

INSTALLATION INSTRUCTIONS FOR MODEL 26108
UNIVERSAL INTERMITTENT PILOT IGNITION CONTROL

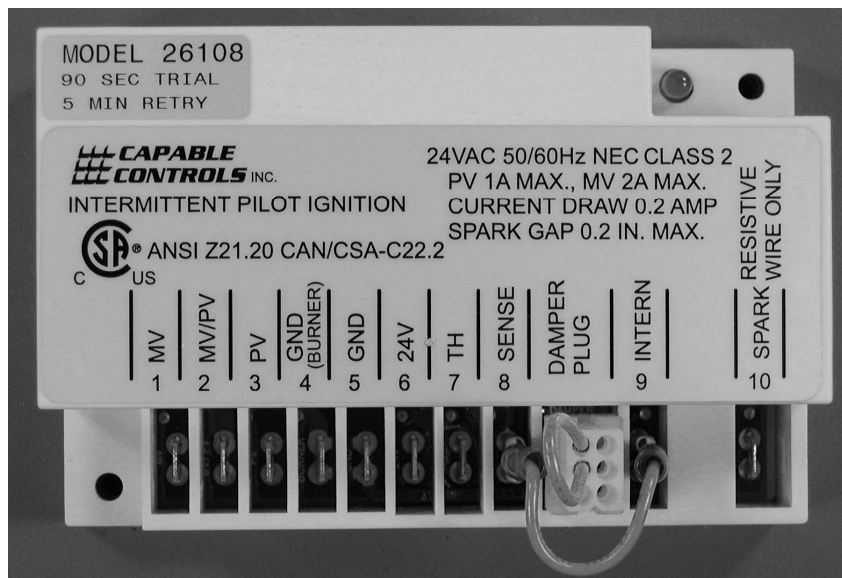


Figure 1 Model 26108 Universal Intermittent Pilot Ignition Control

Application

The model 26108 Universal Intermittent Pilot Ignition Control is a microprocessor based ignition control. The microprocessor provides reliable software control of all timings and operates a diagnostic led. It is designed for indirect burner ignition and supervision and can be used with all gases. It provides ignition sequence, flame monitoring, and safety shutout for intermittent pilot boilers, furnaces and other heating appliances.

Specifications

Electrical ratings:	Voltage	24VAC (+/- 20%) 50/60 Hz
	Pilot valve	1A maximum
	Main valve	2A maximum
	Operating current	0.2A
	Wiring connections	1/4" male spade
Environmental:	-40 to +170 degrees F (-40 to +77 C)	
Pre-purge time;	1 seconds maximum	
Trial For Ignition:	90 seconds then 100 % shutoff (pilot and main gas)	
Continuous Retry:	5 minute delay if pilot fails to light during trial for ignition.	
	This sequence continues until pilot flame lights or call for heat ends.	
Flame failure response time:	2 second maximum	
Minimum flame current required:	0.15 microamperes	

Type of gas: Natural, LP, or manufactured
 Recommended Spark Gap: 0.2 inches maximum,
 Pilot burner rating: 1,500 Btu/hr. maximum
 Main burner rating: 400,000 Btu/hr. maximum



WARNING: Be sure this control is suitable to replace existing control.

The control replaces many existing intermittent pilot ignition controls with flame rectification flame sense and spark ignition made by various manufacturers. Controls replaced should have the following characteristics:

- Either single rod (local sense) or dual rod (remote sense) flame sensing.
- 100 percent shutoff/lockout with 5 minute continuous retry.
- Natural , LP or manufactured gas.
- Trial times of 30 seconds or longer.
- Pre-purge times of 4 seconds or less.
- With or without automatic vent dampers.

Table 1 lists some of the more frequently encountered models this control can replace. Many other manufacturers models that meet the requirements above can be replaced.

Model 26108 Replaces these Ignition Modules			
HONEYWELL	HONEYWELL	JOHNSON	JOHNSON
S8600A1001	S8610B1007	G600AX-1	G770NGC-7
S8600B1009	S8610B1015	G600AY-1	G770RGA-1
S8600C1015	S8610C1005	G600MX-1	G770RHA-1
S8600F1000	S8610F1008	G600NX-1	G770MHA-2
S8600F1034	S8610F1016	G600RX-1	G770MHC-1
S8600F1042	S8610F1024	G670AW-1	G770NHA-1
S8600H1006	S8610F1032	G770MGA-1	G770NHC-1
S8600H1022	S8610H1012	G770MGA-2	G770RHA-2
S8600H1048	S8610H1038	G770MGC-1	G779LHA-1
S8600H1055	S8610H1046	G770MGC-2	
S8600H1089	S8610H1053	G770MGC-3	ROBERT
S8600H1105	S8610H1079	G770MHA-1	SHAW
S8600M1105	S8610M1003	G770NGA-1	780-715
S8600M1013	S8610M1029	G770NGC-4	780-735
S8610A1009	S8610U1003	G770NGC-5	780-737
S8610A1009	S8620H1028	G770NGC-6	780-845

Table 1

! **WARNING** Fire or explosion hazard. Follow these instructions carefully.

! Control must only be installed by a qualified service technician.

! Warning: This control is approved for use with only noise suppression (resistive) spark wires. If application has copper wire it must be replaced.

! Control must be protected from water dripping or condensing on it. A wet control may malfunction causing hazardous conditions.

! Appliance must be inspected for any hazardous conditions before starting up. Must be checked for proper wiring, gas leaks, water leaks, burners must be clean and vents clear.

Replacement instructions

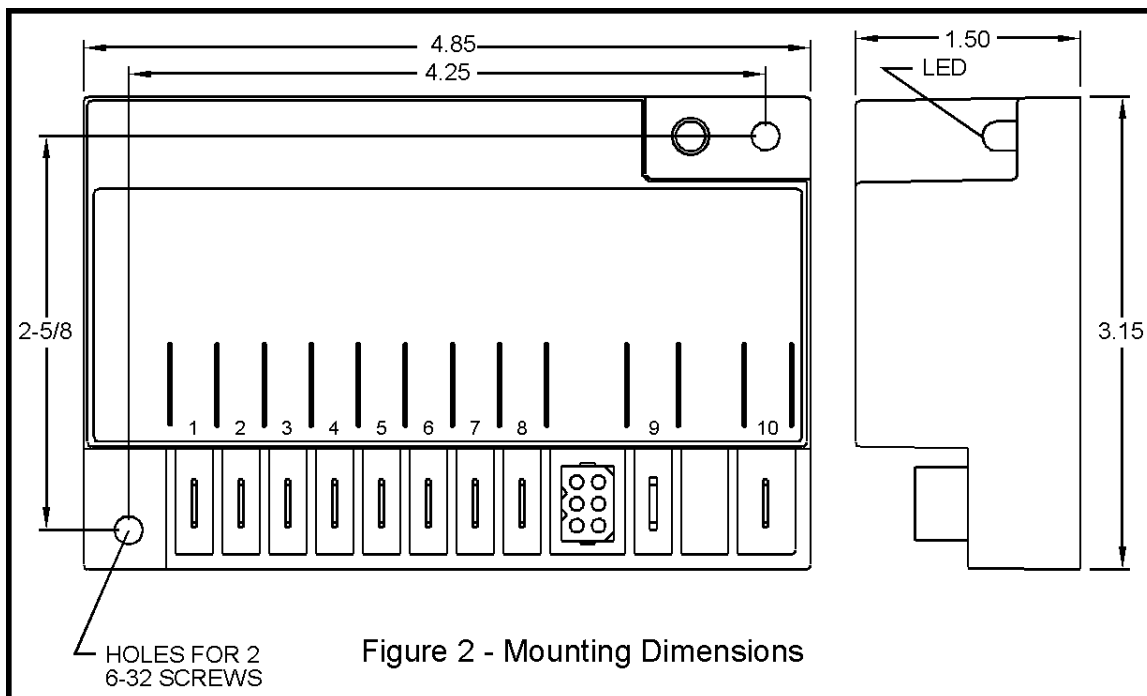
Mounting the new control

! Before replacing existing control turn off power to the appliance being serviced.

Mark wires to existing control using labels provided in Parts Kit.

Disconnect wires and remove existing control.

The 26108 control is not position sensitive. It may be mounted horizontally or vertically with two #6 sheet metal or machine screws.

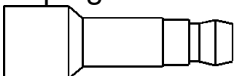


Parts Kit

Control is supplied with a Parts Kit containing:

- 6 Labels for marking wires
- 1/4" terminal for sense wire
- 3 wire nuts
- Rajah Adapter described below

This control uses 1/4" quick connect terminals for spark connection. If existing cable uses Rajah or 1/4" female spark plug connector use adapter shown below.



Spark Cable

Cable must be noise suppression (resistive) type rated for at least 15kV and must not be in continuous contact with a metal surface. If separate flame sense probe is used, the sense wire must be separated from the high voltage wire by a minimum of 1/4".



Warning: This control is approved for use with only noise suppression (resistive) spark wires. If application has copper cable it must be replaced.

Wiring Control

Power must be provided from a properly sized 24 volt class 2 transformer. All wiring must be done in accordance with both local and national electrical code. All wiring and initial operation must be performed by a qualified service technician.

The control is supplied with a jumper wire between SENSE and INTERNAL terminals and is ready for internal (one rod) flame sense. With the jumper in, flame is sensed through the high voltage spark wire. For external (two rod) flame sense the jumper must be removed and discarded and the sense electrode wired to SENSE terminal. If existing wiring has a 3/16" terminal on the sense wire replace it with 1/4" terminal provided in Parts Kit.

A shorting plug that jumpers pins 2 and 3 of the damper connector is supplied mounted on the control. The shorting plug must be used if vent damper is **NOT** used. It should be discarded if vent damper is used.



When a vent damper has been connected and power turned on, a internal fuse in the control will blow and control will only operate with a vent damper connected.

The schematics in Figures 3, 4, 5 and 6 show typical wiring hookups for the control.

Instructions for Specific Models

Follow instructions below for replacement of specific control models.

Replacing Honeywell ® S8610U1003 and S86xx controls

The model 26108 control has 1/4" terminals whose general locations and labels match the S8610U1003 and other S86xx controls. If two rod flame sense is used the 3/16" terminal on the flame sense wire must be replaced with 1/4" terminal provided in Parts Kit.

Verify that the spark wire is noise suppression (resistive) type and replace if necessary.

Replacing Johnson Controls ® G779LHA-1 and G77x

Wire Function	G77x	26108
Main valve	3 M.V.	1 MV
Valve common	ground plate	2 MV/PV
Pilot valve	1 P.V.	3 PV
Pilot burner ground	ground plate	4 GND (BURNER)
Power supply ground	ground plate	5 GND
24VAC power (if damper used)	6 24V	6 24V
Thermostat	2 THS	7 TH
Sense electrode (if 2 rod sense)	4 SENSE	8 SENSE

If the G77x uses a spike type high voltage connector. It will be necessary to replace the spark cable assembly.

Replacing Johnson Controls ® G600AX-1 G600LX-1

G600AX-1 and G600LX-1 use same terminal numbers as G77x above without text labels. Use Rajah spark adapter included in Parts Kit. Verify that the spark wire is noise suppression (resistive) type and replace if necessary.

Replacing Robert Shaw ® 780-845

Wire Function	780-845	26108
Main valve	MV	1 MV
Valve common	PV-MV	2 MV/PV
Pilot valve	PV	3 PV
Pilot burner ground	GND	4 GND (BURNER)
Power supply ground	TR	5 GND
Thermostat	TH	7 TH
Sense electrode (if 2 rod sense)	SENSE	8 SENSE

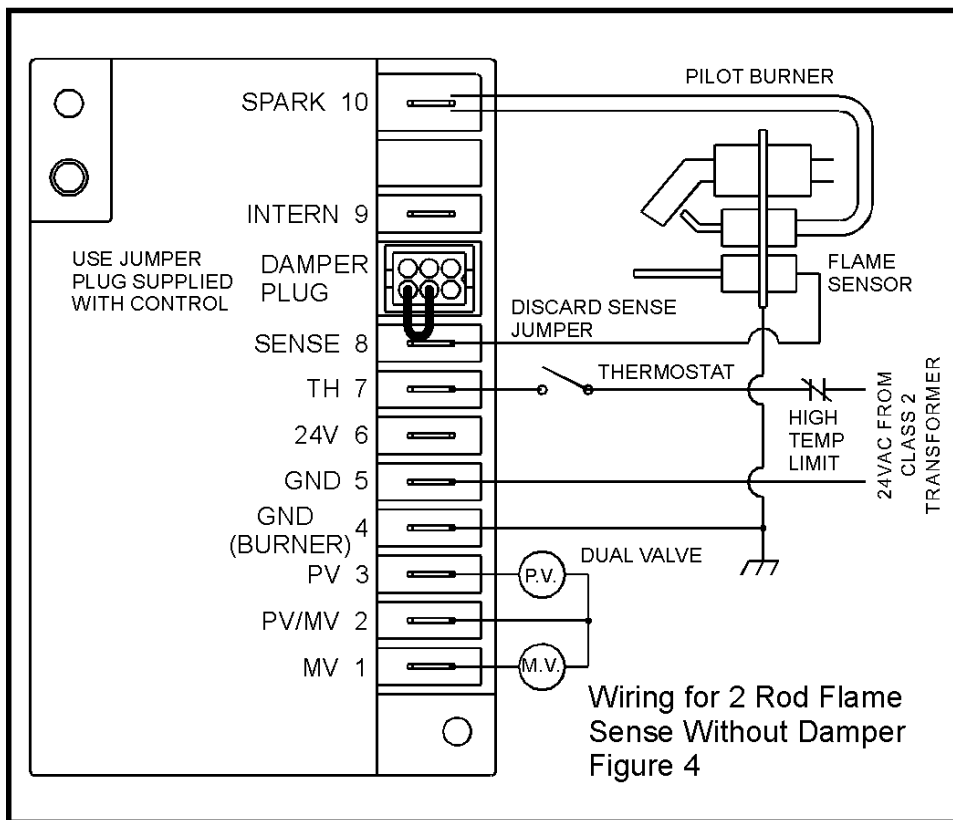
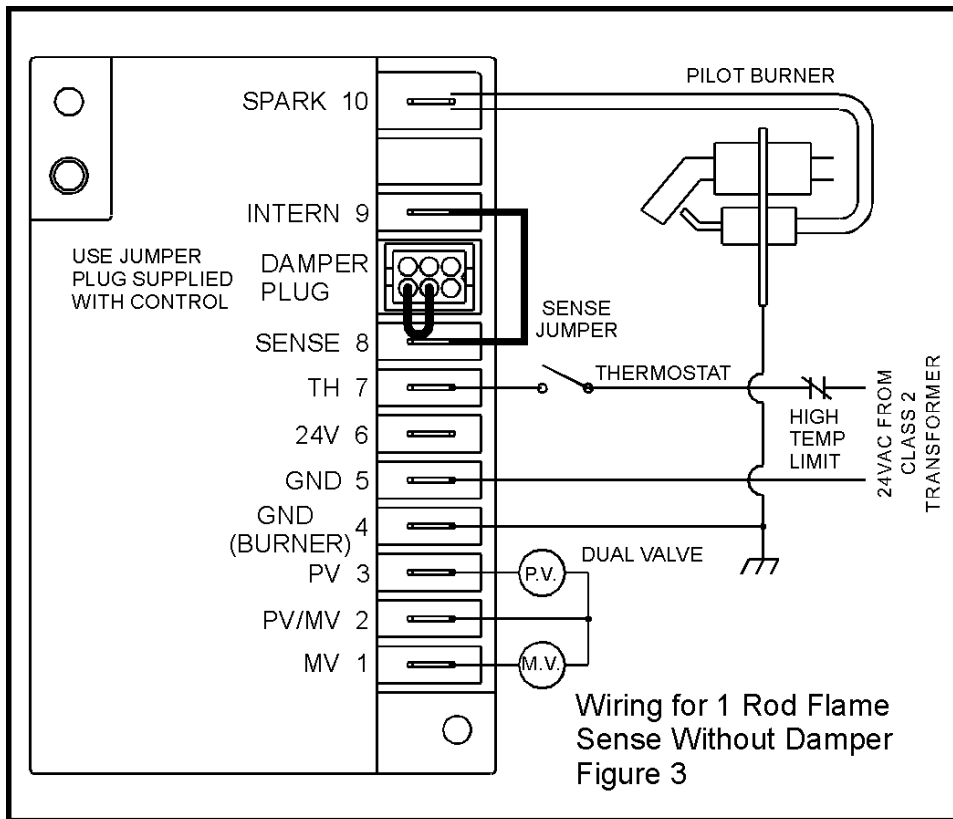
Verify that the spark wire is noise suppression (resistive) type and replace if necessary.

Startup and Checkout

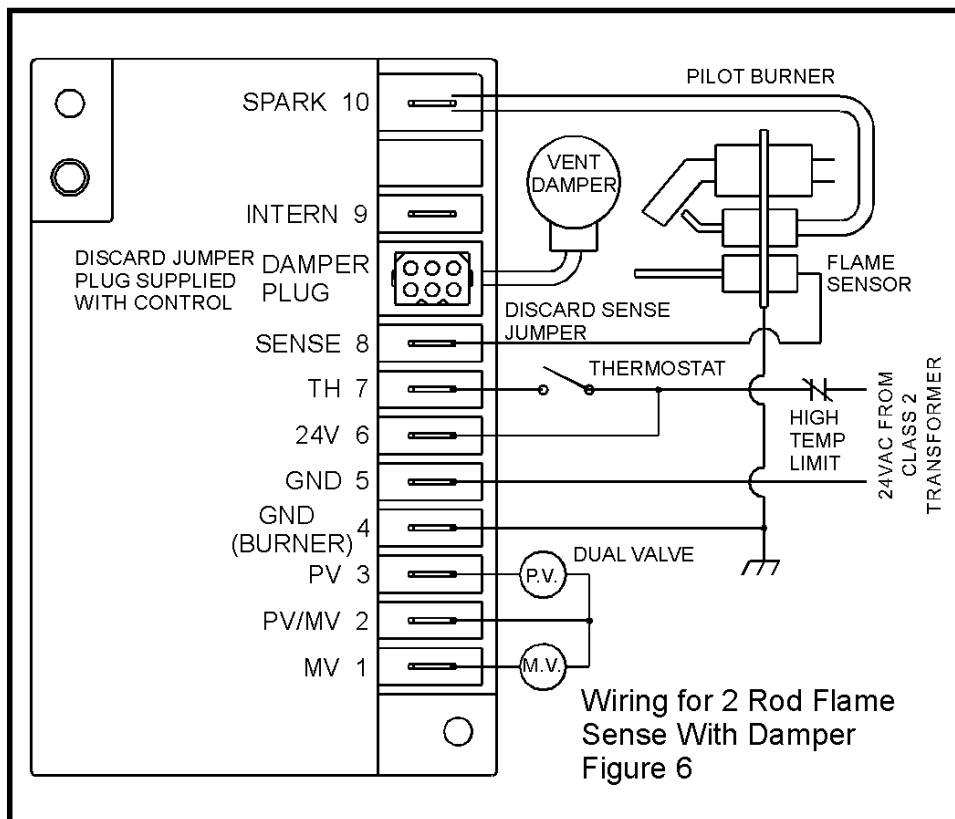
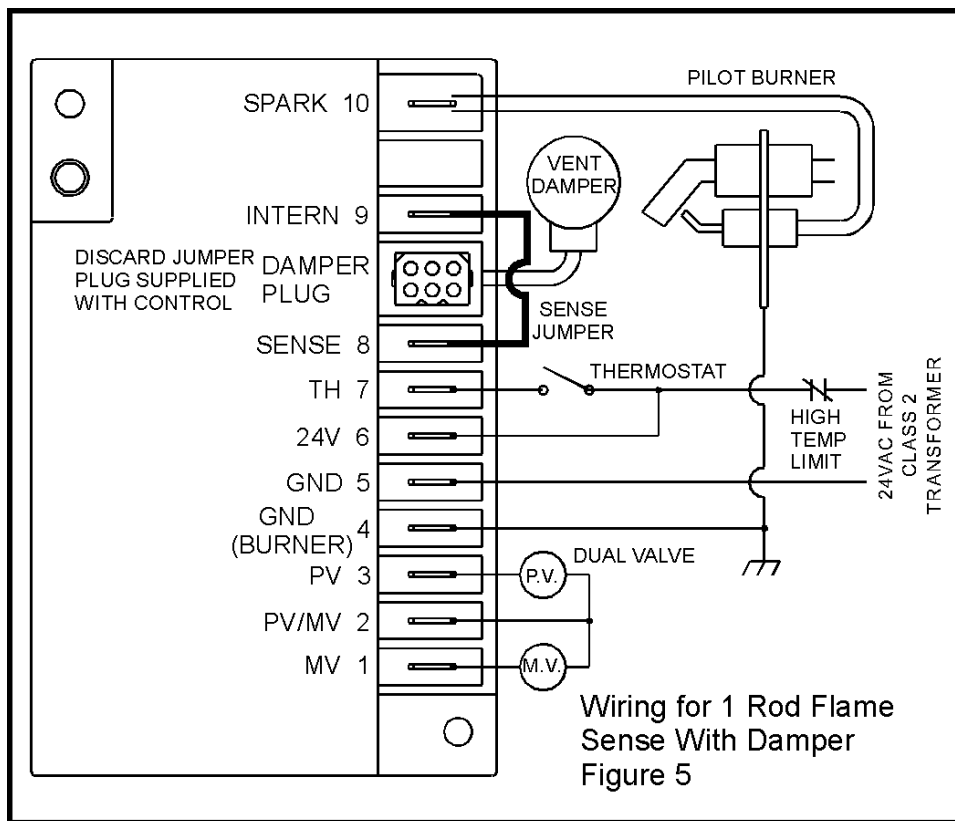


WARNING: The control module can not be serviced by user. If any faults are detected control module must be replaced.

1. Before starting the appliance perform a safety inspection of piping, burners and venting. Check for water leaks, etc. Check all wiring for proper connections. Be sure system is properly grounded including ground connection to pilot burner.
2. With gas shut off, turn on power to appliance with thermostat contacts closed. Verify led on module flashes rapidly and that there is a good spark at the pilot burner. If spark is not present see troubleshooting flow chart figure 8.
3. Turn off power to appliance and turn on gas shutoff valves. Check for gas leaks using a soap solution or gas detector.
4. Turn on power to appliance with thermostat contacts closed. Verify that spark lights pilot burner followed by main burner. If there are any problems shut down the appliance and refer to the troubleshooting flow charts figures 7 and 8.
5. Verify normal operation with both burners on for at least 5 minutes. Check for any gas leaks after the valves.
6. Cycle thermostat open/closed and verify proper ignition sequence at least 5 times.



The schematics in Figures 3 and 4 show typical wiring hookups for the control when using internal (one rod) or external (two rod) flame sense without a vent damper. Note, must use jumper plug on damper connector.



The schematics in Figures 5 and 6 show typical wiring hookups for the control when using internal (one rod) or external (two rod) flame sense with a vent damper.

Sequence of Operation

Heating cycle starts when call for heat from thermostat supplies 24VAC to TH terminal. The automatic vent damper (if used) is energized and when fully open turns on power to the ignition control. After a 1 second maximum diagnostic period, the spark will start and pilot valve will turn on starting trial for ignition period.

During the trial for ignition period the control sparks for 4 seconds while rapidly flashing led. It then turns off spark and led for 1 second while checking pilot flame sense. This cycle will repeat until pilot flame is detected or trial time is over.

When pilot flame is detected, the spark will stop, main valve will turn on and led will stay on continuously. The control will remain in this state until pilot flame is lost or call for heat ends. If pilot flame is lost, led, main and pilot valves are turned off for 0.5 seconds and a new trial for ignition sequence will start.

If pilot flame is not detected during trial for ignition period, the pilot valve will be shut off. The control will wait for 5 minutes while blinking the led at the end of each 15 seconds. When the 5 minute period is over a new trial for ignition sequence will start. The control will recycle continuously until flame is proven or call heat ends.

Led Indications during normal operation

Steady on	Flame detected, main burner on
.1 sec on .1 sec off	Trial time spark on trying to light pilot burner
.5 sec every 15 seconds	In 5 minute recycle period

Led error indications

If the control module internal diagnostics detect a fault it will go to lockout. Spark and both valves will be turned off. The led will flash the error code .25 sec on and .25 sec off for each count of the error code with 1 second off between codes. The control will remain in this condition until power is removed by turning off call for heat. Codes indicate a problem with the control and it must be replaced.

Error codes are:

2	Flame sense circuit error.
3	Pilot valve circuit error.
4	Main valve circuit error.
5 to 9	Internal control error.

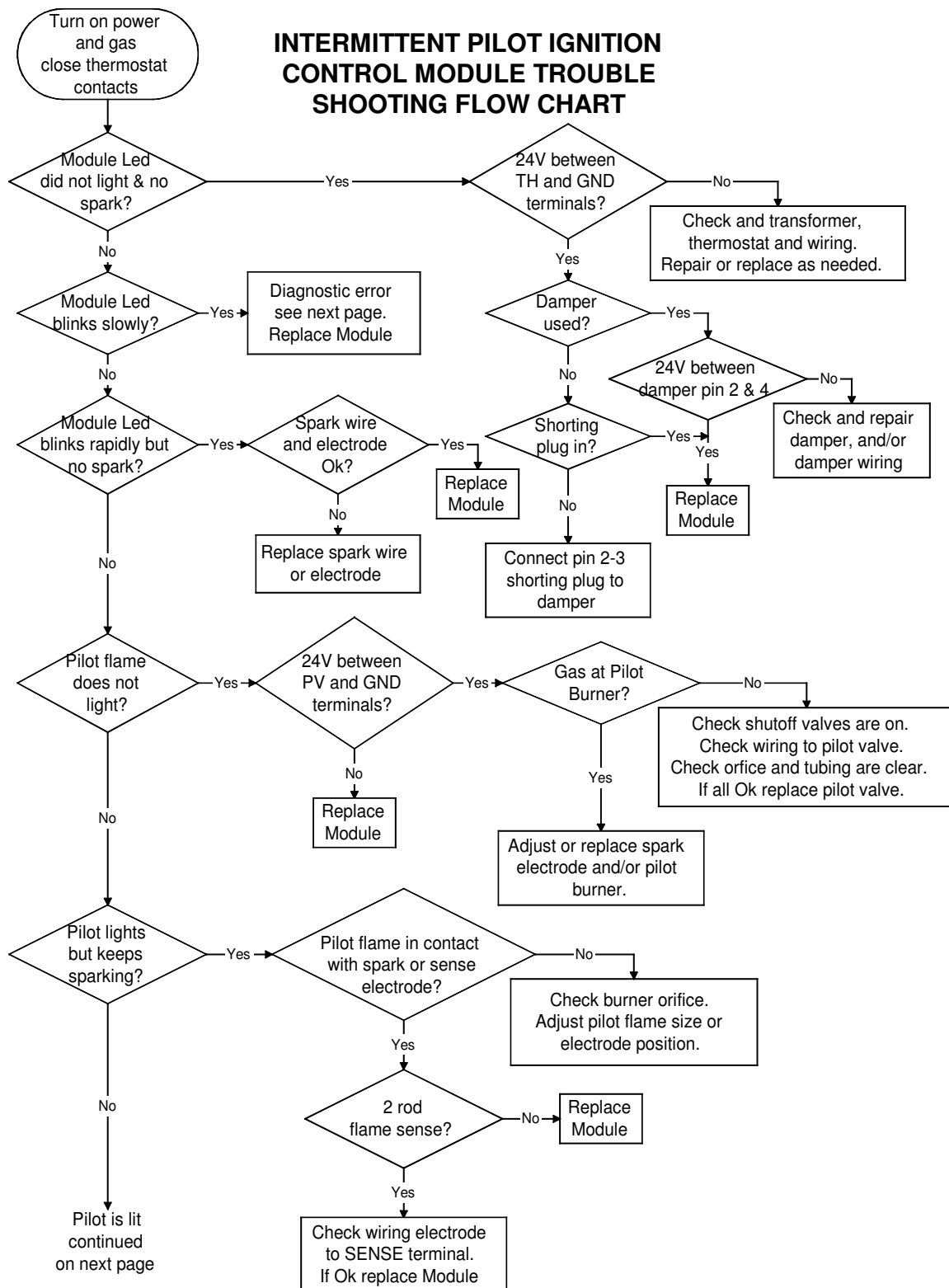
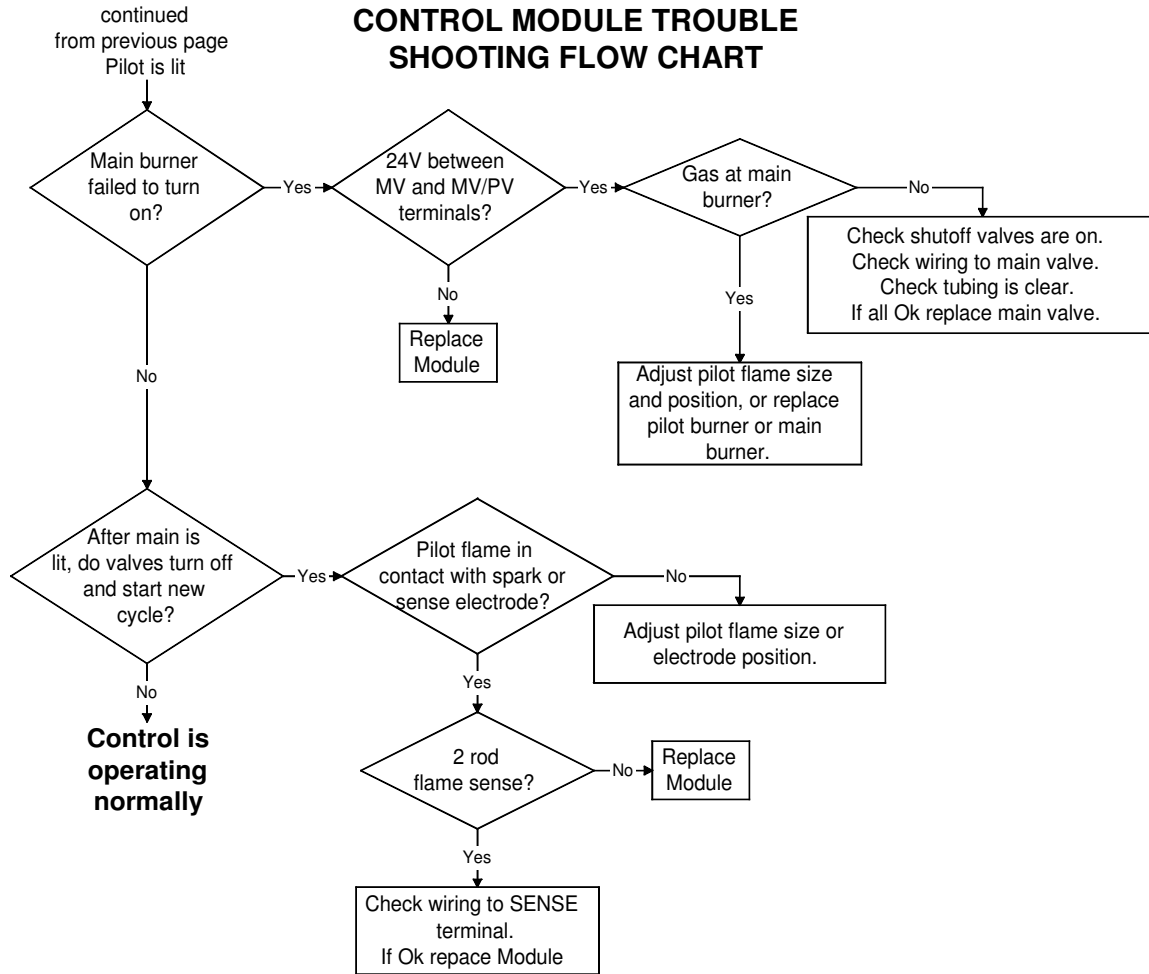


Figure 7 Troubleshooting Flow Chart Part 1

INTERMITTENT PILOT IGNITION CONTROL MODULE TROUBLE SHOOTING FLOW CHART



Normal Led Indications

.1 sec on .1 sec off for 4 seconds	Spark on trying to light pilot burner.
Continuous on	Pilot flame detected, main burner on.
.5 sec on every 15 sec	In 5 minute retry delay.

Led error codes .25 sec on .25 sec off, 1 sec between codes.

2	Flame sense circuit fault.
3	Pilot relay circuit fault.
4	Main relay circuit fault.
5 to 9	Microprocessor errors.

Figure 8 Troubleshooting Flow Chart Part 2

LED INDICATIONS

Led Indications during normal operation	
Steady on	Flame detected, main burner on
.1 sec on .1 sec off	Trial time spark on trying to light pilot burner
.5 sec every 15 seconds	In 5 minute recycle period
Led error indications .25 sec on and .25 sec off	
2	Flame sense circuit error
3	Pilot valve circuit error
4	Main valve circuit error
5 to 9	Internal control error