



Valve Systems:
EIS
EIS-OUTDOOR

Optional:
GCRK
GCWS

**INSTALLATION AND OPERATIONS GUIDE FOR GRAND CANYON GAS ELECTRONIC IGNITION SYSTEM
GRAND CANYON GAS LOGS USES ROBERTSHAW 712 SERIES FLAME RECTIFICATION CONTROLS**

Installation and service must be provided by a qualified installer, service agency or gas supplier



CAUTION

THIS DEVICE SHOULD BE INSTALLED BY A QUALIFIED SERVICE TECHNICIAN WITH DUE REGARD FOR SAFETY AS IMPROPER INSTALLATION COULD RESULT IN A HAZARDOUS CONDITION.



We recommend that our gas hearth products be installed and serviced by professionals who are certified in the U.S. by the National Fireplace Institute® (NFI) as NFI Gas Specialists.

CAUTIONS

1. This valve system **MUST** be installed by a certified and trained gas professional
2. Turn off gas supply before installing valve.
3. All piping **MUST** meet applicable local codes and ordinances and the national fuel gas codes (ANSI Z223.1/NFPA NO.50)
4. ALL wiring **MUST** meet applicable electrical codes and ordinances.
5. Check out the complete system after installing the valve.
6. Prior to installation, verify conformance with burner installation instructions.

FOR YOUR SAFETY

IF YOU SMELL GAS:

1. OPEN ALL WINDOWS
2. DO NOT TOUCH ELECTRICAL SWITCHES
3. EXTINGUISH ALL OPEN FLAMES
4. IMMEDIATELY CALL YOUR GAS SUPPLIER

INSTALLER: Leave this manual with the log set
CONSUMER: Retain this manual for future reference.

Robertshaw®

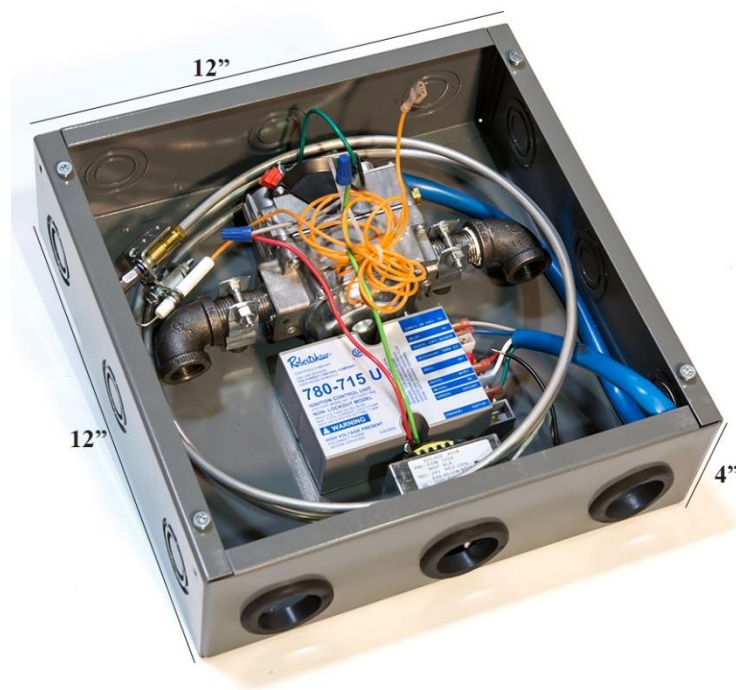
LOCKOUT MODEL 712-005 • 712-006 • 712-008 • 712-009

NON-LOCKOUT MODELS 712-005 • 712-016 • 712-017 • 712-019 • 712-022

CSA DESIGN CERTIFIED TO APPLICABLE A.N.S.I. STANDARD
Z21.71-1993 FOR FIELD INSTALLATION



Parts List:




1. Metal Knock-Out Enclosure
a. 12" x 12" x 4"
 2. 712-017 (Valve & Module)
 3. 620-403 (Transformer)
 4. 3030-4-72 (1/4" SS Corrugated Pilot Tubing 72")
 5. 1751-749 (72" Spark Ignitor)
 6. 1830-002 (90* Pilot Hood)
 7. 780-715 (Module, Part of 712-017 Heating Kit)
 8. Misc. Black Steel 1/2" Pipe Fittings
 9. 1751-016 (LP Conversion Kit, Not Shown)
 10. 780-845 (Lockout Module, recommended for LP, Not Shown)
- *Box Orientation subject to change

SYSTEM SPECIFICATIONS

MODEL #	GAS VALVE CONNECTION	IGNITION UNIT	MODEL - GAS DESCRIPTION
Lockout Models* - Lockout Timing is 90 Seconds			
712-005	722-079 1/2" x 1/2"	780-845 (Lockout)	Universal Model- Gas valve has natural gas pressure regulator set at 3.5" WC. A separate LP gas pressure regulator set at 11.0" WC is also included. 170,000 BTU Max. Nat. Gas/272,000 BTU Max. LP gas.
712-006	700-056 3/4" x 3/4"	780-845 (Lockout)	Universal Model - Gas valve has natural gas pressure regulator set at 3.5" WC. A separate LP gas pressure regulator set at 11.0" WC is also included. 350,000 BTU Max. Nat. Gas/560,000 BTU Max. LPgas.
712-008	720-070 1/2" x 3/4"	780-845 (Lockout)	Universal Model - Gas valve has natural gas pressure regulator set at 3.5" WC. A separate LP gas pressure regulator set at 11.0" WC is also included. 200,000 BTU Max. Nat. Gas/320,000 BTU Max. LPgas.
712-009	700-059 1" x 1"	780-845 (Lockout)	Universal Model - Gas valve has natural gas pressure regulator set at 4.0" WC. A separate LP gas pressure regulator set at 11.0" WC is also included. 720,000 BTU Max. Nat. Gas/1,152,000 BTU Max. LPgas.
Non-lockout models - Caution: Do Not use On LP Gas Applications			
712-015	720-072 1/2" x 3/4"	780-715 (Non-lockout)	Natural Gas Only - Non-lockout. Valve has 1/2" side outlets. Pressure regulator is factory-set at 3.5" WC 200,000 BTU Max.
712-016	700-056 3/4" x 3/4"	780-715 (Non-lockout)	Natural Gas Only - Non-lockout. Pressure regulator is factory-set at 3.5" WC 350,000 BTU Max.
712-017	720-070 1/2" x 3/4"	780-715 (Non-lockout)	Natural Gas Only - Non-lockout. Pressure regulator is factory-set at 3.5" WC 200,000 BTU Max.
712-019	700-059 1" x 1"	780-715 (Non-lockout)	Natural Gas Only - Non-lockout. Pressure regulator is factory-set at 4.0" WC 720,000 BTU Max.
712-022	722-079 1/2" x 1/2"	780-715 (Non-lockout)	Natural Gas Only - Non-lockout. Pressure regulator is factory-set at 3.5" WC 170,000 BTU Max.
*The 780-845 lockout ignition control used in the 712 series Kits, provides 90 seconds of spark followed by a six-minute time delay (purge) period between ignition attempts. After three tries, if no pilot flame is sensed, 780-845 goes into a 1-hour lockout period. At the end of the 1-hour lockout period, if the demand for heat is still present, unit repeats the three tries for ignition.			


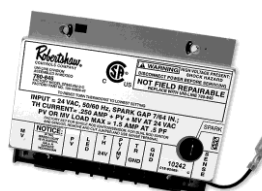
SPECIFICATIONS

The Robertshaw[®] gas valves used in the 712 Series kits are CSA design certified to applicable ANSI standards. Gas valves that are included in the 712 Series pilot ignition systems have a built-in, slow-opening feature for soft ignition characteristics at the main burner. Does not include the 712-005 and 712-022 kits.

7200 IpER-S7C (712-008, -015 AND -017 KITS)		
Electrical	24-volt, 60 Hz	
Ambient rating	- 40°F to 175°F (- 40°C to 80°C)	
Capacity (maximum regulation)		
1/2" x 3/4" straight-through	200,000 BTU	
Pressure regulator (factory-set)	3.5" WC Natural Gas (Adjustable 3" to 7" WC) 11.0" WC LP Gas (Adjustable 8" to 12" WC)	

IGNITION CONTROL UNITS

Robertshaw ignition control units used in the 712 Series kits are CSA design certified to applicable ANSI standards.

780-715 (712-015, -016, -017, -019 AND -022 KITS) 780-845 (712-005, -006, -008, AND -009 KITS)		
Safety lockout timing (780-845)	See footnote*	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; align-items: center; margin-bottom: 20px;"> 780-715  </div> <div style="display: flex; align-items: center;"> 780-845  </div> </div>
Spark rate	3 to 4 sparks per second	
Relay contact ratings		
Pilot valve	1 amp at .5 PF	
Main valve	1 amp at .5 PF	
Combined load	1.5 at .4 PF	
Flame sense current	.7 μ A DC @ 25°C / 24 VAC	
Maximum total current load	1.5 amp	
Flame failure re-ignition time	.8 seconds maximum	
Thermostat anticipator setting	.7 amp	
Ambient rating	- 40°F to 175°F (- 40°C to 80°C)	
Relative humidity	95% non-condensing at 104°F	
<p>*The 780-845 lockout ignition control used in the 712 series kits, provides 90 seconds of spark followed by a six-minute time delay (purge) period between ignition attempts. After three tries, if no pilot flame is sensed, the 780-845 goes into a 1-hour lockout period. At the end of the 1-hour lockout period, if the demand for heat is still present, the unit repeats the three tries for ignition.</p>		

PRE-INSTALLATION INSTRUCTIONS



CAUTION

The 712 Series Pilot Ignition System must be installed by a qualified installing agency with due regard for safety. Improper installation could result in a hazardous condition.

Installation must comply with all local codes. In the absence of local codes, the latest edition of the National Fuel Gas Code, ANSI Z223, and the National Electrical Code ANSI/NFPA No. 70 must be used.

The 712 Series Pilot Ignition System has been designed for an easy installation, however, for the system to function properly and to give trouble-free service. The installer must follow these installation instructions word for word and without taking any short cuts. Take your time installing this system, make sure it is working properly before leaving the job site. Failure to do so could result in a system failure.

This Pilot Ignition System must be used only on appliances equipped with an atmospheric gas burner. Use on direct-vent type appliances and power burners is prohibited.

Be sure you have the correct Pilot Ignition System for the type of gas used on the application, LP or natural. Using an incorrect system could result in a hazardous condition.

LP Gas Application

Use the lockout models only for inside or poorly ventilated applications.

Natural Gas Application

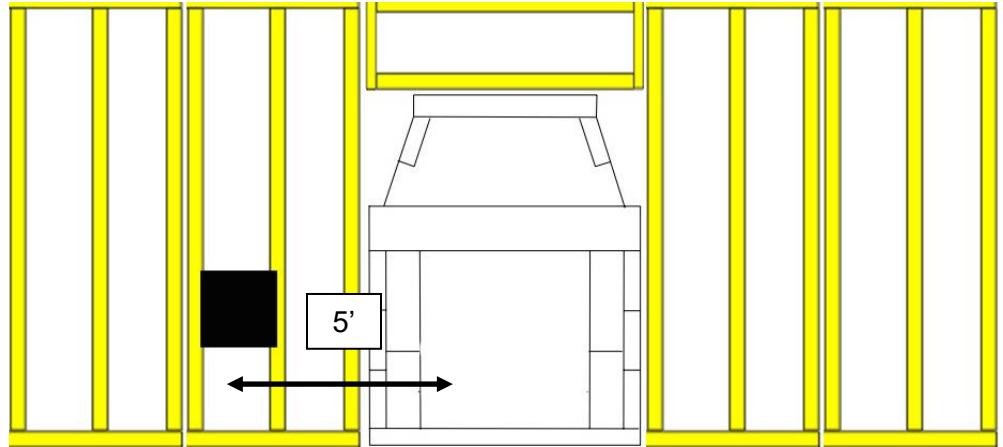
Use either model type: Lockout models 712-005, 712-006, 712-008, 712-009 or non-lockout models 712-015, 712-016, 712-017, 712-019, 712-022.

Ambient Temperature Limitations

Be sure the installation of the Pilot Ignition System will not exceed its rated ambient temperature range: -40°F to 175°F (-40°C to 80°C). This is extremely important when the application is being made to a rooftop unit in cold climates.

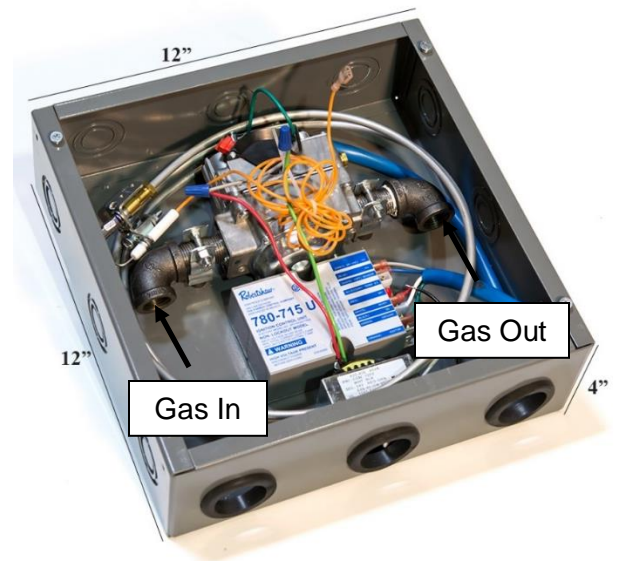
BOX INSTALLATION

1. The EIS box comes with a 72" pilot assembly lead, therefore the box must be mounted within 5' of the fireplace.
2. Attach the metal enclosure to the studs using standard building materials. The metal enclosure must be mounted in a location that can be accessed in the future for additional connections & future servicing.



GAS LINE INSTALLATION

- Installation and servicing of gas appliances and ignition systems must only be performed by **qualified personnel**.
- Turn off gas and electricity before starting installation or service.
- Make sure gas piping is pressure tested before control is connected. High pressure can damage the control causing a hazardous condition.
- Make sure piping is clean and free from burrs. Apply a small amount of good quality pipe thread compound or plumbers tape suitable for the gas being used. Thread compound should be used sparingly on male threads only, leaving the first two threads clean.
- It is recommended that a safety shut off valve is installed on either the gas in or gas out, side of the valve.
- It is recommended to hard pipe in the connections with unions installed inside the box.

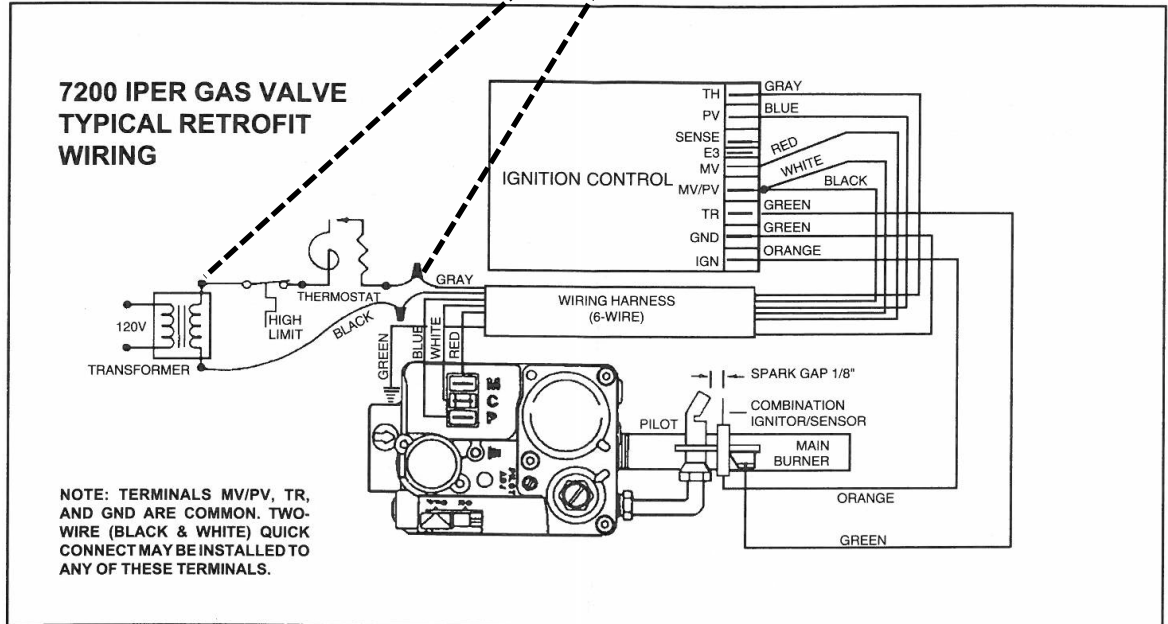
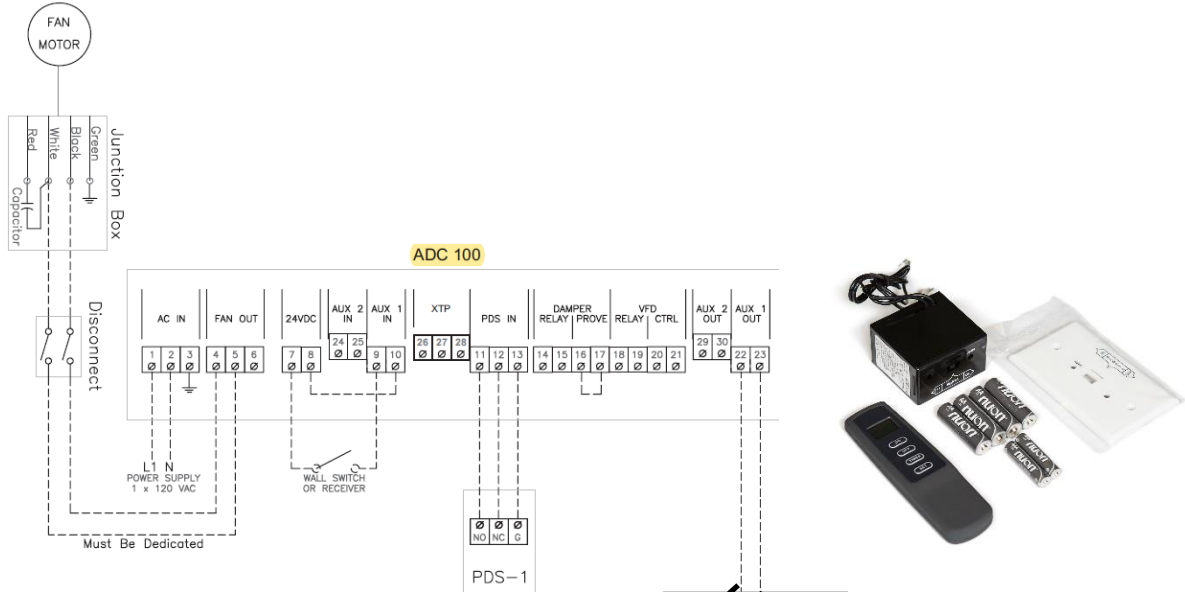


PILOT INSTALLATION

- Un-coil the pilot tubing & the spark ignitor using proper aluminum tubing bending techniques.
- Insert the pilot hood w/assembly into the fireplace being careful not to clog the head of the pilot assembly or damage the spark ignitor.
- Securely screw the pilot assembly to the pilot mounting bracket on the back or side of the burner. Screwing the pilot to the burner completes the electrical circuit.
- With the opposite end of the pilot assembly, plug the orange spark ignitor into the module according to the below wiring diagram & insert the pilot tubing into the right side of the valve where the compression nut is located. Once the pilot tubing is inserted into the compression nut, using a wrench, tighten the nut so that the pilot tubing can not be pulled out.

WIRING DIAGRAM INSTALLATION

- Electronic Ignition Systems come full wired according to the manufactures recommendations & the below wiring diagram.
- It is the job of the electrician to read the wiring diagram according to RobertShaw specifications.



When wiring in a Wall Switch, Remote, Home Automation system or Fan Damper system – Remove the wire nut that is connecting the red & gray wires. This is the constant power connection from the transformer to the module. Once the wire nut has been removed, connect the red to one side of your switch & the gray to the other side of the switch.

SYSTEM CHECKOUT PROCEDURES

The initial installation portion is now completed. The checkout procedures listed below must be followed. While there are redundant safety features built into the system, it is imperative that you follow the steps outlined below to ensure proper

and safe operation. If you encounter any irregularities, refer to the TROUBLESHOOTING GUIDE.

1. Check all wiring connections.
2. Turn on main gas supply and put the manual valve or selector arm on the gas valve into the "ON" position.
3. Use a leak test solution to check piping for gas leaks. Repair if needed.
4. Turn on electrical power.
5. Set thermostat to high.

WARNING: Vent damper must be in the fully open position before the ignition system is energized. Failure to verify this may cause a serious health hazard to occupants.

6. Sparking begins, pilot gas ignites.
7. Pilot flame on ignitor/sensor, main burner on.
8. If the ignition control unit is a 780-715, with main burner on, cycle thermostat off then on. System will turn off and immediately on again.
9. With the main burner on, turn the manual gas valve to off position. Wait until all flame is out. Turn manual gas valve on again.
 - A. Sparking will begin as soon as the pilot flame is out.
 - B. Pilot ignition takes place when gas flow is restored.
10. **If the ignition control unit is a 780-845 (lockout):** With the main burner on, turn the manual gas valve off. Sparking will begin when the pilot flame goes out. After 90 seconds the system will go into time delay (6 minutes) and sparking will cease. The lockout ignition control used provides 90 seconds of spark followed by a six-minute time delay (purge) period between ignition attempts. After three tries, if no pilot flame is sensed, a 1-hour lockout period will begin. At the end of the 1-hour lockout period, if the demand for heat is still present, unit repeats the three tries for ignition.
11. Check manifold pressure and compare the reading with those obtained in the PRE-INSTALLATION - SAFETY INSPECTION PROCEDURES. Adjust pressure regulator (if necessary) to match the original input.
12. Visually determine that the main burner is burning properly, as it was during the PRE-INSTALLATION - SAFETY INSPECTION PROCEDURES; i.e., no floating, lifting, or flashback. Adjust the primary air shutter(s) as required.
13. It is absolutely necessary that the system be cycled normally (thermostatically controlled) through at least three complete heating cycles. Set thermostat to a temperature slightly higher (at least 5°) than the existing ambient. Allow the appliance to cycle ON and run through a normal cycle. Do not manually shorten the cycle.
14. **Applicable only to furnaces:** Check both the limit control and the fan control for proper operation. Limit control operation can be checked by blocking the circulating air inlet or temporarily disconnecting the electrical supply to blower motor. Determine that the limit control acts to shut off the main burner gas.
Applicable only to boilers: Determine that the circulating water pumps are in operating condition. Test low water cutoffs, automatic feed controls, pressure and temperature limit controls, and relief valves in accordance with the manufacturer's recommendation to determine they are in operating condition.
15. The initial checkout procedures have been completed. If the system has functioned normally, return thermostat setting to its normal setting. The qualified installing agency must completely fill out and apply the yellow appliance conversion sticker to the front of the appliance.
Leave these and all other instructions with the homeowner.

TROUBLESHOOTING GUIDE

PILOT IGNITION SYSTEM / FLAME RECTIFICATION / IGNITION CONTROL UNITS 780-715 AND 780-845

There are five potential problem conditions with the thermostat set high.

To perform the following test, you will need a volt /ohmmeter. Refer to your appropriate wiring diagrams.

The ignition control can also be tested, using the Robertshaw ignition control tester, part number 900-575.

Problem #1: Thermostat on, no spark, no pilot gas.

Possible Causes:

- A. No main power
- B. Faulty transformer
- C. Faulty thermostat
- D. Faulty limit
- E. Faulty ignition control unit

- Solution:
1. With power on and thermostat set high, set your test meter to the 24-volt scale. Probe terminals TH and TR. If you do not read 24 volts, the problem is not the ignition system. Perform normal system checks of main power, transformer, thermostat and the limit control. If you do read 24 volts at TH and TR the problem is in the ignition system. Check for loose or defective wiring. If wiring is good replace the ignition control unit.

Problem #2: Have spark, no pilot gas flow.

Possible Causes:

- A. Main gas supply turned off
- B. Manual valve on gas valve turned off
- C. Faulty primary valve in the gas valve
- D. Faulty wire connection
- E. Faulty ignition control unit

- Solution: Set test meter to 24-volt scale.
1. Be sure main gas valve (gas cock or selector arm) is turned on.
 2. With gas on and the system sparking, probe terminals PV and TR. If 24 volts is read at these terminals and pilot gas does not flow, replace the gas valve.
 3. If you do not read 24 volts at terminals PV and MV/PV replace the ignition control unit.

Problem #3: Have pilot gas, no spark.

Possible Causes:

- A. Defective ignitor/sensor and/or its wiring
- B. Faulty ignition control unit

- Solution: Set test meter to ohm scale.
1. Disconnect the wire from the IGN terminal on the ignition control unit.
 2. Touch one-meter probe to the tip of the ignitor/sensor rod in the pilot. Touch the other probe to the quick-connect at the other end of the ignitor/sensor wire.

If you have continuity from the tip of the ignitor/sensor rod to the connector and no spark, replace the ignition control unit.

3. If you do not have continuity through the wire and the ignitor/sensor, check for loose wire connection in the wire. Repair as needed.
4. Check to see if spark shorts to furnace through a cut in the ignitor wire.

Problem #4: Have pilot flame, main burner will not turn on.

Possible Causes:

- A. Faulty main valve coil in the gas valve
- B. Faulty ignitor/sensor and/or its wiring
- C. Ground wire not attached to furnace chassis
- D. Flame rectification signal from pilot to ignition control unit weak
- E. Faulty ignition control unit

- Solution: Set test meter to 24-volt scale.
1. With pilot flame on ignitor/sensor - probe terminals MV and MV/PV on the ignition control unit. If you read 24 volts

here, but not at the gas valve, there is a loose wiring connection. Repair or replace as needed.

2. If you do read 24 volts at MV and MV/PV and the pilot flame is impinging on the ignitor/sensor rod, the problem may be:
 - Faulty ignitor/sensor and/or its wiring
 - Faulty ignition control unit
 - No flame rectification signal to ignition control unit.
3. Set test meter to the ohm scale. Set thermostat low- system off.
4. Check continuity through the green ground wire between the pilot mounting bracket and the ignition control unit. Repair or replace as needed.
5. Check continuity through the green ground wire between the gas valve and the ignition control unit. Repair or replace as needed.
6. Check ignitor/sensor for continuity, through the spark/ sensor rod. Also, check ignitor/sensor ceramic for cracks. Repair or replace as needed.
7. Reconnect all wires that were disconnected, including the ignitor/ sensor wire and the ground wire.
8. Set thermostat high. With the pilot burning and the flame on the ignitor/sensor rod, if the main burner does not turn on - replace the ignition control unit.

Problem #5: Short-cycling of main burner. main burner turns off before the thermostat is satisfied.

Possible Causes:

- A. Draft condition pulls pilot flame away from ignitor/ sensor rod
- B. Incorrect thermostat anticipator setting
- C. Pilot flame gets smaller when main burner comes on.
- D. Faulty limit control Solution:
 1. Check the thermostat anticipator setting. Set to .7 amp. A lower setting will cause short-cycling.
 2. Set thermostat high, with main burner on, observe the pilot flame impingement on the ignitor/sensor rod.
 - If pilot flame is small and draft condition pulls flame from ignitor/sensor rod the burner will turn off and then on again.
 - Adjust pilot flame higher or clean pilot orifice.
 - Bend ignitor/sensor rod closer to pilot flame.
 3. If flame impingement on the ignitor/sensor is stable and the system short-cycles, check the limit switch.
 4. Set test meter to 110-volt scale.
 - When the system cycles off, probe the switch terminals of the limit switch.
 - If you read 110V or 24V across the switch terminals the limit switch is open. Replace the limit switch.
 5. A pilot flame set too high will also cause burner to short cycle. Pilot flame lifts over ignitor/sensor.

WARRANTY -

Electrical and Valves: Grand Canyon Gas Logs valves, pilot assemblies and electrical components carry a (2) year warranty against breakage or defects from date of purchase, by original purchaser, and must be installed by a licensed professional installer. This warranty only covers use with Grand Canyon Gas Logs burners and logs in the event a defect or breakage occurs a replacement will be available for pick-up from the dealer at which the burner was originally purchased. This warranty does not cover batteries. Products installed outdoor carry a (1) year warranty.