

COMFORTMAKER

MODEL NUMBER:

GUI Series - UPFLOW

BTU SIZES:

50,000 - 75,000 - 100,000 - 125,000 - 150,000

ACCESSIBILITY CLEARANCE

36" horizontal clearance.

CLEARANCE FROM COMBUSTIBLE MATERIAL

Refer to Table 1 - Recommended Clearance Guide. (Page 4)

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

COLD AIR RETURN AIR DUCTS

This furnace may be installed in only a bottom or side return application. 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 furnace 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 (457 mm) above the floor. The furnace must also be located or protected to avoid physical damage by vehicles.

GENERAL

HIGH ALTITUDE INSTALLATIONS

Deration

When installed above 2000 feet, the input must be decreased 4% for each 1,000 feet above sea level. This may be accomplished by a simple adjustment of manifold pressure or an orifice change or a combination of a pressure adjustment and an orifice change.

See Comfortmaker chart (Page 5)

continued...

HIGH ALTITUDE INSTALLATIONS

Deration

A high altitude restrictor is supplied with each furnace in the literature envelope. This restrictor should be used at altitudes above 4000 ft.

To install the restrictor remove the 4 screws which attach the combustion blower to the collector box. Remove the existing restrictor and replace it with the high altitude restrictor. Be sure that the restrictor gasket is positioned properly on the restrictor. Attach the combustion blower to the collector using the previously removed screws.

Unit	High Altitude Restrictor
GUI050A012	0.875"
GUI075A012,016	1.125"
GUI100A012,016,020	1.438"
GUI125A020	1.625"
GUI150A020	1.750"

Orifice

See Comfortmaker chart (Page 5)

Regulator Pressure

See Comfortmaker chart (Page 5)

Pressure Switch

MOBILE HOME

Not approved.

VENTING MATERIAL AND REQUIREMENTS

Vent Pipe

Type "C"
Type "B"

Vent Fittings

Type "C"
Type "B"

VENT CLEARANCE FROM COMBUSTIBLE MATERIAL

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

VENTING PROCEDURE

GAMA venting tables.

MISCELLANEOUS INFORMATION/NOTES

SEQUENCE OF OPERATION

When the 120 V 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 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 roll-out 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 closed 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.
- ▶ When the thermostat is satisfied, the gas valve is de-energized. The inducer blower and humidifier are de-energized following proof of flame loss. the delay to fan off period begins timing. Fan off time delay is field adjustable and can be set at 60, 90, 120, or 180 seconds. After the delay to fan off timing, the circulator fan is de-energized. See Wiring Diagram on furnace.
- ▶ The furnace repeats this same cycle each time the thermostat calls for heat.

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

RECOMMENDED CLEARANCE GUIDE

(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 OF FURNACE (=)	TOP OF PLENUM	VENT CONNECTION (#)	FURNACE (*) FLUE PIPE SIZE	COMBUSTIBLE FLOOR (+)
50,000	6	0	0	0	6	1	6	3 Dia.	0
75,000	6	0	0	0	6	1	6	4 Dia.	0
100,000	6	0	0	0	6	1	6	4 Dia.	0
125,000	6	0	0	0	6	1	6	5 Dia.	0
150,000	6	0	0	0	6	1	6	5 Dia.	0

may be 1 inch when listed Type B-1 vent is used. This a Category I furnace.

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

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

@ connector pipe service access shall take precedence over clearance to combustible material.

= recommended for proper ventilation.

TABLE 1

**COMFORTMAKER
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.

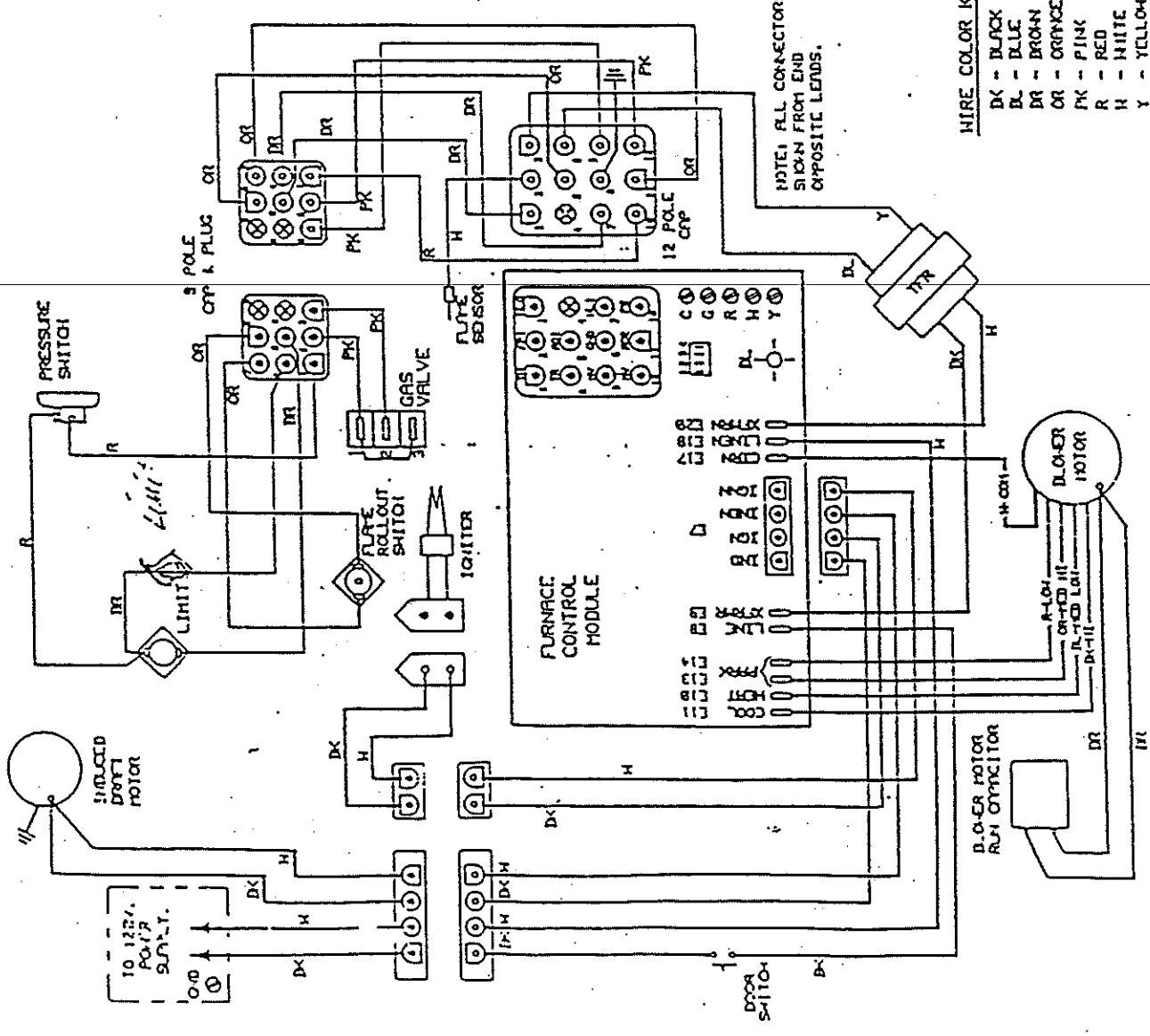
Anything BELOW the bold line requires a number 45 orifice and the manifold pressure set as indicated on chart.

WARNING

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



FURNACE CONTROL MODULE

120 VOLT

24 VOLT

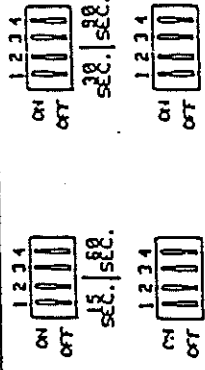
- HLI RETURNS FROM HIGH LIMIT TO HIGH LIMIT
- ILO MAIN VALVE
- PSC PRESSURE SWITCH COMMON
- RO1 ROLL-OUT SWITCH
- RO2 ROLL-OUT SWITCH
- TR 24V. (HI)
- TR 24V. COMMON

- COOL BLOWER COOLING SPEED
- HEAT BLOWER HEATING SPEED
- PARK PARKING TERMINALS FOR UNUSED BLOWER LEADS
- CIPI BLOWER NEUTRAL
- HL1 HUMIDIFIER LINE
- HL2 HUMIDIFIER NEUTRAL-120V.
- HJ1 ICHITER-120V.
- IGN INDUCED DRAFT MOTOR-120V.
- IND INDUCED DRAFT MOTOR NEUTRAL-120V.
- LINE LINE VOLTAGE-120V.
- LINEN LINE VOLTAGE-120V.
- XTRM TRANSFORMER NEUTRAL-120V.
- XTRR TRANSFORMER LINE VOLTAGE-120V.

COMPONENT LEGEND

- DL DIAGNOSTIC LIGHT
- ITR TRANSFORMER

SUPPLY BLOWER TIME DELAY SETTINGS



- PINS 1 AND 2: BLOWER ON TIME DELAY 100 SEC.
- PINS 3 AND 4: BLOWER OFF TIME DELAY 100 SEC.

WIRE COLOR KEY

- DK - BLACK
- BL - BLUE
- BR - BROWN
- OR - ORANGE
- PK - PINK
- R - RED
- H - WHITE
- Y - YELLOW

INTERNAL BOARD FAILURE; FLASHING 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

LINE VOLTAGE
L01 V01

FURNACE CONTROL MODULE

128 VOLT

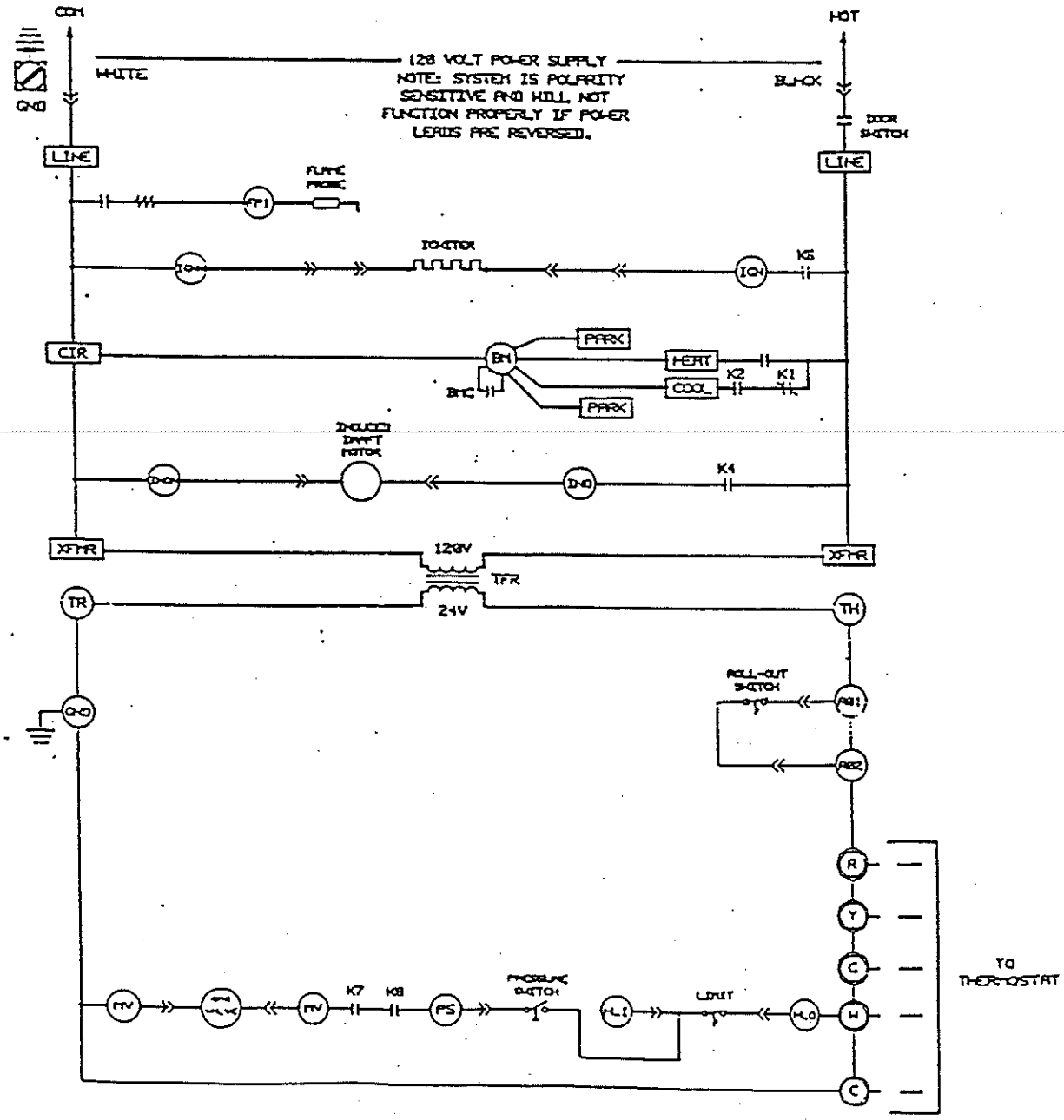
24 VOLT

COOL	BLOWER COOLING SPEED	H.LI	RETURN FROM HIGH LIMIT TO HIGH LIMIT
HEAT	BLOWER HEATING SPEED	H.LO	TO HIGH LIMIT
PRK	PARKING TERMINALS FOR UNUSED BLOWER LEADS	H.V	MAIN VALVE
		P.S.C	PRESSURE SWITCH COMMON
		R.O1	ROLL-OUT SWITCH
		R.O2	ROLL-OUT SWITCH
		T.H	24V. (H.L.)
		T.R	24V. COMMON
CIRN	BLOWER NEUTRAL		
HLM	HUMIDIFIER LINE VOLTAGE-128V.		
HLMN	HUMIDIFIER NEUTRAL-128V.		
IGN	IGNITER-128V.		
IGNN	IGNITER NEUTRAL-128V.		
IND	INDUCED DRAFT MOTOR-128V.		
INDN	INDUCED DRAFT MOTOR NEUTRAL-128V.		
LINE	LINE VOLTAGE-128V.		
LINEV	LINE VOLTAGE NEUTRAL-128V.		
XFRN	TRANSFORMER NEUTRAL-128V.		
XFRN	TRANSFORMER LINE VOLTAGE 128V.		

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