

CARRIER 58 PAV - UPFLOW

Upflow induced - combustion furnace

MODEL NUMBER:

035EC	055EC	075GC	090GC	110JC	
035GC	055GC	075JC	090JC	110LC	125LC
035GC	055GC	075JC	090LC	110LC	125LC

BTU SIZES:

35,000 - 55,000 - 75,000 - 90,000 - 110,000 - 125,000 BTU'S

ACCESSIBILITY CLEARANCE

30" minimum

CLEARANCE FROM COMBUSTIBLE MATERIAL

TABLE 1
MINIMUM CLEARANCE FROM COMBUSTIBLE MATERIALS

<u>SIZE</u>	<u>035 and 055</u>	<u>075 thru 125</u>
Sides- Single Wall Vent	1	0
Type B-1 Double-Wall Vent	0	0
Back	0	0
Top of Plenum	1	1
Vent Connector - Single-Wall Vent	6	6
Type B-1 Double-Wall Vent	1	1
Front - Single Wall Vent	6	6
Type B-1 Double Wall Vent	3	3
Service	30	30

NOTES:

1. Provide 30-in. front clearance for servicing. An open door in front of the furnace can meet this requirement.
2. A minimum clearance of 3 inches must be provided in front of the furnace for combustion air and proper operation.

This furnace shall not be installed directly on carpeting, tile, or any combustible material other than wood flooring.

COLD AIR RETURN AIR DUCTS

WARNING: Never connect return-air ducts to the back of the furnace. A failure to follow this warning can cause a fire, personal injury, or death.

GARAGE

When the furnace is installed in a residential garage, it must be installed so that the burners and ignition source are located no less than 18 inches above the floor. Also, the furnace should be protected from physical damage by vehicles.

GENERAL

HIGH ALTITUDE INSTALLATIONS

Deration	Refer to Resource Manual - Carrier/BDP orifice sizing charts.
Orifice	Change only.
Regulator Pressure	3.5" w.c. + or - .3" w.c. or according to deration charts.
Pressure Switch	

MOBILE HOME

The design of this furnace line is NOT A.G.A./CGA certified for installation in mobile homes, recreation vehicles, or outdoors.

VENTING MATERIAL AND REQUIREMENTS

Vent Pipe	Type "B" double wall Type "C" single wall
Vent Fittings	Type "B" or "C"

VENT CLEARANCE FROM COMBUSTIBLE MATERIAL

Type "B" = 1"
Type "C" = 6"

VENTING PROCEDURE

Category I - vent according to GAMA vent tables or tables in the installation instruction.

MISCELLANEOUS INFORMATION/NOTES

SEQUENCE OF OPERATION

Heating Mode

- 1) Ignitor warm up - at the end of the prepurge period, the ignitor is energized for a 17 second ignitor warm-up period. If ignition is not established during the first cycle, the next warm-up period is increased to 45 seconds. All subsequent ignition cycles will be 45 seconds, or until the 115-VAC power supply is interrupted. By interrupting the 115-VAC power supply, the warm-up period is automatically reset to 17 seconds.
- 2) Ignition sequence - when the ignitor warm-up period is completed the gas valve opens, permitting gas flow to the burners where it is ignited. After 5 seconds, the ignitor is deenergized and a 2 second flame sensing period begins.
- 3) Flame sensing - when burner flame is sensed, the control begins the blower "on" delay period and continued holding the gas valve open. If burner flame is not sensed, the control will close the gas valve and control will repeat ignition cycle.
- 4) Blower on delay - 60 seconds after burner flame is proven, the blower motor is energized on heating speed. Simultaneously, the humidifier and electronic air cleaner terminal (HUM-1 and C for humidifier, EAC-1 and EAC-2 for electronic air cleaner) are energized.

- 5) Blower off delay - when the thermostat is satisfied, the circuit between R and W is broken, deenergizing the gas valve stopping gas flow to the burners. The blower motor, humidifier, and air cleaner will remain energized 90, 135, 180, or 225 seconds (depending on the blower off-time selection). The furnace is factory-set for a 135-second blower off delay.
- 6) Post purge - the inducer motor will remain energized 5 seconds after the burners are extinguished.

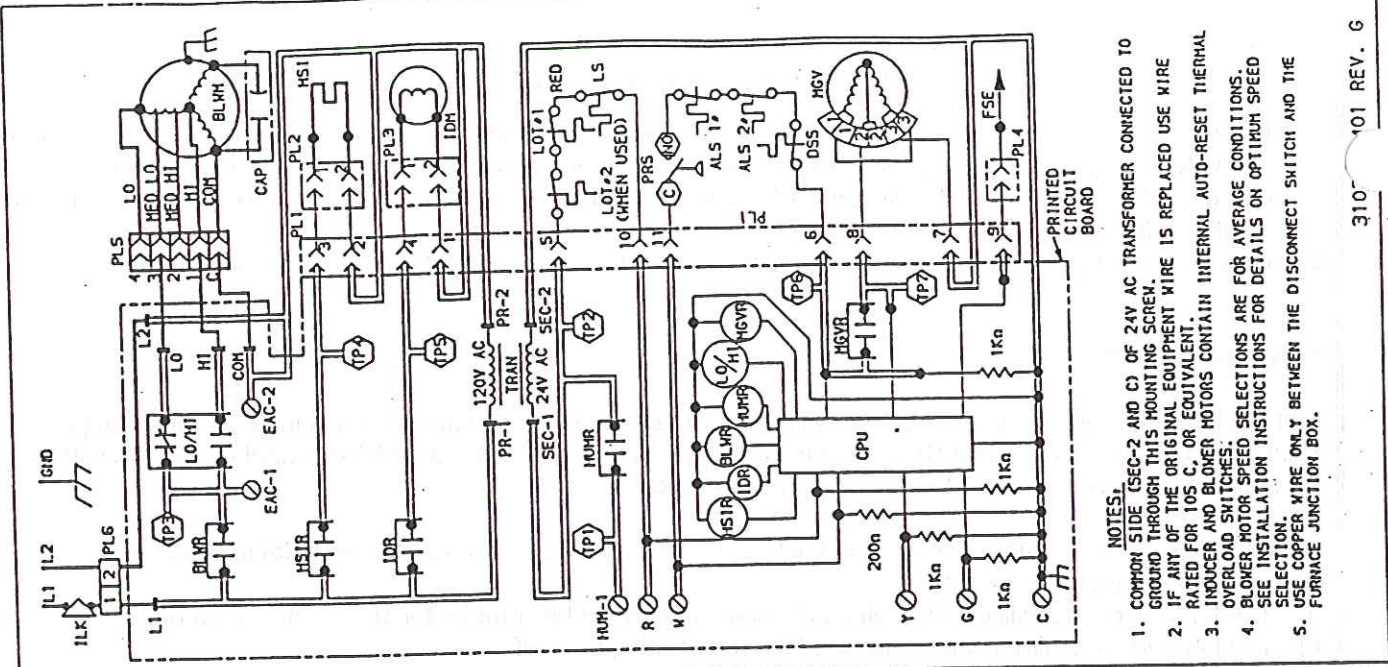
STARTUP PROCEDURES

Self Test - the furnace feature a self-test system to help diagnose a system problem in the case of a component failure. two test pins (ST-1 and ST-2) are located in the lower left-hand corner of the control board. To initiate the self-test procedure, momentarily short across the two pins.

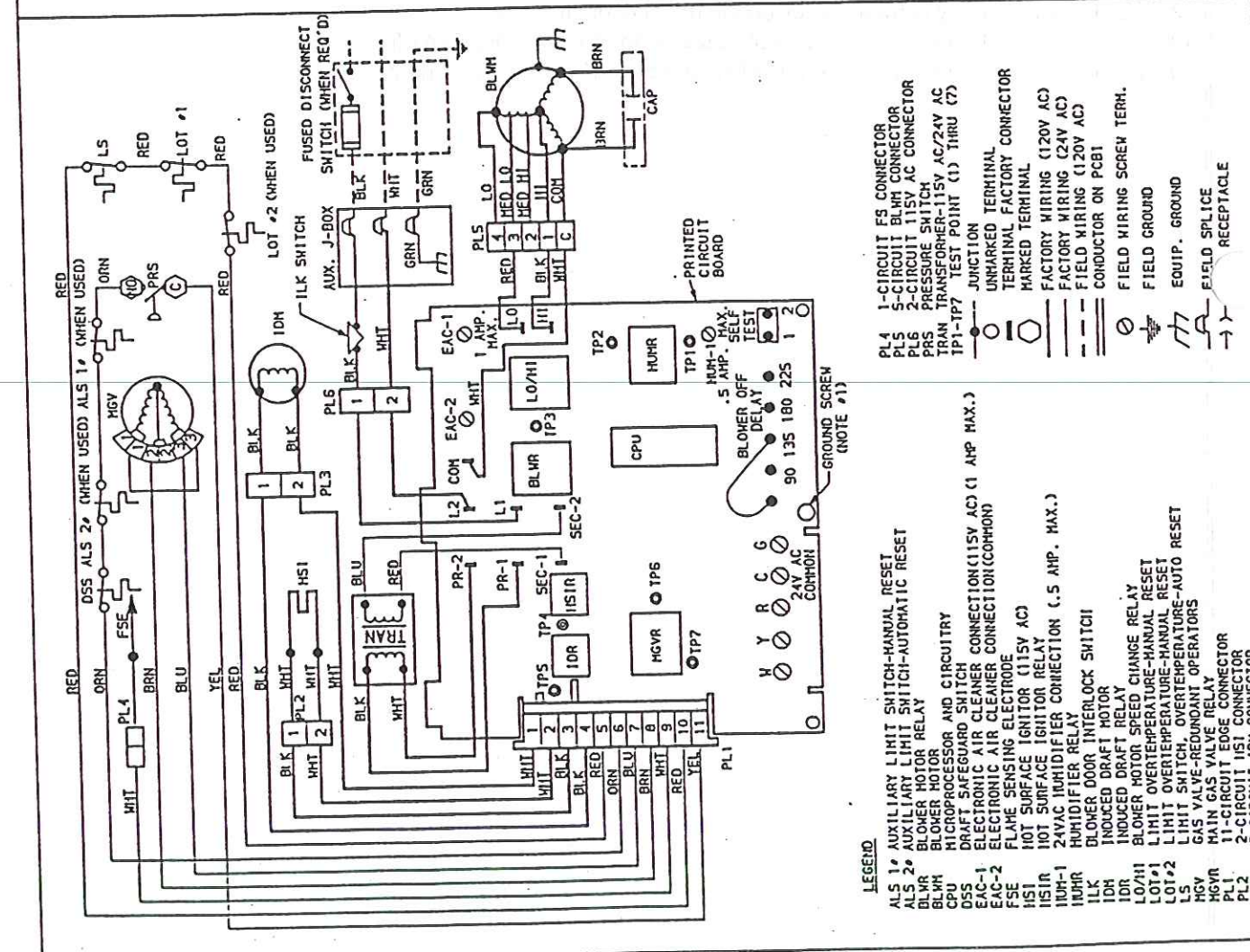
NOTE: The self-test feature will not operate if the control board is receiving any thermostat signals.

The self -test sequence is as follows:

- a) The furnace control will check itself and then operate the inducer motor for 10 seconds, then off.
- b) The hot surface ignitor is then energized for 15 seconds, then off.
- c) The humidifier relay is then energized for 10 seconds, then off.
- d) The blower motor will operate on cooling speed for 10 seconds, then off.
- e) The blower motor will operate on heating speed for 10 seconds, then off.



- NOTES:**
1. COMMON SIDE (SEC-2 AND C) OF 24V AC TRANSFORMER CONNECTED TO GROUND THROUGH THIS MOUNTING SCREW.
 2. IF ANY OF THE ORIGINAL EQUIPMENT WIRE IS REPLACED USE WIRE RATED FOR 105 C, OR EQUIVALENT.
 3. INDUCER AND BLOWER MOTORS CONTAIN INTERNAL AUTO-RESET THERMAL OVERLOAD SWITCHES.
 4. BLOWER MOTOR SPEED SELECTIONS ARE FOR AVERAGE CONDITIONS. SEE INSTALLATION INSTRUCTIONS FOR DETAILS ON OPTIMUM SPEED SELECTION.
 5. USE COPPER WIRE ONLY BETWEEN THE DISCONNECT SWITCH AND THE FURNACE JUNCTION BOX.



- LEGEND:**
- ALS 1st AUXILIARY LIGHT SWITCH-MANUAL RESET
 - ALS 2nd AUXILIARY LIGHT SWITCH-AUTOMATIC RESET
 - BLMR BLOWER MOTOR RELAY
 - BLMH BLOWER MOTOR
 - CPU MICROPROCESSOR AND CIRCUITRY
 - EAC-1 ELECTRONIC AIR CLEANER CONNECTION (COMMON)
 - EAC-2 ELECTRONIC AIR CLEANER CONNECTION (COMMON)
 - FSE FLAME SENSING ELECTRODE
 - HSI HOT SURFACE IGNITOR RELAY
 - IUMR 24VAC HUMIDIFIER CONNECTION (.5 AMP. MAX.)
 - IDH HUMIDIFIER RELAY
 - IDR INDUCED DRAFT MOTOR
 - INDUCED DRAFT RELAY
 - LO/HI BLOWER MOTOR SPEED CHANGE RELAY
 - LOT#1 LIMIT OVERTEMPERATURE-MANUAL RESET
 - LOT#2 LIMIT OVERTEMPERATURE-MANUAL RESET
 - LS LIGHT SWITCH, OVERTEMPERATURE-AUTO RESET
 - HGV GAS VALVE-REDUNDANTLY OPERATORS
 - HGV MAIN GAS VALVE RELAY
 - PL1 11-CIRCUIT EDGE CONNECTOR
 - PL2 2-CIRCUIT IDH CONNECTOR
 - PL3 2-CIRCUIT IDH CONNECTOR
- PL4 1-CIRCUIT FS CONNECTOR**
PL5 5-CIRCUIT BLMH CONNECTOR
PL6 2-CIRCUIT 115V AC CONNECTOR
PRN PRESSURE SWITCH
TRAN TRANSFORMER-115V AC/24V AC
TP1-TP7 TEST POINT (1) THRU (7)
- UNMARKED TERMINAL FACTORY CONNECTOR**
MARKED TERMINAL FACTORY WIRING (120V AC)
FACTORY WIRING (24V AC)
FIELD WIRING (120V AC) CONDUCTOR ON PCB
FIELD WIRING SCREW TERM.
FIELD GROUND
EQUIP. GROUND
FIELD SPLICE
RECEPTACLE
- 1-CIRCUIT FS CONNECTOR**
5-CIRCUIT BLMH CONNECTOR
2-CIRCUIT 115V AC CONNECTOR
PRESSURE SWITCH
TRANSFORMER-115V AC/24V AC
TEST POINT (1) THRU (7)
JUNCTION
UNMARKED TERMINAL FACTORY CONNECTOR
MARKED TERMINAL FACTORY WIRING (120V AC)
FACTORY WIRING (24V AC)
FIELD WIRING (120V AC) CONDUCTOR ON PCB
FIELD WIRING SCREW TERM.
FIELD GROUND
EQUIP. GROUND
FIELD SPLICE
RECEPTACLE

Fig. 10—Unit Wiring Diagram