

CAUTION – DO NOT DISCARD THIS MANUAL

- Important Operating and Maintenance Instructions included.
- Read, understand & follow these instructions for safe installation & operation
- Leave this manual with party responsible for use and operation
- Ensure proper drainage in fire feature to allow water to drain

- Installation must conform with local codes or, in the absence of local codes, with the *National Fuel Gas Code, ANSI Z223.1.*
- The appliance, when installed, must be electrically grounded in accordance with local codes or, in the absence of local codes, with the *National Electric Code, ANSI/NFPA 70.* (If applicable)

WARNING: If the information in these instructions is not followed exactly, a fire may result causing property damage, personal injury or death

- Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this appliance.
- **WHAT TO DO IF YOU SMELL GAS**
 - 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. 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.

WARNING: Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage. Read the installation, operating and maintenance instructions thoroughly before installing or servicing this equipment.

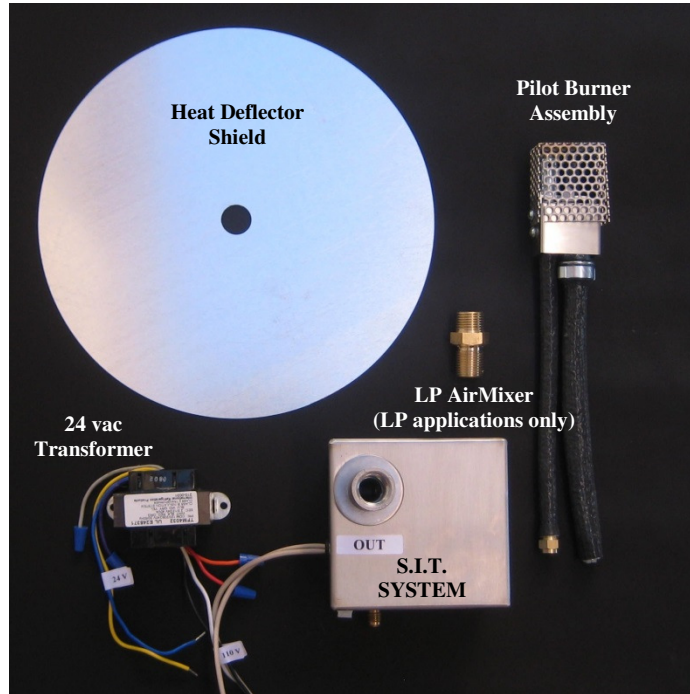
WARNING: FOR OUTDOOR USE ONLY

For Use With NATURAL Or LP GAS Only
NO SOLID FUELS TO BE USED WITH THIS SYSTEM

Inspect the Appliance and Components

Warning

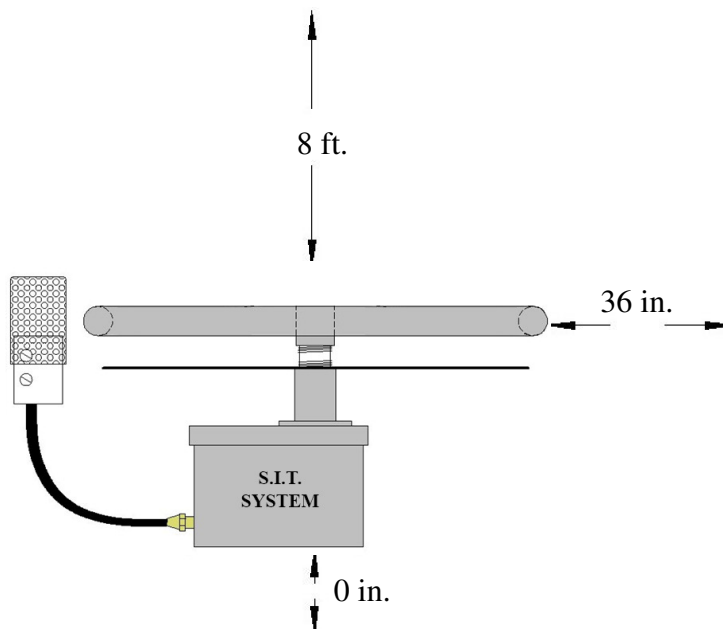
- Do NOT install damaged components**
- Do NOT install incomplete components**
- Do NOT install substitute components**



Clearances

WARNING – FIRE RISK

Provide Adequate Clearance from Combustibles as shown below



Gas Information

Fuel – Before making gas connections ensure appliance being installed is compatible with the available gas type.

Gas Pressure – Proper Input Pressures are required for optimum appliance performance. Gas line sizing requirements need to be made following NFPA51.

Pressure Requirements for Appliance (Natural Gas or Propane)

Minimum Inlet Pressure: 0.25 psi

Nominal Operating Inlet Pressure: 7” WC (NG) / 11” WC (LP)

Maximum Inlet Pressure: 2.0 psi

Gas Connection – Have the gas supply line installed in accordance with local building codes, if any. If not, follow ANSI 223.1. Installation should be done by a qualified installer approved and/or licensed as required by the locality.

Note: A listed manual gas shutoff device must be installed prior to the location of the appliance

Startup – A small amount of air will be in the gas supply lines. When first lighting appliance it will take a short time for air to purge from lines. Subsequent lighting of the appliance will not require such purging.

WARNING

Check for Gas Leaks after installation complete

- Check all fittings and connections
- Do not use open flame to check for leaks
- Check for leaks with a commercially available, non-corrosive leak check solution

Electrical Information

Note: The 24 volt transformer supplied is to be located in a remote location away from the fire feature in an approved weatherproof electrical junction box and installed in accordance with local codes.

Recommended Wire Size

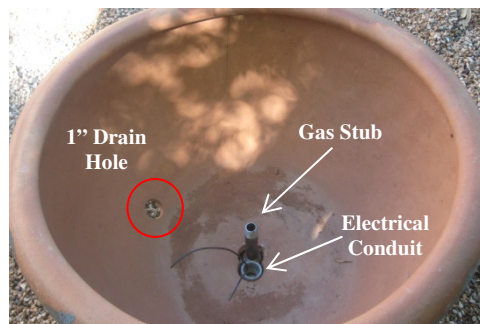
No less than 12 gauge wire for all installations

Note: There are numerous electrical devices that can be used to turn the fire feature on and off. Devices such as wall switches and remote control devices that are used should be UL listed and approved devices for turning high voltage (110 v electrical power) on and off. This high voltage electrical power shall be connected to the supplied 24 volt AC transformer by a qualified electrical installer.

Installation

1. In the photo at right there is a bowl with both a gas riser and an electrical conduit stubbed up inside the bowl. In this photo the gas riser is centered whereas the electrical is off center. It is preferred to stub the gas riser centered in order to ensure the fire ring is centered in the bowl once installation is complete.

NOTE: Drainage **MUST** be provided in the bottom of the bowl. Drainage can be obtained by making a simple hole as shown at right or providing a drain line next to the gas and electrical conduit.



2. Apply pipe dope to the gas stub and thread the S.I.T. SYSTEM onto the gas riser as shown in the photo at right.

NOTE: Leak Test – it is highly recommended to perform a gas leak test at this point in the install. Turn on the gas supply and then, using a soapy water solution spray the bottom of the S.I.T. SYSTEM where it is connected to the gas line to ensure no leaks exist.



3. Electrical Connections. In the photo at right the wires protruding from the S.I.T. SYSTEM have been connected to the two wires from the electrical conduit using appropriate sized wire nuts.

NOTE: It is not required but it is recommended to fill the wire nuts with either dielectric grease or silicone prior to installing the wire nut. This will ensure a weatherproof electrical connection.



4. On the side of the S.I.T. SYSTEM there are two connections for the Pilot Burner Assembly as shown in the photo at right. The white 'quick connect' is the electrical connection and the brass plumbing fitting is the gas connection. There is a label next to these connections, "Attach Pilot Burner Here".



5. The photo at right shows the S.I.T. SYSTEM after the Pilot Burner Assembly has been connected.

NOTE: The electrical connection for the Pilot Burner Assembly is a shaped connection thereby ensuring it can only be connected the correct way. On the Pilot Burner Assembly side of the connection there is a locking clip on the quick connect that will 'lock' the connection in place. Therefore after making the connection lightly tug on the connection to ensure it is in fact 'locked' in place.



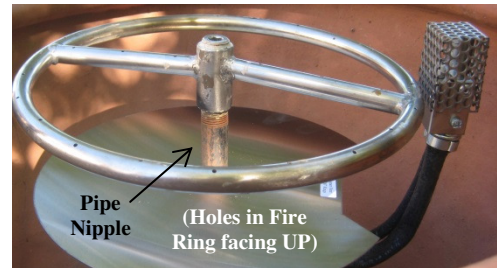
6. Install the Heat Deflector Shield. For now the Heat Deflector Shield is going to simply balance on top of the S.I.T. SYSTEM as shown in the photo at right.



Install Fire Ring – Natural Gas

7a. When installing the fire ring for Natural Gas applications select a pipe nipple that is long enough to raise the fire ring LEVEL with the top of the bowl as shown in the photo.

Apply pipe dope to both ends of the pipe nipple and install the fire ring with the HOLES of the fire ring facing UP.

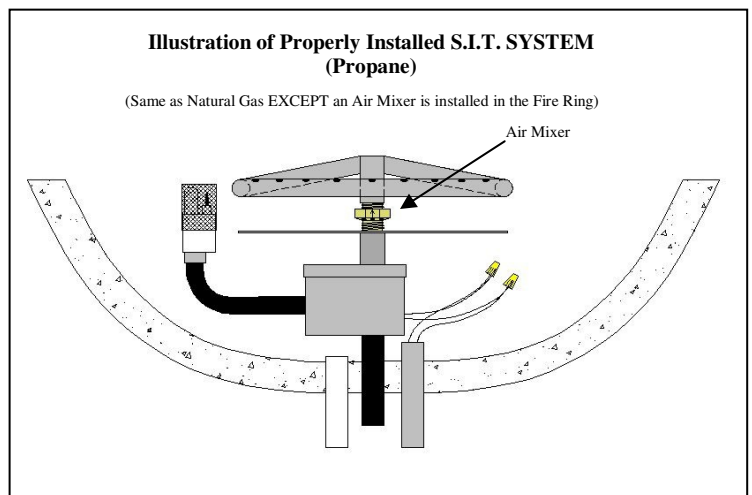
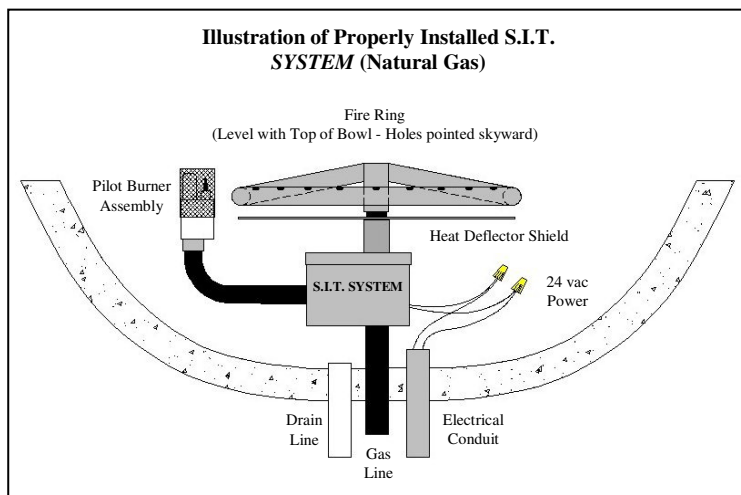


Install Fire Ring – Propane

7b. When installing the fire ring for Propane applications a brass “Air Mixer” will be installed between the S.I.T. SYSTEM and the fire ring as shown at right.

Apply pipe dope to both ends of the Air Mixer and install the fire ring with the HOLES of the fire ring facing UP.

NOTE: The Air Mixer MUST be installed such that the gas flows through it in the direction of the Arrow on its side.



Acceptable Media for Fire Features

WARNING

Do not use any other material as filler/topping media inside fire features other than those listed below. Using improper media inside a fire feature could result in damage to property or injury to persons nearby due to media 'popping' or 'exploding' due to heat

List of Acceptable Media for Fire Features

Lava Rock (or other Igneous Rock) NO LARGER THAN 2" in diameter
Fireglass approved for use in fire features
Man made stone for use in fire features (Refractory Material)

Installation Note

The use of media inside fire features is recommended due to the fact it enhances the look of the fire feature but also improves its performance by forcing the gas emanating from the burner element to mix as it passes through the media. This 'mixing' of gases creates an even flame throughout the feature and helps spread the flame from the Pilot Burner throughout the burner element quicker than when there is no media. **Recommended thickness of the media above the burner element is NO MORE than 2"**. Due to the fact the Pilot Burner must be partially exposed to oxygen in order to ignite the pilot flame during start up **DO NOT COMPLETELY COVER THE PILOT BURNER**. When installation of the media is complete the top of the Pilot Burner Protective Cover should be visible.

LP Gas Installation Considerations

Due to the fact LP (Propane) Gas is different from natural gas there are some slight differences in the installation procedures. These differences are listed here:

- 1. Installation of an Air Mixer.** Propane is a much more potent fuel when compared to natural gas. For this reason an Air Mixer is installed in the inlet of the burner element to lean out the gas. The orifice inside the Air Mixer is sized for the burner element so when ordering your Fire Module be sure to indicate the size/type burner element you will be using with the Fire Module.
- 2. Drainage/Venting of the bottom of the Fire Feature.** Unlike natural gas, LP gas is heavier than air. Because it is heavier than air any 'unburned' LP gas will likely go to the bottom of the fire feature. Without proper drainage/venting at the bottom of the fire feature LP gas will collect in the bottom of the fire feature and WILL cause a very hazardous situation. For this reason either a drain line that ends in open air or venting at the bottom of the fire feature **MUST** be installed to allow any unburned LP gas to escape from the bottom of the fire feature thereby eliminating the hazard.
- 3. Depth of Media on top of the Burner Element.** It is **HIGHLY** recommended you use as little media **ON TOP** of the Burner Element in a LP gas fire feature. The less media there is on top of the burner element the less obstructions there are which could prevent LP gas from being ignited at the top of the fire feature. By reducing the depth of the media you have reduced the chance of unburned LP gas from going to the bottom of the fire feature.

Installation of Media in Fire Features

Filler Material

(material used below the fire ring)

There are a couple options when it comes to adding filler material to a fire feature. For 'shallow' features such as the bowl at right it is recommended to use landscape lava rock (3/4" chunk size) up to the level of the fire ring. This lava rock is very inexpensive and is available at local hardware/nursery stores. For 'deep' features it is recommended to first build a fake 'floor' in the feature prior to adding the filler material described above. This will cut down on the amount of filler material needed.

Notice in the photo at far right the top half of Pilot Burner is elevated above the Filler Material – this is important.

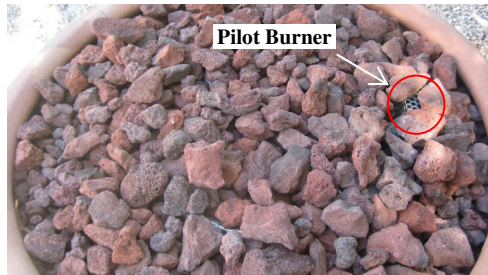


Close Up View of Pilot Burner

Topping Material (Large Chunk Lava Rock)

There are several options when it comes to topping material for a fire feature; large chunk lava rock, fireglass and fire stones. In the photo at right we used large chunk lava (2" to 3") to cover the fire ring. This lava rock hides the components of the fire feature while at the same time allowing plenty of oxygen to mix with the gas coming from the fire ring. This lava rock is more expensive than the "filler" lava rock but is still fairly inexpensive and readily available in the BBQ section of most hardware stores.

Notice in the photo at far right the Pilot Burner is concealed by the lava rock but NOT completely buried.



Close Up View of Pilot Burner

Topping Material (Fireglass - Preparation)

Fireglass is an acceptable fire feature topping material. Prior to installing the fireglass, some prefer to install a screen mesh (hardware cloth) above the filler material, and below the fire ring. This mesh is available at most hardware stores. This mesh will ensure the fireglass stays on top and does not mix with the underlying lava rock.

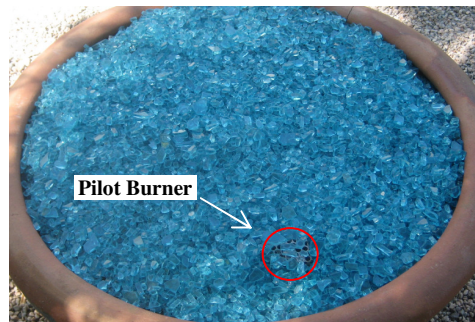
Note: Be sure the top half of Pilot Burner is elevated above the fire ring – this is important.

Topping Material (Fireglass - Installation)

Once the screen mesh and fire ring are in place, simply pour the fireglass on top of the mesh. Spread the fireglass to achieve an even layer of glass.

IMPORTANT: The top of the Pilot Burner should be level with the top of the Fireglass.

NOTE: If after installing the fireglass you notice the Pilot Burner is having difficulty igniting, remove some of the fireglass over the top of it. Continue to remove glass and try turning the fire feature on until you are able to achieve ignition every time you turn the fire feature on. This part requires some experimenting on your part to determine 'how much' glass you can have on top of the Pilot Burner.



Close Up View of Pilot Burner

Operating Instructions

WARNING

Do NOT use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control which has been under water.

WARNING

Fire Risk / Burn Risk / HOT! DO NOT TOUCH
SEVERE BURNS MAY RESULT - CLOTHING IGNITION MAY RESULT

- Keep Children away.
- CAREFULLY SUPERVISE children in same area as the appliance.
- Alert children and adults to hazards of high temperatures.
- Clothing or other flammable materials should not be hung from the appliance or placed on or near the appliance.

WARNING

The appliance should be inspected before use and at least annually by a qualified service person. More frequent cleaning may be required as necessary.
It is imperative that control compartment, burners and circulating air passageways of the appliance be kept clean.

Caution

It is NOT recommended outdoor fire features be operated when wind exceeds 25 mph

Lighting Instructions

Note: Before operating appliance ensure the manual gas shutoff valve is open.

1. Prior to turning appliance on visually inspect fire feature to ensure debris such as leaves or other combustible material has not collected inside the feature which could burn and emit embers once the fire feature is turned. Also ensure any person standing close to the fire feature is aware you will be turning the fire feature on prior to actually turning it on.

2. Turn fire feature on by turning on the electrical device used to power the fire feature.

Sequence of Operation during Ignition

- Power is applied
- Hot Surface Igniter (Glow Plug) becomes hot and Pilot Gas Valve opens
- Within 10 seconds of power application Pilot Flame should be visible (at night only)
- Within 10 seconds of Pilot Flame Ignition burner element (fire ring/burner bar) should ignite

3. Turn fire feature off by turning off the electrical device used to power the fire feature.

Troubleshooting

I installed the Electronic Ignition System, turned it on and nothing happened

When this occurs it is usually due to an electrical wiring / power issue. Check all your electrical connections thoroughly to ensure all wires at the transformer and inside the fire feature are connected properly. If it appears all wiring is connected properly, disconnect the wires at the fire feature, attach a Multimeter to the wires to confirm a minimum of 24 volts when the fire feature is turned on. If you determine that you do not have a minimum of 24 volts at the fire feature conduct the same test at the transformer to ensure the transformer is in fact producing a minimum of 24 volts. If you do have a minimum of 24 volts at the fire feature contact us for further assistance.

I installed the Electronic Ignition System, turned it on and I can see the glow plug glowing orange and I can hear gas flowing but it will not ignite.

There are two possible causes to this problem; **Air in the Gas Line** or not enough **Electrical Current** to the fire feature.

Air in the Gas Line. If a new gas line was installed and the air was never purged from it prior to installing the Electronic Ignition System then it may take several times of turning the fire feature on and off before the air is purged from the gas line. Here is how our system works; after you turn it on the glow plug will come on first followed by the Pilot Gas Valve opening 4 seconds later. For the next 180 seconds (3 minutes) the glow plug will cycle on and off every 30 seconds while the Pilot Gas Valve will remain on the entire time. Therefore if you are attempting to purge air from the gas line, turn the system on and leave it on for approximately 3 minutes. Then turn it off and then back on (no need to wait to turn it back on). Let the system run for another 3 minutes. Usually when purging air from a new gas line you will need to cycle the power several times as described above before gas begins to flow. If at any point you smell gas but still don't have ignition, attempt to light the Pilot flame with a handheld lighter. If the flame ignites when you light it by hand, go to the section below, "Electrical Current".

Electrical Current. If you have determined that air in the gas line is not the problem then most likely the failure to ignite is due to the fact the glow plug is not getting hot enough to ignite the gas. The reason a glow plug will not get hot enough is due to the fact it is not getting enough 'amps'. Often times when troubleshooting electricians will check the electrical power and when they see they have a minimum of 24 volts they think everything is fine electrically so there must be a problem with the Electronic Ignition System. The problem is not due to the volts but rather the amps. The number of amps reaching the fire feature is heavily dependent on the gauge wire used between the transformer and the fire feature. Our Install Instructions require no less than 12 gauge wire be run for all fire features. Often times we learn that in many cases less than 12 gauge wire has been used and herein lies the cause of the problem.

Here is how you check to determine if enough Electrical Current (amps) are getting to the fire feature:

1. CAUTION: Turn off the gas supply prior to the next step.
2. Using a clamp on ammeter, clamp the ammeter around one of the wires providing power to the Electronic Ignition System.
3. Turn the fire feature on.
4. The amps you should see will range between 1.4 to 1.6 amps initially. Four seconds after being turned on the amps will jump to approximately 2.0 amps.

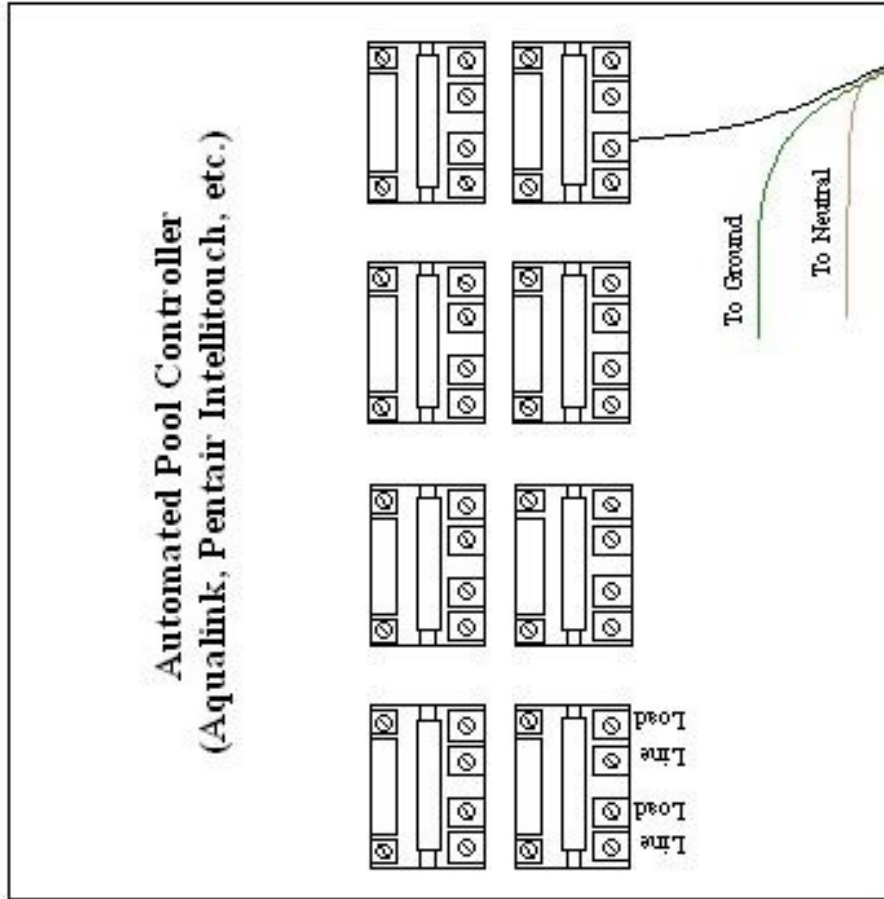
If you do not see the amps listed above AND the wire gauge used was less than 12 gauge wire – change the wiring. Otherwise contact us for further assistance.

I turned the Fire Feature off but I still see small flames emanating from the fire feature.

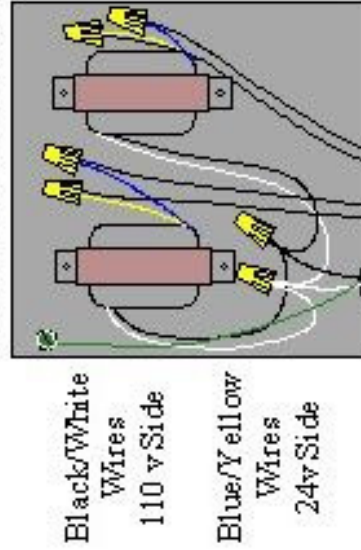
Turn the fire feature on, let the main fire ring light and then turn it off again – do this several times. Small pieces of debris from the gas line can get caught in the main or pilot valve thereby preventing it from closing all the way. This will sometimes happen with a new gas line. By cycling power you can often times dislodge the debris. If cycling power does not rectify the problem, turn the gas off using the manual gas shutoff and contact us for further assistance.

**Attachment 1
Automated Pool Controller Wiring**

**Wiring When
2 Fire Features
Turned On & Off
with One Button**



**J-Box with 24v Transformers
(One Transformer Needed
For Each Fire Feature)**



**Conduit to
Each Fire
Feature***

* At right 2 conduit are shown, one to each fire feature. It is possible to daisy chain the conduit and wire run. This would make it possible to run one conduit to the 2 fire features and then link the fire features with conduit.