INSTALLATION INSTRUCTIONS

WALL MOUNTED
PACKAGE AIR CONDITIONERS

MODELS

WA421
WA482
WA602

MANUAL: 2100-218 REV. H
SUPERSEDES: REV. G
FILE: Vol. III, Tab 17
DATE: 09-24-96

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 D

FOR MORE INFORMATION, CONTACT THESE PUBLISHERS

ACCA: AIR CONDITIONING CONTRACTORS OF AMERICA
1712 New Hampshire Avenue, N.W.
Washington, DC 20009
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

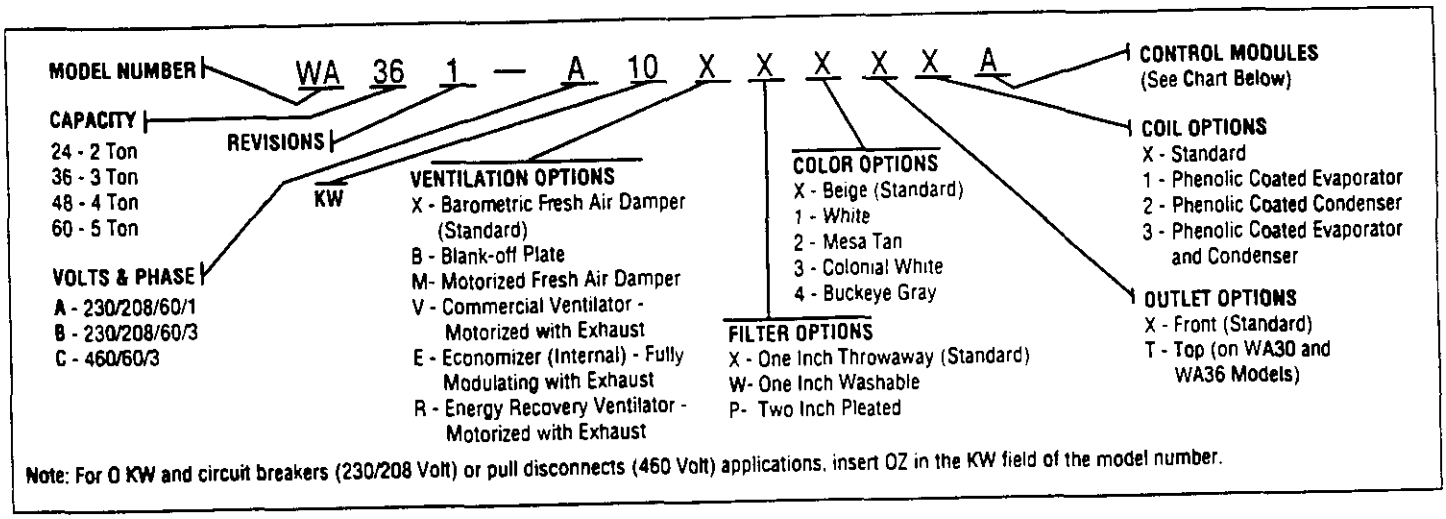
Manufactured under the following U.S. patent numbers:
5,301,744; 5,002,116; 4,924,934; 4,875,520; 4,825,936; 4,432,409.
Other patents pending.

TABLE OF CONTENTS

FIGURES AND TABLES

PART 1 -- WALL MOUNT GENERAL INFORMATION

AIR CONDITIONER WALL MOUNT MODEL NOMENCLATURE



Note: For 0 KW and circuit breakers (230/208 Volt) or pull disconnects (460 Volt) applications, insert OZ in the KW field of the model number.

TABLE 1 ELECTRIC HEAT TABLE

Models	WA421-A WA482-A WA602-A				WA421-B WA482-B WA602-B				WA421-C WA482-C WA602-C	
	240-1		208-1		240-3		208-3		460-3	
KW	A	BTU	A	BTU	A	BTU	A	BTU	A	BTU
5	20.8	17050	18.1	12800						
9					21.7	30600	18.7	23030	10.8	30700
10	41.6	34130	36.2	25600						
15	62.5	51200	54.1	38400	36.2	51200	31.2	38400	17.3	47000
18					43.3	61430	37.5	46100		
20	83.2	68260	72.1	51200						

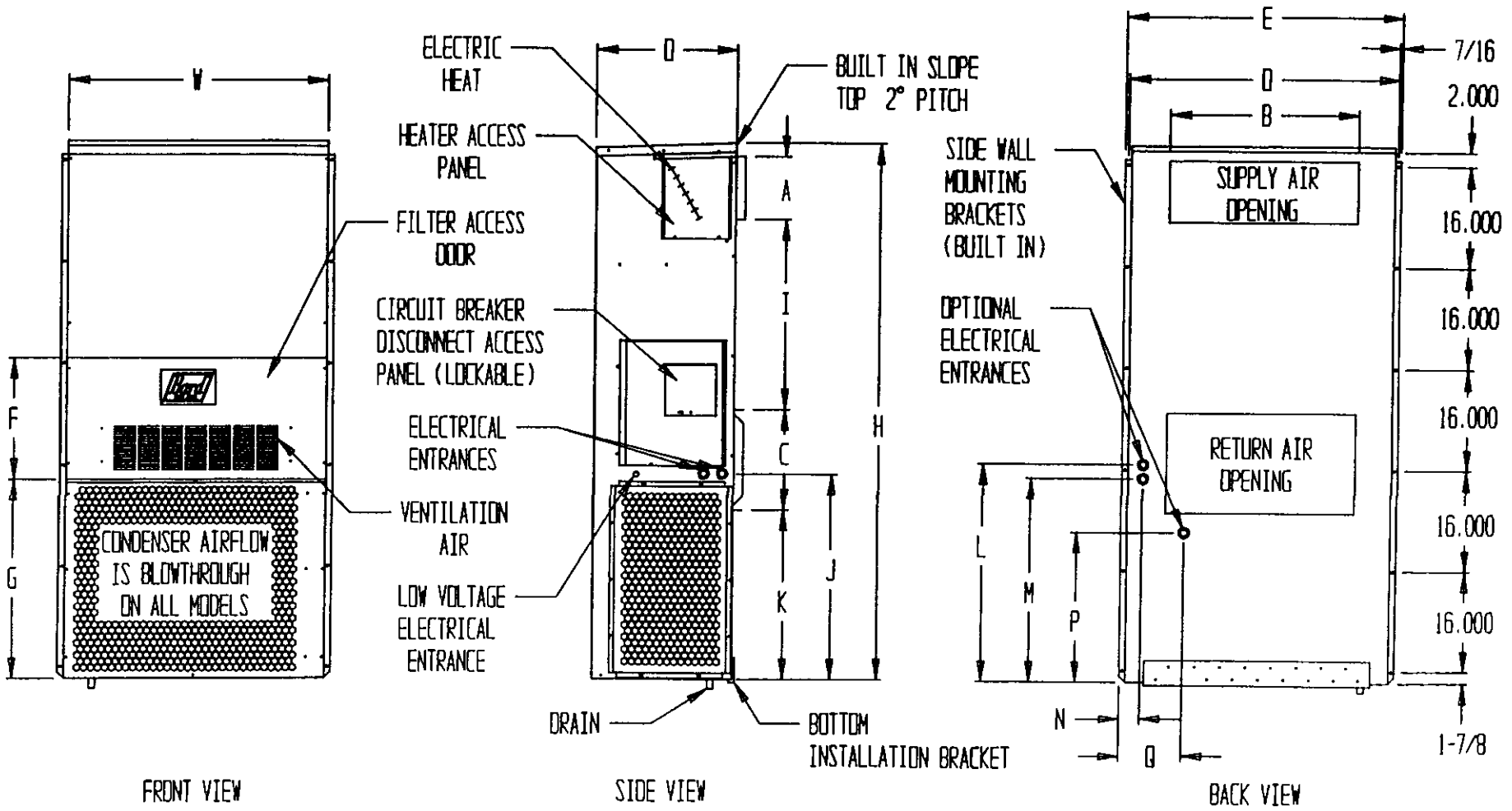
SHIPPING DAMAGE

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
UNIT DIMENSIONS

SIZE SPECS FOR MIS-411

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												
42 & 60	42	22-1/4	84-7/8	9-7/8	29-7/8	15-7/8	29-7/8	43-7/8	19	31-5/8	30	32-11/16	27	34-3/4	32-1/2	3-1/4	43	23-7/8	10



ELECTRICAL SPECIFICATIONS

TABLE 2

SINGLE CIRCUIT							DUAL 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	(3) Minimum Circuit Ampacity		(1) Maximum External Fuse Or Ckt. Breaker		(2) Field Power Wire Size		(2) Ground Wire Size	
							Ckt A	Ckt B	Ckt A	Ckt B	Ckt A	Ckt B	Ckt A	Ckt B
WA421-A00,A0Z	230/208-1	1	33	50	8	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
A05		1	33	50	8	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
A10		1	59	60	6	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
A15		1 or 2	85	90	4	8	56	26	60	30	6	10	10	10
A20		1 or 2	110	110	2	6	56	52	60	60	6	6	10	10
WA421-B00,B0Z	230/208-3	1	24	35	8	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B09		1	34	35	8	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B15		1	52	50	6	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B18		1	60	60	6	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
WA421-C00,C0Z	460-3	1	12	15	14	14	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
C09		1	17	20	12	12	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
C15		1	26	30	10	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
WA482-A00,A0Z	230/208-1	1	38	50	8	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
A05		1	38	50	8	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
A10		1	59	60	6	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
A15		1 or 2	85	90	4	8	59	26	60	30	6	10	10	10
A20		1 or 2	110	110	2	6	59	52	60	60	6	6	10	10
\482-B00,B0Z	230/208-3	1	26	35	8	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B09		1	34	35	8	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B15		1	52	60	6	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B18		1	60	60	6	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
WA482-C00,C0Z	460-3	1	13	15	14	14	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
C09		1	17	20	12	12	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
C15		1	26	30	10	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
WA602-A00,A0Z	230/208-1	1	44	60	8	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
A05		1	44	60	8	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
A10		1	55	60	6	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
A15		1 or 2	85	90	4	8	59	26	60	30	6	10	10	10
A20		1 or 2	110	110	2	6	59	52	60	60	6	6	10	10
WA602-B00,B0Z	230/208-3	1	32	45	8	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B09		1	34	45	8	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B15		1	52	60	6	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B18		1	60	60	6	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
WA602-C00,C0Z	460-3	1	16	20	12	12	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
C09		1	17	20	12	12	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
C15		1	26	30	10	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

(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 Electric 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

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 10 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.

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 3 and 3A 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 RG2 thru RG5 or RFG2 thru RFG5 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 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 fresh air inlet slots punched in the service panel.

If equipped with the fresh air damper assembly, the assembly is hipped already attached to the unit. The damper blade is locked in the closed position. To allow the damper to operate, the maximum and minimum blade position stops must be installed. See Figure 2.

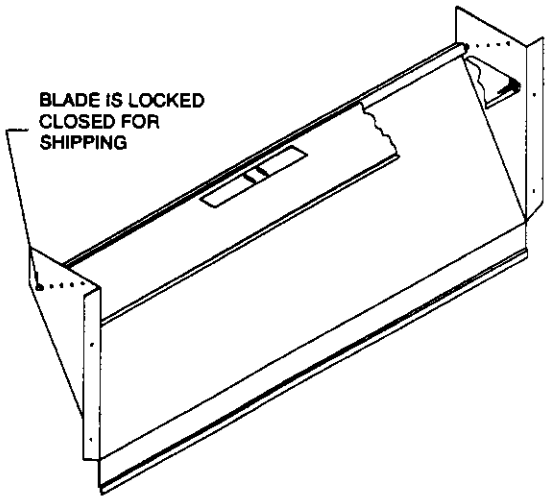
All capacity, efficiency and cost of operation information as required for Department of Energy "Energyguide" Fact Sheets is based upon the fresh air blank-off plate in place and is recommended for maximum energy efficiency.

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.

Figure 2



PART 2 -- 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 3.

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 3.

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. 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 3 and 3A 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 3.

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.

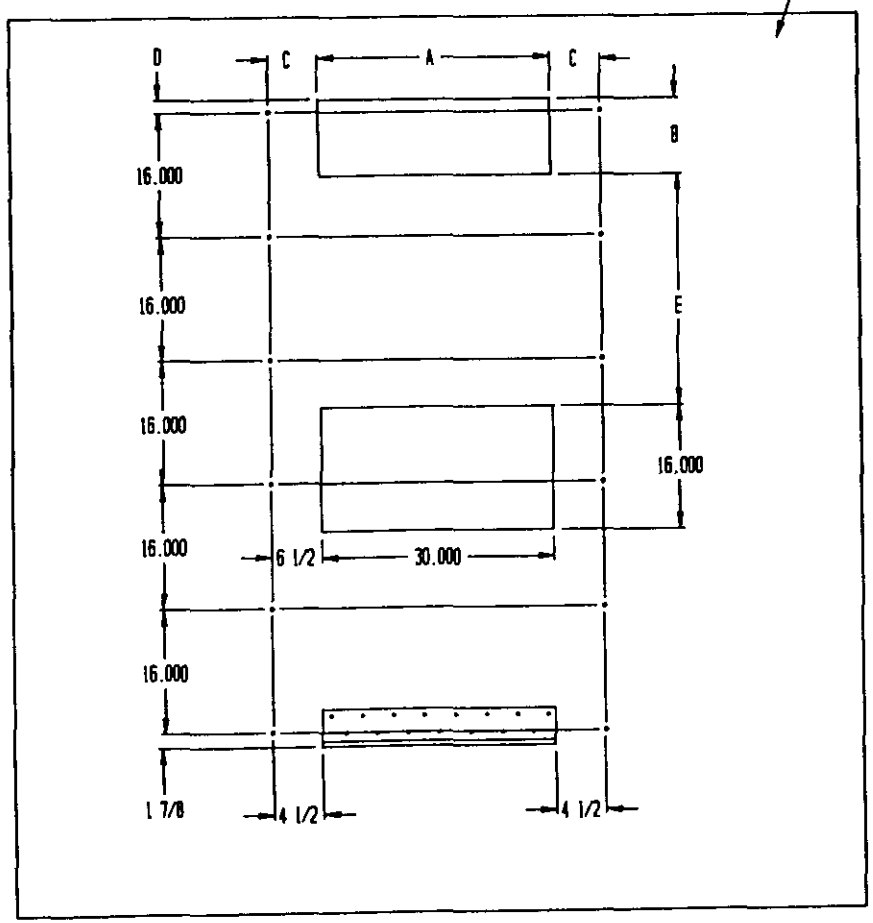
7. Secure rain flashing to wall and caulk across entire length of top. See Figure 3.

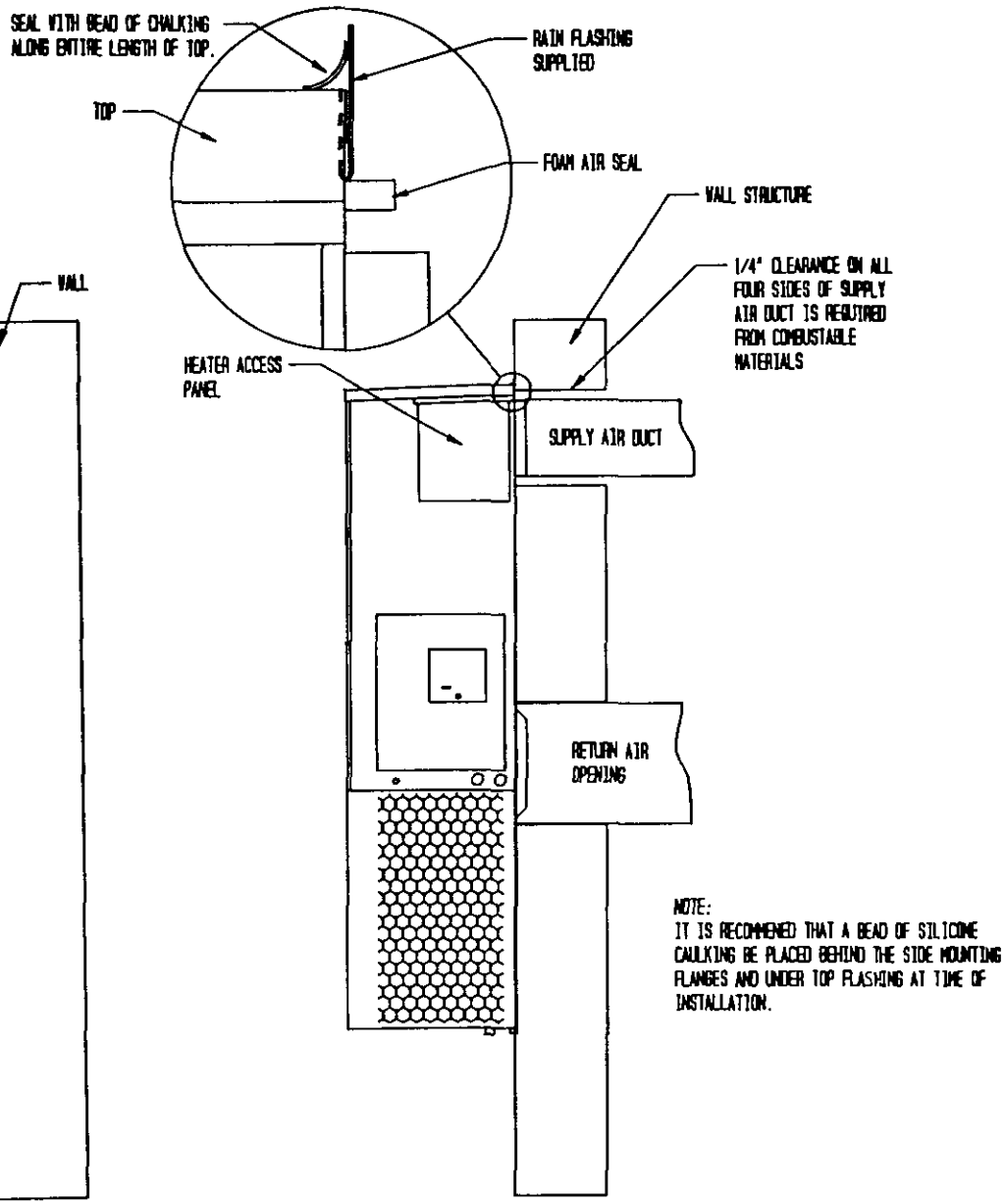
8. For additional mounting rigidity, the return air and supply air frames or collars can be drilled and screwed or welded to the structural wall itself (depending upon wall construction). Be sure to observe required clearance if combustible wall.

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.

FIGURE 3
MOUNTING INSTRUCTIONS

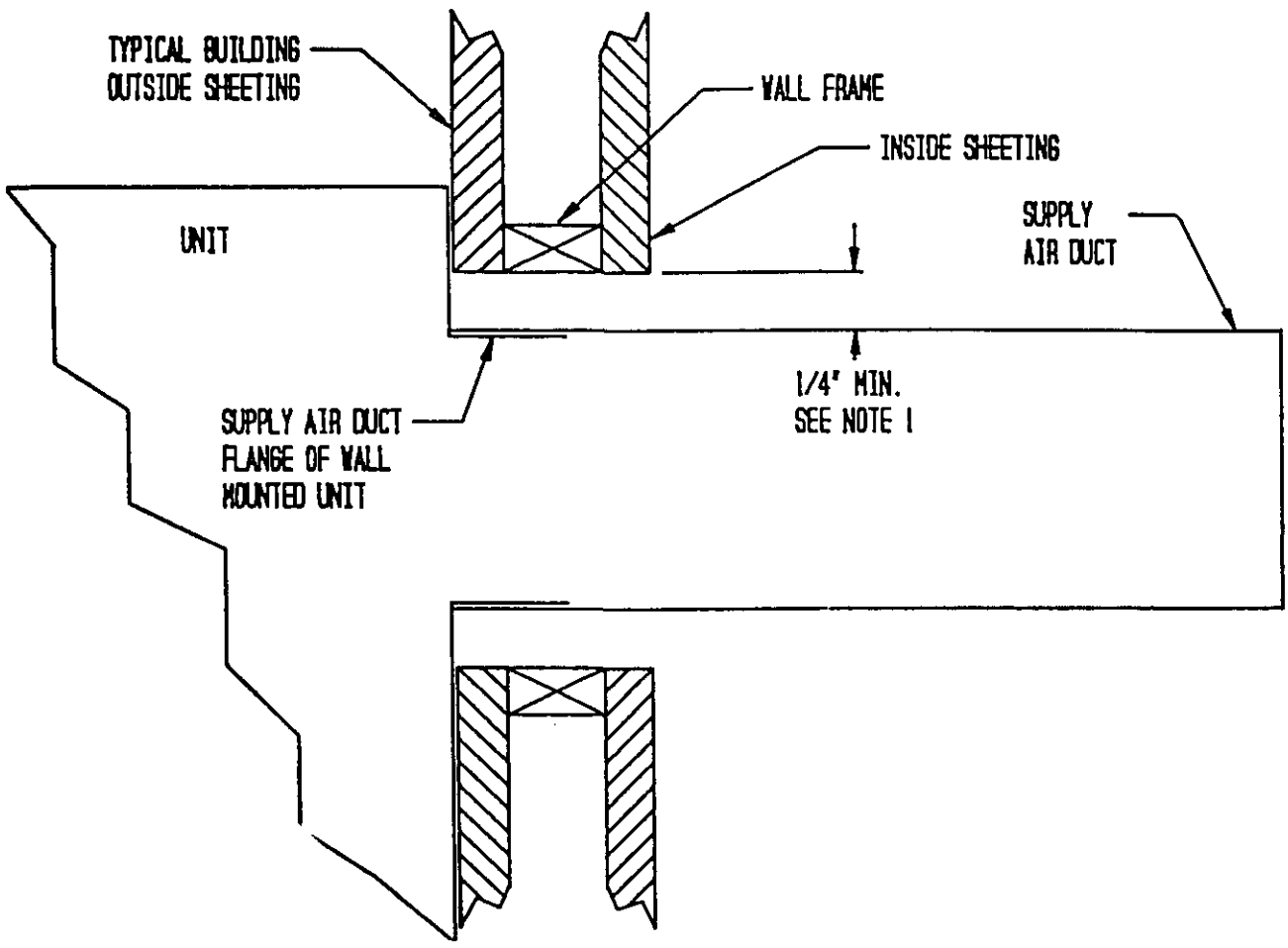
	A	B	C	D	E
REQUIRED DIMENSIONS TO MAINTAIN 1/4" MIN. CLEARANCE FROM COMBUSTIBLE MATERIALS	30 1/2	10 1/2	6 1/4	1 5/16	29 1/2
REQUIRED DIMENSIONS TO MAINTAIN RECOMMENDED 1" CLEARANCE FROM COMBUSTIBLE MATERIALS	32	12	5 1/2	9/16	28





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

FIGURE 3A
ELECTRIC HEAT CLEARANCE



Side section view of supply air duct for wall mounted unit showing 1/4" clearance to combustible surfaces.

NOTE 1:

WARNING
A minimum of 1/4" 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 a fire.

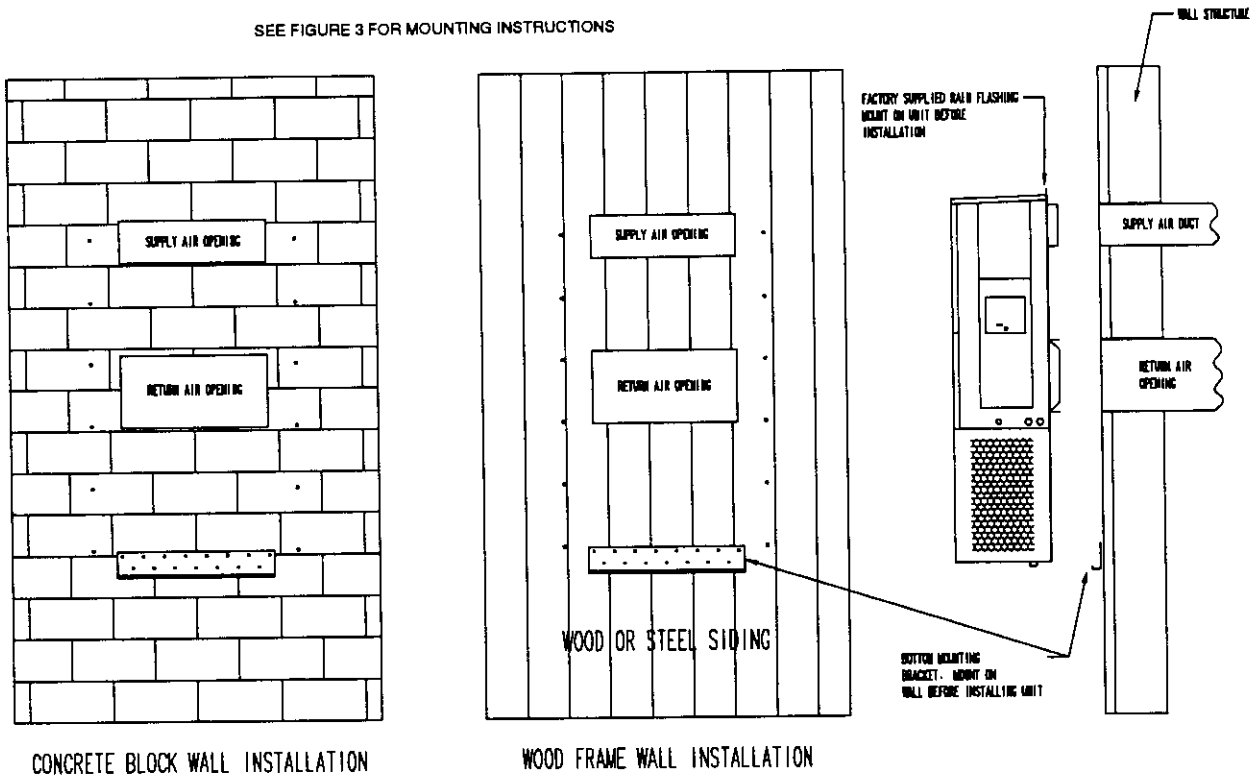


Figure 4 – Wall-Mounting Instructions

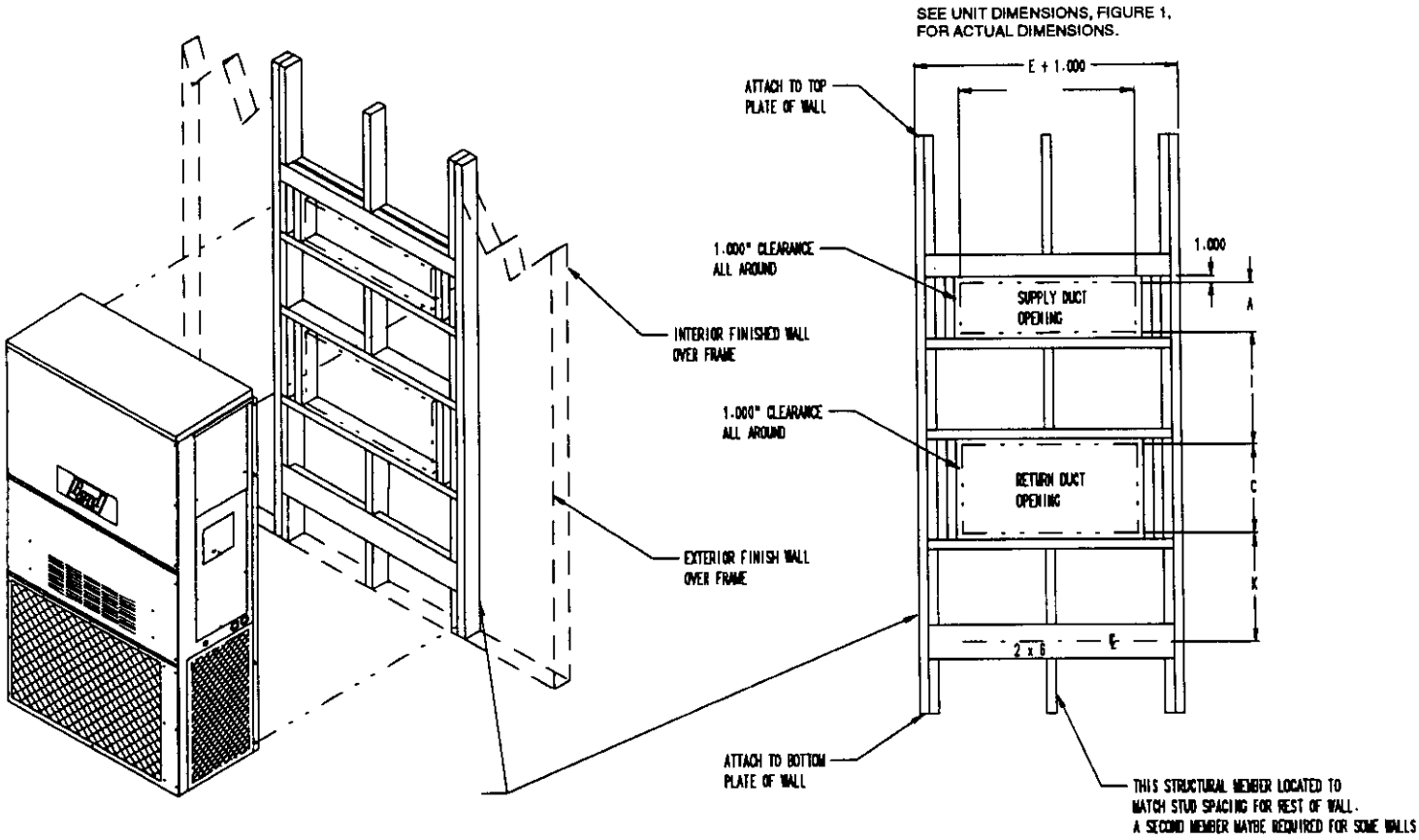


Figure 5 – Wall-Mounting Instructions

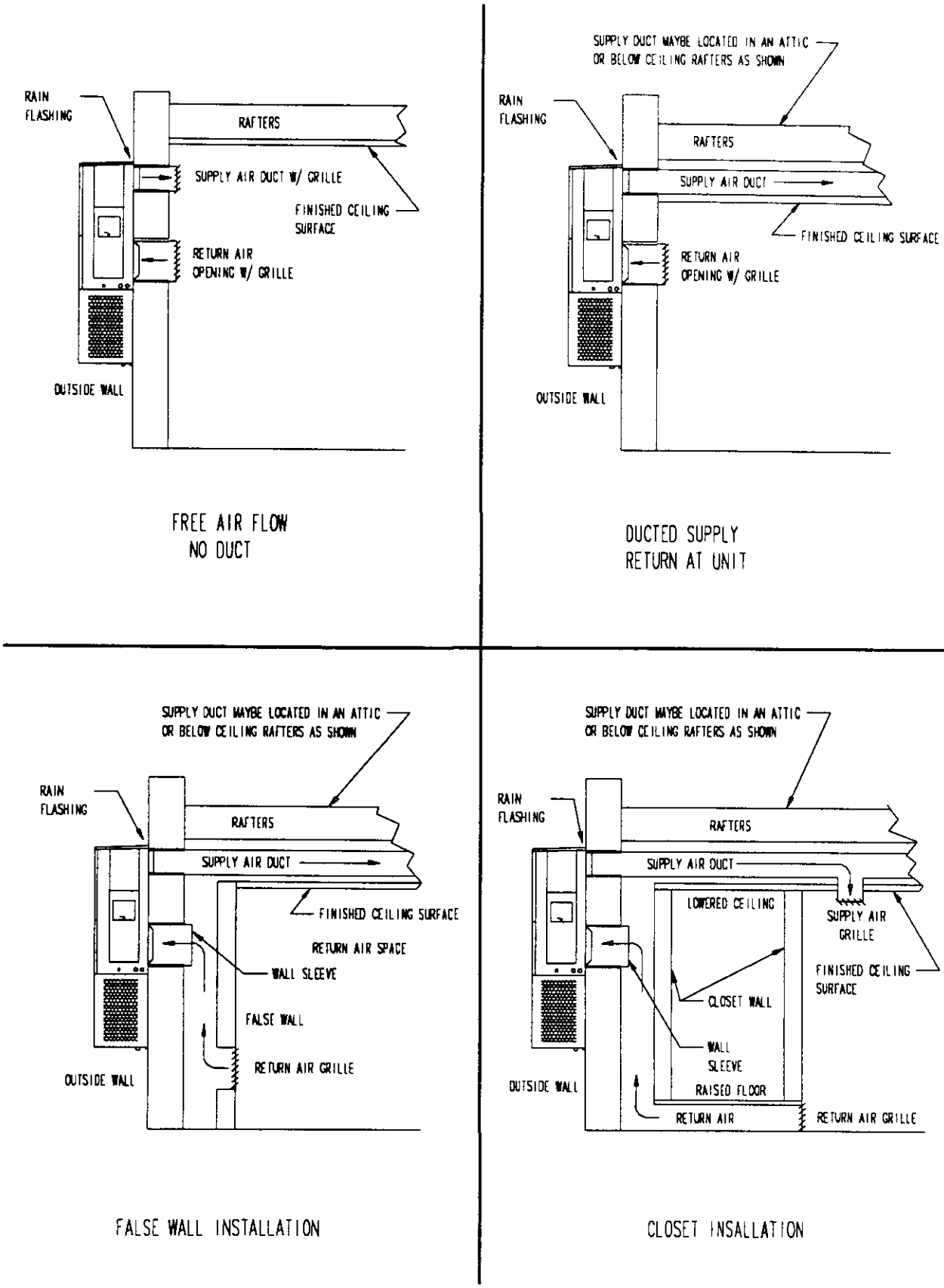


Figure 6 — Common Wall-Mounting Installations

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:

TAP	RANGE
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 7.

TABLE 3 THERMOSTAT WIRE SIZE

Transformer VA	FLA	Wire Gauge	Maximum Distance In Feet
55	2.3	20 Gauge	45
		18 "	60
		16 "	100
		14 "	160
		12 "	250

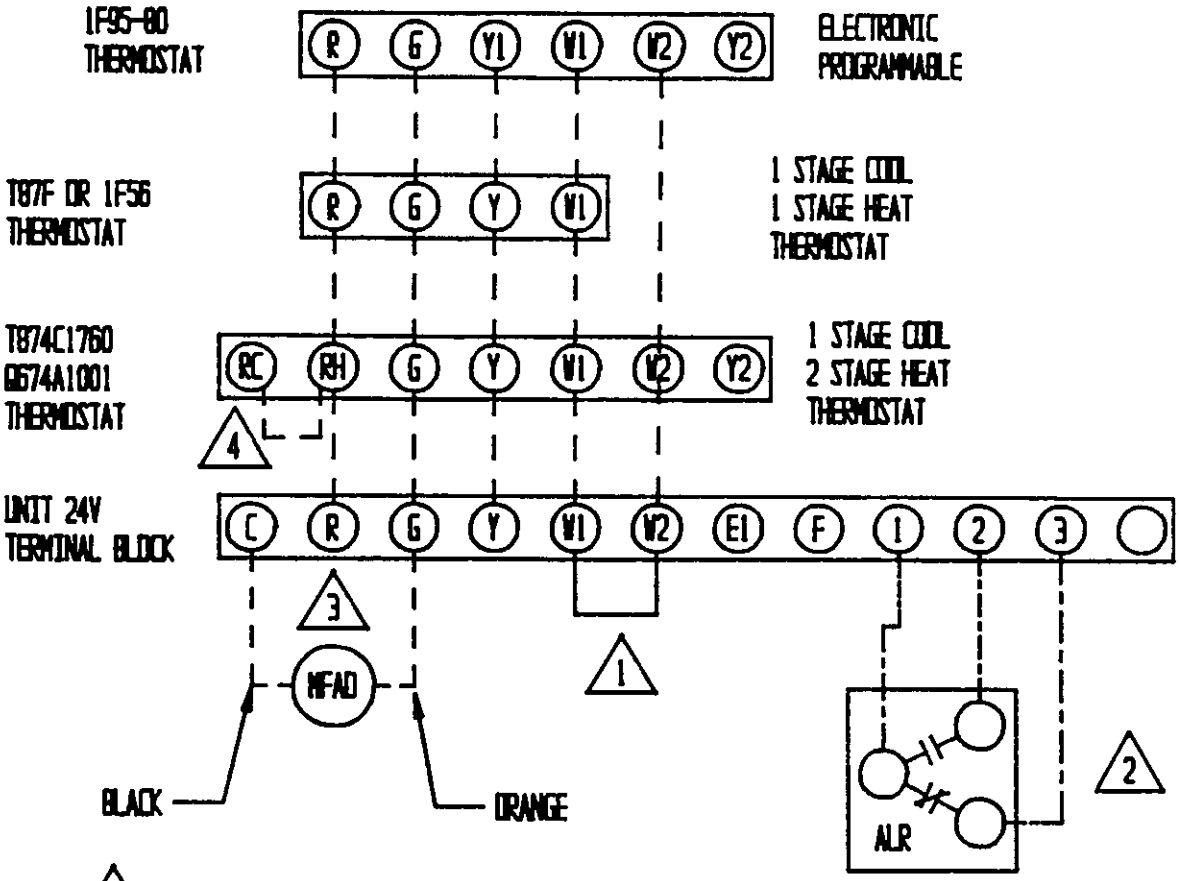
TABLE 3A WALL THERMOSTAT AND SUBBASE COMBINATIONS

Thermostat	Subbase	Predominate Features
8403-019 T874C1760	8404-012 Q674A1001	1 stage cool, 2 stage heat System: heat-auto-cool Fan: on-auto
8403-002 T87F3111	8404-003 Q539A1220	1 stage heat, 1 stage cool System: heat-off-cool Fan: on-auto
8403-009 1F56-318	----	1 stage heat, 1 stage cool
8403-035 1F95-80	----	Programmable Electronic

MS310

Figure 7

LOW VOLTAGE WIRING



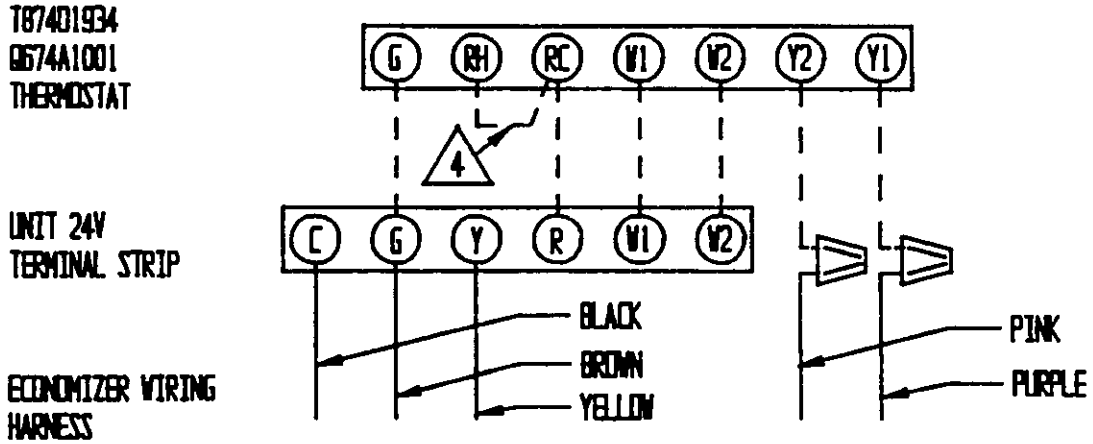
1 REMOVE JUMPER FOR 2 STAGE ELECTRIC HEAT ON UNITS WITH 15 OR MORE KW

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

3 OPTIONAL MOTORIZED FRESH AIR DAMPER SUGGESTED HOOK UP

4 FIELD INSTALLED PER INSTALLATION

OPTIONAL ECONOMIZER LOW VOLTAGE WIRING



PART 3 -- START-UP

IMPORTANT INSTALLER NOTE

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

CRANKCASE HEATERS

WA421 units are provided with compressor crankcase heat. WA602 and WA482 units are not provided with crankcase heat. These units utilize scroll compressors which do not require crankcase in this application.

The WA421 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 on these units.

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 WA421 units detailing start-up procedure. This is very important. Please read carefully.

FIGURE 8

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 PRESSURE SWITCH

The WA482 and WA602 models are supplied with a remote reset high 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 on 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.

Verification of proper rotation must be made at the time the equipment is put into service. If improper rotation is corrected at this time there will be no negative impact on the durability of the compressor. However, reverse operation for over one hour may have a negative impact on the bearing due to oil pump out.

NOTE: If compressor is allowed to run in reverse rotation for several minutes, 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.

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 9

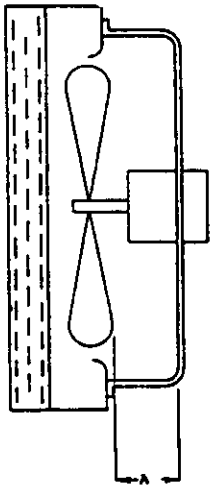


TABLE 4

Model	Dimension A
WA421 WA482 WA602	1.75

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
WA421	1400	52 - 54	64 - 66
WA482	1550	54 - 56	65 - 67
WA602	1700	53 - 55	60 - 62

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	WA421, WA482		WA602	
	Lo 230V Dry/Wet Coil	Hi 230V Dry/Wet Coil	Lo 230V Dry/Wet Coil	Hi 230V Dry/Wet Coil
.0	1650 / 1600	1885 / 1800	1600 / 1450	2200 / 2000
.1	1550 / 1500	1770 / 1665	1525 / 1375	2100 / 1900
.2	1450 / 1400	1635 / 1540		2000 / 1800
.3	1350 / 1300	1500 / 1400		1875 / 1700
.4	1300 / 1175	1370 / 1285		1775 / 1600
.5	---	1250 / 1150		1650 / 1475

TABLE 7

Model	Rated CFM*	Rated ESP*	Recommended Airflow Range
WA421	1400	.30	1600 - 1150
WA482	1550	.20	1750 - 1285
WA602	1700	.30	1950 - 1375

*Rated CFM and ESP on high speed tap.

MAXIMUM ESP OF OPERATION

TABLE 8 ELECTRIC HEAT ONLY

Model	WA421		WA482		WA602	
Speed KW	High Speed	Low Speed	High Speed	Low Speed	High Speed	Low Speed
-A05	.50	.50	.50	.50	.50	.50
-A10	.50	.50	.50	.50	.50	.50
-A15	.50	.50	.50	.50	.50	.50
-A20	.50	.45	.50	.45	.50	.40
-B00	.50	.50	.50	.50	.50	.50
-B09	.50	.50	.50	.50	.50	.50
-B15	.50	.50	.50	.50	.50	.50
-B18	.50	.50	.50	.50	.50	.50
-C09	.50	.50	.50	.50	.50	.50
-C15	.50	.50	.50	.50	.50	.50

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

COOLING

TABLE 9

Air Temperature Entering Outdoor Coil °F

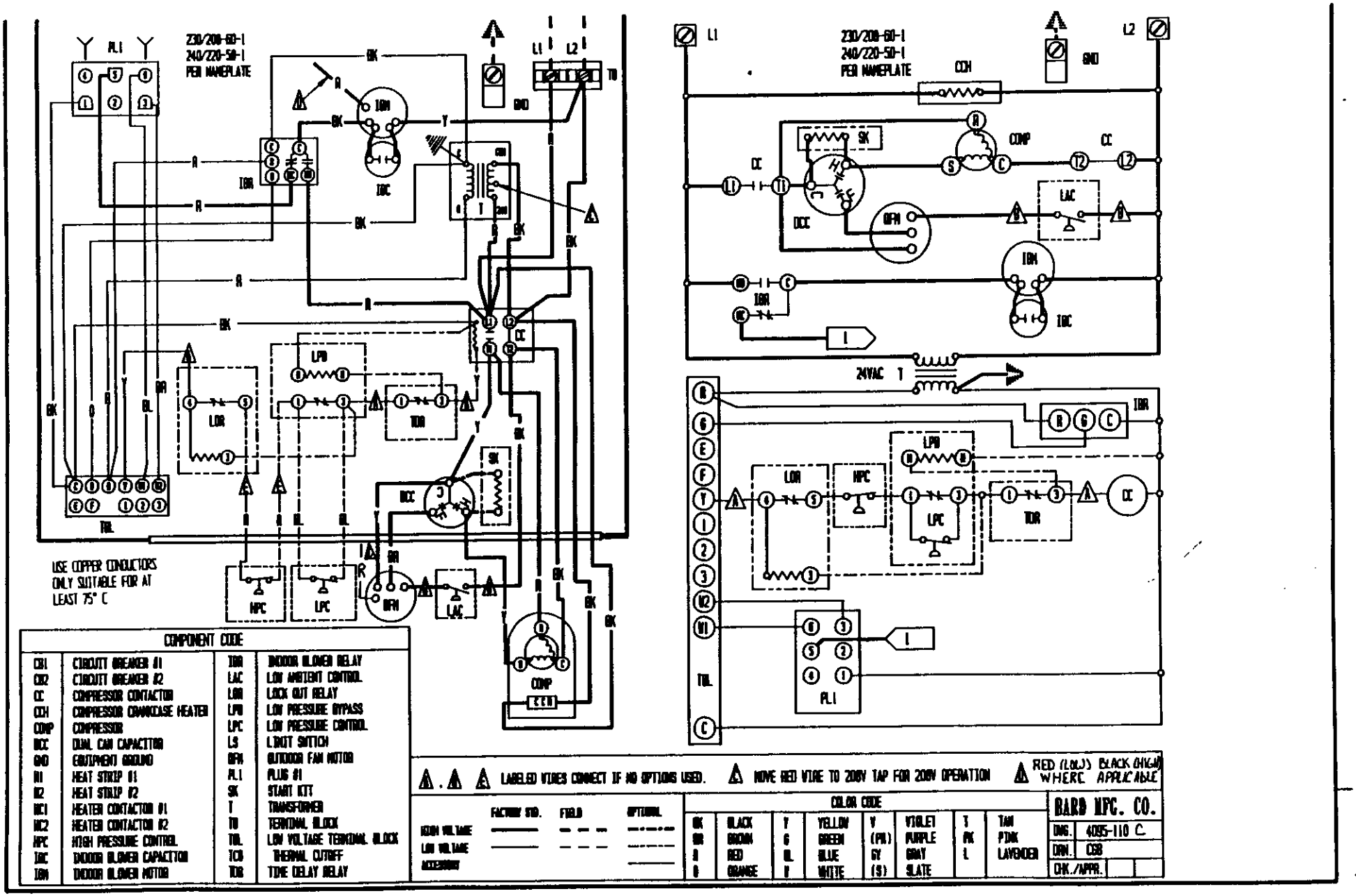
Model	Return Air Temperature	Pressure	75	80	85	90	95	100	105	110	115
WA421	75 deg. DB	Low Side	68	71	74	76	78	80	81	83	84
	62 deg. WB	High Side	213	228	243	259	274	290	305	321	337
	80 deg. DB	Low Side	72	76	79	82	84	86	88	89	90
	67 deg. WB	High Side	218	234	249	265	281	297	313	330	346
	85 deg. DB	Low Side	78	82	85	88	90	92	94	96	97
	72 deg. WB	High Side	226	242	258	274	290	307	323	341	358
WA482	75 deg. DB	Low Side	73	74	76	78	79	80	82	83	84
	62 deg. WB	High Side	204	217	232	248	265	284	304	325	348
	80 deg. DB	Low Side	78	79	81	82	84	86	87	89	90
	67 deg. WB	High Side	210	223	238	254	272	291	312	334	357
	85 deg. DB	Low Side	84	85	87	88	90	92	93	95	97
	72 deg. WB	High Side	217	231	247	264	282	302	323	345	369
WA602	75 deg. DB	Low Side	71	72	74	75	76	77	78	78	79
	62 deg. WB	High Side	233	247	262	278	295	313	331	351	371
	80 deg. DB	Low Side	76	78	79	80	81	82	83	84	85
	67 deg. WB	High Side	237	253	269	285	303	321	340	360	381
	85 deg. DB	Low Side	84	85	85	86	87	88	89	90	91
	72 deg. WB	High Side	245	261	278	296	314	333	353	373	394

Low side pressure ± 2 PSIG
High side pressure ± 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	WA421-A	WA421-B	WA421-C	WA482-A	WA482-B	WA482-C	WA602-A	WA602-B	WA602-C
EHWA05-A05	Heater Packages	X			X			X		
EHWA05-A08	Heater Packages	X			X			X		
EHWA05-A10	Heater Packages	X			X			X		
EHWA05-A15	Heater Packages	X			X			X		
EHWA05-B09	Heater Packages		X			X			X	
EHWA05-B15	Heater Packages		X			X			X	
EHWA05-B18	Heater Packages		X			X			X	
EHWC05-C05	Heater Packages			X			X			X
EHWA05-C15	Heater Packages			X			X			X
BOP-5	Blank Off Plate	X	X	X	X	X	X	X	X	X
BFAD-5	Barometric Fresh Air Damper	X	X	X	X	X	X	X	X	X
MFAD-5	Motorized Fresh Air Damper	X	X	X	X	X	X	X	X	X
CRV-5	Classroom Ventilator With Exhaust	X	X	X	X	X	X	X	X	X
EIFM-5	Economizer With Exhaust	X	X	X	X	X	X	X	X	X
WERV-A5A	Energy Recovery Ventilator	X	X		X	X		X	X	
WERV-C5A	Energy Recovery Ventilator			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	X	X	X	X	X	X
CMA-6	Low Ambient Control (LAC)	X	X		X	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							
CMA-12	LAC + TDR	X	X							
CMA-13	LPC + HPC + TDR + LAC + Alarm Relay	X	X							
CMC-15	Start Kit	X								
CMA-16	Low Pressure Control				X	X	X	X	X	X
CMA-17	LPC & TDR				X	X	X	X	X	X
CMA-18	LPC & LAC				X	X		X	X	
CMA-19	LAC & TDR				X	X		X	X	
CMC-20	LAC & TDR & LPC				X	X		X	X	
WMCB-05B	Circuit Breaker Kit		X			X				
WMPD-01C	Pull Disconnect Kit			X			X			X
WMCB-08A	Circuit Breaker Kit	X			X					
WMCB-09A	Circuit Breaker Kit							X		
WMCB-07B	Circuit Breaker Kit								X	

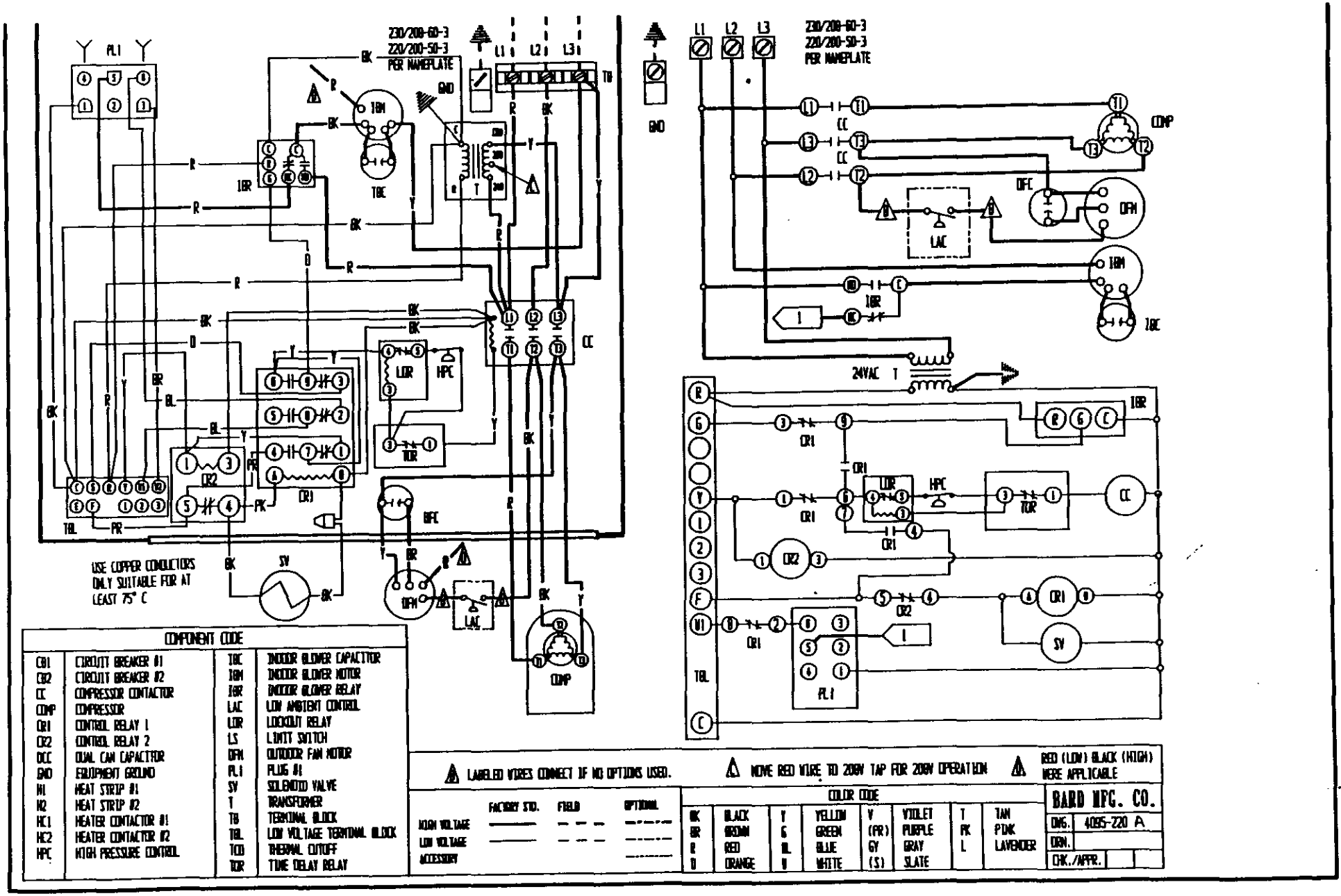


COMPONENT CODE			
CB1	CIRCUIT BREAKER #1	IDR	INDOOR BLOWER RELAY
CB2	CIRCUIT BREAKER #2	LAC	LOW AMBIENT CONTROL
CC	COMPRESSOR CONTACTOR	LOR	LOCK OUT RELAY
CCH	COMPRESSOR CRANKCASE HEATER	LPB	LOW PRESSURE BYPASS
COMP	COMPRESSOR	LPC	LOW PRESSURE CONTROL
DCC	DUAL CAN CAPACITOR	LS	LIQUID SWITCH
GND	EQUIPMENT GROUND	OFM	OUTDOOR FAN MOTOR
H1	HEAT STRIP #1	PL1	PLUG #1
H2	HEAT STRIP #2	SK	START KIT
HC1	HEATER CONTACTOR #1	T	TRANSFORMER
HC2	HEATER CONTACTOR #2	TB	TERMINAL BLOCK
HPC	HIGH PRESSURE CONTROL	TRL	LOW VOLTAGE TERMINAL BLOCK
IDC	INDOOR BLOWER CAPACITOR	TCO	THERMAL CUTOFF
IDM	INDOOR BLOWER MOTOR	TDR	TIME DELAY RELAY

⚠ . ⚠ ⚠ LABELED WIRES CONNECT IF NO OPTIONS USED. ⚠ MOVE RED WIRE TO 208V TAP FOR 208V OPERATION ⚠ RED (LOW) BLACK (HIGH) WHERE APPLICABLE

	FACTORY STD.	FIELD	OPTIONAL
60Hz VOLTAGE	———	- - -	-·-·-
LOW VOLTAGE	———	- - -	------
ACCESSORY			———

COLOR CODE									
BK	BLACK	Y	YELLOW	V	VIOLET	T	TAN	BARD MFG. CO.	
BR	BROWN	G	GREEN	(PR)	PURPLE	PK	PINK	DWG.	4085-110 C
R	RED	BL	BLUE	GY	GRAY	L	LAVENDER	DRN.	CSB
O	ORANGE	W	WHITE	(SL)	SLATE			CHK./APPR.	



COMPONENT CODE			
CB1	CIRCUIT BREAKER #1	IBC	INDOOR BLOWER CAPACITOR
CB2	CIRCUIT BREAKER #2	IBM	INDOOR BLOWER MOTOR
CC	COMPRESSOR CONTACTOR	IBR	INDOOR BLOWER RELAY
COMP	COMPRESSOR	LAC	LOW AMBIENT CONTROL
CR1	CONTROL RELAY 1	LOR	LOCKOUT RELAY
CR2	CONTROL RELAY 2	LS	LIMIT SWITCH
DCC	DUAL CAN CAPACITOR	OFM	OUTDOOR FAN MOTOR
GND	EQUIPMENT GROUND	PL1	PLUG #1
H1	HEAT STRIP #1	SV	SOLENOID VALVE
H2	HEAT STRIP #2	T	TRANSFORMER
HC1	HEATER CONTACTOR #1	TB	TERMINAL BLOCK
HC2	HEATER CONTACTOR #2	TBL	LOW VOLTAGE TERMINAL BLOCK
HPC	HIGH PRESSURE CONTROL	TCO	THERMAL CUTOFF
		TDR	TIME DELAY RELAY

⚠ LABELED WIRES CONNECT IF NO OPTIONS USED.

⚠ MOVE RED WIRE TO 208V TAP FOR 208V OPERATION

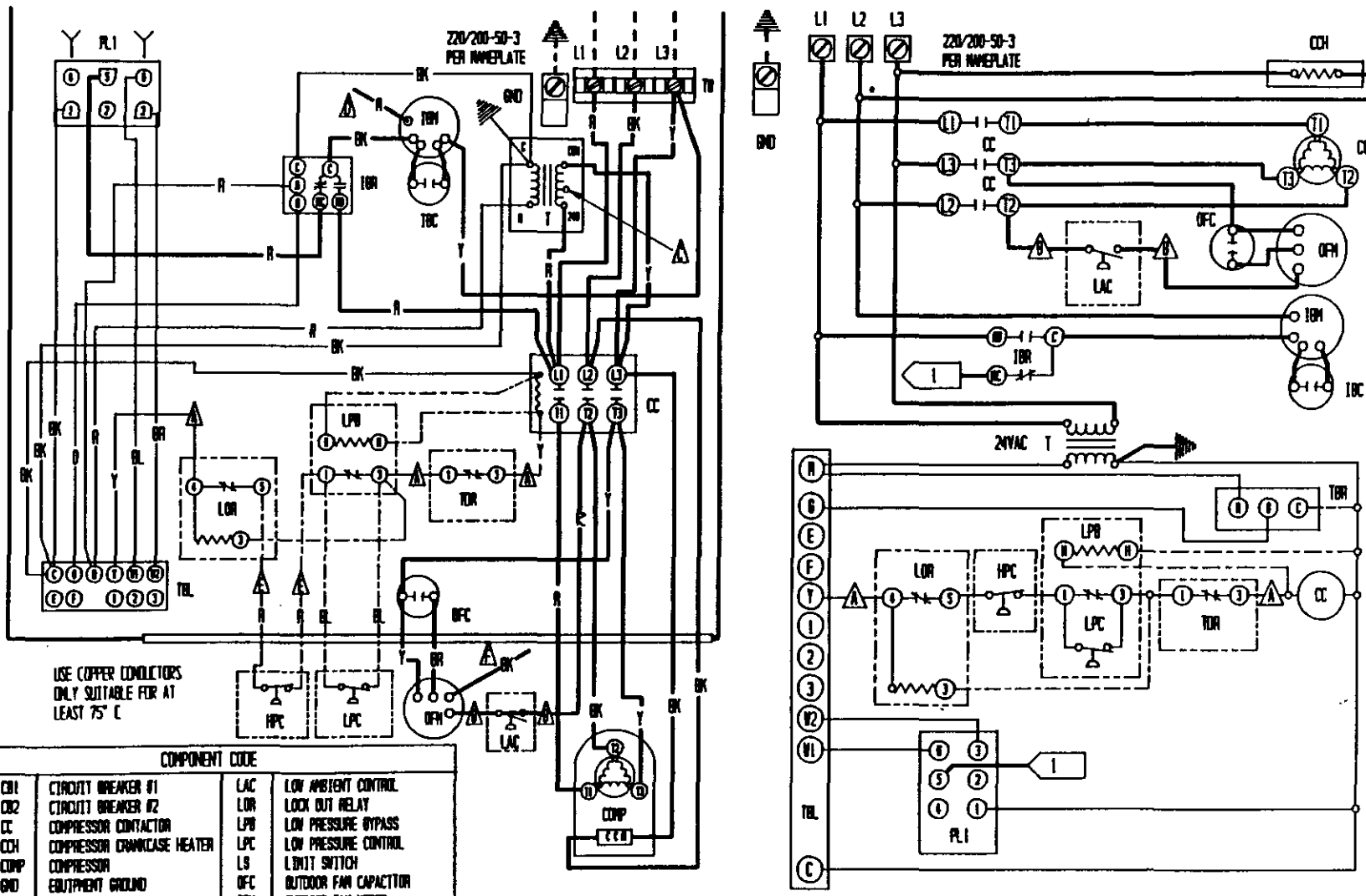
⚠ RED (LOW) BLACK (HIGH) WERE APPLICABLE

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

COLOR CODE							
BK	BLACK	Y	YELLOW	V	VIOLET	T	TAN
BR	BROWN	G	GREEN	(PR)	PURPLE	PK	PINK
R	RED	BL	BLUE	GY	GRAY	L	LAVENDER
O	ORANGE	W	WHITE	(S)	SLATE		

BARD MFG. CO.

DWG.	4085-220 A
DRN.	
CHK./APPR.	

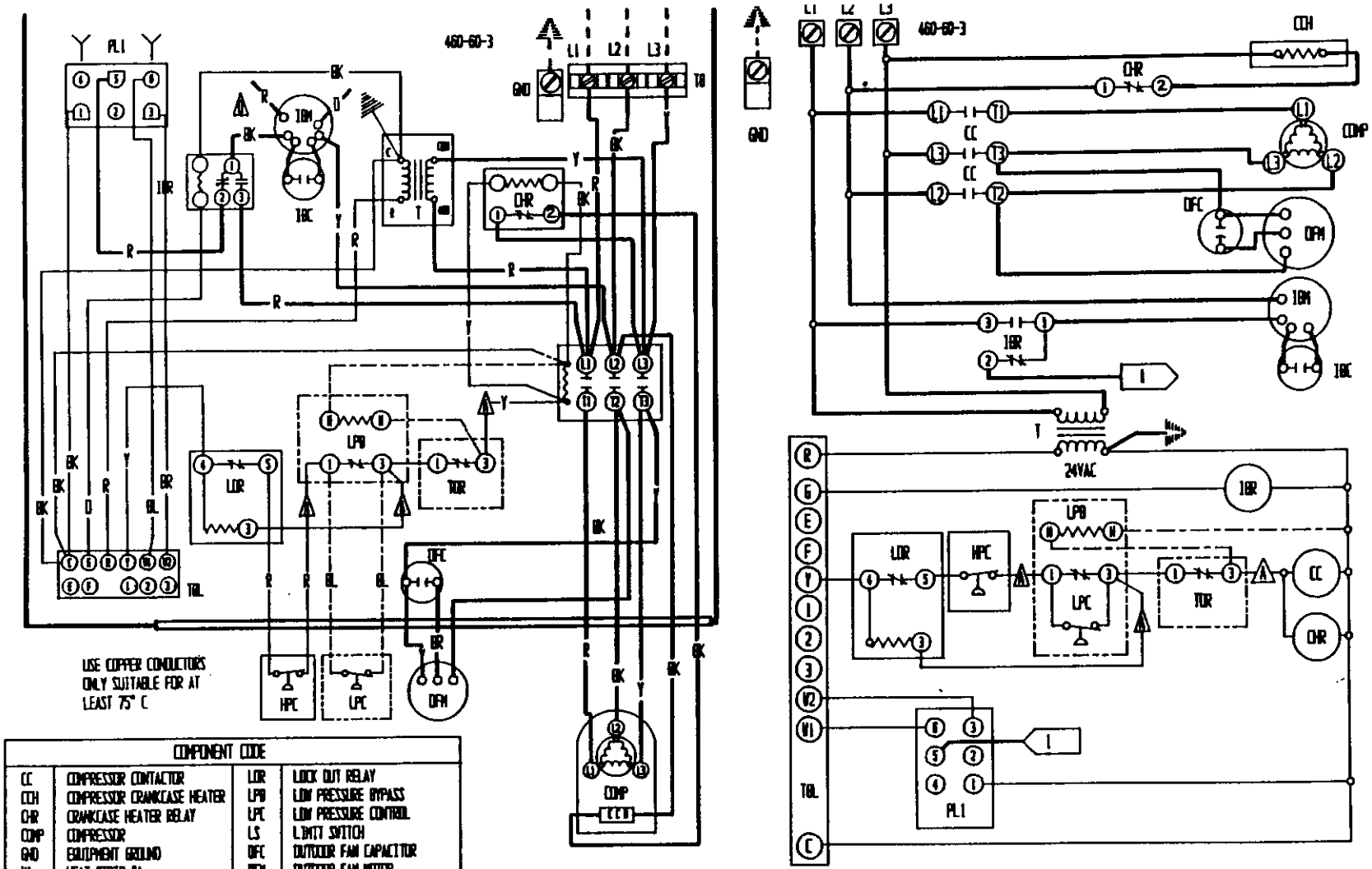


COMPONENT CODE			
CB1	CIRCUIT BREAKER #1	LAC	LOW AMBIENT CONTROL
CB2	CIRCUIT BREAKER #2	LOR	LOCK OUT RELAY
CC	COMPRESSOR CONTACTOR	LPB	LOW PRESSURE BYPASS
CCH	COMPRESSOR CRANKCASE HEATER	LPC	LOW PRESSURE CONTROL
COMP	COMPRESSOR	LS	LIMIT SWITCH
GND	EQUIPMENT GROUND	OFC	OUTDOOR FAN CAPACITOR
H1	HEAT STRIP #1	OFM	OUTDOOR FAN MOTOR
H2	HEAT STRIP #2	PL1	PLUG #1
HC1	HEATER CONTACTOR #1	SK	START KIT
HC2	HEATER CONTACTOR #2	T	TRANSFORMER
HPC	HIGH PRESSURE CONTROL	TB	TERMINAL BLOCK
IDC	INDOOR BLOWER CAPACITOR	TBL	LOW VOLTAGE TERMINAL BLOCK
IBM	INDOOR BLOWER MOTOR	TCO	THERMAL CUTOFF
IBR	INDOOR BLOWER RELAY	TDR	TIME DELAY RELAY

△△△ LABELED WIRES CONNECT IF NO OPTIONS USED. △ MOVE RED WIRE TO 208V TAP FOR 208V OPERATION △ RED (LOW) BLACK (HIGH) WHERE APPLICABLE △ (BLACK) HIGH SPEED TAP NOT TO BE USED ON 50HZ MODELS

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

COLOR CODE									
BK	BLACK	Y	YELLOW	V (PR)	VIOLET PURPLE	T	TAN	BARD MFG. CO.	
BR	BROWN	G	GREEN	GY (S)	GRAY SLATE	PK	PINK	DWG.	4095-214 A
R	RED	BL	BLUE			L	LAVENDER	DRN.	DAY
O	ORANGE	W	WHITE					CHK./APPR.	



COMPONENT CODE			
CC	COMPRESSOR CONTACTOR	LOR	LOCK OUT RELAY
CCH	COMPRESSOR CRANKCASE HEATER	LPB	LOW PRESSURE BYPASS
CHR	CRANKCASE HEATER RELAY	LPC	LOW PRESSURE CONTROL
COMP	COMPRESSOR	LS	LIMIT SWITCH
GND	EQUIPMENT GROUND	OFC	OUTDOOR FAN CAPACITOR
H1	HEAT STRIP #1	OFM	OUTDOOR FAN MOTOR
H2	HEAT STRIP #2	PD	PULL DISCONNECT
HC1	HEATER CONTACTOR #1	PL1	PLUG #1
HC2	HEATER CONTACTOR #2	T	TRANSFORMER
HPC	HIGH PRESSURE CONTROL	TB	TERMINAL BLOCK
IBC	INDOOR BLOWER CAPACITOR	TBL	LOW VOLTAGE TERMINAL BLOCK
IBM	INDOOR BLOWER MOTOR	TCO	THERMAL CUTOFF
IBR	INDOOR BLOWER RELAY	TDR	TIME DELAY RELAY

⚠ LABELED WIRES CONNECT IF NO OPTIONS USED.

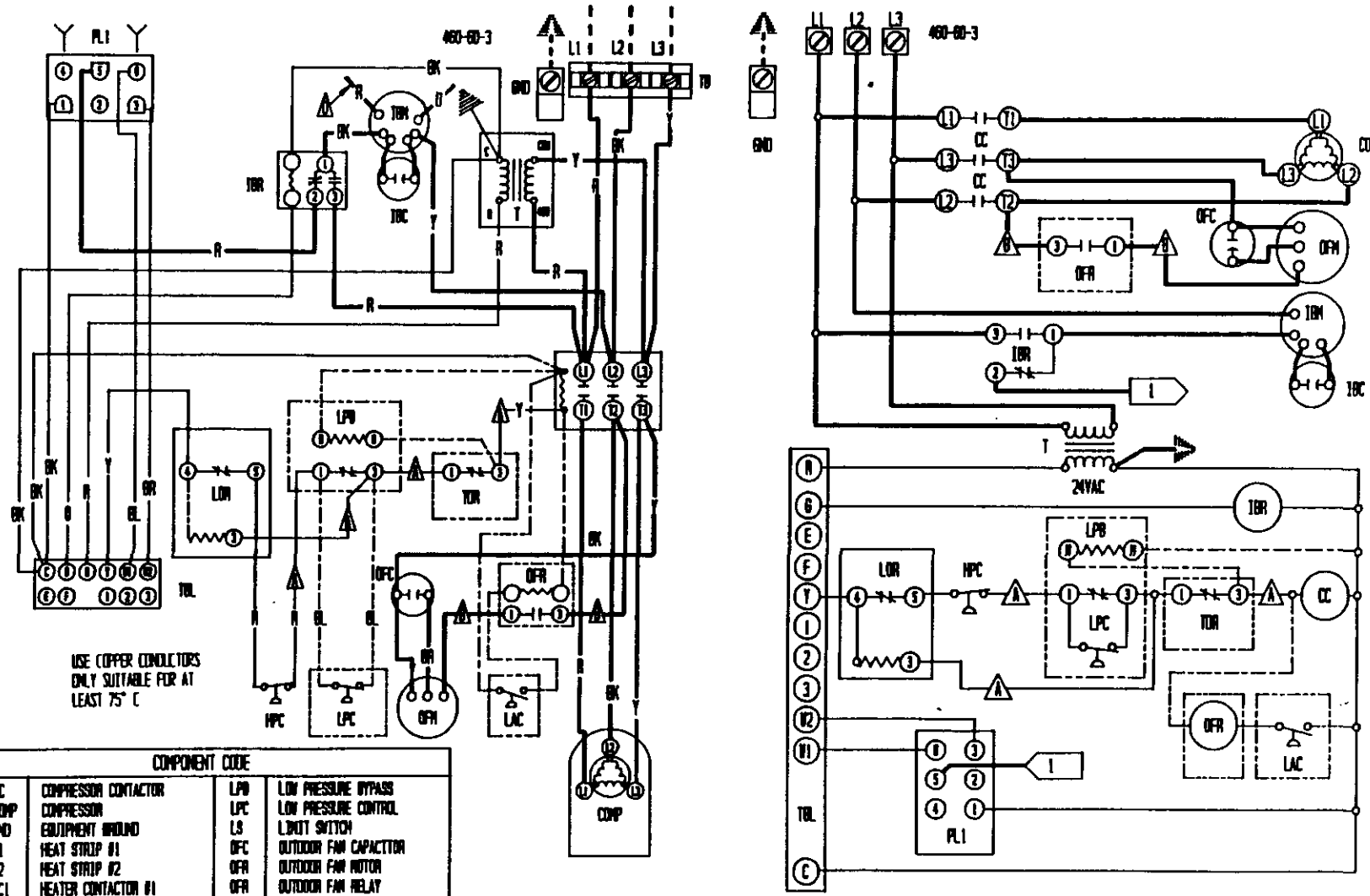
⚠ FOR LOW SPEED CONNECT BLACK AND ORANGE WIRES TOGETHER AND INSULATE. CONNECT RED WIRE TO TERMINAL 1 OF 1BR

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

COLOR CODE							
BK	BLACK	Y	YELLOW	V (PR)	VIOLET PURPLE	T PK	TAN PINK
BR	BROWN	G	GREEN	GY (S)	GRAY SLATE	L	LAVENDER
R	RED	BL	BLUE				
O	ORANGE	W	WHITE				

BARD MFG. CO.

DWG.	4095-313 C
DRN.	CGB
CHK./APPR.	



COMPONENT CODE			
CC	COMPRESSOR CONTACTOR	LPB	LOW PRESSURE BYPASS
COMP	COMPRESSOR	LPC	LOW PRESSURE CONTROL
GND	EQUIPMENT GROUND	LS	LIMIT SWITCH
H1	HEAT STRIP #1	OFC	OUTDOOR FAN CAPACITOR
H2	HEAT STRIP #2	OFM	OUTDOOR FAN MOTOR
HC1	HEATER CONTACTOR #1	OFR	OUTDOOR FAN RELAY
HC2	HEATER CONTACTOR #2	PD	PULL DISCONNECT
HPC	HIGH PRESSURE CONTROL	PL1	PLUG #1
IBC	INDOOR BLOWER CAPACITOR	T	TRANSFORMER
IBM	INDOOR BLOWER MOTOR	TB	TERMINAL BLOCK
IBR	INDOOR BLOWER RELAY	TBL	LOW VOLTAGE TERMINAL BLOCK
LAC	LOW AMBIENT CONTROL	TCO	THERMAL CUTOFF
LOR	LOCK OUT RELAY	TDR	TIME DELAY RELAY

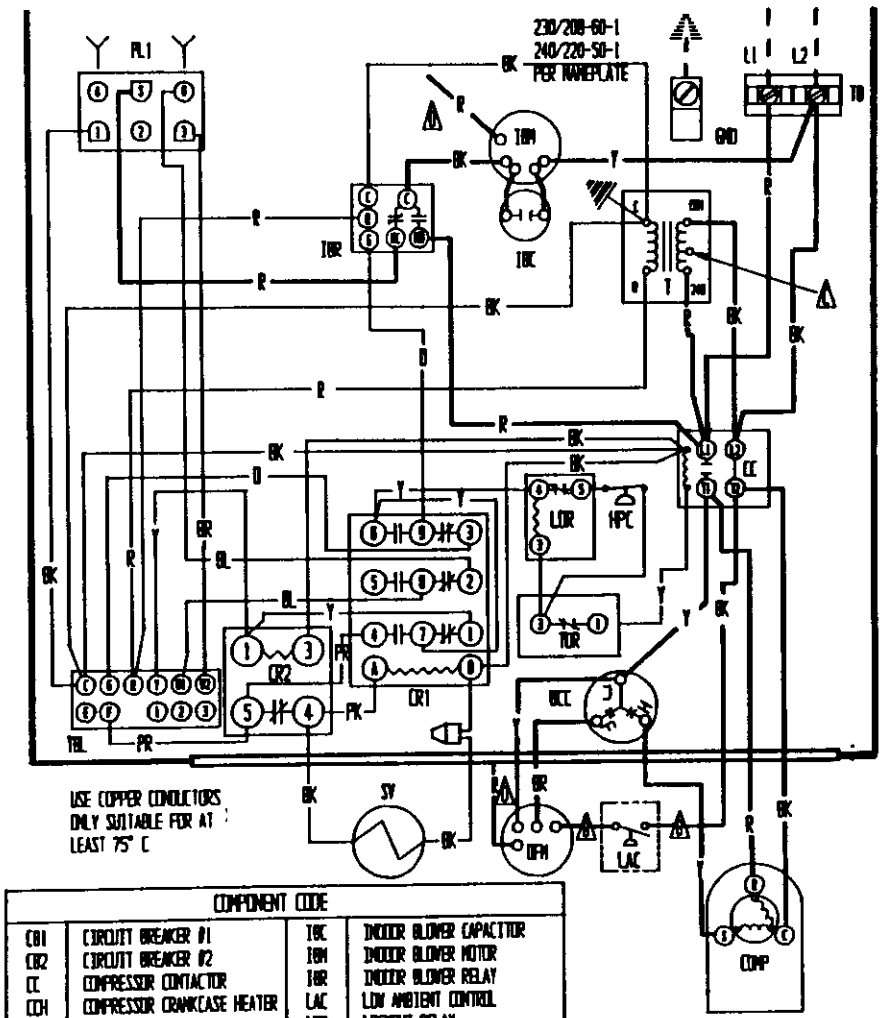
⚠ 1, ⚠ 2 LABELED WIRES CONNECT IF NO OPTIONS USED. ⚠ 3 FOR LOW SPEED CONNECT BLACK AND ORANGE WIRES TOGETHER AND INSULATE. CONNECT RED WIRE TO TERMINAL 1 OF IBR

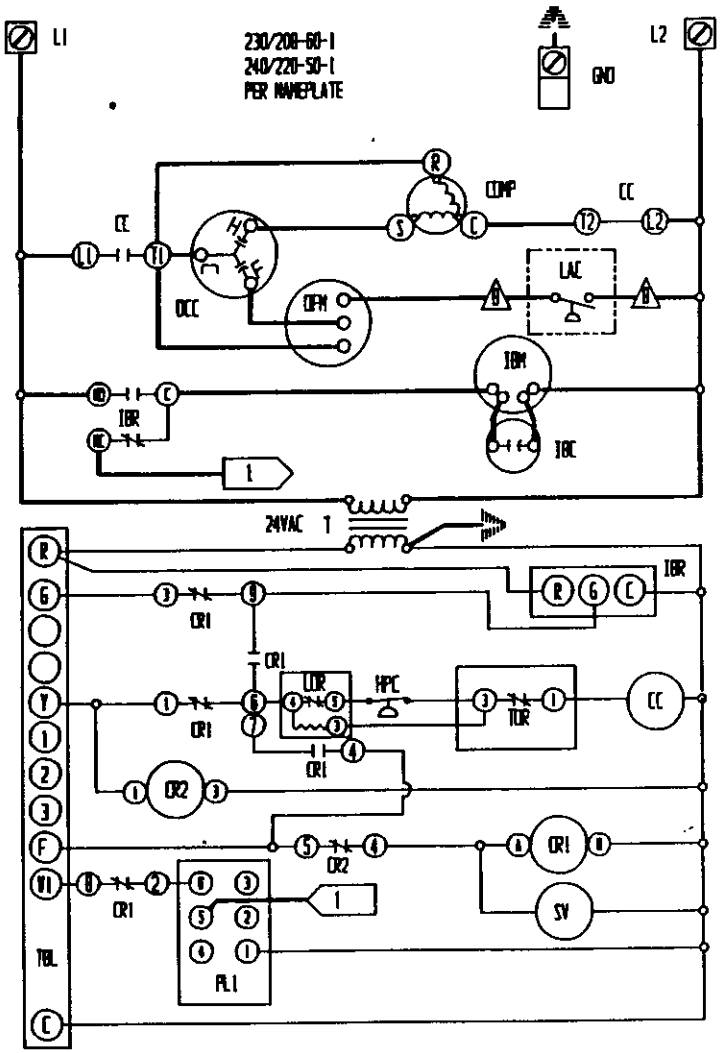
	FACTORY STD.	FIELD	OPTIONAL
HIGH VOLTAGE	———	- - -	—·—·—
LOW VOLTAGE	———	- - -	—·—·—
ACCESSORY			———

COLOR CODE							
BK	BLACK	Y	YELLOW	V	VIOLET	T	TAN
BR	BROWN	G	GREEN	(PR)	PURPLE	PK	PINK
R	RED	BL	BLUE	GY	GRAY	L	LAVENDER
O	ORANGE	W	WHITE	(S)	SLATE		

BARD MFG. CO.

DWG.	4095-312 B
DRN.	CSB
CHK./APPR.	





COMPONENT CODE			
CB1	CIRCUIT BREAKER #1	IBC	INDOOR BLOWER CAPACITOR
CB2	CIRCUIT BREAKER #2	IBM	INDOOR BLOWER MOTOR
CC	COMPRESSOR CONTACTOR	IBR	INDOOR BLOWER RELAY
CCH	COMPRESSOR CRANKCASE HEATER	LAC	LOW AMBIENT CONTROL
COMP	COMPRESSOR	LOR	LOCKOUT RELAY
CR1	CONTROL RELAY 1	LS	LIMIT SWITCH
CR2	CONTROL RELAY 2	OPM	OUTDOOR FAN MOTOR
DCC	DUAL CAN CAPACITOR	PL1	PLUG #1
GND	EQUIPMENT GROUND	SV	SOLENOID VALVE
H1	HEAT STRIP #1	T	TRANSFORMER
H2	HEAT STRIP #2	TB	TERMINAL BLOCK
HC1	HEATER CONTACTOR #1	TBL	LOW VOLTAGE TERMINAL BLOCK
HC2	HEATER CONTACTOR #2	TCO	THERMAL CUTOFF
HPC	HIGH PRESSURE CONTROL	TDR	TIME DELAY RELAY

⚠ LABELED WIRES CONNECT IF NO OPTIONS USED.

⚠ MOVE RED WIRE TO 208V TAP FOR 208V OPERATION

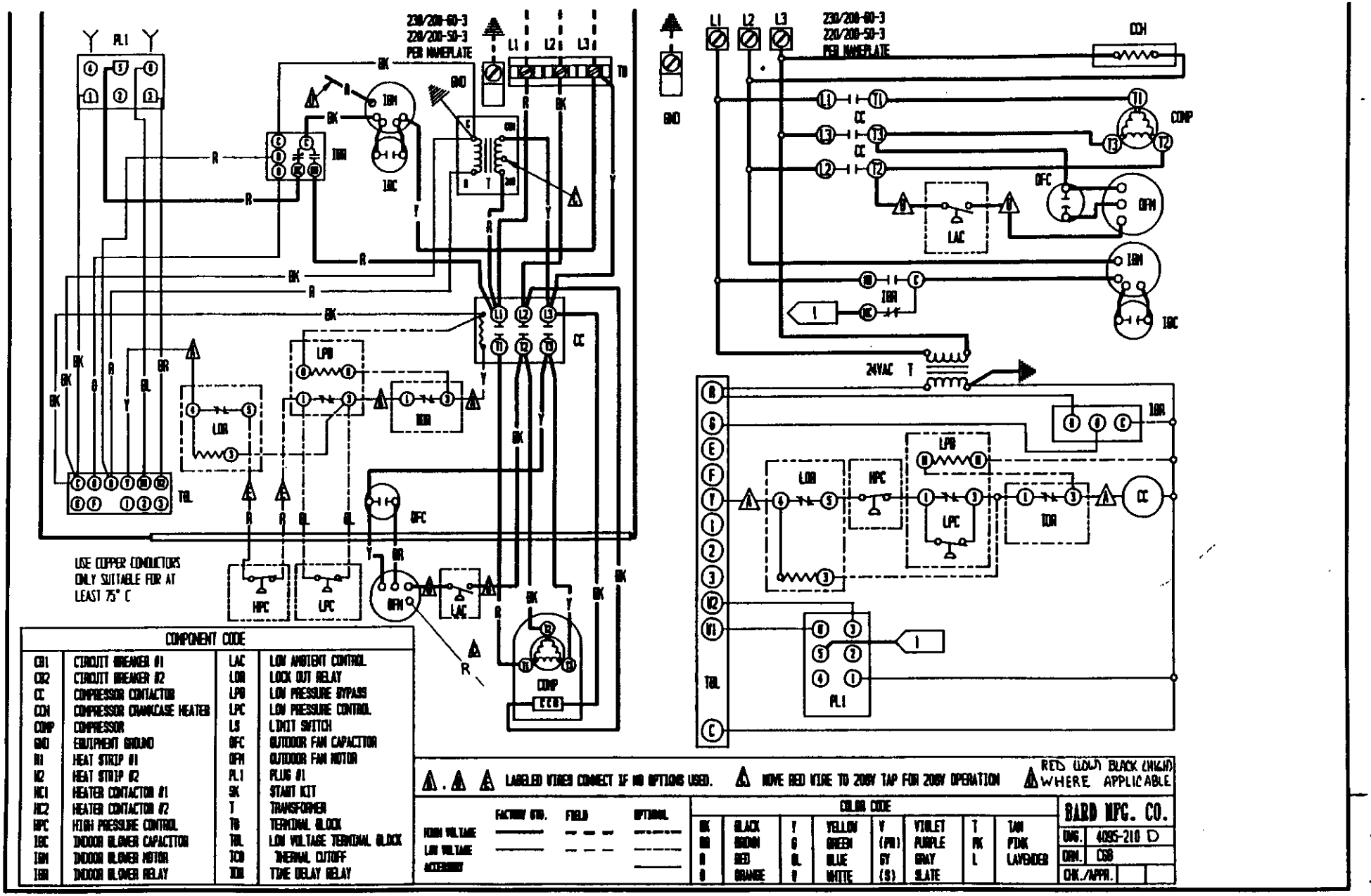
⚠ RED (LOW) BLACK (HIGH) WERE APPLICABLE

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

COLOR CODE							
BK	BLACK	Y	YELLOW	V (PR)	VIOLET PURPLE	T PK	TAN PINK
BR	BROWN	G	GREEN	GY (S)	GRAY SLATE	L	LAVENDER
R	RED	BL	BLUE				
O	ORANGE	W	WHITE				

BARD MFG. CO.

DWG.	4085-121 A
DRN.	
CHK./APPR.	

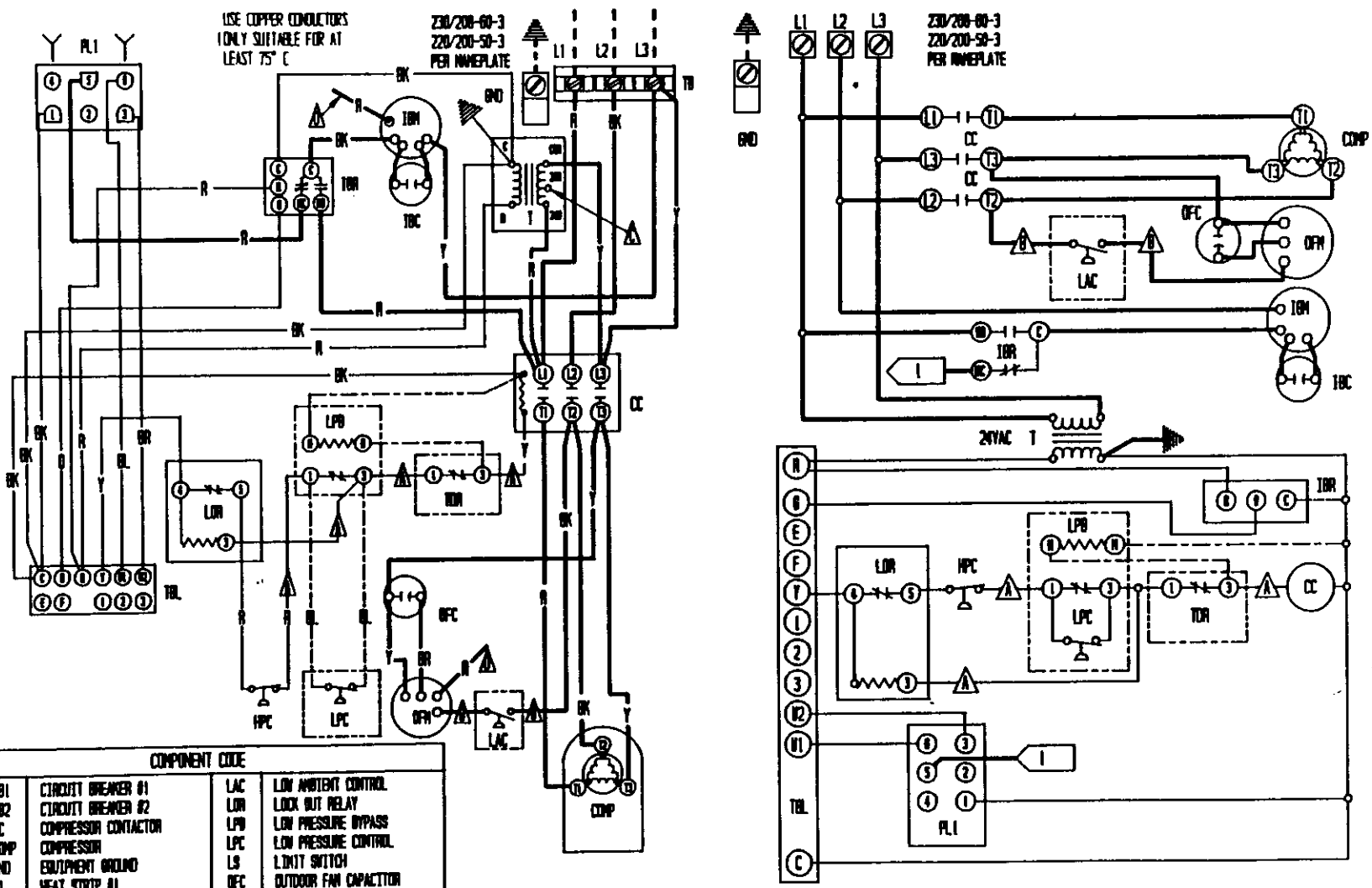


COMPONENT CODE			
CB1	CIRCUIT BREAKER #1	LAC	LOW AMBIENT CONTROL
CB2	CIRCUIT BREAKER #2	LOR	LOCK OUT RELAY
CC	COMPRESSOR CONTACTOR	LPB	LOW PRESSURE BYPASS
CCH	COMPRESSOR CRANKCASE HEATER	LPC	LOW PRESSURE CONTROL
COMP	COMPRESSOR	LS	LIMIT SWITCH
GND	EQUIPMENT GROUND	OFC	OUTDOOR FAN CAPACITOR
H1	HEAT STRIP #1	OFM	OUTDOOR FAN MOTOR
H2	HEAT STRIP #2	PL1	PLUG #1
HC1	HEATER CONTACTOR #1	SK	START KIT
HC2	HEATER CONTACTOR #2	T	TRANSFORMER
HPC	HIGH PRESSURE CONTROL	TB	TERMINAL BLOCK
IBC	INDOOR BLOWER CAPACITOR	TBL	LOW VOLTAGE TERMINAL BLOCK
IBM	INDOOR BLOWER MOTOR	TCO	THERMAL CUTOFF
IBR	INDOOR BLOWER RELAY	TDR	TIME DELAY RELAY

⚠1, ⚠2 ⚠3 LABELED WIRES CONNECT IF NO OPTIONS USED. ⚠4 MOVE RED WIRE TO 208V TAP FOR 208V OPERATION ⚠5 RED (LOW) BLACK (HIGH) WHERE APPLICABLE

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

COLOR CODE									
BK	BLACK	Y	YELLOW	V	VIOLET	T	TAN	BARD MFG. CO.	
BR	BROWN	G	GREEN	(PR)	PURPLE	PK	PINK	DWG.	4095-210 D
R	RED	BL	BLUE	GY	GRAY	L	LAVENDER	DRN.	CSB
O	ORANGE	W	WHITE	(S)	SLATE			CHK./APPR.	

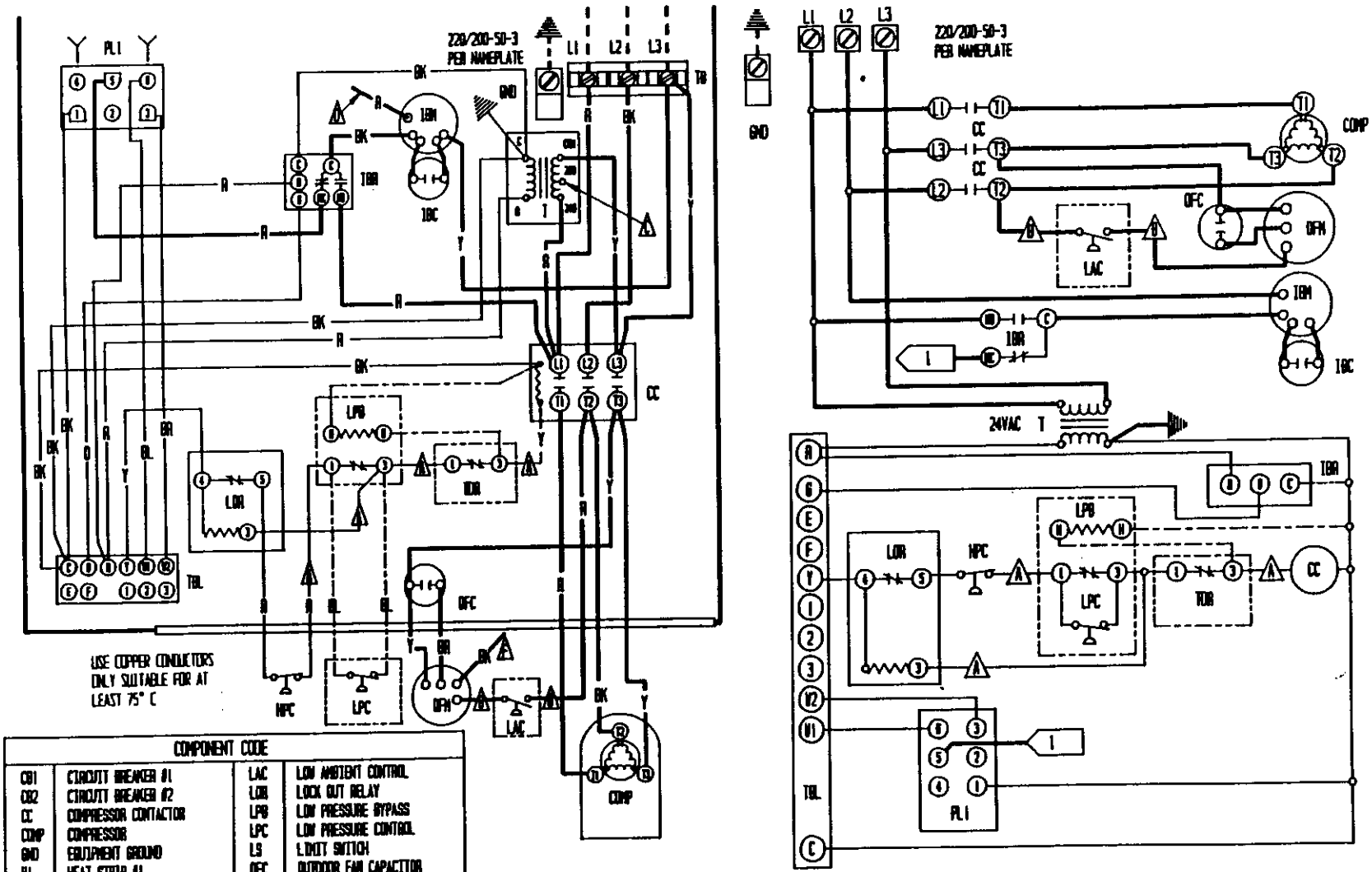


COMPONENT CODE			
CB1	CIRCUIT BREAKER #1	LAC	LOW AMBIENT CONTROL
CB2	CIRCUIT BREAKER #2	LOR	LOCK OUT RELAY
CC	COMPRESSOR CONTACTOR	LPB	LOW PRESSURE BYPASS
COMP	COMPRESSOR	LPC	LOW PRESSURE CONTROL
GND	EQUIPMENT GROUND	LS	LIMIT SWITCH
H1	HEAT STRIP #1	OFC	OUTDOOR FAN CAPACITOR
H2	HEAT STRIP #2	OFM	OUTDOOR FAN MOTOR
HC1	HEATER CONTACTOR #1	PL1	PLUG #1
HC2	HEATER CONTACTOR #2	SK	START KIT
HPC	HIGH PRESSURE CONTROL	T	TRANSFORMER
IBC	INDOOR BLOWER CAPACITOR	TB	TERMINAL BLOCK
IBM	INDOOR BLOWER MOTOR	TBL	LOW VOLTAGE TERMINAL BLOCK
IBR	INDOOR BLOWER RELAY	TCO	THERMAL CUTOFF
		TDR	TIME DELAY RELAY

⚠1.⚠4 LABELED WIRES CONNECT IF NO OPTIONS USED. ⚠2 MOVE RED WIRE TO 208V TAP FOR 208V OPERATION ⚠3 RED (LOW) BLACK (HIGH)

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

COLOR CODE									
BK	BLACK	Y	YELLOW	V	VIOLET	T	TAN	BARD MFG. CO.	
BR	BROWN	G	GREEN	(PR)	PURPLE	PK	PINK	DWG.	4095-212 A
R	RED	BL	BLUE	GY	GRAY	L	LAVENDER	DRN.	CSB
O	ORANGE	W	WHITE	(S)	SLATE			CHK./APPR.	

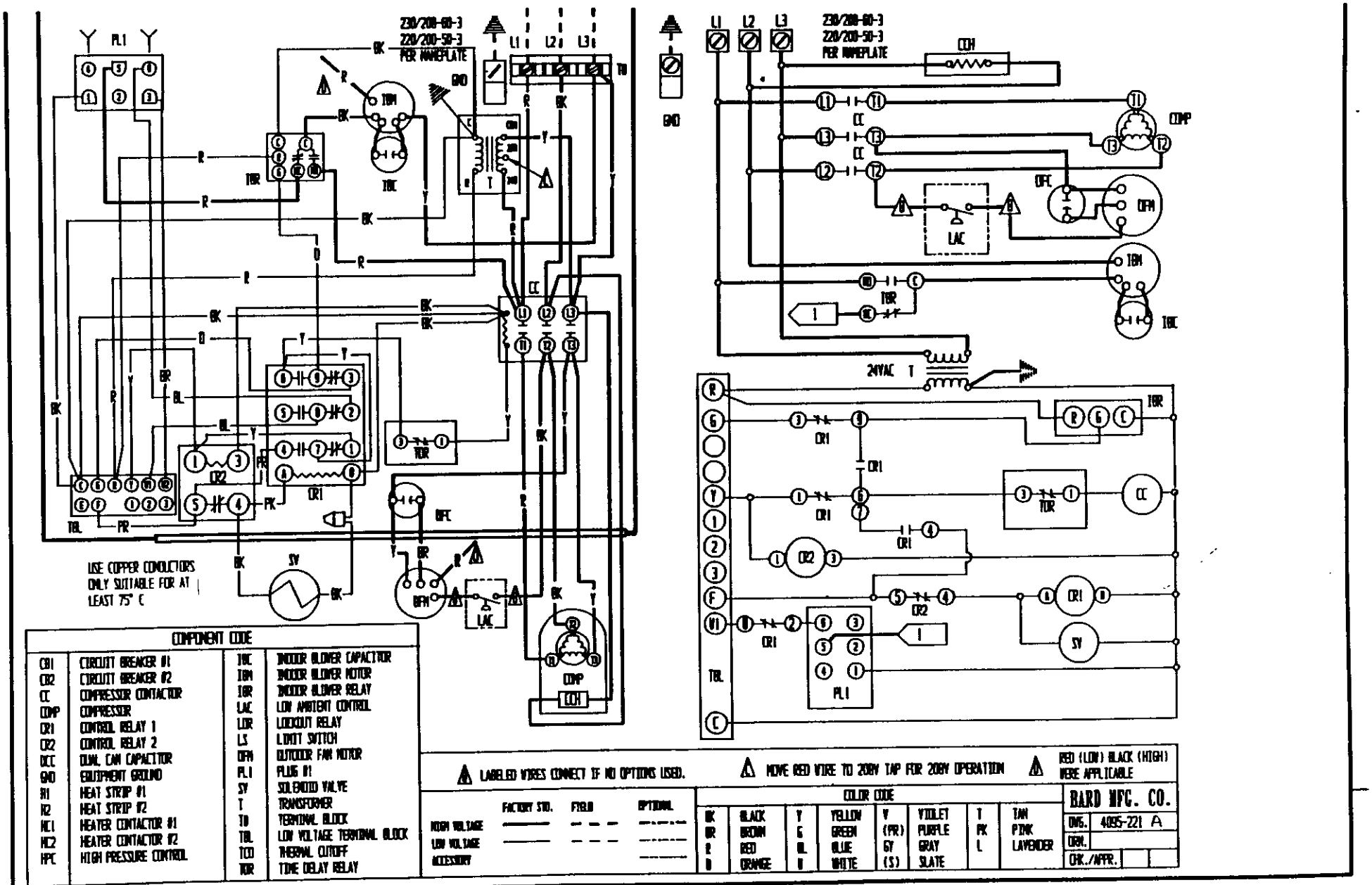


COMPONENT CODE			
CB1	CIRCUIT BREAKER #1	LAC	LOW AMBIENT CONTROL
CB2	CIRCUIT BREAKER #2	LOR	LOCK OUT RELAY
CC	COMPRESSOR CONTACTOR	LPB	LOW PRESSURE BYPASS
COMP	COMPRESSOR	LPC	LOW PRESSURE CONTROL
GND	EQUIPMENT GROUND	LS	LIMIT SWITCH
H1	HEAT STRIP #1	OFC	OUTDOOR FAN CAPACITOR
H2	HEAT STRIP #2	OFM	OUTDOOR FAN MOTOR
HC1	HEATER CONTACTOR #1	PL1	PLUG #1
HC2	HEATER CONTACTOR #2	SK	START KIT
HPC	HIGH PRESSURE CONTROL	T	TRANSFORMER
IBC	INDOOR BLOWER CAPACITOR	TB	TERMINAL BLOCK
IBM	INDOOR BLOWER MOTOR	TBL	LOW VOLTAGE TERMINAL BLOCK
IBR	INDOOR BLOWER RELAY	TCO	THERMAL CUTOFF
		TDR	TIME DELAY RELAY

⚠⚠ LABELED WIRES CONNECT IF NO OPTIONS USED. ⚠ MOVE RED WIRE TO 208V TAP FOR 208V OPERATION ⚠ RED (LOW) BLACK (HIGH) ⚠ (BLACK) HIGH SPEED NOT TO BE USED ON 50HZ MODELS

	FACTORY IND.	FIELD	OPTIONAL
HIGH VOLTAGE	———	- - -	—·—·—
LOW VOLTAGE	———	- - -	———
ACCESSORY			———

COLOR CODE									
BK	BLACK	Y	YELLOW	V (PU)	VIOLET	T	TAN	HARD MFG. CO.	
BR	BROWN	G	GREEN	GY (S)	PURPLE	PK	PINK	DWG.	4095-213 A
R	RED	BL	BLUE		GRAY	L	LAVENDER	DRN.	DAY
O	ORANGE	W	WHITE		SLATE			CHK./APPR.	



COMPONENT CODE			
CB1	CIRCUIT BREAKER #1	IBC	INDOOR BLOWER CAPACITOR
CB2	CIRCUIT BREAKER #2	IBM	INDOOR BLOWER MOTOR
CC	COMPRESSOR CONTACTOR	IBR	INDOOR BLOWER RELAY
COMP	COMPRESSOR	LAC	LOW AMBIENT CONTROL
CR1	CONTROL RELAY 1	LOR	LOCKOUT RELAY
CR2	CONTROL RELAY 2	LS	LIMIT SWITCH
DCC	DUAL CAN CAPACITOR	OFM	OUTDOOR FAN MOTOR
GND	EQUIPMENT GROUND	PL1	PLUG #1
H1	HEAT STRIP #1	SV	SOLENOID VALVE
H2	HEAT STRIP #2	T	TRANSFORMER
HC1	HEATER CONTACTOR #1	TB	TERMINAL BLOCK
HC2	HEATER CONTACTOR #2	TBL	LOW VOLTAGE TERMINAL BLOCK
HPC	HIGH PRESSURE CONTROL	TCO	THERMAL CUTOFF
		TDR	TIME DELAY RELAY

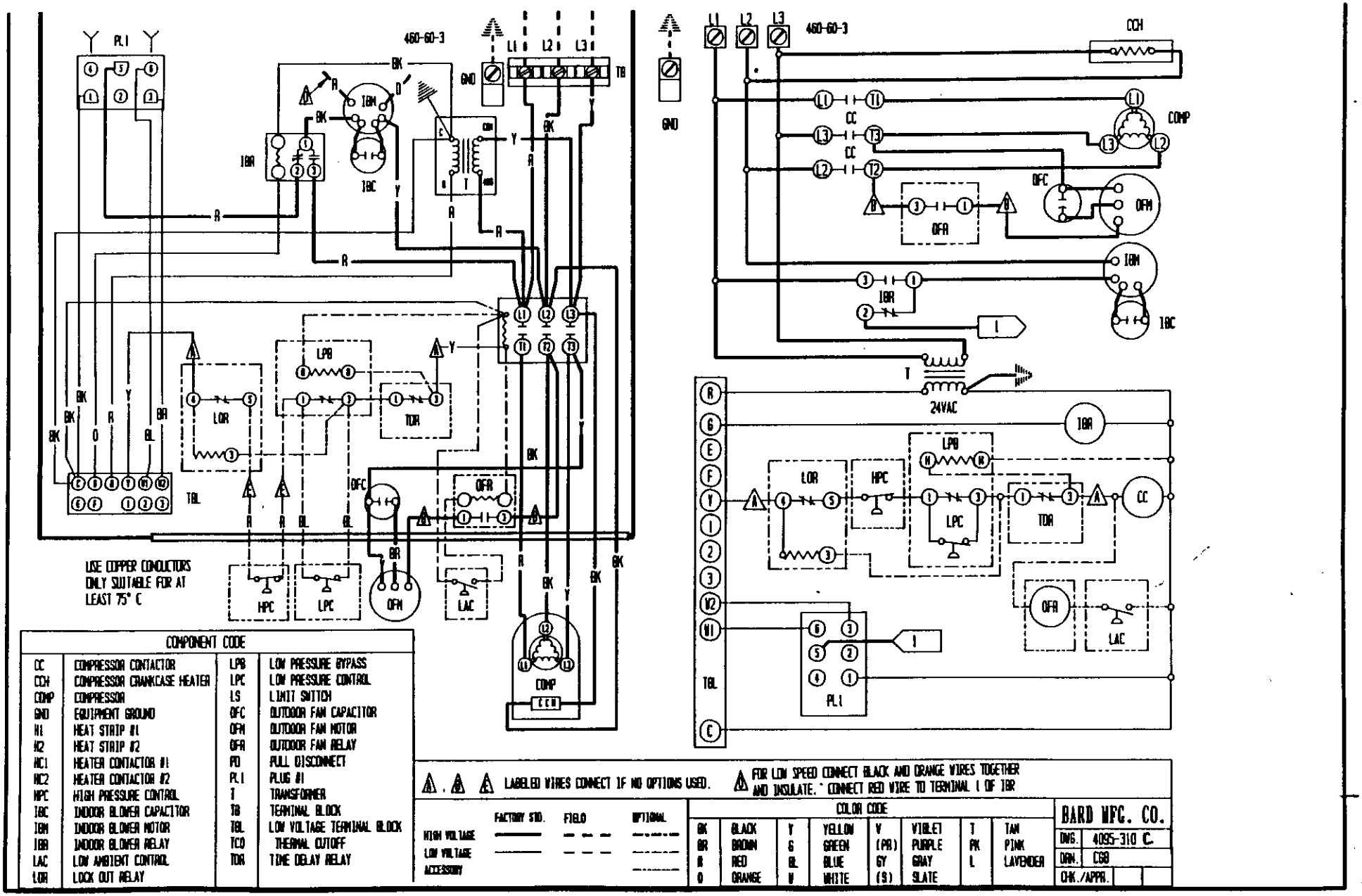
⚠ LABELED WIRES CONNECT IF NO OPTIONS USED.

⚠ MOVE RED WIRE TO 208V TAP FOR 208V OPERATION

⚠ RED (LOW) BLACK (HIGH) WHERE APPLICABLE

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

COLOR CODE									
BK	BLACK	Y	YELLOW	V	VIOLET	T	TAN	BARD MFG. CO.	
BR	BROWN	G	GREEN	(PR)	PURPLE	PK	PINK	DWG.	4085-221 A
R	RED	BL	BLUE	GY	GRAY	L	LAVENDER	DRN.	
O	ORANGE	W	WHITE	(S)	SLATE			CHK./APPR.	



COMPONENT CODE			
CC	COMPRESSOR CONTACTOR	LPB	LOW PRESSURE BYPASS
CCH	COMPRESSOR CRANKCASE HEATER	LPC	LOW PRESSURE CONTROL
COMP	COMPRESSOR	LS	LIMIT SWITCH
GND	EQUIPMENT GROUND	OFC	OUTDOOR FAN CAPACITOR
H1	HEAT STRIP #1	OFM	OUTDOOR FAN MOTOR
H2	HEAT STRIP #2	OFR	OUTDOOR FAN RELAY
HC1	HEATER CONTACTOR #1	PD	PULL DISCONNECT
HC2	HEATER CONTACTOR #2	PL1	PLUG #1
HPC	HIGH PRESSURE CONTROL	T	TRANSFORMER
IBC	INDOOR BLOWER CAPACITOR	TB	TERMINAL BLOCK
IBM	INDOOR BLOWER MOTOR	TBL	LOW VOLTAGE TERMINAL BLOCK
IBR	INDOOR BLOWER RELAY	TCO	THERMAL CUTOFF
LAC	LOW AMBIENT CONTROL	TDR	TIME DELAY RELAY
LOR	LOCK OUT RELAY		

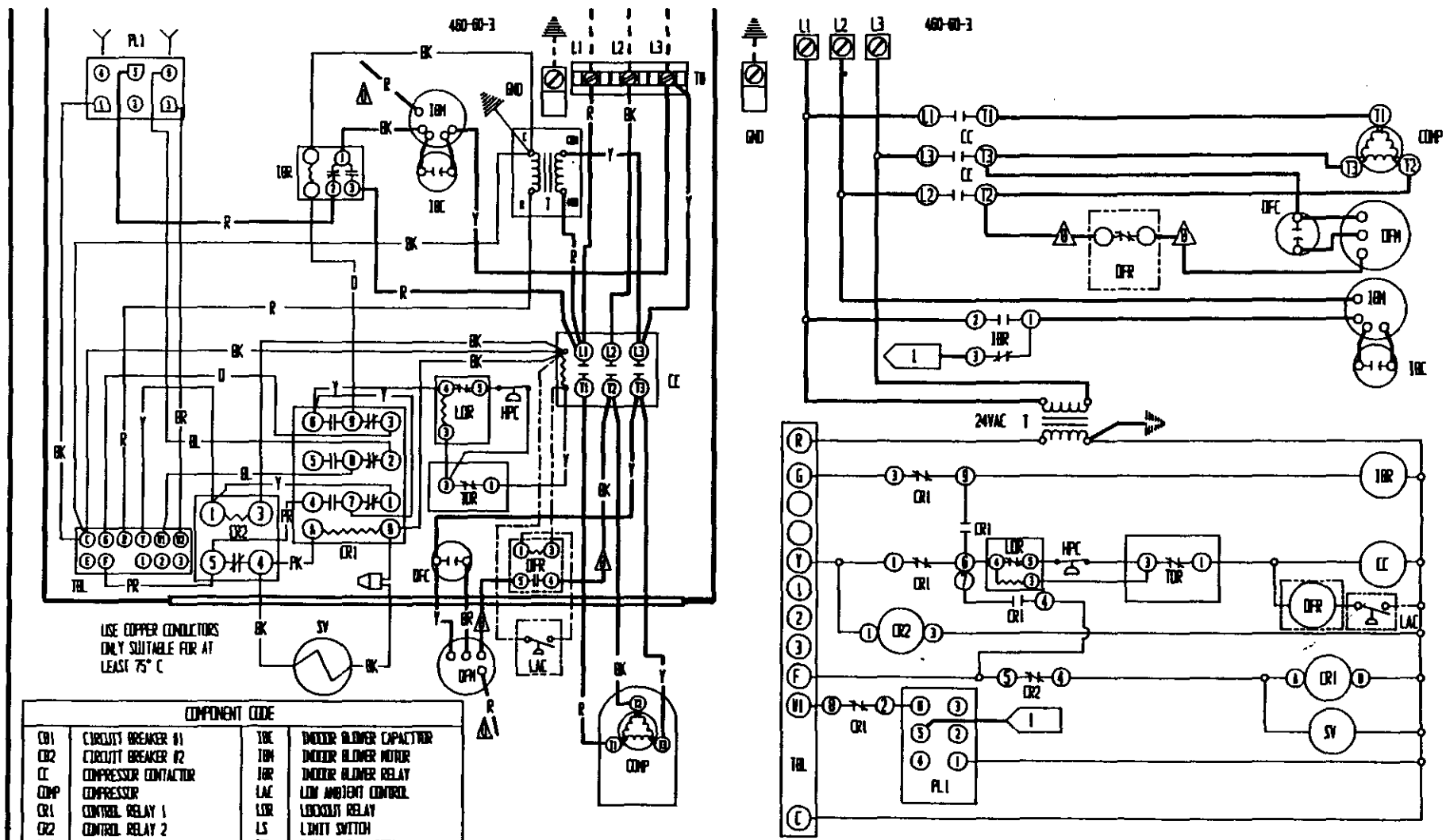
⚠1, ⚠2, ⚠3 LABELED WIRES CONNECT IF NO OPTIONS USED. ⚠4 FOR LOW SPEED CONNECT BLACK AND ORANGE WIRES TOGETHER AND INSULATE. ⚠5 CONNECT RED WIRE TO TERMINAL 1 OF 1BR

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

COLOR CODE							
BK	BLACK	Y	YELLOW	V	VIOLET	T	TAN
BR	BROWN	G	GREEN	(PR)	PURPLE	PK	PINK
R	RED	BL	BLUE	GY	GRAY	L	LAVENDER
O	ORANGE	W	WHITE	(S)	SLATE		

BARD MFG. CO.

DWG.	4095-310 C
DRN.	CGB
CHK./APPR.	



COMPONENT CODE			
CB1	CIRCUIT BREAKER #1	IBC	INDOOR BLOWER CAPACITOR
CB2	CIRCUIT BREAKER #2	IBM	INDOOR BLOWER MOTOR
CC	COMPRESSOR CONTACTOR	IBR	INDOOR BLOWER RELAY
COMP	COMPRESSOR	LAC	LOW AMBIENT CONTROL
CR1	CONTROL RELAY 1	LOR	LOCKOUT RELAY
CR2	CONTROL RELAY 2	LS	LIMIT SWITCH
DCC	DUAL CAN CAPACITOR	OFM	OUTDOOR FAN MOTOR
GND	EQUIPMENT GROUND	PL1	PLUG #1
H1	HEAT STRIP #1	SV	SOLENOID VALVE
H2	HEAT STRIP #2	T	TRANSFORMER
HC1	HEATER CONTACTOR #1	TB	TERMINAL BLOCK
HC2	HEATER CONTACTOR #2	TBL	LOW VOLTAGE TERMINAL BLOCK
HPC	HIGH PRESSURE CONTROL	TCO	THERMAL CUTOFF
		TDR	TIME DELAY RELAY

⚠1 LABELED WIRES CONNECT IF NO OPTIONS USED.

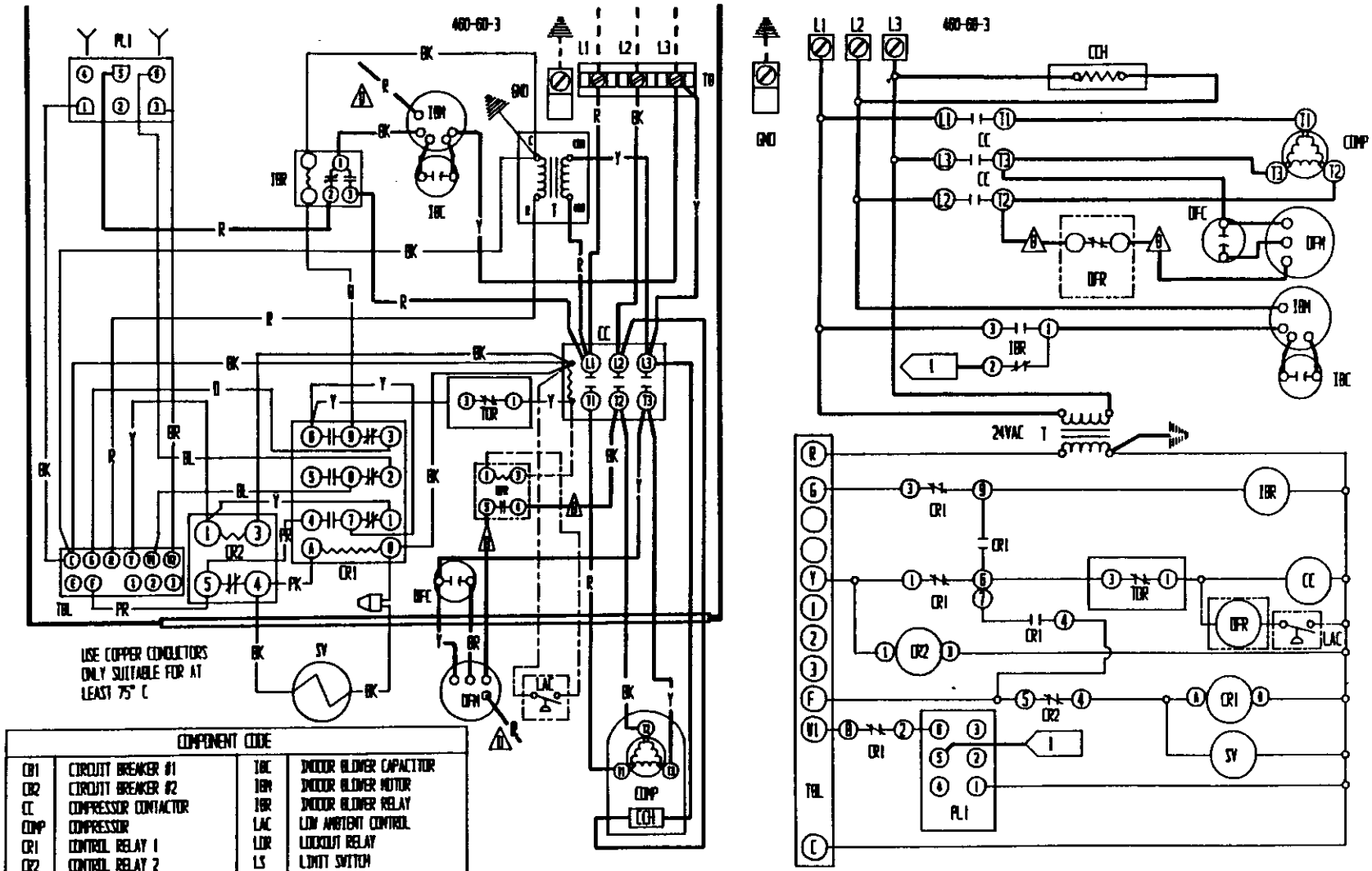
⚠2 FOR LOW SPEED CONNECT BLACK AND ORANGE WIRES TOGETHER AND INSULATE. CONNECT RED WIRE TO TERMINAL 1 OF IBR

	FACTORY STD.	FIELD	OPTIONAL
HIGH VOLTAGE	———	– – –	–·–·–
LOW VOLTAGE	———	– – –	·····–
ACCESSORY			·····

COLOR CODE							
BK	BLACK	Y	YELLOW	V	VIOLET	T	TAN
BR	BROWN	G	GREEN	(PR)	PURPLE	PK	PINK
R	RED	BL	BLUE	GY	GRAY	L	LAVENDER
O	ORANGE	W	WHITE	(S)	SLATE		

BARD MFG. CO.

DWG.	4085-316 B
DRN.	
CHK./APPR.	



COMPONENT CODE			
CB1	CIRCUIT BREAKER #1	IBC	INDOOR BLOWER CAPACITOR
CB2	CIRCUIT BREAKER #2	IBM	INDOOR BLOWER MOTOR
CC	COMPRESSOR CONTACTOR	IBR	INDOOR BLOWER RELAY
COMP	COMPRESSOR	LAC	LOW AMBIENT CONTROL
CR1	CONTROL RELAY 1	LOR	LOCKOUT RELAY
CR2	CONTROL RELAY 2	LS	LIMIT SWITCH
DCC	DUAL CAN CAPACITOR	OFM	OUTDOOR FAN MOTOR
GND	EQUIPMENT GROUND	PL1	PLUG #1
H1	HEAT STRIP #1	SV	SOLENOID VALVE
H2	HEAT STRIP #2	T	TRANSFORMER
HC1	HEATER CONTACTOR #1	TB	TERMINAL BLOCK
HC2	HEATER CONTACTOR #2	TBL	LOW VOLTAGE TERMINAL BLOCK
HPC	HIGH PRESSURE CONTROL	TCO	THERMAL CUTOFF
		TDR	TIME DELAY RELAY

⚠ LABELED WIRES CONNECT IF NO OPTIONS USED.

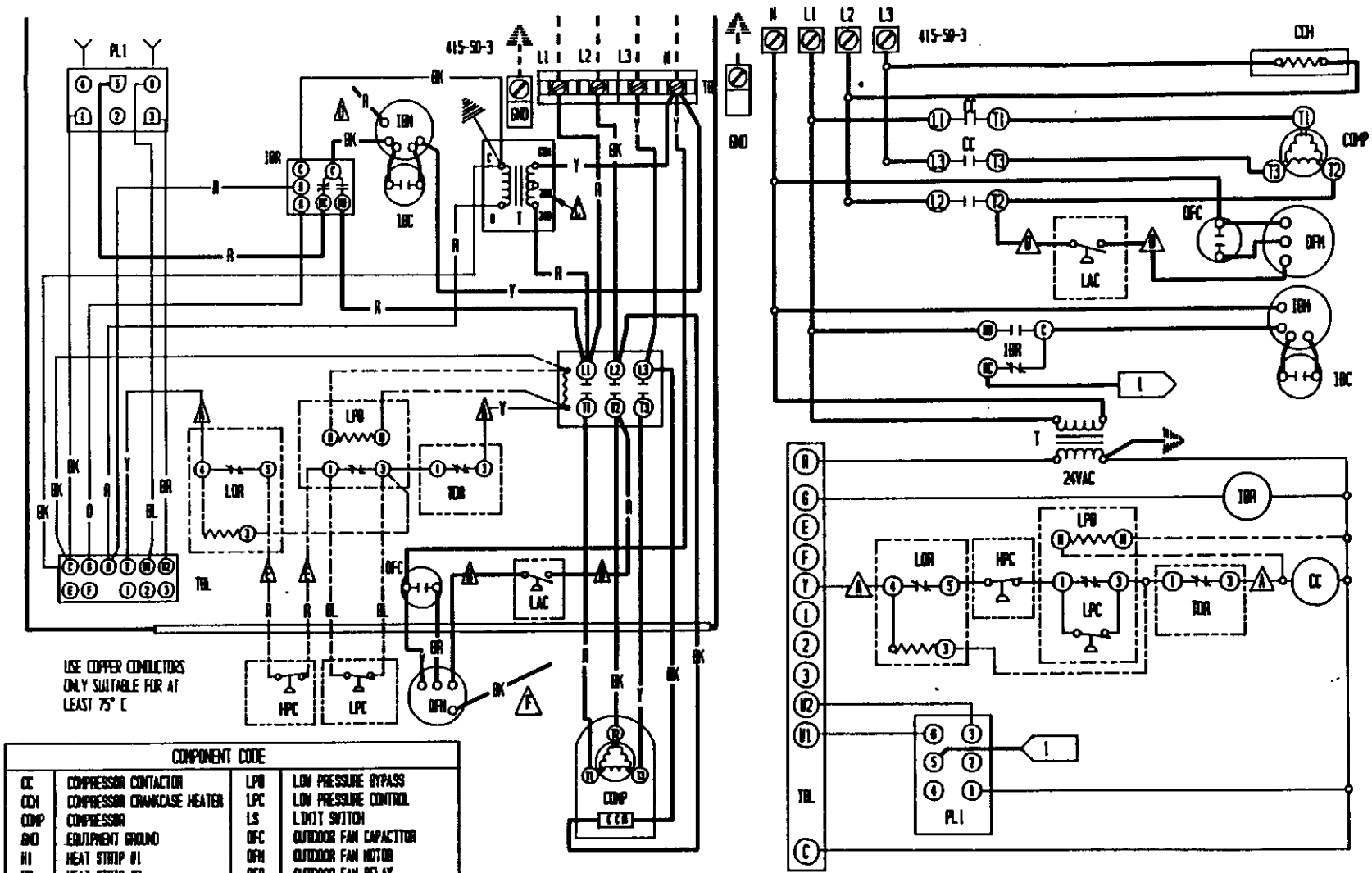
⚠ FOR LOW SPEED CONNECT BLACK AND ORANGE WIRES TOGETHER AND INSULATE. CONNECT RED WIRE TO TERMINAL 1 OF IBR

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

COLOR CODE							
BK	BLACK	Y	YELLOW	V	VIOLET	T	TAN
BR	BROWN	G	GREEN	(PR)	PURPLE	PK	PINK
R	RED	BL	BLUE	GY	GRAY	L	LAVENDER
O	ORANGE	W	WHITE	(S)	SLATE		

BARD MFG. CO.

DWG.	4095-315 B
DRN.	
CHK./APPR.	



COMPONENT CODE			
CC	COMPRESSOR CONTACTOR	LPB	LOW PRESSURE BYPASS
CCH	COMPRESSOR CRANKCASE HEATER	LPC	LOW PRESSURE CONTROL
COMP	COMPRESSOR	LS	LIMIT SWITCH
GND	EQUIPMENT GROUND	OFC	OUTDOOR FAN CAPACITOR
HR1	HEAT STRIP #1	OFM	OUTDOOR FAN MOTOR
HR2	HEAT STRIP #2	OFR	OUTDOOR FAN RELAY
HC1	HEATER CONTACTOR #1	PD	PULL DISCONNECT
HC2	HEATER CONTACTOR #2	PL1	PLUG #1
HPC	HIGH PRESSURE CONTROL	T	TRANSFORMER
IBC	INDOOR BLOWER CAPACITOR	TB	TERMINAL BLOCK
IBM	INDOOR BLOWER MOTOR	TBL	LOW VOLTAGE TERMINAL BLOCK
IBR	INDOOR BLOWER RELAY	TCO	THERMAL CUTOFF
LAC	LOW AMBIENT CONTROL	TDR	TIME DELAY RELAY
LOR	LOCK OUT RELAY		

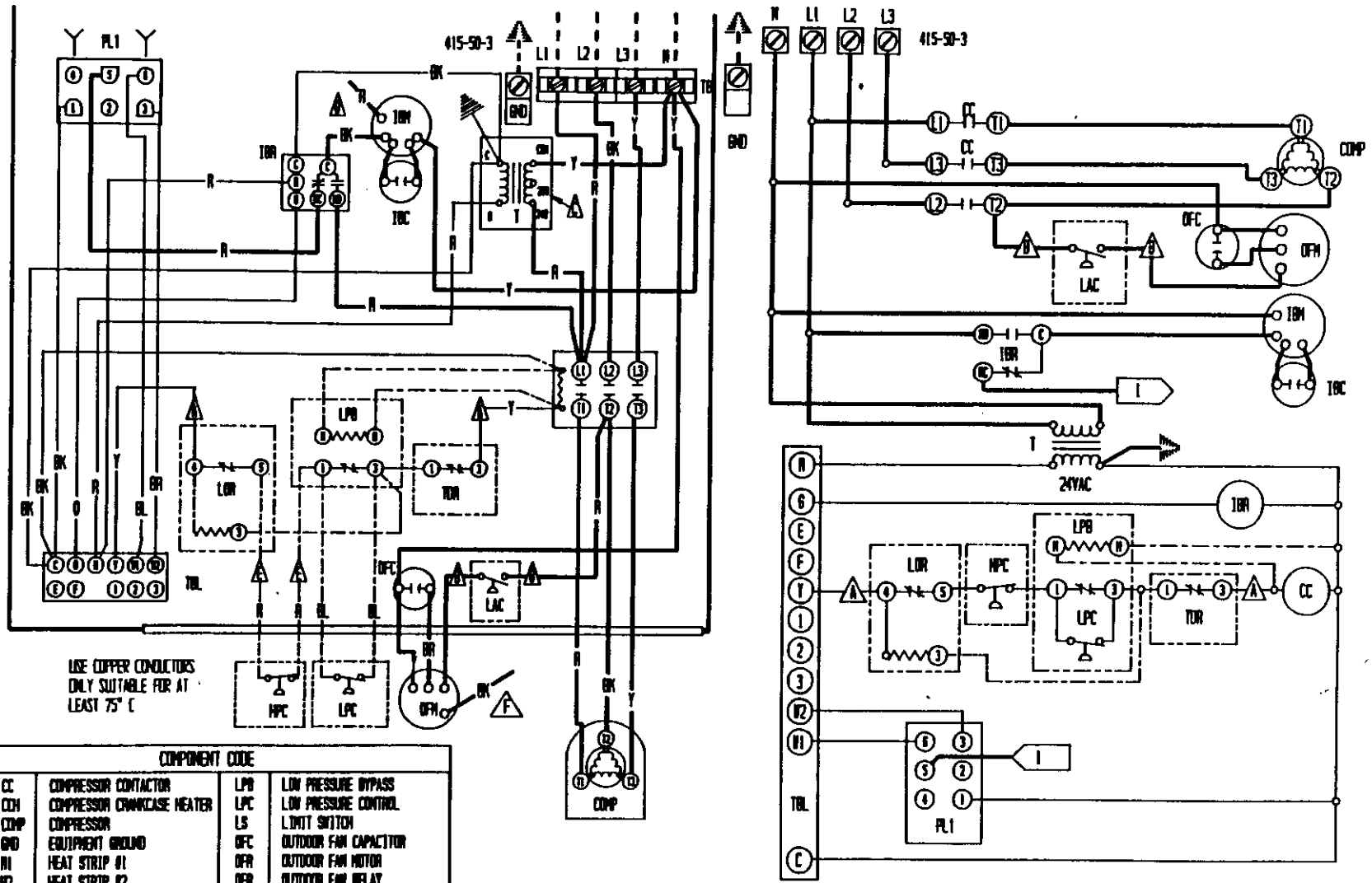
⚠ ⚠ ⚠ LABELED WIRES CONNECT IF NO OPTIONS USED. ⚠ MOVE RED WIRE TO 208V TAP FOR 380V OPERATION. ⚠ RED (LOW) BLACK (HIGH) ⚠ (BLACK) HIGH SPEED TAP NOT TO BE USED ON 50HZ MODELS

	FACTORY STD.	FIELD	OPTIONAL
208/230 VOLTAGE	———	- - -	·-·-·-
LOW VOLTAGE	———	- - -	·-·-·-
ACCESSORY			———

COLOR CODE							
BK	BLACK	Y	YELLOW	V	VIOLET	T	TAN
BR	BROWN	G	GREEN	(PR)	PURPLE	PK	PINK
R	RED	BL	BLUE	GY	GRAY	L	LAVENDER
O	ORANGE	W	WHITE	(SL)	SLATE		

BARD MFG. CO.

DWG.	4095-612 A
DRN.	DAY
CHK./APPR.	



COMPONENT CODE			
CC	COMPRESSOR CONTACTOR	LPB	LOW PRESSURE BYPASS
CCH	COMPRESSOR CRANKCASE HEATER	LPC	LOW PRESSURE CONTROL
COMP	COMPRESSOR	LS	LIMIT SWITCH
GND	EQUIPMENT GROUND	OFC	OUTDOOR FAN CAPACITOR
H1	HEAT STRIP #1	OFM	OUTDOOR FAN MOTOR
H2	HEAT STRIP #2	OFR	OUTDOOR FAN RELAY
HC1	HEATER CONTACTOR #1	PD	PULL DISCONNECT
HC2	HEATER CONTACTOR #2	PL1	PLUG #1
HPC	HIGH PRESSURE CONTROL	T	TRANSFORMER
IBC	INDOOR BLOWER CAPACITOR	TB	TERMINAL BLOCK
IBM	INDOOR BLOWER MOTOR	TBL	LOW VOLTAGE TERMINAL BLOCK
IBR	INDOOR BLOWER RELAY	TCO	THERMAL CUTOFF
LAC	LOW AMBIENT CONTROL	TDR	TIME DELAY RELAY
LOR	LOCK OUT RELAY		

⚠⚠⚠ LABELED WIRES CONNECT IF NO OPTIONS USED. ⚠ RED (LOW) BLACK (HIGH) ⚠ MOVE RED WIRE TO 208V TAP FOR 380V OPERATION ⚠ (BLACK) HIGH SPEED TAP NOT TO BE USED ON 50HZ MODELS

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

COLOR CODE								
BK	BLACK	Y	YELLOW	V	VIOLET	T	TAN	
BR	BROWN	G	GREEN	(PR)	PURPLE	PK	PINK	
R	RED	BL	BLUE	GY	GRAY	L	LAVENDER	
O	ORANGE	W	WHITE	(S)	SLATE			

BARD MFG. CO.

DWG.	4095-611 B
DATE	3-8-93
CHK./APPR.	