

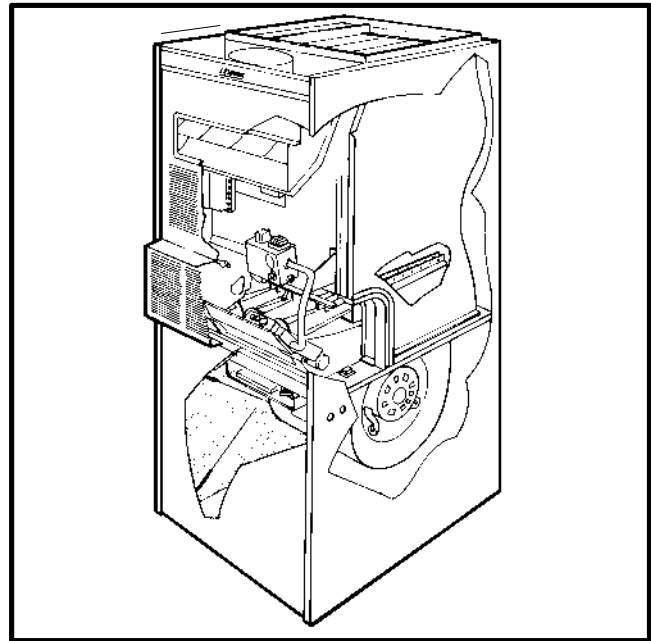
G17 SERIES UNITS

G17 and G17X series units are mid-efficiency gas furnaces manufactured with Duracurve heat exchangers formed of cold rolled steel. G17 units are available in heating capacities of 50,000 to 125,000 Btuh and cooling applications up to 6 tons. Refer to Engineering Handbook for proper sizing.

Units are factory equipped for use with natural gas. A kit is available for conversion to LPG operation. All G17 and G17X units use electronic (intermittent pilot) ignition. The G17X unit meets the California Nitrogen Oxides (NO_x) Standards and California Seasonal Efficiency requirements. G17X units use only natural gas. All units use a redundant gas valve to assure safety shut-off as required by A.G.A.

A burner box damper assembly located on the intake side of the burners is featured on G17 series units. A damper door in the burner box shuts during unit off cycles to retain heat in the unit. A damper prove switch ensures that damper is open before gas valve is energized. G17 furnaces use atmospheric burners without an induced draft motor. All G17 units use a draft hood which allows the use of standard single wall vent connectors.

All specifications in this manual are subject to change. Procedures outlined in this manual are presented as a recommendation only and do not supersede or replace local or state codes. In the absence of local or state codes, the guidelines and procedures outlined in this manual (except where noted) are recommended only and do not constitute code.



SPECIFICATIONS

Model No.	G17Q2-50 •G17Q2X-50	G17Q3-75 •G17Q3X-75	G17Q3/4-100 •G17Q3/4X-100	G17Q5/6-100 •G17Q5/6X-100	G17Q5/6-125
Input Btuh	48,000	75,000	100,000	100,000	125,000
Output Btuh	38,000	59,000	79,000	79,000	98,000
*A.F.U.E.	78.0%	78.0%	78.0%	78.0%	78.0%
California Seasonal Efficiency - "X" Models	72.3%	73.4%	73.7%	72.5%	----
Flue connection (in. diameter) round	4	4	5	5	6
Temperature rise range (°F)	20-50	35-65	35-65	25-55	35-65
High static certified by A.G.A.(in wg.)	.50	.50	.50	.75	.50
Gas Piping Size I.P.S. inches - Natural (**LPG)	1/2 (1/2)	1/2 (1/2)	1/2 (1/2)	1/2 (1/2)	1/2 (1/2)
Blower wheel nominal diameter x width (in.)	9 x 7	10 x 7	10 x 8	12 x 12	12 x 12
Blower motor hp	1/4	1/3	1/2	3/4	3/4
Tons of cooling that can be added	1, 1-1/2, 2	2-1/2 or 3	3, 3-1/2 or 4	5 or 6	5 or 6
Number and size of filters (in.)	(1) 16 x 25 x 1			*** (1) 20 x 25 x 1	
**Optional LPG Conversion Kit	LB-62384DB (All Models)				
Electrical characteristics	120 volts — 60 hertz — 1 phase (less than 12 amps) — All Models				
Continuous Low Speed Blower Kit (Optional)	LB-63646A (All Models)				
Bottom Return Air	Part No.	----	----	LB-62752DA (Non-X Models)	
Filter (Optional)	Media Cut Size (in.)	----	----	25 x 26 x 1	
Return Air Cabinet (Optional)	RA10-16-49	RA10-16-49	RA10-16-49	RA10-16-53	RA10-16-53

•Not available with LPG.

*Annual Fuel Utilization Efficiency based on D.O.E. test procedures and according to F.T.C. labeling requirements. Isolated combustion system rating for non-weatherized furnaces.

**LPG kit must be ordered extra for field changeover.

***G17Q5/6X-100 model furnished with 25 x 26 x 1 filter.

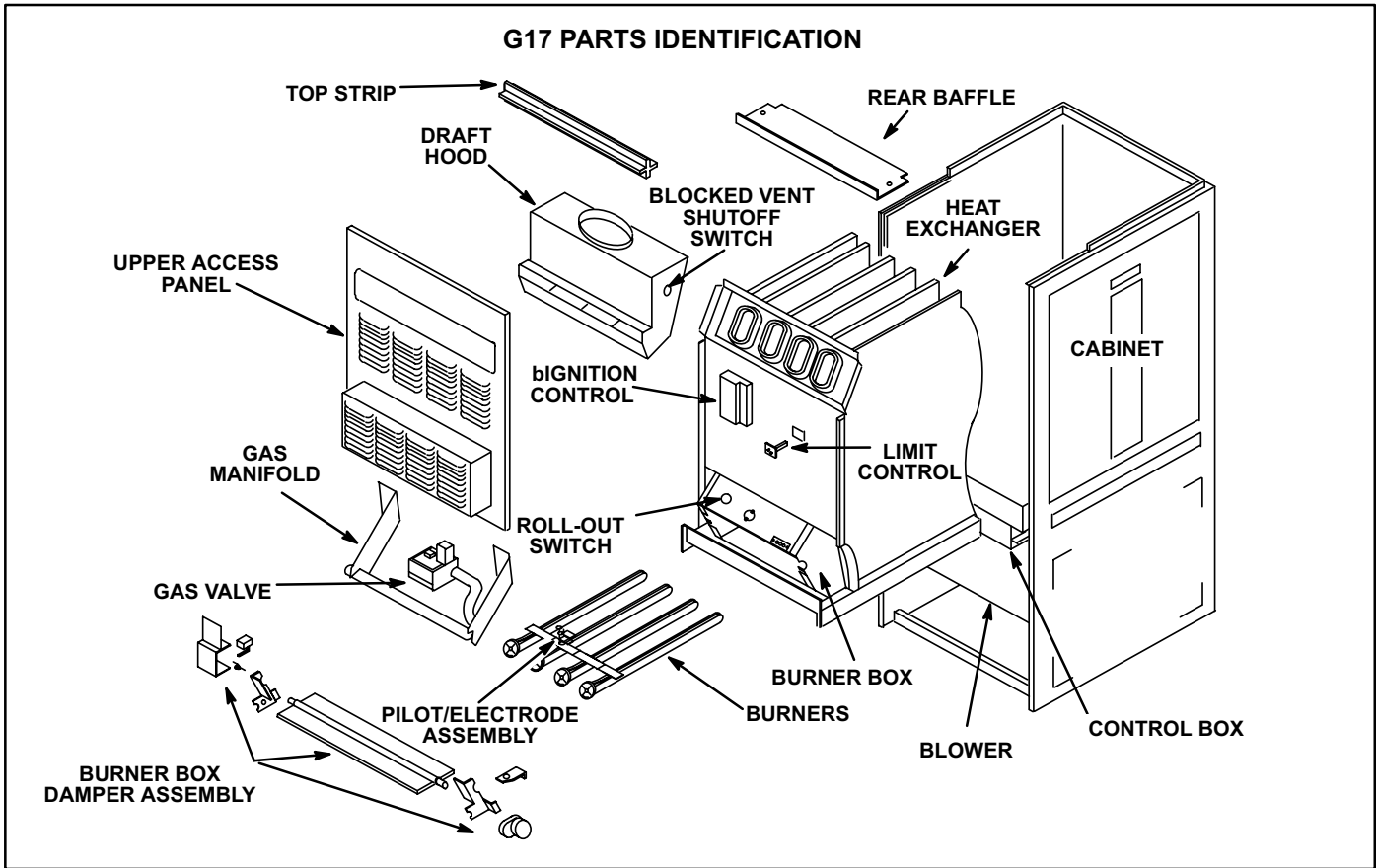


FIGURE 1

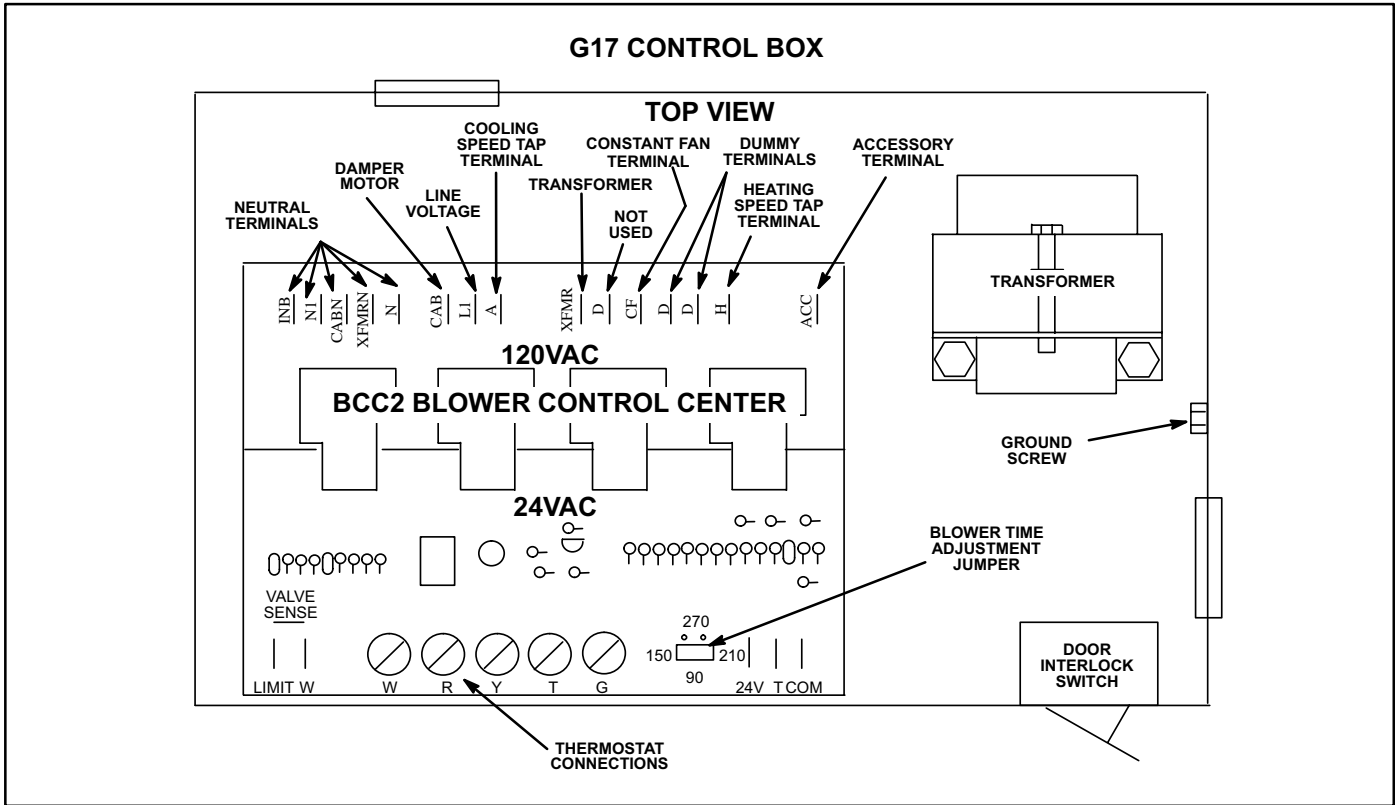


FIGURE 2

I-UNIT COMPONENTS (Figures 1)

G17 unit components are shown in figure 1. The blower controls, gas valve and burners can be accessed by removing the upper access panel.

G17 units are factory equipped with bottom return air panels and bottom side return air panels in place. The panels are designed to be field removed as required for bottom air return or side air return. All X models are factory equipped with the bottom return air panel removed.

⚠ DANGER

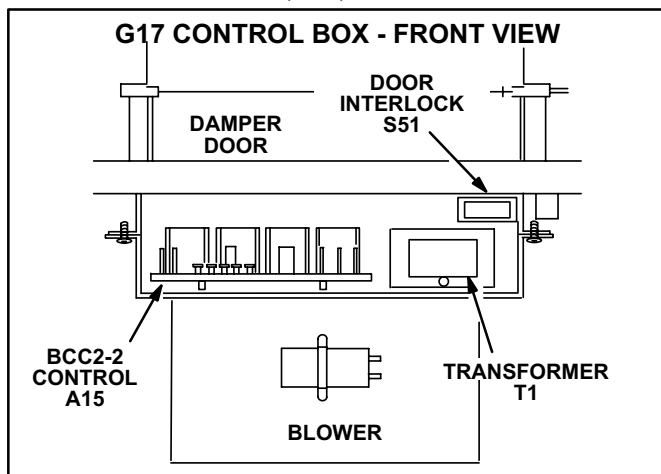
Possibility of exhaust gas recirculation.

X models are factory equipped with bottom return air panel removed. If opening is not used and if not properly sealed, exhaust gases can recirculate through the opening and enter supply air stream resulting in personal injury or death.

A-Control Box Components(Figure 3)

On G17 series units the unit control box is located in the blower compartment between the burner box and the blower housing. The hinged control box can be lowered for service access by removing two securing screws, one located on either side. At the top right corner of the control box is the door interlock switch (S51).

Housed in the control box are the unit transformer (T1) and BCC2-2 blower control (A15).



1- Control Transformer (T1)

A transformer located inside the control box provides power to the low voltage section of the unit. Transformers on all models are rated 30VA with a 120V primary and a 24V secondary.

2- BCC2-2 Blower Control (A15)

All G17 units utilize the BCC2-2 blower control. The

BCC2-2 is a printed circuit board which controls the blower and monitors primary limit and gas valve operation. The control has a non-adjustable, factory preset “on” fan timing. Fan “off” timings are adjustable. The board is divided into two sections, 120 and 24VAC. Line voltage comes into the board on the 120VAC side. See figure 2.

“CAB” and “XFMR ” send 120VAC to the damper motor and transformer, respectively. The active cooling and heating blower speed terminals and three dummy “D” terminals are located on the 120VAC side of the BCC2-2. Also located on the 120VAC side of the control are neutral terminals and a terminal for accessories such as an electronic air cleaner.

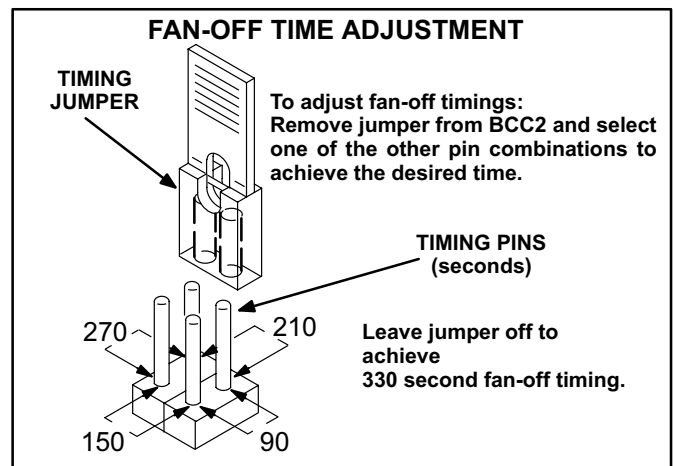
24VAC comes from the transformer into terminal “24V” on the 24VAC side of the BCC2-2. Thermostat connections and safety circuit terminals are also located on the 24VAC side of the control. Fan “off” timings may be adjusted by changing the position of a jumper across terminal pins. The “CF” terminal provides 120VAC power for continuous fan option or other accessories.

Later production units are equipped with a 3A fuse located inline between the transformer and terminal XFMR on the blower control. The fuse provides overcurrent protection to all components located in the low voltage control circuit.

Fan Timings

⚠ DANGER

Shock hazard. Avoid control damage or personal injury. Make sure to disconnect power before changing fan “off” timings.



NOTE—If fan “off” time is set too low, residual heat in heat exchanger may cause primary limit S10 to trip resulting in frequent cycling of blower. If this occurs, adjust blower to longer time setting.

Fan “off” timings (time that the blower operates after the heat demand has been satisfied) are determined by the arrangement of a jumper across pins on the BCC2-2 blower control board. See figure 2. To adjust fan “off” timings, gently disconnect jumper and reposition across pins corresponding with new timing. Fan “on” time is factory set at 45 seconds and is not adjustable.

Figure 4 shows the various fan “off” timings and how jumper should be positioned. Unit is shipped with a factory fan “off” setting of 90 seconds. Fan “off” time will affect comfort and efficiency and is adjustable to satisfy individual applications.

3-Door Interlock Switch (S51)

A door interlock switch rated 16A at 125VAC is located behind the blower access panel. The switch is wired in series with line voltage. When the blower door access panel is removed the unit will shut down.

B-Blower Motors and Capacitors

All G17 units use direct drive blower motors. All motors used are 120V permanent split capacitor motors to ensure maximum efficiency. See table1 for ratings.

TABLE 1

G17 BLOWER RATINGS 120V 1PH		
BLOWER MOTOR	HP	CAP
Q2	1/4	5MFD 370V
Q3	1/3	5MFD 370V
Q3/4	1/2	7.5MFD 370V
Q4	1/2	7.5MFD 370V
Q4/5	3/4	40MFD 370V
Q5/6	3/4	40MFD 370V

C-Blocked Vent Shutoff Switch (S62)

The blocked vent shutoff switch or spill switch (S62) is located on the right side of the draft diverter. The switch is a high temperature N.C. SPST manual-reset limit connected in series with ignition control A3. The switch opens when excess heat is sensed in the draft diverter. Excess heat in the draft diverter can be caused by a blocked vent or reversed draft (outside air coming down the flue). Limits on early production units open at 300°F±12°F (149° C) on a temperature rise. Later production units use a limit which opens at 262°F±12°F (128° C). It cannot be adjusted.

D-Flame Rollout Switch (S47)

Flame rollout switch is a high temperature limit located on top of the burner box. The limit is a N.C. SPST manual-reset limit connected in series with the ignition control A3. When S47 senses rollout, the ignition control immediately stops ignition and closes the gas valve. If unit is running and flame rollout is detected, the gas valve will close and ignition control will be disabled. Rollout can be caused by a reverse draft, blocked flue or lack of combustion air. The switch is factory set and cannot be adjusted. See table 2. The switch

can be manually reset. To manually reset a tripped switch, push the red reset button located on the control.

TABLE 2

FLAME ROLLOUT SWITCH SETPOINTS	
HEATING INPUT KBTUH	SETPOINT
50, 75	260°F ± 12°F
100, 125	300°F ± 12°F

E-Limit Control (S10)

The primary limit (S10) on G17 units is located in the middle of the heating vestibule wall. When excess heat is sensed in the heat exchanger, the limit will open and interrupt current to the gas valve. If the limit is tripped, the BCC2-2 energizes the blower. The limit automatically resets when unit temperature returns to normal. Table 3 shows the temperatures at which the limit trips on a temperature rise and then closes on a temperature fall.

TABLE 3

PRIMARY LIMIT TEMPERATURES		
UNIT MODEL NO.	TEMP. RISE	TEMP. FALL
G17Q2-50 Series	130°F ± 5°F	100°F ± 10°F
G17Q3-75 Series	180°F ± 5°F	150°F ± 8°F
G17Q3/4-100 Series	180°F ± 5°F	150°F ± 10°F
G17Q5/6-100 Series	250°F ± 5°F	220°F ± 8°F
G17Q5/6-125 Series	180°F ± 5°F	150°F ± 10°F

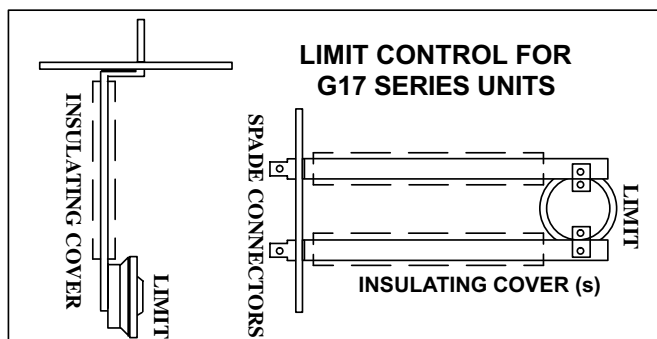


FIGURE 5

F-Robertshaw Electronic Ignition

The Robertshaw electronic ignition is an intermittent pilot ignition control module located on the vestibule panel. See figure 1. When there is a call for heat, the control generates a spark to ignite the pilot, after which the control senses the flame. If the flame current is too weak (less than 1 micro-amp) the control will shutdown and de-energize the gas valve. Flame current should be between 1 and 5 micro-amps. See figure 6.

⚠ DANGER

Shock hazard.
Spark related components contain high voltage. disconnect power before servicing. Control is not field repairable. If control is inoperable, simply replace entire control.
Can cause injury or death. Unsafe operation will result if repair is attempted.

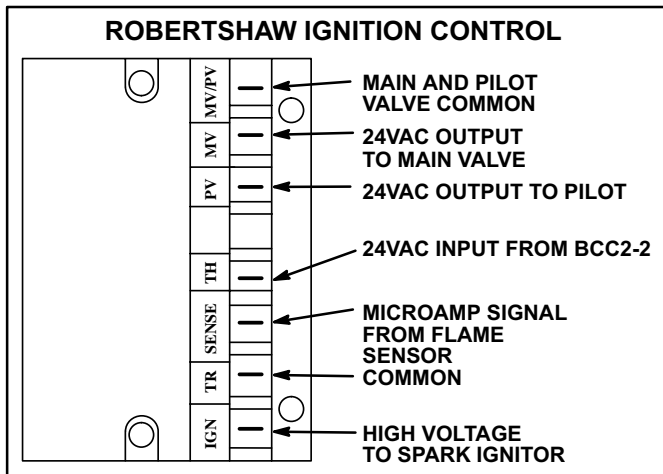


FIGURE 6

G-Gas Valve

The G17 uses a gas valve manufactured by Robertshaw or Honeywell. The valve is internally redundant to assure safety shut-off. If the gas valve must be replaced, the same type valve must be used.

24VAC terminals and gas control knob are located on top of the valve. All terminals on the gas valve are connected to wires from the electronic ignition control. 24V applied to terminal "P" energizes the pilot valve. An orange sensing wire from terminal "V"(marked VALVE SENSE) of the BCC2-2 control rides "piggy back" on the "P" terminal connection. 24V applied to terminal "M" energizes the main valve. Terminal "C" provides 24V common.

Inlet and outlet pressure taps are located on the valve. A pilot adjusting screw and regulator adjustment screw (figures 7 and 9) are located on the valve. Refer to figure 8 for exact location of valve features.

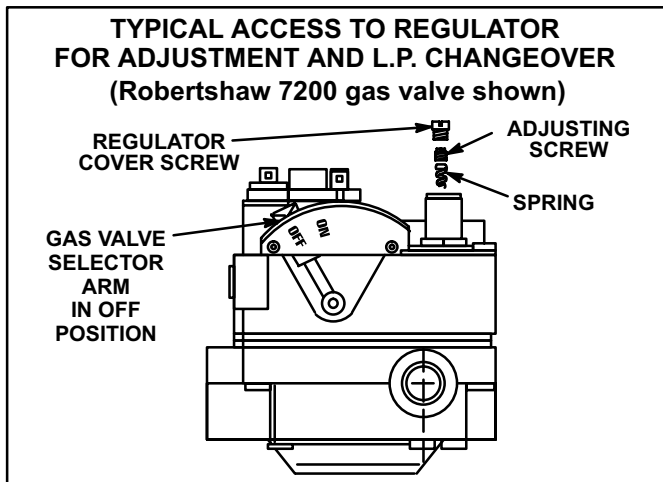


FIGURE 7

An LPG changeover kit is available from Lennox. The kit includes main and pilot burner orifices, burner air adjustment shutters and a regulating conversion kit.

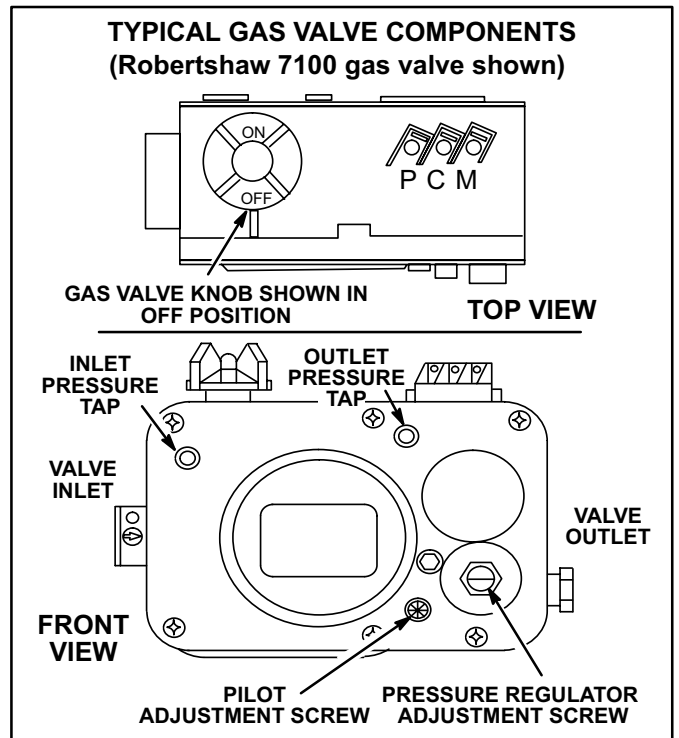


FIGURE 8

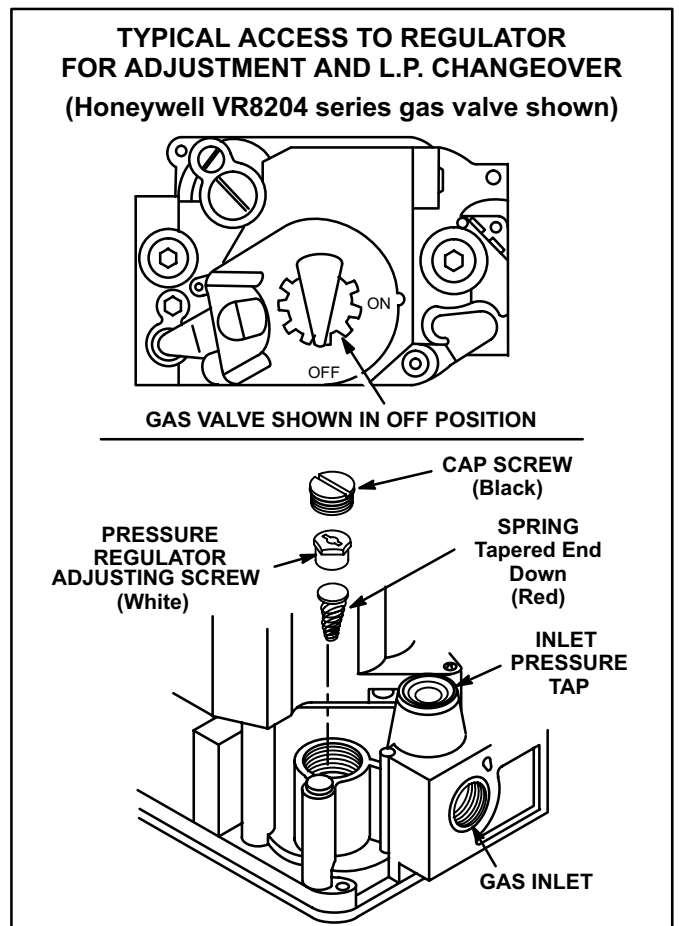


FIGURE 9

H-Pilot Tube, Ignition Wire and Flame Rod

The pilot tube from the gas valve and the flame sensor and ignition wires from the ignition control enter through the top of the burner box to the pilot burner assembly.

Figure 10 shows the clearance between top of pilot burner head and the top of the main burner surface.

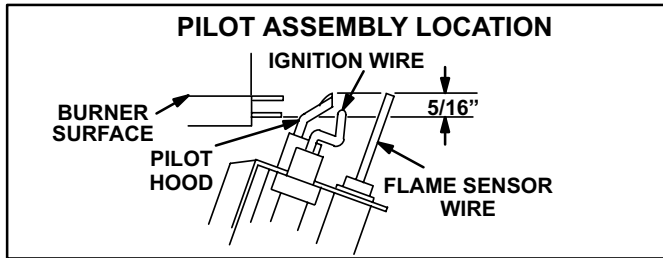


FIGURE 10

II-BURNER BOX ASSEMBLY

A-Burner Box / Damper Door

A damper motor is located on the right side of the burner box. On the left side of the burner box, behind a protective plate is the damper prove switch. Refer to figure 12. The top of the burner box top is removable for service.

When there is a call for heat, the damper motor is energized and damper door opens as the damper motor axle begins to rotate.

B-Damper Prove Switch (S64)

A spring, which is held by a notch in the burner box frame, activates the damper prove switch as the damper door opens. See figure 11. The damper door axle rotates the damper door to open position. As the axle turns, the spring winds backwards to make contact with the damper prove switch. The protective cover plate is removable (two screws) and the spring may be unclipped for service to the damper door or burner box. The spring must be removed in order to remove the damper door.

After service is complete, the spring must rest snugly in notch for damper prove switch to function properly. Do not

force door open, damage to the spring and motor may occur. Take care to open damper door slowly.

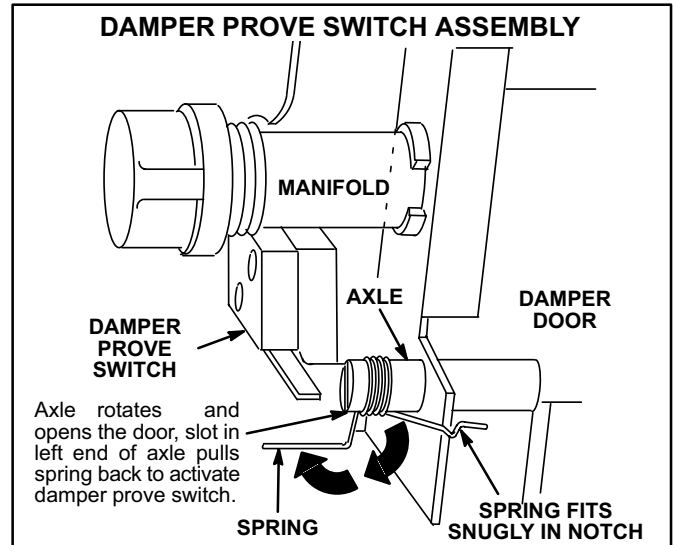


FIGURE 11

III-PLACEMENT AND INSTALLATION

Make sure unit is installed in accordance with installation instructions and applicable codes.

IV-START-UP

A-Preliminary and Seasonal Checks

- 1- Inspect electrical wiring, both field and factory installed for loose connections. Tighten as required.
- 2- Check voltage at disconnect switch. Voltage must be within range listed on the nameplate. If not, consult the power company and have voltage condition corrected before starting unit.

B-Heating Start-Up

- 1- Set thermostat to OFF position. Close manual knob on gas valve.
- 2- Wait 5 minutes.
- 3- Open manual knob on gas valve, replace burner access door and turn on unit electrical supply.

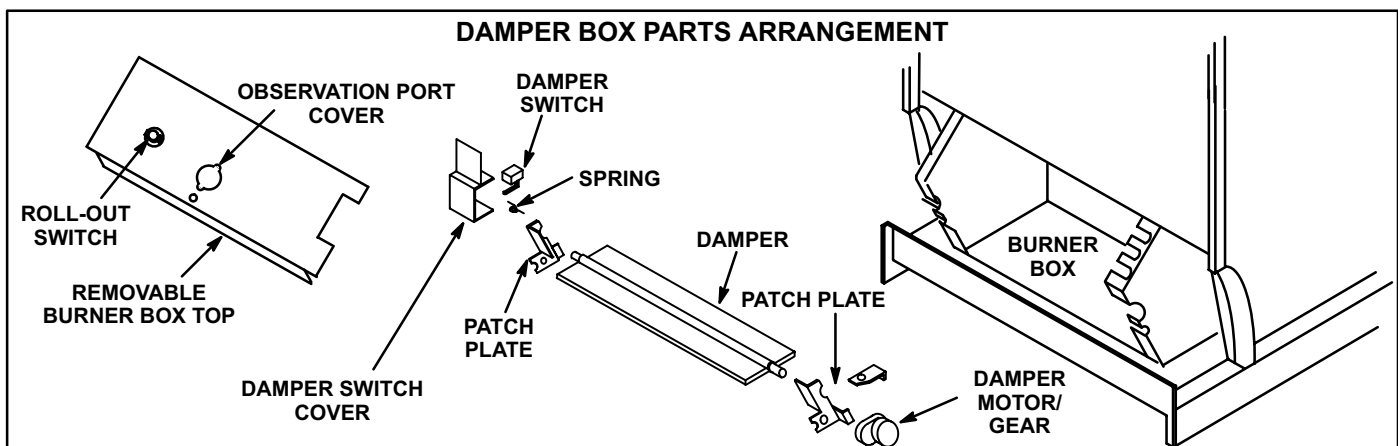


FIGURE 12

⚠ WARNING

Shock and burn hazard.

G17 units are equipped with an intermittent pilot ignition system. Do not attempt to light manually.

- 4- Set fan switch to AUTO or ON and move system selection switch to HEAT. Adjust thermostat to a setting above room temperature.
- 5- If unit does not light the first time, it will attempt one more ignition before locking out.
- 6- If lockout occurs, repeat steps 1, 2, 3 and 4.

C-Safety or Emergency Shutdown

Turn off unit power. Close manual and main gas valves.

D-Extended Period Shutdown

Turn off thermostat or set to "UNOCCUPIED" mode. Close all gas valves (both internal and external to unit) to guarantee no gas leak into combustion chamber. Turn off power to unit. All access panels, covers and vent caps must be in place and secured.

V-HEATING SYSTEM SERVICE CHECKS

A-A.G.A. Applications and Requirements

All units are A.G.A. design certified without modifications. Refer to the G17 Operation and Installation Instruction Manual Information.

B-Gas Piping

Gas supply piping should not allow more than 0.5"W.C. drop in pressure between gas meter and unit. Supply gas pipe must not be smaller than unit gas connection.

Compounds used on gas piping threaded joints should be resistant to action of liquefied petroleum gases.

C-Testing Gas Piping

⚠ IMPORTANT

In case emergency shutdown is required, turn off the main shut-off valve and disconnect the main power to unit. These controls should be properly labeled by the installer.

When pressure testing gas lines, the gas valve must be disconnected and isolated. Gas valves can be damaged if subjected to more than 0.5psig (14" W.C.). See figure 13. If the pressure is equal to or less than 0.5psig (14"W.C.), use the manual shut-off valve before pressure testing to isolate furnace from gas supply.

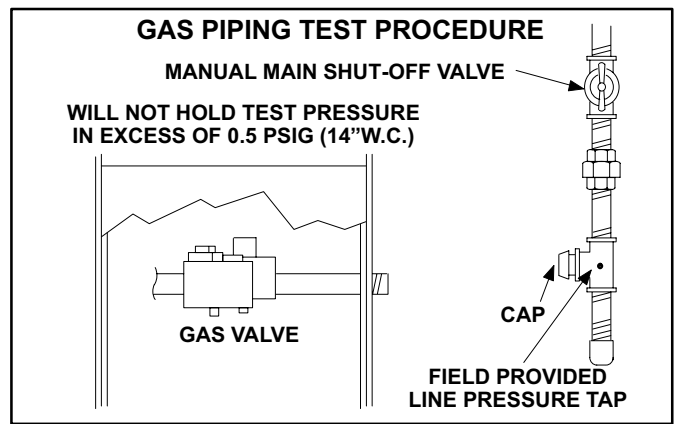


FIGURE 13

When checking piping connections for gas leaks, use preferred means. Kitchen detergents can cause harmful corrosion on various metals used in gas piping. Use of a specialty Gas Leak Detector is strongly recommended. It is available through Lennox under part number 31B2001. See Corp. 8411-L10, for further details.

Do not use matches, candles, flame or any other source of ignition to check for gas leaks.

D-Testing Gas Supply Pressure

When testing supply gas pressure, connect test gauge to inlet pressure tap (field provided). See figure 13. Check gas line pressure with unit firing at maximum rate. Low pressure may result in erratic operation or underfire. High pressure can result in permanent damage to gas valve or overfire. For natural gas units, operating pressure at unit gas connection must be between 4.5" W.C. and 10.5" W.C. For L.P. gas units, operating pressure at unit gas connection must be between 10.5" W.C. and 13.5" W.C.

On multiple unit installations, each unit should be checked separately, with and without units operating. Supply pressure must fall within range listed in previous paragraph.

E-Check Manifold Pressure

After line pressure has been checked and adjusted, check manifold pressure. Checks of manifold pressure are made as verification of proper regulator adjustment. Manifold pressure for the G17 can be measured at any time the gas valve is open and is supplying gas to the unit. Normal manifold pressure for natural gas units is 3.5 in. w.c. For LP/propane gas the correct manifold pressure is 9.5 in. w.c. See tables 5 and 6 for derated manifold pressure values in high altitude application for both natural and LP gases. Move pressure gauge to outlet pressure tap located on unit gas valve (GV1). See figure 8 for location of pressure tap on gas valve.

⚠ IMPORTANT

For safety, connect a shut-off valve between the manometer and the gas tap to permit shut off of gas pressure to the manometer.

TABLE 4

GAS VALVE REGULATION	
Unit (Fuel)	Operating Pressure (outlet) in. W.C.
Natural	3.5 +0 -0.3
L.P.	9.5 ± 0.5

The gas valve is factory set and should not require adjustment. All gas valves are factory regulated. See table 4.

Manifold Adjustment Procedure:

- 1- Connect a test gauge to outlet pressure tap on gas valve. Start unit and allow 5 minutes for unit to reach steady state.
- 2- While waiting for the unit to stabilize, notice the flame. Flame should be stable and should not lift from burner. Natural gas should burn blue. L.P. gas should burn mostly blue with some orange streaks.
- 3- After allowing unit to stabilize for 5 minutes, record manifold pressure and compare to values given in table 4.

NOTE-Shut unit off and remove manometer as soon as an accurate reading has been obtained. Take care to replace pressure tap plug.

F- Proper Gas Flow

To check for proper gas flow to combustion chamber, determine Btuh input from unit rating plate or table or the specifications tables on pages 1 and 2. Divide input rating by Btuh per cubic foot of available gas. Result is the number of cubic feet per hour required. Determine flow of gas through gas meter for two minutes. Multiply by 30 to get hourly flow of gas to burner.

NOTE- To obtain accurate reading, shut off all other gas appliances connected to meter.

G-High Altitude Derate

C.G.A. certified units used in high altitude applications are factory equipped with modifications that eliminate the need for manifold pressure adjustment to obtain proper heat input. Check the unit rating plate to make sure unit is a high altitude unit.

A.G.A. certified units must be derated when installed at an elevation of 2,000 ft. (610 m) or more above sea level. Tables 5 and 6 show the derated manifold pressure for high altitude operation with both natural and LP/Propane

gas. Operating this appliance at the manifold pressure specified on the tables will ensure proper unit heat input at high altitude. Consult your gas utility for the local natural gas heating value.

TABLE 5

HIGH ALTITUDE MANIFOLD PRESSURE DERATE FOR NATURAL GAS UNITS					
Altitude (Ft.)	*Heating Value (Btu/Ft#)				
	900	950	1000	1050	1100
0	4.32" wc	3.88" wc	3.50" wc	3.17" wc	2.89" wc
1000	4.32" wc	3.88" wc	3.50" wc	3.17" wc	2.89" wc
2000	3.65" wc	3.30" wc	2.95" wc	2.70" wc	2.45" wc
3000	3.35" wc	3.00" wc	2.70" wc	2.45" wc	2.25" wc
4000	3.05" wc	2.75" wc	2.45" wc	2.25" wc	--
5000	2.77" wc	2.48" wc	2.25" wc	--	--
6000	2.50" wc	2.25" wc	--	--	--

**Heating value based on atmospheric pressure of 30" mercury and temperature of 60°F (16°C).*

NOTE-This is the only permissible field derate for this appliance.

TABLE 6

HIGH ALTITUDE MANIFOLD PRESSURE DERATE FOR LP/PROPANE GAS UNITS							
ALTITUDE (Ft.)	0	1000	2000	3000	4000	5000	6000
MANIFOLD PRESSURE	9.5" w.c.	9.5" w.c.	8.0" w.c.	7.2" w.c.	6.5" w.c.	5.9" w.c.	5.3" w.c.

⚠ IMPORTANT

For safety, shut unit off and remove manometer as soon as an accurate reading has been obtained. Take care to replace pressure tap plug.

H-Flame Signal

A 50 microamp DC meter is needed to check the flame signal on the primary ignition control.

Flame (microamp) signal is an electrical current which passes from the ignition control through the sensor electrode during unit operation. Current passes from the sensor through the flame to ground to complete a safety circuit.

To Measure Flame Signal:

- 1- Place meter in series between ignition control and sensor wire. Connect the positive (+) lead of meter to the ignition control sensor connection and the negative (-) lead of the meter to the sensor wire. See figure 14.
- 2- Set thermostat for a heating demand and check flame signal with unit operating. For G17 series, a reading of 1 to 5 microamps DC should occur.

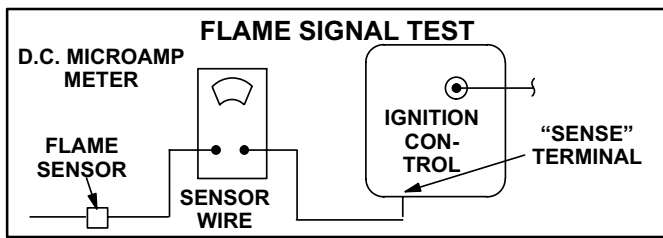


FIGURE 14

Flame signal may rise above 5 microamps for the first few seconds after ignition and then level off within the range.

⚠ WARNING

Fire and explosion hazard.
These instructions MUST be followed exactly.
Can cause a fire or explosion resulting in property damage, personal injury or loss of life.

VI-TYPICAL OPERATING CHARACTERISTICS

A-Blower Operation and Adjustment

NOTE- The following is a generalized procedure and does not apply to all thermostat controls.

- 1- Blower operation is dependent on thermostat control system.
- 2- Generally, blower operation is set at thermostat sub-base fan switch. With fan switch in ON position, blower operates continuously. With fan switch in AUTO position, blower cycles with demand or runs continuously while heating or cooling circuit cycles.
- 3- In all cases, blower and entire unit will be off when the system switch is in OFF position.

B-Temperature Rise

Temperature rise for G17 units depends on unit input, blower speed, blower horsepower and static pressure as marked on the unit rating plate. The blower speed must be set for unit operation within the range of "AIR TEMP. RISE °F" listed on the unit rating plate.

To Measure Temperature Rise:

- 1- Place plenum thermometers in the supply and return air plenums. Locate supply air thermometer in the first horizontal run of the warm air plenum where it will not pick up radiant heat from the heat exchanger.
- 2- Set thermostat to highest setting.
- 3- After plenum thermometers have reached their highest and steadiest readings, subtract the two readings. The difference should be in the range listed on the unit rating plate. If the temperature is too low, decrease blower speed. If temperature is too high, first check the firing rate. Provided the firing rate is acceptable, in-

crease blower speed to reduce temperature. To change blower speed taps see the Blower Speed Taps section in this manual.

C-External Static Pressure

- 1- Measure tap locations as shown in figure 15.

- 2- Punch a 1/4" diameter hole in supply and return air plenums. Insert manometer hose flush with inside edge of hole or insulation. Seal around the hose with permagum. Connect the zero end of the manometer to the discharge (supply) side of the system.

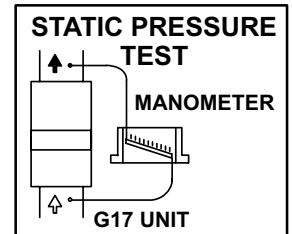


FIGURE 15

On ducted systems, connect the other end of manometer to the return duct as above. For systems with non-ducted returns, leave the other end of the manometer open to the atmosphere.

- 3- With only the blower motor running and the evaporator coil dry, observe the manometer reading. Adjust blower motor speed to deliver the air desired according to the job requirements.
- 4- External static pressure drop must not be more than 0.5" W.C.
- 5- Seal around the hole when the check is complete.

D-Blower Speed Taps

Blower speed tap selection is accomplished by changing the taps at the blower motor harness connector. Disconnect harness connector from motor to expose speed selectors. Blower speed selections are listed in table 7.

To Change Blower Speed:

- 1- Turn off electric power to furnace.
- 2- Remove upper access panel and filter access door. See figure 1.
- 3- Lift left side filter over left support angle. For easy handling, hold filter at center bottom.
- 4- Rotate filter sideways and pull it through the blower access panel opening.
- 5- Pull the second filter out the same way as the first.
- 6- Grasp blower motor harness connector located on back on motor. Depress lock tab and pull connector from motor.

Blower Speed Taps

- 7- Pull harness connector and wires through blower access panel opening.
- 8- Select desired speeds for heating and cooling. (Red = heating, Black = cooling, White = common). See table 7.

TABLE 7

BLOWER SPEED SELECTION						
UNIT	Factory Connected Speed Taps		Motor Speeds Available			
	Cool	Heat				
G17Q2-50*	2	3	3			
G17Q3-75	2	4	4			
G17Q3/4-100	2	4	4			
G17Q5/6-100	3	5	5			
G17Q5/6-125	3	4	5			
BLOWER SPEED SELECTION HI ← → LOW						
SPEED	◇ 2	3	4	3		
	◇ 2	3	4	5	4	
TAPS	◇ 2	3	4	5	6	5
*DO NOT USE LOW SPEED TAP ON Q2-50						
◇ MOTOR PLUG SPEED TAP DESIGNATION						

- 9- Depress harness connector tab to release wire terminal. Select connector location for new speed (refer to unit wiring diagram). Insert wire terminal until it is securely in place. See figure 16.
- 10- Replace harness connector to motor .

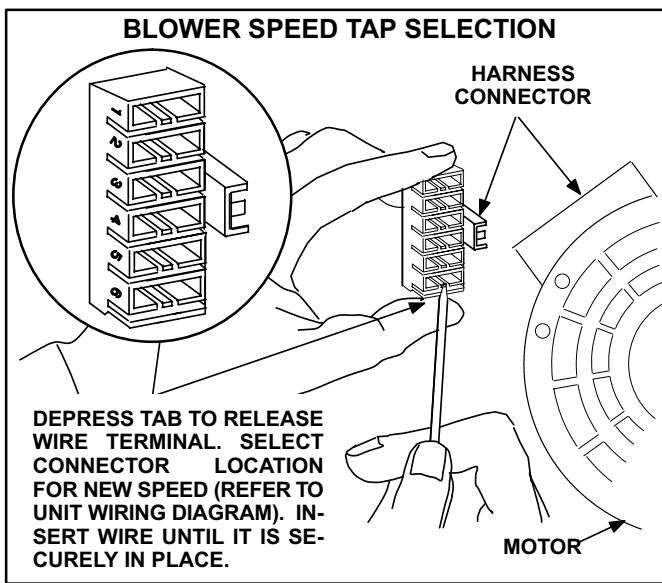


FIGURE 16

VII-MAINTENANCE

At the beginning of each heating season, the system should be checked as follows:

A-Filters and Filter Springs

G17 units use a cleanable hogshair-type filter. Holding springs lock filter in place by securing hook in holes provided in unit. G17 units are factory shipped for side air return. Bottom filter applications for use on G17Q5/6-100 and G17Q5/6-125 require an optional kit available from Lennox. G17X models are factory equipped for use with bottom return air only. If side return air is desired, an optional kit is available. See figure 17.

Filters must be cleaned or replaced when dirty to assure proper unit operation. Replace with same hogshair-type filter material cut to specific measurements for each unit as outlined in the specification table in this manual.

The factory supplied filter can be washed with cold water. Direct water through filters in the opposite direction of air flow. When dry, replace filter and reconnect springs. Refer to figure 17 for spring position.

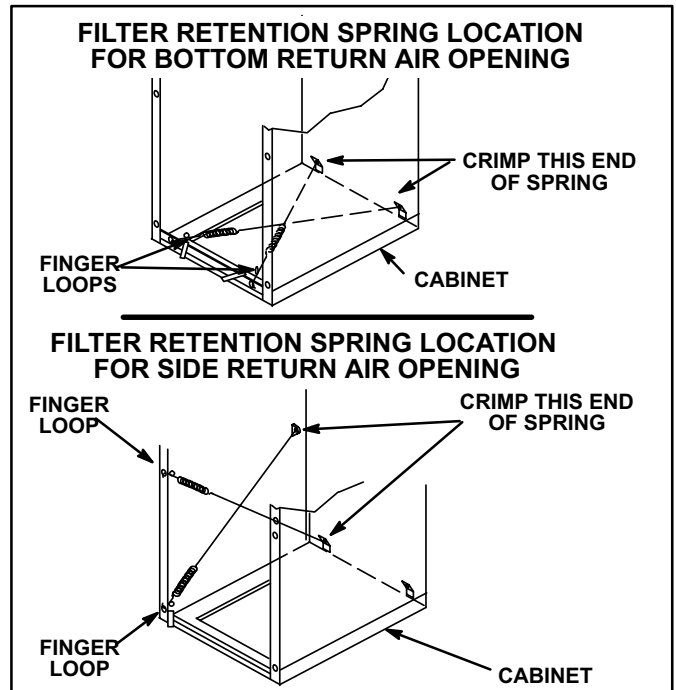


FIGURE 17

B-Cleaning Heat Exchanger and Burners

NOTE-Use papers or protective covering in front of furnace while cleaning furnace.

To clean heat exchanger:

- 1- Turn off both electrical and gas power supplies to furnace. Refer to figures 1 and 12 during disassembly and reassembly procedures.
- 2- Remove upper and lower access panels.
- 3- Remove screws holding burner box damper in place and remove burner box damper assembly and damper prove switch cover.
- 4- Remove screws securing removable burner box cover and remove burner box cover.
- 5- Remove flue pipe and draft hood.

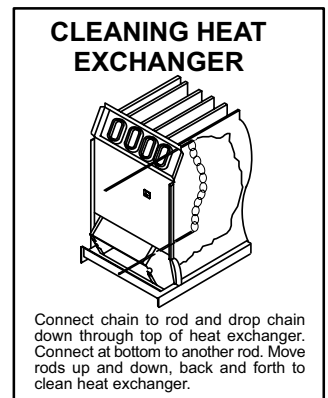


FIGURE 18

⚠ CAUTION

Potential for unit damage.
Use extreme care when opening damper door to prevent permanent damage to the damper door.
Can cause damage to damper motor resulting in improper furnace operation.

- 6- Remove flue restrictor over flue outlet (-50 only).
- 7- Gas manifold, gas valve and burners do not need to be removed and can be left in place.
- 8- Insert a 2 ft. steel rod with a 20 in. length of chain attached to one end into top opening of heat exchanger. Refer to figure 18.
- 9- Shake rod to drop chain through clamshell into burner cavity in bottom of heat exchanger.
- 10- Attach bottom of chain to 2 ft. (600 mm) rod.
- 11- Push and pull the rods back and forth and up and down with a vigorous motion. The chain will dislodge the soot and scale deposits inside the heat exchanger. Repeat for each clamshell.
- 12- With a shop vacuum or rags, clean out soot and scale deposits from bottom of heat exchanger.

To clean burners:

- 1- Disconnect gas piping.
- 2- Remove screws holding gas manifold in place and pull burners from heat exchanger.
- 3- Clean top of burner ports with a wire brush. See figure 19.

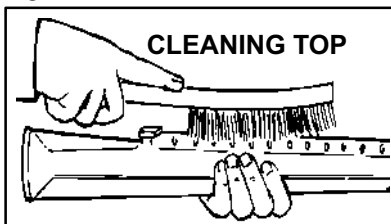


FIGURE 19

- 4- Clean burner ports by inserting a cleaning tool (made from a piece of sheet metal cut to fit the burner ports) and work in and out of each port. See figure 20.

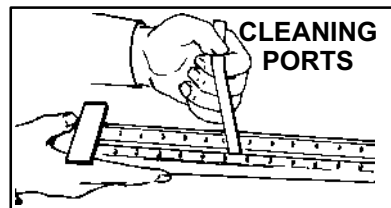


FIGURE 20

- 5- Clean inside of each burner with a bottle cleaning brush. See figure 21.

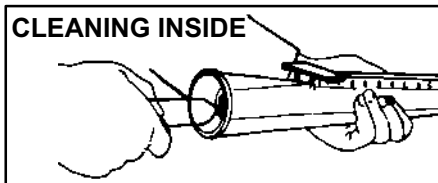


FIGURE 21

- 6- Replace burners making sure to fully engage in rear

receiving slot in heat exchanger. See figure 22. Resecure gas manifold and supply piping.

- 7- Resecure damper assembly, damper prove switch cover and burner box top. Carefully open damper by hand to ensure that the damper spring closes damper correctly and that the damper prove switch is engaged when damper is open.

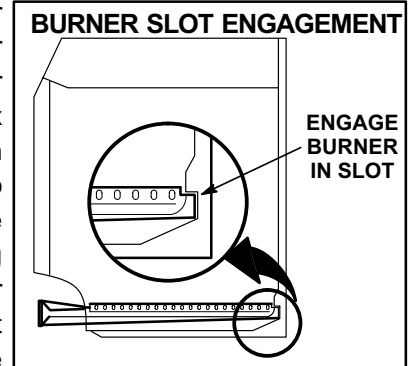


FIGURE 22

- 8- Install flue restrictor (-50 models only).
- 9- Before replacing draft hood, flue pipe and access panels, inspect draft hood gasket. Replace gasket if necessary.
- 10- Carefully check all piping connections (factory and field) for gas leaks. Use a leak detecting solution or other preferred means.
- 11- Turn on gas and electrical supply.

⚠ CAUTION

Potential for gas leaks, fire or explosion.
Some soaps used for leak detection are corrosive to certain metals. Carefully clean piping thoroughly after leak detection has been completed.
Can cause damage to piping resulting in gas leaks, fire or explosion.

C-Supply Air Blower

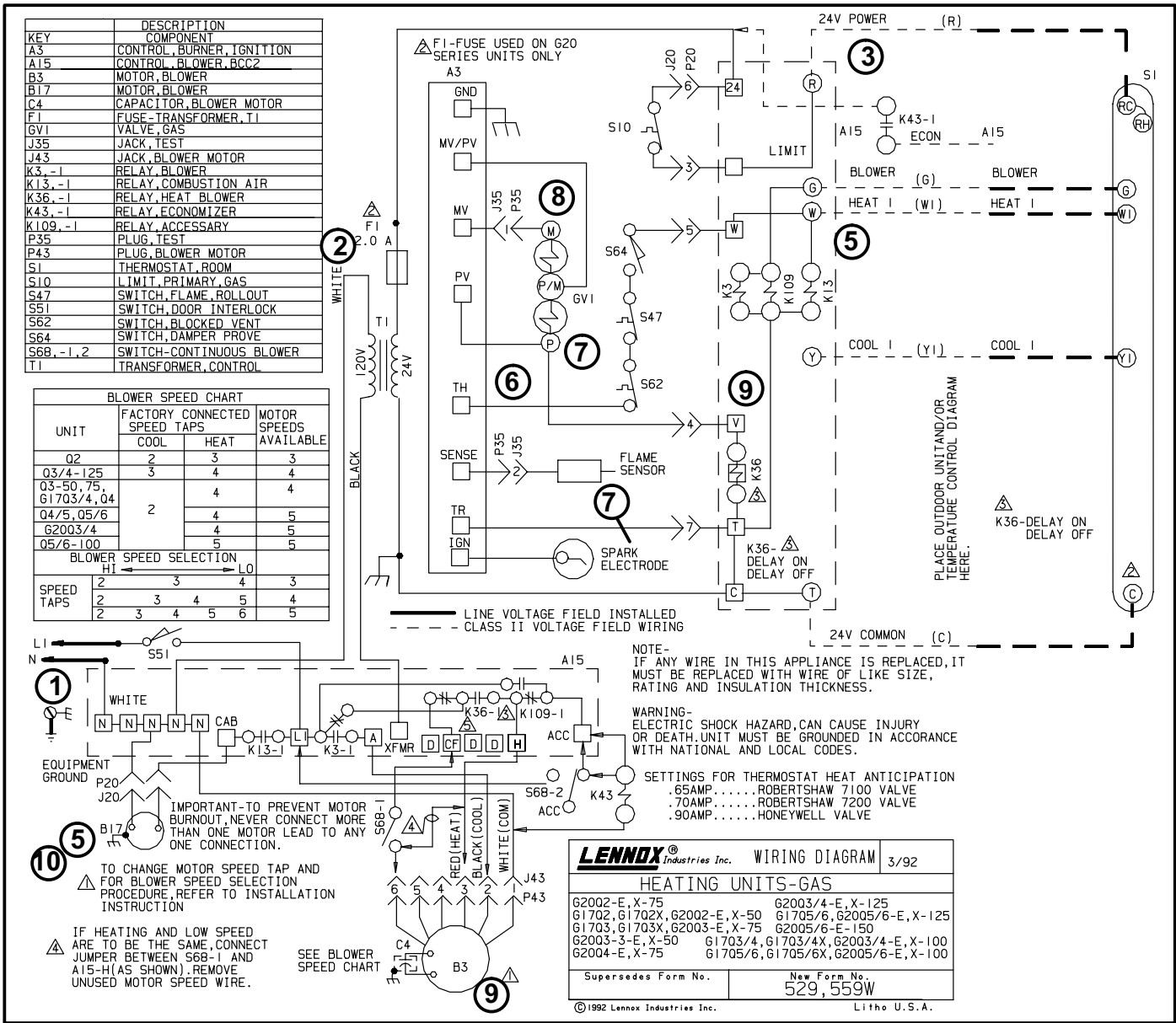
- 1- Check and clean blower wheel.
- 2- Motors used on the Lennox G17 series units are permanently lubricated and need no further lubrication.

A - Flue and Chimney

Flue must conform to all AGA/GAMA venting requirements for "Category I Central Furnaces." Flue pipe deteriorates from the inside out and must be disconnected in order to check thoroughly. Check flue pipe, chimney and all connections for tightness and to make sure there is no blockage or leaks.

B - Electrical

- 1 - Check all wiring for loose connections.
- 2 - Check for correct voltage.
- 3 - Check amp-draw on blower motor.



OPERATION SEQUENCE- G17 SERIES

- 1- When disconnect is closed, 120V feeds to line voltage side of the blower control (A15). Door interlock switch (S51) must be closed for A15 to receive voltage.
- 2- A15 supplies 120V to transformer (T1).
- 3- T1 supplies 24VAC to terminal "24" on A15. In turn, terminal "R" of A15 supplies 24VAC to terminal "RC" of the thermostat (S1).
- 4- When there is a call for heat, W1 of the thermostat energizes W of the blower control with 24VAC.
- 5- CAB of the blower control energizes the damper motor (B17) which opens the damper door. When door is in full open position, damper prove switch (S64) closes.
- 6- When S64 closes, assuming the flame rollout switch (S47) and blocked vent shutoff switch (S62) are

closed, 24VAC is supplied to the "TH" terminal of the electronic control (A3).

- 7- Through the electronic control, the pilot valve "P" of the gas valve opens. The spark electrode ignites the pilot and the flame sensor senses the pilot.
- 8- When flame is sensed the main gas valve opens and supplies the burners with gas.
- 9- Terminal "V" (Valve Sense) of the blower control senses that the gas valve is energized and initiates a 45 second time delay. At the end of the 45 seconds the blower, (B3) is energized.
- 10- When the heat demand has been satisfied, W1 of the thermostat de-energizes the gas valve and damper spring closes the damper door. As the damper door closes, the damper prove switch opens. The blower runs for a designated period (90-330 sec.) as set by jumper on blower control.

BCC2-1 TROUBLESHOOTING FLOWCHART

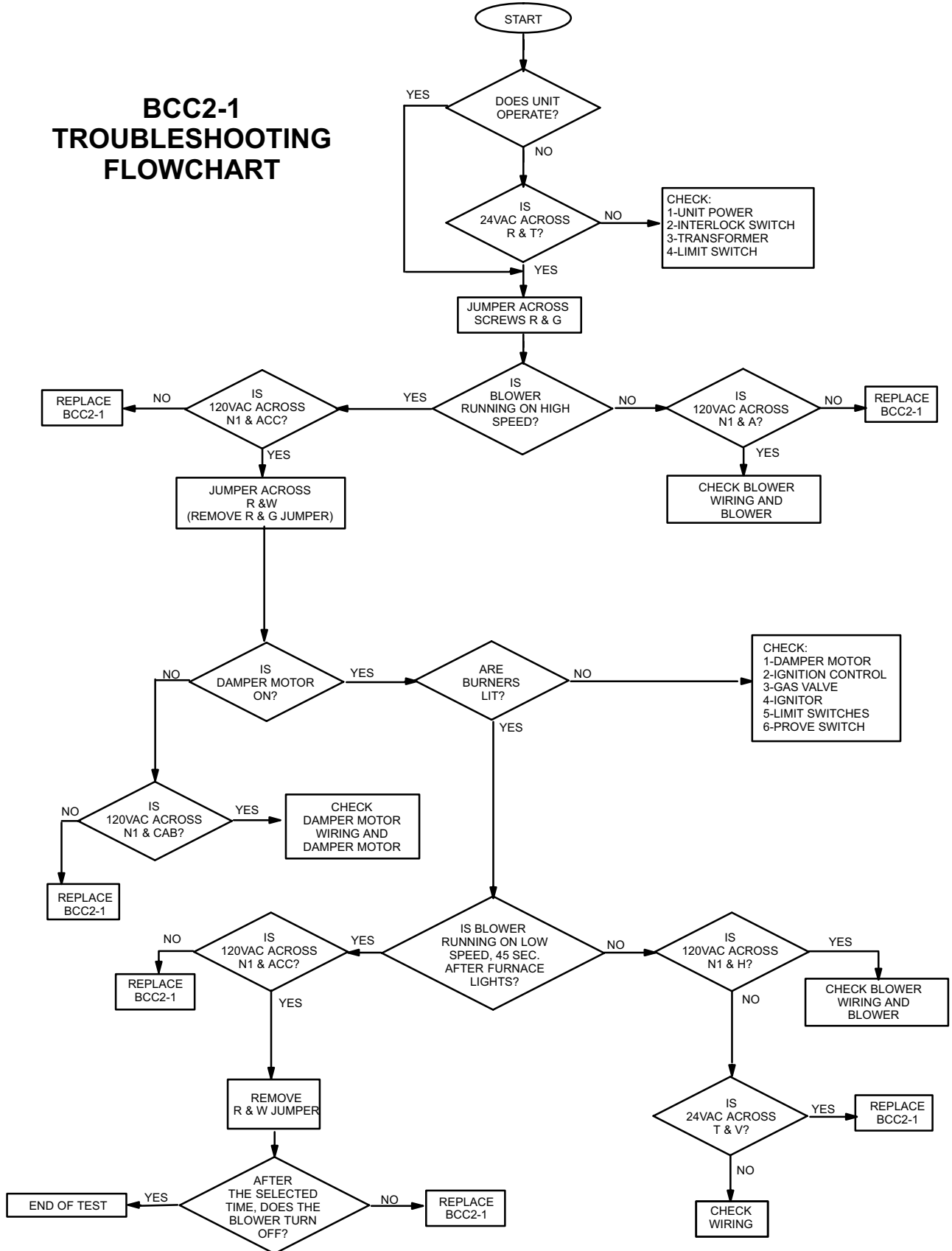


FIGURE 15