



REZNOR *Thomas & Betts*

Gas-Fired Tubular, Radiant, Low-Intensity Infrared Heater

Operation/Maintenance/Service Form RZ-NA 456OMS

APPLIES TO: INFRA-REZ® Heater Models TR/TR-H

Table of Contents

	Page		Page
GENERAL	1	SERVICE SECTION - Control Location, Operation, and Service	4-11
MAINTENANCE SECTION	1-4	9. Time Delay Relay	5
1. Flexible Gas Connection and Electrical		10. Pressure Switch	5
Supply Connection	2	11. Ignition Controller	6
2. Combustion Chamber Tube	2	12. Combination Gas Valve	6
3. Heat Exchanger Tubes	2	13. Combustion Air Blower System	7
4. Vent Pipe	2	14. Interlock Switch	7
5. Vent Terminal and Combustion Air Inlet Terminal (if optional outside combustion air kit is installed)	2	15. Transformer	7
6. Combustion Air System and Main Burner	2	16. Troubleshooting Guides	8-10
7. Main Burner	3	17. Wiring Diagram	11
8. Pilot Burner Assembly	3	INDEX (by page number)	12

FOR YOUR SAFETY

If you smell gas:

1. Open windows.
2. Don't touch electrical switches.
3. Extinguish any open flame.
4. Immediately call your gas supplier.

FOR YOUR SAFETY

The use and storage of gasoline or other flammable vapors and liquids in open containers in the vicinity of this appliance is hazardous.

KEEP THIS BOOKLET FOR MAINTENANCE AND SERVICE REFERENCE.

General

The operation/maintenance/service instructions in this booklet apply to INFRA-REZ® Tubular, Low-Intensity Infrared Heaters, Models TR/TR-H. As with any gas-burning equipment, regular maintenance procedures are required to ensure continued safety, reliability, and efficiency of the installation.

If service is required, this heater should be serviced only by a qualified service person. Service information in this booklet is intended as a guideline for a qualified gas-fired equipment service person.

WARNING: Improper installation, adjustment, alteration, service, or maintenance can cause property damage, injury or death. Read the installation, operation, and maintenance instructions thoroughly before installing or servicing this equipment. (See Installation Form 456 for installation instructions.)

Maintenance Section

These tubular infrared heaters are designed to need only a minimum amount of maintenance. Some maintenance procedures outlined in this Section require inspection only, and some require action. All of the procedures described should be performed annually. Depending of the environment and the number of operating hours, more frequent cleaning may be required to certain components as indicated in the instructions for that component. Although the maintenance requirements for this heater are minimal, the routine maintenance procedures in this Section are necessary to ensure safe, reliable, and/or efficient operation.

The paragraphs which follow discuss the components and systems that require routine inspection/maintenance. At the beginning of each section, there is a code indicating the main reason why that maintenance procedure is necessary. The legend for that code is shown in the table below.

Maintenance Codes	Reason for Maintenance
S	= Safety (to avoid personal injury and/or property damage)
R	= Continued Reliability
E	= Efficient Operation

Maintenance Section (cont'd)

S 1. Flexible Gas Connection and Electrical Supply Connection

Expansion and contraction of the heater causes these components to be flexed on each completed heating cycle. Carefully inspect the flexible gas connector for any evidence that a fatigue crack has developed or is developing. If the inspection indicates that replacement is needed, replace the connector with an equivalent one (particularly the internal diameter because flexible connectors have large pressure losses). Inspect the electrical supply connection for any insulation damage, and replace it if any irregularities are noted.

S 2. Combustion Chamber Tube

Check the combustion chamber tube for any evidence of burn-out. A burned-out combustion chamber could allow fire to escape outside of the tube. If a burn out or weakness in the combustion chamber is discovered, the cause should be established and the tube replaced before heater operation is resumed. Burn out is the evidence of excessive flame temperature. Excessive flame temperature would most likely be caused by a restriction in the system.

S 3. Heat Exchanger Tubes

Check all of the heat exchanger tubes for any indications of a hole developing. A hole in a heat exchanger tube would allow flue products and/or flame to escape into the heated space. Replace any suspect heat exchanger tube.

S 4. Vent Pipe

During a "cold" startup, transient condensation is formed. Over a period of time, condensation will cause metal pipe to develop holes and eventually fail completely. Replace any vent pipe that has condensation damage. The vent pipe system should be maintained at a quality where all flue products will be conveyed through the vent pipe to the outdoors.

If equipped with an optional dual vent kit, remove the cover from the dual vent adapter box to check the inner pipe.

R 5. Vent Terminal and Combustion Air Inlet Terminal (if optional outside combustion air kit is installed)

To prevent the pressure switch from cycling, check the vent terminal and the combustion air inlet terminal for any restrictions and/or damage. Clean if restricted, and replace if damaged.

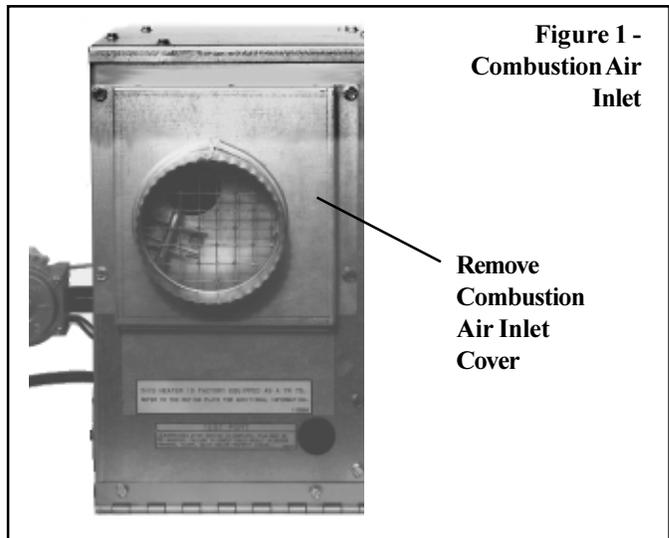
S 6. Combustion Air System and Main Burner

R During an average heating season, approximately 65 ton of air passes through a Size 100 burner. That air is always carrying some dirt. Obviously, the amount of dirt varies with the environment. As the air passes through, some of that dirt is deposited on the inlet screen of the combustion air intake, on the combustion air blower wheel, and inside the main burner. This buildup of dirt will eventually affect the operation of the heater. To maintain safe and reliable heater operation, an annual cleaning (more frequently in dirty environments) is recommended.

Instructions for Cleaning the Combustion Air Blower (requires a wire brush, cleaning cloth, and an automotive-type aerosol degreaser or refrigerant coil cleaner):

CAUTION: Use of eye protection is recommended.

- 1) Turn off the electrical supply to the heater and rotate the knob on the gas valve to the "OFF" position.
- 2) Remove the combustion air inlet cover (Refer to Figure 1). If the heater is equipped with an outside combustion air inlet pipe, it is not necessary to disconnect the pipe. Remove the inlet cover with the pipe attached.



- 3) Open the access panel on the bottom of the burner/control box. Either (1) cover the air inlet to the main burner to prevent foreign debris from entering the burner tube or (2) remove the burner for cleaning (Refer to Paragraph 7 on Cleaning the Main Burner).
- 4) Remove the combustion air flow sensor tube bracket and the combustion air restrictor plate (Figure 2). The combustion air blower wheel is now visible (Figure 3).
- 5) Clean the blower wheel. Remove any dust, dirt and/or oily deposits. Non-oily deposits can be removed with a small brush and low-pressure compressed air. Be careful not to damage the blower wheel. Use an aerosol degreaser (available in automotive stores) or a refrigerant coil cleaner to clean oily deposits.

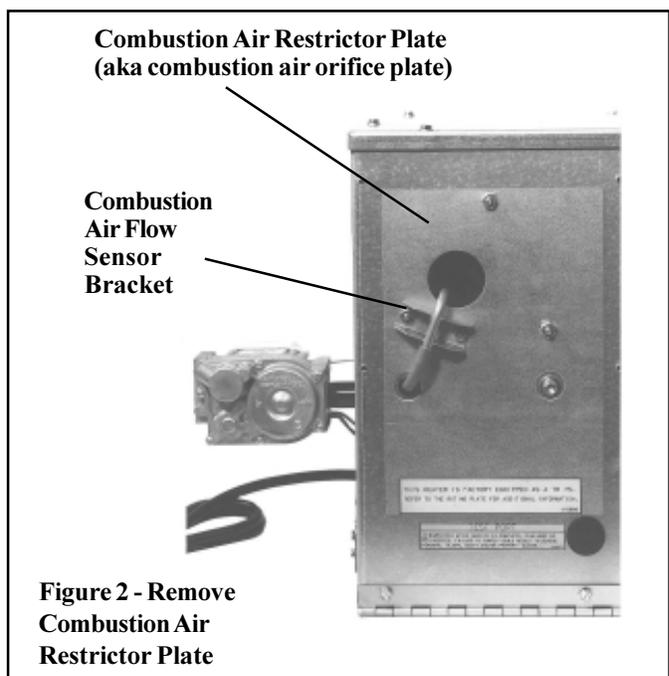
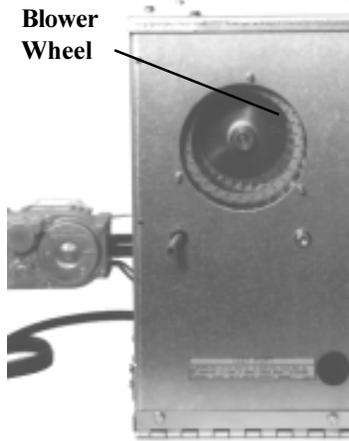


Figure 3 - Clean the blower wheel using a brush, low-pressure compressed air, and an aerosol degreaser or refrigerant coil cleaner. Be careful not to damage the blower wheel.



- 6) Clean the inside of the burner/control box. Remove any dirt/debris that collected during normal operation and from the wheel-cleaning process. Do not let any foreign material enter the main burner or collect on the pilot assembly.
- 7) Clean and re-install the combustion air restrictor plate. Re-attach the combustion air flow sensor tube bracket making certain there is no dirt inside the tube. Clean the combustion air inlet cover and re-install it on the heater.
- 8) Close the access panel. Restore the electric and the gas. Test fire the heater and check for proper operation.

S **7. Main Burner**

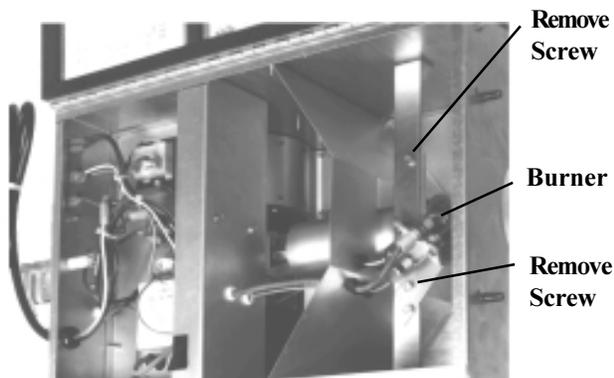
R Excessive dirt buildup on and inside the concentric port rings on the main burner could cause fuel gas to spill out of the back of the burner tube. Fuel gas spilling out of the back of the burner tube will cause gas odor inside the building, and if not corrected, could eventually cause a fire/explosion hazard. To prevent fuel gas spilling from the back of the burner tube, clean the main burner ports at least annually.

Instructions for Removing and Cleaning the Main Burner (requires a wire brush, cleaning cloth, and an automotive-type aerosol degreaser or refrigerant coil cleaner):

CAUTION: Use of eye protection is recommended.

- 1) Turn off or disconnect the main electric supply and rotate the knob on the gas valve to the "OFF" position.
- 2) Open the access panel.
- 3) While supporting the front of the burner, remove the two screws that retain the main burner (Refer to Figure 4). The

Figure 4 - Remove Main Burner



rear of the burner is supported by a retention clip. Slide the burner toward the combustion chamber, carefully manipulate, and remove the burner from the burner/control box.

- 4) Remove any soot deposits from the burner with a wire brush. Clean between the port rings with an aerosol degreaser and/or compressed air. Wipe the inside of the burner tube clean. (Cleaning the burner with an aerosol degreaser is highly recommended as the degreaser will retard future buildup of dirt.)

Figure 5 - Clean the Burner



- 5) Inspect the cleaned burner for any damage or deterioration. If the burner has any damage or signs of deterioration, replace it. Carefully reverse the above procedures to re-install or replace the burner. Test the heater for proper operation.

R **8. Pilot Burner Assembly**

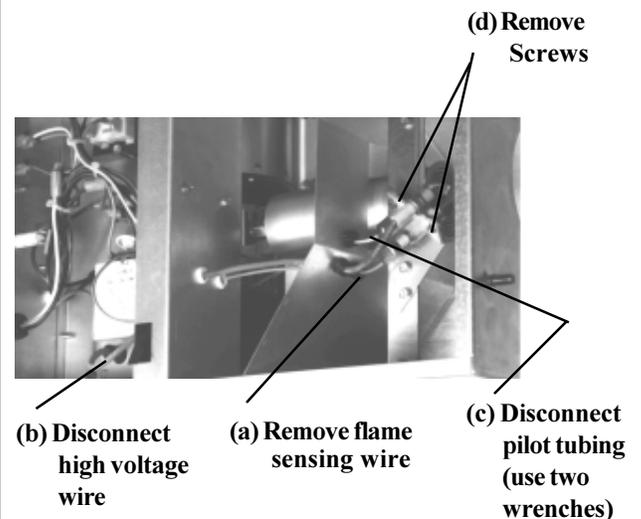
The pilot burner performs several necessary functions, and to ensure reliable service, it must be cleaned periodically. The required frequency of cleaning will vary depending on the installation site and the hours of operation. No less than annual cleaning is recommended.

One of the most important reasons for cleaning the pilot burner is that the low voltage DC current needed to prove pilot flame must flow from the flame sensing rod through the pilot flame to the burner hood. That current can be either retarded or totally blocked by deposits and/or corrosion on the flame sensing rod and/or the pilot burner hood.

Instructions for Removing and Cleaning the Pilot Assembly (requires 5/16" nut driver, 1/2" open-end wrench, 7/16" open-end wrench, and emery cloth):

- 1) Turn off or disconnect the main electric supply and rotate the knob on the gas valve to the "OFF" position.
- 2) Open the access panel.
- 3) Remove the Pilot Assembly (Refer to Figure 6):

Figure 6 - Remove Pilot Assembly



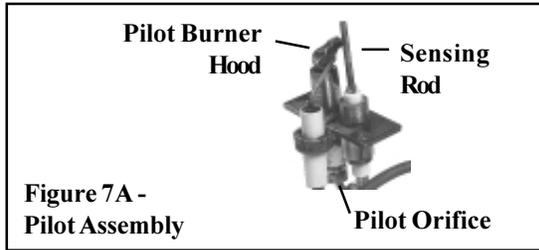
Maintenance Section (cont'd)

8. Pilot Burner Assembly (cont'd)

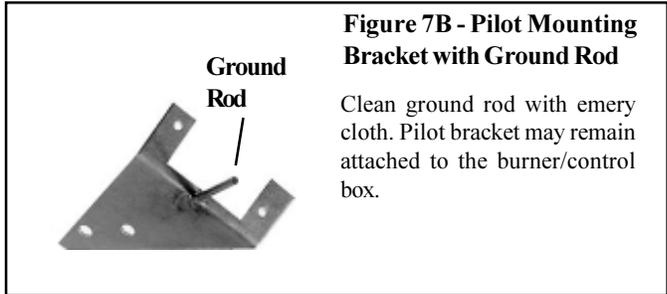
- a) Remove the flame sensing wire from the pilot burner.
- b) Disconnect the high voltage wire from the ignition controller and pull the wire free from the divider wall.
- c) Use the two open-end wrenches to disconnect the gas supply tubing. (Do not attempt using only one wrench; pilot line tubing could be damaged.) Use one wrench to hold the pilot orifice and the second to loosen the pilot gas line fitting.
- d) Remove the two screws that retain the pilot burner assembly to its mounting bracket. Remove the pilot assembly
- 4) Clean the pilot assembly:

CAUTION: Use of eye protection is recommended.

- a) Remove the pilot orifice. Hold the orifice toward a bright light and look through the tubing end. There should be two tiny holes visible. If the two holes are



- b) not visible, clean the orifice with solvent and compressed air. DO NOT REAM THE ORIFICE.
- b) Remove the sensing rod and clean with an emery cloth. Rub the metal sensing rod with the emery cloth until it is bright. Wipe off the ceramic insulator.
- c) Clean the pilot burner hood. Use the emery cloth to carefully clean the pilot burner hood. After the pilot burner hood is cleaned, blow away dirt from the pilot with compressed air.
- 5) Clean the ground rod (the ground rod is part of the pilot mounting bracket assembly, Figure 7B). Clean with an emery cloth; rub until metal is bright.

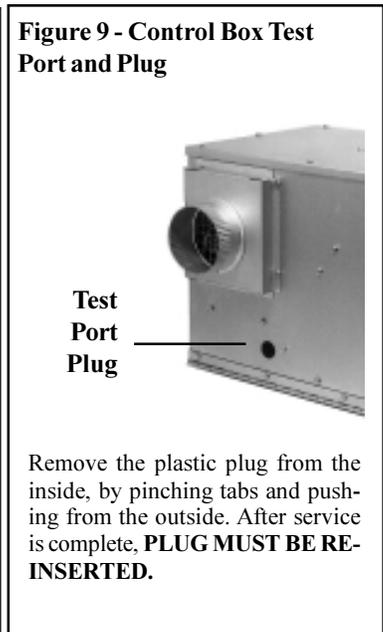
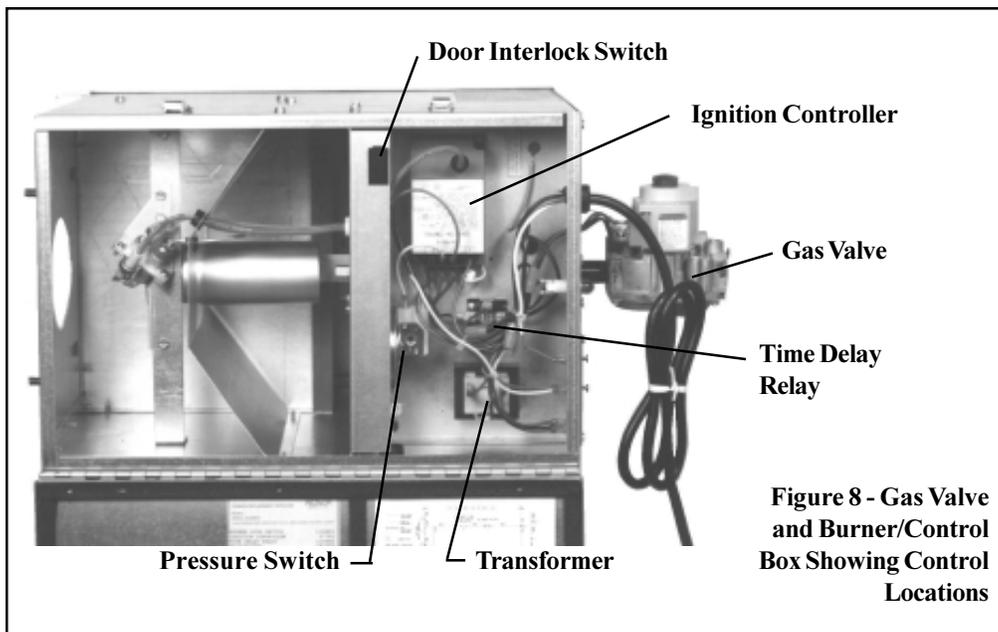


- 6) Re-assemble, reversing above procedure. Test the heater for proper operation.

Service Section - Control Location, Operation, and Service

WARNING: Service work on this heater should only be done by a qualified gas service person. This service information and the troubleshooting guides are intended as an aid to a qualified service person.

To service this heater, it is necessary to understand the normal operating functions of the heater controls. Refer to Figure 8 and to the individual illustrations to identify and locate each of the controls.



9. Time Delay Relay

Function -- This device is used to provide a post purge of the combustion chamber, heat exchanger tubes, and vent pipe. The post purge timing is approximately 75 to 180 seconds. On startup, after the thermostat closes, there is a delay of 5 to 15 seconds in combustion air blower startup. The time delay heater is in the low voltage control circuit, and the normally open contacts control the combustion air blower.

Time Delay Relay Check (requires a voltmeter and an ohmmeter) -- Before checking the time delay relay, determine that low voltage (24 volts) is available. Set the thermostat to above room temperature. Using a voltmeter, check the voltage between Terminal R on the thermostat terminal strip (on the valve end of the burner/control box) and the ground terminal on the ignition controller. If the voltage is between 10 to 28 volts, proceed to check the time delay relay. If there is no voltage, replace the transformer (See Paragraph 15). If the voltage is not within the specified range, check the supply voltage.

Rated	Acceptable Range
115V	105-130 volts
208V	200-235 volts
230V	210-250 volts
460V	440-480 volts

Having established that an acceptable low voltage is present, rotate the knob on the combination valve to the "OFF" position.

- 1) Disconnect or shutoff the main electrical supply.
- 2) Open the access panel on the bottom of the burner/control box. Remove the black plastic plug from the test port on the side of the burner/control box (See Figure 9).
- 3) Route the leads from an ohmmeter through the test port to the inside of the control box. Locate the time delay relay, disconnect the two black wires from the time delay relay terminals, and attach the ohmmeter leads to those terminals.
- 4) Close the access panel, turn on the main electric supply, and set the thermostat above room temperature.
- 5) After 30 seconds, the ohmmeter should show continuity. If continuity is not observed, replace the time delay relay.
- 6) When testing is complete, be sure to re-insert the black plastic plug in the test port.

10. Pressure Switch

Function -- The pressure switch is a safety control to ensure that adequate air is being provided for proper combustion. The device "senses" a small differential pressure created by the flow of the combustion air.

The pressure switch is factory set to "close" at pressure differential of $0.57 \pm .05$ " w.c. and to "open" when the pressure is reduced to $0.47 \pm .05$ " w.c. (Exceptions for high altitude operation -- Size 50 at 6001-8000 ft (Options AB6 or AB7) and all high altitude (over 2000 ft) Sizes 175 and 200 units require a reduced pressure setting of $0.42 \pm .05$ " w.c.)

Figure 10 - Time Delay Relay



Figure 11 - Pressure Switch



Table 2 - Correct Sensing Pressure

Size	"Cold" Sensing Pressure Range*	"Hot" Sensing Pressure Range*
50	0.95 - 1.10" w.c.	0.55 - 0.95" w.c.
75	0.65 - 0.80" w.c.	0.55 - 0.75" w.c.
100	0.75 - 1.00" w.c.	0.55 - 0.75" w.c.
125-150	0.95 - 1.30" w.c.	0.55 - 1.00" w.c.
175-200	0.80 - 1.20" w.c.	0.55 - 0.90" w.c.

*Pressure will vary slightly depending on inlet and/or outlet restrictions.

Sensing Pressure Check (requires a sensitive slope gauge, several feet of 3/16" O.D. rubber tubing, and two 1/4" O.D. barbed tees)

- 1) Disconnect the electrical supply and open the access panel.
- 2) Using one of the tees, attach the tubing to one side of the pressure switch so that the switch will continue to sense pressure. Repeat on the other side of the pressure switch.
- 3) Remove the test plug from the side of the burner/control box (See Figure 9.) and route the pieces of tubing through the test port. Connect the tubing to the slope gauge being careful not to "mix" the tubes.
- 4) Close the access panel, turn on the electrical power, and set the room thermostat above room temperature.
- 5) On the slope gauge, take the "cold" readings. If the "cold" sensing pressure is sufficient to cause the pressure switch to close, observe at what sensing pressure the switch opens.
- 6) When testing is complete, be sure to re-insert the black plastic plug in the test port.

Service -- The pressure switch is a very reliable device which has no field-repairable parts and seldom needs to be replaced. Usually a pressure sensing problem is an indication that there is a problem with the vent pipe and/or combustion air inlet. The most likely causes of low sensing pressure are listed below.

- On new installations, the cause(s) is usually due to either too much vent pipe, too much combustion air inlet pipe, and/or the use of non-specified terminals. (See the heater installation manual for venting/combustion air requirements.)
- On units that are not equipped with an outside combustion air inlet, low sensing pressure may be caused by negative building pressure. When negative building pressure exists, install an outside combustion air inlet.
- An obstruction in the vent pipe or combustion air inlet. Remove obstruction.
- A dirty combustion air blower wheel. See Maintenance Section, Paragraph 6, for cleaning instructions.

Check the installation, make necessary changes, and re-check the sensing pressure. If it should be determined that the pressure switch needs to be replaced, replace with an identical switch only -- do not substitute.

WARNING: If replacement of the pressure switch is necessary, replace with the identical model pressure switch only. Do not substitute.

Service Section (cont'd)

11. Ignition Controller

Function -- The ignition controller functions to ignite the pilot flame and as a flame supervision device. Natural gas heaters are equipped with a Model G67 ignition control. The Model G67 controller permits pilot gas flow continuously as long as the thermostat calls for heat. Heaters designed to operate on propane gas are equipped with a Model G770 ignition controller. The Model G770 controller shuts off the pilot gas flow after 120 seconds if the pilot is not ignited. Both models will shut off main burner gas flow immediately if the pilot flame is lost.

Pilot flame ignition is achieved by a high voltage (15KW) spark that occurs between the spark electrode and the pilot burner hood. The proper gap and location are important.

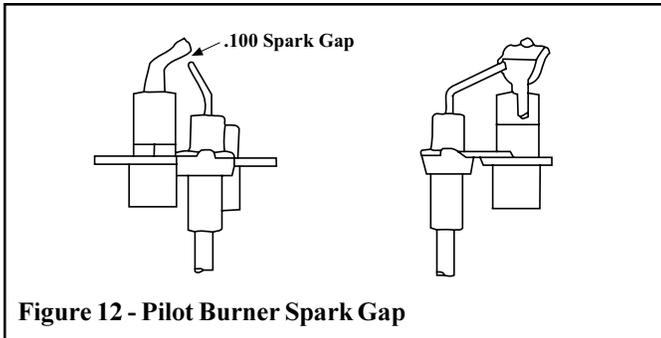


Figure 12 - Pilot Burner Spark Gap

The presence of the pilot flame is detected by the ignition controller's sensing circuit when a low voltage DC current flows through the pilot flame to ground. A current flow of at least 0.2 microamps is required for pilot flame detection.

Ignition Controller and Flame Signal Strength Test (requires a volt meter to check the ignition controller and microamp meter capable of reading tenths of a microamp to test the flame signal strength) --

- 1) Disconnect the main electrical supply.
- 2) Open the access panel and remove the plug from the test port (See Figure 9).
- 3) Route the microamp meter leads through the test port to the inside of the burner/control box. Remove the red wire from terminal No. 4 on the ignition controller and connect the microamp meter to the red wire and Terminal No. 4.
- 4) Close the access panel.
- 5) At the combination valve, disconnect the black wire. Connect the voltmeter to the black wire and Terminal C on the gas valve.
- 6) Restore the main power supply. Set the thermostat to above room temperature and wait for the time delay relay to start the combustion air blower.
- 7) If the flame signal reading on the microamp meter is 0.2 microamps or greater, but there is no voltage reading on the voltmeter, replace the ignition controller. (The ignition controller is not field-repairable.)

If there is 24 volts to the gas valve (voltmeter reading), but the flame signal microamp reading is low (less than 0.2 microamps), check for the following:

- (1) Improper gas pressure

BTUH Input	Gas Type	Supply Pressure	
		Minimum	Maximum
50,000 - 150,000	Natural	4.5" w.c.	14" w.c.
175,000 - 200,000	Natural	6" w.c.	14" w.c.
50,000 - 150,000	Propane	11" w.c.	14" w.c.

- (2) Dirty or misaligned flame sensor electrode and pilot burner hood (Refer to Maintenance Section, Paragraph 8 for cleaning instructions).
 - (3) Dirty or restricted pilot orifice (Refer to Maintenance Section, Paragraph 8 for instructions on cleaning the pilot orifice.)
- 8) When testing is complete, re-connect the wires according to the wiring diagram. Be sure to re-insert the black plastic plug in the test port.

12. Combination Gas Valve

Function - The combination valve provides a number of functions. It automatically controls the gas flow to the pilot and the main burner. It regulates the main burner gas pressure; and it contains a manual valve for complete interruption of the gas flow. The combination valve also contains a needle valve for adjustment of the pilot gas flow (units are shipped with the needle valve full open) and pressure tap ports for measuring inlet (supply) gas pressure and manifold gas pressure.

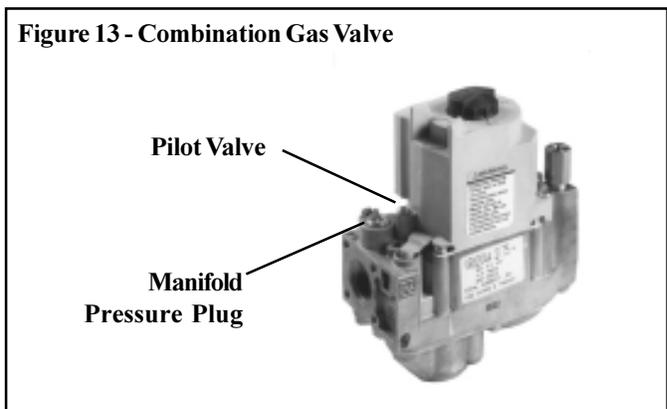


Figure 13 - Combination Gas Valve

Normally, it is not necessary to adjust the pilot gas flow or the manifold gas pressure. Do not attempt to correct for low inlet (supply) pressure by adjusting the pressure regulator. Adjusting the pressure regulator on the combination gas valve will not increase the supply pressure, and if at a later time, the inlet pressure is increased, an unsafe condition could result. The inlet gas pressure range which provides safe and efficient operation of the heater is shown in Table 3, Paragraph 11)

Manifold Pressure Settings

BTUH Input	Gas Type	Manifold Pressure
50,000 - 150,000	Natural	3.5" w.c.
175,000 - 200,000	Natural	5" w.c.
50,000 - 150,000	Propane	10" w.c.

Checking Manifold Gas Pressure

Before attempting to measure or adjust manifold gas pressure, the inlet (supply) pressure must be within the specific range for the gas being used, both when the heater is in operation and on standby. Incorrect inlet pressure could cause excessive manifold pressure immediately or at some future time.

With the manual valve (on the combination valve) positioned to prevent flow to the main burners, connect a manometer to the 1/8" pipe outlet pressure tap in the valve. Open valve and operate the heater to measure the manifold gas pressure. NOTE: Use a manometer (fluid-filled gauge) rather than a spring-type gauge due to the difficulty of maintaining calibration of a spring-type gauge.

Normally adjustments will not be necessary to the factory preset regulator. If adjustment is necessary, set pressure to proper settings by

turning regulator screw IN (clockwise) to increase pressure or OUT (counterclockwise) to decrease pressure. Consult the valve manufacturer's literature provided with the heater for more detailed information.

Service - The combination valve has no field-repairable parts.

13. Combustion Air Blower System

Function - The function of the combustion air blower system is to provide a metered flow of air to the burner for proper combustion of the fuel gas. The quantity of air flow also serves to control the temperature of the radiating surfaces. The combustion air blower system is comprised of the combustion air orifice, the blower wheel, the blower housing, and the blower motor.

Service - This system contains no field serviceable parts. If any of the components become defective, it must be replaced. The blower motor is permanently oiled and requires no additional oiling. For proper blower motor operation, the voltage supplied to the motor must be within the range shown in Table 1 (Paragraph 9). If any part(s) must be replaced, the correct blower wheel spacing must be maintained. (Refer to Maintenance Section, Paragraph 6.) Use only replacement parts identical to the factory-installed parts.

14. Interlock Switch

Function/Service - The function of the door interlock switch is to prevent the heater from operating when the access door is open. The switch is a personal safety device to prevent potentially severe, accidental burns. This switch should never be disabled or eliminated. If during the course of service or maintenance, it is noted that the interlock safety switch is sticking, replace the switch. Use only replacement switch identical to the factory-installed switch.

NOTE: If the access door is opened during a burner cycle, the venter motor and wheel will continue to operate until the time delay is de-energized.

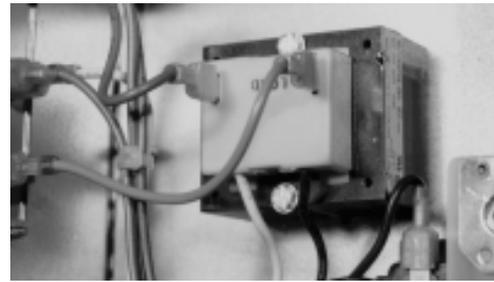
Figure 14 - Safety Door Interlock Switch



15. Transformer

Function - The function of the transformer is to reduce the supply voltage to a 24-volt circuit in order to operate the 24-volt controls.

Figure 15 - Transformer



Transformer Check (requires a voltmeter) - To verify the 24-volt circuit, checking the operation of the transformer, set the thermostat to above room temperature. Using a voltmeter, check the voltage between Terminal R on the thermostat terminal strip (on the burner/control box) and the ground terminal on the ignition controller. If there is no voltage in this circuit, the transformer is not functioning. The service of a transformer is like that of a light bulb; it is either good or bad and when bad, it must be replaced.

Service - If replacement of the transformer is necessary, do not substitute any other transformer. Use a replacement transformer IDENTICAL to the factory-installed model. The electrical compartment is not intended to be pressurized, and replacement of another type transformer could cause combustion air leakage.

Important Note: To prolong the life of the transformer, do not short the "hot" side of the transformer to ground when servicing the heater. Doing so will cause the transformer to fail.

DANGER: The gas burner in this gas-fired equipment is designed and equipped to provide safe and economically controlled complete combustion. However, if the installation does not permit the burner to receive the proper supply of combustion air, complete combustion may not occur. The result is incomplete combustion which produces carbon monoxide, a poisonous gas that can cause death. These tubular infrared heaters may be safely operated in the vented or unvented mode. FAILURE TO PROVIDE PROPER VENTING OR TO MEET FRESH AIR REQUIREMENTS FOR UNVENTED INSTALLATIONS WILL RESULT IN A HEALTH HAZARD WHICH COULD CAUSE SERIOUS PERSONAL INJURY OR DEATH.

Always comply with the combustion air requirements in the installation codes and instructions. If combustion air is brought from outside, use only the outside combustion air kit specifically designed for these heaters. NEVER RESTRICT OR OTHERWISE ALTER THE SUPPLY OF COMBUSTION AIR TO ANY HEATER. Indoor units installed in a confined space must be supplied with air for combustion as required by Code and in the heater installation manual. If two heaters use the same vent terminal, a specially designed dual vent kit must be installed. If the unit is vented. MAINTAIN THE VENT SYSTEM TO BE STRUCTURALLY SOUND AND FREE FLOWING. If the unit is unvented, PROVIDE 4 CFM OF FRESH AIR PER 1000 BTUH'S FOR NATURAL GAS OR 5 CFM OF FRESH AIR PER 1000 BTUH'S FOR PROPANE GAS.

16. Troubleshooting

WARNING: Service work on this heater should only be done by a qualified gas service person. All service information including the Troubleshooting Guides is intended as an aid to a qualified service person.

Figure 16 - Basic Troubleshooting Guide

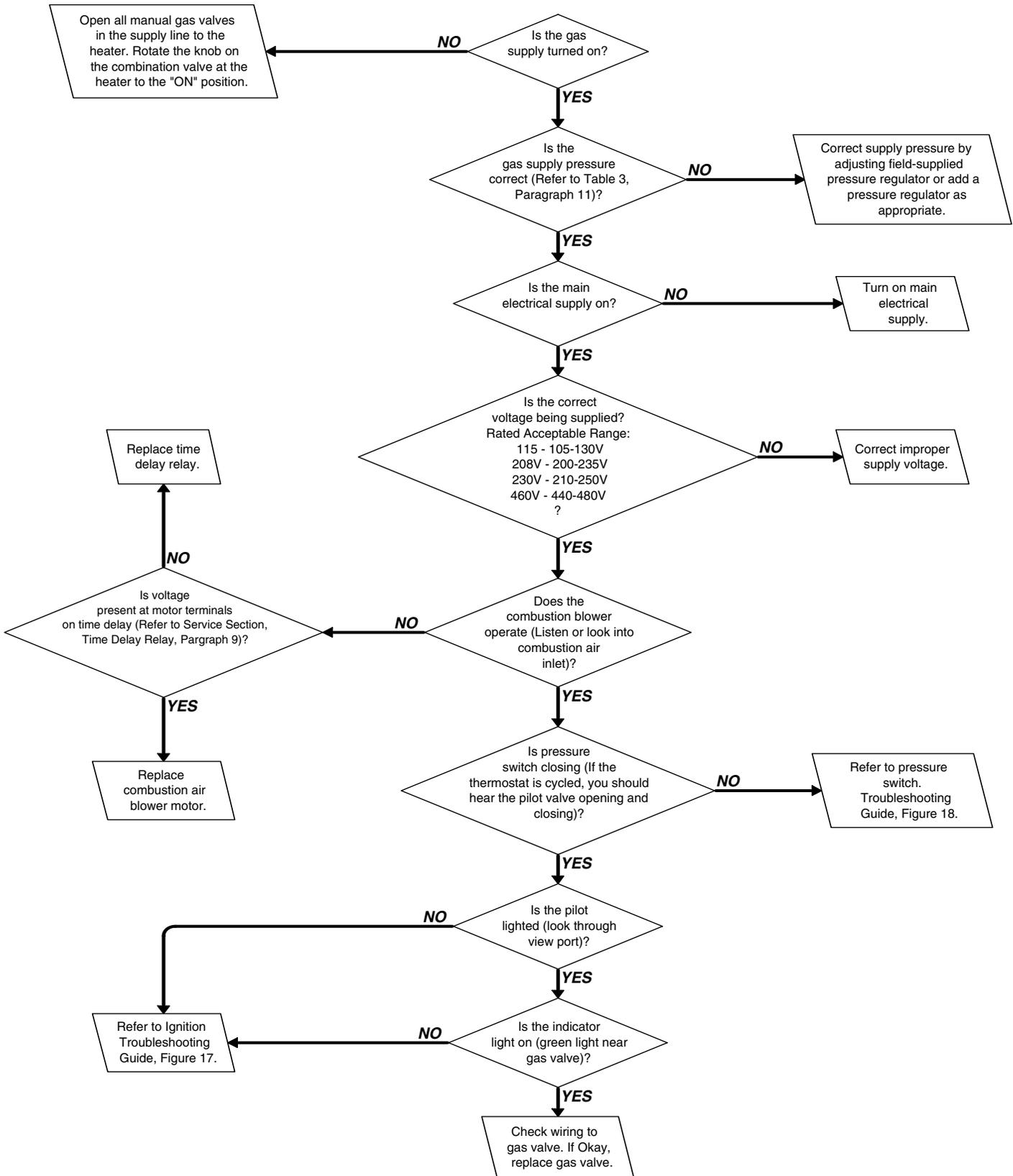
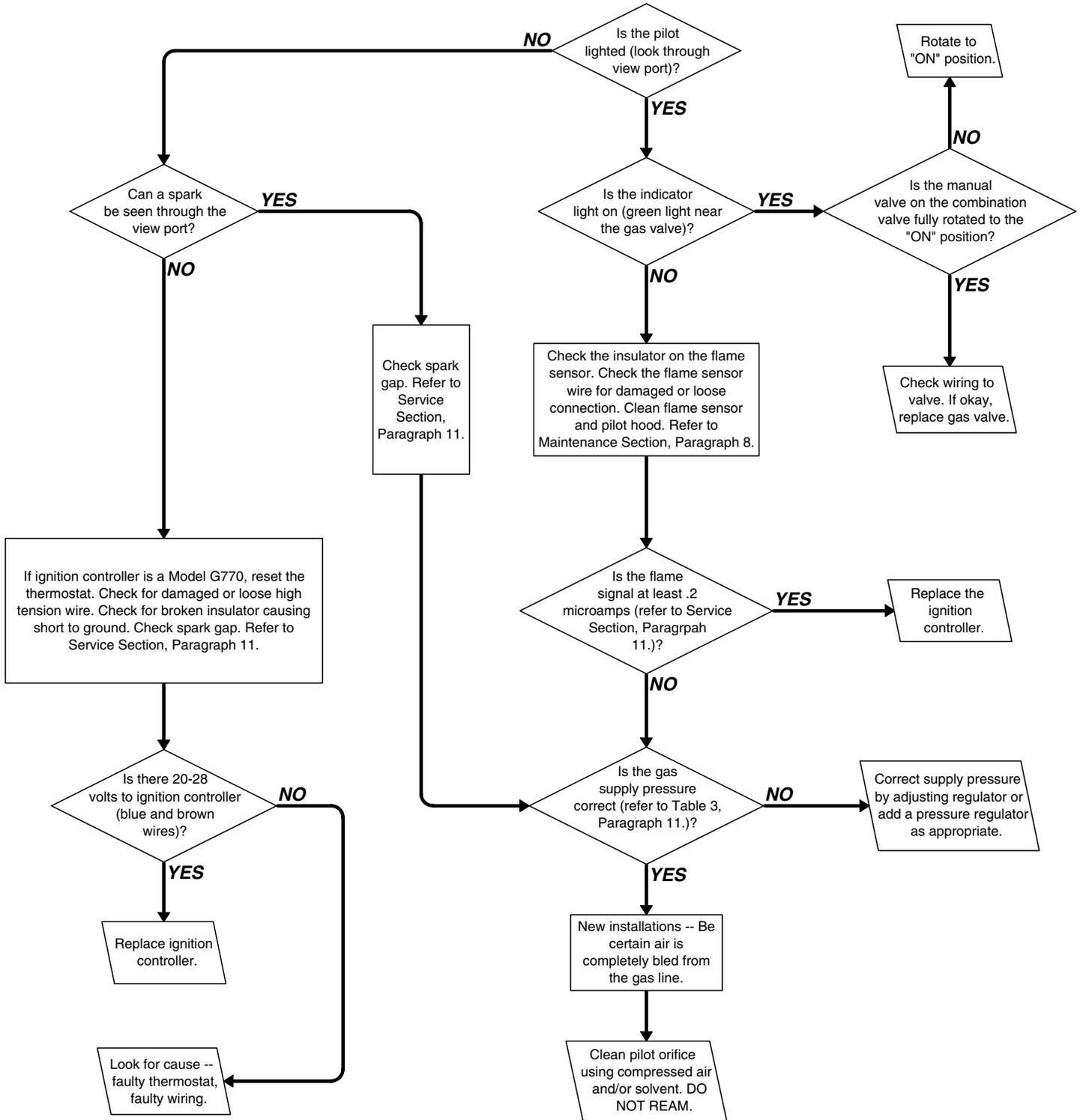
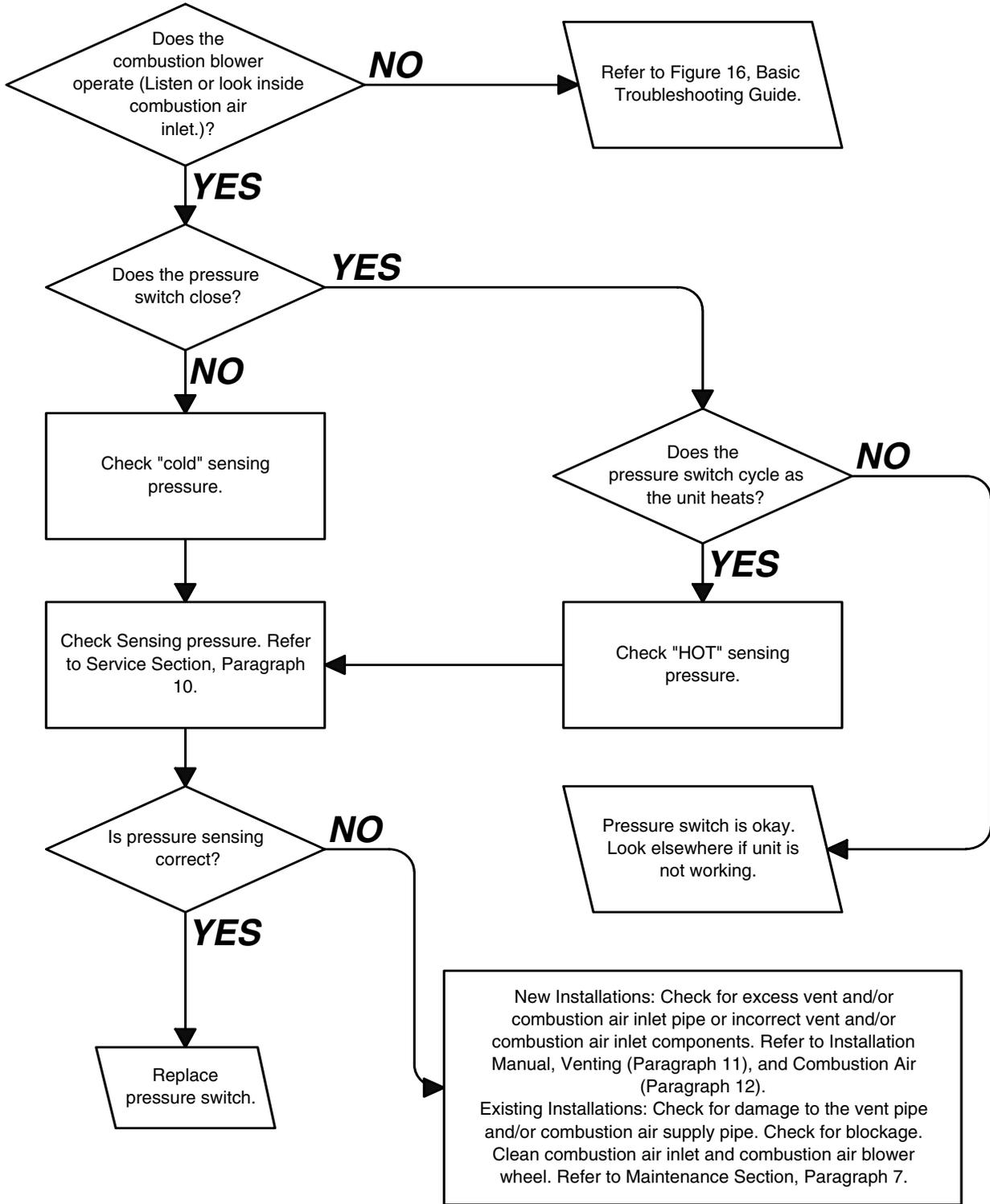


Figure 17 - Ignition Troubleshooting Guide (Assumes pressure switch is actuated.)

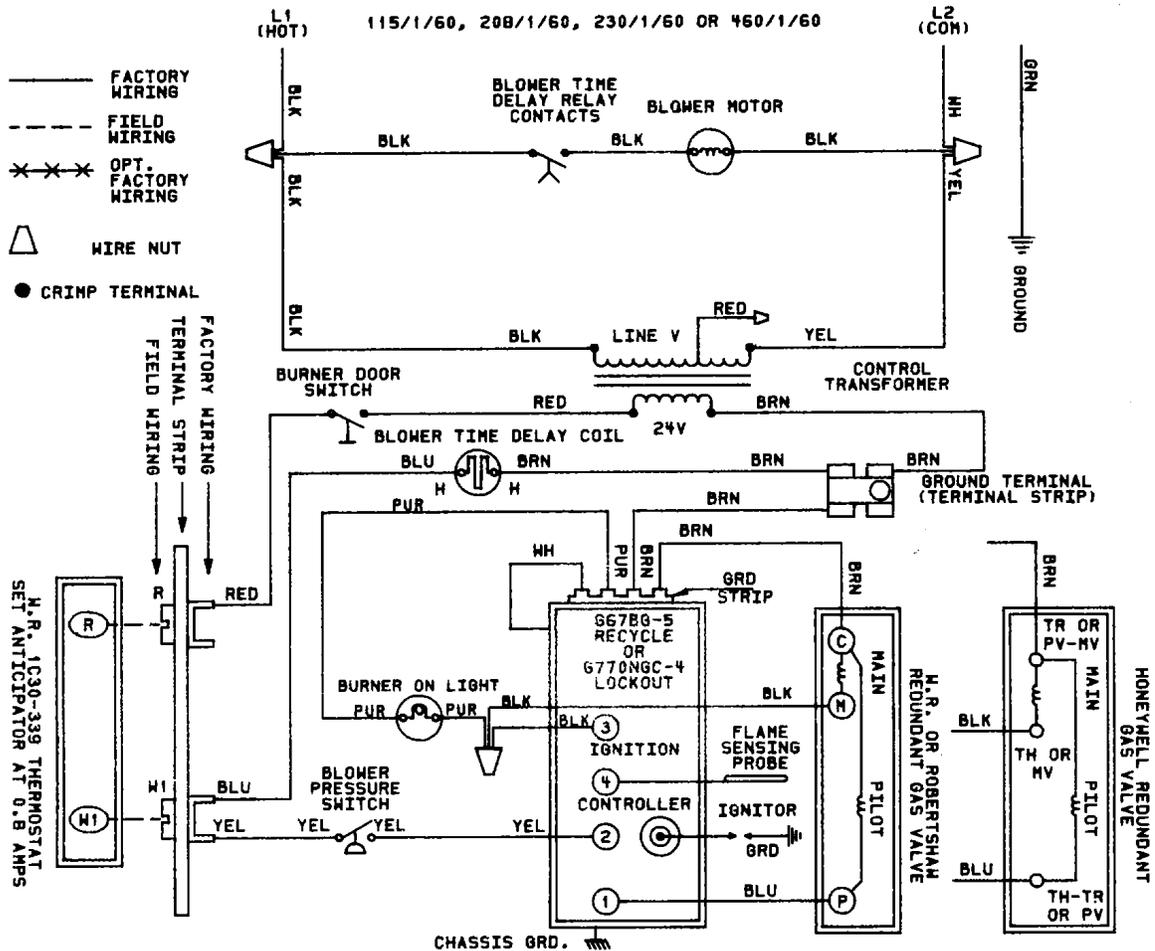


16. Troubleshooting (cont'd)

Figure 18 - Pressure Switch Troubleshooting Guide



17. Wiring Diagram



OPERATING SEQUENCE

1. SET THERMOSTAT AT LOWEST SETTING.
2. TURN ON MAIN AND PILOT MANUAL GAS VALVES.
3. TURN ON POWER TO UNIT.
4. SET THERMOSTAT AT DESIRED SETTING.
5. THERMOSTAT CALLS FOR HEAT ENERGIZING THE BLOWER MOTOR AFTER TIME DELAY.
6. BLOWER PRESSURE SWITCH CLOSES, FIRING UNIT AFTER PILOT PROVING SEQUENCE.
7. IF THE FLAME IS EXTINGUISHED DURING MAIN BURNER OPERATION, THE SAFETY SWITCH CLOSES THE MAIN VALVE AND RECYCLES THE SPARK GAP. ON UNIT EQUIPPED WITH THE 6770NGC-4 LOCKOUT CONTROL, IF PILOT IS NOT ESTABLISHED WITHIN 120 SECONDS (APPROX.) UNIT LOCKS OUT AND MUST BE RESET BY INTERRUPTING POWER TO THE CONTROL CIRCUIT (SEE LIGHTING INSTRUCTIONS).

NOTES

1. THE FOLLOWING CONTROLS ARE FIELD INSTALLED OPTIONS: THERMOSTAT
2. DOTTED WIRING INSTALLED BY OTHERS.
3. CAUTION: IF ANY OF THE ORIGINAL WIRING AS SUPPLIED WITH THE APPLIANCE MUST BE REPLACED, IT MUST BE REPLACED WITH WIRING MATERIAL HAVING A TEMPERATURE RATING OF AT LEAST 105 DEGREES C., EXCEPT FOR SENSOR LEAD WIRE WHICH MUST BE 150 DEGREES C.
4. USE 18 GA. WIRE FOR ALL WIRING ON UNIT.
5. LINE AND MOTOR BRANCH WIRE SIZES SHOULD BE OF A SIZE TO PREVENT VOLTAGE DROP BEYOND 5% OF SUPPLY LINE VOLTAGE.
6. ON 230V. UNITS THE CONTROL TRANSFORMER HAS A DUAL VOLTAGE PRIMARY.
FOR 230V. UNITS USE BLACK AND YELLOW LEADS (CAP RED),
ON 208V. UNITS THE CONTROL TRANSFORMER HAS A DUAL VOLTAGE PRIMARY.
FOR 208V. UNITS USE BLACK AND RED LEADS (CAP YELLOW),
ON 115/460V. UNITS THE CONTROL TRANSFORMER IS SINGLE VOLTAGE PRIMARY.
FOR 115/460V. UNITS USE BLACK AND YELLOW LEADS.
7. SEE INSTALLATION INSTRUCTIONS FOR GREATER DETAIL.

REZNOR TR SERIES WD #119457 REV. #3

Index (by page number)

Subject	Section	Page
Burner	Maintenance	2
Burner-On Indicator Light	Service	8
Combustion Air Blower System	Maintenance	2
	Service	7
Combustion Air Inlet Terminal	Maintenance	2
Combustion Air System	Maintenance	2
Combustion Chamber Tube	Maintenance	2
Condensation (Vent Pipe)	Maintenance	2
Control Location	Service	4
Electrical Supply Connection	Maintenance	2
	Service	8
Gas Connection	Maintenance	2
Gas Supply Pressure	Service	6, 8
General		1
Heat Exchanger Tubes	Maintenance	2
Ignition Controller	Service	6, 9
Interlock Switch	Service	7
Maintenance Section		1-4
Maintenance Requirements	Maintenance	1
Manifold Pressure Settings	Service	6
Pilot Burner Assembly	Maintenance	3
	Service	3, 9
Pressure Switch	Service	5
Time Delay Relay	Service	5
Sensing Pressure	Service	5, 10
Service Section		4-11
Transformer	Service	7
Troubleshooting Guides	Service	8-10
Combination Gas Valve	Service	6, 8
Vent Pipe	Maintenance	2
Vent Terminal	Maintenance	2
Voltage	Service	5, 8
Wiring Diagram	Service	11

References:

Form RZ-NA

Configuration Drawings and Suspension Dimensions	607
Installation	456
Replacement Parts	709
Limited Warranty	WF005

FOR SERVICE OR REPAIR, FOLLOW THESE STEPS IN ORDER:

FIRST:

Contact the Installer

Name _____

Address _____

Phone _____

SECOND:

Contact the nearest distributor (See Yellow Pages). If no listing, contact Authorized Factory Representative, 1-800-695-1901 (Press 1).

THIRD:

Contact REZNOR®/Thomas & Betts Corporation

150 McKinley Avenue

Mercer, PA 16137

Phone: (724) 662-4400

Model No. _____

Unit Serial No. _____

Date of Installation _____