

FLAME SENSE IGNITION SYSTEM

Installation Guide & Owners Manual

***READ THIS MANUAL BEFORE INSTALLATION OF THE UNIT**

WARNING: FOR OUTDOOR USE ONLY



WARNING:

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

WARNING:

Do NOT Store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance. A liquid propane cylinder not connected for use shall not be stored in the vicinity of this or any other unit.



Installation

We suggest that our products be installed by professionals that are locally licensed by the authority having jurisdiction in gas piping.

Institute (NFI) as NFI Gas Specialists.

Service We suggest that our products be serviced by a professional certified in the US by the National Fireplace

CARBON MONOXIDE HAZARD

This appliance can produce carbon monoxide which has no odor. Using it in an enclosed space can kill you. Never use this appliance in an enclosed space such as a camper, tent car or home.

WARNING:

For use with Natural Gas or Liquid Propane only. NO SOLID FUELS TO BE USED

Installation must conform with local codes or, in the absence of local codes, with the National Fuel Gas Code, ANSI Z223.1 / NFPA 54, or International Fuel Gas Code. 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

This Product May Contain A Chemical Known To The State Of California To Cause Cancer, Or Birth Defects Or Other Reproductive Harm

DANGER

If you smell gas: 1) shut off gas to appliance.

2) Extinguish any open flame.

3) If odor continues, keep away from appliance and immediately call gas supplier or fire department.

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GENERAL INFORMATION

Please carefully follow the instructions in this manual to prevent personal injury or property loss. Instructions are updated as needed. It is the installer's responsibility to periodically review instruction for applicable updates.

The steps listed as

WARNING: Contains information critical to the safe installation and operation of the fire bowl. **WARRANTY REQUIREMENT:** Must be strictly followed to qualify for product warranty. Warranty will be void if not followed.

IMPORTANT: Notes and insights to help ensure product satisfaction and serviceability.

WARNING: It is the installer's responsibility to ensure a safe installation and to educate the end user as to proper operation. Leave this manual with the end user.

WARNING: Never alter product or configuration in any way.

WARNING: We suggest that our products be installed by professionals that are locally licensed by the authority having jurisdiction in gas piping. We suggest that our products be serviced annually by a professional certified in the US by the National Fireplace Institute (NFI) as NFI Gas Specialists or in Canada by WETT (Wood Energy Technical Training). Installer must follow all instructions carefully to ensure proper performance and safety. The Outdoor Plus Co, Inc is not responsible for your actions.

WARNING: Product is not intended to be a starter for wood or any other combustibles. **WARNING:** It is the responsibility of the installer to follow:

- The National Fuel Gas Code, ANSI Z223.1/NFPA 54 or International Fuel Gas Code.
- The National Electrical Code, ANSI/NFPA 70.
- Local Codes

WARNING: Verify correct gas/fuel type and pressure. Never use an alternative fuel to include bio-fuel, ethanol, lighter fluid or any other fuel. Gas pressure and type should be checked prior to use and installation.

Natural Gas Fire bowl: Supply Pressure: Minimum: 3.5" W.C.; Maximum: 7.0" W.C.
Liquid Propane Gas: Supply Pressure: Minimum: 8.0" W.C.; Maximum: 11.0" W.C.



SELECTING THE LOCATION

WARNING: All fire bowls, match lit kits, and spark ignition systems are designed and intended for outdoor use only. **WARNING:** All fire bowls must have a gas shutoff on the outside of the exterior of the fire bowl to allow for emergency shut off and maintenance.

WARNING: Select a location where the fire bowl can be attended during operation. Never leave an operating fire bowl unattended or by someone not familiar with its operation or emergency shut off locations.

WARNING: Both children and adults should be alerted to the hazards of high surface temperatures and should stay away to avoid burns and clothing ignition.

WARNING: Young children should be carefully supervised when they are in the area of fire bowl.

WARNING: Clothing or other flammable materials should not be placed on or near fire bowl.

WARNING: Fire bowls create very high temperatures - Combustibles must be located far enough away that there is no risk of ignition. (See Clearance From Combustibles diagram at the end of this document)

Fire bowl Clearances from Combustibles (Diagram can be found at the end of this document) Sides Surrounding Fire bowl - 48" From Structure or Combustibles Overhead Clearance - 96" from combustibles overhead

IMPORTANT: It is recommended that material such as granite, marble or other dense stone be kept away from heat and especially flame due to risk of cracking. Manufacturer is not responsible for damage.

TIPS FOR CHOOSING LOCATION

- Select a location with good drainage.
- Choose a location that allows easy access for installation and maintenance of the fire bowl.
- Pick a location that allows sufficient room to enjoy the fire bowl while allowing a safe distance from the heat and flame.

CONSTRUCTION OF THE ENCLOSURE

WARNING: All fire pits must have a gas shutoff on the outside of the exterior of the fire pit to allow for emergency shut off and maintenance. The gas shutoff should not be used to adjust flame height.

WARNING: Use non-combustible materials and construction for gas supply, power and enclosure. A metal outlet box should be used inside the enclosure for electronic ignition models.

WARNING: Always use proper materials and construction for gas supply, power and enclosure.

WARNING: We prefer the enclosure incorporate 2 vents total (minimum 18 sq. inches each side) to reduce the risk of thermal shutdown - some enclosures may require more ventilation based on material, size and extended use. The minimum requirement is the enclosure incorporate 1 vent on at least 2 sides (2 vents total) at a minimum size of 18 sq. inches of total free area each (Example: 3"x 6" or larger) to ensure that heat and residual gas can escape. Installation of the vents in the mid to lower area of the enclosure is recommended. Failure to properly vent enclosure may result in the fire pit overheating or explosion. Continuous overheating could lead to heat damage to internal components. The vent may work as a drain as well when installed at bottom sidewall to prevent water build up. **WARNING:** The interior void space of the enclosure surrounding the valve box cannot be filled with any material (gravel, crushed rock, concrete, etc.)- It is a requirement to have a minimum of 2" under the valve box for proper ventilation and drainage.

WARNING: Select materials that are non-combustible in both initial installations as well as over time. **WARNING:** The fire pit assembly should be recessed a minimum of 2" from the top of the enclosure to protect flame from being blown out. Some areas may require more- 4 to 6" is not uncommon.

WARRANTY REQUIREMENT: The enclosure must be constructed on a stable surface. The weight of the fire pit must be supported by the pan and not by any control/valve box. For electronic ignition models the control/valve box must be above grade with adequate drainage to prevent water damage to the controls inside the box.

- Make sure that the structure is level.
- TOP recommends that the pan lip is recessed on trough (linear), and large round products. TOP cannot guarantee the lip on all of our products will be perfectly flat and will not warp due to heat.

IMPORTANT: Product must be accessible for service.

WARRANTY REQUIREMENT: Do not daisy chain wiring multiple systems. Each fire pit must have dedicated wiring .



INSTALLATION OF A FIRE PIT

WARNING: We suggest that our products be installed by professionals that are locally licensed by the authority having jurisdiction in gas piping.

WARNING: We suggest that our products be serviced annually by a professional certified in the US by the National Fireplace Institute (NFI) as NFI Gas Specialists.

WARNING: Confirm this appliance is built for gas used –natural gas or LP. Do not use natural gas appliance with LP or LP appliance with natural gas. Refer to the label on the appliance.

WARNING: To prevent damage, unhook fire pit from gas supply for pressure leak tests.

WARNING: Ensure that the mounting plate for the valve is properly secured to a rigid surface on the enclosure, check that the mounting plate will not move.

WARNING: Operate valve to ensure there is no movement and the valve is secure.

WARNING: Orient the valve so that there is no kink in the flex line.

WARNING: During the installation of the fire pit insert, check to ensure the flex line will not kink or pinch to avoid damage to the flex line.

WARNING: After hooking up the gas supply line, ensure the valve mounting is still secure.

WARNING: Check all connections and lines to ensure they are not under stress.

WARNING: Perform leak test on all connections. Repair as needed and double check that all mounting hardware is secure with no movement.

WARNING: Fuel line sizing is the responsibility of the installer and must be able to supply the stated maximum BTU for the product.

WARNING: Burn testing- It is the responsibility of the qualified installer to test for gas leaks at all connections.

WARNING: When filling the pan with lava rock and/or decorative glass, the instructions in Section 5 must be followed.

WARNING: If using a small LP tank as a fuel source refer to the FPLP kit and instructions.

WARNING: Gas Plumbing Connections: Use only joint compound or tape that is resistant to all gases. Apply joint compound to all male pipe fittings only- DO NOT use on FLARED fittings. Be sure to tighten every joint securely. **WARNING**: For systems with an extended or detached valve box the area in which the valve box is installed must conform to all installation requirements to include but not limited to location, construction, venting and local codes.

Failure to do so may result in personal injury property damage or explosion. **IMPORTANT:** Ensure any flex line that may be used from the permanent main fuel supply to the product is rated to

the stated max BTU of the product and certified to ANSI Z21.75*CSA 6.27.

WARRANTY REQUIREMENT: Warranty is void if product is altered.

- Refer to cut sheets on our website for important dimensional information for your fire pit.
- Plan your project well in advance to comply with all instruction and codes and allow for access and serviceability of the product.
- Purge gas lines of air.
- Perform all leak tests with leak detector or leak reactant.
- Verify correct gas type and pressure.
- Perform leak test on main gas supply and repair as needed.
- Shut off gas supply to fire pit.
- Connect fire pit to main gas supply. If using flex line avoid sharp bends with flex line to prevent whistling.
- Turn on gas supply and perform leak test on all inlet connections and repair as needed.
- Position fire pit safely with access to all gas connections for testing.
- Light fire pit. It may take several cycles to purge air from the lines.
- Once fire pit is lit perform leak test on all gas connections. Repair as needed.
- Turn off fire pit and allow cooling.
- Apply media as described in (Section 5.)
- Turn on fire pit again and perform leak test with media correctly installed. If gas leak is detected verify correct media application and repair as needed.
- Set fire pit in properly constructed enclosure (Section 3.)
- Verify correct operation and lighting.
- Review safety manual with end user and instruct not to change/ modify fire pit or media.
- Leave manual with end user.

BURNING MEDIA

LIQUID PROPANE WARNINGS	 WARNING: for glass media usage with LP gas- when using approved decorative glass to cover burner apply only enough to hide burner. WARNING: Applying over 1/2" may create back Pressure and gas leakage from air mixer resulting in LP pooling under fire pit. WARNING: for glass media usage with LP gas- the unit must be tested with media over burner for confirmation of no back pressure creating gas to leak out of air mixer venturi holes. This may have to be done prior to placing in enclosure if no access door.
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WARNING: The fire pit is designed to use media correctly installed over the burner to achieve proper combustion. **WARRANTY REQUIREMENT:** Never install a mesh or screen under the media.

IMPORTANT: Media affects flame pattern greatly. It is possible to create an unusual flame pattern that could damage your enclosure. Enclosure damage from an open flame fire feature is not covered under any warranty.

IMPORTANT: Lava rock/glass coverage should be at a minimum to prevent smothering of the flame and for correct operation – See "Lave Rock & Glass Application" instructions before applying.

IMPORTANT: The use of concrete logs is not recommended.

LIST OF ACCEPTABLE MEDIA FOR FIRE FEATURES:

- Fire Rated Lava Rock (or other Igneous Rock)
- Fire glass approved for use in fire features
- Man-made stone for use in fire features (Reflective Material)

WARNING: Do not use any other material as filler/topping media inside fire features other than those listed above. 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

INSTALLATION OF MEDIA IN FIRE FEATURES

INSTALLATION NOTE: The use of media inside fire features is recommended because it improves the flames performance by forcing the gas from the burner 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 quicker than when there is no media.

IMPORTANT: Recommended thickness of the media above the burner element is NO MORE than 2".

Decorative Glass Application:

- 1. In this example we are using fire rated decorative glass.
- 2. Fill pan with glass. Cover the burner with 1/4" 1/2" of glass. Do NOT overfill.
- 3. All LP installations must be tested and checked for back pressure. Damage may occur if this is not done.
- 4. Once glass is installed, be sure that the igniter pilot is clear of media and not covered

Lava Rock Application:

- 1. In this example we are using 1" lava rock.
- 2. Install your fire feature as demonstrated in your instructions
- 3. Apply a 2" thick layer of media to properly cover the fire feature.
- 4. For larger lava rock (3"-6" diameter), apply a loose layer over the burner.
- 5. Once lava is installed, be sure that the igniter pilot is clear of media and not covered.



No more than 1" of burning media above the height of the burner. Adding more may cause damage





Do NOT cover the top of the pilot.

- Covering the pilot will cut off air required for ignition.
 Covering the pilot will retain heat and cause the
- system to overheat and malfunction

INSTALLATION OF THE FLAME SENSE SYSTEM

WARNING: Perform leak test on all fittings and back pressure checks for LP with media installed.

LP INSTALLATIONS:

WARNING: For LP air-mixers confirm "Gas In" is towards control valve or shutoff valve. Installing backwards will result in severe gas leak and risk of explosion. If your air-mixer has an adjustment nut adjust to desired flame condition. **WARNING**: A pan must be used on LP systems and configured in way to minimize fuel settling below the pan. Failure to do so may result in personal injury or explosion.

WARNING: For LP Installations the air-mixer should be positioned near the burner with one coupler between the burner and the air-mixer. Do not attach Air Mixer directly to burner. This may increase back pressure.

WARNING: If the Flame Control System will be extended away from the burner the air-mixer should be positioned on the burner side of the extended pipe or flex line.

WARNING: Always do thorough leak and back pressure checks on all fittings and air-mixers with media in place. This may need to be done with the fire pit outside of the enclosure.

WARNING: Never alter the unit.

WARNING: Never add anything after an air-mixer that would act

to impeded gas flow. This may increase the risk of back pressure.

WARNING: Ensure the burner selected has sufficient flow capacity as to not create back pressure.

WARNING: Perform leak test on all fittings and back pressure checks for LP with media installed.

Sizing recommendations is based on HPC burners only. Installer is responsible for correct sizing based on the application and must follow all instructions and local codes to include but not limited to back pressure checks with media.

PILOT ASSEMBLY MOUNTING:

WARNING: The Pilot assembly must be directly beside burner with center of pilot flame window lined up above a burner hole to ensure main burner ignition. Misalignment will cause delayed ignition of main burner.

WARNING: A pan must be used on LP systems and configured in way to minimize fuel settling below the pan. Failure to do so may result in personal injury or explosion.

WARNING: For systems with an extended valve box the area in which the valve box is installed must conform with all installation requirements and local codes. Failure to do so may result in personal injury property damage or explosion. **WARRANTY REQUIREMENT:** Do not route the igniter wire near metal material as this may cause voltage to leak to ground and reduce igniter power.

WARRANTY REQUIREMENT: If no pan is used (on natural gas systems only) accommodations must be made to protect igniter wires and thermocouple tube from flame.

IMPORTANT: For proper operation, it is required for the pilot assembly to receive fresh air from underneath. **IMPORTANT:** Do not block pilot assembly blow out box underside with media (lava rock or glass)- must remain open.

PAN MOUNTING:

WARNING: Pilot assembly should be directly beside burner with center of pilot flame window lined up above a burner hole to ensure main burner ignition. Miss alignment will cause delayed ignition of main burner.

- Alight the pilot window to a hole on the burner
- Make sure the pilot is above the burner

IMPORTANT: Do NOT reduce rectangular hole size- must be large to prevent suffocation of pilot flame.

BURNER MOUNTING:

The pilot assembly can be mounted to the burner using self tapping screws through the tabs on the head of the pilot igniter. The igniter pilot window should be aligned with a burner hole. Care must be taken to prevent flame from being blown under the pilot assembly and damaging wire or connections.



WATER IN VALVE PREVENTION:

TOP does not cover water in the valve under warranty.

WARRANTY REQUIREMENT: Fire Ring Drainage - If the unit will or may be exposed to rain, snow or moisture, the installer must account for how water will drain out of the fire ring. If adequate ring drainage is not accomplished, water will accumulate in the valve. TOP pans and burners come pre-drilled with adequate drainage holes.

- If using your own components, use this guide to ensure your unit has adequate drainage
- Drain Hole Estimate 1 hole per 1 sq. ft.
- 1/4" holes

WARRANTY REQUIREMENT: Weep holes in pan– If not a TOP pan, the installer must ensure sufficient drain holes in pan to drain heavy rains. Holes must be positioned in a way that water does not drain directly onto the valve box.

FIRE PIT OPERATION

WARNING: Before use, be sure to test all gas connections for leaks. Do not use the fire feature if there is any evidence of leaking gas. If leaking gas is suspected, turn off the main gas supply and repair immediately.

WARNING: Wind and gusty conditions will affect the flame in an unpredictable manner. If conditions exist that are not safe for patrons, turn off the fire feature.

WARNING: Do not use fire feature if any part has been submerged under water. Immediately call a qualified service technician to inspect the fire pit.

WARNING: For electronic ignition models, power to fire feature must be turned off via wall switch or breaker when not in operation.

WARNING: Never use any material that is non-porous and holds moisture such as gravel, pebbles, river rock, etc. This material, when heated will cause the trapped moisture to boil and fracture unexpectedly. This material is not sufficiently porous to allow heated steam to readily escape which can break and cause personal injury or damage. **WARNING**: Solid fuels shall not be burned in the fire pit. Leaves, sticks, wood, paper, clothing, food material, should be kept away from the fire pit. Make sure that there is no vegetation or other objects over the top or sides of the fire pit that could interfere with safe operation.

WARNING: If lava rock is wet, allow fire pit to burn for 45 minutes prior to coming within 15 feet of the fire pit. **WARRANTY REQUIREMENT:** When not in use, the fire feature must be covered at all times.

FLAME SENSE START UP

- 1. STOP! Read the safety information on "What to do if you smell gas" (Pg. 1.)
- 2. Ensure fire pit is clear of people, debris, that all covers are removed and the feature is safe to start.
- 3. Turn on gas supply to the fire pit.
- 4. Begin with the knob in the "OFF" position
- 5. Turn the knob to the center to the "PILOT LIGHT" position.
- 6. Turn on pilot igniter by pushing the knob and the rubber spark igniter button at the same time (You will hear clicking similar to a stove's start up. This is the electrode working. If you do not hear this, turn the unit completely "OFF", remove the battery and reinsert the opposite direction. If this does not work, Replace your battery)
- 7. Once lit, release the spark igniter while continuing to press the knob for 20 seconds.
- 8. Turn knob to "ON" to light main burner
 - If fails to light, wait 5 more minutes for gas to clear. Repeat steps 4-8.
- 9. Never alter the design of the fire pit.
- 10. Ensure fire pit, children and patrons are supervised by a responsible adult that is familiar with emergency shut down.
- 11. Flammable materials should not be placed on or near the fire pit.

FIRE PIT SHUTDOWN

- 1. Turn "off" fire pit by slightly pressing and turning valve knob to "OFF" position.
- 2. Slightly push in and turn clockwise to extinguish pilot.
- 3. Turn "off" gas supply to fire pit.
- 4. After cooling cover fire pit.

MAINTENANCE

WARNING: Any guard or protective device removed for servicing must be replaced prior to operating the fire pit.

WARNING: Installation and repair should be done by a qualified service person. Fire pits should be inspected prior to use and at least annually by a gualified service on. **WARNING:** Ensure gas and power are shut off and fire pit is cool before servicing.

- Keep fire pit covered at all times when not in use.
- Keep any debris out of fire pit- clean as needed.
- In some areas of the country, spiders or insects have been known to build nest and or lay eggs in the venture holes of the air-mixer for LP units. This can cause fuel to fill the fire feature cavity and result in personal injury or property damage.
- Periodical inspection by a gualified service technician of the air-intake is required to ensure your fire feature performs properly.
- Ring cleaning: (1 x YR) If flames exhibit any abnormal shapes or behavior, or if burner fails to ignite properly, then the burner holes may require cleaning. The appliance can be cleaned by carefully removing the logs and media to allow access to burner. Use a brush to carefully remove dust, spider webs, and loose particles from base, logs, and fire ring itself. If evidence of damage, fire ring must be replaced with fire ring specified by manufacturer.
- Thermocouple cleaning of soot: (1 x 6 mos. or as needed) Remove lava rock & glass around pilot, then the blow out box lid. Clean thermocouple of any soot using soft brush. Be careful not to damage hot wire element. Place lava rock or glass back as explained in section 5.
- Visually inspect the pilot The pilot flame should cover 3/8" to 1/2" of the thermocouple as shown below. Cleaning of orifice may be required by removing the pilot tube and removing orifice as shown below. Perform leak test on pilot tube after reassembly

3/8" (10mm)

INSTALLING/CHANGING BATTERIES TO SPARK IGNITER UNIT

- 1. Unscrew the spark igniter unit cap as shown. (Rubber Button)
- Remove cap with battery as shown. 2.
- Remove old battery from cap, install new AA battery 3. (the "Plus +" side of the battery should enter the unit first.
- 4. Holding by cap, slide battery into spark igniter unit as shown.
- Tighten cap lightly- DO NOT over tighten. 5.





Orifice







Service

We suggest that our products be serviced by a professional certified in the US by the National Fireplace Institute (NFI) as NFI Gas Specialists.

TROUBLESHOOTING



Below are some potential causes and countermeasures to the symptoms indicated in bold. Please contact your retailer or certified technician for service & repair.

No Pilot Flame 1. Air in gas line. 2. Debris in gas line. 3. Gas pressure improper 4. Pilot orifice dirty No Main Burner (Pilot Lights)	lf new install, may take several attempts to purge air Confirm gas line is clear (insulation, dirt, plastic etc.) Confirm proper gas pressure Remove pilot head and clean
 Gas pressure improper Small pilot flame Dirty thermocouple Fire ring obstructed Improperly applied media Main Burner Turning Off/On Frequentiation Small pilot flame Improperly applied Media See Gas pressure improper Thermocouple defective 	Confirm proper gas pressure Remove pilot head and clean orifice. Clean using soft brush Confirm no debris or water in ring Review "Media Section" on page 6 Hently Remove pilot head and clean orifice (Section 9) Review "Media Section" on page 6 Gas pressure too low (Section 1) Change Thermocouple.

LIMITED WARRANTY

The Outdoor Plus Company (TOP) warranties all bowls against manufacturing defects that prevent safe and correct function as follows:

• Electronics, Gas Valve, & Pilot Assembly: Commercial-6mos; Residential- 1 yr. •Stainless Steel Pan, Fire Ring, & Valve Box: Commercial-1yr.; Residential 3yrs.

- This commences from the date of original sale / shipment from The Outdoor Plus.

- This warranty is for parts and in-house (TOP) labor. The defective product must be sent back to TOP with a Return Merchandise Authorization (RMA) issued by TOP for that specific product and any other additional information for the nature of the defect or warranty claim.

- The warranty does not cover items that have been damaged by overheating, modification, abuse, or improper storage. Also any labor involving installation or maintenance with the unit is not covered.

- This warranty excludes claims for consequential, indirect-collateral expenses arising from product defects or warranty recovery.

CLEARANCE FROM COMBUSTIBLES DIAGRAM

WARNING: FOR OUTDOOR USE ONLY

THIS DIAGRAM APPLIES TO ANY GAS FIRE FEATURE

Installation - We suggest that our products be installed by professionals that are locally licensed by the authority having jurisdiction in gas piping

Flooring - All fire pits and fire features must be installed on non-combustible flooring. If the fire feature is installed on a combustible floor, such as wood decking, a non combustible floor paneling MUST be properly installed underneath.

Service - We suggest that our products be serviced by a professional certified in the US by the National Fireplace Institute (NFI) as NFI Gas Speciatlists

CLEARANCE FROM COMBUSTIBLE MATERIALS

Overhead: Minimum 96" Laterally: 48"

Enclosure MUST be constructed from all non-combustible materials.

