THE OUTDOOR PLUS
USA MANUFACTURER OF FIRE & WATER FEATURES

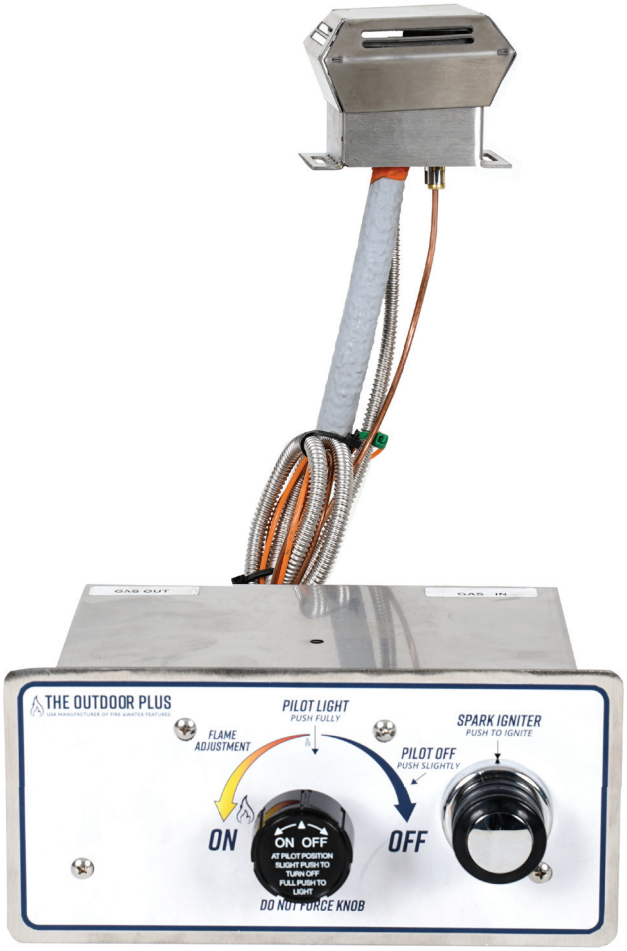
Flame Sense with Spark Ignition System

Models: TOP-FSPBI-NG or TOP-FSPBI-LP

OWNER'S OPERATION AND INSTALLATION MANUAL

PLEASE READ THIS MANUAL PRIOR TO INSTALLATION

Failure to follow these instructions could result in fire or explosion, which could cause property damage, personal injury, or death.



NATIONAL FIREPLACE INSTITUTE NFI CERTIFIED

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

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.

INSTALLER: Leave this manual with the appliance. | **CONSUMER:** Retain the manual for future reference.

This is a Safety Alert Symbol
When you see this symbol on the fire pit insert, or in this manual, look for one of the following signal word panels alerting you to the potential for personal injury, death or major property damage.

⚠ WARNING: FOR OUTDOOR USE ONLY

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

⚠ WARNING: Do not store or use gasoline or other flammable vapors and liquids, In the vicinity of this or any other appliance.

An LP-Cylinder not connected for use shall not be stored in the vicinity of this or any other appliance.

For use with Natural or Propane gas only. NO SOLID FUELS TO BE USED WITH THIS SYSTEM.

⚠ WARNING: If the information in this manual is not followed exactly, a fire or explosion may result causing property damage, personal injury, or loss of life.

⚠ DANGER - FIRE OR EXPLOSION HAZARD

If you smell gas:
1. Shut off gas to appliance.
2. Extinguish any open flame.
3. If odor continues, leave the area immediately.
4. After leaving the area, call your gas supplier or Fire department.

Failure to follow these instructions could result in fire or explosion, which could cause property damage, personal injury, or death.

CALIFORNIA PROPOSITION 65

⚠ WARNING ⚠

This product can expose you to Carbon Monoxide, which is known to the state of California to cause cancer and birth defects or other reproductive harm.
(For more information, go to: www.p65warnings.ca.gov)

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

Warnings Cont'd - LP Application

⚠ DANGER(S):

- **Flammable gas under pressure. Leaking LP-gas may cause a fire or explosion if ignited causing serious bodily injury or death. Contact a certified LP-gas supplier for repairs, or disposal of this cylinder or unused LP-gas.**
- **Do not store a spare LP cylinder under or near a barbecue grill, or other heat sources. NEVER fill an LP cylinder beyond 80% full: a fire caused death or serious injury may occur.**

⚠ WARNING(S):

- **For outdoor use only.* Do not use or store an LP cylinder in a building, garage, or enclosed area.**
- **Know the order of LP-gas. If you hear, see, or smell leaking LP-gas, immediately get everyone away from the cylinder and call the fire department. Do not attempt repairs.**
- **Caution your LP-gas supplier to:**
  - **Be certain cylinder is purged of trapped air prior to first filling.**
  - **Be certain not to over fill the cylinder.**
  - **Be certain cylinder re-qualification date is checked.**
- **LP-gas is heavier than air and may settle in low places while dissipating.**
- **Contact with liquid contents of cylinder will cause freeze burns to the skin.**
- **Do not allow children to tamper or play with the cylinder**
- **When not connected for use, keep cylinder valve turned off. Self-contained appliances shall be limited to a cylinder of 30lb capacity or less.**
- **Do not use, store, or transport cylinder where it would be exposed to high temperature. Relief valve may open allowing a large amount of flammable gas to escape.**
- **When transporting, keep cylinder secured in an upright position with cylinder valve turned off.**

When Connecting an LP Cylinder for use:

- **Use only in compliance with applicable codes.**
- **Read and follow manufacturer's instructions.**
- **Consult manufacturer's instructions concerning the cylinder connection provided with your appliance.**
- **Be sure regulator vent is not pointing up.**
- **Turn off all valves on the appliance.**
- **Do not check for gas leaks with a match or open flame. Apply soapy water around the gas inlets. If bubble appears, close valve and have LP-gas service person make the needed repairs. Also, check the appliance valves and connections to make sure they do not leak before lighting appliance.**
- **Light appliance(s) following the manufacturer's instructions.**
- **When appliance is not in use, keep the cylinder valve close.**

***Except as authorized by ANSI/NFPA 58.**

Table of Contents

Section 1 - Warnings 1-3

Section 2 - Important Safety Information 5-6

Section 3 - Selecting a Fire Pit Location 7

Section 4 - Clearance Requirements 8-9

Section 5 - Fire Pit Enclosure Requirements 10

Section 6 - Flame Sense Installation Instructions 11

Section 7 - Burning Media Instructions 12

Section 8 - Flame Sense Operation Instructions 13

Section 9 - Maintenance 15-16

Section 10 - Troubleshooting Guide 17

- The Outdoor Plus Company, Inc./TOPFIRES recommends that our products are installed by professionals locally licensed by the authority having jurisdiction in gas piping. All installation instructions must be followed to ensure proper performance and safety. The Outdoor Plus Company, Inc./TOPFIRES assumes no responsibility for problems relating to the installation.
- To qualify for warranty, all instructions must be strictly followed. Otherwise, warranty may be void. Never alter product or configuration in any way.
- Annual servicing should be handled by professionals certified in the US by the National Fireplace Institute (NFI) as NFI Gas Specialists or in Canada by WETT (Wood Energy Technical Training).
- It is the installer's responsibility to ensure a safe installation and to educate the end-user regarding the features, safety recommendations and proper operation of this product.
- Please reference page 1 for all warnings.

INSTALLER:
Leave this manual with the appliance.

END USER:
Retain this manual for future reference.

IMPORTANT SAFETY INFORMATION FOR INSTALLERS

Leave this manual with the end-user and instruct them to retain it for future reference. Instructions and product updates are also available at www.theoutdoorplus.com under the Manuals/Documents tab.

Installers must carefully follow the instructions in this manual to prevent personal injury or property loss. These instructions contain information critical to the safe installation and operation of the fire pit.

- Instructions are updated as needed. It is the responsibility of the installers to check for product updates and installation manual updates at www.theoutdoorplus.com/documents/ prior to installation.
- It is the responsibility of the installer to follow:
  - The National Fuel Gas Code, ANSIZ223.1/NFPA54 or International Fuel Gas Code.
  - Natural Gas and Propane Installation Code CSA B149.1 or CSA B149.2.
  - The National Electrical Code, ANSI/NFPA70. In Canada, Canadian Electrical Code CSA22.1.
  - Local codes
- Only use gas/fuel type specified for this fire pit as noted on the fire pit control box label. 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 installation and use.
  - **Natural Gas Fire Pit:** Supply Pressure: Minimum: 6.0 inches W.C.; Maximum: 7.0 inches W.C.
  - **LP Gas:** Supply Pressure: Minimum: 8.0 inches W.C.; Maximum: 11.0 inches W.C.

IMPORTANT SAFETY INFORMATION FOR END-USERS

- Never leave an operating fire pit unattended or with someone not familiar with its operation or emergency shut-off locations.
- Both children and adults should be alerted to the hazards of high surface temperatures and should stay away to avoid burns and clothing ignition.
- Young children should be carefully supervised when they are in the area of fire pit.
- Keep the appliance area clear and free from combustible materials, gasoline, and other flammable vapors and liquids.

SELECTING A FIRE PIT LOCATION

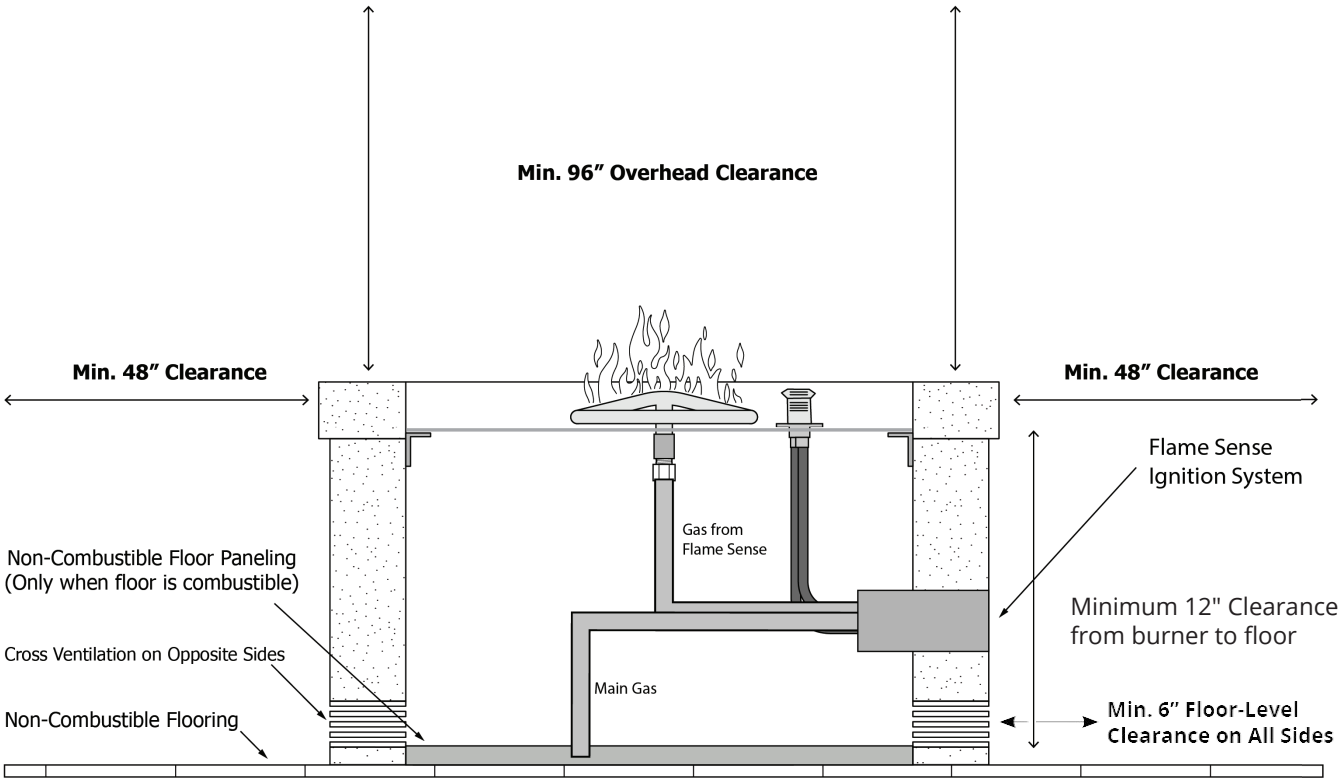
NOTE: All fire pits and systems are designed and intended for outdoor use only.

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. THE OUTDOOR PLUS COMPANY, INC. / TOPFIRES is not responsible for damage resulting from failure to follow these recommendations.

- Select a location that
  - Ensures above-grade installation of the fire pit.
  - Offers good drainage.
  - Allows easy access for installation and maintenance of the fire pit.
  - Provides sufficient horizontal room to enjoy the fire pit while allowing a safe distance from the heat and flame.
- Fire pits create very high temperatures. For clearances refer to table 3.1. Clothing or other flammable materials should not be placed on or near fire pit.

CLEARANCES AROUND THE FIRE PIT

Fire Pit Clearances - See last page for the fire pit clearance diagram	Up to 142K BTU
Under valve box when applicable for drainage	2"
Sides surrounding fire pit from structure or combustibles	48" (12" for non-combustibles)
Overhead clearance above the fire feature	96"



LOCATION AND DESIGN

- The enclosure must be installed above-grade and allow for drainage to prevent water damage to fire pit.
- Refer to cut sheets on our website for important dimensional information for your fire pit.
- Visit www.theoutdoorplus.com
- The fire pit assembly should be recessed a minimum of two inches from the top of the enclosure to protect flame from being blown out.
- 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.
- The enclosure must be constructed on a stable surface and be level. THE OUTDOOR PLUS COMPANY, INC. / TOPFIRES recommends the use of the installation collar (optional) that may be mortared into or sandwiched between layers of the enclosure.
- The weight of the fire pit must be supported by the pan and not by any control/ valve box.
- THE OUTDOOR PLUS COMPANY, INC. / TOPFIRES recommends that the pan lip is recessed on a trough (linear), and large round enclosures, Figure 5.1. NOTE: THE OUTDOOR PLUS COMPANY, INC. / TOPFIRES cannot guarantee the lip on all of our products will be perfectly flat and will not warp due to heat.
- There must be a minimum of 2 inches under the valve box for proper ventilation and drainage, see clearance drawings on page 8 an 9. The product must be accessible for service.

CONSTRUCTION MATERIALS

- Use non-combustible materials and construction for gas supply, power and enclosure.
- The interior void space of the enclosure surrounding the valve box cannot be filled with any material (gravel, crushed rock, concrete, etc.).

VENTING

- The enclosure must incorporate at least two vents to allow heat and or residual fuel to escape. Failure to properly vent the enclosure may result in the fire pit overheating or explosion.
- Some enclosures may require more ventilation based on material, size, and extended use.
- The vent may also work as a drain when installed at bottom sidewall to prevent water build up.
- Vent specifications:
  - A minimum of 1 square inch of ventilation for every 25,000 is required to ensure proper ventilation.
  - Installation of the vents in the mid-to-lower area of the enclosure is recommended.

FUEL LINE

- Fire pit 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.
- The installer is responsible for using the correct fuel line sizing that is able to supply the stated maximum BTU for the product—refer to product label on the fire pit for specifications.

Flame Sense Installation Instructions

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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.

» **To prevent damage, unhook the fire pit from the gas supply for pressure leak tests.**

» **Burn Testing: It is the responsibility of the qualified installer to test for gas leaks at all connections.**

» **Gas Plumbing Connections: Use joint compound or tape that is resistant to all gases. Apply joint compound only to all male pipe fittings. DO NOT use on flex line flared fittings. Be sure to tighten every joint securely.**

» **Perform all leak tests with leak detector or leak reactant.**

INSTALLATION STEPS:

1. Set fire pit in properly constructed enclosure, read **Section 4 – Fire Pit Enclosure Requirements.**
2. Position fire pit following safety recommendations with access to all gas connections for testing. Read **Section 3 – Selecting the Fire Pit Location** for more details.
3. Shut off gas supply to fire pit.
4. Connect fire pit to main gas supply. ⚠ **Warning:** avoid sharp bends with flex line to prevent whistling.
5. Turn on gas supply, purge gas lines of air and perform leak test on all inlet connections. Repair as needed.
6. Light fire pit. It may take several cycles to purge air from the lines. Read **Section 7 – Operating the Fire Pit**.
7. Once fire pit is lit, perform leak test on all gas connections. Repair as needed.
8. Turn off fire pit and allow it to cool.
9. Apply media as described in **Section 6 - Burning Media**. When filling the pan with lava rock and/or decorative glass, the instructions in Section 8 must be followed.
10. 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.
11. Verify correct operation and lighting.
12. Review safety manual with end-user. Instruct end- user that fire pit or media must not be changed or modified.
13. Leave manual with end user.
14. Apply the Start Up and Shutdown decal next to control box in an obvious and highly visible position.

» **For The Outdoor Plus/TOPFIRES Flat & Drop-In Pans, the flames will appear lower in height without media around the burner.**

⚠ 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.

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.

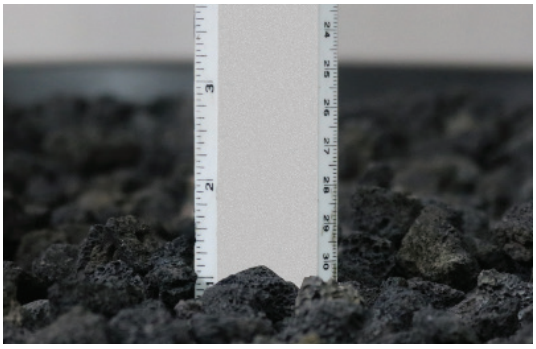
LIST OF ACCEPTABLE MEDIA FOR FIRE FEATURES:
- Fire Rated Lava Rock (or other Igneous Rock)
- Fire glass approved for use in fire features
- Man-made stone and sand for use in fire features (Reflective Material)

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



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

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.

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

Flame Sense Operation Instructions

START-UP PROCEDURE - FLAME SENSE IGNITION

1. STOP! Read the safety information on "If you smell gas", Section 1 – Important Safety Information.
2. Ensure fire pit is clear of people and debris. Remove any covers and the fire pit is safe to start.
3. Turn gas supply valve to fire pit to ON position
4. Rotate gas valve knob counter clockwise to pilot light position
5. Depress and hold the valve knob.
6. Turn ON spark igniter by depressing switch in short burst until pilot lights.
7. Once lit, release switch for spark igniter while continuing to depress valve knob for 20 seconds.
8. Turn knob counter clockwise to light main burner. NOTE: If the burner fails to light, wait 5 minutes for gas to clear, then repeat steps 3-8.
9. Ensure fire pit, children and patrons are supervised by a responsible adult who is familiar with emergency shut-down.
10. Flammable materials should not be placed on or near the fire pit.

This product is intended to be connected to fixed piping systems or an LP tank (only on select models).

SHUTDOWN PROCEDURE - FLAME SENSE IGNITION

1. Turn "off" fire pit by slightly pressing and turning valve clockwise to "OFF" position, Figure 9.1.
2. Slightly push in and turn clockwise to extinguish pilot, Figure 9.2.
3. Turn off main gas valve to fire pit.
4. After fire pit has cooled, cover fire pit.

⚠ DANGER! ⚠

If you smell gas:

1. **Shut off the gas to the appliance.**
2. **Extinguish any open flame(s).**
3. **If the odor persists, keep away from the appliance and immediately call your local gas supplier or fire department.**

Flame Sense Ignition Maintenance

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INSTALLATION

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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.

- Any guard or protective device removed for servicing must be replaced prior to operating the fire pit.
- 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.
- Ensure gas is shut off and fire pit is cool before servicing.
- Keep fire pit covered at all times when not in use and free of debris.
- In some areas of the country, spiders or insects have been known to build nests and/or lay eggs in the venturi 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. Periodic inspection by a qualified service technician of the air-mixer is required to ensure your fire feature performs properly, See Figure 10.1.
- **Burner Cleaning: One time a year**. 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 the manufacturer.
- **Thermocouple cleaning of soot: Once every six months or as needed**. Remove lava rock & glass around pilot, then the blowout 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 8 – Adding Approved Media.** See Figure 10.2.1 & 10.2.2.
- **Visually inspect the pilot**. The pilot flame should cover 3/8 inch to 1/2 inch of the thermocouple, Cleaning of the pilot orifice may be required by removing pilot hood and removing the orifice.

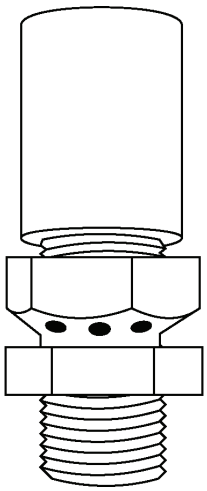

Figure 10.1

Figure 10.2.1

Figure 10.2.2

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INSTALLING / CHANGING BATTERIES TO SPARK IGNITER UNIT IN VALVE BOX

1. Carefully unscrew the spark igniter unit cap, unscrew counter clockwise and lightly pull.
2. Remove cap with battery.
3. Remove old battery from cap, install a new AA battery. We recommend using an Alkaline battery.
4. Holding by cap, slide battery into the battery slot, as seen on image.
5. Tighten cap lightly- DO NOT over tighten.

Troubleshooting Guide

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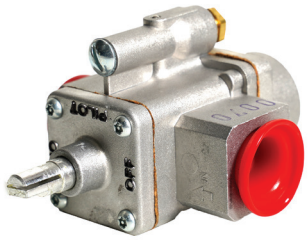
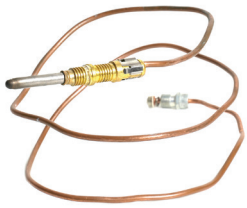
Problem	Possible Causes	Solutions
Pilot Will Not Light	Air in gas line	New install - may take several attempts
		Check gas level of LP tank
	No gas flow - gas not ON or line obstruction	Confirm gas is ON upstream
		Possible debris in line: insulation, dirt, plastic, etc.
	Pilot orifice dirty or clogged	Remove orifice and clean (Section 10)
Pilot will not light with spark igniter but will light with a match	Dead or incorrectly installed battery	Replace properly with good AA battery (Section 10)
	Improper gap at electrode tip	The gap can be adjusted by bending the tip in or out while holding electrode stable above ceramic block to achieve spark
Pilot will not stay lit when control knob released	Knob not being held in long enough	Thermocouple must have time to heat up. Hold the knob in for 30 seconds after pilot lights.
	Small pilot flame: pilot orifice dirty or clogged	Remove pilot orifice and clean
	Dirty thermocouple	Clean using soft brush (Section 10)
	Faulty thermocouple or valve	Replace thermocouple or valve
Burner will not stay lit	Gas pressure improper	Confirm proper gas pressure (See Section 1 – Important Information for Installers)
	Burner obstructed	Confirm no water or debris in burner
	Improperly applied or too much media	Re-apply media (Section 8)
	Too windy	Use when less windy or with our wind guard (See page 24, Figure 12.1)
Low flame when turned to High	Gas pressure improper	Confirm proper gas pressure (See Section 1 – Important Information for Installers)
	Propane (LP) - Improper lighting procedure	Fire pit valve must be OFF when tank is turned ON. Turn ON tank slowly to allow pressure to equalize
	Lack of gas	Check gas level of LP tank
	Supply hose is pinched	Reposition supply hose as necessary
	Natural Gas (NG) - undersized gas supply line	Gas pipe, flex line, shutoff valve, etc. must be sized to deliver fire pit input pressure & BTU requirement
Flame is creating large amount of soot	Propane (LP) - mesh spider guard or venturis are blocked with debris - grass, dirt, etc.	Thoroughly clean spider guard - (Section 10)
Noise when lit	Whistling - flex line bent too sharp	Re-route flex line to reduce bend
	Propane (LP) - Humming regulator	Not a defect - normal occurrence on hot days due to internal vibrations in regulator

Warranty & Replacement Parts

The Outdoor Plus Company (TOP) warranties fire pits against manufacturing defects that prevent safe and correct Function as follows:

- Burner Rings: Lifetime Warranty
- Stainless Steel Pan, Electronics, Gas Valves, Pilot Assembly: Commercial – 6 Months; Residential – 12 Months
- This commences from the date of original sale / shipment from The Outdoor Plus
- This warranty is for the 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 warrant claim
- The warranty does not cover items that have been damaged by overheating, modification, abuse, or improper storage.
- Any labor involving installation or maintenance with the unit is not covered.
- This warranty excludes claims for consequential, indirect-collateral expenses arising from the products defects or warranty recovery.
- This warranty is only applied to original purchases.

PART IMAGE REFERENCE	REPLACEMENT PART NUMBER
	Flame Sense Gas Valve **OPT-FSGV**
	Flame Sense Thermocoupling **OPT-FSTC**
	Flame Sense Pilot Hood **OPT-FSPH**
	Flame Sense On/Off Cover **OPT-FSOC**