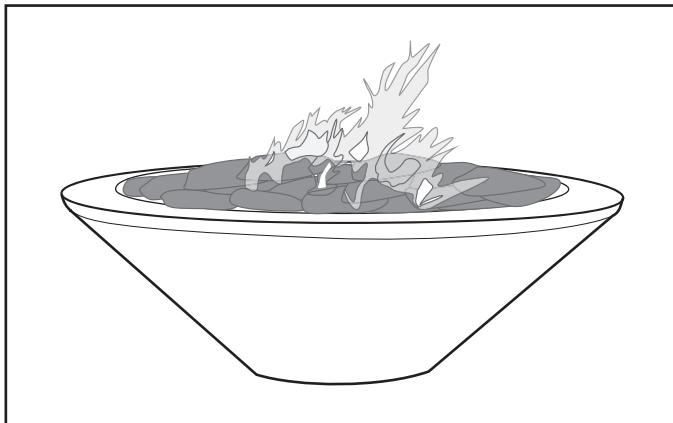




OPERATION AND MAINTENANCE MANUAL

GRAND EFFECTS
FIRE & WATER ELEMENTS



Grand Effects® Fire Bowls and Inserts Premium Line Automated Operation

⚠ WARNING

IF THESE INSTRUCTIONS ARE NOT FOLLOWED EXACTLY, A FIRE OR EXPLOSION MAY RESULT, CAUSING PROPERTY DAMAGE, PERSONAL INJURY, OR DEATH.

FOR YOUR SAFETY: This product must be installed and serviced by a contractor who is licensed and qualified in pool equipment by the jurisdiction in which the product will be installed where such state or local requirements exist. In the event no such state or local requirement exists, the installer or maintainer must be a professional with sufficient experience in pool equipment installation and maintenance so that all of the instructions in this manual can be followed exactly. Before installing this product, read and follow all warning notices and instructions that accompany this product. Failure to follow warning notices and instructions may result in property damage, personal injury, or death. Improper installation and/or operation can create carbon monoxide gas and flue gases which can cause serious injury, property damage, or death. For installations in the vicinity of occupied/living spaces, as an additional measure of safety, Zodiac Pool Systems LLC strongly recommends installation of suitable carbon monoxide detectors in the vicinity of this appliance and in any adjacent occupied spaces. Improper installation and/or operation may void the warranty.

Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

WHAT TO DO IF YOU SMELL GAS

- Immediately switch off main gas supply.
- Do not try to light any appliance.
- Do not touch any electrical switch; do not use any phone in your building.
- Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.

Installation and service must be performed by a qualified installer, service agency or the gas supplier.

Table of Contents

Section 1. Important Safety Instructions	3
Section 2. General Description	4
2.1 Product Overview	4
2.2 Product Contents.....	4
Section 3. Installing the Grand Effects® Fire Bowls	5
3.1 Preparing the Fire Bowl for Installation	5
3.2 Gas and Electric Requirements.....	7
3.3 Installing the Fire Bowl	8
Section 4. Burner Setup and Adjustment	15
4.1 Burner Setup	15
4.2 Burner Adjustment.....	16
Section 5. Maintenance	18
Section 6. Operation	19
6.1 Operating Instructions	19
Section 7. Troubleshooting.....	20
Section 8. Control Module Diagram	22
Section 9. Wiring Diagram	23

Section 1. Important Safety Instructions

IMPORTANT SAFETY INSTRUCTIONS PERTAINING TO A RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS READ AND FOLLOW ALL INSTRUCTIONS

When installing and using this electrical equipment, basic safety precautions should always be followed, including the following:

DANGER

RISK OF ELECTRICAL SHOCK OR ELECTROCUTION. This fire bowl must be installed by a licensed or certified electrician in accordance with the National Electrical Code® and applicable local codes and ordinances. In Canada, the Canadian Electrical Code and all applicable local codes and ordinances must be adhered to. Improper installation will create an electrical hazard, which could result in death or serious injury to pool or spa users, installers, or others due to electrical shock, and may also cause damage to property. Read and follow the specific instructions below.

WARNING

Before installing this fire bowl, read and follow all warning notices and instructions accompanying this bowl. Failure to follow safety warnings and instructions can result in severe injury, death, or property damage. Visit www.zodiacpoolsystems.com for additional free copies of these instructions or call Zodiac Technical Support at 800.822.7933 (U.S.) or Grand Effects at 949.697.5270

ATTENTION INSTALLER

This manual contains important information about the installation, operation and safe use of this product. This information should be given to the owner/operator of this equipment.

WARNING

This unit is for outdoor use only.

Recommended CSA/AGA Clearances: Sides 4 ft / Top 6 ft

SAVE THESE INSTRUCTIONS

⚠ WARNING

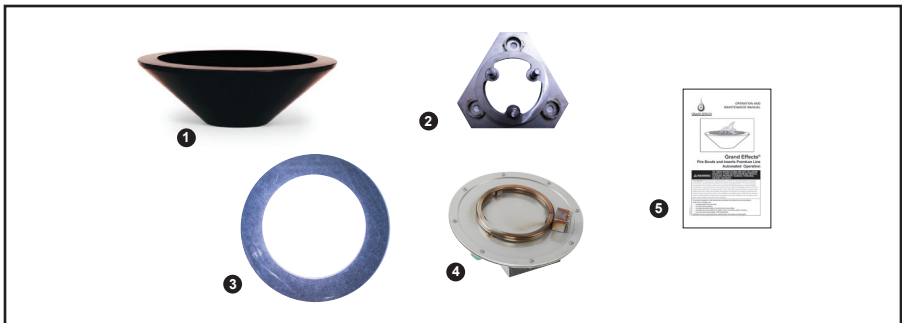
RISK OF ELECTRICAL SHOCK OR ELECTROCUTION, which could result in serious injury or death. The Grand Effects Fire Bowls are only available for 12-volt AC power. For supply connection, use only an isolating low voltage power supply with ungrounded output, evaluated and listed by a Nationally Recognized Testing Laboratory (NRTL) for swimming pool use.

Section 2. General Description**2.1 Product Overview**

This manual provides instructions for installing and replacing the Grand Effects® Fire Bowls and Inserts.

⚠ CAUTION

The Grand Effects Fire Bowls are not serviceable and therefore contain no serviceable parts. In order to prevent risk of property damage and/or injury, no service should be attempted to the bowl in the event of a malfunction. The Fire Box Burner Assembly must be sent back to a Grand Effects service center for repair. A certified gas professional should remove and re-install the Fire Box Burner Assembly.

2.2 Product Contents

- | | |
|---|-------|
| 1. Grand Effects Fire Bowl | Qty 1 |
| 2. Mounting Bracket | Qty 1 |
| 3. Support Plate | Qty 1 |
| 4. Burner Assembly | Qty 1 |
| 5. Grand Effects Fire and Water Bowl Automated Operation and Maintenance Manual | Qty 1 |

Section 3. Installing the Grand Effects® Fire Bowls

WARNING

Risk of Electrical Shock or Electrocutation. This fire bowl must be installed by a licensed or certified electrician or a qualified pool serviceman in accordance with the National Electrical Code® (Canadian Electrical Code, in Canada) and all applicable local codes and ordinances. Improper installation will create an electrical hazard, which could result in death or serious injury to pool or spa users, installers or others due to electrical shock, and may also cause damage to property.

Always disconnect the power to the bowl at the circuit breaker before installing or servicing the bowl. Failure to do so could result in death or serious injury to serviceman, pool or spa users or others due to electrical shock.

3.1 Preparing the Fire Bowl for Installation

NOTE: The installer must complete preparatory steps before fire bowl is installed.

The National Electrical Code (NEC®) allows listed low-voltage gas fired-luminaires, decorative fireplaces, fire pits, and similar equipment using low voltage ignitors that do not require grounding, and are supplied by a listed transformer / power supply with outputs that do not exceed the low-voltage contact limit (15 V RMS ac, 30 V continuous dc) to be permitted to be located less than 1.5 m (5 ft) from the inside walls of the pool.

Metallic equipment, including metallic gas piping, shall be bonded in accordance with the National Electrical Code in the US, and Canadian Electrical Code in Canada.

BONDING

In the United States the National Electrical Code® (NEC®) and in Canada the Canadian Electrical Code (CEC), require that all metallic components of a pool structure, including reinforcing steel, metal fittings and above ground components be bonded together (forming an equipotential bonding grid) with a solid copper conductor not smaller than an 8 AWG (6 AWG in Canada).

Additionally, Zodiac Pool Systems LLC, requires that as required by Article 680 of the NEC, the appliance be properly connected to an equipotential bonding grid/loop that includes all electrical equipment in the system and on the equipment pad. Bonding lugs must be connected with a solid copper wire at least 8 AWG (6 AWG in Canada) or larger. Failure to do so may void the Zodiac Pool Systems LLC warranty.

CAUTION

To prevent premature failure of the appliance resulting from stray voltages and voltage differentials, the metal bowl and burner must be bonded to other equipment which is part of the pool plumbing system with a solid copper wire not smaller in diameter than 8 AWG (6 AWG in Canada).

BONDING A METAL BOWL (COPPER OR ALUMINUM)

NOTE: A bonding lug is not provided for the bowl. These steps only apply to metal bowls.

1. Attach the mounting bracket to the surface/floor. See Figure 7.
2. Wrap with copper bonding wire around a securing bolt between the clamp ring and washer. See Figure 1 for mounting bracket components.
3. Slide the clamp ring onto the securing bolts of the mounting bracket. The clamp ring, washer and nut are placed inside of the bowl to secure the bowl and bonding wire to the mounting bracket.

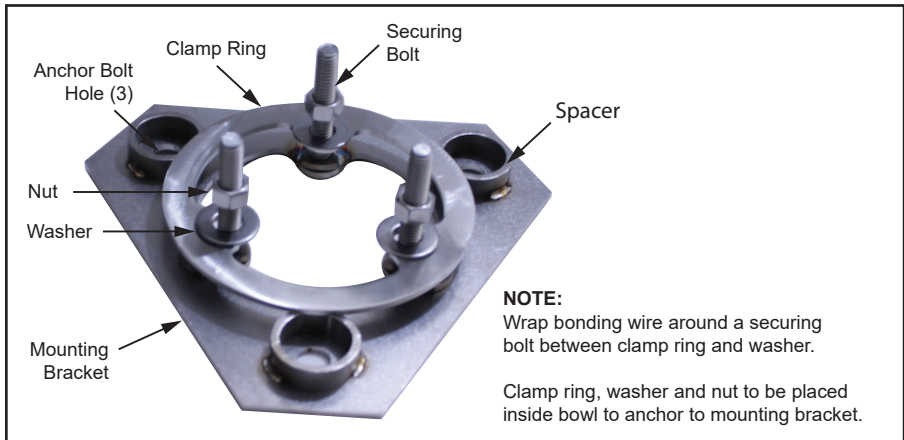


Figure 1. Mounting Bracket Components for Securing and Bonding of Bowl

BONDING THE BURNER

NOTE: The Burner insert contains a bonding lug under the bottom of the burner. See Figure 2.

1. Loosen the setscrew.
2. Insert the bond wire into the hole.
3. Tighten the setscrew until the bond wire is secured into place.

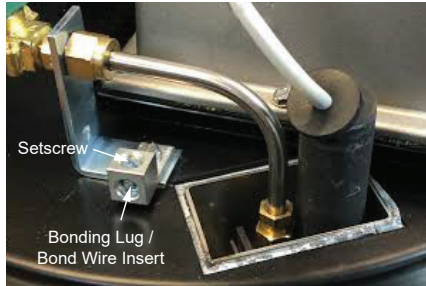


Figure 2. Bonding Lug on Burner Assembly

3.2 Gas and Electric Requirements

Input Voltage	120 VAC / 60 Hz to Grand Effects® Control Panel	
Output Voltage	12 VAC	
Gas Type	Natural	Propane
Gas Pressure (Nominal)	7" wc	11" wc
Gas Flow	1 Bowl System	60,000 - 80,000 btu/hr
	2 Bowl System	120,000 - 160,000 btu/hr
	3 Bowl System	180,000 - 240,000 btu/hr
	4 Bowl System	240,000 - 320,000 btu/hr

Note: Check with your gas supplier to verify gas flows and pressures available at the location of your installation. In many cases utility companies will install larger meters at no charge to accommodate larger flows.

3.3 Installing the Fire Bowl

⚠ WARNING

Do not install near any combustibles such as wood structures, fuels, clothing, fabrics, or dry vegetation.

Keep surrounding area clear of all debris such as paper, leaves, pine-needles and other combustible materials.

⚠ WARNING

This unit is for outdoor use only.

Recommended CSA/AGA Clearances: Sides 4 ft / Top 6 ft

A LP gas regulator should never be installed in the fire bowl. It should be installed by a gas expert in a remote location away from the heat source.

Install bowls out of the way of pedestrian traffic.

Installation shall be performed by a licensed contractor. All aspects of installation must conform to local or national codes, or in the absence of codes, with Natural Fuel Gas Code NFPA® 54 / ANSI Z223.1.

The control panel and approved gas valve must be located where they can be easily accessible so that the gas can be shut off quickly in case of an emergency.

1. Install the control panel and gas piping as shown in Figure 3: Natural Gas, Figure 4: Propane Gas, or Figure 5: Commercial Installation. Gas lines must be clean and free from any dirt, debris, or contamination.

Note: Propane piping is different than natural gas piping (shown in Figure 3 and Figure 4).

2. The gas piping must be installed underground between the control panel and each fire or water bowl, as shown in Figures 3 and 4.

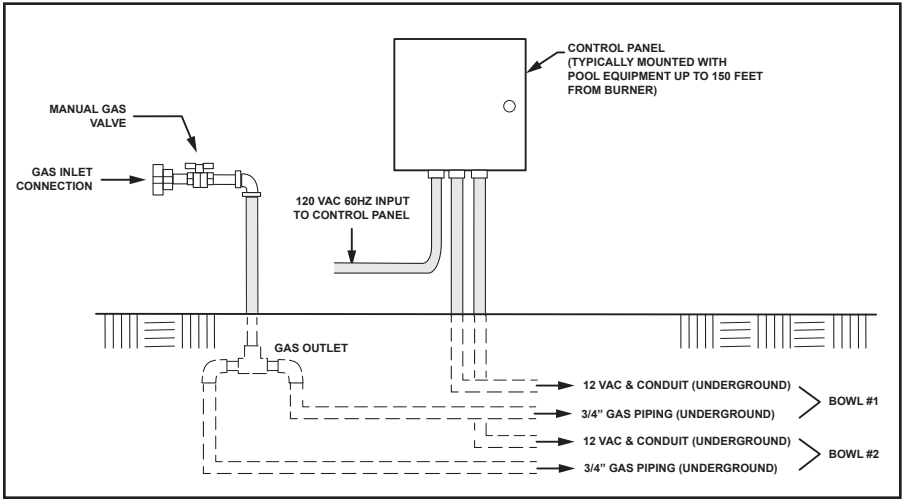


Figure 3. Natural Gas

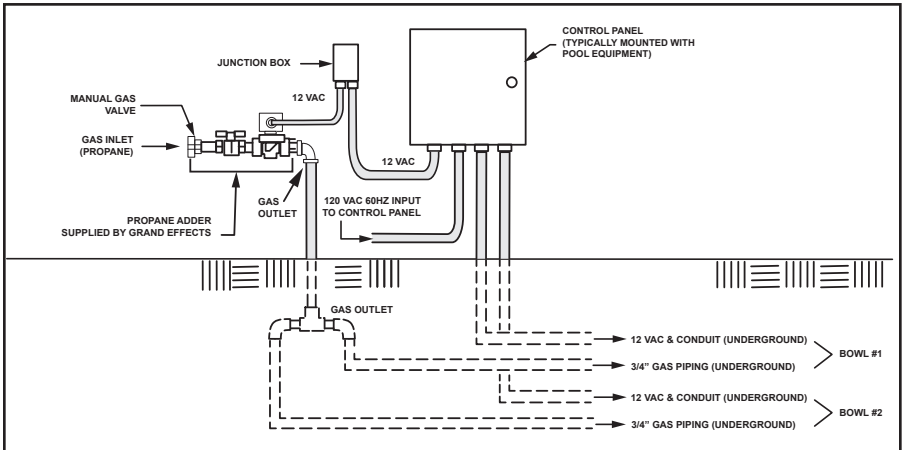


Figure 4. Propane Gas

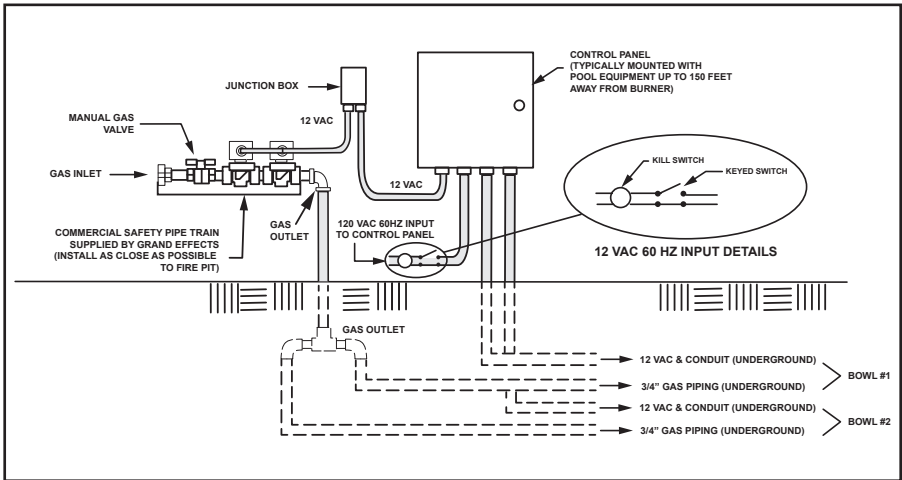


Figure 5. Commercial Installation

3. The piping must be reduced to 1/2" NPT or larger at each bowl, as shown in Figure 6.
4. At each bowl, install a 90° gas pipe elbow on the gas line for proper installation of a gas hose. Do not kink or make a tight radius bend on the gas hose.

Note: The gas and electrical connection at each bowl must be located at the center of each bowl. The connections must be installed as shown in Figure 7.

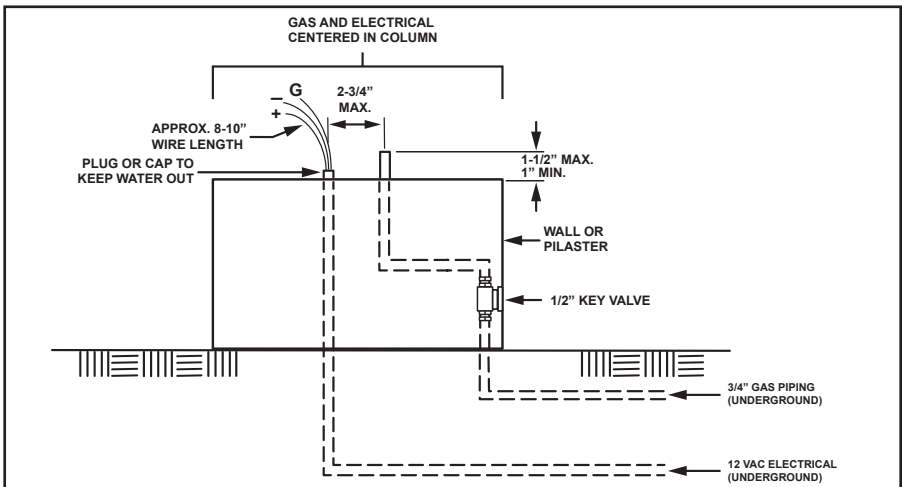


Figure 6. Piping

5. Install low voltage wiring (14 or 16 ga. 12VAC) underground between the control panel and each bowl. Wire per Grand Effects® wiring diagram. 120v source into the control panel can come from any 120v source, including auxiliary relay from the pool controller or home system. Typically, the pool controller is the device that turns the unit on and off. If a pool controller is not available, Grand Effects can provide a hand held remote system or an electrician can wire a decorative switch for on/off control up stream of the Grand Effects control panel.
6. Maintain good piping practice by keeping pipe length and elbows to a minimum to eliminate unnecessary pressure drops. Corrugated flex gas lines should not be used.
7. Gas and electric should be centered in the middle of the column.
8. Customer-supplied bowls should be similar in size to Grand Effects bowls: 27" min. ID x 9" min. Inner height with a 4" hole in the bottom of the bowl.
9. On commercial installations, it is recommended to install a keyed switch and kill switch located in close proximity and in visible sight of feature or features. The keyed and kill switches are supplied by others.
10. Install the mounting bracket as shown in Figure 7.
 - a. Center the mounting bracket on the column.
 - b. Use wedge anchors (i.e. Red Heads®) to secure the mounting bracket to the column.
 - c. Remove the clamp ring, nuts and washers and set aside for the following step to secure the bowl.
11. Secure the bowl on to the mounting bracket.
 - a. Center the bowl on top of the mounting bracket, with the bowl's bottom resting on the mounting bracket's three spacers.
 - b. Install the clamp ring onto the three (3) securing bolts and fasten to the bottom of the bowl using a nut and washer on each securing bolt.
12. Install 90° pipe elbow and gas hose at the gas connection as shown in Figure 7.
13. Connect gas hose to the burner assembly.

14. Install wire nuts on wires from the control panel and burner assembly. Be careful to hook up the “positive” to the “positive” and the “negative” to the “negative.” Wrap wire nuts with electrical tape or some means to prevent moisture from getting in. Make sure wire nuts are positioned at the bottom of the bowl, away from the bottom of the burner assembly.
15. With all gas connections tight, position the burner assembly so that it sits level in the bowl. Rotate as required so that the gas hose rests in a compact position.

Important: The mounting bracket must be installed for proper cooling of the burner assembly. Warranty may be voided if the mounting bracket is not installed. Do not kink or make sharp radius on the metal gas hose. Do not come straight up with the gas hose. As shown in Figure 7, a 90° gas pipe elbow must be installed on the gas line for proper installation of the gas hose. The product warranty may be voided if it is not installed with an elbow as shown in Figure 7.

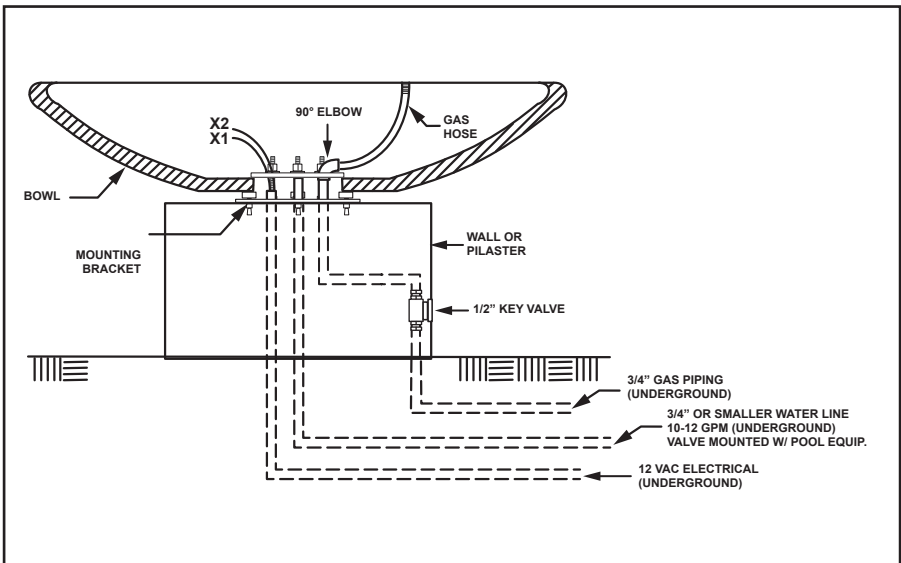


Figure 7. Mounting

Note: Do not caulk or seal around the base of the Bowl (see Figure 12).

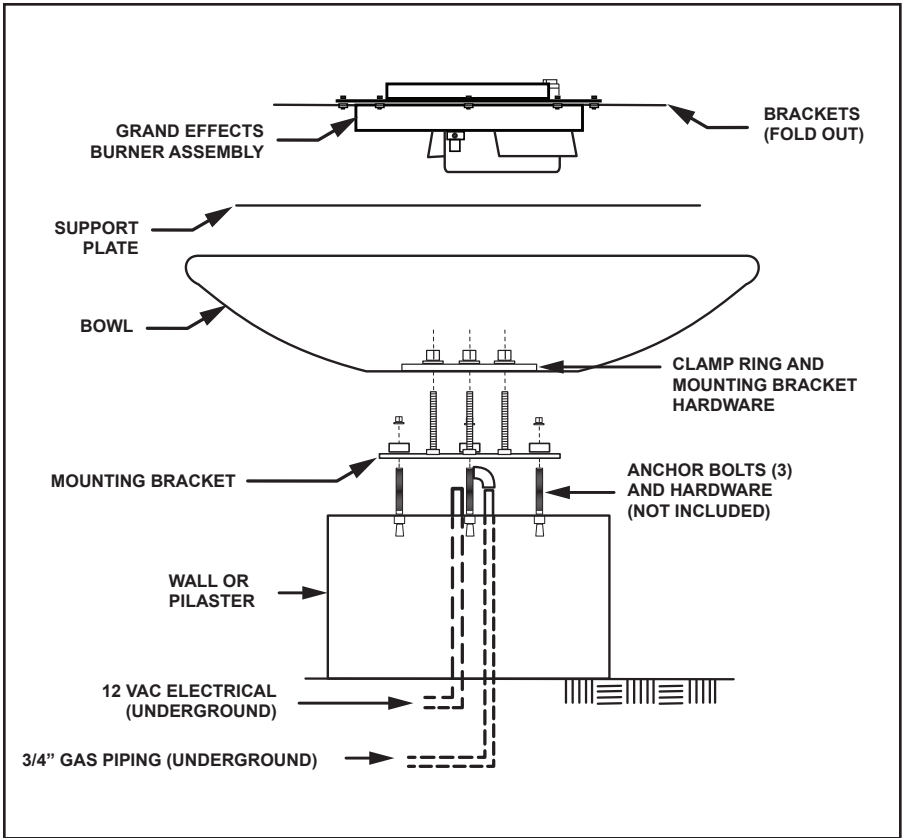


Figure 8. Bowl Components

IMPORTANT: When customers supply their own bowl, the burner assembly must be installed as shown in the following figure. The support plate includes four (4) all-threaded rods and nuts. The nuts must be set to accommodate the 2" media depth. The customer-supplied bowl must have a 4" diameter hole located in the bottom. The mounting bracket must be installed for proper cooling and drainage. The burner assembly must be installed flush with the top of the bowl. The mounting bracket must be installed for proper cooling of the burner assembly. The warranty may be voided if the mounting bracket is not installed. Customer-supplied bowls must not be smaller than 26" inner diameter and 9" inner height.

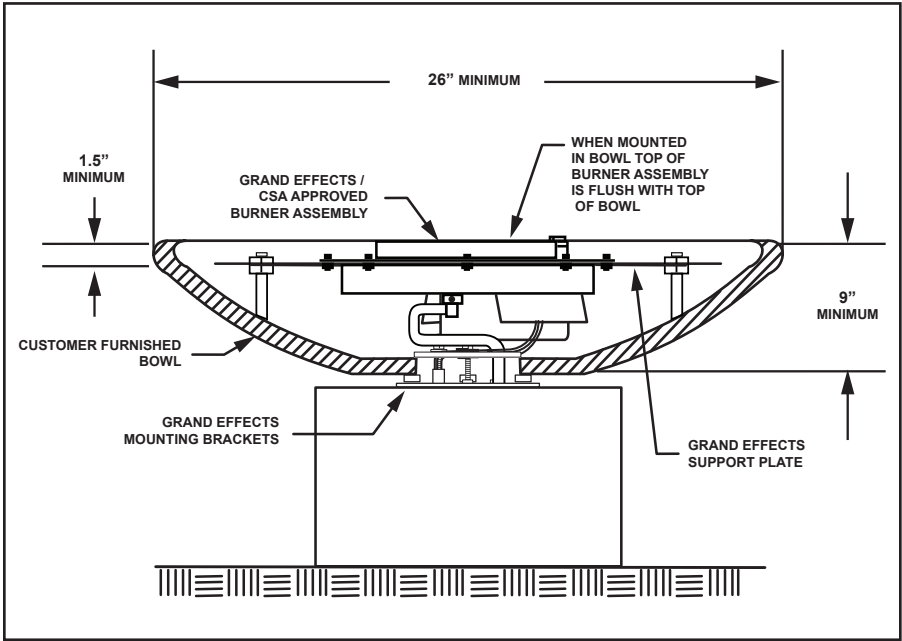


Figure 9. Customer-supplied Bowl

Section 4. Burner Setup and Adjustment

4.1 Burner Setup

1. Turn the manual gas valve or key valve to the “Off” position.
2. Energize the 120 VAC coming into the control panel.
3. At each burner assembly, check that the spark electrode is arcing from the pilot hood to the button. You should be able to hear and see the electrode spark. If there is no spark, make sure that the burner assembly is receiving 12VAC from the control panel.
4. Reposition the burner assembly so that it is sitting level in the bowl.
5. Open the manual gas valve or key valve.
6. Energize 120V to the control panel.
7. After all bowls have been lit, they can be adjusted for flame size.

IMPORTANT: At this time, the corresponding fire bowl should ignite. If the burner does not light, it may be a result of air in the gas line. If this happens, carefully purge the air from the gas line by disconnecting the gas hose from the burner assembly. The end of the gas hose should be outside of the bowl when purging air from the gas line.

WARNING

To avoid the risk of property damage and serious injury, including death, when purging air from a propane system, be sure to disconnect wires going to the burner assemblies (terminals X1/X2) located in Grand Effects® control panel. There should be no power at the burner assemblies when purging propane. The propane adder valve should remain wired and energized when purging. After purging is complete, make sure the area is vented and free from built-up gas.

Reinstall wires at X1/X2 terminals, thus providing power to burner assemblies.

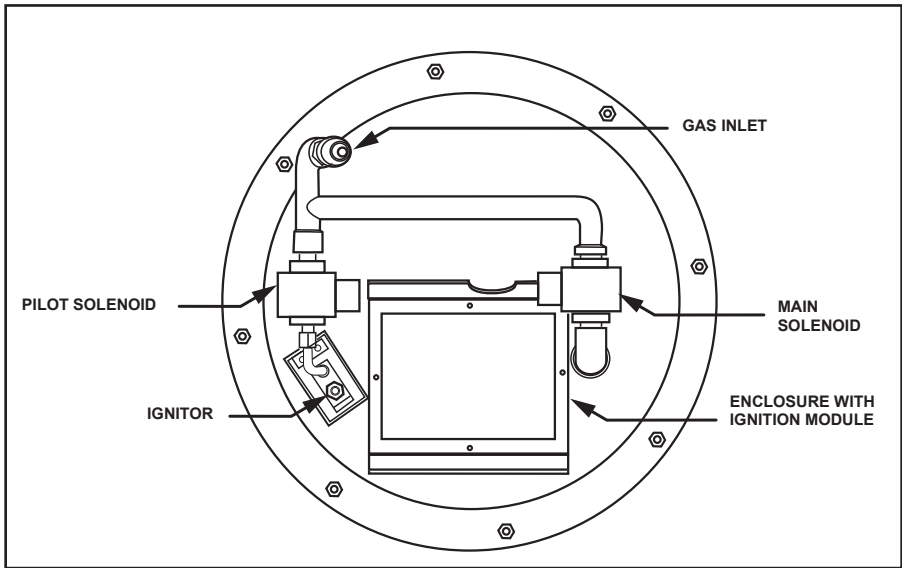


Figure 10. Bottom-side of Burner Assembly

4.2 Burner Adjustment

Note: Each burner should have a flame height of approximately 12" – 15" from the top of the bowl. If the pressure to the burner is too low, it will create an unstable pilot, resulting in possible On/Off cycling.

1. The height of the flame can be adjusted at each burner by opening or closing the $\frac{1}{2}$ " gas valve or keyed valve located on each column as shown in Figure 7.

Each burner should be adjusted as required so that the flame size at each bowl is similar in appearance to each other.

2. After all burners have been adjusted, make sure that the burner assembly is repositioned so that it is sitting level in each bowl.
3. Install decorative rock or glass on top of the "burner support" and burner assembly. Larger lava rock is recommended (2" - 4" in size). It will work better than smaller rock. Make sure that all rock is clear of the pilot area and hood area. Pilot hood area needs to remain clear of rock for proper ventilation.

Note: Do not use glass with propane installations. (If you use glass with natural gas, you will need to lay down stainless mesh screen to prevent glass from falling through. Do not cover the burner assembly and support plate. Fire glass requires a glass pilot hood, which is different than a standard pilot hood used with lava rock. Please consult the Grand Effects® Glass Install Manual. If you use 1/4" pieces of lava, it should be treated as a glass installation).

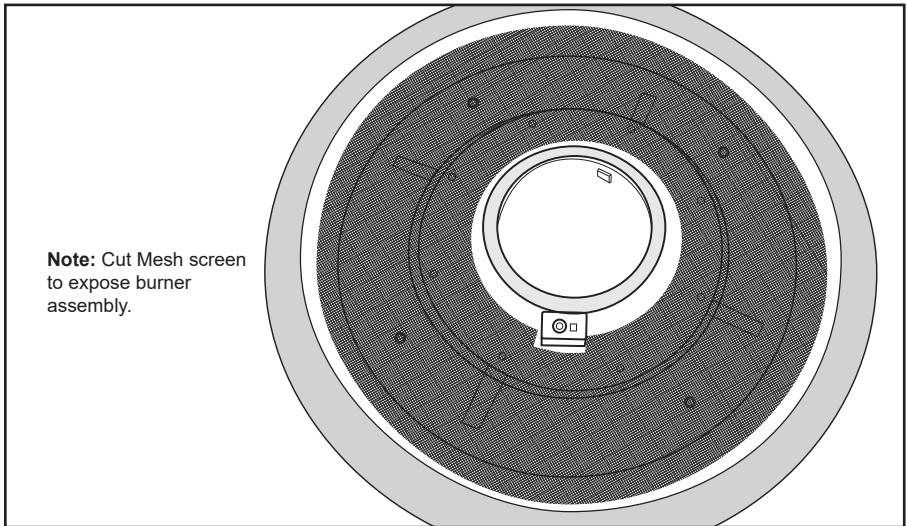


Figure 11. Mesh Screen Installation

Note: Both sides of the pilot hood need to be clear of rock for proper ventilation.

⚠ WARNING

Use only approved decorative media to cover the burner assembly.

Lava and tumbled lava/ceramic stone and fire glass are all accepted media.

To avoid the risk of property damage and serious injury, including death, use caution when in the immediate area, as pieces may pop or explode when exposed to heat or when wet and exposed to heat.

Important: Do not use fire glass with propane installations.

Section 5. Maintenance

Periodically clean the burner assembly and bowl with a wet cloth or cleaning solution to remove carbon build-up.

Frequency of the cleaning will depend on usage.

Frequently inspect the gap between the base of the bowl and the mounting bracket. It should be kept free of dirt and debris that may restrict cooling air and drainage (see Figure 12).

Periodically inspect the underside of the burner assembly for any signs of excessive temperatures.

Check that all gas connections are tight.

The units should be cycled frequently, especially after a rain. The burner assembly will not work in snow and ice conditions. The burner assembly should be covered and protected from snow and ice. The burner should not be operated in high wind conditions. High winds can limit the cooling air required for cooling of the burner assembly and cause over heating of the electronics.

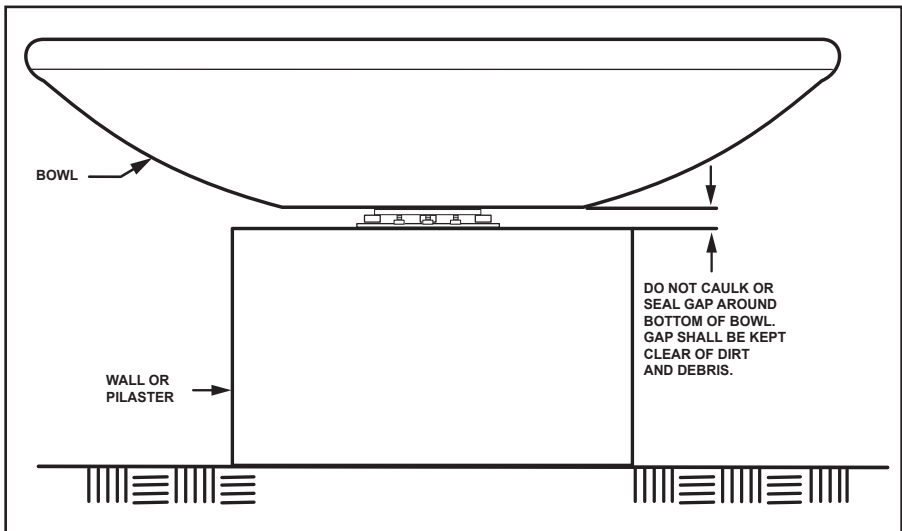


Figure 12. Maintenance

Important: The system needs to be turned on/off after a rain to remove any water in the pilot area.

Note: If any problems are present, consult a licensed heating specialist or call Grand Effects®.

Section 6. Operation

⚠ WARNING! This unit is for outdoor use only. For your safety:

- If you smell gas, shut off the gas valve immediately.
- Extinguish any open flame.
- If odor continues, immediately call your gas supplier.
- Do not store or use gasoline or other flammable vapors and/or liquids in the vicinity of this appliance.
- Do not leave flame on while unsupervised.
- Do not operate in windy or rainy conditions. If this is done, the unit will cycle on and off automatically.
- Unit should be operated only by a responsible adult.
- When in use, an open flame is present; therefore, use with extreme care and at your own risk.
- Before any inspection of the unit, always turn off power and gas supply to the burners.
- If you experience problems with this unit, call Grand Effects or a licensed heating professional. All work on this unit must be performed by a licensed heating professional.

⚠ WARNING

To avoid the risk of property damage and serious injury, including death, before you turn on the Grand Effects System, make sure that features are clear of people, animals, or any objects that are combustible.

6.1 Operating Instructions

To turn unit "On":

1. Energize power to Grand Effects® Control Panel.

To turn unit "Off":

1. De-energize power to Grand Effects Control Panel.

Section 7. Troubleshooting

WARNING

To avoid the risk of property damage and serious injury, including death, call Grand Effects® or a licensed heating professional if you experience problems with this unit. All work on this unit must be performed by a licensed heating professional.

WARNING

Model 100 Burner Assembly

In order to avoid the risk of property damage, serious injury, including death, turn OFF power and gas at the control panel prior to initiating troubleshooting steps. Turn power and gas ON once troubleshooting is complete. Some steps may require power and gas to be temporarily ON for verification, but turned OFF for repair (**see bolded step**).

Symptom	Corrective Action
Main burner does not light (no spark)	<ol style="list-style-type: none"> 1. Remove rock/glass away from pilot area. (Look for small pieces obstructing pilot.) 2. If still no spark, confirm that you have 12VAC out of the panel and at the burner. 3. If you have voltage going out to the burner, but no spark, replace the ignition module. 4. If you have no voltage out of the panel, replace the transformer.
Spark (but no pilot)	<ol style="list-style-type: none"> 1. Remove rock/glass away from pilot area. (Look for small pieces obstructing pilot.) 2. Confirm if gas is coming out of the pilot; you can hear it. (Use a BBQ lighter to determine if gas is coming out of the pilot.) 3. If no pilot gas, check that gas is turned on. 4. Pilot orifice may be plugged. Replace pilot assembly. 5. If still no gas, pilot valve may not be opening. Turn gas off and confirm if pilot solenoid is energizing. 6. If not energizing, replace the ignition module. If it is energizing, If the valve is not opening or is dirty, replace the gas manifold.

⚠ WARNING

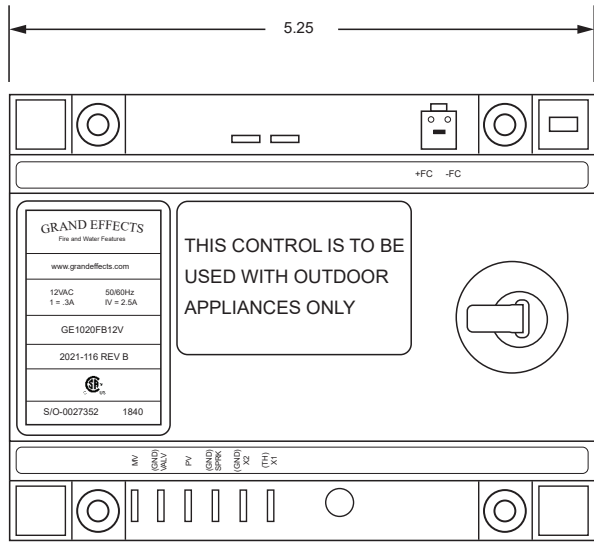
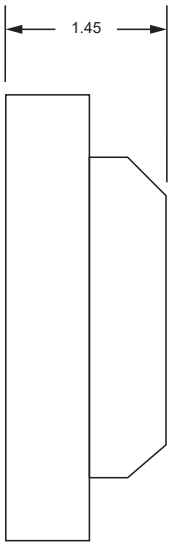
Model 100 Burner Assembly

In order to avoid the risk of property damage, serious injury, including death, turn OFF power and gas at the control panel prior to initiating troubleshooting steps. Turn power and gas ON once troubleshooting is complete. Some steps may require power and gas to be temporarily ON for verification, but turned OFF for repair (**see bolded step**).

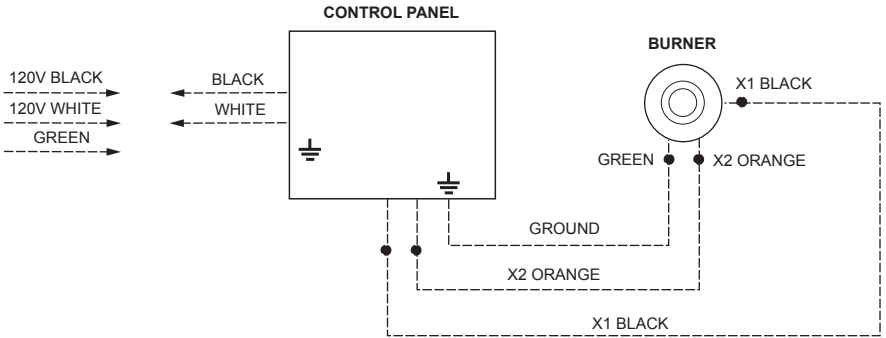
Symptom	Corrective Action
Burner goes On/Off	<ol style="list-style-type: none"> 1. Is it going off because of wind? If so, how windy? Slight breeze or gusty? If wind related, rotate burner assembly in bowl so wind is not blowing across pilot. 2. If using glass, make sure an open pilot hood is used. Remove rock/glass away from pilot area. Does it get better? How much glass? Thin down glass on burner assembly. 3. Remove all rock/glass from the burner assembly. Does the problem go away? 4. If gas pressure is too low or main burner is adjusted too low, the pilot will be too small and unstable. 5. If burner shuts off after a 30-minute period and then goes off and doesn't come back on, replace the ignition module.
Pilot comes on but no main burner	<ol style="list-style-type: none"> 1. If possible, confirm that main gas solenoid is energizing. If not possible, replace the ignition module. 2. Main burner solenoid may have to be replaced if buzzing. Look for signs for overheating.
Main burner or pilot does not shut off	<ol style="list-style-type: none"> 1. If the valve is not opening or is dirty, replace the gas manifold.

Section 8. Control Module Diagram

GRAND EFFECTS®
GE1020
CONTROL MODULE



Section 9. Wiring Diagram



Grand Effects

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