

CARRIER 58RAV DOWNFLOW HORIZONTAL

MODEL NUMBER:	58RAV	050-08 050-12	070-08 070-12	095-12 095-16	115-16 115-20	135-20
BTU SIZES:	50,000 - 70,000 - 95,000 - 115,000 - 135,000 BTU'S					

ACCESSIBILITY CLEARANCE

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

CLEARANCE FROM COMBUSTIBLE MATERIAL

UNIT SIZE	050 and 070	095 - 135
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DOWNFLOW (In Alcove or Closet)

UNIT SIZE	050 and 070	095 - 135
Sides Single-Wall Vent	1	0
..... Type B-1 Double-Wall Vent	0	0
Back	0	0
Top	1	1
Front Single-Wall Vent	6*	6*
..... Type B-1 Double-Wall Vent	3*	3*
Vent Single-Wall Vent	6	6
..... Type B-1 Double-Wall Vent	1	1

HORIZONTAL (Attic, Alcove, or Crawlspace)

UNIT SIZE	050 and 070	095 - 135
Sides# Single-Wall Vent	1	1
Back	0	0
Top Single-Wall Vent	1	1
..... Type B-1 Double-Wall Vent	1	1
Front@ Single-Wall Vent	6*	6*
..... Type B-1 Double-Wall Vent	3*	3*
Vent Single-Wall Vent	6	6
..... Type B-1 Double-Wall Vent	1	1

continued...

CLEARANCE FROM COMBUSTIBLE MATERIAL

HORIZONTAL (In Closet)

Sides# Single-Wall Vent	1	1
Back	3	3
Top Single-Wall Vent	2	2
..... Type B-1 Double-Wall Vent	2	2
Front Single-Wall Vent	6	6
..... Type B-1 Double-Wall Vent	3	3
Vent Single-Wall Vent	6	6
..... Type B-1 Double-Wall Vent	1	1

- # - Indicates supply or return sides when furnace is in the horizontal position.
- * - Clearance shown is for outlet end. The inlet end must maintain 6-in. minimum clearance from the vent to combustible materials when using single-wall vent.
- @ - Minimum 18-in. front clearance required for alcove.

This furnace shall not be installed directly on carpeting, tile, or any combustible material other than wood flooring. The furnace may be installed on combustible flooring when installed with the accessory downflow subbase, which is available from your distributor or branch when required.

COLD AIR RETURN AIR DUCTS

WARNING: Do not install the furnace on its back; safety control operation will be adversely affected. Never connect return-air ducts to the sides or back of the furnace. A failure to follow this warning could result in fire, personal injury, or death.

GARAGE

Must be installed so that the burners and ignition source are located at least 18" above the floor, and should be protected from physical damage by vehicles.

GENERAL

Set heat anticipator with amp meter or amp probe.

HIGH ALTITUDE INSTALLATIONS

Deration	Use Carrier/BDP orifice charts in Resource Manual
Orifice	Change only
Regulator Pressure	3.5" w.c. + or - .3" w.c. Check orifice chart for proper manifold pressure
Pressure Switch	

MOBILE HOME

This furnace is not certified for installation in mobile homes, recreation vehicles, or outdoors.

VENTING MATERIAL AND REQUIREMENTS	
Vent Pipe	Type "B" Type "C"
Vent Fittings	Type "B" Type "C"
VENT CLEARANCE FROM COMBUSTIBLE MATERIAL	
Type "B" - 1" Type "C" - 6"	
VENTING PROCEDURE	
Category I appliance - vent according to GAMA Vent Tables	
MISCELLANEOUS INFORMATION/NOTES	
The furnace can be installed horizontally on either the left-hand (LH) or right-hand (RH) side.	

SEQUENCE OF OPERATION

Using the schematic diagram shown in Figure 13, follow the sequence of operation through the different modes and follow the wiring diagram very carefully.

NOTE: If there is a power interruption on any thermostat call, the control will initiate a 90-sec blower only on period before starting another cycle.

1. **HEATING MODE:** When the thermostat "calls for heat," R-W circuit closes. The furnace control performs a self-check, verifies the pressure switch contacts are open, and starts the inducer motor.

- a. **Prepurge period** - As the inducer motor comes up to speed, the pressure switch contacts close to begin a 15-sec prepurge period.
- b. **Ignitor warm-up** - At the end of the prepurge period, the ignitor is energized for a 17-sec ignitor warm-up period. If ignition is not established during the first cycle, the next warm-up period is increased to 45 sec. All subsequent ignition cycles will be 45 sec, or until the 115-v power supply is interrupted. By interrupting the 115-v power supply, the warm-up period is automatically reset to 17 seconds.

- c. 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 sec, the ignitor is de-energized and a 2-sec flame-sensing period begins.
- d. Flame sensing - When burner flame is sensed, the control begins the blower on delay period and continues holding the gas valve open. If burner flame is not sensed, the control closes the gas valve and repeats the ignition cycle.
- e. Blower on delay - Forty sec after burner flame is proven, the blower motor is energized on heating speed. Simultaneously, the humidifier and EAC terminals (HUM-1 and C for humidifier, EAC-1 and EAC-2 for electronic air cleaner) are energized. Jumper JW9 should not be cut. If jumper JW9 has been cut, the blower on delay period will be 60 sec.
- f. Blower off delay - When the thermostat is satisfied, the circuit between R and W is broken, de-energizing the gas valve and stopping gas flow to the burners. The blower motor, humidifier, and EAC remain energized 90, 135, 180, or 225 sec (depending on the blower off time selection). The furnace is factory set for a 135-sec blower off delay period.
- g. Post purge - The inducer motor remains energized 5 sec after the burners are extinguished. Jumper JW9 should not be cut. If jumper JW9 has been cut, the post-purge period will be 15 sec.

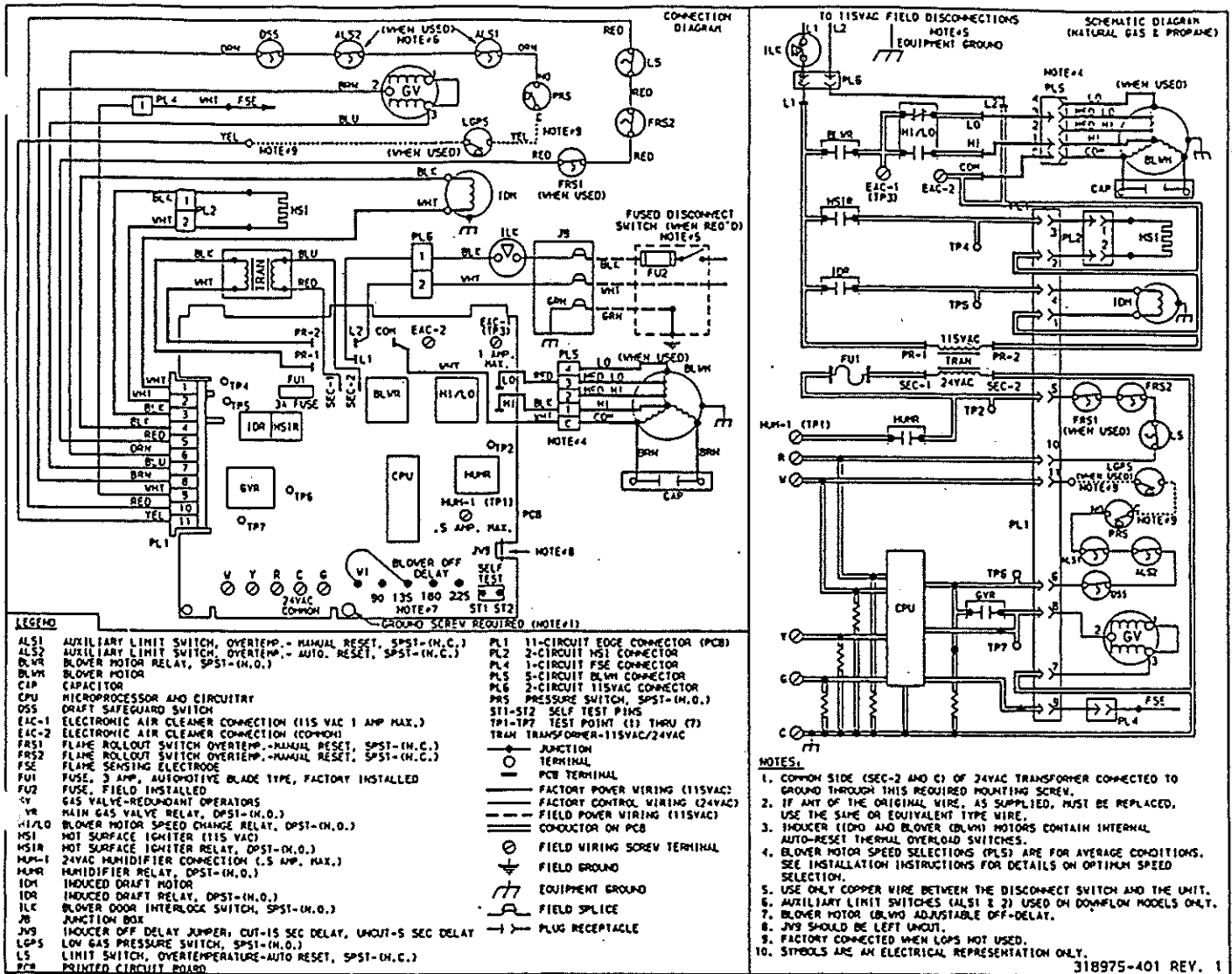


Fig. 13—Unit Wiring Diagram

START-UP PROCEDURES

1. Self-test—The furnace features 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 right-hand corner of the control board as shown in Fig. 11. To initiate the self-test procedure, momentarily short across the 2 pins for approximately 0.5 sec.

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

The self-test sequence is as follows:

- a. The furnace control checks itself, operates the inducer motor for 10 sec, then stops.
- b. The hot surface ignitor is energized for 15 sec, then de-energized.
- c. The humidifier relay is energized for 10 sec, then de-energized.
- d. The blower motor operates on cooling speed for 10 sec, then stops.
- e. The blower motor operates on heating speed for 10 sec, then stops.

