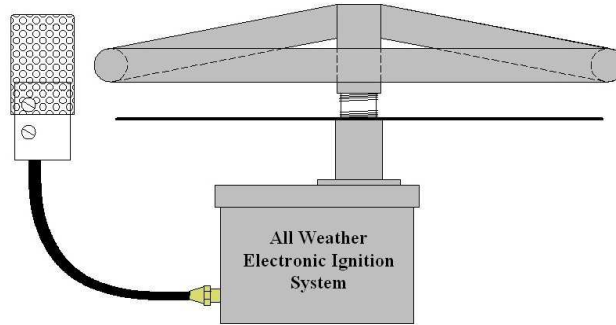


**All Weather Electronic Ignition System
(AWEIS)**

Owner's Manual
Installation and Operation



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.

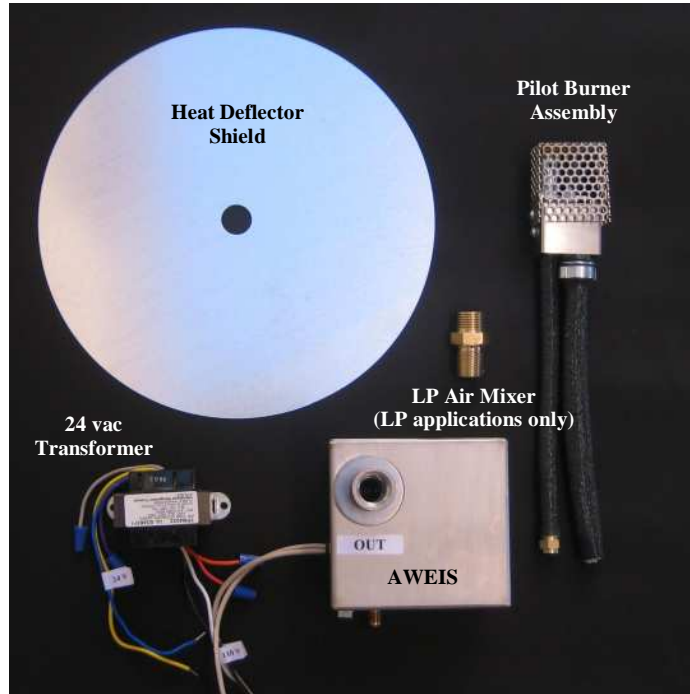
WARNING: FOR OUTDOOR USE ONLY

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

Inspect the Appliance and Components

Warning

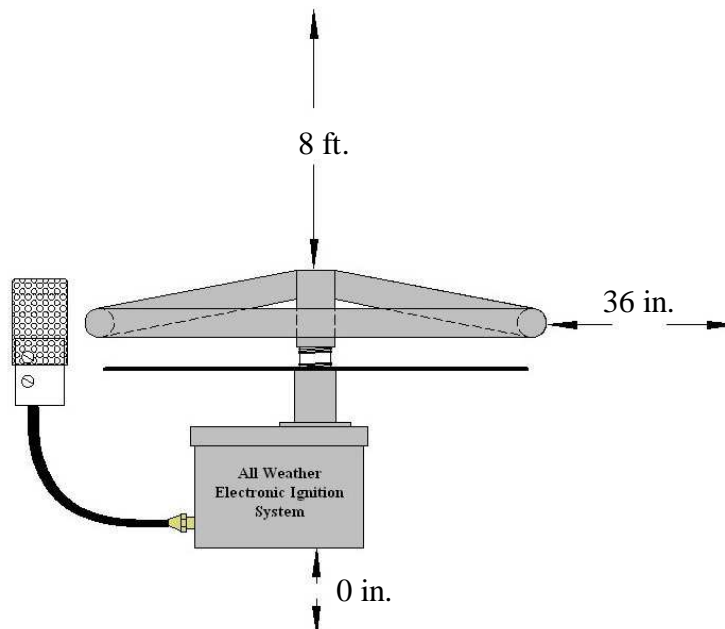
- Do NOT install damaged components**
- Do NOT install incomplete components**
- Do NOT install substitute components**



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

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 for the length of the wire run from the transformer to the Fire Module is as follows:

Wire Length < 100' : 14 ga

Wire Length > 100' : 12 ga

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 nipple and an electrical conduit stubbed up inside the bowl. In this photo the gas line is centered whereas the electrical is off center. It is acceptable to stub both gas and electrical in the center.

NOTE: Drainage MUST be provided in the bottom of the bowl. The holes in the bowl at right are oversized for both the gas and electrical due to the fact these holes also serve as drain holes as well.



2. Apply an acceptable pipe dope to the gas nipple and thread the AWEIS on to the gas line 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 AWEIS 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 AWEIS has 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 AWEIS 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".



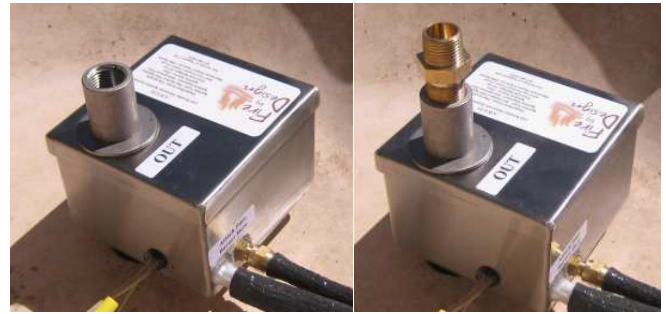
5. The photo at right shows the AWEIS after the Pilot Burner Assembly has been connected.

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. When ordering the AWEIS you must specify what type of gas will be used; natural or LP gas. When using Natural Gas the final configuration of the AWEIS will be as shown at right. When using LP (propane) a brass air mixer will be included with the AWEIS which is to be installed as shown at right.

NOTE: The brass air mixer has an orifice that has been sized based on the size of the fire ring. All brass air mixers are labeled indicating the size fire ring it has been configured for. If the fire ring you are using is different than the labeling on the air mixer – DO NOT USE IT. Please call for further assistance.



Natural Gas Configuration

Propane Configuration

7. Install the Heat Deflector Shield as shown at right.

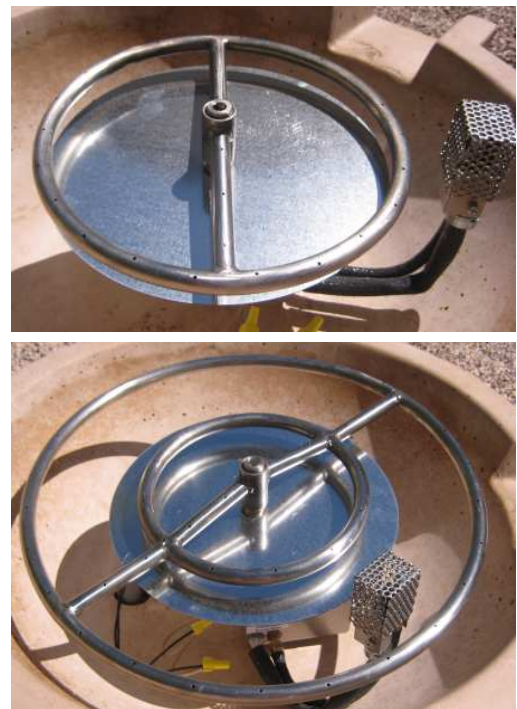


Heat Deflector Shield
(Natural Gas Configuration)

Heat Deflector Shield
(LP Configuration)

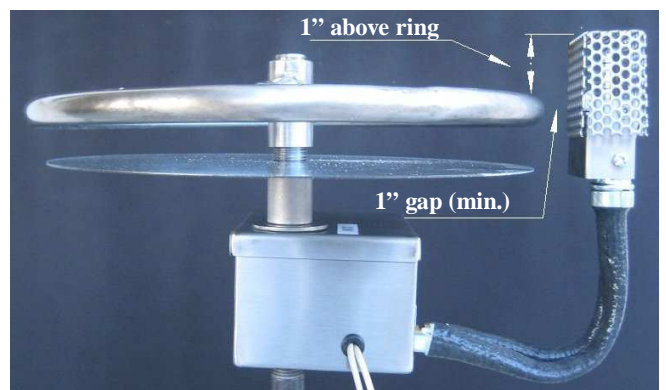
8. Install the Fire Ring. When installing the fire ring for Natural Gas you will have to supply the pipe nipple for the outlet of the AWEIS. The length of the pipe nipple will depend on how high you want the fire ring to be positioned in your fire feature. When using LP gas, you can either thread the fire ring directly on to the brass air mixer or you can add a coupling to it to then extend further up by adding an additional pipe nipple.

NOTE: At right there are two photos showing two different size fire rings. In the top photo the Pilot Burner is positioned 'outside' the fire ring. When using larger fire rings, as shown in the bottom photo, positioning the Pilot Burner 'outside' the outer ring is not possible due to the length of the Pilot Burner. When using larger fire rings positioning the Pilot Burner 'inside' two rings is acceptable as shown at bottom right.



9. Pilot Burner Positioning. Positioning of the Pilot Burner is very important with regards to proper functioning of the AWEIS module. The photo at right shows how the Pilot Burner should be positioned in relation to the fire ring when the install is complete.

CAUTION: When moving the Pilot Burner Assembly around to position it correctly DO NOT put undue stress on the flared gas connection between the Pilot Burner Assembly and the AWEIS module. It is highly recommended to first loosen the flare nut prior to moving the Pilot Burner Assembly. Once you have the Pilot Burner Assembly positioned correctly then tighten the flare nut.



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 3" 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.

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

Pilot Flame fails to Ignite or Ignites Inconsistently

Problems with Pilot flame ignition are most often caused by too low of an electrical current (amps). The Hot Surface Igniter used in the AWEIS Pilot Burner requires a minimum of 1.2 amps (at 24 volts) to get to full operating temperature in order to ignite the gas. When the AWEIS is first turned on the initial amp draw should be a minimum of 1.2 amps for the first 4 seconds and then will jump to approximately 1.6 amps when the Pilot Gas Valve is turned on by the AWEIS to allow pilot gas to flow. After Pilot flame ignition occurs, the Hot Surface Igniter is turned off and the Main Gas Valve is turned on. Amp readings after the Main Valve is turned on will be approximately 0.8 to 1.0 amps.

A low current situation will often be caused by one or a combination of two factors:

Wire too thin: The recommended wire gauge to be used is a minimum of 14 gauge wire when the wire run between the AWEIS and the 24 volt transformer powering it is less than 100'. If the wire run is equal to or greater than 100', 12 gauge wire is recommended. Any time multiple AWEIS units are 'daisy chained', regardless of the length of the wire run, 12 gauge wire is recommended. NO MORE than 3 AWEIS should be daisy chained together. **The most common problem is using a wire gauge less than the minimums recommended above.**

Transformer: One transformer is sent with each AWEIS shipped. One transformer can ONLY power one AWEIS. When attempting to power more than one AWEIS with one transformer, pilot flame ignition will not occur. **The second most common problem we see is when one transformer is used to power more than one AWEIS.**

AWEIS turns off after a few minutes of Operation

This problem is caused by improper Pilot Burner positioning. On page 5 of the Install Instructions there is a photo showing proper pilot burner positioning. In most cases the Pilot Burner is positioned too high in relation to the fire ring. The top of the Pilot Burner cage should be no more than 1" above the fire ring / burner bar.

AWEIS turns off after Extended Operation (> than 15 minutes) and won't turn back on when I cycle power until 10 minutes later

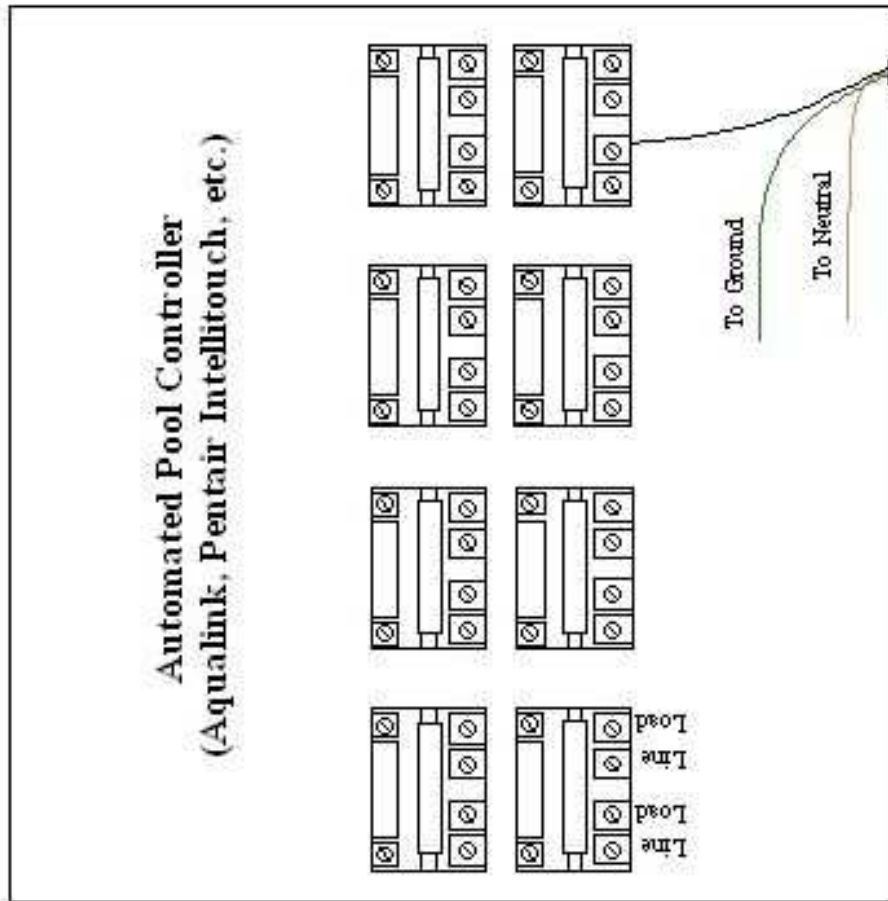
Internal to the AWEIS is a controller (circuit board) with a self resetting thermal fuse to protect the system from overheating. If the AWEIS gets too hot the thermal fuse will open thereby shutting down the AWEIS. Once the thermal fuse cools to a certain temperature it will reset itself thereby enabling it to be turned on again. Normal time for it to cool is approximately 10 minutes.

This situation is most prevalent in fire features using propane gas. For propane applications a brass air mixer is added to the outlet of the AWEIS. The orifice inside the air mixer is sized to work with propane pressures between 7" to 10" WC. When used in an application with higher propane gas pressure, propane will be expelled out the 6 air holes in the mixer thereby causing a small fire directly above the Valve Box part of the AWEIS. This small fire will heat the Valve Box thereby causing the thermal fuse to open. In order to eliminate this problem, simply reduce the propane gas pressure by adjusting the second stage regulator.

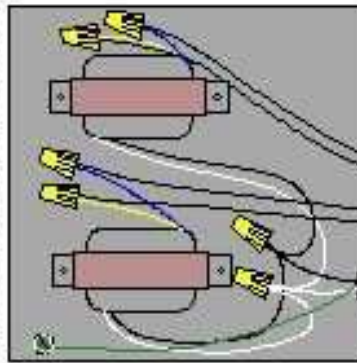
This problem can also be caused when extra large lava rock (>4" in diameter) are used in the fire feature. Extra large lava rock, due to its size, absorbs heat faster than it radiates heat due to the fact the core of it begins to heat up and has no way to release it. Temperatures in fire features using extra large lava rock will get much hotter than those fire features using smaller lava rock. For this reason we recommend using lava rock no bigger than 4" in diameter.

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)



Black/White
Wires
110 v Side

Blue/Yellow
Wires
24v Side

* 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.

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