

COMFORTMAKER RPJII

MODEL NUMBER:

GNI

BTU SIZES:

45,000 - 60,000 - 80,000, 100,000, 120,000

ACCESSIBILITY CLEARANCE

A minimum of 36" horizontal clearance is recommended.

CLEARANCE FROM COMBUSTIBLE MATERIAL

Refer to Recommended Clearance Guide Table (Page 4).

Horizontal Installation:

Top = 8"

Sides/back = 0"

Louver door = 6"

Flue outlet = 6"

Single wall vent = 6"

Thermoplastic vent = 5"

The furnace should not be installed directly on carpeting, tile or other combustible materials other than wood flooring.

COLD AIR RETURN AIR DUCTS

Return air through the back of the unit is NOT allowed.

Sealed to the furnace casing and terminating outside the space containing the furnace.

GARAGE

If the furnaces is installed in a residential garage, the unit must be installed so that the burners and the ignition source are located not less than 18 inches above the floor. The furnace must also be protected to avoid physical damage by vehicles.

GENERAL

HORIZONTAL FURNACE INSTALLATION: The GNI can be installed horizontally in either a right to left airflow or left to right airflow. The pressure switch may need to be repositioned and tube length shortened (do not kink).

If the furnace is to be suspended from the ceiling, it will be necessary to use steel pipe straps around each end of the furnace. these straps should be attached to the furnace with sheet metal screws and to the rafters with bolts. The furnace could also be suspended by an angle iron frame bolted to the rafters.

Combustion air intake inlet should not be located within 6 feet of dryer vent, condensing unit, or combustion air inlet or outlet of another appliance.

HIGH ALTITUDE INSTALLATIONS

Deration	Refer to Elevation Above Sea Level Tables. (Page 6 & 7)
Orifice	Refer to Elevation Above Sea Level Tables. (Page 6 & 7)
Regulator Pressure	Refer to Elevation Above Sea Level Tables. (Page 6 & 7)

MOBILE HOME

Not approved.

VENTING MATERIAL AND REQUIREMENTS

The GNI Series must be vented in accordance with GAMA Venting Tables

Type "C"
Type "B"

The GNI may also be horizontally vented as a Category III appliance. Pressure tight venting materials are required for all horizontal venting application

The GNI may common vented.

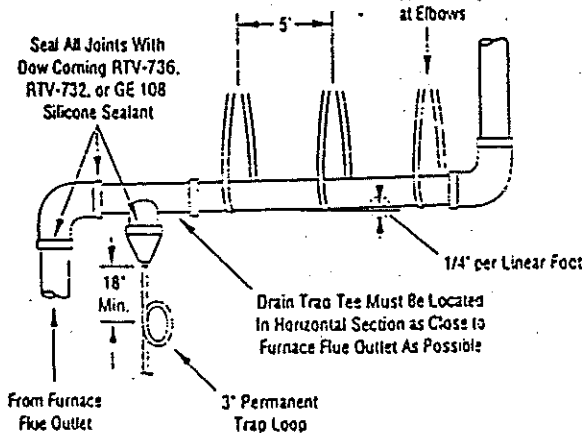
CAUTION: Dedicated venting of a GNI furnace or any fan assisted appliance into an existing masonry chimney can lead to continuous condensate formation and premature deterioration of the chimney.

DEDICATED HORIZONTAL VENT

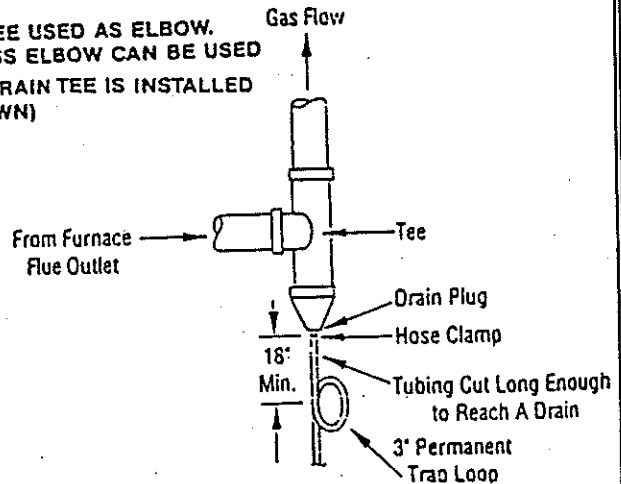
A. General

1. The GNI can be horizontally vented only with high temperature thermoplastic pipe and fittings. The thermoplastic vent must be listed to operate at a continuous flue gas temperature of 480° F.
2. Do not drill holes in the pipe or fittings, nor attempt to secure them with a screw. Each pipe joint and fitting must be sealed pressure tight with Dow Corning RTV-732, Dow Corning RTV-736 or GE 108 Silicone Sealant.
3. The GNI can be vented with up to 35 lineal feet with (5) five tight radius 90° elbows, and (1) one flow through drain trap tee. (See Maximum Allowable Vent Pipe Length and Configuration Table - Page 5)
4. The horizontal vent must be sloped back towards the furnace from the vent termination 1/4" per linear foot of pipe and be supported every 5 linear feet, and at each elbow.

PROPER SUPPORT STRAP AND DRAIN TEE LOCATION



DRAIN TEE USED AS ELBOW. (ONE LESS ELBOW CAN BE USED WHEN DRAIN TEE IS INSTALLED AS SHOWN)



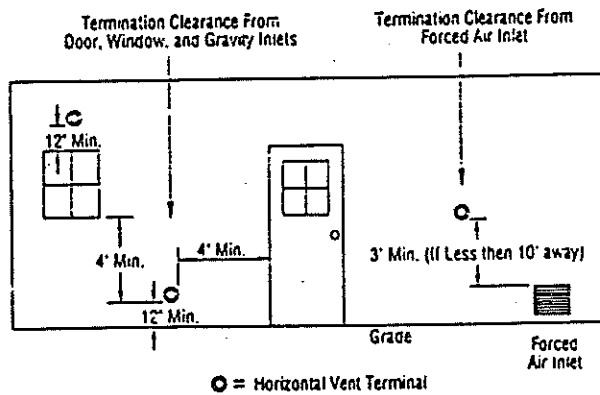
continued

DEDICATED HORIZONTAL VENT

5. Locate a 3 inch permanent loop in the drain tubing a minimum of 18 inches from the drain tee to form a condensate trap. The trap loop in the tubing will prevent leakage of flue gas from the venting system during unit operation.

B. Location of Vent Terminal

The horizontal vent terminal must be located a minimum of (7) seven feet above grade if adjacent to a public walkway.



VENTING PROCEDURE

Position termination ends so they are free from any obstructions and above the level of snow accumulation. Do not point into window wells, stairwells, alcoves, courtyards areas or other recessed areas. Do not position termination ends directly below roof eaves or above a walkway.

MISCELLANEOUS INFORMATION/NOTES

SEQUENCE OF OPERATION

When the 120V power source is energized, the control module will flash once, indicating the system is ready for operation.

On a call for heat, the thermostat contacts close, signaling the control module. The control module continuously performs a self check routine. If at any time the control senses a failure, internally or externally, the indicator light will respond using the following code:

Internal control module failure: steady light, check flame sensor circuit or replace control.

NOTE: A ground flame sense circuit will show a steady light fault code. Check flame sense circuit for discontinuities.

External failure: flashing light.

The diagnostics will indicate the specific external fault through the following code:

1 flash - system lock out due to retry
2 flashes - pressure switch stuck closed
3 flashes - pressure switch stuck open
4 flashes - open high limit switch
5 flashes - open rollout switch
continuous flash - flame sensed with no call for heat must interrupt 120 volt power supply for 1 second.

The LED will flash on for 1/4 second then off 1/4 second. The pause between groups of flashes is approximately 2 seconds.

* The control module will check for normally close contacts on the high limit and normally open contacts on the pressure switch. The system will then energize the inducer blower, and purge for 30 seconds.

- * The control module checks the pressure switch and high limit switch for closed contacts.
- * Following the 30 second prepurge, the silicone carbide ignitor is energized for 17 seconds before the gas valve receives the signal to open.
- * The ignitor is de-energized 4 seconds after the gas valve is energized. The control system must detect main burner flame within 7 seconds or the gas valve is de-energized.
- * If the burner flame is not sensed on the first attempt, the control de-energizes the gas valve and the inducer remains energized for a interpurge of 60 seconds. Ignitor warm-up period is lengthened to 27 seconds.
- * A total of three tries for ignition are attempted before system lockout.
- * If flame is established and then lost after flame is sensed, the gas valve is de-energized and the normal ignition sequence is started. A total of five cycles are permitted before system lockout.
- * Typical conditions are that the burners will light and stay lit as long as the thermostat calls for heat.
- * When system lockout occurs:
 - * Gas valve is de-energized.
 - * Circulator blower is energized.
 - * Inducer blower remains energized.
 - * Diagnostic light will indicate failure mode.

To reset the control after lockout, interrupt the call for heat from the thermostat or the 24 VAC power at the control for one second or longer.

- * Once flame has been sensed, the delay to fan on period begins timing. Fan on time delay is field adjustable and can be set at 15, 30, 45, or 60 seconds. After the delay to fan on period, the circulator fan is energized at the heat speed.

NOTE: The operation of this appliance is polarity sensitive. Electrical connections must be polarized for proper operation.

RECOMMENDED CLEARANCE GUIDE (UPFLOW INSTALLATION)

(Dimensions shown in inches are the minimum clearances to combustible material for which the furnace design has been certified.)

INPUT BTU/HR	FRONT (@)	REAR	RIGHT SIDE	LEFT SIDE	TOP	VENT CONNECTION (#)	FURNACE (*) FLUE PIPE SIZE	COMBUSTIBLE FLOOR (@)
45,000	6	0	0	0	6	6	3 Dia.	0
60,000	6	0	0	0	6	6	4 Dia.	0
80,000	6	0	0	0	6	6	4 Dia.	0
100,000	6	0	0	0	6	6	4 Dia.	0
120,000	6	0	0	0	6	6	4 Dia.	0

May be 1 inch when listed Type B-1 vent is used.

* The flue pipe sizes listed are the minimum required diameters for a Category I approved appliance

@ shall not be installed directly on carpeting, tile or other combustible materials, other than wood flooring.

3" clearance allowed with Type B-1 vent pipe.

MAXIMUM ALLOWABLE VENT PIPE LENGTH AND CONFIGURATION (VENT PIPE DIA: 3")

PIPE LENGTH (FT)	# OF TIGHT RADIUS 90° ELBOWS	# OF SWEEP OR LARGE RADIUS 90° ELBOWS
35	5	7
40	4	6
45	3	5
* 50	2	4

* NOTE: Maximum allowable pipe length is 50 feet independent of the number of elbows used.

COMFORTMAKER
Model # GNI 045

AS OF 10/25/93

HEATING VALUE BTU/CU.FT.	ELEVATION ABOVE SEA LEVEL (FT)					
	2000 to 2999	3000 to 3999	4000 to 4999	5000 to 5999	6000 to 6999	7000 to 8000
800	3.2	3.2	3.2	3.2	2.9	2.6
850	3.2	3.2	3.1	2.8	2.5	3.2
900	3.2	3.1	2.8	2.5	3.2	3.2
950	3.0	2.7	2.5	3.2	3.2	3.2
1000	2.7	2.4	3.2	3.2	3.2	3.0
1050	2.4	3.2	3.2	3.2	3.0	2.7
1100	3.2	3.2	3.2	3.0	2.7	2.4
GNI 045 STD. ORIFICE #43	#47	#47	#47	#47	#47	#47

Anything ABOVE the bold line should have a factory equipped orifice **number 43** and manifold pressure set as indicated on chart.

Anything BELOW the bold line requires a **number 47** orifice and the manifold pressure set as indicated on chart.

COMFORTMAKER

AS OF 10/25/93

Model # GUI 050-150/ Model # GDI 050-150

HEATING VALUE BTU/CU.FT.	ELEVATION ABOVE SEA LEVEL (FT)					
	2000 to 2999	3000 to 3999	4000 to 4999	5000 to 5999	6000 to 6999	7000 to 8000
800	3.2	3.2	3.2	2.9	2.6	2.4
850	3.2	3.2	2.9	2.6	2.3	3.2
900	2.9	2.9	2.6	2.3	3.2	3.2
950	2.8	2.5	2.3	3.2	3.2	3.2
1000	2.5	2.3	3.2	3.2	3.2	3.0
1050	2.3	3.2	3.2	3.2	3.0	2.7
1100	3.2	3.2	3.2	3.0	2.7	2.4
GUI 050-150 STD. ORIFICE #41	#45	#45	#45	#45	#45	#45

Anything ABOVE the bold line should have a factory equipped orifice number 41 and manifold pressure set as indicated on chart.

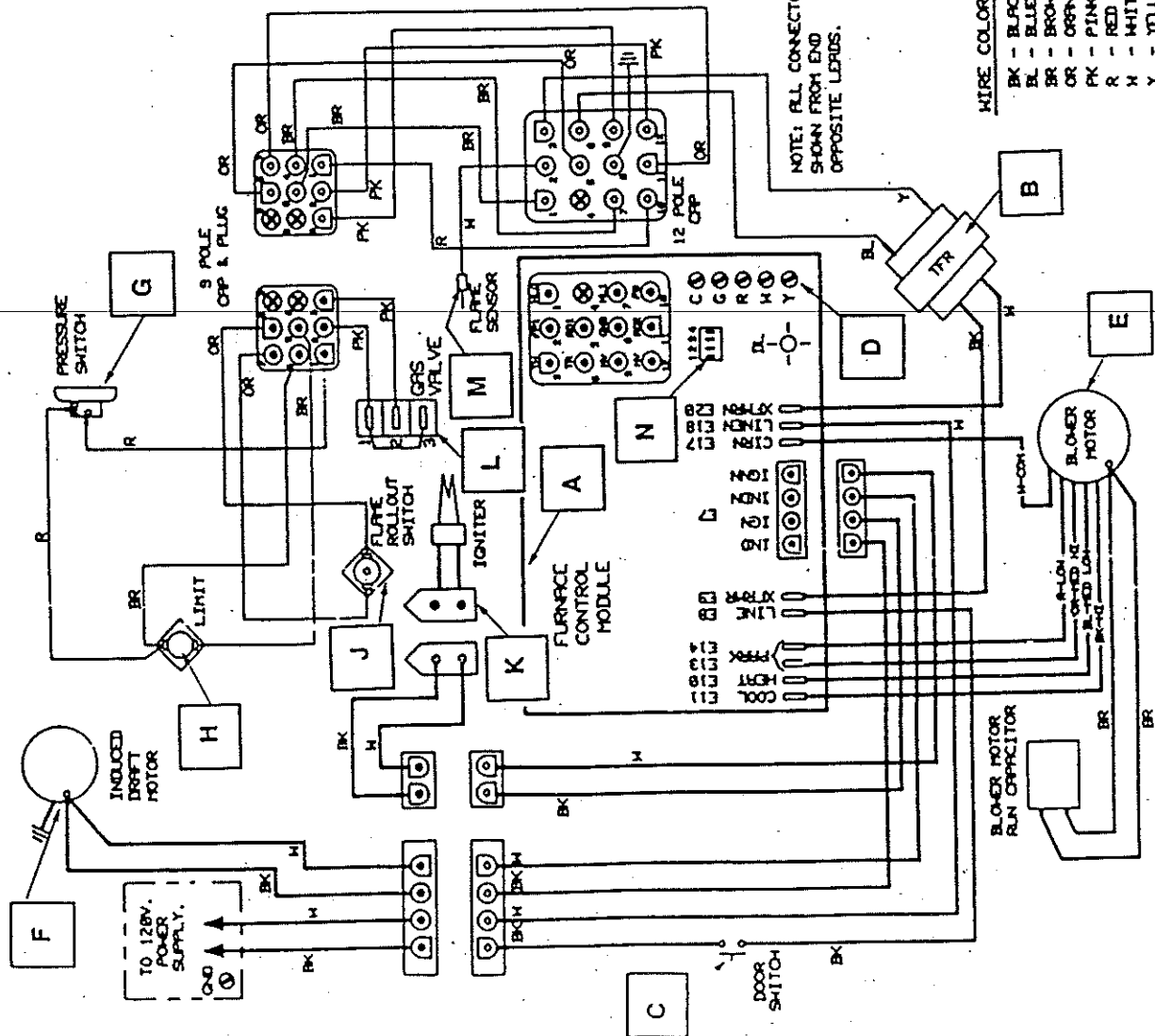
Anything BELOW the bold line requires a number 45 orifice and the manifold pressure set as indicated on chart.

DESCRIPTION: QJ1 SERIES WITH TOTAL FURNACE CONTROL

MIRING CODE: 120 VOLTS
 REVISION: 08/15/90
 PART NUMBER: 7402-491

WIRING
 ELECTRICAL SHOCK HAZARD.
 DISCONNECT ALL POWER SUPPLIES.
 FAILURE TO DO SO COULD RESULT
 IN SERIOUS INJURY OR DEATH.

-NOTES-
 1. ALL WIRING MUST BE DONE IN ACCORDANCE WITH NATIONAL AND LOCAL ELECTRICAL CODES.
 2. WIRING THAT IS CIRCLED MUST BE DONE BY INSTALLER
 3. IF ANY WIRE MUST BE REPLACED, IT MUST BE REPLACED WITH ITS EQUIVALENT, MIN. RATING 185°C



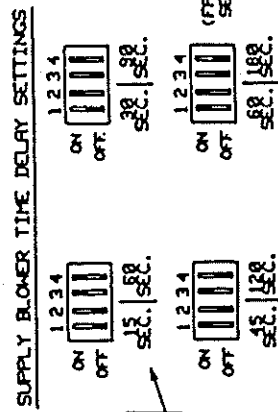
120 VOLT
 FURNACE CONTROL MODULE

COOL BLOWER COOLING SPEED
 HEAT BLOWER HEATING SPEED
 PARK PARKING TERMINALS FOR UNUSED BLOWER LEADS

CIRN BLOWER NEUTRAL
 HUM HUMIDIFIER NEUTRAL-120V.
 VOLTAGE-120V.
 ION IONIZER NEUTRAL-120V.
 IND INDUCED DRAFT MOTOR-120V.
 NEUTRAL-120V.
 LINE LINE VOLTAGE-120V.
 XFRM XFRM TRANSFORMER NEUTRAL-120V.
 XFRM TRANSFORMER LINE VOLTAGE-120V.

24 VOLT
 RETURN FROM HIGH LIMIT
 TO HIGH LIMIT
 PV MAIN VALVE
 PSC PRESSURE SWITCH COMMON
 RO1 ROLL-OUT SWITCH
 RO2 ROLL-OUT SWITCH
 TH 24V. (HI)
 TR 24V. COMMON

COMPONENT LEGEND
 DL DIAGNOSTIC LIGHT
 TFR TRANSFORMER



PINS 1 AND 2: BLOWER ON TIME DELAY
 PINS 3 AND 4: BLOWER OFF TIME DELAY

LED DIAGNOSTIC INDICATOR SEQUENCE

INTERNAL BOARD FAILURE; STERDY LIGHT
 EXTERNAL TO BOARD FAILURE; FLASHING LIGHT

1 FLASH; SYSTEM LOCKOUT
 2 FLASHES; PRESSURE SWITCH STUCK CLOSED
 3 FLASHES; PRESSURE SWITCH STUCK OPEN
 4 FLASHES; OPEN HIGH LIMIT SWITCH
 5 FLASHES; OPEN ROLL-OUT SWITCH
 CONTINUOUS FLASHING; FLAME SENSED WITH NO CALL FOR HEAT

NOTE: ALL CONNECTORS SHOWN FROM END OPPOSITE LEADS.

WIRE COLOR KEY
 BK - BLACK
 BL - BLUE
 BR - BROWN
 OR - ORANGE
 PK - PINK
 R - RED
 H - WHITE
 Y - YELLOW

— LINE VOLTAGE
 — LOW VOLTAGE

CODE: QJ1

FIGURE 5

FURNACE CONTROL MODULE

120 VOLT

24 VOLT

COOL BLOWER COOLING SPEED
 HEAT BLOWER HEATING SPEED
 PARK PARKING TERMINALS FOR UNUSED BLOWER LEADS

H/LI RETURN FROM HIGH LIMIT
 H/L0 TO HIGH LIMIT
 MV MAIN VALVE
 PSC PRESSURE SWITCH COMMON
 R01 ROLL-OUT SWITCH
 R02 ROLL-OUT SWITCH
 TH 24V (W1)
 TR 24V COMMON

CIRN BLOWER NEUTRAL
 HUM HUMIDIFIER LINE VOLTAGE - 120V
 HUMN HUMIDIFIER NEUTRAL - 120V
 IGN IGNITOR - 120V
 IGNN IGNITOR NEUTRAL - 120V
 IND INDUCED DRAFT MOTOR - 120V
 INDN INDUCED DRAFT MOTOR NEUTRAL - 120 V
 LINE LINE VOLTAGE - 120V
 LINEN LINE VOLTAGE NEUTRAL - 120V
 XFMRN TRANSFORMER NEUTRAL - 120V
 XFMR LINE VOLTAGE - 120V

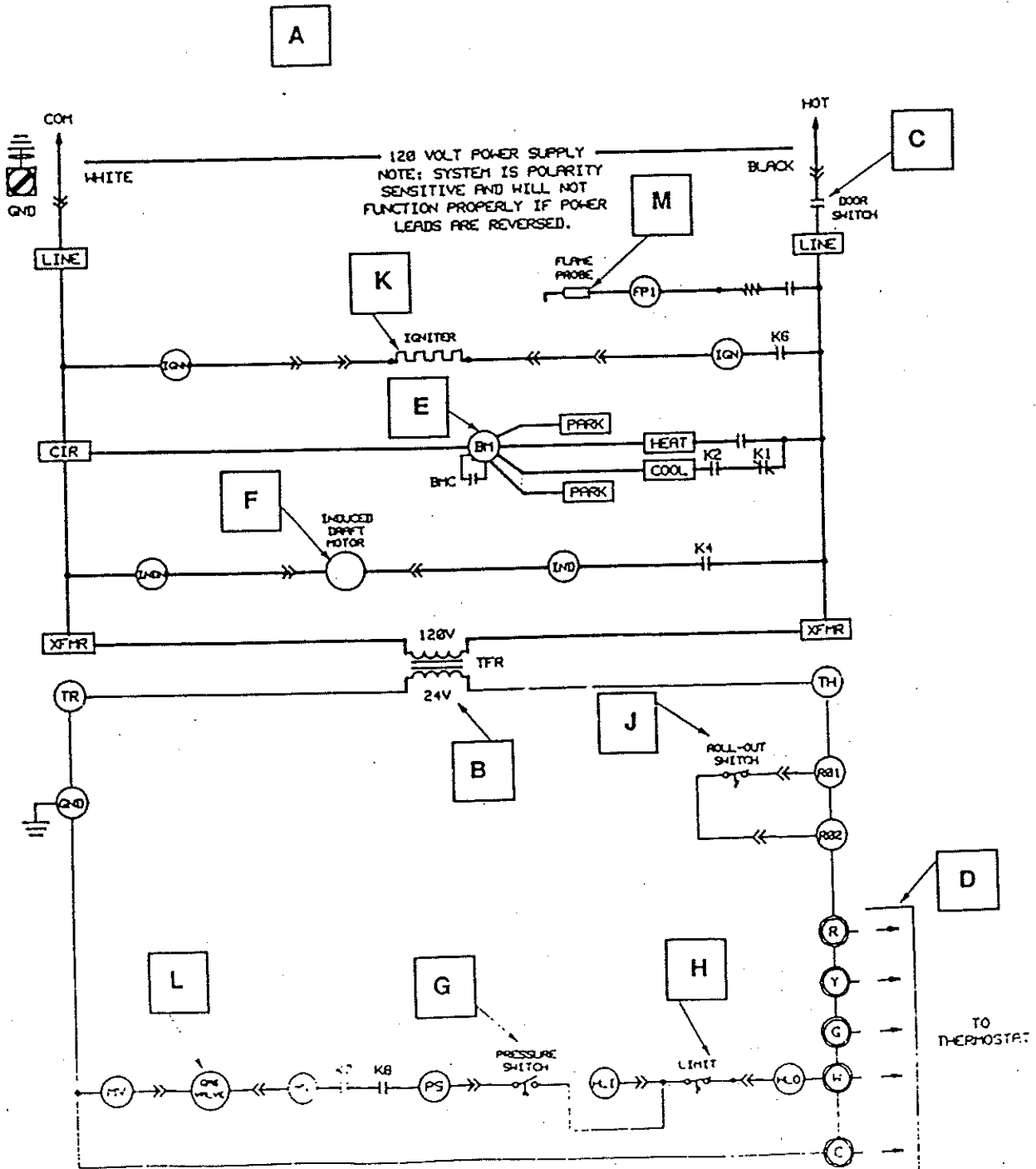


FIGURE 6



COMFORTMAKER
Model # GNI 060-120

AS OF 10/25/93

HEATING VALUE BTU/CU.FT.	ELEVATION ABOVE SEA LEVEL (FT.)						
	2000 to 2999	3000 to 3999	4000 to 4999	5000 to 5999	6000 to 6999	7000 to 8000	
800	3.5	3.5	3.5	3.2	2.9	2.6	
850	3.5	3.4	3.1	2.8	2.6	3.5	
900	3.3	3.1	2.8	2.5	3.5	3.5	
950	3.0	2.7	2.5	3.5	3.5	3.5	
1000	2.7	2.5	3.5	3.5	3.5	3.2	
1050	2.4	3.5	3.5	3.5	3.2	2.9	
1100	3.5	3.5	3.5	3.2	2.9	2.6	
GNI 060-120 STD. ORIFICE #44	#49	#49	#49	#49	#49	#49	#49

Anything ABOVE the bold line should have a factory equipped orifice **number 44** and manifold pressure set as indicated on chart.

Anything BELOW the bold line requires a **number 49** orifice and the manifold pressure set as indicated on chart.

