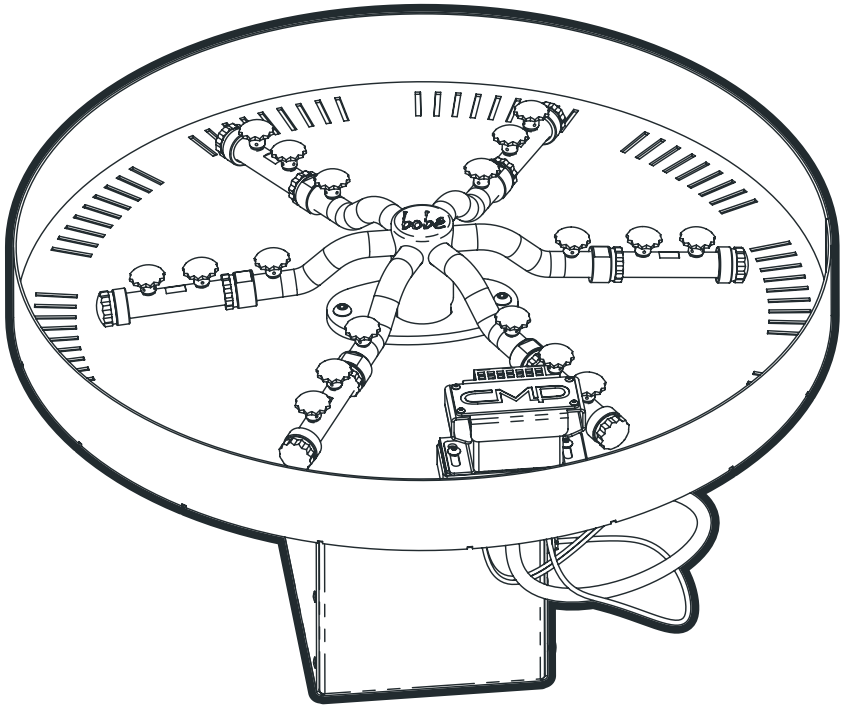
FIRE FEATURE "DIY" KITS

INSTALLATION INSTRUCTIONS - AUTO IGNITION

SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE



WATER & FIRE FEATURES

Scan with your phone for Step by Step instructions, or visit www.c-m-p.com/tech

IMPORTANT SAFETY INFORMATION: READ AND FOLLOW ALL INSTRUCTIONS

Save these instructions. Leave manual with homeowner after installation.

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.

IMPORTANT WARNINGS & SAFETY INSTRUCTIONS
READ AND FOLLOW ALL INSTRUCTIONS

⚠WARNING Do not store or use gasoline or flammable vapors and liquids in vicinity of this appliance. Do not install this appliance near any combustibles. A Liquid Propane cylinder not connected for use shall not be stored in the vicinity of this or any other appliance.

⚠WARNING **RISK OF SHOCK OR ELECTROCUTION.** Hazardous voltage can shock, burn and cause death or serious property damage.

⚠WARNING Installation must be performed by a licensed professional. Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage. Installer must follow all local codes as well as National Fuel Gas Code, ANSI Z223.1.

⚠WARNING This product must be installed by a licensed or certified electrician or a qualified pool professional in accordance with the National Electric Code (NEC) or Canadian Electric Code (CEC), CSA C22.1.

⚠WARNING Turn off power to controls before installation/service. Failure to comply will either damage or destroy the product and will void the warranty

⚠WARNING To reduce the risk of injury, do not permit children to use this product.

⚠CAUTION If you smell gas, shut off the gas to the appliance and extinguish any open flame. If the odor lingers keep away from appliance and immediately call gas supplier or fire department. Do not leave any flame unsupervised.

⚠CAUTION Gas pressure should not exceed 1/2 psi

⚠ DANGER Carbon Monoxide Hazard: This appliance can produce carbon monoxide which as no odor. Using it in an enclosed space can cause serious injury or death. Never use this appliance in an enclosed space such as a camper, tent, car or home.

⚠CAUTION HOT! DO NOT TOUCH. SEVERE BURNS MAY RESULT. CLOTHING IGNITION MAY RESULT. Glass and other surfaces are hot during operation and cool-down. CAREFULLY SUPERVISE children near this appliance. Alert children and adults to hazards of high temperatures.

SAVE THESE INSTRUCTIONS

ADHERE TO ALL LOCAL CODES CONCERNING INSTALLATION AND OPERATION.

- For outdoor use only.
- Product is not intended to be a starter for wood or any other combustibles.
- Test for gas leaks prior to use.
- Verify correct gas fuel type. Never use an alternative fuel, including bio-fuel, ethanol, lighter fluid or any other fuel.
- Installation must be performed by licensed gas piping professional.
- When pit is not in use for an extended period, turn off gas to prevent unwanted start-up.
- The use of a cover when not in operation is recommended.
- Verify gas shut off is located outside of the fire enclosure. The gas shutoff should NOT be used to adjust flame height.
- An approved gas valve or keyed valve shall be installed upstream of the unit and located in an accessible area that is within 5ft from the unit.

⚠WARNING Do not modify units from factory configuration. Doing so will void the warranty.

NOTICE Manufacturer is not responsible for damage due to improper installation.

B. SYSTEM REQUIREMENTS

Installation must be performed by a licensed contractor. Installer must follow all local codes as well as National Fuel Gas Code, ANSI Z223.1. 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.

NOTICE This Product is for outdoor use only.

GAS REQUIREMENTS

PERFECT FLAME™ FIRE RING	
BURNER SIZE	BTUS (IN K'S)
FIRE RING - 9"	50
FIRE RING -16"	120
FIRE RING -22"	175
FIRE RING -29"	230
FIRE RING -35"	240
FIRE RING -42"	270

PERFECT FLAME™ FIRE LINE	
BURNER SIZE	BTUS (IN K'S)
FIRE LINE -24"	40
FIRE LINE -29"	50
FIRE LINE -35"	55
FIRE LINE -48"	70
FIRE LINE -61"	80
FIRE LINE -74"	85
FIRE LINE -87"	95
FIRE LINE -100"	105
FIRE LINE -113"	115
FIRE LINE -126"	150
FIRE LINE -134"	175
FIRE LINE -146"	185

REQUIRED GAS PRESSURE	
DESCRIPTION	WATER COLUMN
LIQUID PROPANE	11 - 13.5"WC
NATURAL GAS	5 - 13.5" WC

Input pressure should not exceed 1/2 psi
Note: check with your gas supplier to verify gas flows and pressures available at the location of your installation. In many cases utility companies will install larger meters at no charge to accommodate larger flows.

ELECTRICAL REQUIREMENTS

- Auto ignition requires minimum 24 VAC, 60W, 2.5A
- The included transformer steps down from 120 VAC to 24VAC
- Installer should check voltage after installation to ensure proper values

A. FIRE PAN INSTALLATION

1. LOCATION

DRAINAGE

- Fire pans should have adequate drainage for rainwater. Select a location with adequate drainage. Install above grade to prevent water retention.
- Fire pans using propane should not have drains located at bottom of cavity. Drainage should be achieved with vent holes around the enclosure.

ACCESS

- Leave easy adequate access for installation and maintenance.
- To safely turn off the burner, you must have clear and easy access to the ON / OFF valve AFTER the appliance is connected to the gas supply.

CLEARANCE

- Recommended Clearances: Sides 4 ft / Top 10 ft: Combustibles/structures not to be closer than 4' on the horizontal plane, 10' overhead. (FIG 1).
- No combustible structure should be above the fire feature.
- Do not completely enclose. No more than two side structures should be around the fire feature.
- Do not recess the fire feature below ground/floor level.
- Natural stone such as granite or marble must be kept away from heat and flame. Contact and close proximity can result in cracking or explosion.
- Install fire features out of the way of pedestrian traffic. Provide space to allow a safe distance from the heat and flame
- Vent collars and drainage should never be obstructed.

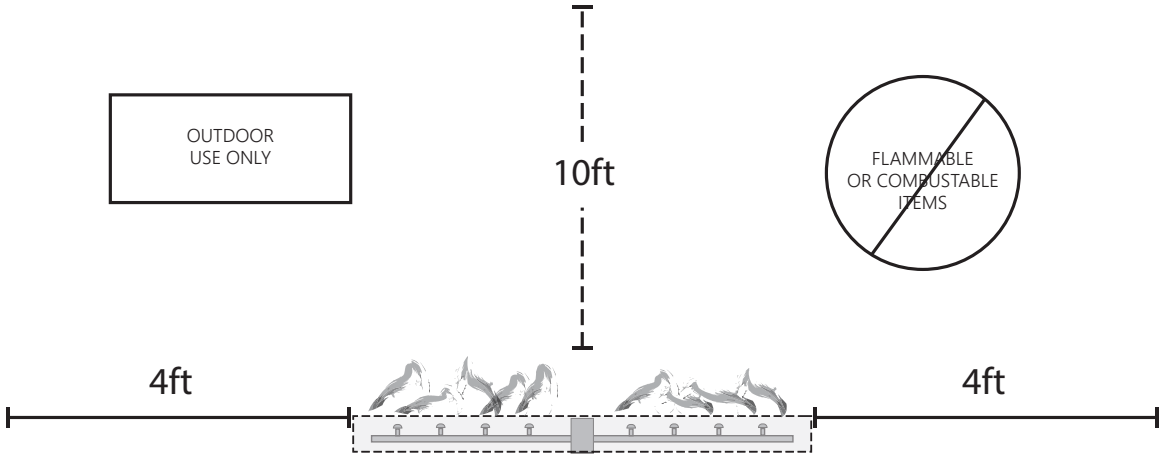


FIGURE 1: Adequate Clearance

2. SETUP

ENCLOSURE (FIG 2)

- There is a 14" minimum enclosure depth requirement.
- The pan should be recessed a minimum of one inch from the top of the enclosure. There should be a minimum 2" thickness on all sides of the enclosure.
- Enclosure should be 0.25" larger than pan size on all sides—0.5" total. (Example: 24×24" fire pan enclosure should be 24.5×24.5")
- Rectangular fire lines have a lip that can be used to support during installation. Round and square fire pans should be supported at the bottom of the pan. (FIG 3)

A. FIRE PAN INSTALLATION

- Set the lip/pan with a minimum of one square inch bracket at each corner, or two per side.
- The pan can also be supported at the lip by galvanized cross members or by constructing supports with concrete blocks.
- When constructing supports, do not block any drain/ventilation openings in the bottom of the fire pan. Combustion air vents for LP systems should not be obstructed so necessary make-up air can be achieved.
- The fire pan should not be supported by the gas line or valve structure.
- Inside area of the enclosure should not be filled with any material.
- Fire features should always be installed with a burner pan.
- Floor of enclosure should be non-combustible material.
- Fire pans should always be level when installed.
- Conduit lines must be sealed to prevent gas intrusion or settling in conduit.

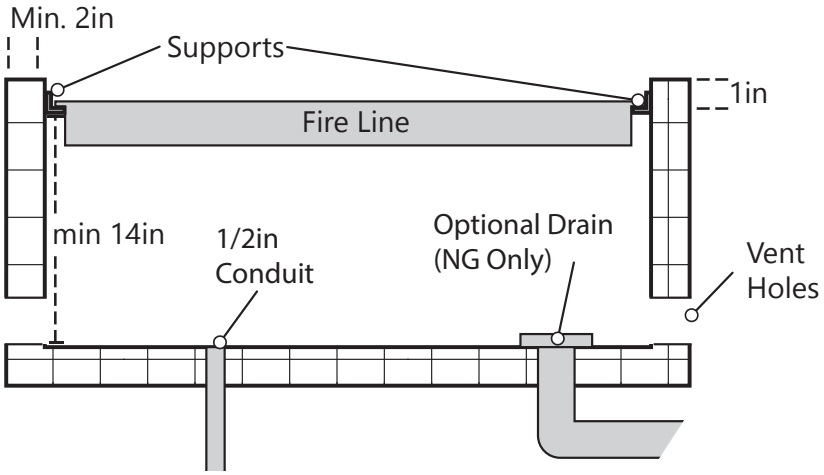


FIGURE 2: Fire Pan Enclosure

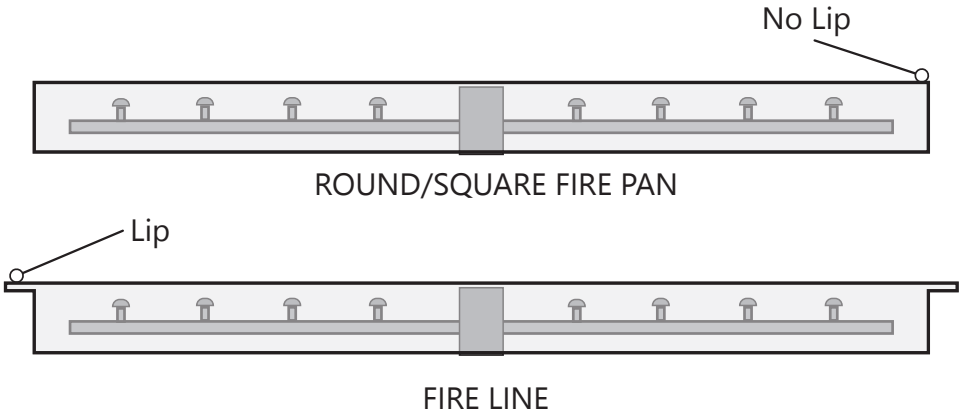


FIGURE 3: FIRE LINE VS FIRE PAN

DRAINAGE

- For natural gas only, a dedicated drain line can may be installed under the pan.
- Fire pans using propane should not have drains located at bottom of cavity. Drainage should be achieved with vent

A. FIRE PAN INSTALLATION

holes around the enclosure.

VENTING

- **WARNING:** All installations must have proper ventilation around and under the unit to allow possible accumulated gas to escape. Failure to do so may cause a dangerous build-up of gas and can explode.
- Ventilation location must be such that any settled gas can escape.
- The top of a column or pedestal on which fire feature is installed should be sealed around.
- A minimum of two vents on opposing sides of the enclosure are required. See Table 1 for minimum vent requirements. Multiple vents evenly spaced totaling minimum requirement or more is also acceptable. Minimum air openings shall not be less than 3".
- One vent should be within 12 inches of the bottom of the enclosure and another within 12 inches from the top of the enclosure.
- Vents should not be blocked from air circulation.

VENTILATION OPENING SIZE		
BURNER SIZE	BTUS (IN K'S)	MINIMUM VENT SIZE (EACH - TWO REQUIRED)
FIRE RING -9"	50	12.5in^2
FIRE RING -16"	120	30in^2
FIRE RING -22"	175	43.8in^2
FIRE RING -29"	230	57.5in^2
FIRE RING -35"	240	60in^2
FIRE RING -42"	270	67.5in^2
FIRE LINE -24"	40	10in^2
FIRE LINE -29"	50	12.5in^2
FIRE LINE -35"	55	13.8in^2
FIRE LINE -48"	70	17.5in^2
FIRE LINE -61"	80	20in^2
FIRE LINE -74"	85	21.3in^2
FIRE LINE -87"	95	23.8in^2
FIRE LINE -100"	105	26.3in^2
FIRE LINE -113"	115	28.8in^2
FIRE LINE -126"	150	37.5in^2
FIRE LINE -134"	175	43.8in^2
FIRE LINE -146"	185	46.3in^2

AIR MIXER FOR PROPANE UNITS			
BURNER SIZE	BTUS	AIR MIXER P/N	AIR MIXER BTUS
FIRE RING -9"	50	8-1392-01	50
FIRE RING -16"	120	8-1450-01	120
FIRE RING -22"	175	8-1451-01	175
FIRE RING -29"	230	8-1452-01	230
FIRE RING -35"	240	8-1453-01	240
FIRE RING -42"	270	8-1454-01	270
FIRE LINE -24"	40	8-1455-01	40
FIRE LINE -29"	50	8-1392-01	50
FIRE LINE -35"	55	8-1456-01	55
FIRE LINE -48"	70	8-1457-01	70
FIRE LINE -61"	80	8-1458-01	80
FIRE LINE -74"	85	8-1459-01	85
FIRE LINE -87"	95	8-1460-01	95
FIRE LINE -100"	105	8-1461-01	105
FIRE LINE -113"	115	8-1462-01	115
FIRE LINE -126"	150	8-1459-01	185 (2 × 85K)
FIRE LINE -134"	175	8-1459-01	185 (2 × 85K)
FIRE LINE -146"	185	8-1459-01	185 (2 × 85K)

TABLE 1: VENT REQUIREMENT

3. GAS LINE

- To eliminate unnecessary pressure drop, ensure the pipe length and amount of elbows used is minimized.
- Corrugated flex hoses are known to cause a whistling sound. A whistle-free hose is recommended for gas supply to the burner.
- You must have clear and easy access to the ON / OFF valve AFTER the appliance is installed and connected to the gas supply in order to safely turn off the burner.
- Openings from the gas/water line should be sealed, so that gas does not collect in these spaces.
- For gas pressure and BTU requirements see charts on page *3*.

B. AUTO IGNITION INSTALLATION

1. AUTO IGNITION COMPONENTS

- All gas and electrical connections are on the box.
- Transformer: 120VAC to 24VAC transformer is included.
- Pilot Connections: Probes connect to the side of the box. There are two probes: one for thermocouple temp sensor and one igniter. There is a dedicated gas line pre-installed for the pilot flame.
- Drain Port: Can be used in the case of water intrusion inside the valve. Should remain capped when not in use.
- Other Items
  - Air mixer: Pre-installed with Liquid Propane units
  - Shut-off valve: Not included

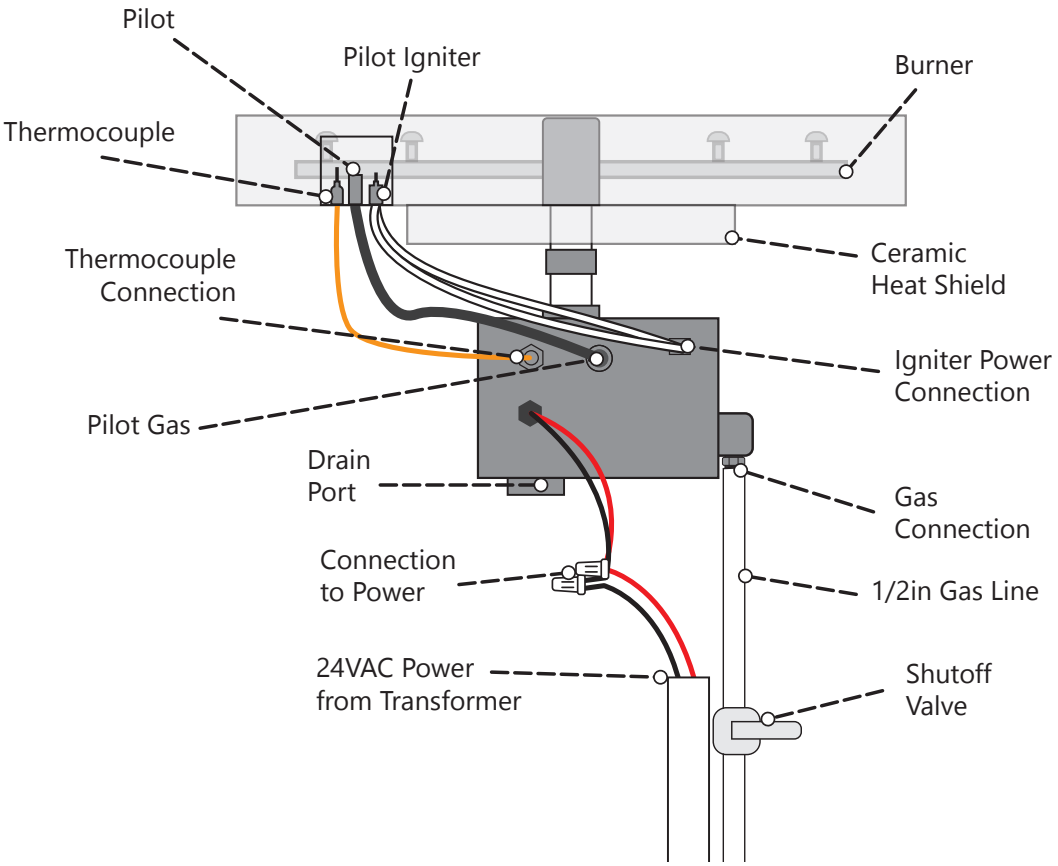


FIGURE 1: COMPLETE AUTO IGNITION SYSTEM

2. IMPORTANT INFORMATION FOR PROPANE UNITS

- Air mixers required for Liquid Propane. For propane units, the correct air mixer should come pre-installed.
- Do not attempt to move, adjust or remove the air mixer for LP units. Failure to do so could result in personal injury and damage to unit/property.
- Vent collars for an air mixer intake on a propane system should not be obstructed.
- Our units are NOT intended to be used with small portable LP tanks.

B. AUTO IGNITION INSTALLATION

3. GAS CONNECTION

a. Before beginning, ensure the gas line is turned OFF.
b. Run 1/2" gas line to the bottom connection on the ignition box
c. Use pipe dope/joint compound on ALL threaded fittings EXCEPT flared fittings.
d. Keep pipe length and elbows to a minimum to eliminate unnecessary pressure drops.
e. The use of a corrugated gas line can cause unwanted noise.
f. A regulator is integrated inside the valve box, a separate gas pressure regulator is not required.
g. Confirm no more than 1/2 PSI. Verify all gas connections are tightened securely. ALWAYS perform leak tests and make repairs as needed.
h. DO NOT daisy chain the gas lines. (See Section D)
i. A shut-off valve must be installed at each fire feature or valve. The primary gas valve must be located where they can be easily accessible so that the gas can be shut off quickly in case of an emergency.

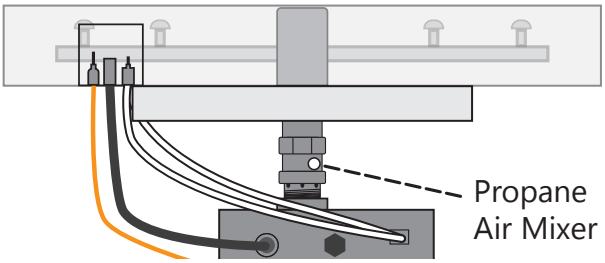


FIGURE 2: AIR MIXER LOCATION

4. ELECTRICAL CONNECTION

a. Power Requirements
    1. Auto ignition requires minimum 24 VAC, 60W, 2.5A.
    2. The included transformer steps down from 120 VAC to 24VAC.
    3. Installer should check voltage after installation to ensure proper values.
    4. Max length of wire from the transformer to system is up to 75ft with 16 Gauge wire.
    5. For distances over 75ft - 150ft use 14 Gauge wire.
b. Connections (Fig 3)
    1. Run electrical cable through an approved conduit. Conduit should be sealed to prevent gas settling or intrusion.
    2. Connect 120V to the included or approved Class 2 transformer (T).
    3. There are two wire connections on the side of the auto igniter. Connect 24V power from the transformer using wire nuts.
    4. Wrap wire nuts with electrical tape or use waterproof wire nuts to prevent moisture from getting in. Make sure wire nuts are positioned away from the bottom of the burner assembly.
    5. Connect ground from incoming power. (If required by local codes)
    6. Do not "daisy chain" electrical lines. Power must connect individually to each transformer. (See Section D)

B. AUTO IGNITION INSTALLATION

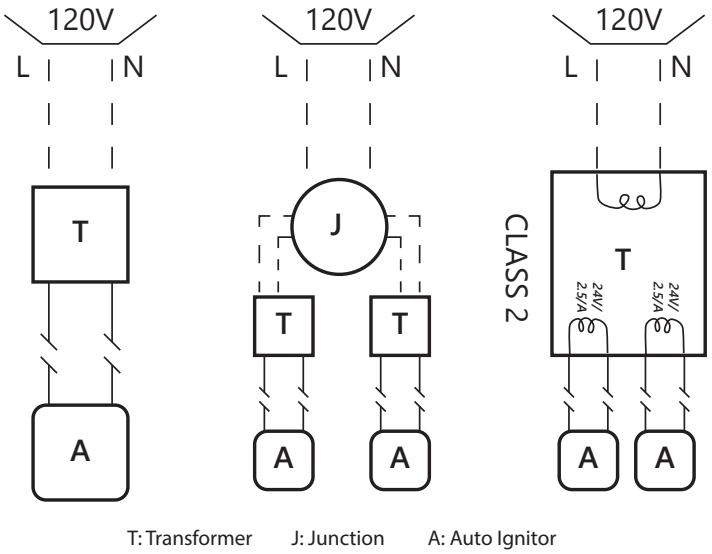


FIGURE 3: WIRING DIAGRAM

4. CHECK SYSTEM

a. Perform all above listed safety checks before start up. Before operating smell all around the appliance area for gas odors and next to the floor because some gases are heavier than air and will settle on the floor.
b. 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.
c. Do not add glass or rock media to the pan until a system test is complete.
d. Allow the unit to run for approximately five minutes then turn off.
e. Allow to cool down for approximately three minutes before trying to re-start. As a safety feature, the thermocouple will not allow the unit to re-fire until it has cooled down.

D. OPERATION & MAINTENANCE

1. GLASS OR ROCK FILL MEDIA

- Use only approved fire glass or rock media on burners. Incorrect media can melt or explode leading to bodily injury or product damage.
- Glass media max level: fill up to 1/4in above the burner height.
- For glass or rock fill media, leave an airflow gap around the ventilation slots for the pilot light box.

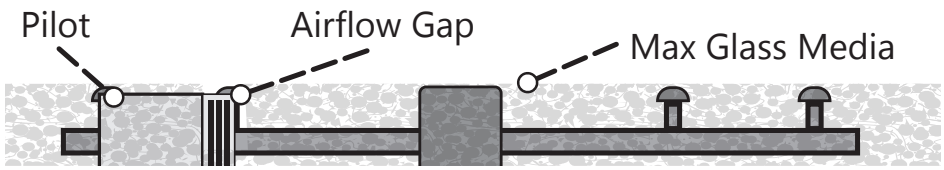


FIGURE 4: MEDIA PLACEMENT

2. BURNER SETUP

- 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. This could burn and emit embers once the fire feature is turned on.
- Each burner should have a flame height of approximately 12" – 15" from the top of the pan.
- Each burner should be adjusted as required so that the flame size at each burner is similar in appearance to each other.
- Install decorative rock or glass on top of the "burner support" and burner assembly. Do not completely cover/ obstruct the burner.

3. START UP

a. WARNING: Perform all above listed safety checks before start up.
b. Before operating, smell around the appliance area for gas odors and next to the floor because some gases are heavier then air and will settle on the floor.
c. 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.
d. Turn System on. The igniter will warm up for about five seconds before the pilot valve opens automatically.
e. The igniter will be active for the initial 10 seconds of the 30-second pilot cycle. The system will attempt to light up to 15 times before locking. If the system locks, reset by turning power OFF and then back ON.
f. NOTE: Cold temperature start-up may take longer than usual to ignite with the thermocouple reaches operational temperature.
g. The pilot flame will ignite. Once the thermocouple is hot the main valve will open and the main burner will ignite. If the thermocouple does not warm up during the first sequence, the system will cycle and attempt to light again.
h. If the pilot flame is extinguished at any time, the system will shut down. It will automatically attempt to restart again with the ignition sequence.
i. Once installed, the gas control valve should not be used to adjust the flame.

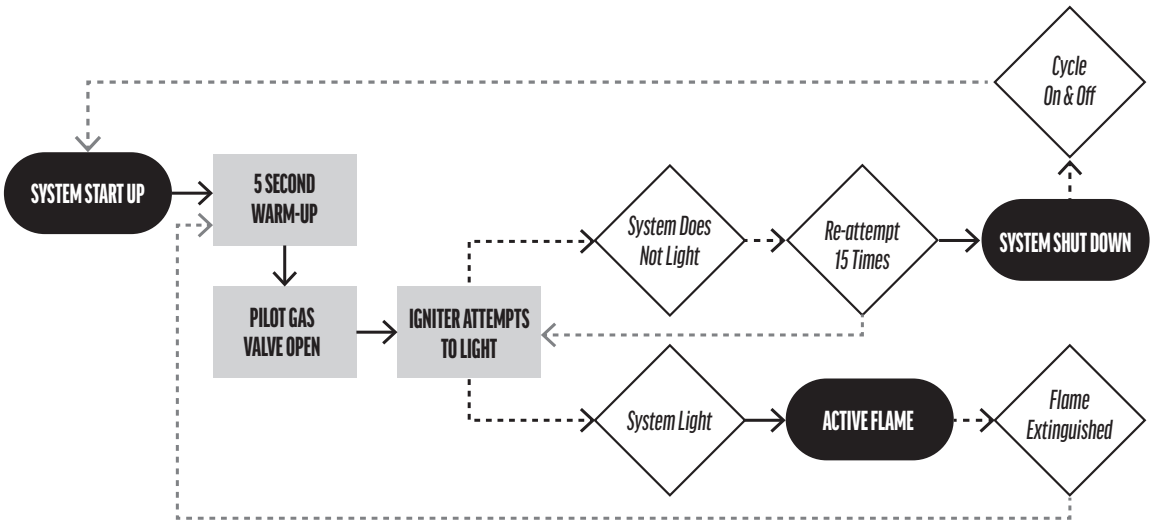


FIGURE 5: START-UP SEQUENCE

C. OPERATION & MAINTENANCE

4. MAINTENANCE & CARE

- Periodically clean the burner assembly with a wet cloth or cleaning solution to remove carbon build-up.
- Frequency of the cleaning will depend on usage.
- Periodically inspect the underside of the burner assembly for any signs of excessive temperatures.
- Check that all gas connections are tight.
- The burner assembly should be covered and protected from snow and ice. The burner should not be operated in high wind conditions.
- Visually inspect burner holes for debris/insect infestation.
- Clean burners as necessary using compressed air.
- USE THE SYSTEM! If the feature has been inactive for an extended period, turn fire feature on to ensure proper operation.
- Inspect the gas line regularly. If the line shows evidence of excessive abrasion or wear or if the line is damaged, it must be replaced before use.
- Inspect the burner before each use of the appliance. If there is any evidence that the burner is damaged, it must replaced before operating.
- If any repairs are required, contact a licensed professional.

D. TROUBLESHOOTING

SITUATION	POSSIBLE CAUSE	CORRECTIVE ACTION
Pilot will not light	Air in gas line	On a new install, it may take multiple attempts to completely purge air. On an existing install, check for leaks.
	Debris in gas line	Confirm gas line is clear (insulation, dirt, plastic, excessive pipe sealer etc..)
	Igniter element is damaged	Replace igniter element
	Incorrect gas pressure	Confirm proper gas pressures. Check for leaks. A regulator must be installed at each burner.
System will not light / will not stay lit but the pilot flame is lit	Incorrect gas pressure	Confirm proper gas pressures. Check for leaks.
	Thermocouple improperly assembled at the valve box	Thermocouple should be tightened to the valve box.
	Thermocouple damage	Replace thermocouple
	Dirty thermocouple	Clean the thermocouple using a brush
	Improperly Applied Media	Remove excess media on burner and remove the excess media near the pilot housing
System with Lava Rock has a small flame	Wet/Damp lava rock	Lava rock is porous and will hold moisture. As the heat dries the lava rock out the flame should grow larger.
Whistling sound	Corrugated gas line used for installation	Use whistle free hose - Adjust hose to create the path of least resistance for gas.
System with propane does not burn correctly / is very black / produces a lot of soot.	Lack of ventilation will cause improper burning or failure	Confirm air mixer is installed correctly. Check for proper ventilation do not block an ventilation paths in the system.
	Propane source may be introducing impurities into the system	Check with your propane provider
System shutdown due to high temperature	Temperature exceeding the limit	Adequate ventilation should be provided per instructions

D. TROUBLESHOOTING

COMMON ISSUES/MISTAKES

- Check line connections - do not daisy chain gas or electrical connections. (see Section C)
- Check gas pressure for natural gas and propane. (see Section B)
- If using with propane gas - ONLY use with air mixer correctly installed. (See Fig 2) The ½ " air mixer for propane includes stamped marking for gas flow direction. Air mixer is not required with natural gas.
- Check electrical voltage and connections.
- Check ground connections. (if required)
- Upon completing the gas line connection, a small amount of air will be in the lines. When first lighting the burner, it will take a few minutes for the lines to purge themselves of this air. Subsequent lighting of the appliance should not require such purging.

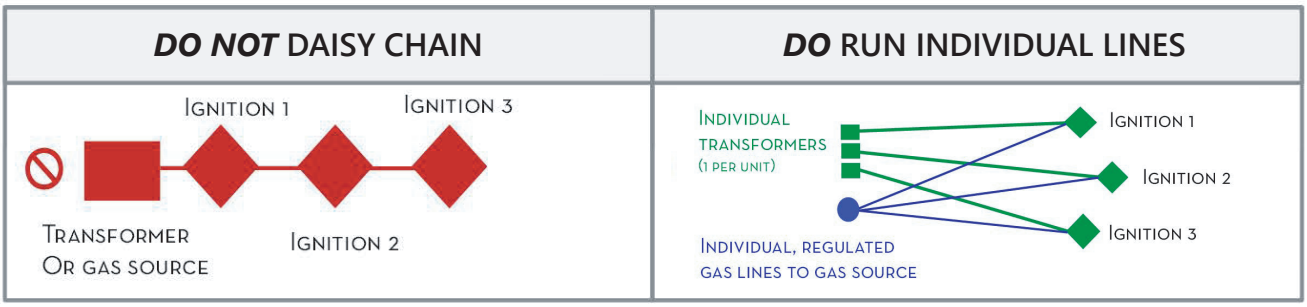


FIGURE 6: DAISY CHAIN GUIDE

HOW TO PERFORM A LEAK TEST

a. Prepare a leak testing solution of soapy water by mixing in a spray bottle one part liquid soap to one part water.
b. Make sure all the control knobs are in the OFF position.
c. Turn on the gas.
d. Apply the leak-testing solution by spraying it on joints of the gas delivery system. Blowing bubbles in the soap solution indicates that a leak is present.
e. Stop a leak by tightening the loose joint or by replacing the faulty part with a replacement part recommended by the manufacturer.
f. Turn the control knob back to the full OFF position.
g. If you are unable to stop a leak: Please consult a gas specialist. Shut off the gas supply to the fire pit and release pressure in the hose and manifold. Call/consult an authorized gas appliance service technician or a liquid propane gas dealer. DO NOT use the appliance until the leak is corrected.

Perform a leak test at least once a year whether the gas supply has been disconnected or not. Whenever any part of the gas system is disconnected or replaced, perform a leak test. As a safety precaution, remember to always leak test your fire pit outdoors in a well-ventilated area. Never smoke or permit sources of ignition in the area while doing a leak test. Do not use a flame, such as a lighted match to test for leaks.

NOTES

SAVE THESE INSTRUCTIONS

INSTALLER - LEAVE THESE INSTRUCTIONS WITH HOMEOWNER

Record Information on this System Below & Keep for Your Records

Installer _____

System Purchased From _____

Installation Date _____

Serial Number _____

CMP, LLC
36 HERRING ROAD, NEWNAN, GA 30265

0421sb REVC