

User Manual For: Crystal Fire<sup>®</sup> Plus Direct Spark Ignition (DSI) System

## ⚠ CAUTION ⚠

- Important operating instructions included.
- Read, understand, and follow these instructions for safe installation and operation.

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



## ⚠ DANGER ⚠

### IF YOU SMELL GAS:

- Shut off gas to the appliance.
- Extinguish any open flame.
- If odor continues, leave the area immediately.
- 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.

## ⚠ 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.

A propane cylinder not connected for use shall not be stored in the vicinity of this or any other appliance.

## DANGER



### 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 ⚠

IF THE INFORMATION IN THIS INSTRUCTION MANUAL IS NOT FOLLOWED EXACTLY, A FIRE OR EXPLOSION MAY RESULT CAUSING PROPERTY DAMAGE, PERSONAL INJURY, OR LOSS OF LIFE.



**⚠ DANGER: FLAMMABLE GAS UNDER PRESSURE.  
LEAKING LP-GAS MAY CAUSE A FIRE OR EXPLOSION IF IGNITED  
CAUSING SERIOUS BODILY INJURY OR DEATH.  
CONTACT LP GAS SUPPLIER FOR REPAIRS, OR DISPOSAL OF A  
CYLINDER OR UNUSED LP-GAS.**

**⚠ WARNING: FOR OUTDOOR USE ONLY.\***

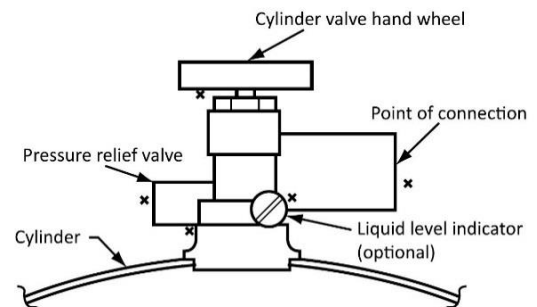
**DO NOT USE OR STORE CYLINDER IN A BUILDING,  
GARAGE, OR ENCLOSED AREA.**

**⚠ WARNING:**

- Know the odor 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 requalification date is checked.
- LP-gas is heavier than air and may settle in low places while dissipating.
- Contact with the liquid contents of cylinder will cause freeze burns to the skin.
- Do not allow children to tamper or play with cylinder.
- When not connected for use, keep cylinder valve turned off. Self-contained appliances shall be limited to a cylinder of 30 lb. capacity or less.
- Do not use, store or transport cylinder where it would be exposed to high temperatures. 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 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 the 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 at areas marked "X". Open cylinder valve. If bubbles appear, close valve and have LP-gas service person make needed repairs. Also, check appliance valves and connections to make sure they do not leak before lighting appliance.
- Light appliance(s) following manufacturer's instructions.
- When appliance is not in use, keep the cylinder valve closed.



**DO NOT REMOVE, DEFACE, OR OBLITERATE THIS LABEL  
\*EXCEPT AS AUTHORIZED BY ANSI/NFPA 58**

**⚠ DANGER: 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 causing death or serious injury may occur.**

# Additional Warnings

This appliance is a *Decorative Outdoor Gas Appliance* for **OUTDOOR USE ONLY** and **MUST NOT** be used for cooking.

Install the burner system in an enclosure on a flat and stable surface in an outdoor location such as a patio or deck. This location must be adjacent to the gas supply line or propane gas supply. **DO NOT** locate the appliance where it will get excessively wet or submerged in water.

## ⚠ WARNING ⚠

- Children and adults should be alerted to the hazards of high surface temperatures and open flames and should stay away to avoid burns or clothing ignition.
- Young children should be carefully supervised when they are in the area of the appliance.
- Clothing or other flammable materials should not be hung from appliance or placed on or near the appliance.
- Any guard, barrier or other protective device removed for servicing the appliance shall be replaced prior to operating the appliance.

## ⚠ WARNING ⚠

Do NOT burn solid fuels in this gas appliance.

## ⚠ WARNING ⚠

**NATIONAL  
FIREPLACE  
INSTITUTE®**



**CERTIFIED**

Installation and repair should be performed only by a qualified service person. More frequent cleaning and maintenance may be required as necessary. It is imperative that the burner, controls, and circulating air passageways of the appliance are kept clean.

The Outdoor GreatRoom Company™, LLC recommends the use of NFI Certified Gas Professionals.

## ⚠ WARNING ⚠

### ASPHYXIATION RISK

- This gas appliance is for outdoor use in a well ventilated space.
- This unit must NOT be installed in an enclosed structure.

## ⚠ WARNING ⚠

**DO NOT USE** this appliance if any part has been underwater. Have an authorized service technician inspect the appliance and replace any component in the control system or gas supply which has been underwater.

## ⚠ WARNING ⚠

### SHARP EDGES

Wear protective gloves and safety glasses during installation.

## ⚠ WARNING ⚠

Inspect appliance and components for damage. Damaged parts may impair safe operation.

Do NOT install damaged, incomplete, or substitute components.

Report damaged parts to your dealer.

## ⚠ WARNING ⚠

The Outdoor GreatRoom Company™, LLC disclaims any responsibility for, and the warranty will be voided by, the following actions:

- Installation and use of any damaged components.
- Modification of the burner assembly.
- Installation other than as detailed in this manual.

Any such action may result in a fire or explosion causing property damage, personal injury, or death.

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# 1

## APPLIANCE INFORMATION (DSI BURNERS)

### A. APPLIANCE CERTIFICATION

**MODEL:** ALL CRYSTAL FIRE® PLUS BURNERS & BURNER INSERTS WITH DIRECT SPARK IGNITION

**TESTING AGENCY:** Underwriters Laboratories (UL LLC)

**TYPE:** Decorative Gas-Fired Outdoor Fireplace.

**STANDARD:** ANSI Z21.97-2017 / CSA 2.41-2017 *Outdoor Decorative Gas Appliances*

The Crystal Fire® Plus burner series has been tested in accordance to ANSI Z21.97-2017 / CSA 2.41-2017 and has been listed by Underwriters Laboratories (UL LLC) for installation and operation as described in these installation and operating instructions.

When the appliance is for connection to a fixed piping system, the installation must conform with local codes, or in the absence of local codes with *National Fuel Gas Code*, ANSI Z223.1 \* NFPA 54; *National Fuel Gas Code*; *Natural Gas and Propane Installation Code*, CSA B149.1; or *Propane Storage and Handling Code*, CSA B149.2, as applicable.

The appliance, when installed, must be electrically grounded in accordance with local codes, or in the absence of local codes, with the *National Electrical Code*, ANSI/NFPA 70; or the *Canadian Electrical Code*, CSA C22.1, if applicable.

### B. SPECIFICATIONS

| MODEL                    | ORIFICE SIZE |             | STANDARD INPUT RATE       |                           |
|--------------------------|--------------|-------------|---------------------------|---------------------------|
|                          | PROPANE      | NATURAL GAS | PROPANE                   | NATURAL GAS               |
| CFP20<br>BI16<br>CFP2424 | #43          | #27         | 55K BTU/hr.<br>(16.12 kW) | 55K BTU/hr.<br>(16.12 kW) |
| CFP1224<br>BI719         | #43          | #27         | 55K BTU/hr.<br>(16.12 kW) | 55K BTU/hr.<br>(16.12 kW) |
| CFP1242<br>BI737         | #35          | #17         | 80K BTU/hr.<br>(23.33 kW) | 80K BTU/hr.<br>(23.33 kW) |

The burner specifications listed above correspond to the factory standard configuration. Each of the above burners are able to operate at a higher input rate with a larger flame by purchasing and installing an optional upgrade orifice. See Maximum Rate information on Pg. 6 and Reference Materials on Pg. 33 for more information.

| MINIMUM INLET PRESSURE   |                          | MAXIMUM INLET PRESSURE   |                          | IDEAL INLET PRESSURE     |                         |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-------------------------|
| PROPANE                  | NATURAL GAS              | PROPANE                  | NATURAL GAS              | PROPANE                  | NATURAL GAS             |
| 10.5 in. WC<br>(2.6 kPa) | 4.5 in. WC<br>(0.87 kPa) | 14.0 in. WC<br>(3.5 kPa) | 10.5 in. WC<br>(2.6 kPa) | 11.0 in. WC<br>(2.7 kPa) | 7.0 in. WC<br>(1.7 kPa) |

All Crystal Fire® Plus burners are approved for use in the Commonwealth of Massachusetts.

Approval Code: P1-0720-468

Direct Spark Ignition (DSI) burners are ordered fuel-type specific and should not be field converted. Ensure that the fuel type of your burner matches the intended fuel type available at the installation location.

| MODEL                       | ORIFICE SIZE |             | MAXIMUM INPUT RATE     |                         |
|-----------------------------|--------------|-------------|------------------------|-------------------------|
|                             | PROPANE      | NATURAL GAS | PROPANE                | NATURAL GAS             |
| CFP20*<br>BI16*<br>CFP2424* | #36          | #17         | 70K BTU/hr. (20.5 kW)  | 77.5K BTU/hr. (22.7 kW) |
| CFP30*<br>BI28              | #23          | .313"       | 150K BTU/hr. (44.0 kW) | 150K BTU/hr. (44.0 kW)  |
| CFP1224*<br>BI719*          | #36          | #17         | 75K BTU/hr. (22.0 kW)  | 75K BTU/hr. (22.0 kW)   |
| CFP1242*<br>BI737*          | .125"        | #5          | 100K BTU/hr. (29.3 kW) | 100K BTU/hr. (29.3 kW)  |
| CFP1264<br>BI757            | .125"        | #5          | 100K BTU/hr. (29.3 kW) | 100K BTU/hr. (29.3 kW)  |
| CFP12120<br>BI7114          | #36 (X2)     | #4 (X2)     | 140K BTU/hr. (41.0 kW) | 140K BTU/hr. (41.0 kW)  |
| CFP1272<br>BI766            | #43 (X2)     | #24 (X2)    | 100K BTU/hr. (20.5 kW) | 100K BTU/hr. (29.3 kW)  |
| CFP1284<br>BI778            | #42 (X2)     | #10 (X2)    | 120K BTU/hr. (35.2 kW) | 120K BTU/hr. (35.2 kW)  |
| CFP1296<br>BI790            | #39 (X2)     | #7 (X2)     | 130K BTU/hr. (38.1 kW) | 130K BTU/hr. (38.1 kW)  |
| CFP12108<br>BI7102          | #36 (X2)     | #4 (X2)     | 140K BTU/hr. (41.0 kW) | 140K BTU/hr. (41.0 kW)  |

\*The burners denoted with an asterisk are not setup standard from the factory to operate at their maximum gas consumption rate. In order to achieve the maximum gas consumption rate, an upgraded orifice must be purchased and installed. See Reference Materials on Pg. 33 for more information.

| MINIMUM INLET PRESSURE   |                          | MAXIMUM INLET PRESSURE   |                          | IDEAL INLET PRESSURE     |                         |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-------------------------|
| PROPANE                  | NATURAL GAS              | PROPANE                  | NATURAL GAS              | PROPANE                  | NATURAL GAS             |
| 10.5 in. WC<br>(2.6 kPa) | 4.5 in. WC<br>(0.87 kPa) | 14.0 in. WC<br>(3.5 kPa) | 10.5 in. WC<br>(2.6 kPa) | 11.0 in. WC<br>(2.7 kPa) | 7.0 in. WC<br>(1.7 kPa) |

Direct Spark Ignition (DSI) burners are ordered fuel-type specific and should not be field converted. Ensure that the fuel type of your burner matches the intended fuel type available at the installation location.

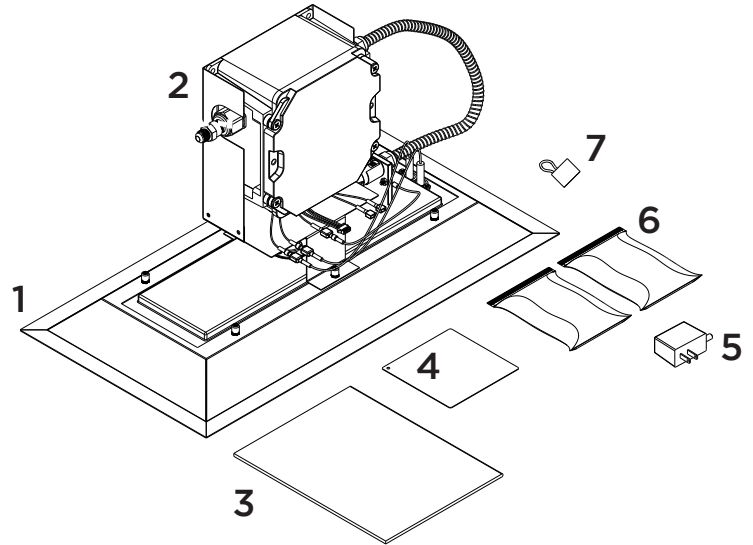


# 2

## GETTING STARTED (DSI BURNERS)

### A. INCLUDED ITEMS

1. Crystal Fire® Plus Burner
2. Direct Spark Ignition (DSI) System  
(Connected to burner)
3. Crystal Fire® Plus Instruction Manual
4. UL Rating Label (Attached to burner)
5. Power Adaptor
6. Glass Media  
(See table below for number of media bags)
7. Switch Bypass (CF-DSI-SB)



| MODEL                | CFP20<br>BI16    | CFP2424          | CFP30<br>BI28    | CFP1224<br>BI719   | CFP1242<br>BI737  | CFP1264<br>BI757 |
|----------------------|------------------|------------------|------------------|--------------------|-------------------|------------------|
| Number of Media Bags | 2                | 4                | 5                | 2                  | 3                 | 4                |
| MODEL                | CFP1272<br>BI766 | CFP1284<br>BI778 | CFP1296<br>BI790 | CFP12108<br>BI7102 | CF12120<br>BI7114 | X                |
| Number of Media Bags | 5                | 5                | 6                | 7                  | 8                 | X                |

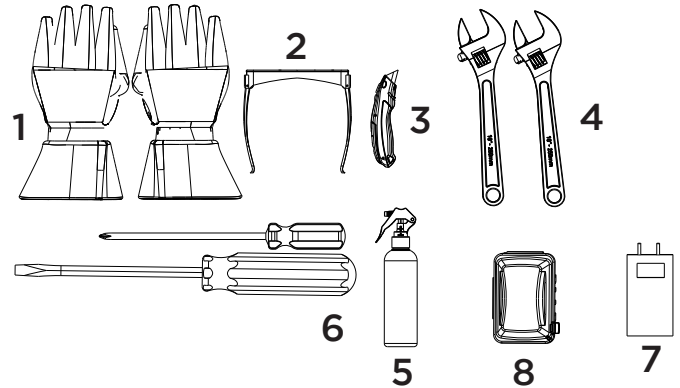
A 10' propane regulator hose for use with 20 lb. self-contained propane cylinders will be included with the following burners when ordered for use with propane:

CFP20/BI16, CFP1224/BI719, and CFP1242/BI737

It is not recommended to operate any burners not listed above on a self-contained propane cylinder due to potentially dangerous gas capacity issues.

## B. TOOLS AND SUPPLIES REQUIRED

1. Work Gloves
2. Safety Glasses
3. Utility Knife (for opening packaging)
4. (2X) Adjustable Wrenches
5. Corrosion-Free Leak Test Solution
6. Small Flat-Blade Screwdriver
7. Digital or Slack-Tube Manometer with ¼" ID Tube Attachment
8. GFCI Protected Outlet installed in accordance with local code. Use weather-proof cover.



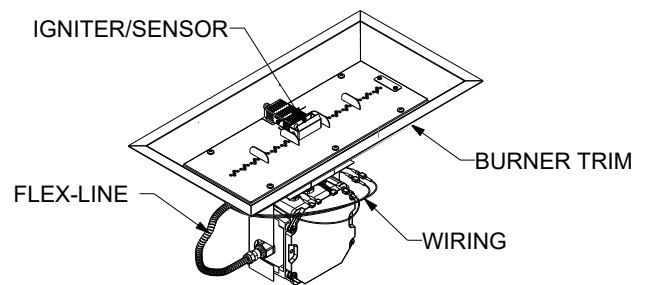
The Outdoor GreatRoom Company™ has a recommended junction box assembly available. Please see reference materials for more information. This junction box assembly **MUST BE** installed on a GFCI protected circuit.

**OPTIONAL:** (2X) D-Cell Batteries if using optional battery pack. See Reference Materials for more information.

## C. INSPECT THE APPLIANCE AND COMPONENTS

### What to inspect:

1. Burner
  - Look for bent or dented components.
2. Plumbing (Stainless steel flex-line)
  - Look for cracks and extreme bends or kinks.
3. Wiring
  - Look for cracks and extreme bends or kinks on aluminum tube.
3. Igniter/Sensor
  - Ensure that electrodes are not loose and cannot rotate in ceramic insulators.
  - Look for extreme bends.







# 3

## APPLIANCE CLEARANCE REQUIREMENTS (DSI BURNERS)

### A. SURROUNDING CLEARANCES

#### ⚠ WARNING ⚠

#### FIRE RISK

Follow all minimum clearance requirements. Failure to provide adequate clearance to combustible materials can result in property damage or loss of life.

#### Appliance should be installed in an enclosure in a location that meets the following criteria:

- Easy access to appliance control panel.
- Easy access to gas connections for service and maintenance.
- Does not restrict walkways around appliance and enclosure.
- Installed on solid and level surface.

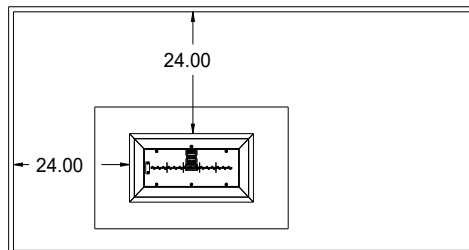
#### ⚠ WARNING ⚠

#### FOR OUTDOOR USE ONLY

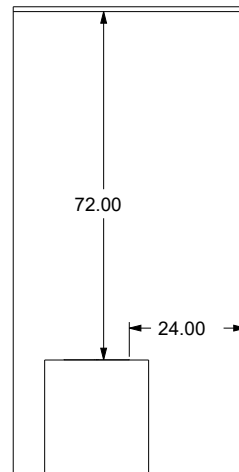
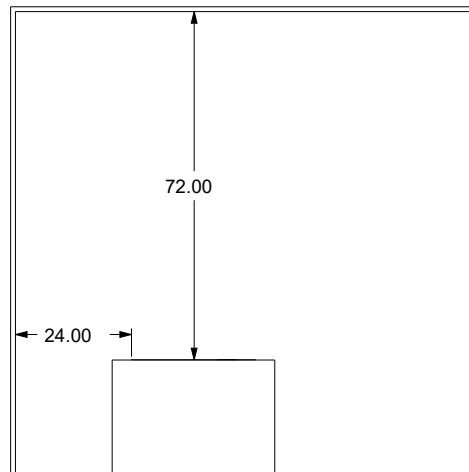
#### What qualifies an area as an outdoor space?

To qualify as an outdoor space, the area in which the appliance is installed must be no more restrictive than the following configurations:

- Walls on all four sides with no overhead cover.
- A partial enclosure with an overhead cover and two side walls. Walls can be parallel to each other or at right angles to each other.
- A partial enclosure that includes an overhead cover and three side walls where 30 percent of the surrounding side wall area is **permanently** open.



All Dimensions are in Inches

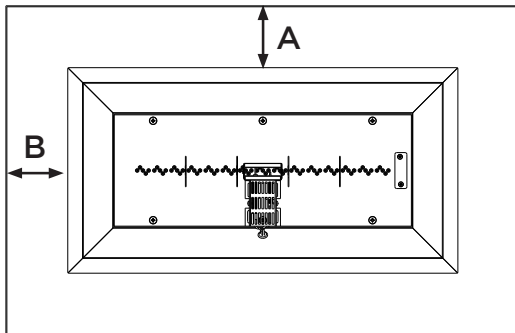


Burner model shown may not be the same model as your burner. Clearance requirement is 72" from top of burner to any overhead combustible materials and 24" from edge of burner trim to any combustible side walls. Burner Inserts (BI models) must follow the clearances for their corresponding CFP model.

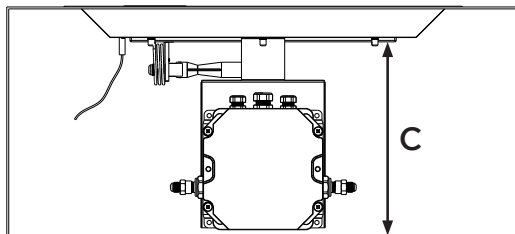
## B. ENCLOSURE CLEARANCES FOR CFP MODELS WITH DSI

**⚠ WARNING ⚠**

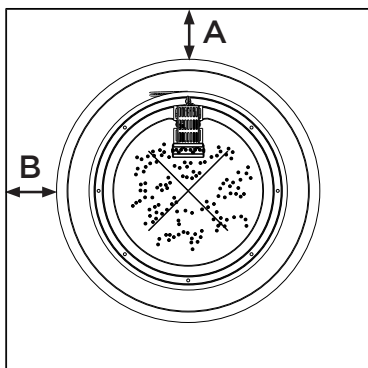
Follow all minimum clearance requirements.  
Failure to provide adequate clearance to  
combustible materials can result in property  
damage or loss of life.



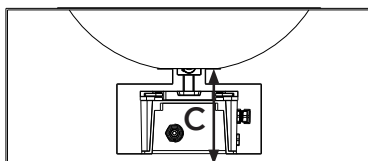
| Required Clearances to Combustibles |       |       |          |
|-------------------------------------|-------|-------|----------|
| LINEAR MODELS                       | A     | B     | C        |
| CFP1224                             | 4 in. | 4 in. | 12.5 in. |
| CFP1242                             |       |       |          |
| CFP1264                             |       |       |          |
| CFP12120                            |       |       |          |
| CFP1272                             |       |       |          |
| CFP1284                             |       |       |          |
| CFP1296                             |       |       |          |
| CFP12108                            |       |       |          |



| Required Clearances to Combustibles |       |       |          |
|-------------------------------------|-------|-------|----------|
| SQUARE MODELS                       | A     | B     | C        |
| CFP2424                             | 4 in. | 4 in. | 12.5 in. |



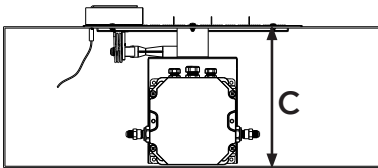
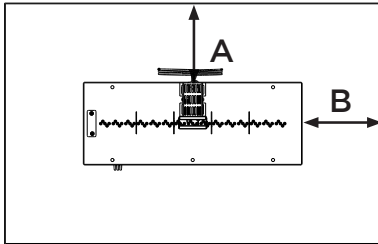
| Required Clearances to Combustibles |       |       |       |
|-------------------------------------|-------|-------|-------|
| ROUND MODELS                        | A     | B     | C     |
| CFP20                               | 4 in. | 4 in. | 9 in. |
| CFP30                               |       |       |       |



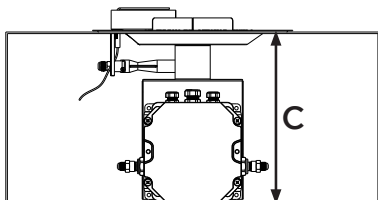
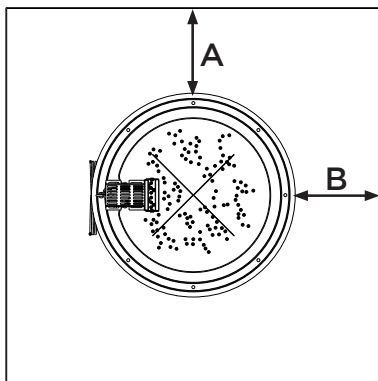
## C. ENCLOSURE CLEARANCES FOR BI MODELS WITH DSI

### ⚠ WARNING ⚠

Follow all minimum clearance requirements. Failure to provide adequate clearance to combustible materials can result in property damage or loss of life.



| Required Clearances to Combustibles |       |       |          |
|-------------------------------------|-------|-------|----------|
| LINEAR MODELS                       | A     | B     | C        |
| BI719                               | 7 in. | 7 in. | 12.5 in. |
| BI737                               |       |       |          |
| BI757                               |       |       |          |
| BI7114                              |       |       |          |
| BI766                               |       |       |          |
| BI778                               |       |       |          |
| BI790                               |       |       |          |
| BI7102                              |       |       |          |



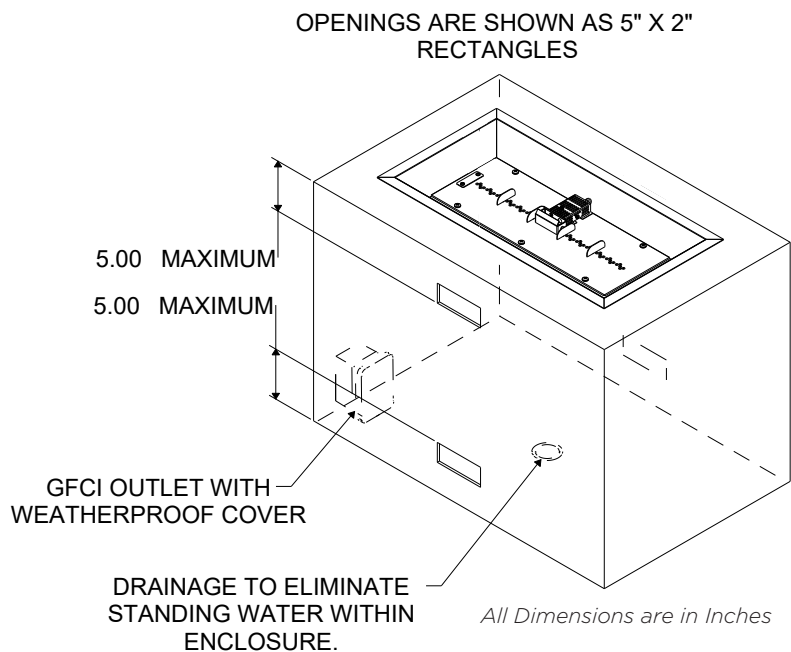
| Required Clearances to Combustibles |          |          |          |
|-------------------------------------|----------|----------|----------|
| ROUND MODELS                        | A        | B        | C        |
| BI16                                | 6.75 in. | 6.75 in. | 12.5 in. |
| BI28                                | 6 in.    | 6 in.    | 12.5 in. |

# 4

## ENCLOSURE DESIGN (DSI BURNERS)

### A. SELF-CONTAINED PROPANE CYLINDER INSTALLATIONS

The Outdoor GreatRoom Company™ has vent blocks available for DIY landscape block projects as well as vent plates for other enclosures. See reference materials for more information.



A readily accessible GFCI outlet should be installed within the enclosure to local electrical code. A weatherproof cover should be used.

If outlet will not be readily accessible, the circuit controlling the outlet should be wired as a GFCI circuit and the RESET of that circuit should be readily accessible.

In addition to the ventilation requirements, it is recommended that a vapor barrier be used on the interior of the enclosure to limit condensation.

#### MINIMUM VENTILATION REQUIREMENTS:

Two (2) openings of equal size on opposite sides of the enclosure. The bottom of these openings should be within 5 in. of the top of the enclosure and their total open area should be 1 in.<sup>2</sup>/lb. of stored propane. (20 in.<sup>2</sup> total for a 20 lb. propane cylinder or 10 in.<sup>2</sup> for each opening).

Two (2) openings of equal size on opposite sides of the enclosure. The top of these openings should be within 5 in. of the bottom of the enclosure and their total open area should be 1 in.<sup>2</sup>/lb. of stored propane. (20 in.<sup>2</sup> total for a 20 lb. propane cylinder or 10 in.<sup>2</sup> for each opening).

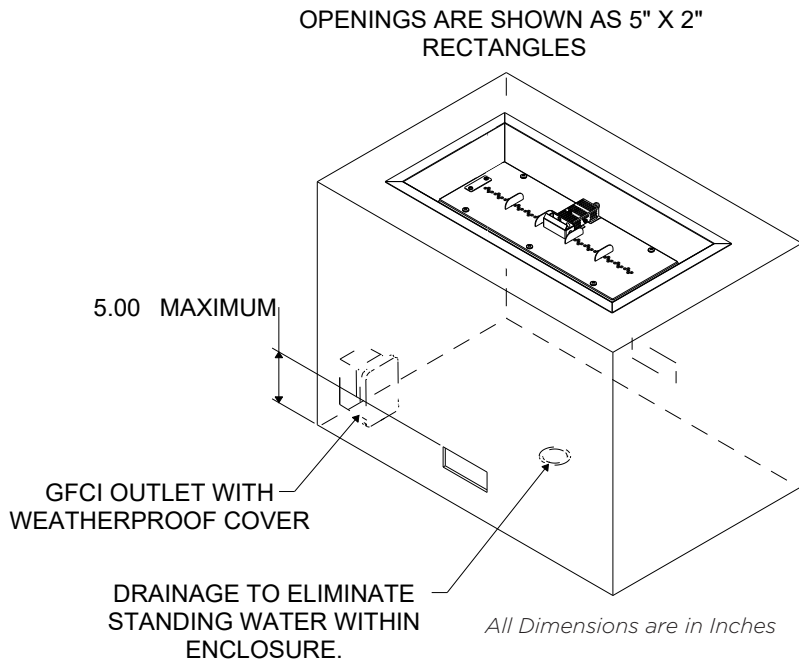
A 1/8 in. rod should be able to be passed through the openings in the vents. No screen or mesh should be used.

Enclosures built to house a self-contained propane cylinder must have ventilation at the top and bottom of the enclosure. This allows for quick dissipation of gas in the event of a leak, or in the event of venting from the tank when over-pressurized. Propane is denser than air and settles in low places. Ventilation also helps to prevent excessive condensation.

Burner model shown may not be the same model as your burner.

## B. HARD-PIPED PROPANE INSTALLATIONS

The Outdoor GreatRoom Company™ has vent blocks available for DIY landscape block projects as well as vent plates for other enclosures. See reference materials for more information.



A readily accessible GFCI outlet should be installed within the enclosure to local electrical code. A weatherproof cover should be used.

If outlet will not be readily accessible, the circuit controlling the outlet should be wired as a GFCI circuit and the RESET of that circuit should be readily accessible.

In addition to the ventilation requirements, it is recommended that a vapor barrier be used on the interior of the enclosure to limit condensation.

### MINIMUM VENTILATION REQUIREMENTS:

Two (2) openings of equal size on opposite sides of the enclosure. The top of these openings should be within 5 in. of the bottom of the enclosure and their total open area should be 20 in.<sup>2</sup>.

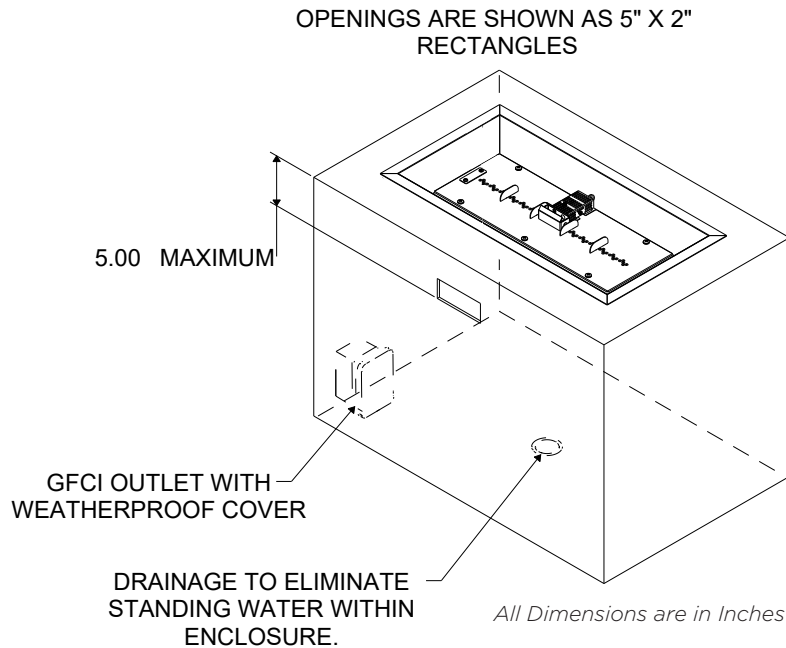
A 1/8 in. rod should be able to be passed through the openings in the vents. No screen or mesh should be used.

Enclosures built for hard-piped propane installations must have ventilation at the bottom of the enclosure. This allows for quick dissipation of gas in the event of a leak. Propane is denser than air and settles in low places. Ventilation also helps to prevent excessive condensation.

Burner model shown may not be the same model as your burner.

## B. HARD-PIPED NATURAL GAS CYLINDER INSTALLATIONS

The Outdoor GreatRoom Company™ has vent blocks available for DIY landscape block projects as well as vent plates for other enclosures. See reference materials for more information.



A readily accessible GFCI outlet should be installed within the enclosure to local electrical code. A weatherproof cover should be used.

If outlet will not be readily accessible, the circuit controlling the outlet should be wired as a GFCI circuit and the RESET of that circuit should be readily accessible.

In addition to the ventilation requirements, it is recommended that a vapor barrier be used on the interior of the enclosure to limit condensation.

### MINIMUM VENTILATION REQUIREMENTS:

Two (2) openings of equal size on opposite sides of the enclosure. The bottom of these openings should be within 5 in. of the top of the enclosure and their total open area should be 20 in.<sup>2</sup>.

A 1/8 in. rod should be able to be passed through the openings in the vents. No screen or mesh should be used.

Enclosures built for hard-piped natural gas installations must have ventilation near the top of the enclosure. This allows for quick dissipation of gas in the event of a leak. Natural gas is lighter than air and rises. Ventilation also helps to prevent excessive condensation.

Burner model shown may not be the same model as your burner.



# 5

## GAS SETUP AND INFORMATION (DSI BURNERS)

### **⚠ WARNING: ⚠**

#### **FIRE AND EXPLOSION RISK:**

##### **VERIFY INLET PRESSURES**

- High pressure may cause an over-fire condition.
- Low pressure may cause delayed ignition and explosion.
- Minimum pressure must be verified when ALL household appliances are operating.

**AN APPLIANCE REGULATOR MUST BE INSTALLED UPSTREAM OF THE APPLIANCE FOR ALL PRESSURES ABOVE 14 IN. WC FOR LIQUID PROPANE AND ALL PRESSURES ABOVE 11 IN. WC FOR NATURAL GAS.**

• Pressure requirements for the appliance are shown in the table below. Pressure readings must be attained **WHILE THIS APPLIANCE AND ALL OTHER GAS APPLIANCES ARE IN OPERATION.**

• Although it is safe to operate at minimum pressure, the unit should be operating at the ideal inlet pressure, shown in the table below.

### **C. GAS SUPPLY AND CONNECTION**

• All fixed fuel piping (hard-piped) systems shall be installed in accordance to local building codes; if none exist, ANSI Z223.1/NFPA 54 should be followed.

• Installation of fixed fuel piping (hard-piped) systems should be performed only by authorized installers approved and/or licensed as required by the locality.

• A dedicated manual shut-off valve shall be installed upstream of this appliance and its controls.

• This appliance and its dedicated manual shutoff valve need to be disconnected from the main gas supply system during any pressure testing in excess of ½ psi (3.5 kPa).

• This appliance must be isolated from the main gas supply by closing its dedicated manual shutoff valve during any pressure testing of the gas supply system at test pressures equal to or less than ½ psi (3.5 kPa).

### **A. FUEL TYPE**

• Before making any gas connections, ensure the appliance being install is compatible with the available gas type.

• All Crystal Fire® Plus burners with Direct Spark Ignition are ordered fuel type specific and it is **NOT** recommended to field convert this appliances.

### **B. GAS PRESSURE**

• Proper input pressures are required for optimum performance and safety. Gas line sizing is **EXTREMELY** important and should be performed only by a qualified gas professional. Supply line sizing requirements need to be made following ANSI Z223.1/NFPA 54.

| MINIMUM INLET PRESSURE   |                          | MAXIMUM INLET PRESSURE   |                          | IDEAL INLET PRESSURE     |                         |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-------------------------|
| PROPANE                  | NATURAL GAS              | PROPANE                  | NATURAL GAS              | PROPANE                  | NATURAL GAS             |
| 10.5 in. WC<br>(2.6 kPa) | 4.5 in. WC<br>(0.87 kPa) | 14.0 in. WC<br>(3.5 kPa) | 10.5 in. WC<br>(2.6 kPa) | 11.0 in. WC<br>(2.7 kPa) | 7.0 in. WC<br>(1.7 kPa) |

## D. LEAK CHECK AND LINE PURGE

Once the gas piping system is in place, all fittings and connections need to be checked for leaks.

Use a commercially-available, non-corrosive leak check solution.

Once leak test is complete, be sure to rinse off all remaining leak check solution from the gas piping systems.

### **WARNING: CHECK FOR GAS LEAKS**

#### FIRE RISK

#### EXPLOSION RISK

#### ASPHYXIATION RISK

- Check all fittings and connections.
  - Do not use an open flame.
- Eliminate possible ignition sources such as open flames and sparks during leak check.
- Presence of gas leaks can lead to high levels of carbon monoxide. If leaks are detected, ensure proper ventilation is available to expedite the dissipation of leaked gas.

After leak check has been performed and the gas supply system is leak free, a purge of the air in the supply line should be performed in order to ensure a safe first ignition of the appliance.

### **WARNING**

#### FIRE RISK

#### EXPLOSION RISK

- Gas build-up during purge may ignite.
- Purge should be performed by an authorized gas technician.
- Eliminate possible ignition sources such as open flames and sparks during leak check.
  - Ensure adequate ventilation.

## E. ADDITIONAL GAS SUPPLY INFORMATION

For propane installations using a non-disposable, self-contained propane supply system (20 lb. propane tank and the manufacturer supplied regulator hose):

- The propane cylinder use with this appliance must be constructed and marked in accordance with the U.S. Department of Transportation. (D.O.T.) *Specifications for Propane-Gas Cylinders, or the Standard for Cylinders, Spheres and Tubes for Transportation of Dangerous Goods and Commission, CAN/CSA-B339*, as applicable.
- The propane cylinder must be provided with a listed overfilling prevention device (OPD).
- The propane cylinder must be compatible with the regulator hose supplied by the manufacturer with this appliance.

### **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**

Installation and repair should be performed only by a qualified service technician.





# 6

## BURNER INSTALLATION (DSI BURNERS)

### A. SELF-CONTAINED PROPANE CYLINDER INSTALLATIONS

#### IMPORTANT

Other media options apart from the supplied clear glass gems can be used in Crystal Fire® Plus burners, but they should be supplied by the Outdoor GreatRoom Company™. This ensures that the proper amount of media is used and that the media is approved for use in gas appliances.

**MEDIA MUST BE IN PLACE DURING OPERATION.** Operation of appliance without media will damage the burner.

Overfilling of the burner with media can cause adverse operational issues.

Use of burner media other than that supplied by The Outdoor GreatRoom Company™ is not recommended and could lead to operational issues.

1. Secure supplied control panel to enclosure with suitable fasteners. See Image 6.1. If burner is being installed in an Outdoor GreatRoom Company™ fire table, the control panel and switch will already be installed.

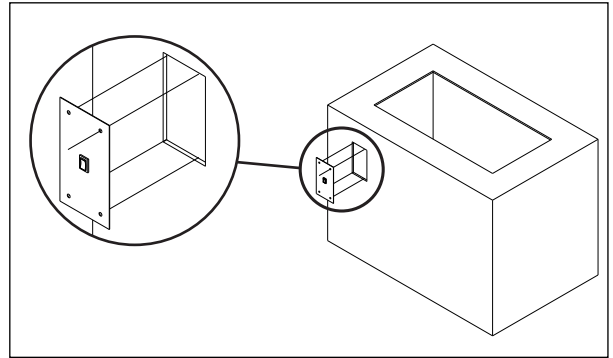
If controls other than the standard control panel are being used, refer to 42511 Crystal Fire® Plus Supplemental Commercial Manual.

2. Connect supplied power adaptor to GFCI outlet installed within enclosure. See image 6.2.

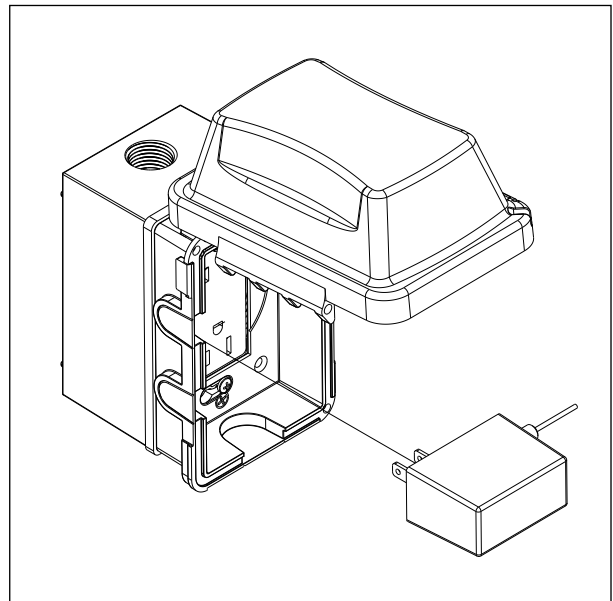
If optional battery pack (CF-DSI-BP) is being used, see Reference Materials for more information.

#### ⚠ WARNING ⚠

Installation and repair should be performed only by a qualified service technician.

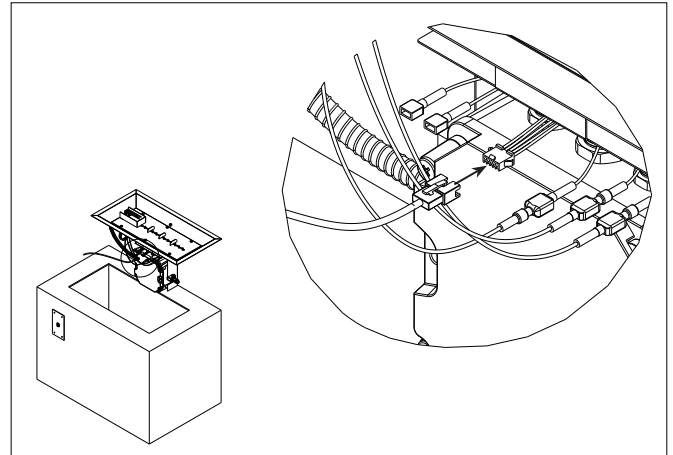


(Img. 6.1)

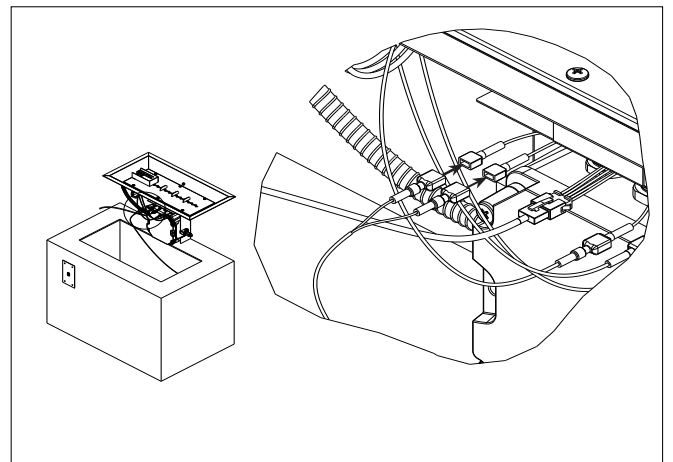


(Img. 6.2)

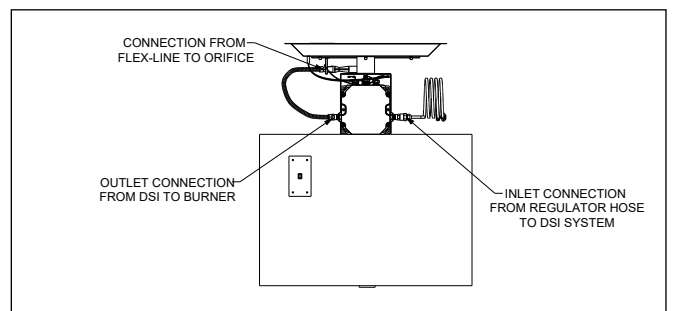
3. With burner sitting on top of enclosure, connect control switch to DSI system. The connector is keyed and will only connect one way. See Image 6.3. It may be necessary to prop up burner in one or more locations.
4. With burner in same position as in Step 3, connect power adaptor to DSI system. The connections will be labelled 3.3 VDC + and 3.3 VDC - on both the DSI system and power adaptor. If they are not connected properly, the unit will not operate. See Image 6.4.
5. Using adjustable wrenches, tighten all connections shown in Image 6.5. This step serves as a final safety measure as all fittings come tightened from the factory.
6. Carefully place burner assembly into enclosure  
**DO NOT USE IGNITION ELECTRODES AS A HANDLE.** Evenly spread included glass media over burner surface. Glass media **MUST NOT BE** present inside ignition wind guard opening. See Image 6.6.



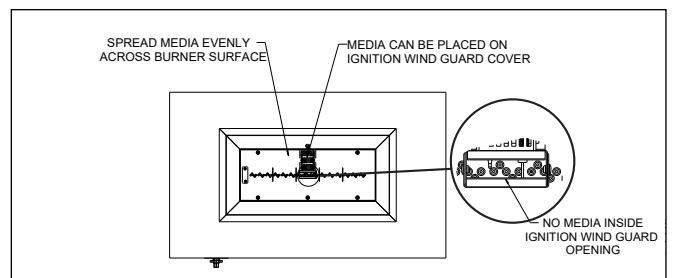
(Img. 6.3)



(Img. 6.4)

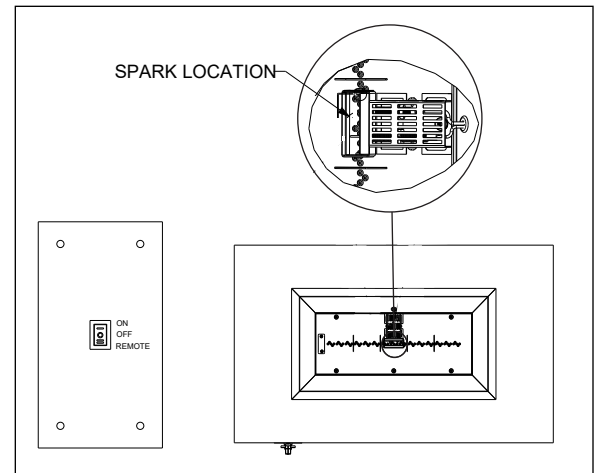


(Img. 6.5)

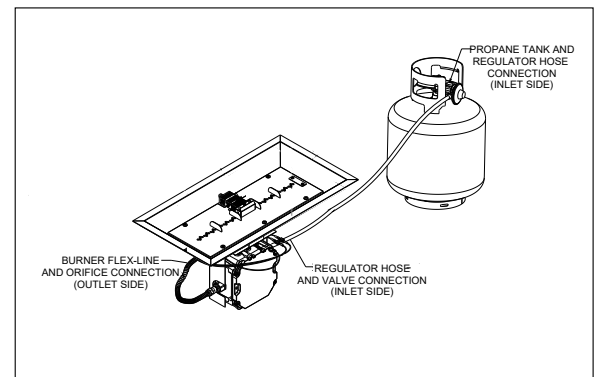


(Img. 6.6)

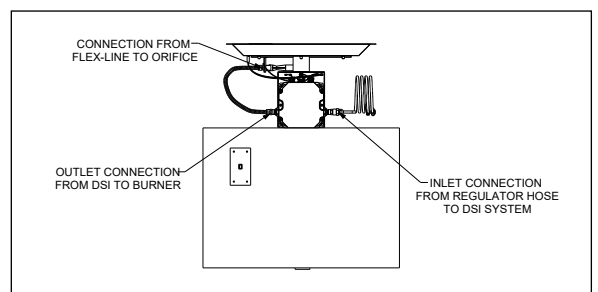
7. Turn control switch to ON position to verify presence of power and spark location. Look inside ignition wind guard for visible spark. See Image 6.7. After spark is confirmed, turn control switch back to OFF position.
8. Ensure propane cylinder valve is closed. Hand-tighten propane regulator hose to propane cylinder. See Image 6.8.
9. Verify that control switch is in the OFF position. Apply commercially-available, non-corrosive leak check solution to all gas connection points. See Image 6.9. Slowly open valve on propane cylinder and check for any bubbles on inlet side of gas system. **A small amount of gas will purge through DSI valve. This is normal.** If bubbles are present at inlet fittings, close propane cylinder valve immediately and tighten all fittings again using adjustable wrenches.
10. If no leaks are present, a first lighting and final leak check can be performed. With propane cylinder open, turn control switch to the ON position. The appliance will automatically spark and ignite. Verify no bubbles are present on the outlet side of the gas system. See Image 6.10.
11. **If no leaks are present on outlet side of gas system, the Crystal Fire\* Plus burner with DSI system is ready for normal operation.** If leaks are present, turn control switch OFF position, close propane cylinder valve, and re-tighten all fittings. Repeat steps 9-10.



(img. 6.7)



(img. 6.8)



(img. 6.9-6.10)

## B. HARD-PIPED PROPANE INSTALLATIONS

### ⚠️ WARNING ⚠️

Installation and repair should be performed only by a qualified service technician.

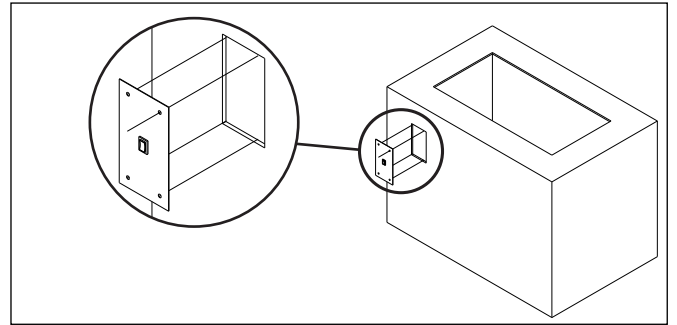
1. Secure supplied control panel to enclosure with suitable fasteners. See Image 6.11. If burner is being installed in an Outdoor GreatRoom Company™ fire table, the control panel and switch will already be installed.

If controls other than the standard control panel are being used, refer to 42511 Crystal Fire® Plus Supplemental Commercial Manual.

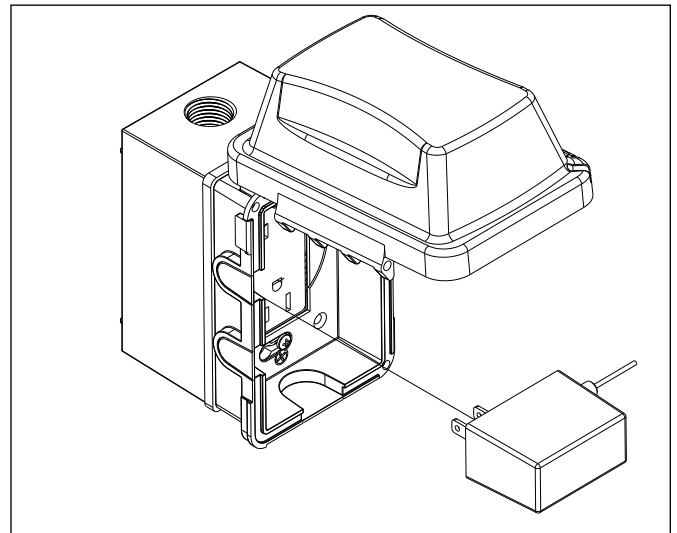
2. Connect supplied power adaptor to GFCI protected outlet installed within enclosure. See image 6.12.

If optional battery pack (CF-DSI-BP) is being used, see Reference Materials for more information.

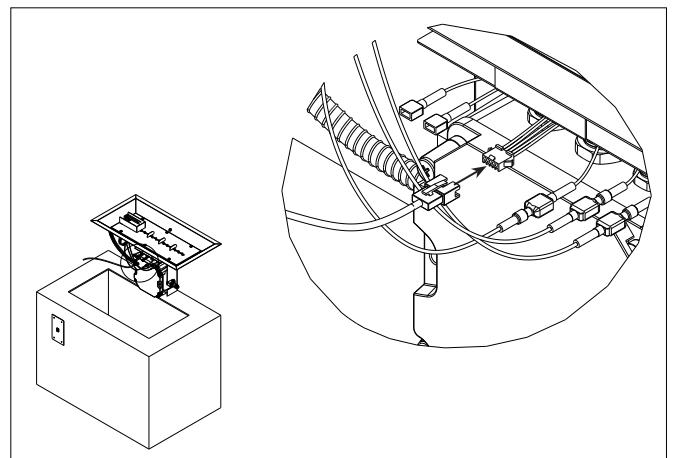
3. With burner sitting on top of enclosure, connect control switch to DSI system. The connector is keyed and will only connect one way. See Image 6.13. It may be necessary to prop up burner in one or more locations.



(Img. 6.11)

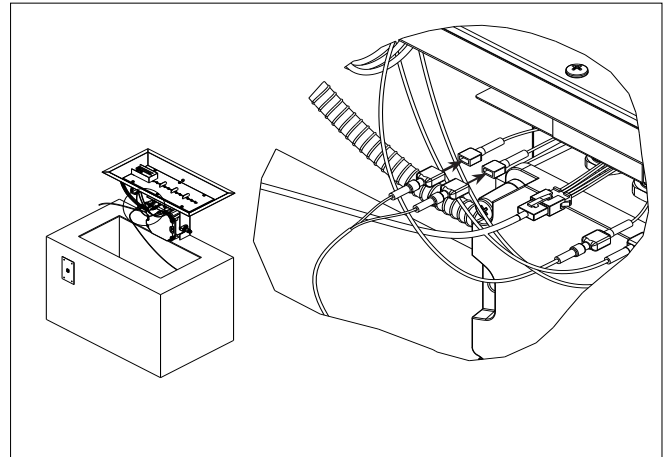


(Img. 6.12)

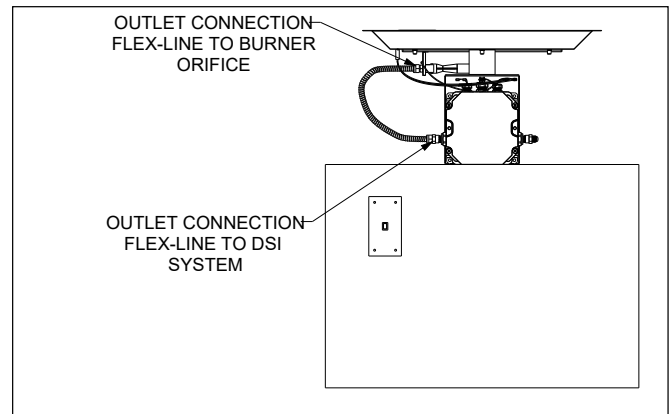


(Img. 6.13)

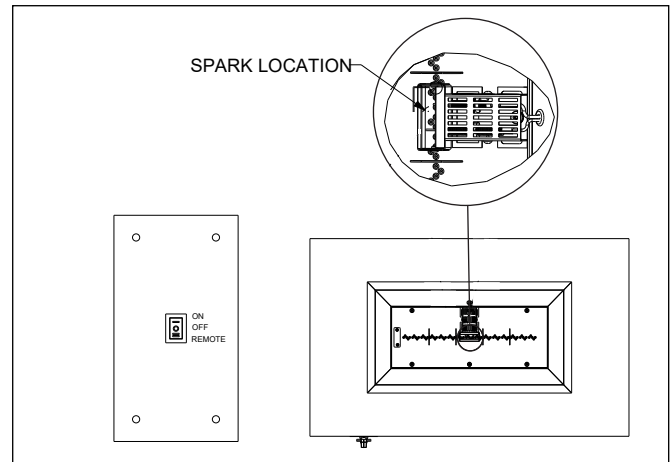
4. With burner in same position as in Step 3, connect power adaptor to DSI system. The connections will be labelled 3.3 VDC + and 3.3 VDC - on both the DSI system and power adaptor. If they are not connected properly, the unit will not operate. See Image 6.14.
5. Using adjustable wrenches, tighten all connections shown in Image 6.15. This step serves as a final safety measure as all fittings come tightened from the factory.
6. Turn control switch to ON position to verify presence of power and spark location. Look inside ignition wind guard for visible spark. See Image 6.16. After spark is confirmed, turn control switch back to OFF position.
7. For a **qualified gas technician**, gas pressure testing preparation should be performed at this point. Remove front cover of DSI system. See Image 6.17. Refer to the Pressure Testing section of Reference Materials.
8. Ensure main gas supply shut-off valve is closed.



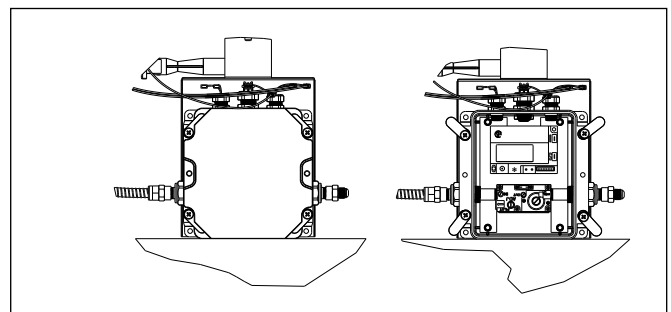
(Img. 6.14)



(Img. 6.15)

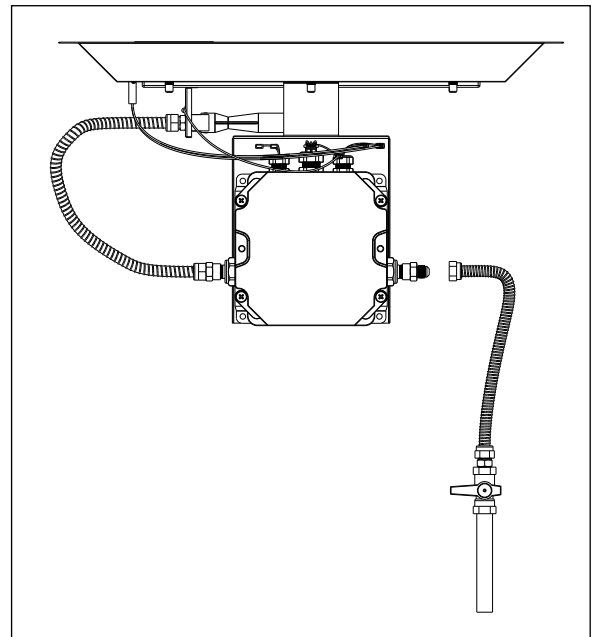


(Img. 6.16)

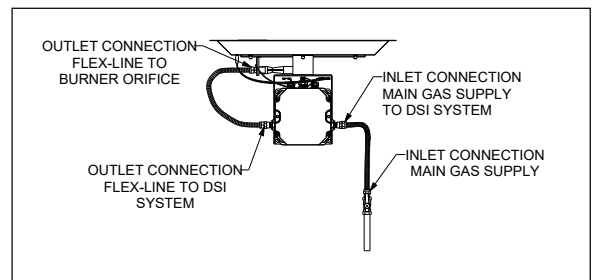


(Img. 6.17)

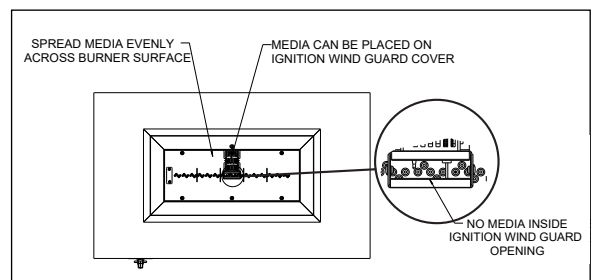
9. For units set up for propane with an attached regulator hose, it is necessary to remove the hose and flare adaptor. Connect main gas supply to ½" male flare fitting on INLET side of DSI system. See Image 6.18. The Outdoor GreatRoom Company™ offers whistle-free corrugated flex-lines for this connection in a variety of lengths. See Reference Materials for more information.
10. Verify that control switch is in the OFF position. Apply commercially-available, non-corrosive leak check solution to all gas connection points. See Image 6.19. Slowly open main gas supply shut-off valve and check for any bubbles on inlet side of gas system. **A small amount of gas will purge through DSI valve. This is normal.** If bubbles are present at inlet fittings, close main gas supply shut-off valve immediately and tighten all fittings again using adjustable wrenches.
11. Evenly spread included glass media over burner surface. Glass media MUST NOT BE present inside ignition wind guard. See Image 6.20.



(img. 6.18)



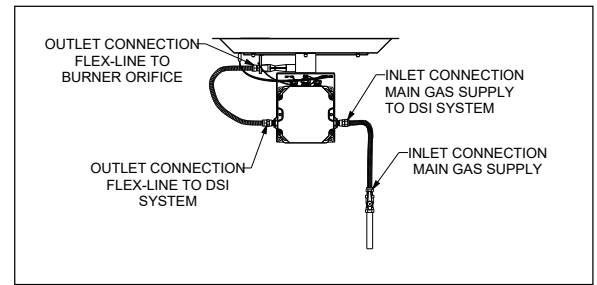
(img. 6.19)



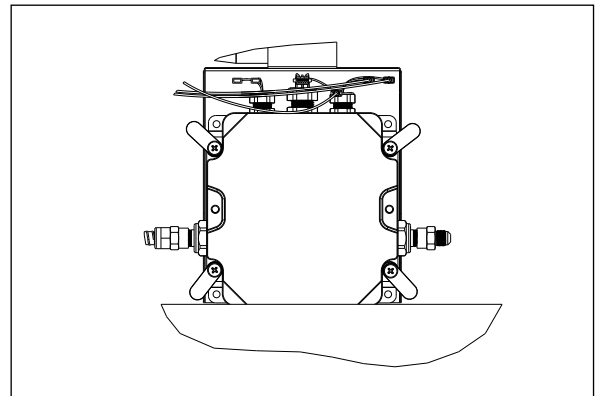
(img. 6.20)



12. If no leaks are present in Step 10, a first lighting and final leak check can be performed. With main gas supply shut-off valve open, turn control switch to the ON position. The appliance will automatically spark and ignite. Verify no bubbles are present on the outlet side of the gas system. See Image 6.21. **For qualified gas professionals**, operating pressure can also be taken at this point.
13. If leaks are present, turn control switch OFF position, close main gas supply shut-off valve, and re-tighten all fittings. Repeat step 12
14. **For qualified gas professionals**, remove pressure testing equipment, close pressure tap, and secure cover onto DSI system. See Image 6.22.
15. Carefully place burner assembly into enclosure. **DO NOT USE IGNITION ELECTRODES AS A HANDLE. The Crystal Fire® Plus burner with DSI system is ready for normal operation.**



(img. 6.21)



(img. 6.22)

## IMPORTANT

Other media options apart from the supplied clear glass gems can be used in Crystal Fire® Plus burners, but they should be supplied by the Outdoor GreatRoom Company™. This ensures that the proper amount of media is used and that the media is approved for use in gas appliances.

**MEDIA MUST BE IN PLACE DURING OPERATION.** Operation of appliance without media will damage the burner. Overfilling of the burner with media can cause adverse operational issues.

Use of burner media other than that supplied by The Outdoor GreatRoom Company™ is not recommended and could lead to operational issues.

## C. HARD-PIPED NATURAL GAS INSTALLATIONS

### **WARNING**

Installation and repair should be performed only by a qualified service technician.

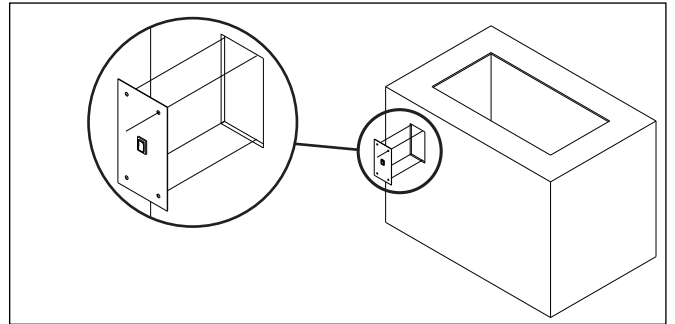
1. Secure supplied control panel to enclosure with suitable fasteners. See Image 6.23. If burner is being installed in an Outdoor GreatRoom Company™ fire table, the control panel and switch will already be installed.

If controls other than the standard control panel are being used, refer to 42511 Crystal Fire® Plus Supplemental Commercial Manual.

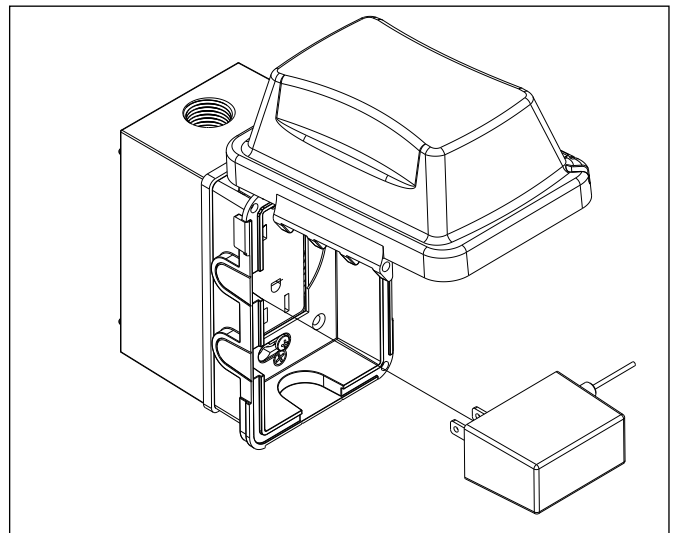
2. Connect supplied power adaptor to GFCI protected outlet installed within enclosure. See image 6.24.

If optional battery pack (CF-DSI-BP) is being used, see Reference Materials for more information.

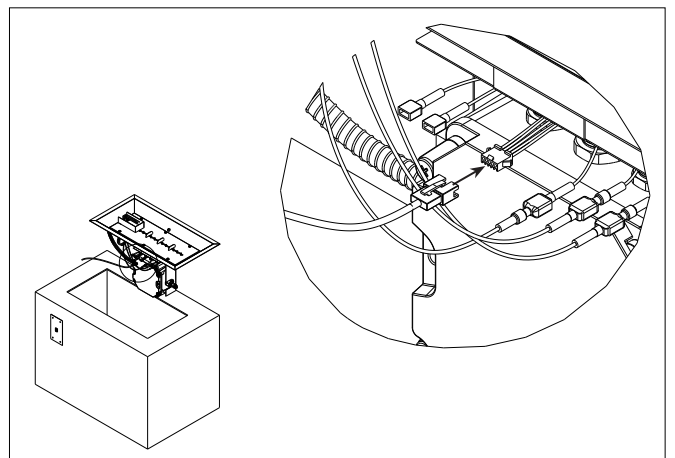
3. With burner sitting on top of enclosure, connect control switch to DSI system. The connector is keyed and will only connect one way. See Image 6.25. It may be necessary to prop up burner in one or more locations.



(Img. 6.23)



(Img. 6.24)

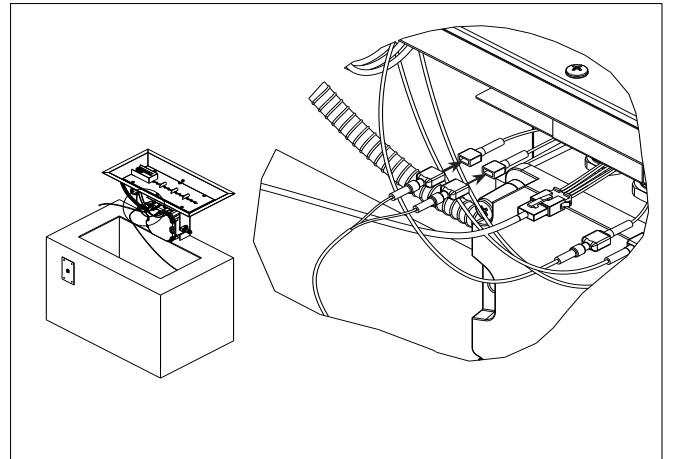


(Img. 6.25)

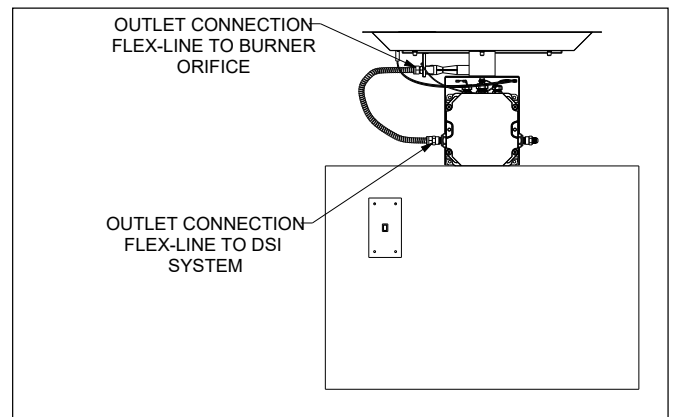




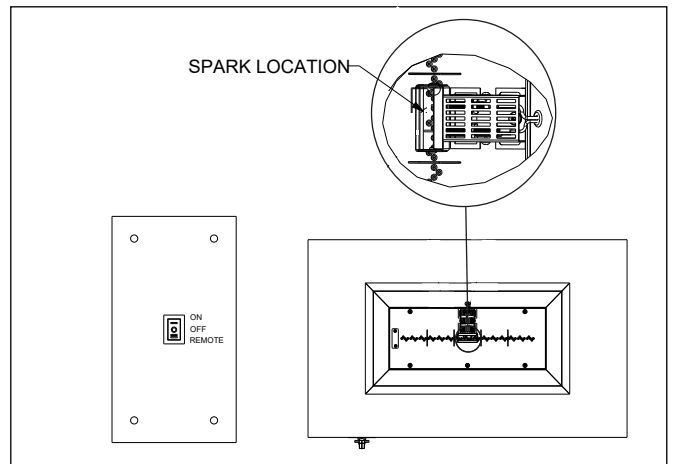
4. With burner in same position as in Step 3, connect power adaptor to DSI system. The connections will be labelled 3.3 VDC + and 3.3 VDC - on both the DSI system and power adaptor. If they are not connected properly, the unit will not operate. See Image 6.26.
5. Using adjustable wrenches, tighten all connections shown in Image 6.27. This step serves as a final safety measure as all fittings come tightened from the factory.
6. Turn control switch to ON position to verify presence of power and spark location. Look inside ignition wind guard for visible spark. See Image 6.28. After spark is confirmed, turn control switch back to OFF position.
7. For a **qualified gas technician**, gas pressure testing preparation should be performed at this point. Remove front cover of DSI system. See Image 6.29. Refer to the Pressure Testing section of Reference Materials.
8. Ensure main gas supply shut-off valve is closed.



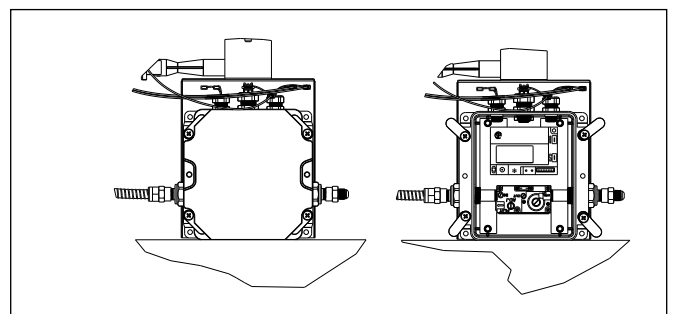
(Img. 6.26)



(Img. 6.27)

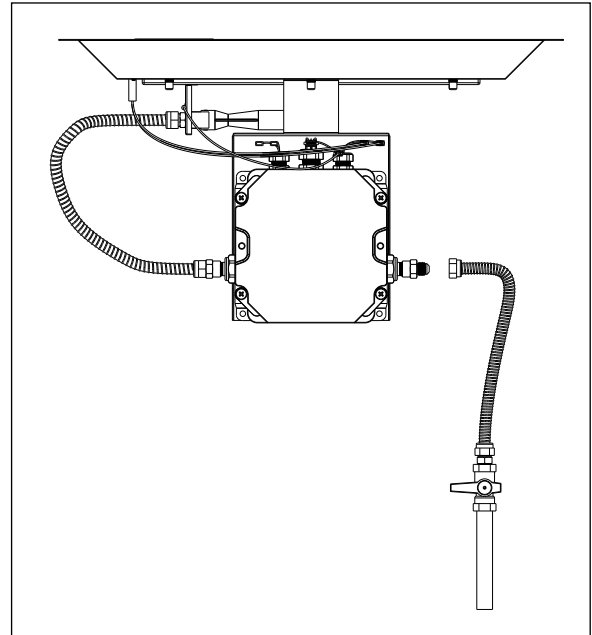


(Img. 6.28)

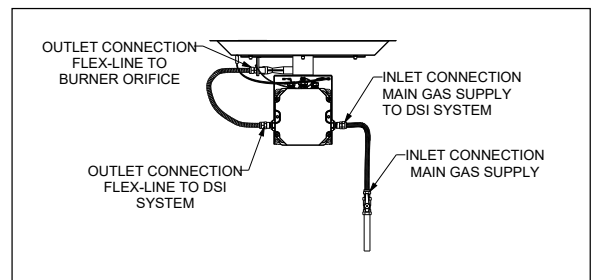


(Img. 6.29)

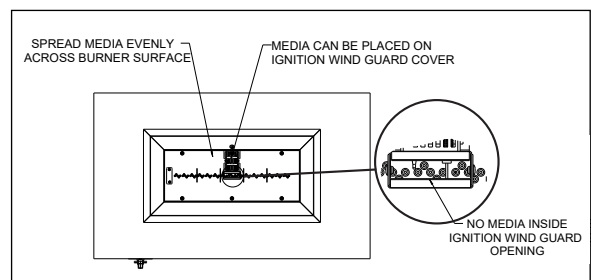
9. Connect main gas supply to ½” male flare fitting on INLET side of DSI system. See Image 6.30. The OutdoorGreatRoom Company™ offers whistle-free corrugated flex-lines for this connection in a variety of lengths. See Reference Materials for more information.
10. Verify that control switch is in the OFF position. Apply commercially-available, non-corrosive leak check solution to all gas connection points. See Image 6.31. Slowly open main gas supply shut-off valve and check for any bubbles on inlet side of gas system. **A small amount of gas will purge through DSI valve. This is normal.** If bubbles are present at inlet fittings, close main gas supply shut-off valve immediately and tighten all fittings again using adjustable wrenches.
11. Evenly spread included glass media over burner surface. Glass media MUST NOT BE present inside ignition wind guard. See Image 6.32.



(img. 6.30)



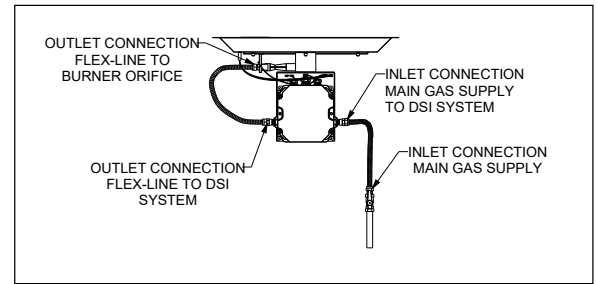
(img. 6.31)



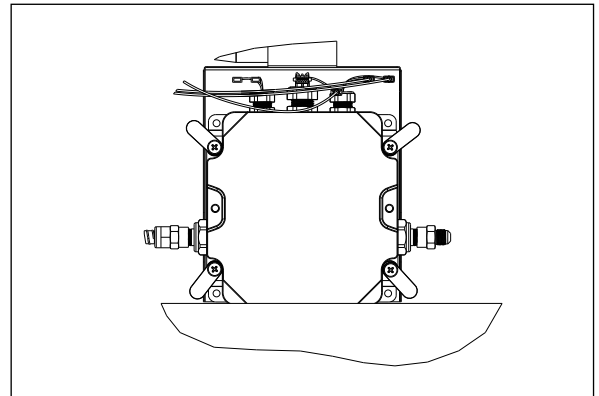
(img. 6.32)



12. If no leaks are present in Step 10, a first lighting and final leak check can be performed. With main gas supply shut-off valve open, turn control switch to the ON position. The appliance will automatically spark and ignite. Verify no bubbles are present on the outlet side of the gas system. See Image 6.33. **For qualified gas professionals**, operating pressure can also be taken at this point.
12. If leaks are present, turn control switch OFF position, close main gas supply shut-off valve, and re-tighten all fittings. Repeat step 12
13. **For qualified gas professionals**, remove pressure testing equipment, close pressure tap, and secure cover onto DSI system. See Image 6.34.
14. Carefully place burner assembly into enclosure. **DO NOT USE IGNITION ELECTRODES AS A HANDLE. The Crystal Fire® Plus burner with DSI system is ready for normal operation.**



(Img. 6.33)



(Img. 6.34)

## IMPORTANT

Other media options apart from the supplied clear glass gems can be used in Crystal Fire® Plus burners, but they should be supplied by the Outdoor GreatRoom Company™. This ensures that the proper amount of media is used and that the media is approved for use in gas appliances.

**MEDIA MUST BE IN PLACE DURING OPERATION.** Operation of appliance without media will damage the burner. Overfilling of the burner with media can cause adverse operational issues.

Use of burner media other than that supplied by The Outdoor GreatRoom Company™ is not recommended and could lead to operational issues.

# 7

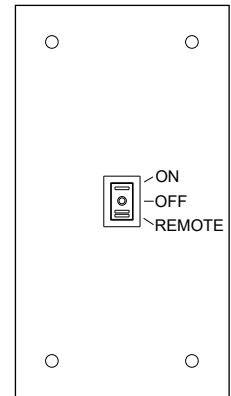
## LIGHTING AND OPERATION (DSI BURNERS)

### ⚠ WARNING ⚠

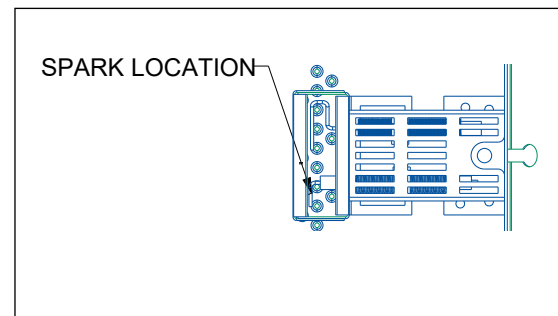
#### FIRE OR EXPLOSION HAZARD

If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury, or loss of life.

1. Verify control switch is in OFF position. See Image 7.1. If operating on a self-contained propane cylinder, ensure cylinder valve is CLOSED. If operating on a hard-piped system, ensure main as supply shut-off valve and all other valves in gas system are OPEN.
2. If operating on a self-contained propane cylinder, slowly open cylinder valve.
3. Turn control switch to ON position. A 1-2 second delay will occur while control module runs diagnostics. Sparking will then occur at the ignition electrodes. See Image 7.2. Gas valve will open and burner will ignite.
4. If burner does not ignite within 12 second ignition window, turn control switch to OFF position and wait 5 minutes to allow gas to dissipate before attempting ignition again. **DO NOT ATTEMPT TO LIGHT BURNER IF YOU SMELL GAS.**
5. While burner is operating, the DSI system will continuously monitor the presence of a flame. If flame signal is lost, the system will attempt re-ignition for up to 12 seconds. If flame signal is lost for more than 12 seconds, the system will shut down.



(Img. 7.1)



(Img. 7.2)

### TO EXTINGUISH

1. Turn control switch to OFF position. See Image 7.1
2. If using a self-contained propane cylinder, close valve.

These lighting instructions are for the standard controls using the standard ignition method. For remote operation, see Reference Materials. For other control methods, refer to 42511 Crystal Fire® Plus Supplemental Commercial Manual.



# 8

## TROUBLESHOOTING (DSI BURNERS)

| SYMPTOM |   | POSSIBLE CAUSES |   | CORRECTIVE ACTIONS  |
|---------|---|-----------------|---|---|
| 1.      | Burner will not ignite                        | A.              | Propane tank is empty.                          | Replace propane tank with full tank or have propane tank filled and reattempt ignition.   |
|         |   | B.              | Gas supply individual shutoff valve is closed.  | Open individual shutoff valve on gas supply and reattempt ignition.   |
|         |   | C.              | Excessive media buildup around igniter.         | Ensure media placement instructions are followed so that media is not contacting ignition electrodes.   |
|         |   | D.              | Obstruction in main gas pathway.                | Check burner orifice and burner neck for blockage. This should be done by a qualified service technician.   |
|         |   | E.              | No power at appliance power source.             | Reset GFCI outlet. Ensure that power adaptor is properly plugged into outlet. Ensure that all external switches controlling circuit are in the ON position. |
|         |   | F.              | Dead batteries.                                 | If using optional battery pack, replace D-Cell batteries with new batteries. Reattempt ignition.  |
| 2.      | Unit runs for 20-30 seconds, then shuts down. | A.              | Flame not properly contacting sensor electrode. | Ensure media is properly placed in burner. Verify that burner is receiving proper gas pressure.   |
|         |   | B.              | Sensor not properly connected/damaged.          | Verify continuity of connection from end of sensor electrode to connection point on DSI system and control module.  |
|         |   | C.              | Poor ground connection.                         | Verify continuity from middle ground electrode to connection point on DSI system and control valve.   |
|         |   | D.              | Dirty sensor electrode                          | Clean electrodes with fine-grit emery cloth and remove debris with compressed air.  |
| 3.      | Low flames and burner will not stay lit.      | A.              | Burner is not operating on correct gas.         | Verify that appliance gas type and supply gas type are the same.  |
|         |   | B.              | Incoming gas supply pressure is too low.        | Verify that operating pressure at the appliance is at the ideal level detailed on Pg. ?   |

|    |  |    |   |   |
|----|--|----|---|---|
| 4. | Flames from burner are very blue and translucent.                            | A. | Burner is not operating on correct gas.   | Verify that appliance gas type and supply gas type are the same.  |
|    |  | B. | Incorrect air shutter position  | Air shutter will come adjusted from the factory for the specific fuel type. Air shutter should be fully closed for natural gas and open ¼" (6 mm) for propane.  |
| 5. | During operation, metallic pinging noise are occurring.                      | A. | Different thermal expansion rates of different components.                        | Do nothing. This is a normal physical characteristic of metal components when they are heated. Various components will expand at different rates resulting in metallic noises.  |
| 6. | During operation, a whistling noise is present.                              | A. | Main gas supply using corrugated flex-lines not supplied by OGC.                  | Commercially available stainless steel flex-lines are notoriously noisy and not made for high flow applications. Replace with whistle-free flex-lines from OGC. See Reference Materials for more information.   |
|    |  | B. | Orifice has blockage.   | Ensure that orifice is free of obstructions. This should be one by a qualified service technician.  |
| 7. | Decorative glass media cracking and/or splitting.                            | A. | Normal use over a long period of time.  | Over time, the tempered glass media supplied with the appliance can break down. Replacement glass can be installed after damaged glass is removed.  |
|    |  | B. | Excessive thermal shock (abrupt temperature changes) over a short period of time. | Avoid dumping of liquids (beverages) into appliance. Unexpected rain during operation can also cause cracking/splitting of glass media. Covering of appliance when not in use is highly recommended. Replacement glass can be installed after damaged glass is removed. |
| 8. | Igniter makes clicking sound but no visible spark is produced at electrodes. | A. | Wire connection made improperly or damaged.                                       | Refer to Wiring Diagram in Reference Materials to ensure everything is connected properly.  |
|    |  | B. | Ignition electrode not directing spark to first rivet body inside windguard.      | Ensure gap between ignition electrode and middle, ground electrode is 3/16" (5 mm).   |

**This list is not exhaustive but contains the most common problems to be encountered in the field.**

**For additional troubleshooting information not detailed in this manual, please contact the dealer or location from which the product was purchased.**

**If additional assistance is required:  
Visit <https://www.outdoorrooms.com/product-support/faqs>  
or contact The Outdoor GreatRoom Company™ at 1-866-303-4028**



# 9

## TROUBLESHOOTING (DSI BURNERS)

### A. REGULAR MAINTENANCE TASKS

If using a self-contained propane gas supply system with the supplied propane regulator hose assembly, the hose should be inspected for damage **BEFORE EACH USE OF THE APPLIANCE**. If damage to the hose is present, do not operate the unit and contact the dealer or location from which the product was purchased for a replacement propane regulator hose.

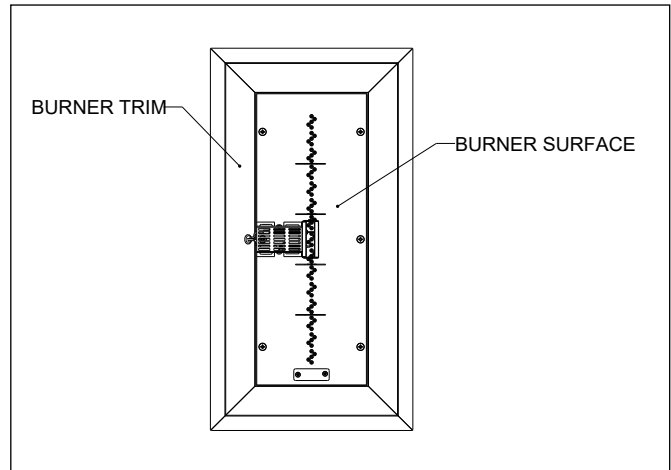
Maintenance of the appliance should be performed by a qualified professional at a minimum of one (1) year intervals.

Depending on use and environmental conditions, service and maintenance may be required at more frequent intervals.

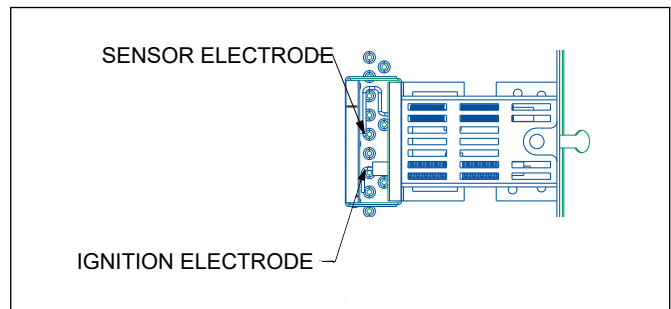
1. Inspect burner surface for damage and debris.
  - a. Remove glass media. See Image 9.1
  - b. Remove dirt and debris with compressed air.
  - c. Wipe surface clean with soft cotton rag.
  - d. Check for damage and corrosion of the burner surface that would cause gas leaks. See Image 9.1.
2. Inspect igniter and thermocouple for buildup and/or corrosion. See Image 9.2.
  - a. Clean ignition electrode with fine-grit emery cloth.
  - b. Remove buildup with compressed air.
3. Inspect burner neck and orifice for obstruction. See Image 9.3.
  - a. Disconnect appliance from gas and electrical supply.
  - b. Visually inspect burner neck and orifice for obstructions. See Image 9.3.
  - c. Clear out obstructions with compressed air.

### ⚠ WARNING ⚠

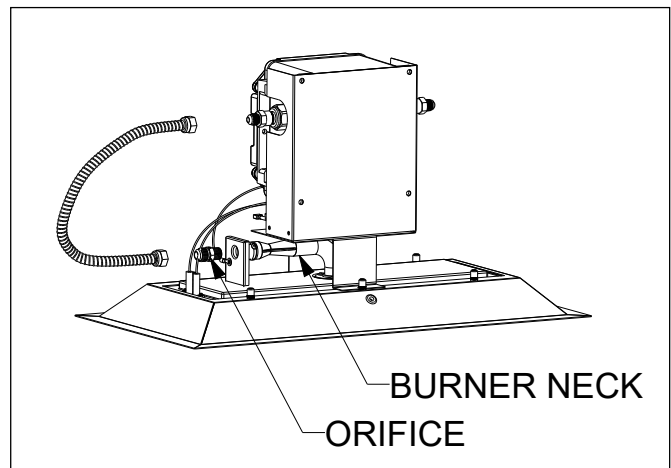
Installation and repair should be performed only by a qualified service technician.



(Img. 9.1)



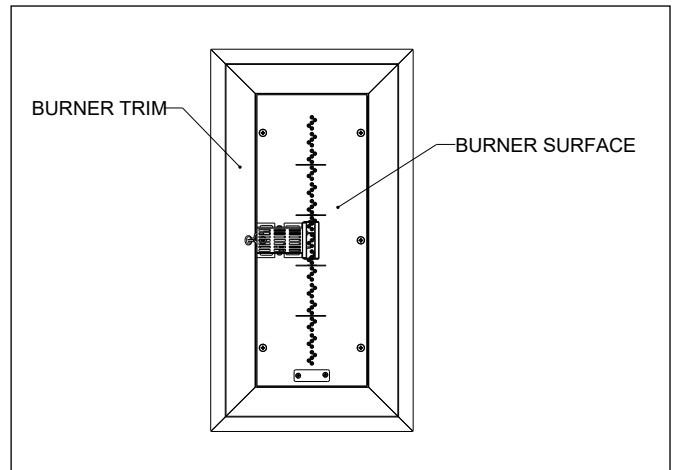
(Img. 9.2)



(Img. 9.3)

## B. CLEANING THE APPLIANCE

1. Remove glass media and clean in basin of water mixed with dish soap. Allow to dry on a towel.
2. Use compressed air to remove any debris from the burner surface. See Image 9.4.
3. Stainless steel burner trim can be cleaned and polished with commercially-available stainless steel cleaners and a polish such as Brasso™. See Image 9.4.



(Img. 9.4)



# 10

## REFERENCE MATERIALS (DSI BURNERS)

### A. BATTERY PACK INSTALLATION AND OPERATION

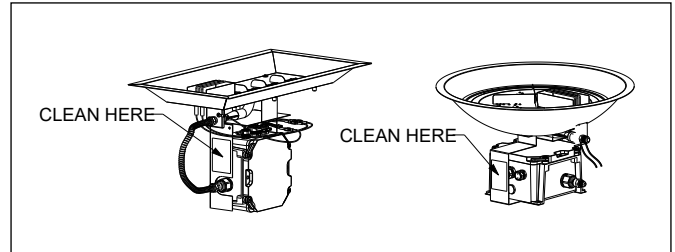
If ordered with a DSI burner, the optional battery pack (CF-DSI-BP) will be attached to the DSI mounting bracket and connected to the wiring harness. Proceed to Step 4.

1. Thoroughly clean location highlighted on DSI mounting bracket with isopropyl alcohol. See Image 10.1.
2. Remove backing film from industrial hook-and-loop fastener on battery pack. Press and firmly hold battery pack in location shown in Image 10.2. Move pressure up and down along the entire length of the hook-and-loop fastener for sixty (60) seconds to ensure adequate adhesion.
3. Connect wire leads to DSI system. They are labelled 3.3 VDC + and 3.3 VDC - on both ends. See Image 20.3. If they are not connected properly, the appliance will not operate.
4. Install two (2) D-Cell batteries in battery pack. Polarity is denoted inside the battery pack. See Image 10.4.
5. Appliance is ready for normal operation.

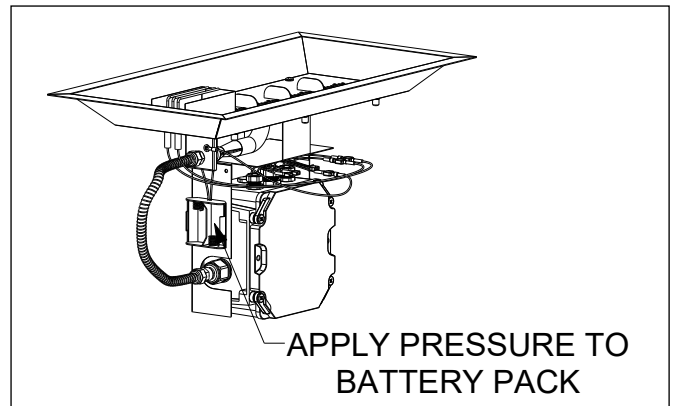
### IMPORTANT

When using battery pack as main power source, the appliance should be installed in an enclosure that provides easy access to the battery pack.

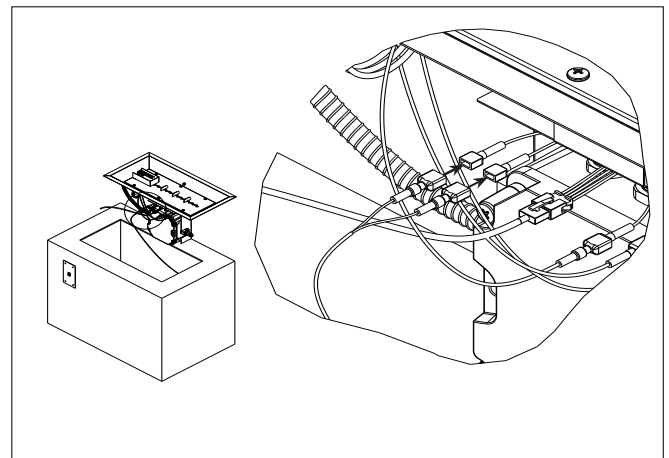
Typical battery life can range from 3-6 months, depending on use. Battery life is subject to many environmental factors and The Outdoor GreatRoom Company™, LLC, makes no guarantees on battery life.



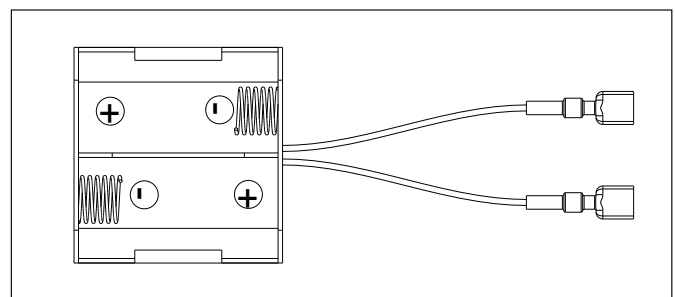
(Img. 10.1)



(Img. 10.2)



(Img. 10.3)



(Img. 10.4)

## B. REMOTE PAIRING AND OPERATION

If ordered with a DSI burner, the optional remote control (CF-DSI-R) will be paired with the control system from the factory.

1. Turn control switch to the REMOTE position. See Image 10.5.
2. Install three (3) AAA batteries in the remote (CF-DSI-R). See Image 10.6.
3. Open DSI control box by rotating the locking tabs as shown. See Image 10.7.
4. Press LEARN button on DSI control module with small screwdriver or paperclip. One beep should be heard and a green indicator light should appear. Then press the ON button of the remote. See Image 10.8. A series of three (3) beeps should be heard.
5. Appliance is ready for remote operation. With control switch in REMOTE position, the ON and OFF buttons on the remote will serve as the power switch for the appliance.

### IMPORTANT

Always verify that appliance is free of obstructions before using remote. Remote should only be used to control appliance when user has appliance in their line-of-sight.

### IMPORTANT

Typical operating range of the remote (CF-DSI-R) is 25-30'. This is achieved when appliance is installed in an OGC fire pit or fire table.

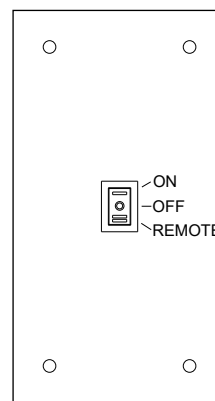
Concrete and metal can affect the strength of an RF signal and make it less effective at controlling the DSI system. Other sources of radio-frequency interference (air conditioners, bug zappers, cellular network towers, etc.) can all affect the operating range of the CF-DSI-R.

The Outdoor GreatRoom Company™, LLC makes no guarantees on operating range of the remote due to the variety of applications in which a DSI appliance may be installed.

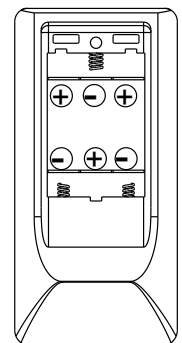
### IMPORTANT

When DSI system is in REMOTE mode, it is constantly searching for an RF (radio frequency) signal from the remote. If using a battery pack, battery life will be impacted significantly.

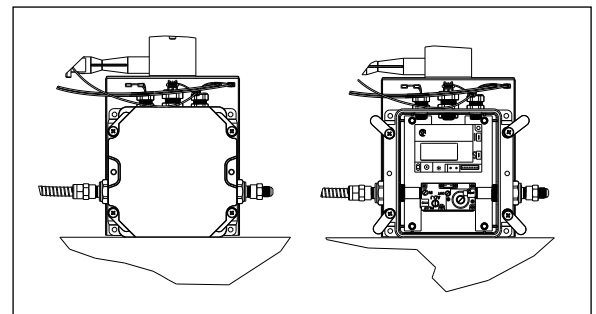
It is recommended that when not in use for long periods of time, the appliance control switch should be in the OFF position to conserve energy and/or preserve battery life.



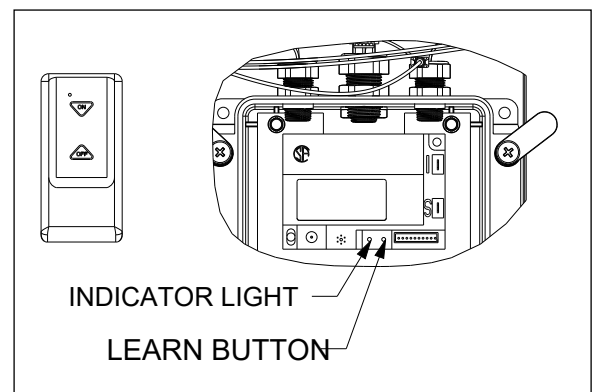
(img. 10.5)



(img. 10.6)



(img. 10.7)



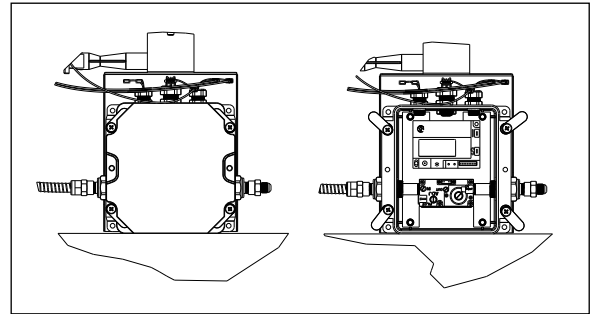
(img. 10.8)

### C. PRESSURE TESTING AND VERIFICATION

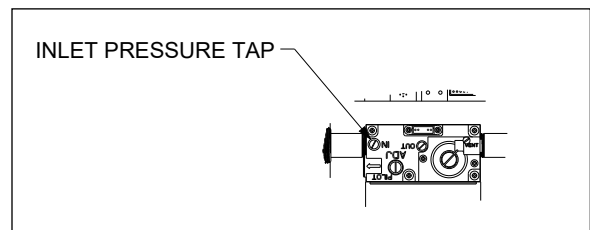
1. Close main gas supply shutoff valve.
2. Open DSI control box by rotating the locking tabs as shown. See Image 10.9.
3. Using a small flat-blade screwdriver, carefully unscrew INLET pressure tap on gas control valve. See Image 10.10.
4. Place a  $\frac{1}{4}$ " (6 mm) ID rubber tube over the pressure tap and connect to a manometer. This manometer should be able to accurately read pressures between 0 and 14 in. WC (0 kPa and 3.5 kPa).
5. Slowly open main gas supply shutoff valve and turn control switch of appliance to the ON position. See Image 10.10. With appliance in operation, the pressure reading can be taken.
6. If gas pressure is not ideal with the unit in operation, adjust the gas supply regulator until the gas pressure reading is ideal. See table on Pg. 5.
7. Turn control switch to the OFF position, close the main gas supply shutoff valve, and remove rubber tube from pressure tap. Then close pressure tap with small flat-blade screwdriver and secure cover on DSI system.
8. Open main gas supply shutoff valve. Appliance is ready for normal operation.

### WARNING

Pressure testing should be performed only by a qualified gas professional.



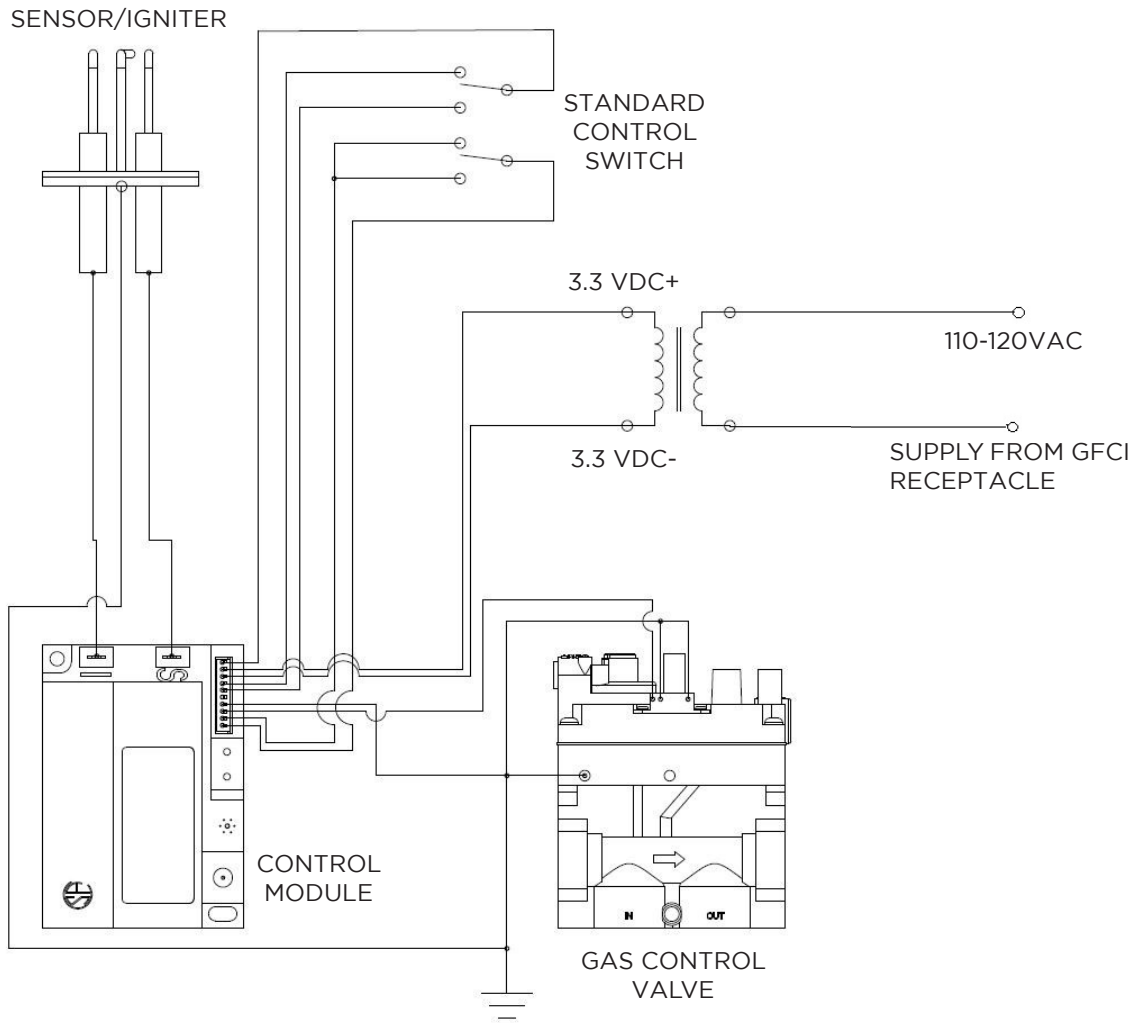
(Img. 10.9)



(Img. 10.10)

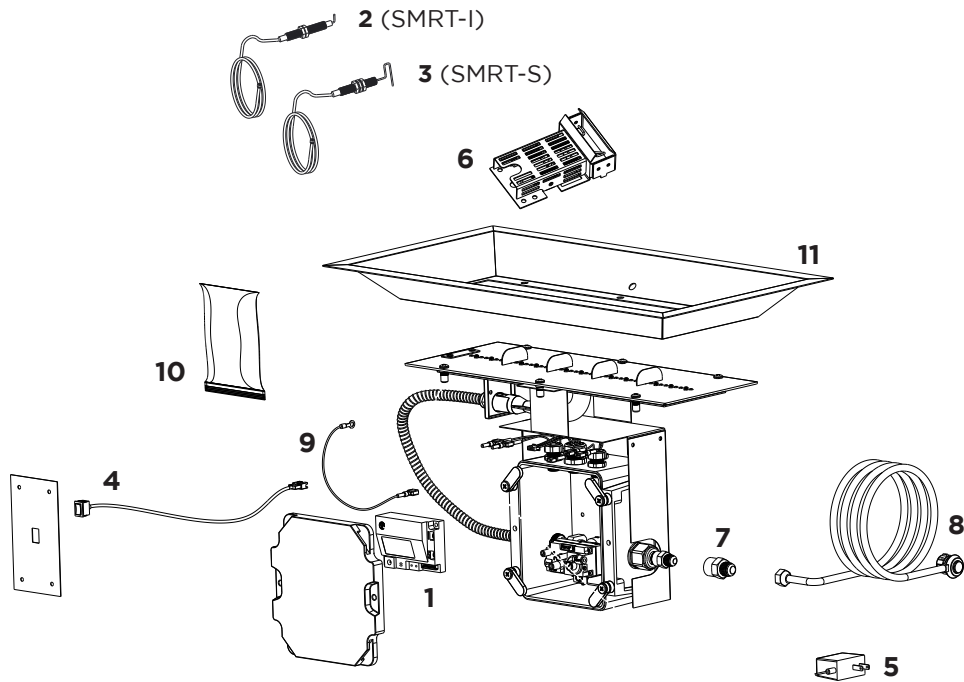
## D. STANDARD WIRING DIAGRAM

This wiring diagram depicts the standard configuration of the Direct Spark Ignition system. For wiring diagrams of additional configurations, refer to 42511 Crystal Fire® Plus Supplemental Commercial Manual.



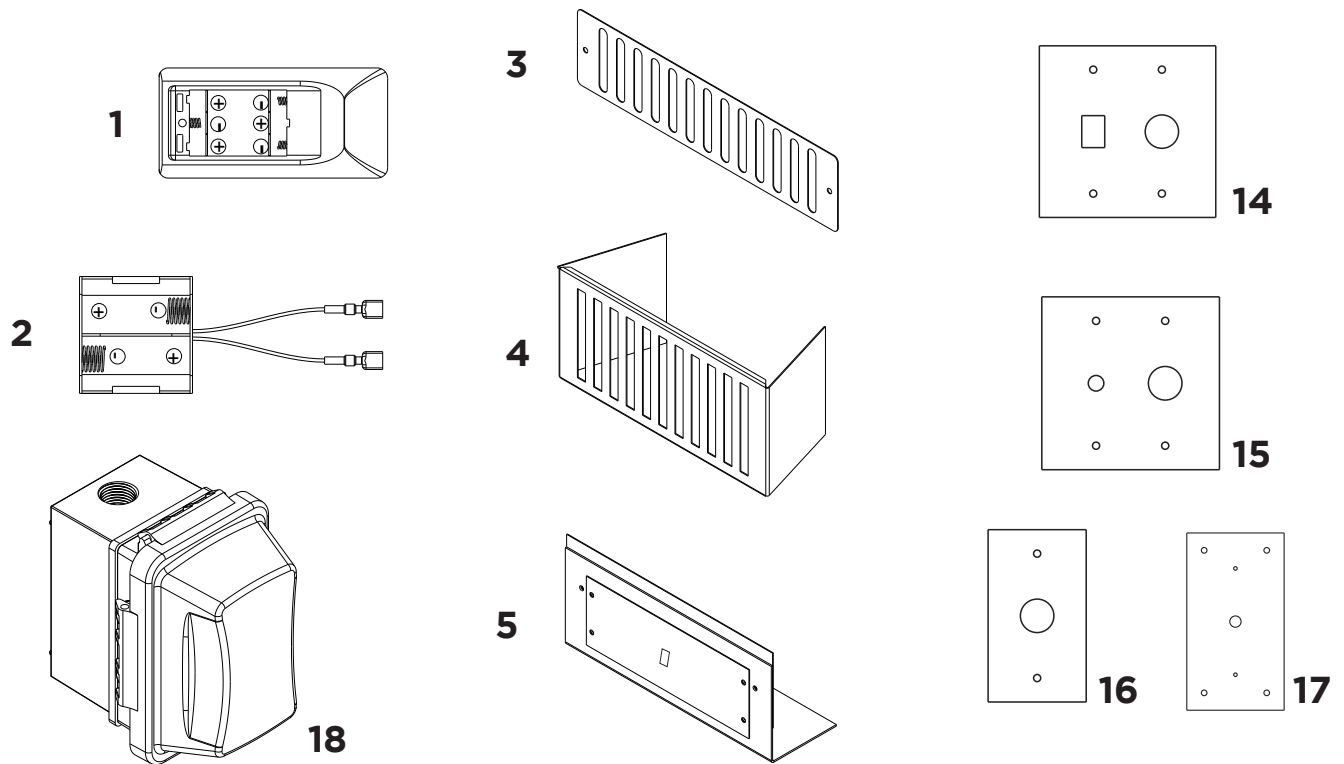


## E. SERVICE PARTS LIST



| #  | Part Description  | Part Number        |
|----|---|--------------------|
| 1  | Direct Spark Ignition System Control Module                             | OGR-6KR-NT         |
| 2  | VCSV DSI Smart Electrode Igniter  | SMRT-I             |
| 3  | VCSV DSI Smart Electrode Sensor   | SMRT-S             |
| 4  | Direct Spark Ignition Wiring Harness (Control Switch and Module Wiring) | CF-DSI-WH-2        |
| 5  | Power Adaptor for Direct Spark Ignition System                          | OGR-3V-ADP         |
| 6  | Full Ignition Assembly  | SMRT-WG            |
| 7  | ½" Female Flare X ¾" Male Flare Adaptor                                 | O50-F-FL-0375-M-FL |
| 8  | 20 lb. Self-Contained Propane Cylinder Regulator Hose 10' Length        | CF-HOSE-REG        |
| 9  | Ground Wire for Direct Spark Ignition System                            | CF-DSI-GROUND WIRE |
| 10 | 5 lb. Bag of Clear Glass Gems   | CFG-D              |
| 11 | <b>Burner Trim:</b>   |                    |
|    | Burner Model First, then add "-TRIM"                                    | i.e.: CFP1224-TRIM |
|    | <b>Propane Burner Orifice:</b>  |                    |
|    | 0.125" Diameter at 100k BTU/hr.   | 0125-ORIFICE-HC    |
| 12 | #36 for CFP12120/BI7114   | 36-ORIFICE-HC      |
|    | #35 at 80K BTU/hr.  | 35-ORIFICE-HC      |
|    | #43 at 55K BTU/hr.  | 43-ORIFICE-HC      |
|    | <b>Natural Gas Burner Orifice:</b>                                      |                    |
|    | #4 for CFP12120/BI7114  | 4-ORIFICE-HC       |
| 13 | #5 at 100K BTU/hr.  | 5-ORIFICE-HC       |
|    | #17 at 80K BTU/hr.  | 17-ORIFICE-HC      |
|    | #27 at 55K BTU/hr.  | 27-ORIFICE-HC      |

## F. OPTIONAL PARTS

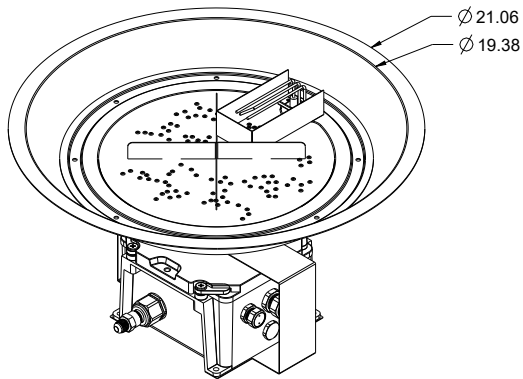


| #  | Part Description   | Part Number     |
|----|--|-----------------|
| 1  | Remote Transmitter for DSI System  | CF-DSI-R        |
| 2  | Battery Pack for Direct Spark Ignition System  | CF-DSI-BP       |
| 3  | Ventilation Plate for Custom Enclosures  | 21005           |
| 4  | Ventilation Block for Landscape Block enclosures   | VENT BLOCK BLK  |
| 5  | DSI Control Panel for Landscape Block Enclosures   | DSI-DIY-CP      |
| 6  | 16" Long Whistle-Free Stainless Steel Flex-Line ½" Flare Fittings                          | T200-9898-16    |
| 7  | 22" Long Whistle-Free Stainless Steel Flex-Line ½" Flare Fittings                          | T200-9898-22    |
| 8  | 34" Long Whistle-Free Stainless Steel Flex-Line ½" Flare Fittings                          | T200-9898-34    |
| 9  | 46" Long Whistle-Free Stainless Steel Flex-Line ½" Flare Fittings                          | T200-9898-46    |
| 10 | Maximum Rate Natural Gas Orifice for CFP1242/BI737 with DSI System                         | 5-ORIFICE-HC    |
| 11 | Maximum Rate Propane Orifice for CFP1242/BI737 with DSI System                             | 0125-ORIFICE-HC |
| 12 | Maximum Rate Natural Gas Orifice for CFP1224/BI719, CFP20/BI16 and CFP2424 with DSI System | 17-ORIFICE-HC   |
| 13 | Maximum Rate Propane Orifice for CFP1224/BI719, CFP20/BI16 and CFP2424 with DSI System     | 36-ORIFICE-HC   |
| 14 | Crystal Fire® Plus ON/OFF Wall Switch and Emergency Stop Control Panel                     | WSES-CP         |
| 15 | Crystal Fire® Plus 4-Hour Timer and Emergency Stop Control Panel                           | 4HRTES-CP       |
| 16 | Crystal Fire® Plus Emergency Stop Control Panel  | CFP-ESO-CP      |
| 17 | Crystal Fire® Plus 4-Hour Timer Control Panel  | 4HRTC           |
| 18 | Junction Box for CF-DSI System   | CF-DSI-JB       |

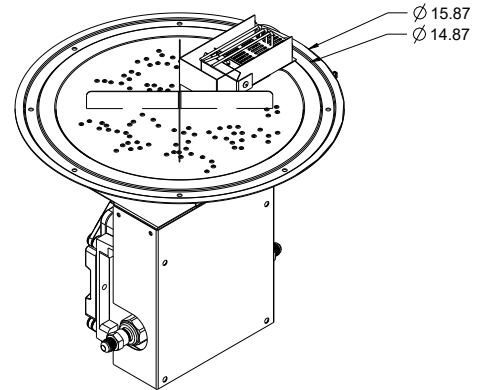


## G. DIMENSIONAL INFORMATION

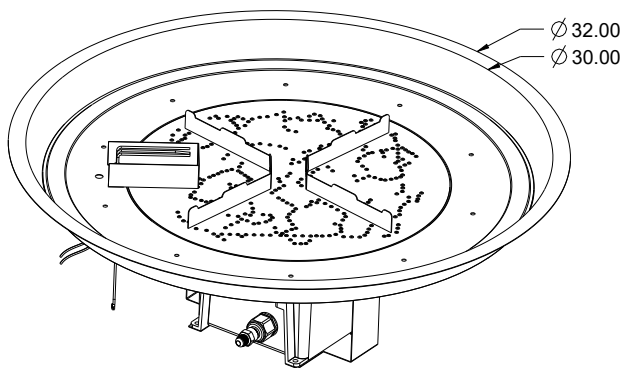
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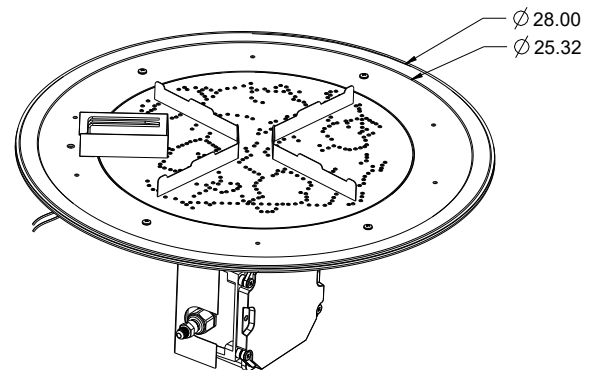
CFP20



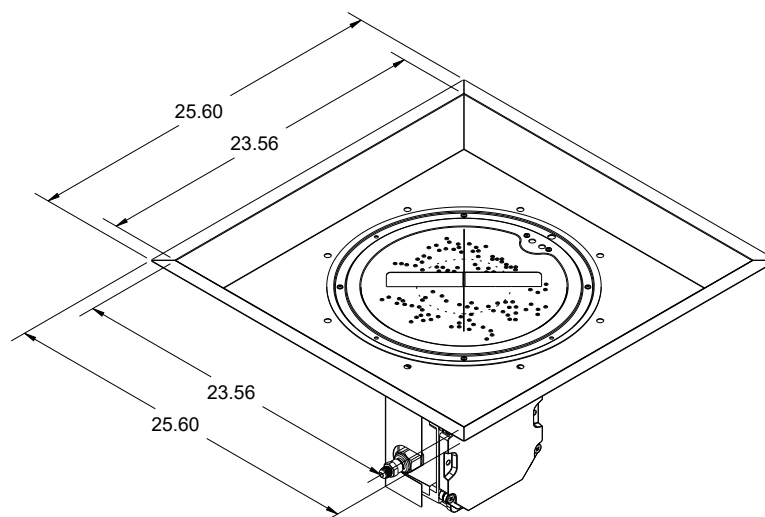
BI16



CFP30

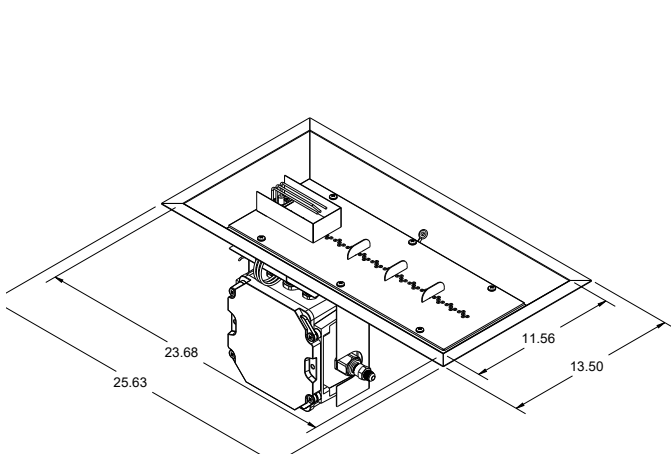


BI28

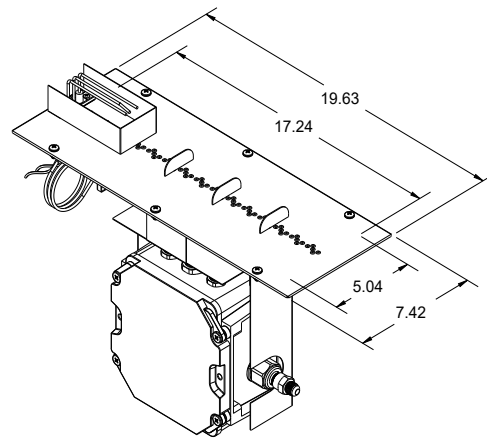


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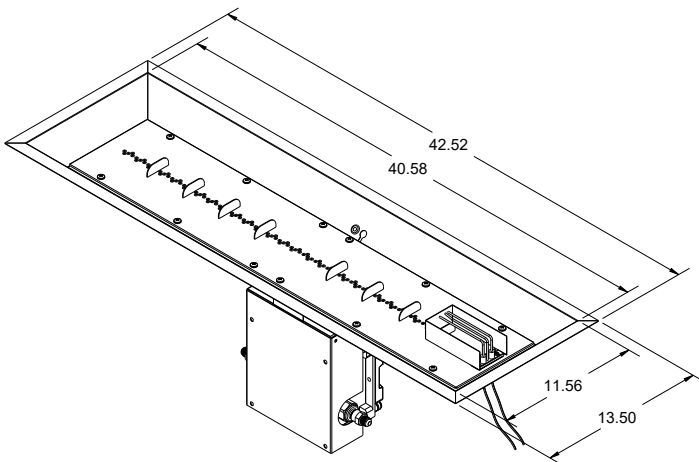
All Dimensions are in Inches



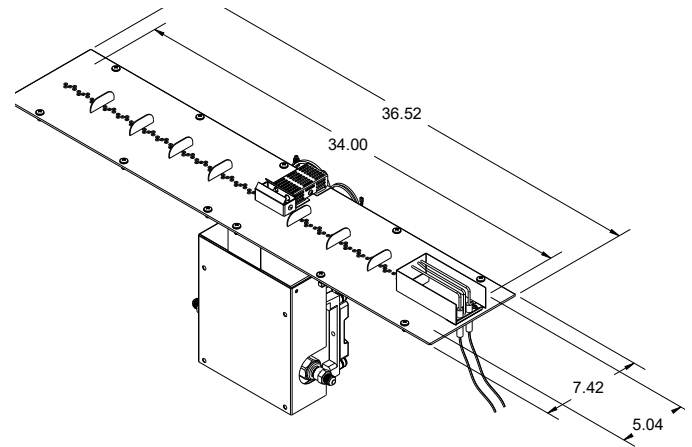
CFP1224



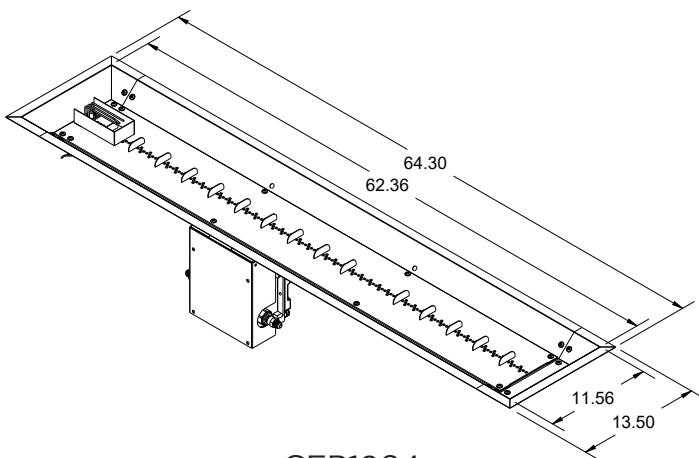
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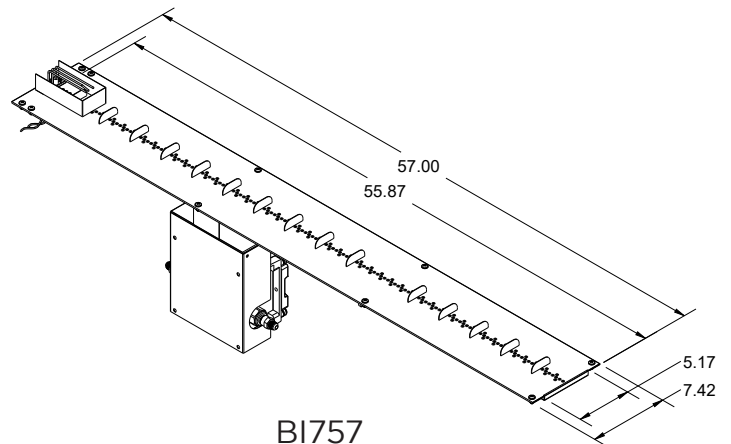
CFP1242



BI737



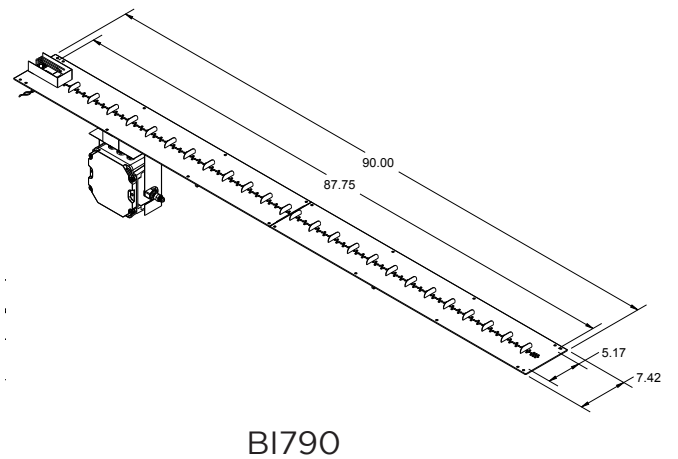
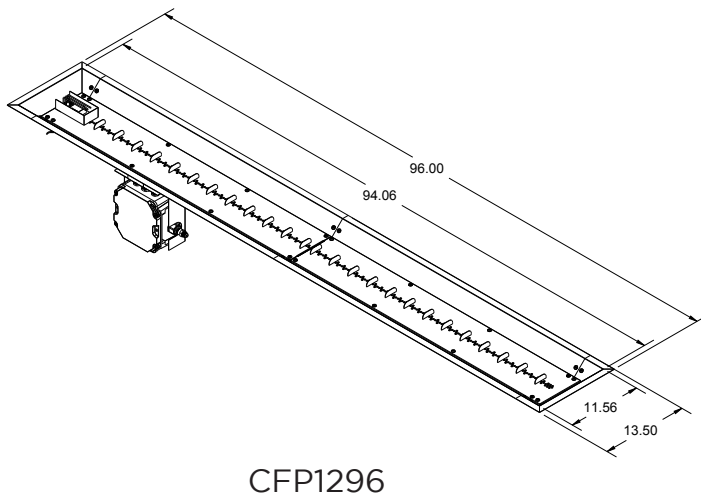
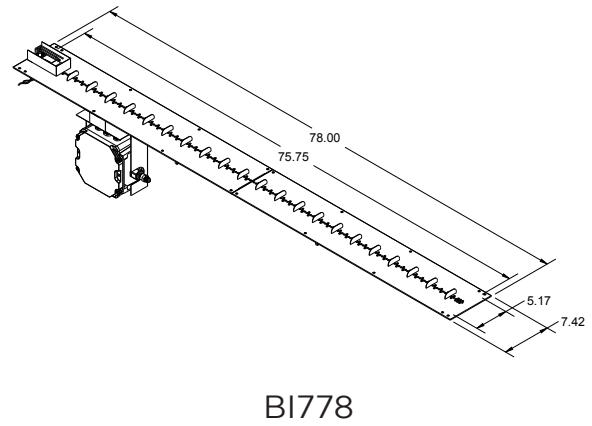
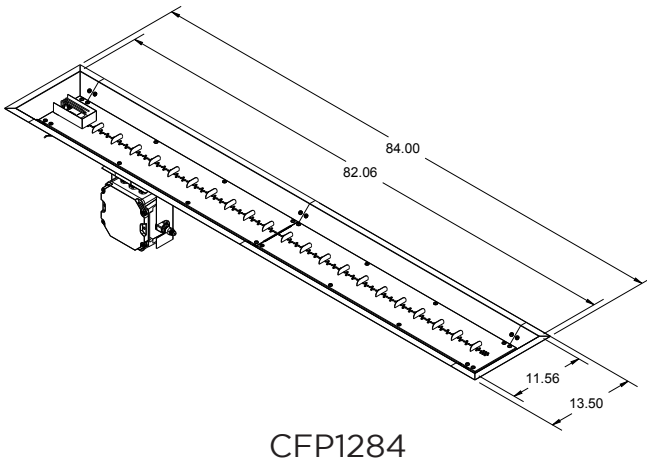
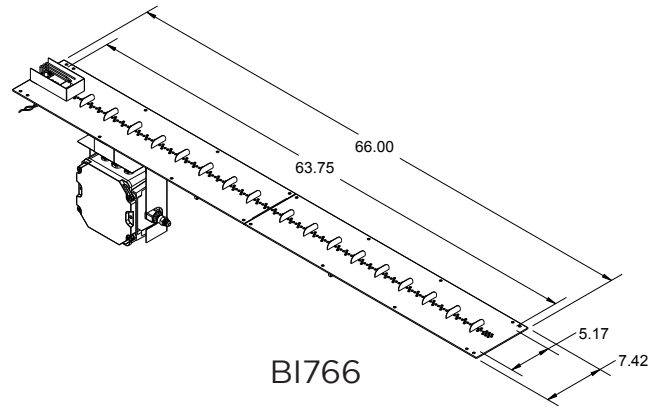
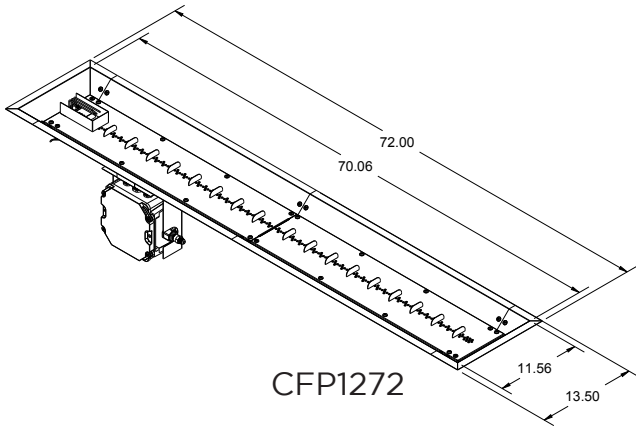
CFP1264



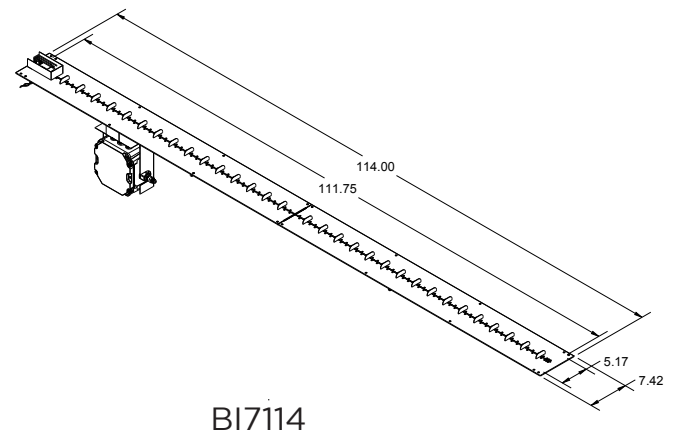
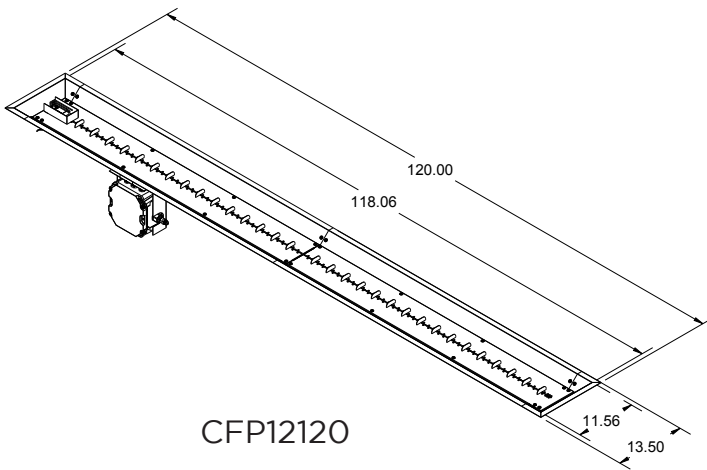
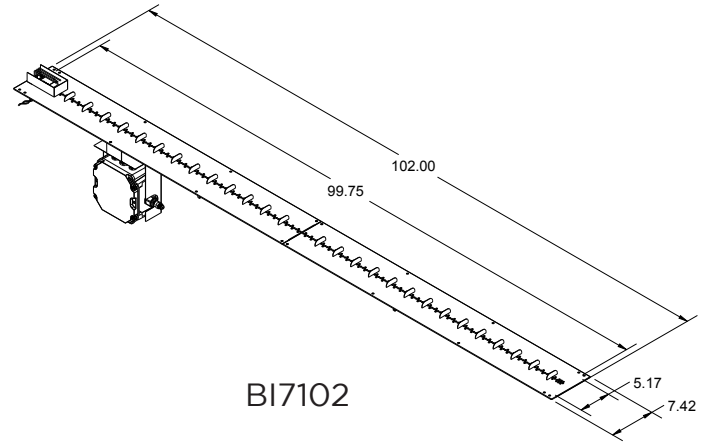
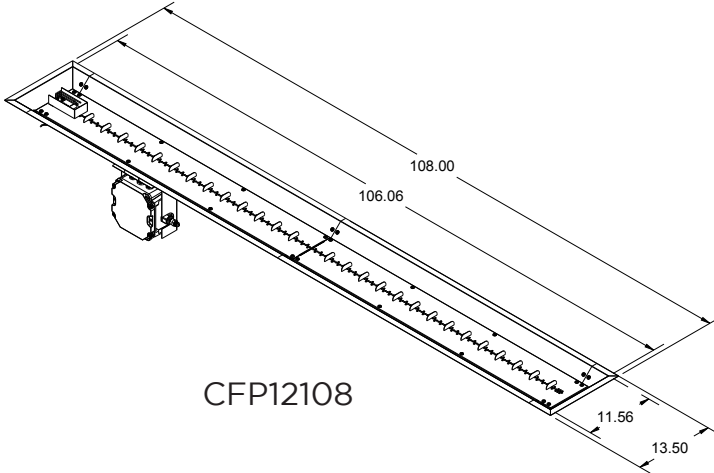
BI757



All Dimensions are in Inches



All Dimensions are in Inches





# 11

## WARRANTY INFORMATION

The Outdoor GreatRoom Company™ extends the following warranty for Outdoor GreatRoom outdoor products used in the United States of America or Canada. Dealers and employees of The Outdoor GreatRoom Company™ have no authority to make any warranty or authorize any remedies in addition to or inconsistent with the terms of this warranty. This warranty gives you specific legal rights. You may also have other rights that vary from state to state.

The Outdoor GreatRoom Company™ warrants that this Outdoor GreatRoom Outdoor Product (the “Product”) will be free from defects in material and workmanship for a period of one year from its date of purchase. Stainless steel parts and assemblies installed in a residential setting carry a limited lifetime warranty. Lifetime of the stainless parts and assemblies for residential use is defined as 10 years from time of purchase. Stainless Steel parts and assemblies installed in commercial applications carry a 5 year warranty. This warranty is subject to the conditions, exclusions and limitations described below.

This warranty applies only to the original owner and original installation of the Product and is non-transferable. The Outdoor GreatRoom Company™ obligation under this warranty does not extend to damages resulting from (1) assembly, operation or maintenance of the Product not in accordance with the Installation/Assembly Instructions, Operating Instructions and the Listing Agency Identification Label furnished with the Product; (2) installation or use which does not comply with local building codes and ordinances; (3) shipping, improper handling, improper operation, abuse, misuse, accident or unworkmanlike repairs; (4) use of fuels other than those specified in the Operating Instructions; (5) Installation or use of components not supplied with the Product or any other components not expressly authorized and approved in writing by The Outdoor GreatRoom Company™; and/or (6) modification of the Product not expressly authorized and approved in writing by The Outdoor GreatRoom Company™. (7) Not following proper maintenance of the product. Any of the circumstances described in the previous sentence voids this warranty. This warranty is void if the product or any component has been removed, repaired, or replaced before The Outdoor GreatRoom Company™ has been afforded a reasonable opportunity to inspect the Product.

This warranty is limited to the replacement or repair of defective components or workmanship and The Outdoor GreatRoom Company™ may fully discharge its obligations under this warranty by repairing or replacing, at its discretion, the defective components. The Outdoor GreatRoom Company™ will provide replacement parts at no charge and will pay reasonable and necessary labor costs related to replacing or repairing defective components under this warranty. The maximum amount recoverable under this warranty is limited to the purchase price of the Product and, if The Outdoor GreatRoom Company™ is unable to provide replacement or repair in an expedient and cost-effective manner, The Outdoor GreatRoom Company™ may discharge all obligations under this warranty by refunding the purchase price of the Product.

EXCEPT TO THE EXTENT PROVIDED BY LAW, THE OUTDOOR GREATROOM COMPANY™ MAKES NO EXPRESS WARRANTIES OTHER THAN THE WARRANTY EXPRESSED HEREIN. THE DURATION OF ANY IMPLIED WARRANTY IS LIMITED TO THE DURATION OF THE WARRANTY SPECIFIED ABOVE. IN NO EVENT SHALL THE OUTDOOR GREATROOM COMPANY BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES CAUSED BY DEFECTS IN THE PRODUCT. Some states do not allow imitations on how long an implied warranty lasts, or do not allow exclusion or limitation of incidental or consequential damages, so these limitations may not apply to you.

### **To obtain service under this warranty, you must:**

1. Contact your original selling dealer for warranty parts and service
2. Send written notice of the claimed condition to: The Outdoor GreatRoom Company™, 9583 217<sup>th</sup> St. W. Lakeville, MN 55044. Affirm that you are the original owner and have the original proof of purchase of the Product. Provide The Outdoor GreatRoom Company™ reasonable opportunity to investigate the claim, including reasonable opportunity to inspect the Product prior to any repair or replacement work and before the Product or any component of the Product has been removed.

| PRODUCT CATEGORY                                       | WARRANTY INFORMATION  |
|--|---|
| <p><b>GAS FIRE PIT TABLES/CRYSTAL FIRE® BURNER</b></p> | <p>Limited lifetime warranty on all stainless steel burners installed in a residential setting, and 5 years on all stainless steel burners installed in a commercial setting.</p> <p>One year warranty on ignition &amp; electronics</p> <p>One year finish warranty</p> <p>Three year structural warranty on all fire pit bases and tops</p> |
| <p><b>OUTDOOR FIREPLACES</b></p>                       | <p>Limited lifetime warranty on all stainless steel burners installed in a residential setting, and 5 years on all stainless steel burners installed in a commercial setting.</p> <p>One year warranty on ignition &amp; electronics</p> <p>One year finish warranty</p> <p>Five year structural warranty on all fire place enclosures</p>    |
| <p><b>PERGOLAS</b></p>                                 | <p>One year warranty on finish</p> <p>Three year warranty on structure</p>  |
| <p><b>ELECTRIC FIREPLACES</b></p>                      | <p>Two year warranty on LED lighting, fan and heater system</p> <p>One year warranty on remote</p>  |
| <p><b>OUTDOOR FURNITURE</b></p>                        | <p>Three year warranty on framework</p> <p>Five year warranty on Sunbrella cushions</p>   |
| <p><b>OUTDOOR KITCHENS</b></p>                         | <p>Silicone grout sealant must be applied once a year</p> <p>90-day parts/labor warranty on Stereo, 1-year parts warranty</p> <p>One year parts and labor warranty on Refrigerator &amp; Compressor</p> <p>5 year structural warranty on bases and tops</p>   |
| <p><b>ACCESSORIES</b></p>                              | <p>One year warranty on protective covers</p> <p>90 day warranty on glass wind guards</p> <p>Limited lifetime warranty on glass wind guard brackets</p>   |
| <p><b>NON-COMBUSTIBLE MANTELS</b></p>                  | <p>One year warranty on finish</p> <p>3 year structural warranty</p>  |



**WARNING:** This product can expose you to chemicals including Carbon Monoxide and Benzene which are known to the State of California to cause cancer or birth defects or reproductive harm. For more information, visit [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

