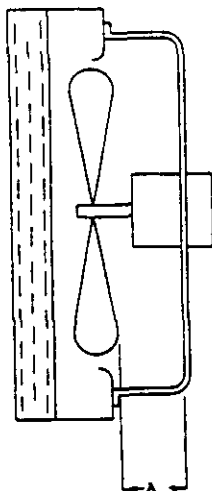


TABLE 4

Model	Dimension A
WA181	1.00
WA241	

REMOVAL OF THE 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" from compressor) as shown in the following table:

TABLE 5

Model	Rated Airflow	95° F OD Temperature	82° F OD Temperature
WA181	650	51 - 53	63 - 65
WA241	800	61 - 63	63 - 65

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.

TABLE 6 INDOOR BLOWER PERFORMANCE--CFM @ 230V

E.S.P. In H2O	WA181, WA241	
	230V	
	Dry	Wet
.0	1020	975
.1	960	905
.2	865	800
.3	820	735
.4	735	650
.5	615	535

TABLE 7

Model	Rated CFM*	Rated ESP*	Recommended Airflow Range
WA181	650	.40	575 - 725
WA241	800	.20	700 - 950

*Rated CFM and ESP on high speed tap.

MAXIMUM ESP OF OPERATION

TABLE 8

ELECTRIC HEAT ONLY

Model	Low Speed	High Speed
A00	.50	.50
WA181 A05	.50	.50
WA241 A08	.50	.50
B00	.50	.50
WA241 B06	.50	.50

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

TABLE 9

COOLING

Air Temperature Entering Outdoor Coil °F

Model	Return Air Temperature	Pressure	°	°	°	°	°	°	°	°	°
			75	80	85	90	95	100	105	110	115
WA181	75 deg. DB	Low Side	71	73	75	77	79	81	82	84	85
	62 deg. WB	High Side	194	208	223	238	253	268	284	299	315
	80 deg. DB	Low Side	76	78	80	83	84	86	88	90	91
	67 deg. WB	High Side	199	214	229	244	259	275	291	307	323
	85 deg. DB	Low Side	81	84	86	89	91	93	95	96	98
	72 deg. WB	High Side	206	221	237	253	268	285	301	318	334
WA241	75 deg. DB	Low Side	72	75	78	80	82	84	86	87	89
	62 deg. WB	High Side	198	214	230	246	261	276	291	305	319
	80 deg. DB	Low Side	74	77	80	82	84	86	88	90	91
	67 deg. WB	High Side	211	229	246	263	280	295	311	326	341
	85 deg. DB	Low Side	77	80	83	85	87	89	91	93	94
	72 deg. WB	High Side	227	246	265	283	300	318	334	351	367

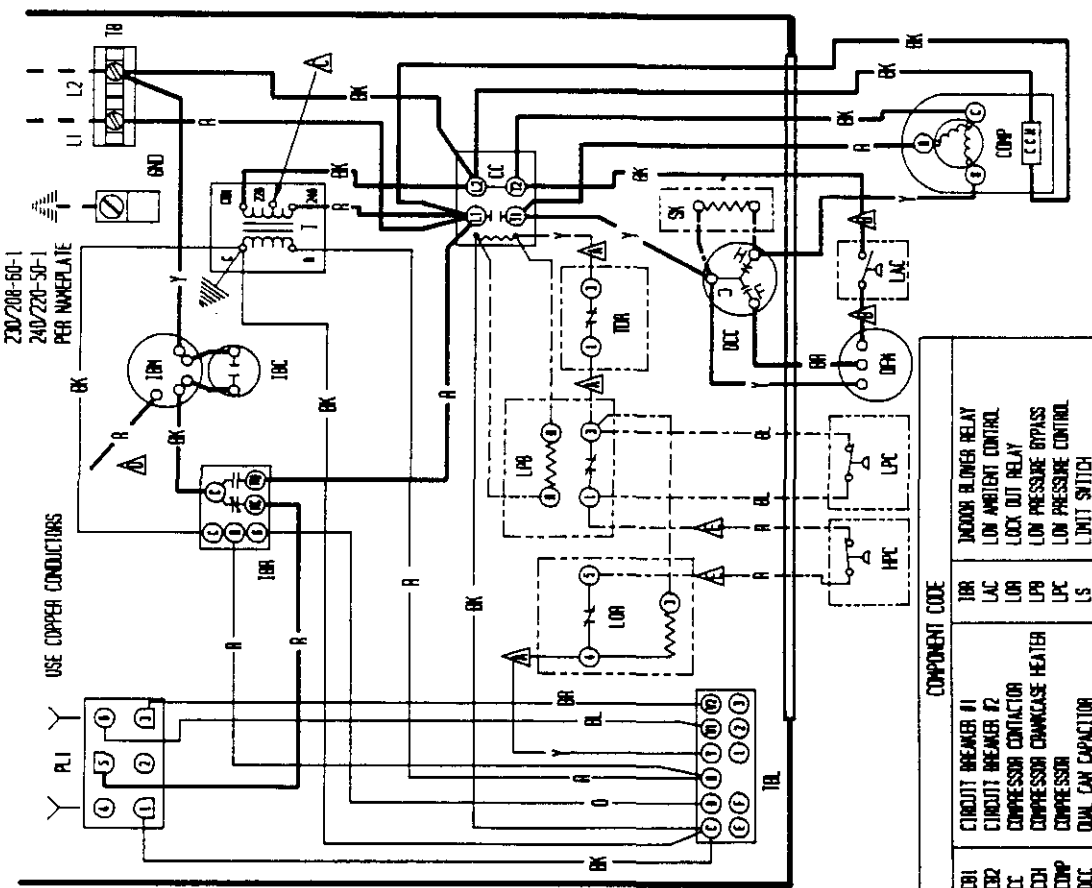
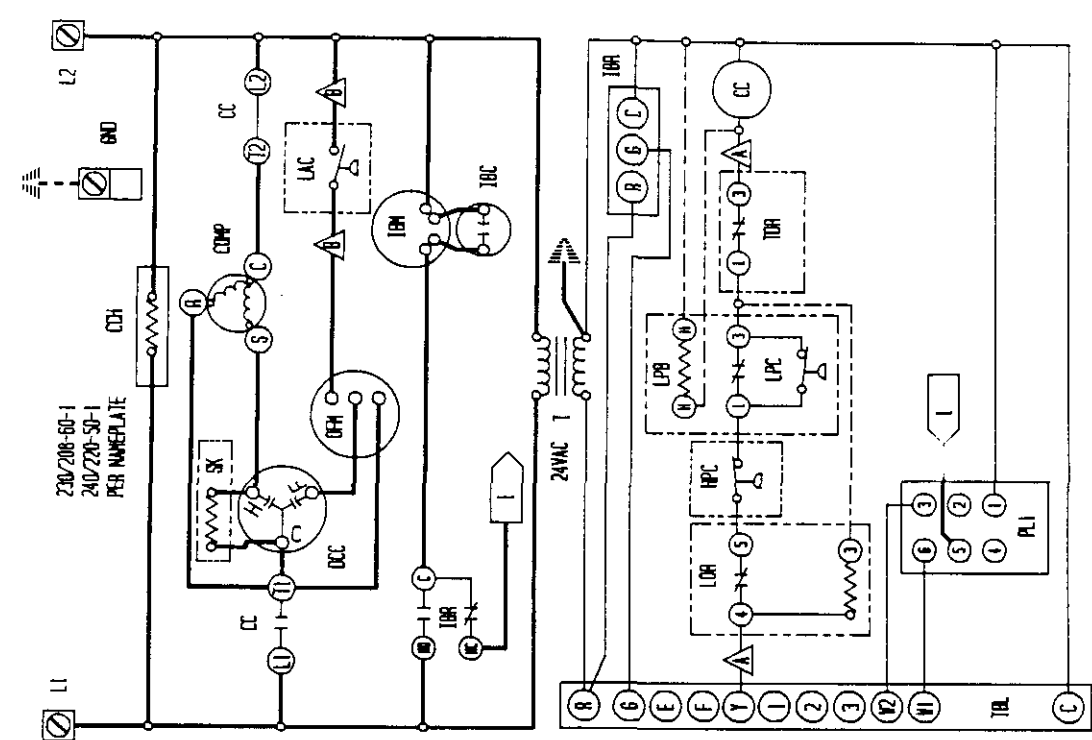
Low side pressure \pm 2 PSIGHigh side pressure \pm 5 PSIG

Tables are based upon rated CFM (airflow) across the evaporator coil and should be found under section titled "Refrigerant Charge" elsewhere in manual. 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 10

OPTIONAL ACCESSORIES

Model	Description	W	W	W
		A 1 8 1 - A	A 2 4 1 - A	A 2 4 1 - B
EHWA02-A05	Heater Packages	X	X	
EHWA02-A08	Heater Packages	X	X	
EHWA02-A10	Heater Packages	X	X	
EHWA24-B06	Heater Packages			X
BOF-2	Blank Off Plate	X	X	X
BFAD-2	Barometric Fresh Air Damper	X	X	X
MFAD-2	Motorized Fresh Air Damper	X	X	X
CRV-2	Classroom Ventilator With Exhaust	X	X	X
EIFM-2	Economizer With Exhaust	X	X	X
CMA-1	High Pressure Control (HPC)	X	X	X
CMA-2	Low Pressure Control (LPC)	X	X	X
CMA-4	Low and High Pressure Control	X	X	X
CMA-5	Time Delay Relay (TDR)	X	X	X
CMA-6	Low Ambient Control (LAC)	X	X	X
CMA-8	TDR + HPC	X	X	X
CMA-10	LPC + HPC + TDR	X	X	X
CMA-11	LPC + HPC + LAC	X	X	X
CMA-12	LAC + TDR	X	X	X
CMA-13	LPC + HPC + TDR + LAC	X	X	X
CMC-15	Start Kit	X	X	
WMCB-02A	Circuit Breaker Kits	X	X	
WMCB-01B	Circuit Breaker Kits			X



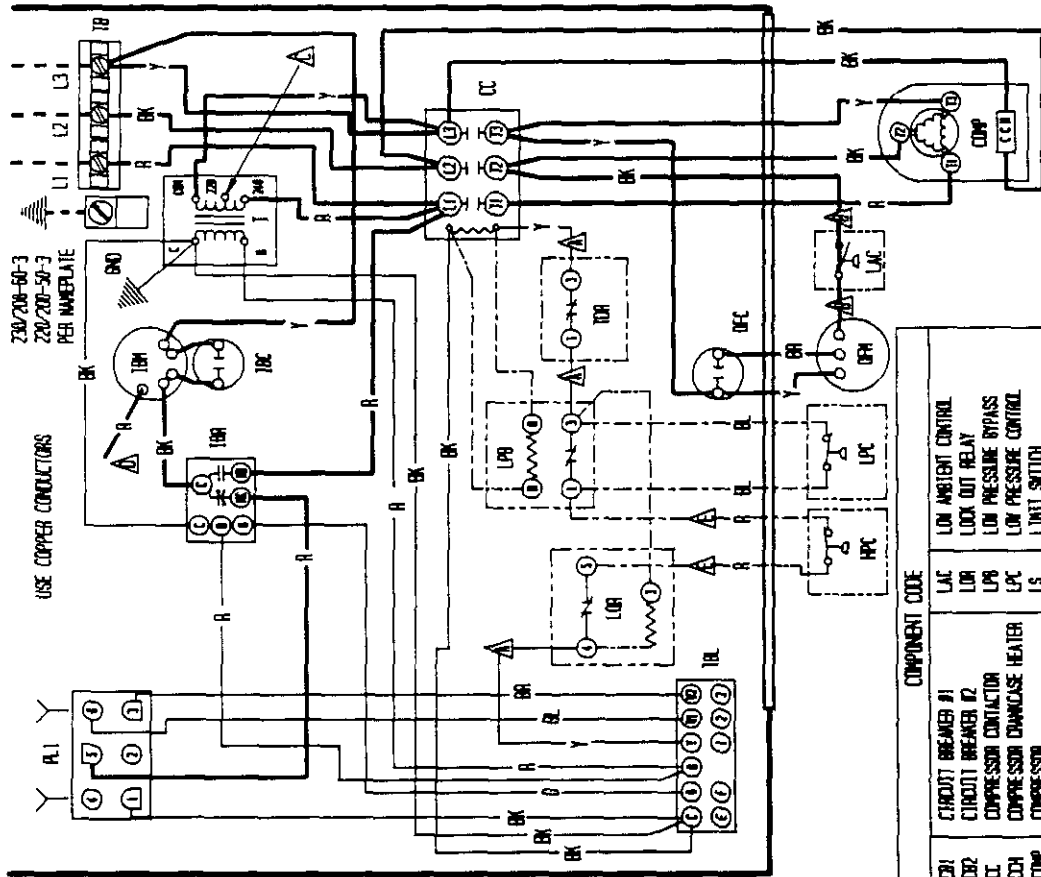
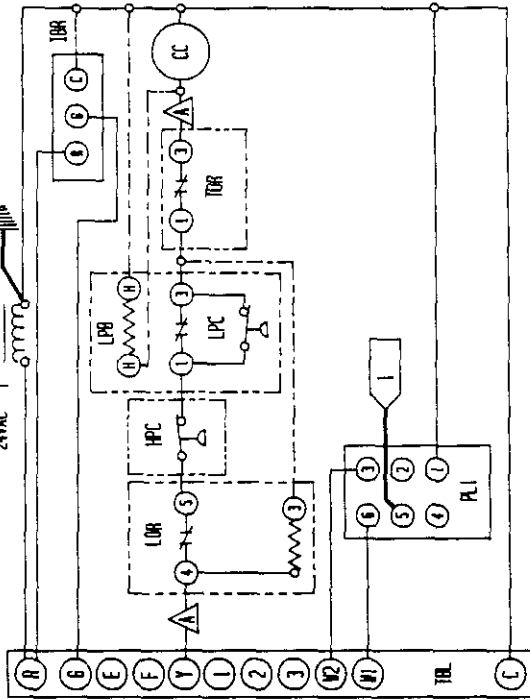
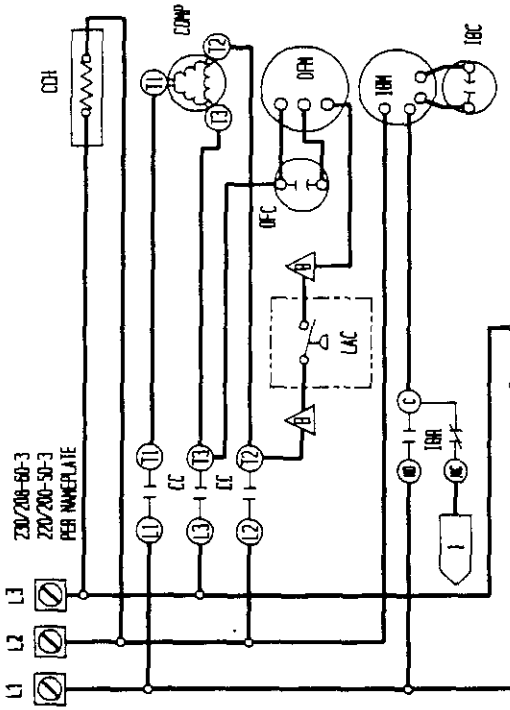
▲ Labeled wires connect if no options used. ▲ Move red wire to 208V tap for 208V operation. ▲

Factory Std.	Field	Optional	Color Code			
High Voltage	---	---	Y	V	T	7AN
Low Voltage	---	---	6	(PR)	PK	PK
Accessory	---	---	BL	BT	L	LAVENDER
	---	---	W	(S)	SLATE	

RED (LOW) BLACK (HIGH)

BARD MFG. CO.
 DWG. 41055-110 A
 DWN. CDR
 D.K./APPR.

COMPONENT CODE	INDOOR BLOWER RELAY	INDOOR BLOWER MOTOR
CB1	CIRCUIT BREAKER #1	INDOOR BLOWER MOTOR
CB2	CIRCUIT BREAKER #2	INDOOR BLOWER MOTOR
CC	COMPRESSOR CONTACTOR	INDOOR BLOWER MOTOR
COH	COMPRESSOR CHARGE HEATER	INDOOR BLOWER MOTOR
COMP	COMPRESSOR	INDOOR BLOWER MOTOR
DCC	DUAL CAN CAPACITOR	INDOOR BLOWER MOTOR
END	EQUIPMENT GROUND	INDOOR BLOWER MOTOR
HS1	HEAT STRIP #1	INDOOR BLOWER MOTOR
HS2	HEAT STRIP #2	INDOOR BLOWER MOTOR
HC1	HEATER CONTACTOR #1	INDOOR BLOWER MOTOR
HC2	HEATER CONTACTOR #2	INDOOR BLOWER MOTOR
HPC	HIGH PRESSURE CONTROL	INDOOR BLOWER MOTOR
IBC	INDOOR BLOWER CAPACITOR	INDOOR BLOWER MOTOR
IBM	INDOOR BLOWER RELAY	INDOOR BLOWER MOTOR
IBR	INDOOR BLOWER RELAY	INDOOR BLOWER MOTOR
LAC	LOCK OUT RELAY	INDOOR BLOWER MOTOR
LOR	LOW PRESSURE BYPASS	INDOOR BLOWER MOTOR
LPR	LOW PRESSURE CONTROL	INDOOR BLOWER MOTOR
LPC	LOW PRESSURE CONTROL	INDOOR BLOWER MOTOR
LS	LIMIT SWITCH	INDOOR BLOWER MOTOR
DEF	OUTDOOR FAN MOTOR	INDOOR BLOWER MOTOR
PFI	PLUS #1	INDOOR BLOWER MOTOR
SK	START KIT	INDOOR BLOWER MOTOR
TB	TRANSFORMER	INDOOR BLOWER MOTOR
TL	TERMINAL BLOCK	INDOOR BLOWER MOTOR
TL2	TERMINAL BLOCK	INDOOR BLOWER MOTOR
TCO	THERMAL CUTOFF	INDOOR BLOWER MOTOR
TDR	TIME DELAY RELAY	INDOOR BLOWER MOTOR



▲ ▲ ▲ LABELLED WIRES CONNECT IF NO OPTIONS USED. ▲ MOVE RED WIRE TO 200V TAP FOR 200V OPERATION ▲ RED (LOW) BLACK (HIGH)

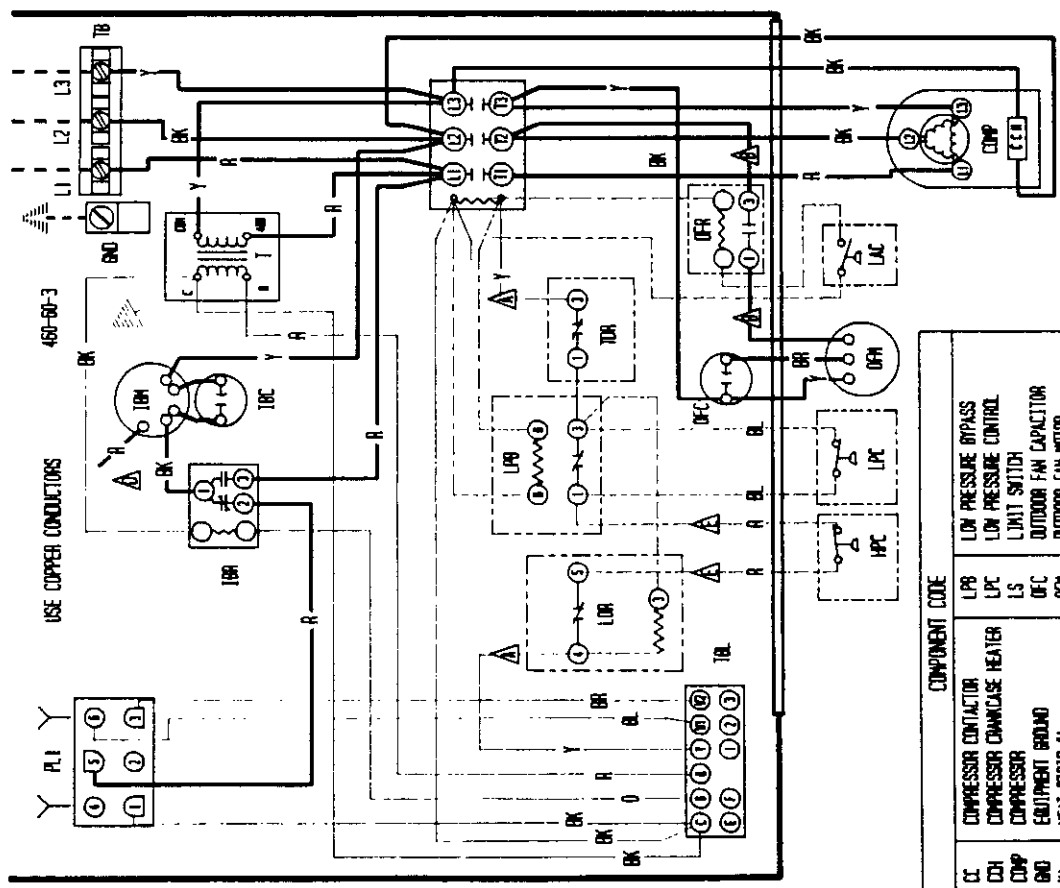
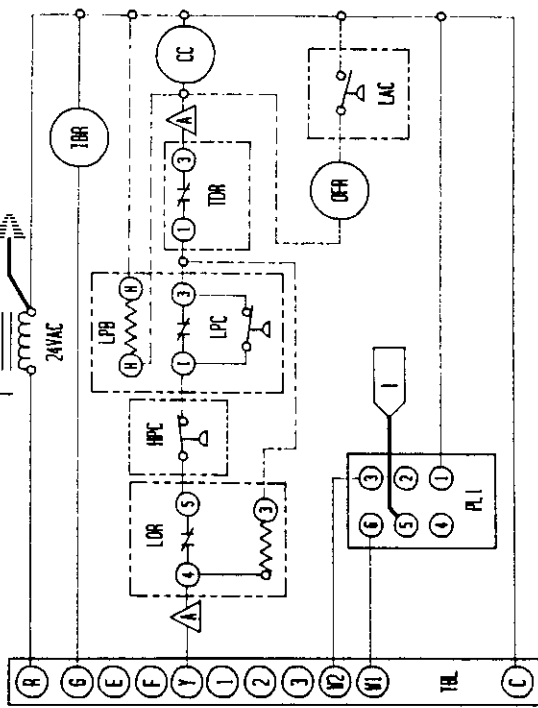
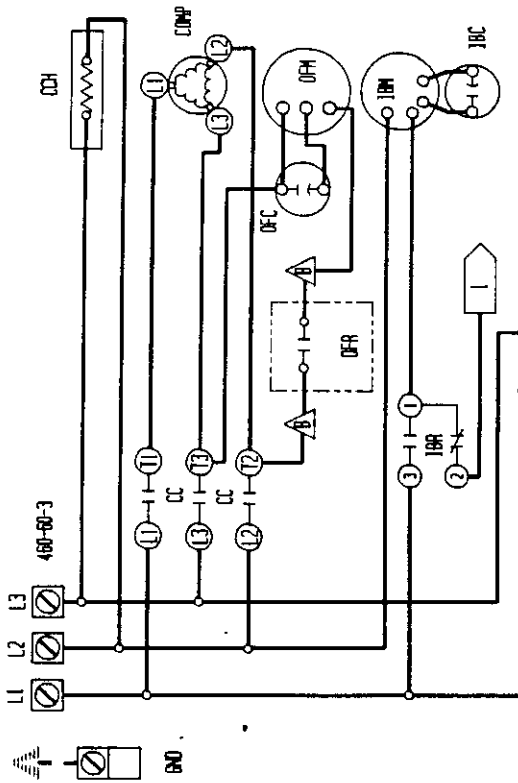
BLACK	Y	YELLOW	V	VIDE1	T	TAN
BROWN	6	GREEN	(PR)	PURPLE	PK	PINK
RED	BL	BLUE	6Y	GRAY	L	LAVENDER
ORANGE	W	WHITE	(S)	SLATE		

FACTORY STD. FIELD OPTIONAL

HIGH VOLTAGE
LOW VOLTAGE
ACCESSORY

BARO MFG. CO.
DWG. 4105-210 B
DRN. CSR
CHK./APPR.

CIRCUIT	COMPONENT CODE	DESCRIPTION
CB1	LAC	LOW AMBIENT CONTROL
CB2	LOR	LOCK OUT RELAY
CC	LPR	LOW PRESSURE BYPASS
CDH	LPC	LOW PRESSURE CONTROL
COMP	LS	LIMIT SWITCH
END	LFC	OUTDOOR FAN CAPACITOR
H1	OPH	OUTDOOR FAN MOTOR
H2	PL1	PLUG #1
H3	SK	START KIT
H4	T	TRANSFORMER
H5	IB	TERMINAL BLOCK
H6	LCO	LOW VOLTAGE TERMINAL BLOCK
H7	TCO	TERMINAL OUTLET
H8	TDR	TIME DELAY RELAY



USE COPPER CONDUCTORS

COMPONENT CODE	COMPONENT DESCRIPTION
CC	COMPRESSOR CONTACTOR
CDH	COMPRESSOR CAPACITOR
CCP	COMPRESSOR CAPACITOR
END	EQUIPMENT GROUND
H1	HEAT STRIP #1
H2	HEAT STRIP #2
HE1	HEATER CONTACTOR #1
HE2	HEATER CONTACTOR #2
IFC	HIGH PRESSURE CONTROL
IBC	INDOOR BLOWER CAPACITOR
IBN	INDOOR BLOWER MOTOR
IBR	INDOOR BLOWER RELAY
IAC	LOW AMBIENT CONTROL
LOR	LOCK OUT RELAY
LPB	LOW PRESSURE BYPASS
LPC	LOW PRESSURE CONTROL
LS	LOW PRESSURE SWITCH
LS	LIMIT SWITCH
OFC	OUTDOOR FAN CAPACITOR
OFN	OUTDOOR FAN MOTOR
OFN	OUTDOOR FAN RELAY
PO	PULL DISCONNECT
PL1	PLUG #1
T	TRANSFORMER
TB	TERMINAL BLOCK
TBL	TERMINAL BLOCK
TCO	LOW VOLTAGE TERMINAL BLOCK
TDR	THERMAL CUTOFF
TDR	TIME DELAY RELAY

▲ Labeled wires connect if no options used. ▲ Red (Low) Black (High)

FACTORY STD.	FIELD	OPTIONAL
HIGH VOLTAGE	---	---
LOW VOLTAGE	---	---
ACCESSORY	---	---

BLACK	BROWN	RED	ORANGE	YELLOW	GREEN	BLUE	WHITE	VIOLET	PURPLE	PINK	TAN
BK	BR	R	O	Y	G	B	W	V	P	PK	T
Y	G	B	W	V	P	PK	T				

BARD MFG. CO.			
DWG.	4095-310		
DRN.	CRB		
CHK./APPR.			