



SERVICE MANUAL

FOR

6636A & 6636B SERIES

TWO TON HIGH EFFICIENCY

PACKAGED AIR CONDITIONERS

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1. WARNINGS

IMPORTANT NOTICE

These instructions are for the use of qualified individuals specially trained and experienced in installation of this type equipment and related system components.

Installation and service personnel are required by some states to be licensed. PERSONS NOT QUALIFIED SHALL NOT INSTALL NOR SERVICE THIS EQUIPMENT.

NOTE

The words "Shall" or "Must" indicate a requirement which is essential to satisfactory and safe product performance.

The words "Should" or "May" indicate a recommendation or advice which is not essential and not required but which may be useful or helpful.

WARNING - SHOCK HAZARD

To prevent the possibility of severe personal injury or equipment damage due to electrical shock, always be sure the electrical power to the appliance is disconnected.

CAREFULLY FOLLOW ALL INSTRUCTIONS AND WARNINGS IN THIS BOOKLET TO AVOID DAMAGE TO THE EQUIPMENT, PERSONAL INJURY OR FIRE.

WARNING

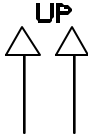
Improper installation may damage equipment, can create a hazard and will void the warranty.

The use of components not tested in combination with these units will void the warranty, may make the equipment in violation of state codes, may create a hazard and may ruin the equipment.

COMPONENT MATCH-UP

- | | | | |
|----|---|----|--|
| 1. | 6636 Series Package Air Conditioner. (Reference specifications for model number breakdown and identification.) | 3. | 6795B4351 35' thermostat cable with connector plugs for termination at both the air conditioner and electronic thermostat. |
| 2. | 6636-3451 Electronic 12 VDC Wall Mounted Thermostat. This thermostat is pre-wired to two electrical connectors. Both the thermostat supply and control wiring can be quickly attached (plugged in) to the thermostat. | | |

2. UNIT SPECIFICATIONS

6636A871 & 6636B871 MODELNUMBER FOR OUTDOOR USE USE THERMOSTAT 6636-345 ELECTRICAL RATINGS: 115 VAC, 60 HZ, 1 PHASE		 SERIAL NUMBER 		
CIRCUIT #1		CIRCUIT #2		
7.6	RLA	COMPRESSOR 1450A211 MOTOR THERMALLY PROTECTED	RLA	7.6
48.3	LRA		LRA	48.3
8.7	BCSC		BCSC	8.7
ID. BLOWER MOTOR DATA H.P. 1/3				
3.4	FLA		FLA	N/A
O.D. BLOWER MOTOR DATA H.P. 1/3				
2.8	FLA		FLA	3.7
R-22 CHARGE WEIGHT				
17.0	AMP	MINIMUM CIRCUIT CAPACITY	AMP	14.6
20	AMP	MAXIMUM OVERCURRENT PROTECTIVE DEVICE	AMP	20
21.0	OZ.		OZ.	21.0
MIN. SUPPLY CONDUCTOR GAUGE (COPPER) UTILISER DES FILS D'ALIMENTATION EN CURVE				
#12	0' -25'		0' -25'	#12
#10	25' -40'		25' -40'	#10
#8	40' -63'		40' -63'	#8
WEIGHT LENGTH DEPTH HEIGHT				
		200 LBS.		
		46"		
		21"		
		18"		
RV PRODUCTS A DIVISION OF AIRXCEL, INC. WICHITA, KS 67204				

3. THERMOSTAT OPERATION AND SPECIFICATIONS

THERMOSTAT OPERATING AND WIRING REQUIREMENTS

The 6636 series air conditioner is designed to be operated from an RV Products electronic wall mounted thermostat. See component match-up sheet for thermostat part number and description. The thermostat is designed to operate 12 VDC controlled heating and air conditioning systems. The thermostat is designed to operate 12 VDC controlled heating and air conditioning systems. The thermostat must be operated from a 12 VDC power source.

The thermostat can control one stage heating and two stages of cooling. (The thermostat used to operate the 6636 series air conditioner must be capable of controlling two stage cooling systems.)

Maximum thermostat output for any load including the furnace control wire must not exceed one amp.

IMPORTANT

Current draws in excess of one amp or shorting any thermostat wires will cause permanent thermostat failure.

The installer must provide the power source used to operate both the thermostat and its control circuits. This power source must provide one amp of continuous current at 12 VDC.

The thermostat is pre-wired at RV Products with two quick connect electrical receptacles. There is one 9 pin receptacle carrying the 8 control wires required to operate the air conditioner, and a 3 pin receptacle carrying the two power supply leads and the one furnace control lead.

The thermostat's 9 pin receptacle mates with a receptacle on one end of the RV Products 35' pre-wired thermostat harness. See component match-up sheet for harness part number and description.

The thermostat 3 pin receptacle has no mate in either the thermostat harness wiring or the thermostat package. Should the installer desire a total plug in system, then the mate for this connection will have to be purchased separately. Both the receptacle and the pins are manufactured by AMP (Aircraft Marine Products, Inc., Harrisburg, PA). In most cases the parts can be obtained through a local supply house.

The AMP part numbers are:

- 1) 3 pin male receptacle #7-480700-0
- 2) female pin (for male receptacle) #350218-1

Should the installer desire to hard wire this connection rather than purchasing the receptacle; the three pin connector can be cut from the wire ends, the wires stripped and spliced to complete the required connections. For further wire identification and function, reference Chart 2.

CHART 2

WIRE COLOR	FUNCTION (each wire connects with)
RED	+12 VDC Supply Lead
BLUE	-12 VDC Supply Lead
WHITE	Furnace Control Wire (engages furnace)

IMPORTANT

When using wire nuts to complete electrical connections, always apply a U.L. approved electricians tape and secure the wire nuts to the wires in a workmanlike manner.

THERMOSTAT HARNESS

RV Products produces a pre-wired 35' thermostat wiring harness for this system. See component match-up sheet for harness part number and description. This harness consists of the eight wires required for operating the air conditioner and quick connect receptacles for both the thermostat and the air conditioner connections.

At the thermostat, the connection is completed with a square 9 pin receptacle that slides together and snap-locks in place.

When making this connection:

- 1) verify that the connectors are properly aligned
- 2) do not use excessive force when joining the connectors
- 3) verify that the connectors have snapped together on both sides.

The thermostat umbilical attaches to the unit with a rain-tight fitting. To install, remove the ring-nut from the rain-tight fitting and insert the wire end and fitting into the hole in the wirebox side. The ring-nut will now slide over the wire end and reinstall onto the rain-tight fitting threads. Tighten securely. The wire end plugs into the receptacle on the wirebox printed circuit board. Insure that the plug "snap-locks" into the receptacle.

Routing of the thermostat wiring harness must comply with all local and national electrical codes. Collect any excess thermostat harness in the air conditioner mounting compartment. Be sure to secure the excess wiring within the compartment. Coiling the excess harness into 3" diameter circles or larger is acceptable.

THERMOSTAT MOUNTING

Follow the instructions packed with the thermostat to select a location for thermostat mounting. Pay particular attention to choose a location which is not isolated from air currents and not subject to direct discharge from a cold air register.

Included in the thermostat installation instructions is a mounting template to aid in the installation.

IMPORTANT

To reduce the potential for thermostat failure: always connect the -12 VDC supply lead to the BLUE wire in the thermostat 3 pin receptacle before removing the “anti-static” protective covering. This will ensure that the thermostat circuitry is not damaged by static electricity during installation.

4. THERMOSTAT CHECKOUT

1.

Before engaging power to any system, ensure the following:

A)

All tools have been removed from the equipment.

B)

All wiring is attached, routed and properly secured.

C)

All panels (both mechanical and electrical) are in place.

D)

The thermostat system switch is placed into the “OFF” position.

E)

All co-workers have been warned that the equipment is being energized.
2.

System wiring may be checked by referring to the wiring diagram located on either the back of the wiring box door or the back of the manual. The wiring diagram is a total system diagram including the wall thermostat and air conditioner. The wiring diagram is drawn so that all wiring box components are shown “positionally correct”.
3.

Before beginning the checkout procedure, thoroughly read the checkout instructions in either the thermostat installation instructions or in the owners manual provided with this product.

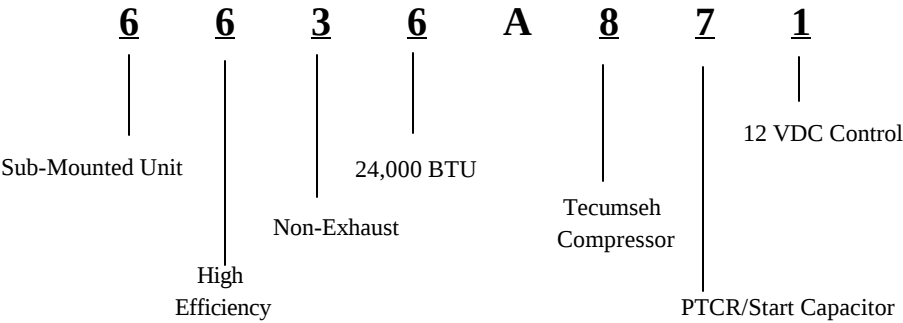
Keep in mind that the wall thermostat provides a 3 minute delay between off and on cycles. A 2.5 minute delay begins both as soon as the compressor cycles off, and as soon as the thermostat becomes energized. After completion of the 2.5 minute delay, an additional 30 second delay will begin as soon as the thermostat demands cooling.

There is also a 30 second delay between 1st and 2nd stage cooling. This is to prevent both compressors from starting simultaneously. To ensure that the thermostat calls for both 1st and 2nd stage cooling, verify that the cool setpoint is well below actual indoor temperature.
4.

After complying with steps 1 through 3, engage power to all systems and begin checkout procedure.

5. UNIT DEPICTION FIGURES

PACKAGE AIR CONDITIONER MODEL NUMBER BREAKDOWN FOLLOWS:



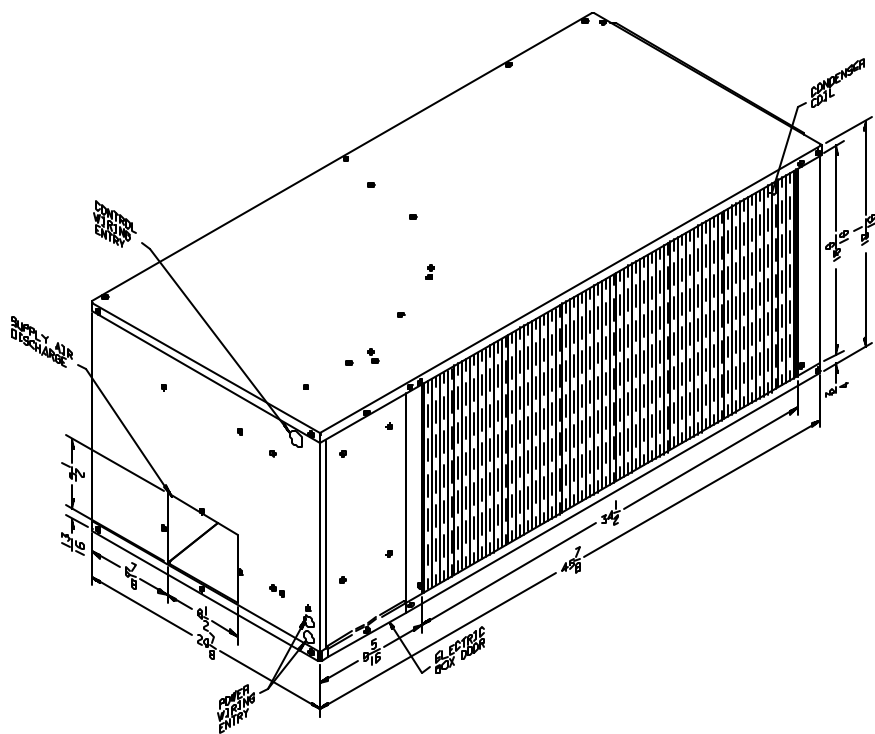


FIGURE 1

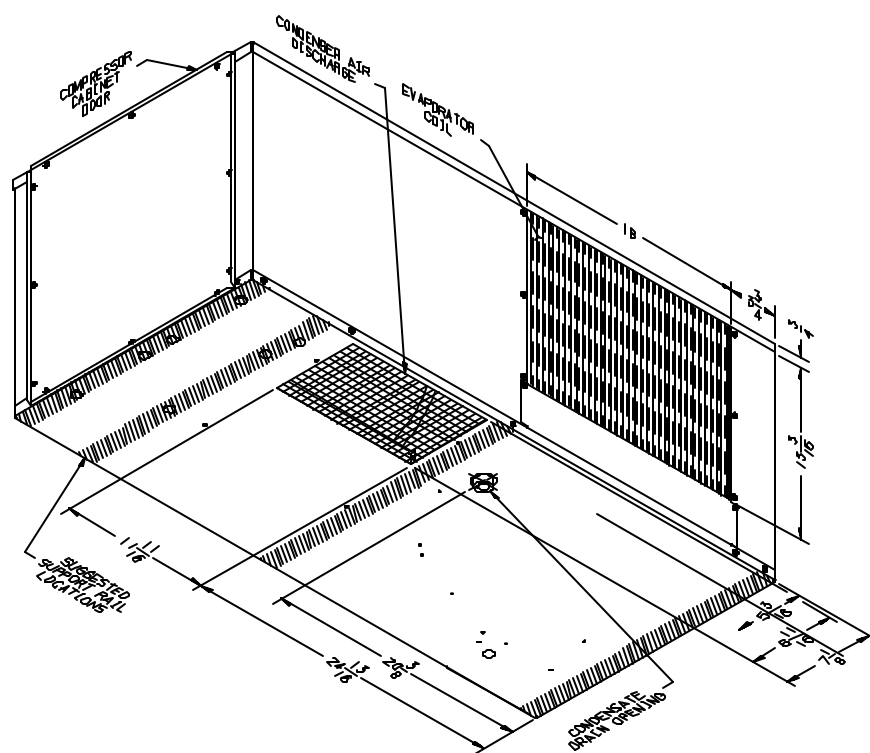


FIGURE 2

6. PACKAGED AIR CONDITIONER BLOWER PERFORMANCE DATA

TEST CONDITION: 115 VAC, 60 HZ, 1 PHASE, DRY COIL

CHART 1

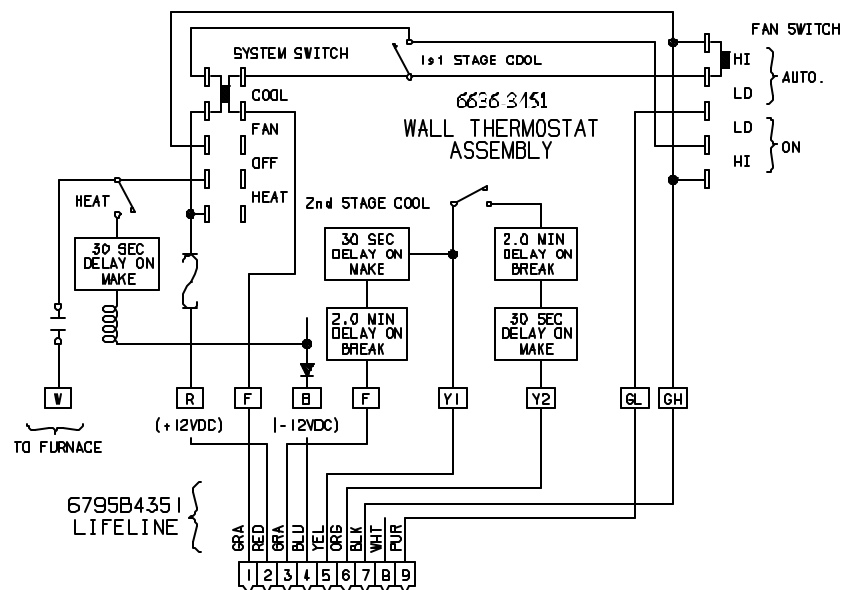
EXTERNAL STATIC PRESSURE (INCHES OF WATER COLUMN)		0	.1	.2	.3	.4	.5	.6	.7	.8	.9	1.0
LOW SPEED OPERATION	SCFM	711	699	687	668	653	631	609	599	563	547	515
	AMPS	3.83	3.70	3.63	3.57	3.42	3.32	3.22	3.12	2.99	2.87	2.75
	RPM	772	798	845	859	888	923	939	966	991	1007	1028

EXTERNAL STATIC PRESSURE (INCHES OF WATER COLUMN)		0	.1	.2	.3	.4	.5	.6	.7	.8	.9	1.0
HIGH SPEED OPERATION	SCFM	967	930	911	897	857	826	791	754	716	679	641
	AMPS	4.98	4.82	4.65	4.50	4.41	4.29	4.25	4.11	3.98	3.81	3.67
	RPM	1006	1013	1031	1041	1046	1048	1062	1072	1083	1089	1098

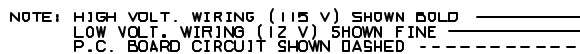
7. WIRING DIAGRAMS

Diagram 1976G119

Electronic Wall Thermostat Assembly (12 VDC)

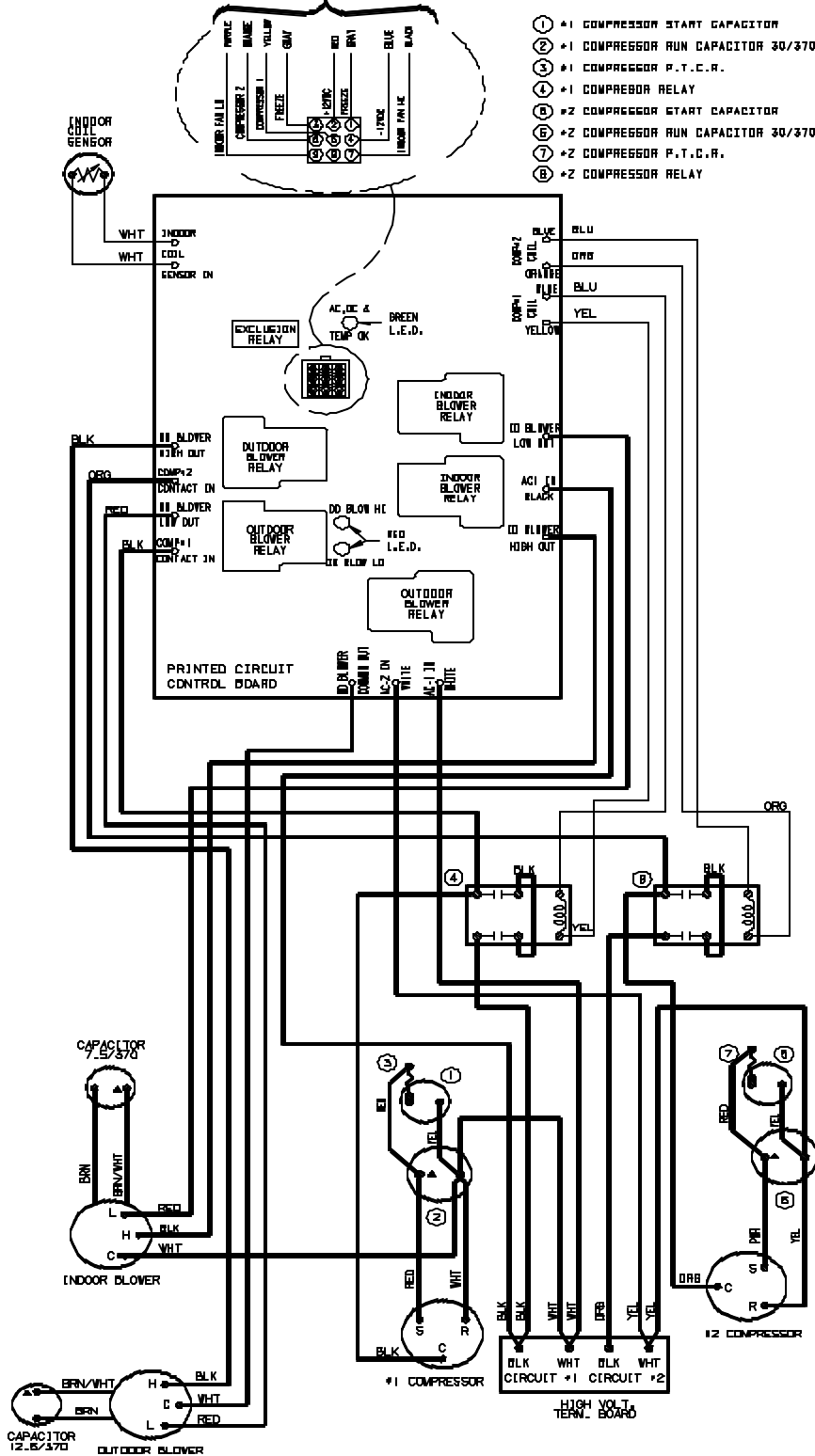


WIRING DIAGRAM 6636A MODEL



WIRING DIAGRAM FOR 6636B MODEL

FROM 2-STAGE WALL THERMOSTAT ASSEMBLY



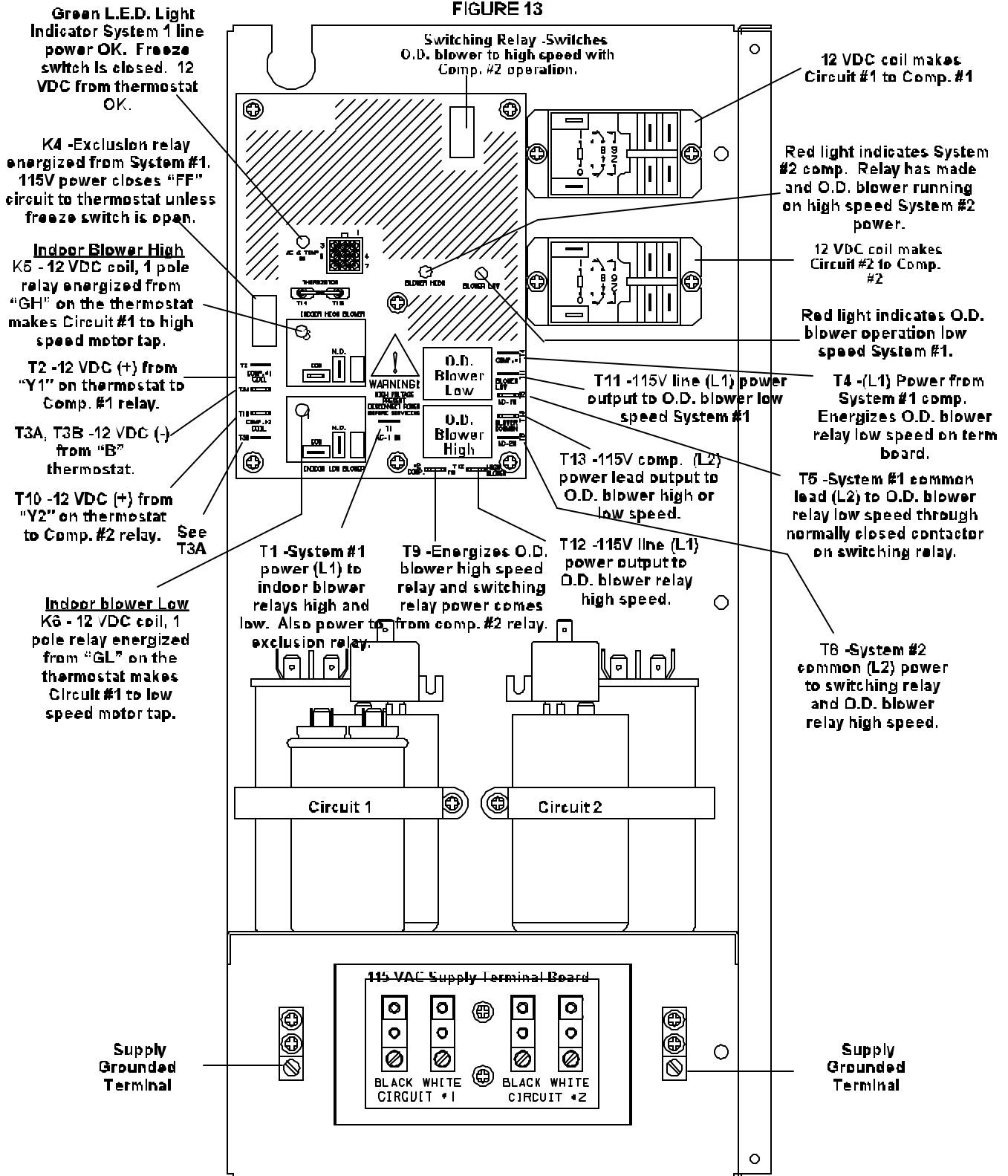
▲ IDENTIFIED TERMINAL

NOTE- HIGH VOLT. WIRING (115 V) SHOWN BOLD
LOW VOLT. WIRING (12 V) SHOWN FINE

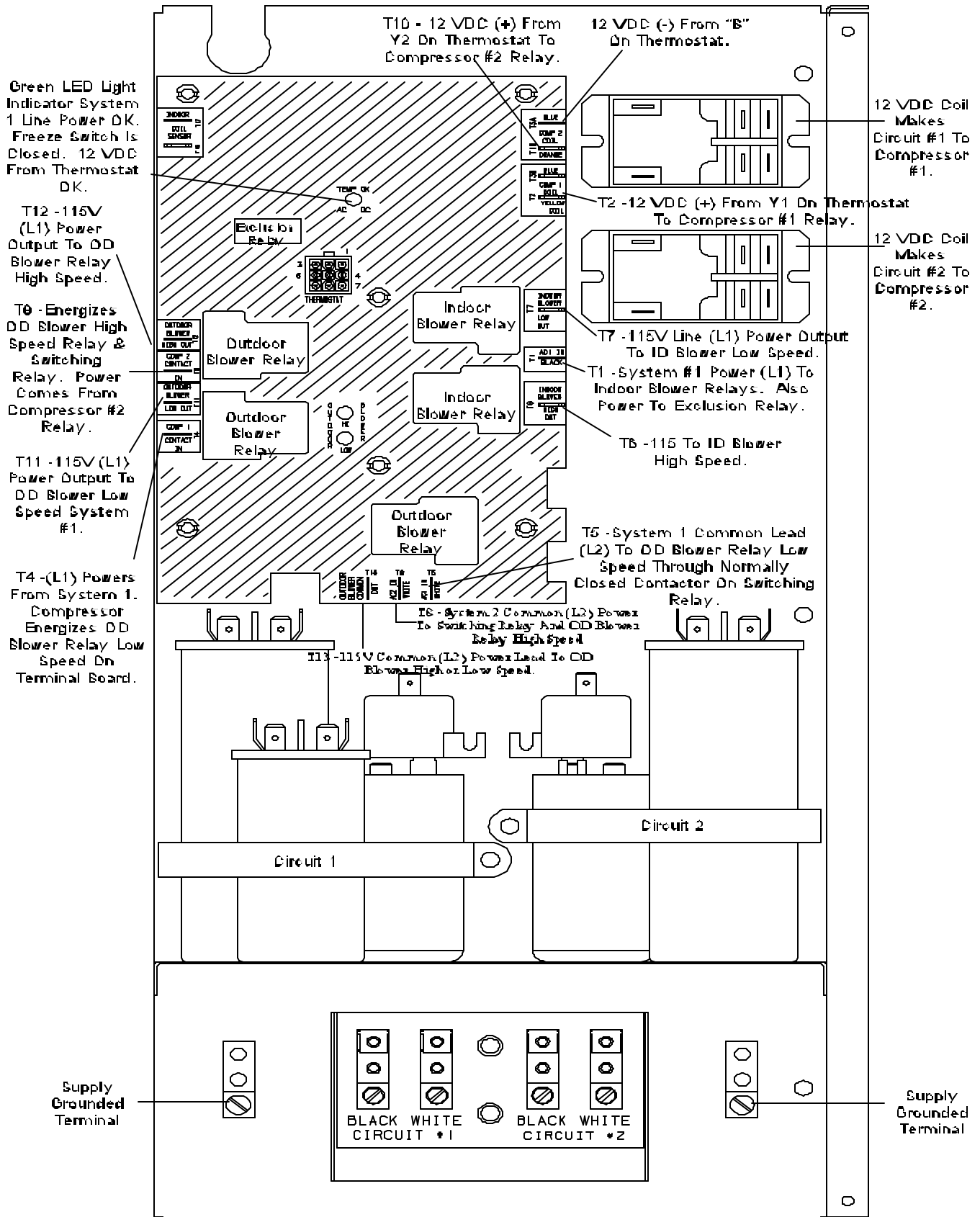
1978J119

8. WIREBOX COMPONENT CHECKOUT FOR 6636A SERIES

FIGURE 13



8A. WIREBOX COMPONENT CHECKOUT FOR 6636B SERIES



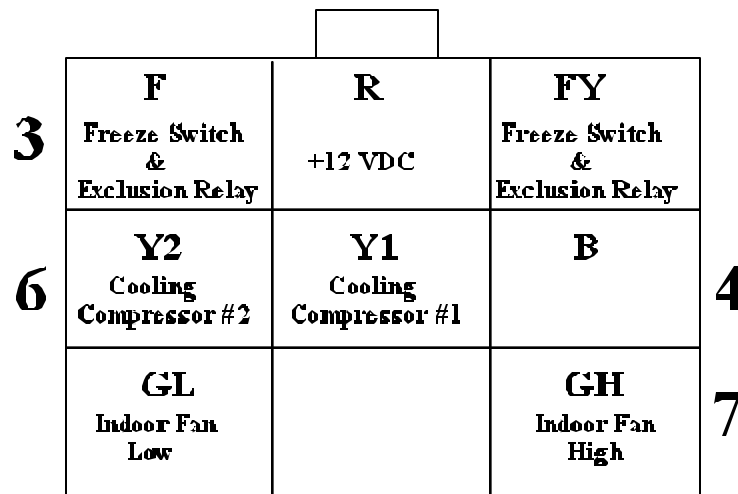


FIGURE 14

Plug positions on the p.c. board. If no voltage is detected at the p.c. board connector, check for voltage at the thermostat.

All functions of this air conditioning unit are subject to thermostat time delays according to the operation manual.

9. INDOOR BLOWER MOTOR REMOVAL

1. It will be necessary to remove the top panel from the unit.
 2. Remove screws that attach the blower housing to the end panel.
 3. Disconnect wiring from motor terminal block and capacitor.
 4. Remove scroll/motor assembly from the unit.
 5. Remove 3 screws from motor mount bracket (See #2, Figure 7).
 6. Remove motor assembly from scroll.
 7. Remove blower wheel and motor mounting bracket.
- Note: Upon reassembly, the references made on Figures 7 and 8 shall be used for proper reassembly.

SIDE VIEW

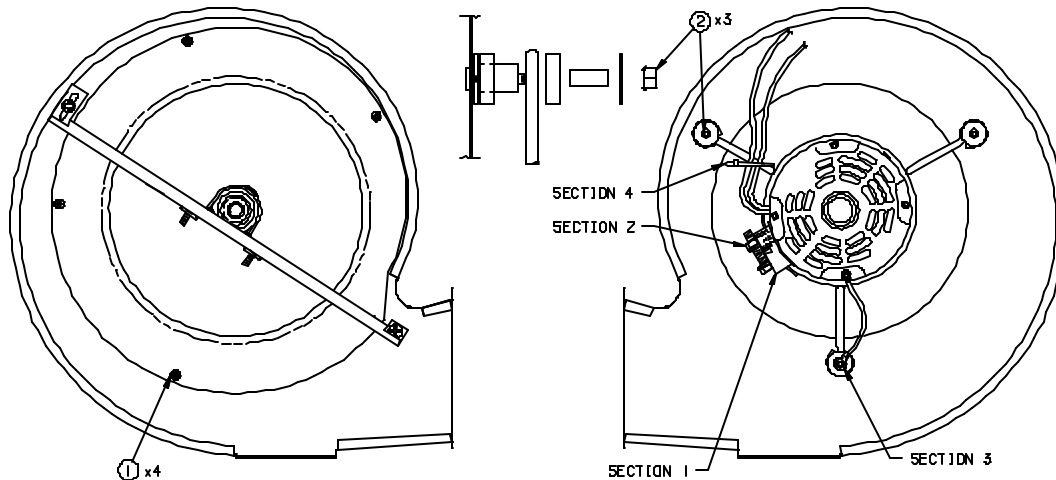


FIGURE 7

- Section 1. Position motor with terminal block parallel to motor mount clamp. Assemble motor mount into scroll in orientation shown.
- Section 2. Torque nut to 65 in. lbs. min.
- Section 3. Ground wire terminal assemblies between screw head and washer.

- Section 4. Motor rotation wires to be connected: Yellow to Yellow and Orange to Orange.
- Section 5. Bundle the rotation and capacitor wires up and wire tie together.

END VIEW

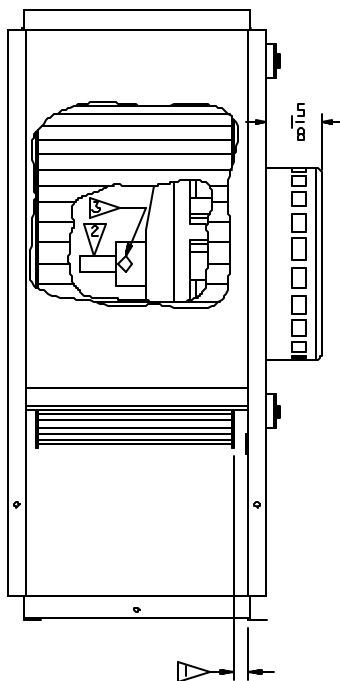


FIGURE 8

1. Wheel must be mounted with a minimum of 5/16" clearance to scroll sides.
2. Apply grease to motor shaft before assembling wheel.
3. Torque set screw on flat of shaft to 110 #10 in. lbs.

10. OUTDOOR BLOWER MOTOR REMOVAL

1. It will be necessary to remove the top panel of the unit.
 2. Remove 4 screws that attach scroll housing to side panel (See #1, Figure 9).
 3. Disconnect wiring from motor terminal block.
 4. Remove scroll/motor assembly from the unit.
 5. If at this point only the blower wheel needs replaced, then remove 4 screws from inboard venturi. Remove and replace blower wheel (see note) or else go to Step 6.
 6. Disconnect wiring at capacitor.
 7. Remove 4 screws from venturi (See #1, Figure 10).
 8. Remove 4 screws from motor mount bracket (See #2, Figure 10).
 9. Remove motor assembly from scroll.
 10. Remove blower wheel and motor mounting bracket.
- Note: Upon reassembly, the references made on Figures 9 and 10 shall be used for proper reassembly.

BOTTOM VIEW

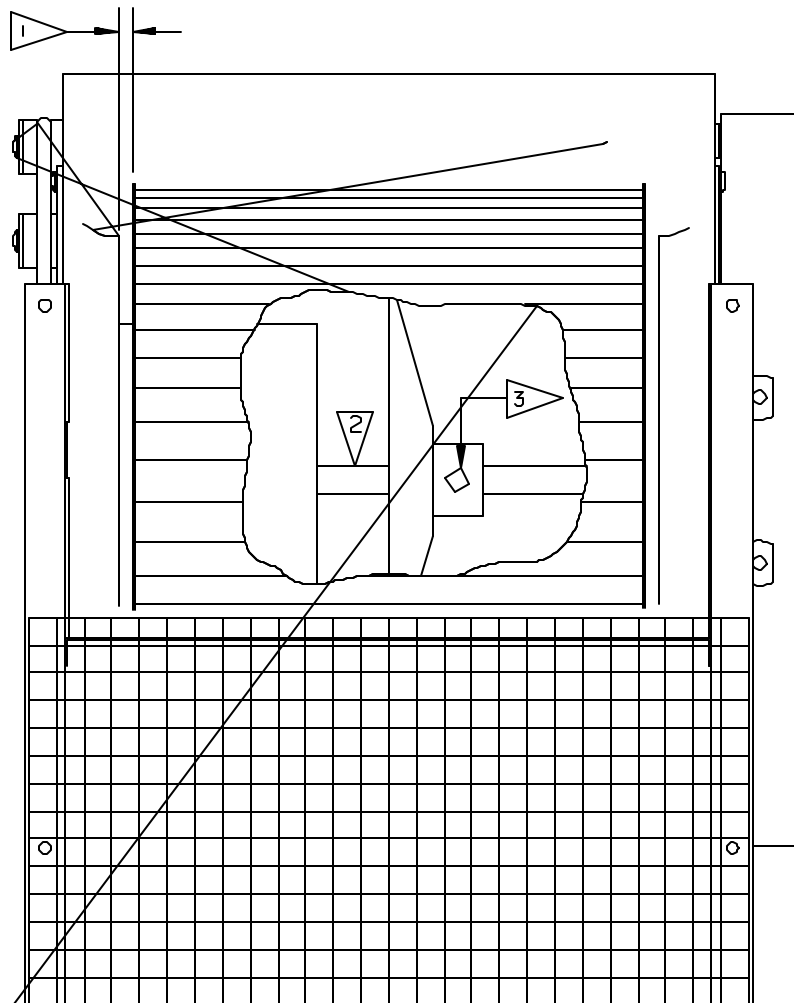


FIGURE 9

1. Wheel must be mounted with a minimum of 1/4" clearance to both venturis.
2. Apply grease to motor shaft before assembling wheel.
3. Torque set screw on flat of shaft to 110 #10 in. lbs.

11. CAP TUBE REPLACEMENT

1. Remove top panel.
2. Remove panels from end and side covering compressors and outdoor blower wheel.
3. Remove outdoor blower and housing.
 - A) Make sure to label the wires of the fan motor when you take them off.
4. Be certain at this point that the refrigerant charge has been removed from the system/systems being serviced.
5. Unbraid cap tube assembly/assemblies from points (See #1 and #2, Figure 12). Make note of plumbing and cap tube locations (the replacement tubes will have to go back to the same locations).
6. Cut wire ties holding cap tube assemblies to other plumbing and remove assembly.

Note: Upon reassembly, the references made on Figures 11 and 12 shall be used for proper reassembly. The assemblies shall be secured with wire ties in order to prevent excess chafing and vibration.

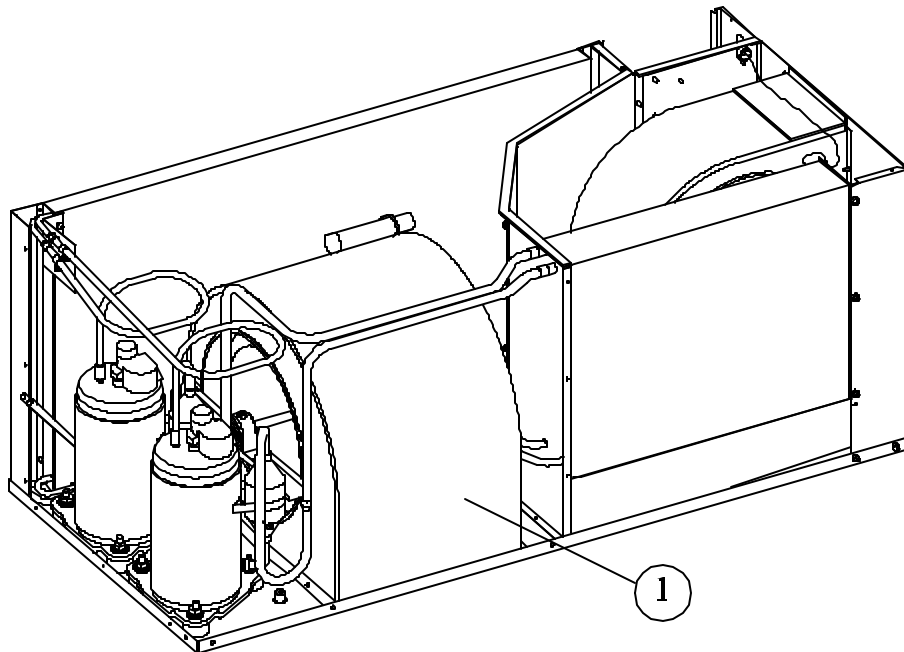


FIGURE 11

12. EVAPORATOR COIL REPLACEMENT

1. Remove top and side panels next to evaporator.
2. Remove refrigerant charge from both systems.
3. Unbraid joints #1 and #3, Figure 12.
4. Remove freeze sensor in evaporator coil.
5. Remove screws (#4, #5, #6, Figure 12).
6. Upon reassembly, the references made on Figure 12 shall be used for proper reassembly.

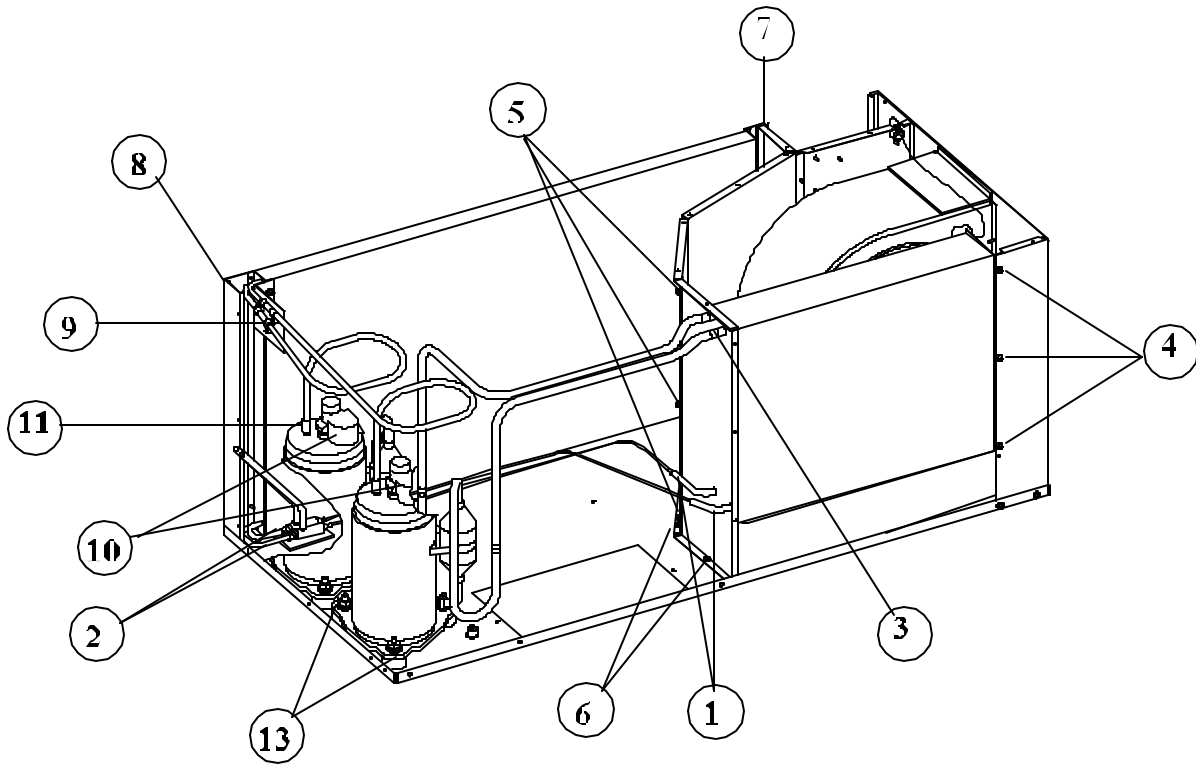


FIGURE 12

13. CONDENSER COIL REPLACEMENT

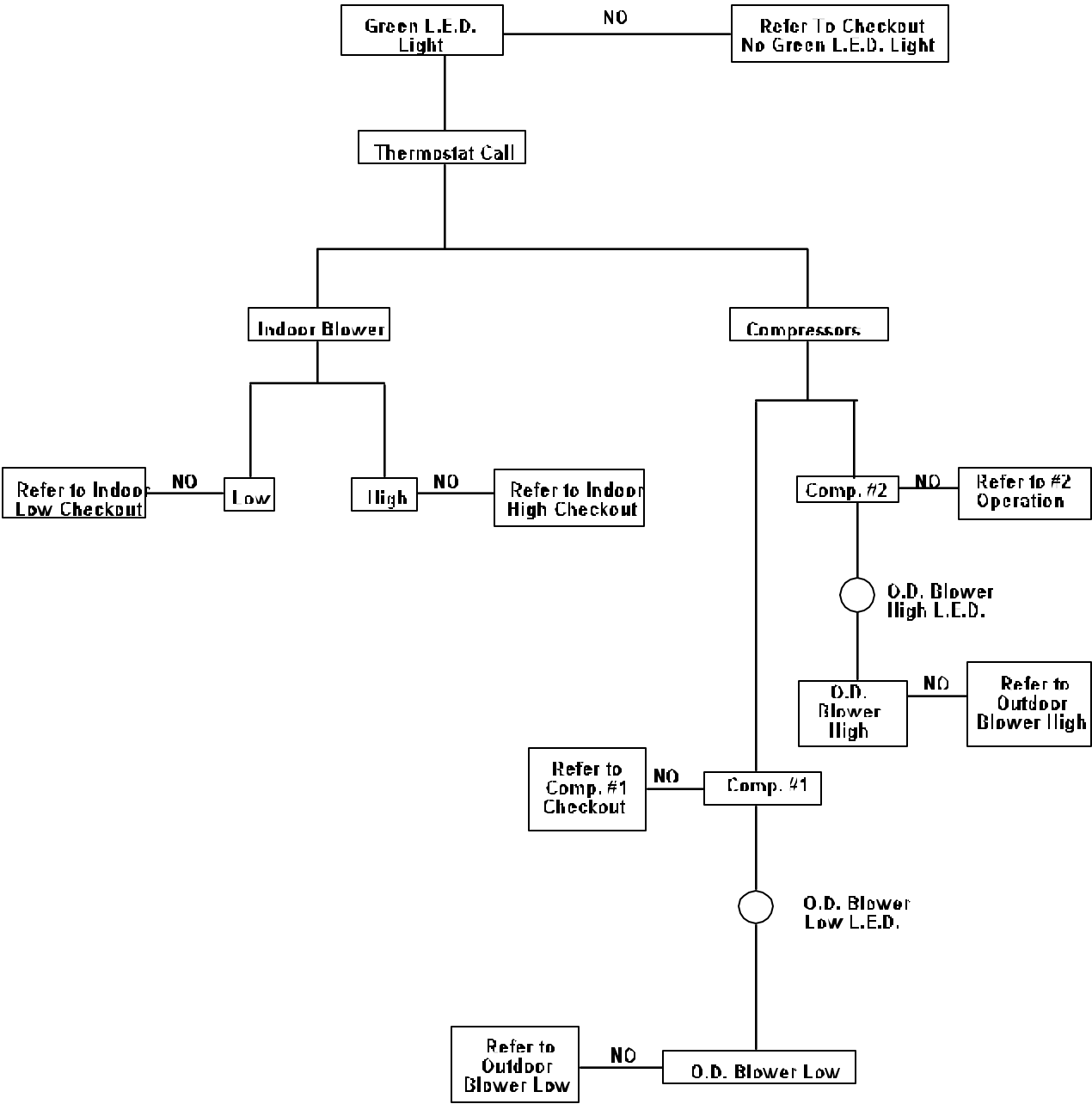
- | | | | |
|----|---|----|---|
| 1. | Remove top panel. | 5. | Make note of plumbing locations. The plumbing will have to go back to the same locations on the new coil. |
| 2. | Remove screws along wirebox side of coil (See #7, Figure 12). | 6. | Unbrazed discharge and liquid lines at points #2 and #9, Figure 12. |
| 3. | Remove corner panel (See Figure 12). | 7. | Remove condenser coil. |
| 4. | Be certain at this point that the refrigerant charge has been removed from the systems. | | |

14. COMPRESSOR REPLACEMENT

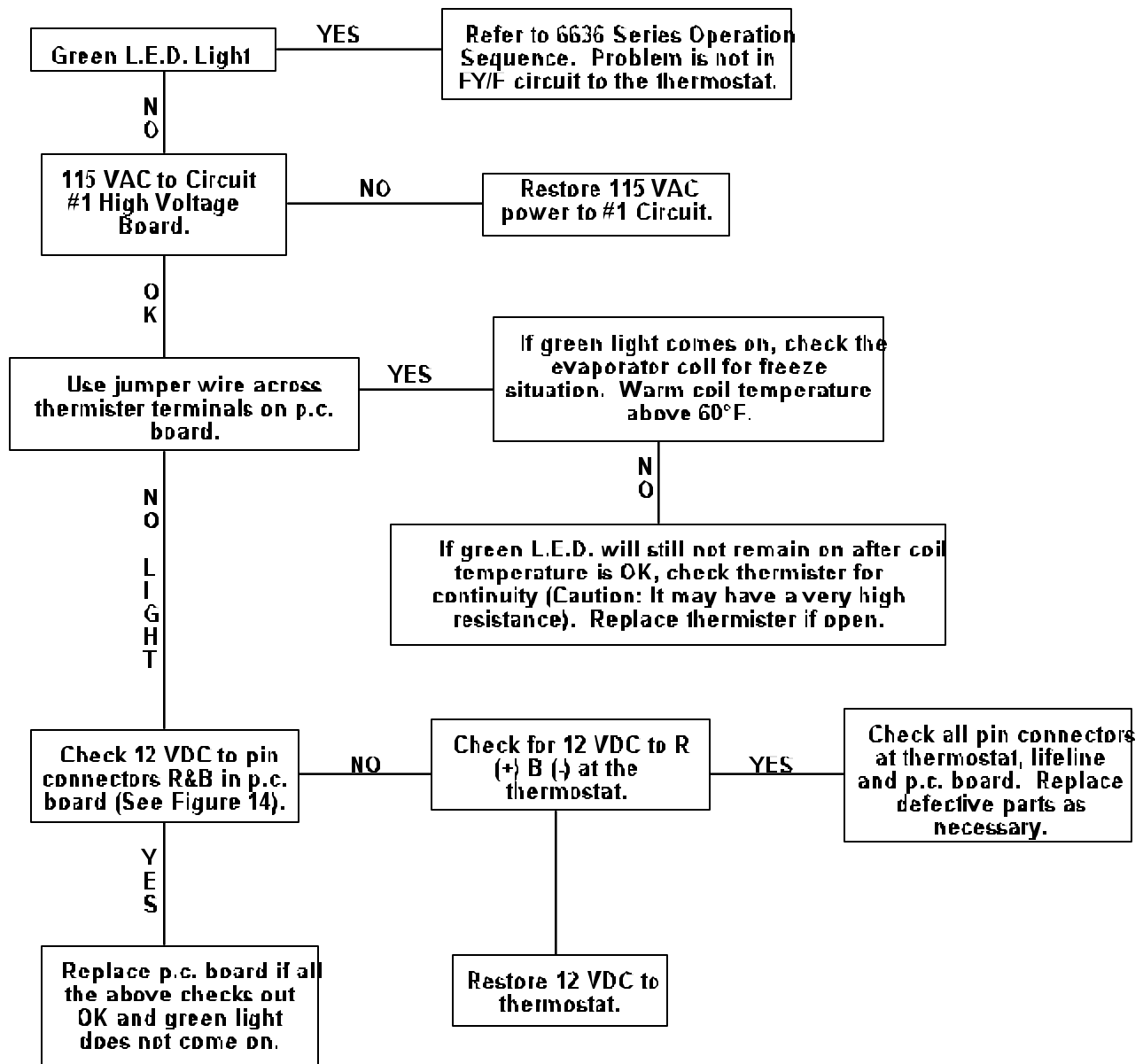
- | | | | |
|----|---|-------|--|
| 1. | Remove compressor access panel. | 6. | Unbrazed plumbing at points #11 and #12, Figure 12 (protect any wiring and insulation from torch flame). |
| 2. | The top panel may be removed at this point if it allows technicians better access to perform service. | 7. | Remove mounting nuts and washers (See #13, Figure 12). |
| 3. | Remove refrigerant charge from system/systems being serviced. | 8. | Remove compressor from unit. |
| 4. | Remove terminal caps (See #10, Figure 12). | Note: | Upon reassembly, compressor wires shall be wire tied to suction lines to prevent excess chafing. |
| 5. | Remove wiring from compressor terminal block (cut wire ties on suction line). | | |

15. ELECTRICAL FLOW CHARTS

6636 SERIES OPERATION SEQUENCE



CHECKOUT/NO GREEN L.E.D. LIGHT FY/F CIRCUIT TO THE THERMOSTAT

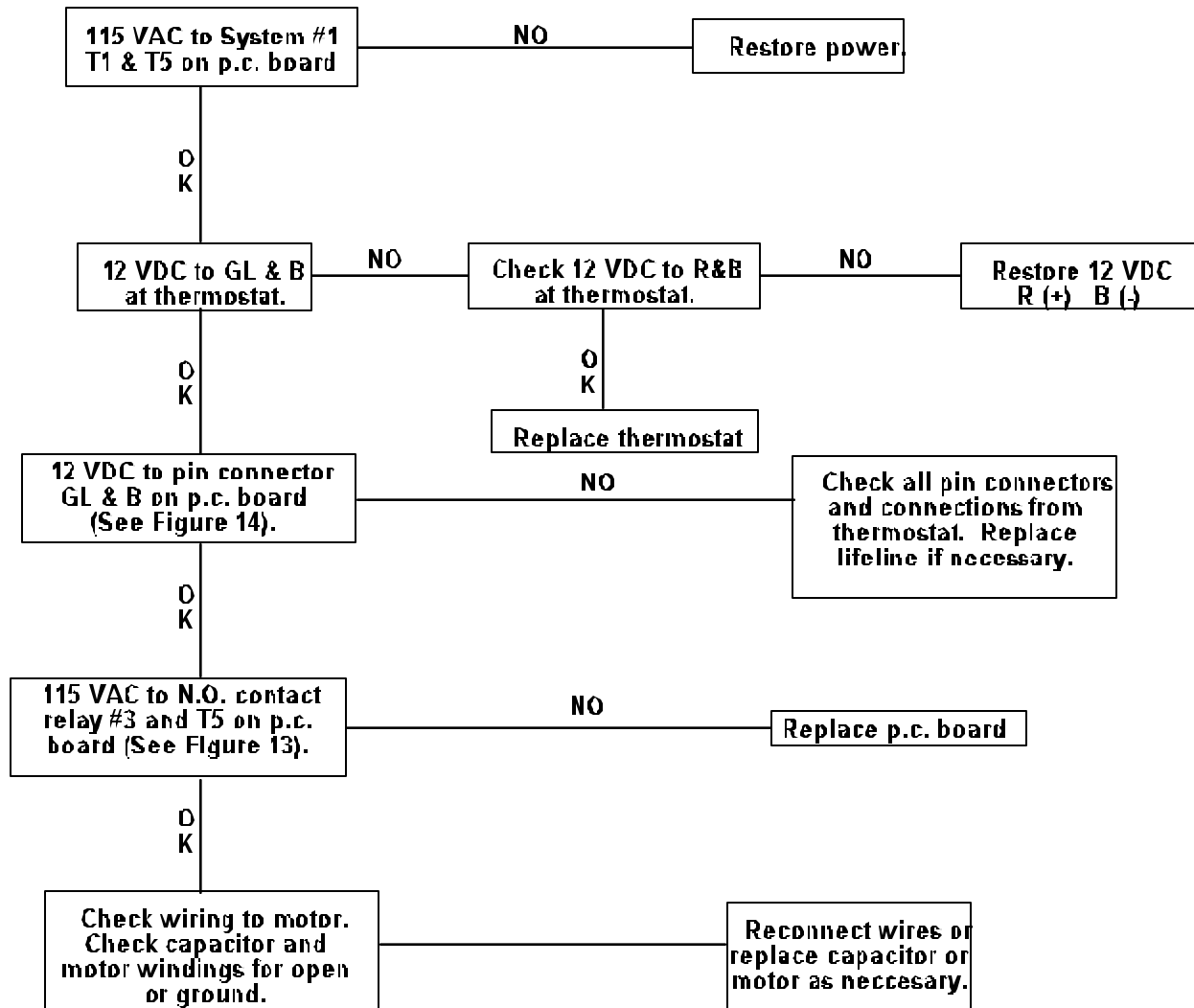


Note: On Model 6636B, the Green L.E.D. has some different functions:

1. If the light is on solid, then everything is OK.
2. If the light is blinking slowly, the unit is in a 3 minute time delay.
3. If the light is blinking fast, there is either no line voltage to Circuit #1 or the freeze thermistor is open.

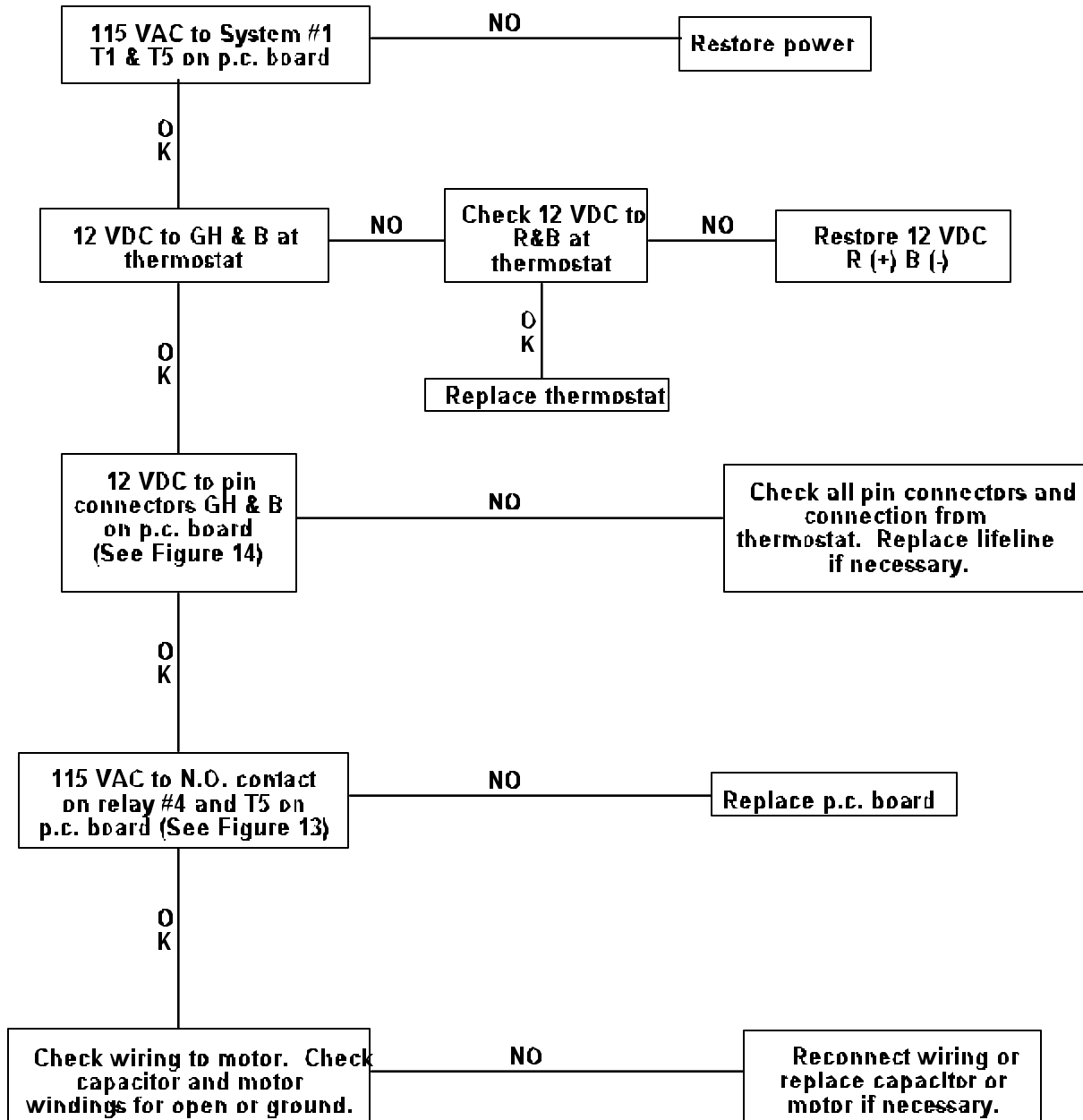
I.D. BLOWER LOW SPEED THERMOSTAT ON LOW FAN

Note: All operating functions subject to thermostat time delays.



I.D. BLOWER HIGH SPEED THERMOSTAT ON HIGH FAN

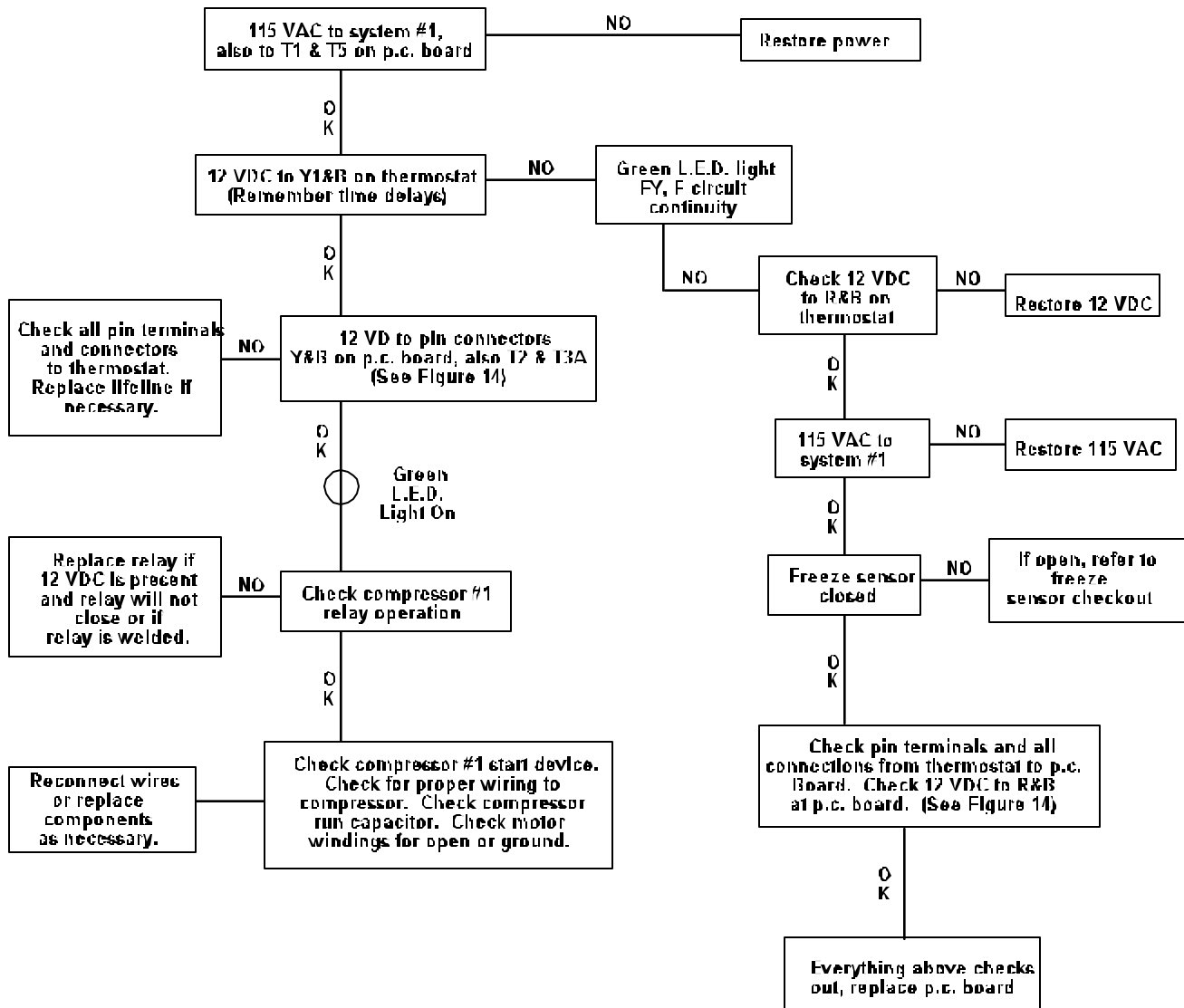
Note: All operating functions subject to thermostat time delays.



COMPRESSOR #1 CHECKOUT

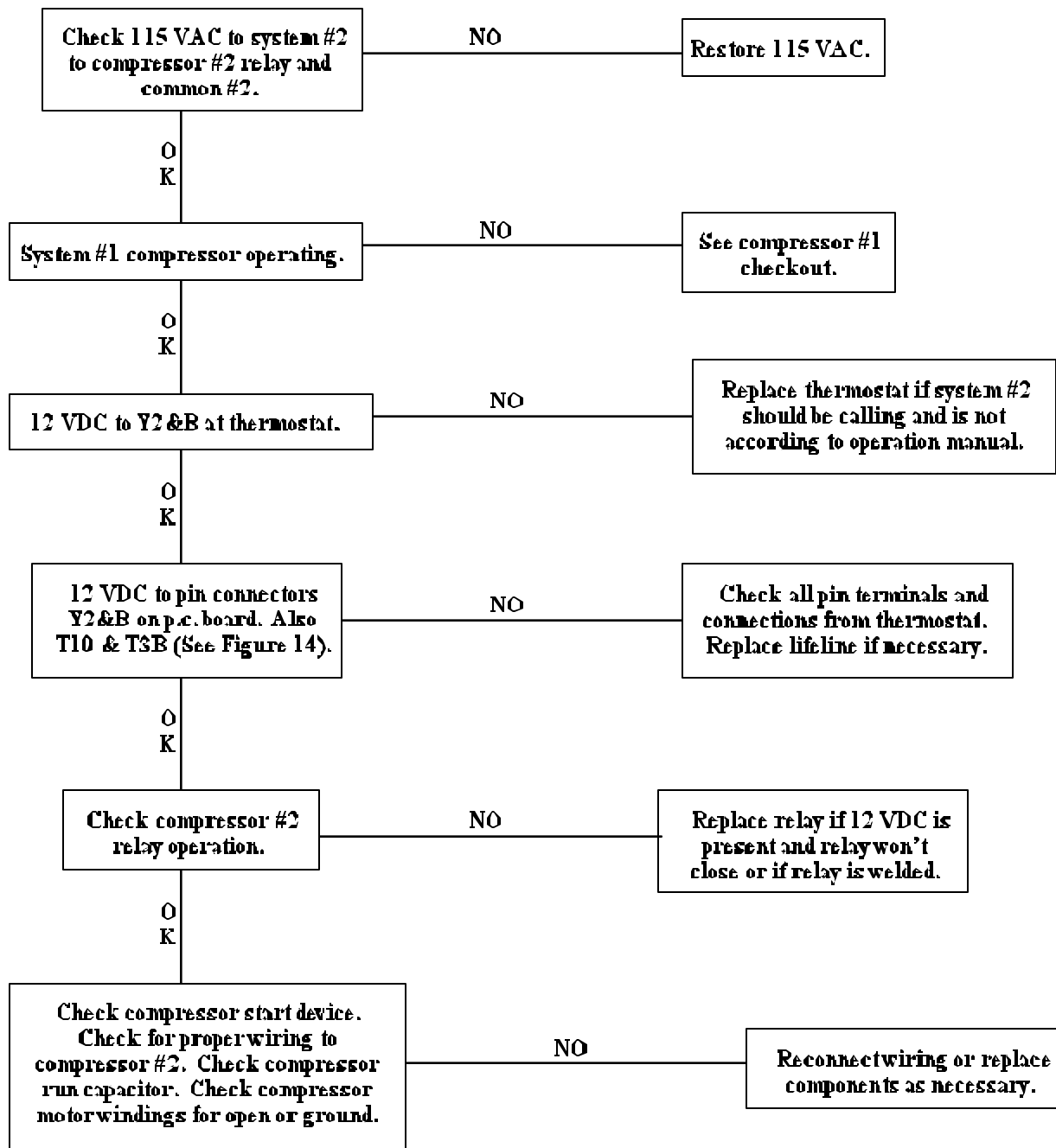
THERMOSTAT CALLING FOR COMPRESSOR

Note: All operating functions subject to thermostat time delays.

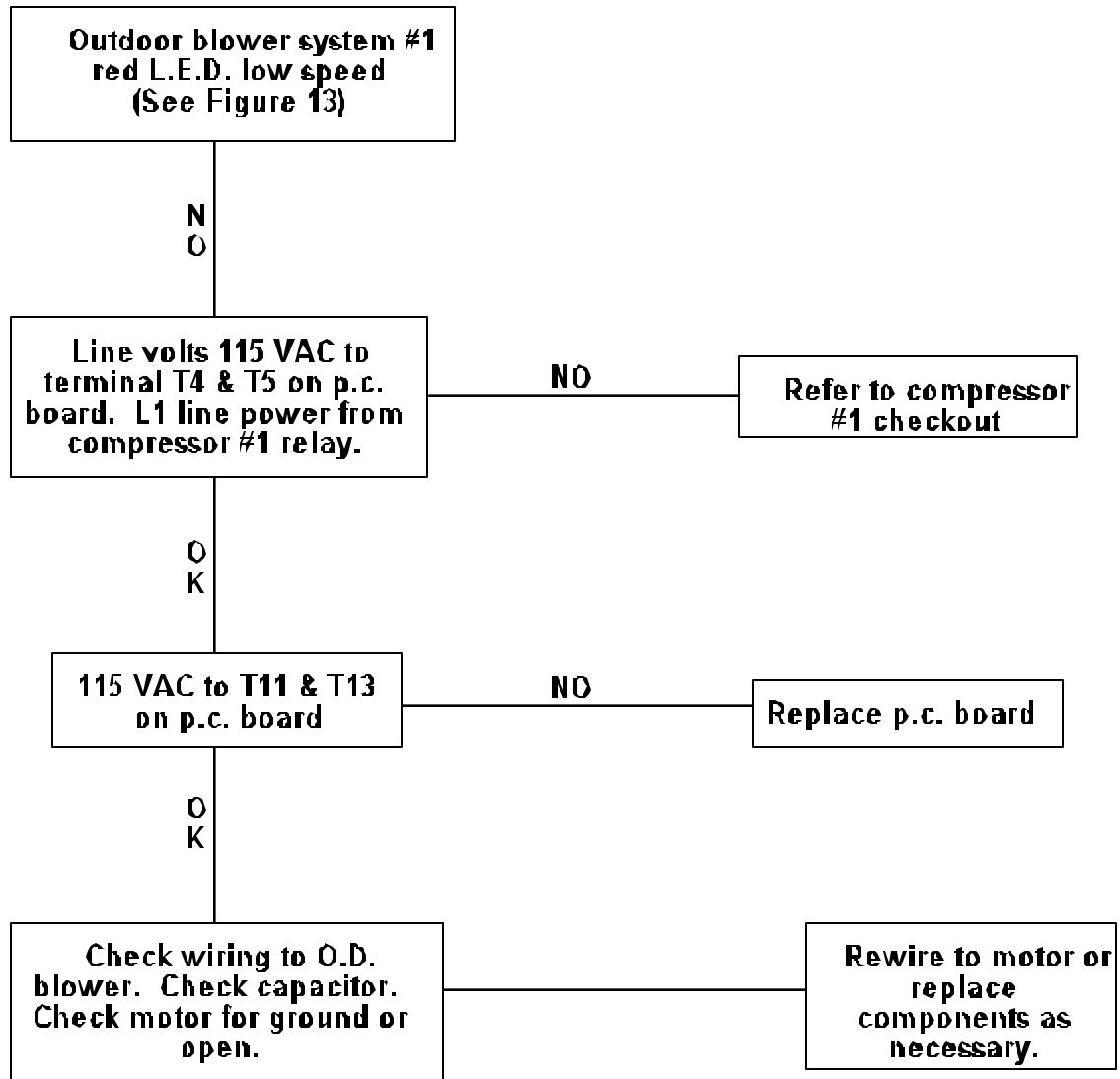


COMPRESSOR #2 CHECKOUT THERMOSTAT CALLING STAGE 2 COOLING ONLY

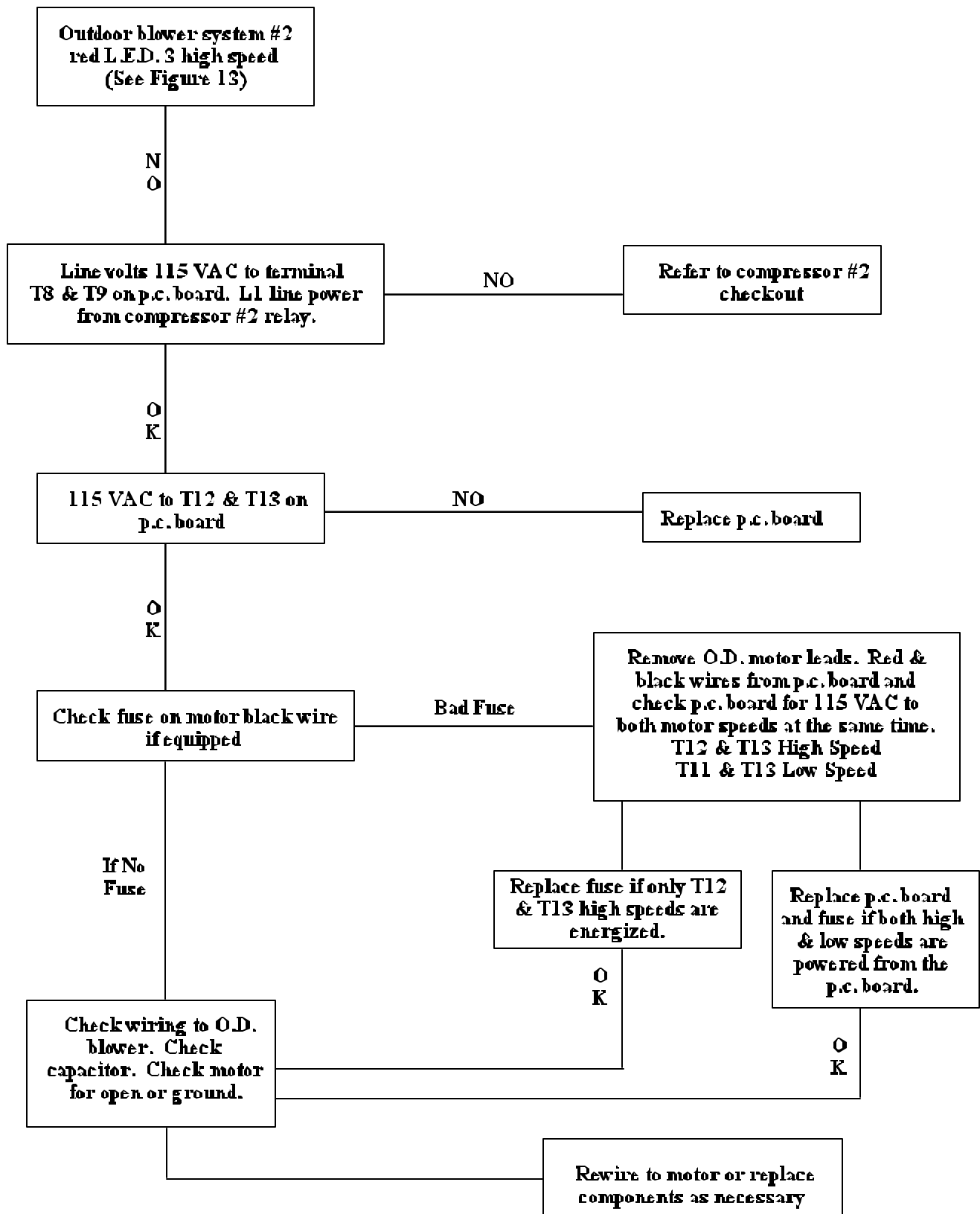
Note: All Operating Functions Subject To Thermostat Time Delays



**CHECKOUT OUTDOOR BLOWER
LOW SPEED**



CHECKOUT OUTDOOR BLOWER HIGH SPEED





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