BROMIC HEATING

PROP. 65 WARNING FOR CALIFORNIA RESIDENTS
Cancer and Reproductive Harm - www.P65Warnings.ca.gov
AVERTISSEMENT PROP. 65 POUR LES RESIDENTS DE LA CALIFORNIE
Cancer et Troubles de l'appareil reproducteur - www.P65Warnings.ca.gov
AVERTISSEMENT PROP. 65 PARA LOS RESIDENTES DE CALIFORNIA
Cancer y Daño Reproductivo - www.P65Warnings.ca.gov

COBALT GAS HEATER
BY BROMIC

INSTALLATION, INSTRUCTION AND SERVICE MANUAL

SUITABLE FOR GAS RADIANT HEATER MODELS: COBALT GAS HEATER

DANGER

If you smell gas:

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

WARNING:
For either indoor or outdoor installation.
NOT FOR USE IN RESIDENTIAL DWELLINGS

WARNING

Do not store or use gasoline or other flammable vapor and liquids in the vicinity of this or any other appliance.

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

WARNING: Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death. Read the installation, operating and maintenance instructions thoroughly before installing or servicing this equipment.

⚠ IMPORTANT

This manual contains important information about the assembly, operation, and maintenance of Cobalt Gas Heaters. Please pay close attention to the important safety information shown throughout this instruction manual. Any safety information will be accompanied by thefollowing safety alert symbols:

⚠ DANGER, ⚠ WARNING, ⚠ IMPORTANT

- READ THIS MANUAL CAREFULLY before installing or servicing this product.
- Improper installation, operation, or maintenance can result in death, severe injury, or property damage.
- Installation must be carried out by Authorized person/s in accordance with local codes, or in the absence of local codes, with the National Fuel Gas Code, ANSI Z223.1/ NFPA 54, Natural Gas and Propane Installation Code, CSA B149.1, or Propane Storage and Handling Code, B149.2.
- The heater, when installed, must be electrically grounded in accordance with local codes or, in the absence of local codes, with the National Electrical Code, NFPA 70 or the Canadian Electrical Code, CSA C22.1.
- For either outdoor or non-residential indoor use only.
  NOT FOR USE IN RESIDENTIAL DWELLINGS.
  This heater is not approved for use in any indoor residential applications.
- This appliance MUST be protected from rain.

BROMIC® HEATING

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CONTENTS

IMPORTANT NOTES AND WARNINGS

⚠ WARNING

- CHILDREN AND ADULTS SHOULD BE ALERTED TO THE HAZARDS OF HIGH SURFACE TEMPERATURES AND SHOULD STAY AWAY TO AVOID BURNS OR CLOTHING IGNITION
- YOUNG CHILDREN SHOULD BE CAREFULLY SUPERVISED WHEN THEY ARE IN THE AREA OF THE HEATER
- DO NOT USE OR STORE FLAMMABLE MATERIALS NEAR THIS APPLIANCE
- CLOTHING OR FLAMMABLE MATERIALS SHOULD NOT BE HUNG FROM THE HEATER OR PLACED ON OR NEAR THE HEATER
- DO NOT SPRAY AEROSOLS OR FLAMMABLE MATERIALS IN THE VICINITY OF THIS APPLIANCE WHILE IT IS IN OPERATION
- ANY GUARD OR OTHER PROTECTIVE DEVICE REMOVED FOR SERVICING THE HEATER (conducted by an authorized person) MUST BE REPLACED PRIOR TO OPERATING THE HEATER
- INSTALLATION AND REPAIR SHOULD BE DONE BY A QUALIFIED SERVICE PERSON. THE HEATER SHOULD BE INSPECTED BEFORE USE AND AT LEAST ANNUALLY BY A QUALIFIED SERVICE PERSON

Failure to follow the warnings and instructions in this manual could result in severe personal injury, death or property damage.

- This Installation, Operation and Maintenance manual should not be removed from the site of installation.
- Installer should leave manual with the customer for future reference.
- This Appliance is for outdoor and non-residential indoor
  areas only. See page 6 for detailed specications and diagrammatical representations of required indoor area.
- Do not perform maintenance until heater has been turned off, power disconnected, and heater temperature has cooled to room temperature.
- Do not expose the burner to water or moisture. THE APPLIANCE MUST BE PROTECTED FROM RAIN .
- Do not use the heater if any of these parts are exposed to water until the appliance is inspected or repaired by an authorized service person.
- The installer is to ensure that the requirements of the local authority, local gas fitting regulations, municipal building codes, and any other relevant statutory regulations are carried out.
- Certain materials or items, when stored under or near the appliance, will be subjected to radiant heat and could be seriously damaged. Ensure combustible materials eg. overhead structures, walls, floors, furniture, fixtures and plants are kept outside the installation clearances (Pg.7).
- The whole gas system, hose assembly, regulator, pipes, and burner should be inspected for damage and leaks before use and at least annually by an authorized person for the life of the heater.
- All leak tests should be done with a soap solution. Never use an open flame to check for leaks.
- Do not use the heater until all connections have been leak tested by an authorized person.
- Inspect the hose assembly before each use of the appliance.
- The hose assembly must be replaced prior to the appliance being put into operation if there is evidence of excessive abrasion or wear, or if the hose is damaged.
- The replacement hose assembly must be CSA approved.
- The hose assembly is not to be located in areas where the hose may be subject to accidental damage
- This radiant heater is NOT intended to be installed on recreational vehicles and/or boats.
- Repair to be carried out ONLY by an authorized person.
- Improper installation, adjustment, or alteration can cause personal injury, property damage, or even death.
- Do not attempt to alter the unit in any manner.
- Remove transit protection before use.
- Never operate the heater in an explosive environment such as areas where gasoline or other flammable liquids or vapours are stored.
- Turn o the gas supply immediately if smell of gas is detected.
- Do not paint any surface of the heater.
- Do not throw objects at the heater.
- The fascia breaks, discontinue use, disconnect power and gas and isolate area affected by breakage.
- Control compartment, burner and circulation air passageways of the heater must be kept clean. Frequent cleaning may be required as necessary.
- Turn Gas Supply off when not in use.
- Check the heater immediately if any of the following occurs:
  - » The heater does not reach temperature.
  - » The burner makes popping noise during use (a slight noise is normal when the burner is ignited or extinguished).
- Young children should be supervised to ensure that they don't play with the appliance.
- This appliance is not intended for use by young or infirm persons unless they have been adequately supervised by a responsible person to ensure that they can use the appliance safely.
- Check for damage to the appliance regularly. If damage to the cord, plug or appliance is suspected, discontinue use immediately and contact the supplier or qualified person for repair.
- If the cord, plug or appliance is damaged, unplug from the outlet, discontinue use immediately, and only an authorized person or similar may repair the unit.
- Avoid inhaling fumes emitted from the heater's first use. Smoke and odour from the burning of oils used in manufacturing will appear. Both the smoke and odour will dissipate after approximately 30 minutes.
- Ensure that a watertight seal is maintained on the electrical control box at all times
- Regularly check for damage to the rubber seals. If damage to the rubber seals is suspected, discontinue use immediately, switch o power and contact the place of purchase or authorized service technician for repair.

PRODUCT OVERVIEW

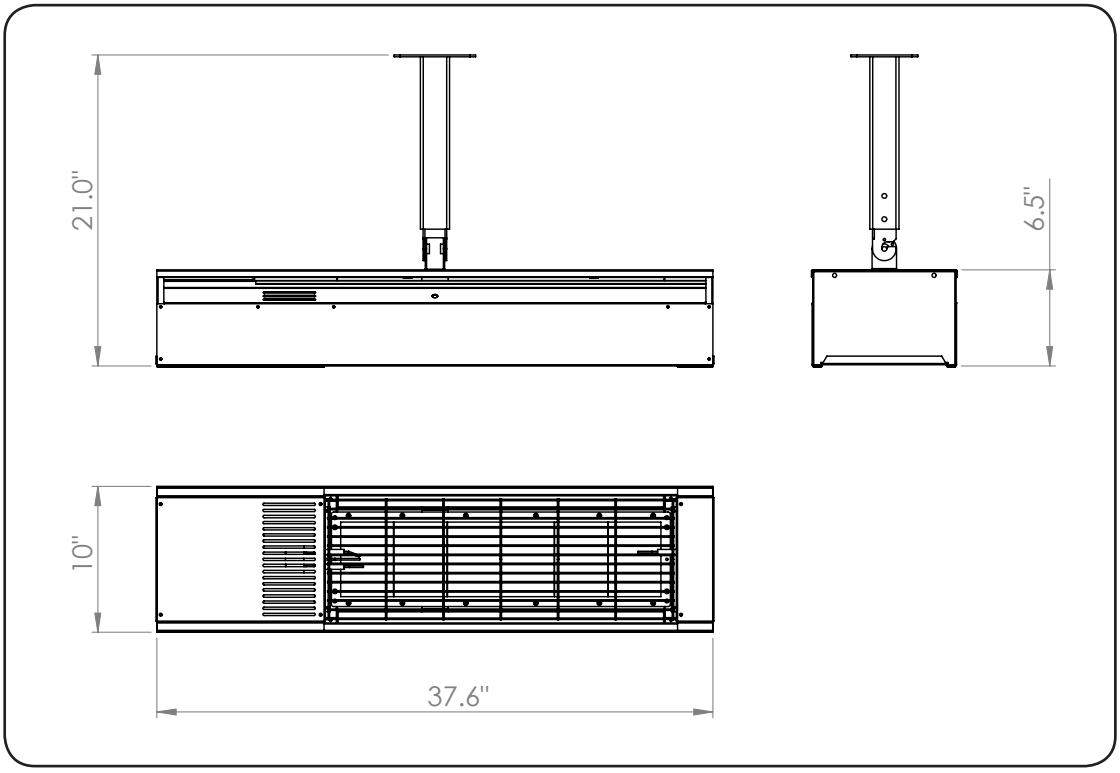
PRODUCT DESCRIPTION

The Cobalt Gas Heaters are designed to provide effective heating whilst offering an appealing design.
The heaters incorporate full function electronic controls, allowing them to be operated remotely from a conveniently located switch.

SPECIFICATIONS

Manufactured by	Bromic Heating Pty Ltd	
Approval No.	4009079	
Gas type Propane	(LPG)	Natural Gas
Gas Consumption	22,100 BTU	28,000 BTU
Max. Line Pressure	14" W.C.	14" W.C.
Min. Line Pressure	11" W.C.	6" W.C.
Manifold Pressure At Valve Test Point	10" W.C.	5" W.C.
Orifice Size	1.37mm	2.35mm
Weight	42lb	42lb
Voltage	110 Volt	110 Volt
Current	< 2 Amp	< 2 Amp

COBALT GAS HEATER DIMENSIONAL DETAILS



IMPORTANT

This must be installed by authorized persons only in accordance with local codes, or in the absence of local codes, with the National Fuel Gas Code, ANSI Z223.1/NFPA 54, Natural Gas and Propane Installation Code, CSA B149.1, or Propane Storage and Handling Code, B149.2.

This appliance must be protected from rain. Install under a protective cover.

INSTALLATION REQUIREMENTS

IMPORTANT

- Not for use in residential dwellings.
  This heater is not approved for use in any indoor residential applications. This includes, but is not limited to, attached garage, solarium, living quarter, etc. Installation in residential indoor spaces may result in death, asphyxiation, serious injury, or property damage.

- The stated clearance to combustible materials represents a surface temperature of 90ºF above room temperature. Building materials with a low heat tolerance (such as plastic, vinyl siding, canvas, tri-ply, etc.) may be subject to degradation at lower temperatures. It is the installer's responsibility to assure that adjacent materials are protected from degradation.

- Heater ventilation must comply with state and local codes. Never use heater in a fully enclosed area.

- It is required that areas above the heater be properly vented to allow for necessary combustion air and removal of combustion gases.

- Heaters shall be provided with natural or mechanical means to supply and exhaust at least 4 cfm per 1,000 BTU per hour of heater input. Exhaust openings for removing the flue products shall be above the level of the heaters.

ENCLOSURE REQUIREMENTS FOR OUTDOOR USE

• This appliance shall only be used in a well ventilated, above ground open air space.
This appliance shall only be used in a space:

- with natural ventilation
- without stagnant areas
- where gas leakage and products of combustion are rapidly dispersed by wind and natural convection

Any enclosure in which the appliance is used shall comply with one of the following:

1. An enclosure with walls on all sides, but with no overhead cover. With at least one permanent opening at ground level (ref. Appendix A, Example 1).

2. Within a partial enclosure which includes an overhead cover and no more than two side walls. These side walls may be parallel, as in a breezeway, or at right angles to each other (ref. Appendix A, Example 2 & 3).

3. Within a partial enclosure which includes an overhead cover and three side walls, as long as 30 percent or more of the horizontal periphery of the enclosure is permanently open, and at least 30% of the remaining wall area is open and unrestricted (ref. Appendix A, Example 4).

IMPORTANT

ENCLOSURE REQUIREMENTS FOR NON-RESIDENTIAL INDOOR USE

• Not for use in residential dwellings.
This heater is not approved for use in any indoor residential applications. This includes, but is not limited to, attached
garage, solarium, living quarter, etc. Installation in residential indoor spaces may result in death, asphyxiation, serious
injury, or property damage.

• The appliance must not be used in a room smaller than 250 cubic meters (ref. Diagram A below).

• The appliance must only be used in a well ventilated

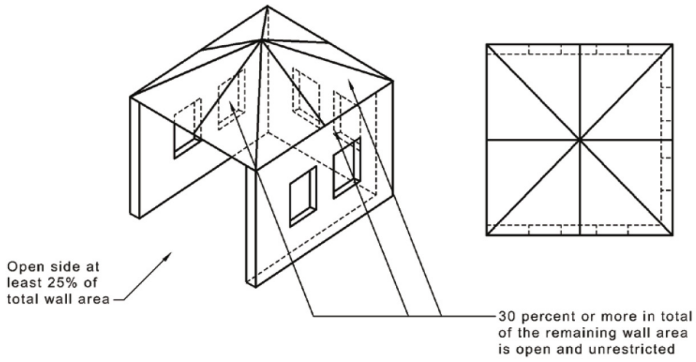


DIAGRAM A - INDOOR AREA

• Heaters to be installed in Aircraft Hangars must be installed in accordance with the Standard for Aircraft Hangars, ANSI/NFPA 409.
• Heaters to be installed in Public Garages must be installed in accordance with the Standard for Parking Structures ANSI/NFPA 88A.
• Heaters must be installed so that minimum clearances marked on the heaters will be maintained from vehicles parked below the heater.

GAS REQUIREMENTS

Cobalt LPG Models:
- Use Propane (LPG) gas only
- The approved manifold pressure to the appliance is 10"W.C.
- The MIN inlet pressure to the appliance is 11" W.C
- The MAX inlet pressure to the appliance is 14" W.C

Cobalt Natural Gas Models:
- The approved manifold pressure to the appliance is 5"W.C.
- The MIN inlet pressure to the appliance is 6" W.C
- The MAX inlet pressure to the appliance is 14" W.C

INSTALLATION CLEARANCES

When selecting the installation location for the Cobalt Gas Heater, the following minimum clearances to combustible materials must be followed.

Additional clearance may be required for glass, painted surfaces or other materials which may be damaged by radiant or convection heat. It is the installers responsibility to ensure that adjacent materials are not subject to degradation.

Fire Sprinklers must be located at an appropriate distance from each heater to avoid accidental activation of the sprinkler. Ethylene glycol or propylene glycol must never be used in fire sprinkler systems where heaters are present as these substances may become flammable when heated. A fire sprinkler professional must be consulted when heaters are installed where fire sprinklers are present to insure that heaters and the fire sprinkler system are properly integrated. Specific guidelines can be found in NFPA 13 regarding design and specifications for Fire Sprinkler Systems near heaters.

Care should be taken to ensure that the heater is not installed:

- Where heat/ignition can cause damage to gas cylinders/lines
- Near combustible materials
- In open locations subject to rain
- In areas without sufficient clearances (refer below)

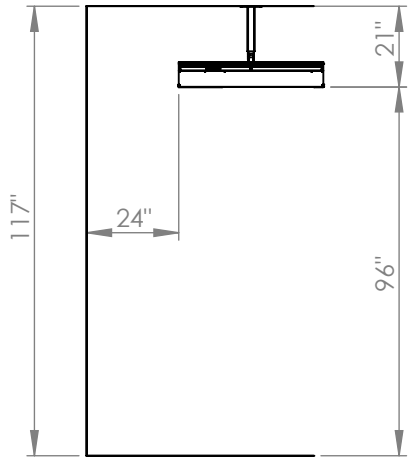
Note: Heater should be installed in such a way so as to allow adequate;

- Clearance around air openings to combustion chamber
- Clearance from combustible material
- Provisions for accessibility and clearance for combustion and ventilating air supply.

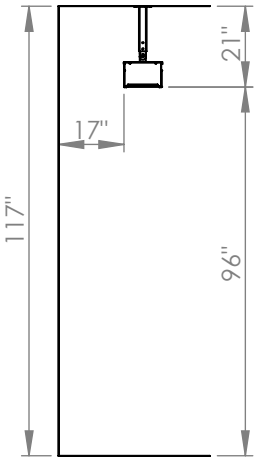
WARNING

Certain materials or items, when stored under or near the appliance, will be subjected to radiant heat and could be seriously damaged.
Clearance to combustible materials in front of the heater must be a minimum of 48".

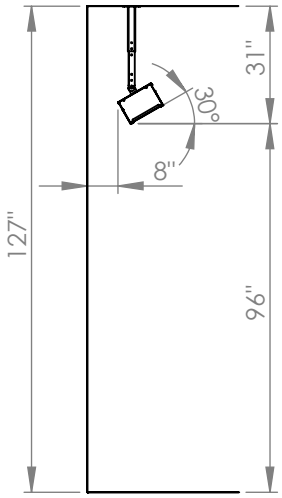
Ceiling Mount Face Down



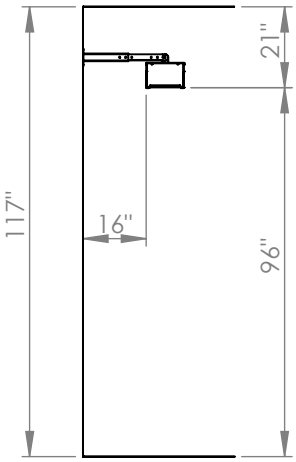
Ceiling Mount Face Down



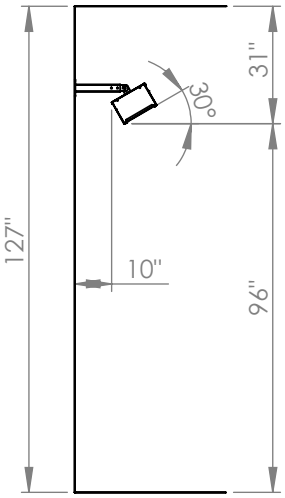
Ceiling Mount Face Angled



Wall Mount Face Down



Wall Mount Angled



HEATER INSTALLATION INSTRUCTIONS

⚠ WARNING

Installation must be done by a qualified service person.

This appliance must be installed and used in accordance with local codes, or in the absence of local codes, with the National Fuel Gas Code, ANSI Z223.1/NFPA 54, Natural Gas and Propane Installation Code, CSA B149.1, or Propane Storage and Handling Code, B149.2 and must meet all the requirements stipulated in the "Installation Requirements" section of this manual.

⚠ CAUTION

Please see specifications for the weight of the Heater. The installer of the Cobalt Gas Heaters must comply with all relevant State Occupational Health & Safety Regulations.

⚠ WARNING

When mounting the heater, ensure the anchoring to the structure is of sufficient strength, quality and workmanship to support the weight of the heater and any other load that could be applied to the fixture.

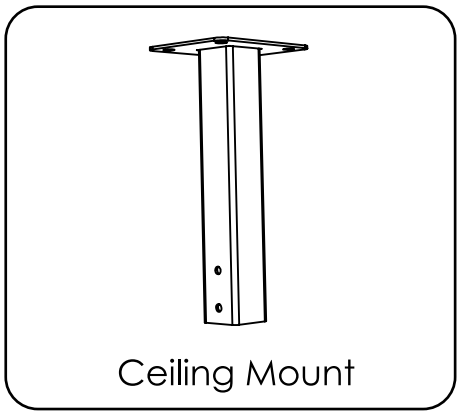
The Heater shall be firmly and securely attached to the wall. For Brick and masonry , use M8 "Flush Head" "Dynabolts" (or equivalent). For Wood / Timber fixtures , use suitable screw fixings no less than 60mm in length.

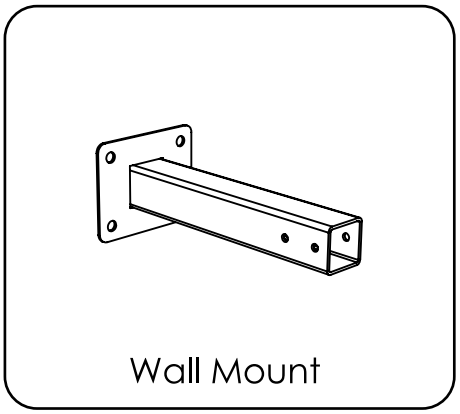
⚠ WARNING

Heater must be mounted horizontal in the lengthwise direction.

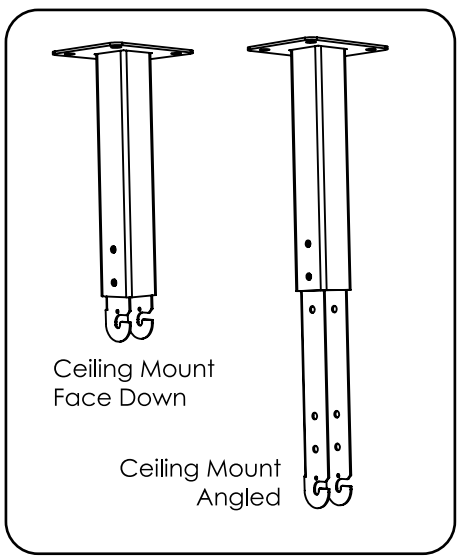
Heater must be mounted in a fixed position independent of gas and electrical supply lines.

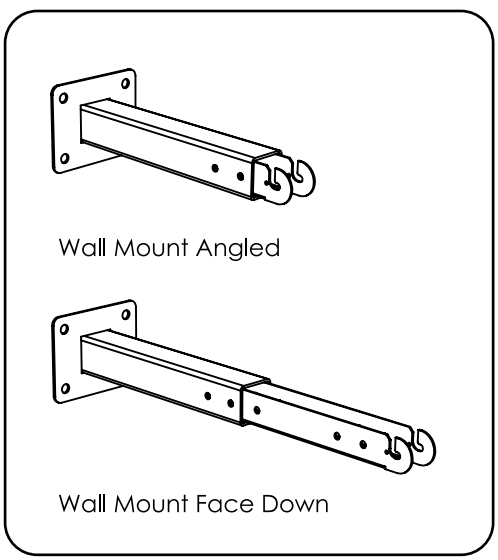
STEP 1:
Attach mounting bracket to ceiling or wall using fasteners appropriate for the surface. Ensure the bracket is firmly secured with fasteners in all 4 holes before proceeding.



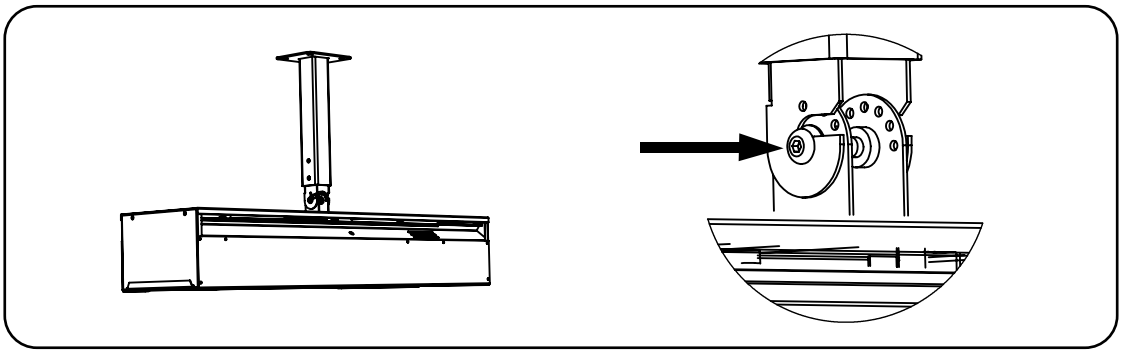


STEP 2:
Assemble extension arm to the bracket.
Position of the extension arm must be set as shown below for face down or angled mounting. These positions must be used to ensure correct clearance of the heater from combustible materials. Secure with 2x bolts and nuts supplied.

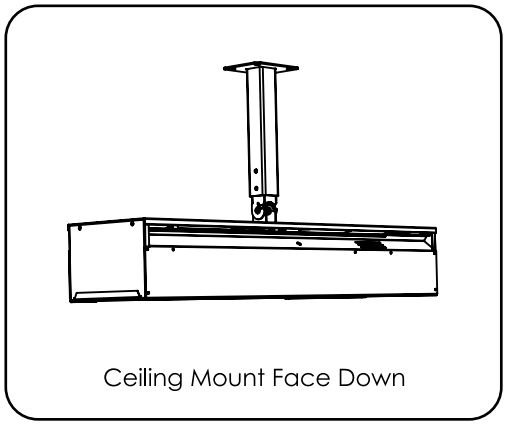




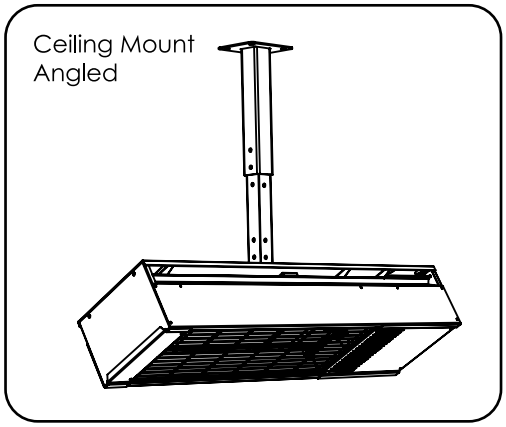
STEP 3:
Ensure 2x screws are assembled to the bracket at the back of the heater. Bring heater up to the extension arm and hang the heater on the bracket by hooking the 2x screws into the mounting slots. Tighten the 2x screws to secure heater.

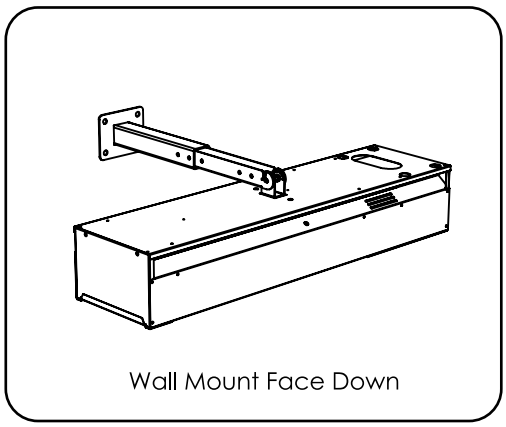


STEP 4:
Position the heater at correct angle for the selected mounting option. Insert 2x screws and nuts supplied to lock the heater at correct angle.

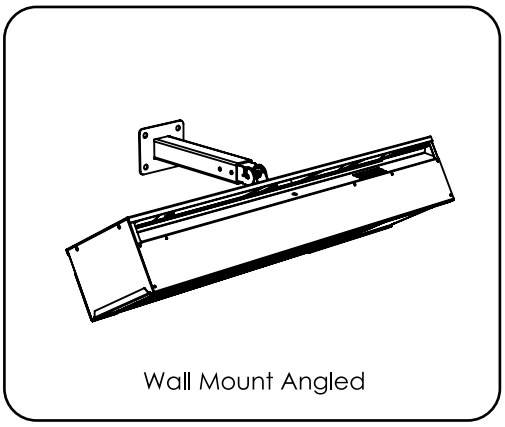


Ceiling Mount Face Down

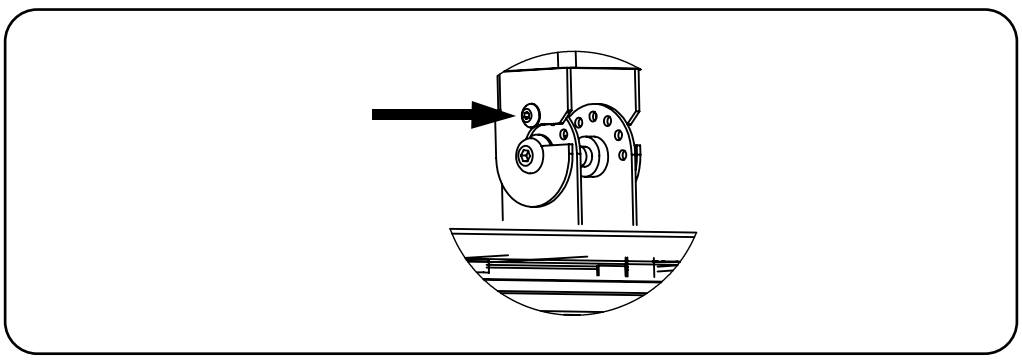




Wall Mount Face Down



Wall Mount Angled



GAS SUPPLY INSTALLATION

⚠ WARNING

- All gas supply installation work must be performed by trained and authorized person(s) and comply with the requirements of local Gas Installation Codes.
- All Piping Joints should be tested for leaks with a soapy water solution before use.
- Gas hose must be located out of pathway where people may trip over it, or in areas where the hose may be subject to accidental damage.

Verify the type of gas supply complies with the appliance rating plate, located at the back of the heater.

The inlet connection to the heater control box is a 1/2" NPT Female.

The appliance is supplied with an approved manual isolating valve. The installer must ensure that it is installed with the heater in accordance to local Gas Installation Codes.

Gas supply pressure must be limited to 14" W.C. If gas line pressure exceeds this level, a separate pressure reducing regulator must be installed.

The appliance and must be disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of 1/2 psi (3.5kPa).

The appliance must be isolated from the gas supply piping system by closing its individual manual shutoff valve during any pressure testing of the gas supply piping system at test pressures equal to or less than 1/2 psig (3.5kPa).

Tighten all the connections and then turn on the gas supply. Check for gas leakage with a soapy water solution. (See section titled "Leakage Test").

Do not use an open flame to check for leaks.

When the heater is operating, check gas pressure at the outlet point and ensure the manifold pressure to the heater is:

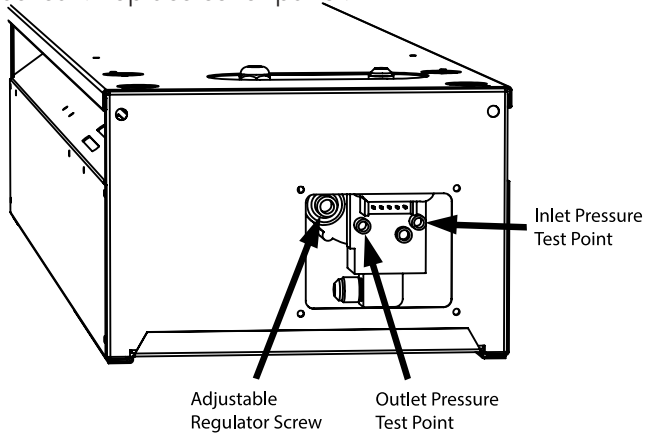
LPG: 10" W .C

NG: 5" W .C.

To check and adjust the appliances internal valve regulator: Remove the cover panel. Remove the regulator cover cap. Unscrew and remove the outlet test point plug.

Connect a manometer to outlet test point. Measure the regulator outlet pressure. Adjust the pressure by turning the regulator screw. Adjust the pressure according to the manifold pressure noted above. Replace regulator cover cap.

Replace outlet test point plug and ensure it is tightened and no gas leak. Replace cover panel.



POWER SUPPLY INSTALLATION

⚠ WARNING

The heater, when installed, must be electrically grounded in accordance with local codes or, in the absence of local codes, with the National Electrical code, NFPA 70 or the

Canadian Electrical Code, CSA C22.1.

This heater is equipped with a three-prong (grounding) plug for your protection against shock hazard and should be plugged directly into a properly grounded three-prong receptacle. Do not cut or remove the grounding prong from this plug.

The Cobalt Gas Heater comes standard with 36" of power cord in addition to the Approved 3 pin power plug.

If an appropriate power socket is available, the heater can be plugged into this power socket and operated using the on/off switch supplied on the power socket. Alternatively, the power installation can be tailored to suit the site requirements by an Authorized Electrician.

Keep electrical supply cord away from any heated surface and flue gasses (see warnings on page 11).

Please Note:

Cobalt Gas Heaters do not have their own on/ off switch. Operation should be controlled via the mains power.

⚠ WARNING

Ensure that power socket is switched o before plugging in power cord.

LEAKAGE TEST

Gas connections on the heater are leak tested at the factory prior to shipment. A complete gas tightness check must be performed at the installation site due to possible mishandling in shipment or excessive pressure being applied to the heater. Check ALL connections.

- The heater must be checked with the gas supply turned on.
- Make sure the safety control valve is in the OFF position.
- Make a soap solution of one part liquid detergent and one part water. The soap solution can be applied with a spray bottle, brush or rag. Soap bubbles will appear in case of a leak.
- Turn the gas supply ON.
- In case of a leak, turn o the gas supply. Tighten any leaking fittings, then turn the gas supply on and recheck.
- Never leak test while smoking.

⚠ IMPORTANT

The gas hose & electrical supply cord must be kept away from combustion gases of the heater.

The below diagrams illustrate where combustion gasses exit the heater for each heater mounting position, and what positions the gas hose and electrical supply cord must exit the heater to ensure they are kept away from combustion gasses.

The installer must ensure the gas hose and electrical supply cord cannot come into contact with

combustion gasses.

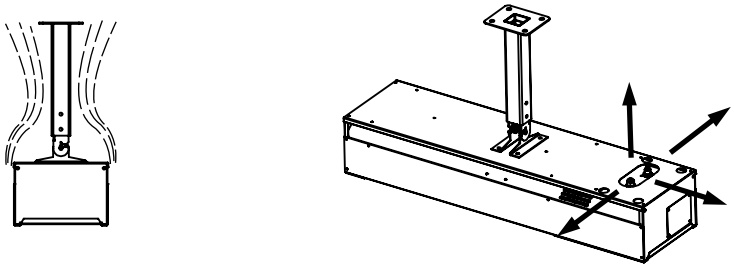
⚠ IMPORTANT

The gas hose & electrical supply cord must be kept away from heater surfaces and mounting bracket.

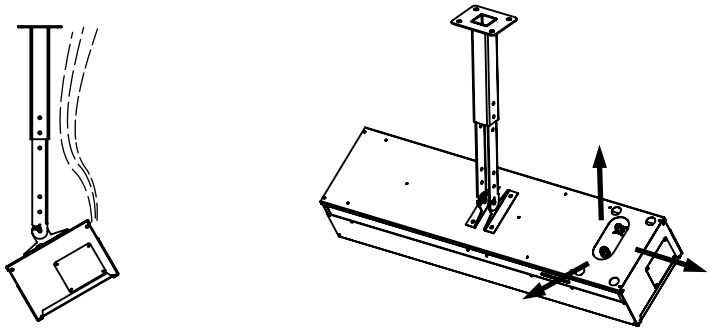
When the heater is on the heater surfaces and mounting bracket reach high temperatures.

The installer must ensure the gas hose and electrical supply cord cannot come into contact with the heater surfaces and mounting bracket.

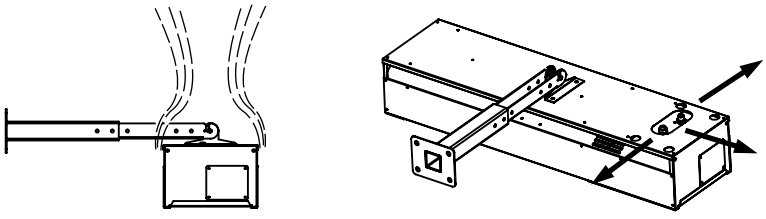
Ceiling Mount
Face down



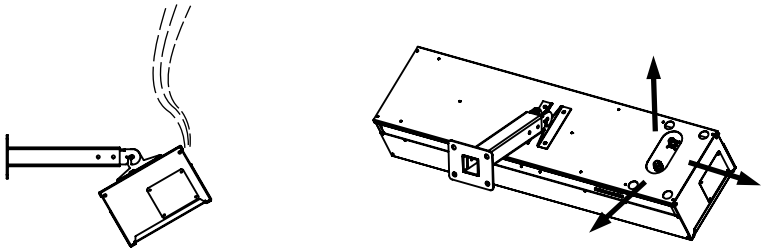
Ceiling Mount
Angled



Wall Mount
Face Down



Wall Mount
Angled



OPERATING INSTRUCTIONS

TURNING THE APPLIANCE ON

1. Ensure that gas installation and power installation has been carried out in accordance with the manufacturers instructions outlined in this document.
2. Turn on gas supply.
3. Ensure correct gas supply pressures are set.
4. Switch on power to heater.
5. If Gas heater does not light, turn power off.
6. Wait 5 seconds before turning power back on. If heater does not ignite after 5 attempts, consult the troubleshooting section of this manual, or contact Bromic Heating Pty. Ltd for service information.

TURNING THE APPLIANCE OFF

1. For temporary shutdown, turn off power.
2. For permanent shutdown, turn o power and shut off gas supply.

NOTE: The appliance must be completely shut off for a period of 5 minutes before being relighted.

⚠ IMPORTANT

Check the heater immediately if any of the following occurs:

- The heater does not reach temperature.
- The burner makes popping noise during use (a slight noise is normal when the burner is ignited or extinguished).

Note: Avoid inhaling fumes emitted from the heater's first use. Smoke and odour from the burning of oils used in manufacturing will appear. Both the smoke and odour will dissipate after approximately 30 minutes .

Installers please Note:

When the installation and testing is completed, make sure that the customer knows how to operate the heater. Leave the operating instructions with the customer.

MAINTENANCE AND SERVICING

It is important that regular maintenance is carried out on the heater to maintain efficient operation. All maintenance should be carried out ONLY by authorized service personnel.

Do not perform maintenance until heater has been

turned off, power disconnected, and heater temperature has cooled to room temperature.

Control compartment, burner and circulation air passageways of the heater must be kept clean. Inspect and clean at least every six months or more frequently in adverse conditions.

Never obstruct the flow of combustion and ventilation air. Always keep the appliance area clear and free from combustible materials, gasoline and other flammable vapors and liquids.

Do not clean heater with cleaners that are combustible or corrosive.

REGULAR SERVICE REQUIREMENTS

1. Gas Hose located within the control housing must be checked at least once annually. The hose must be replaced if there is any evidence of excessive wear, or if the hose is damaged. The replacement hose must be the same as the hose supplied with the heater. This must be purchased from the manufacturer.
2. VISUALLY CHECK BURNER FLAMES.
   During heaters function visually check that all burners are alight and glowing hot. This can be done by observing the red glow through the face.

   Note: A slight variation in colour is to be expected.
3. Clean burners: Burners can be cleaned by directing compressed air (max20PSI) at outlet ports. Avoid directing air at gasket material between ceramic tile and burner cup.
4. Clean injector: Undo gas hose from gas valve outlet (heater should be switched o and inject compressed air (max20PSI) down the inlet fittings.
5. Clean dust and foreign matter from inside of heater housing: Open up rear housing and clear dust using compressed air (max20PSI) and a damp cloth.
6. Remove debris, spider and insect nests from, control compartment, burner and circulation air passageways of the heater with heavy-duty pipe cleaner or compressed air to keep appliance clean and safe for use. Never clear ports or other openings with toothpicks or other articles that will break and block the ports.
7. In a salt-air environment, such as near an ocean, corrosion occurs more quickly than normal. Check frequently for corroded areas and repair them promptly.

⚠ IMPORTANT

More frequent cleaning may be required as necessary. It is imperative that control compartment, burners and circulating air passageways of the heater be kept clean.

EXTERIOR SERVICING

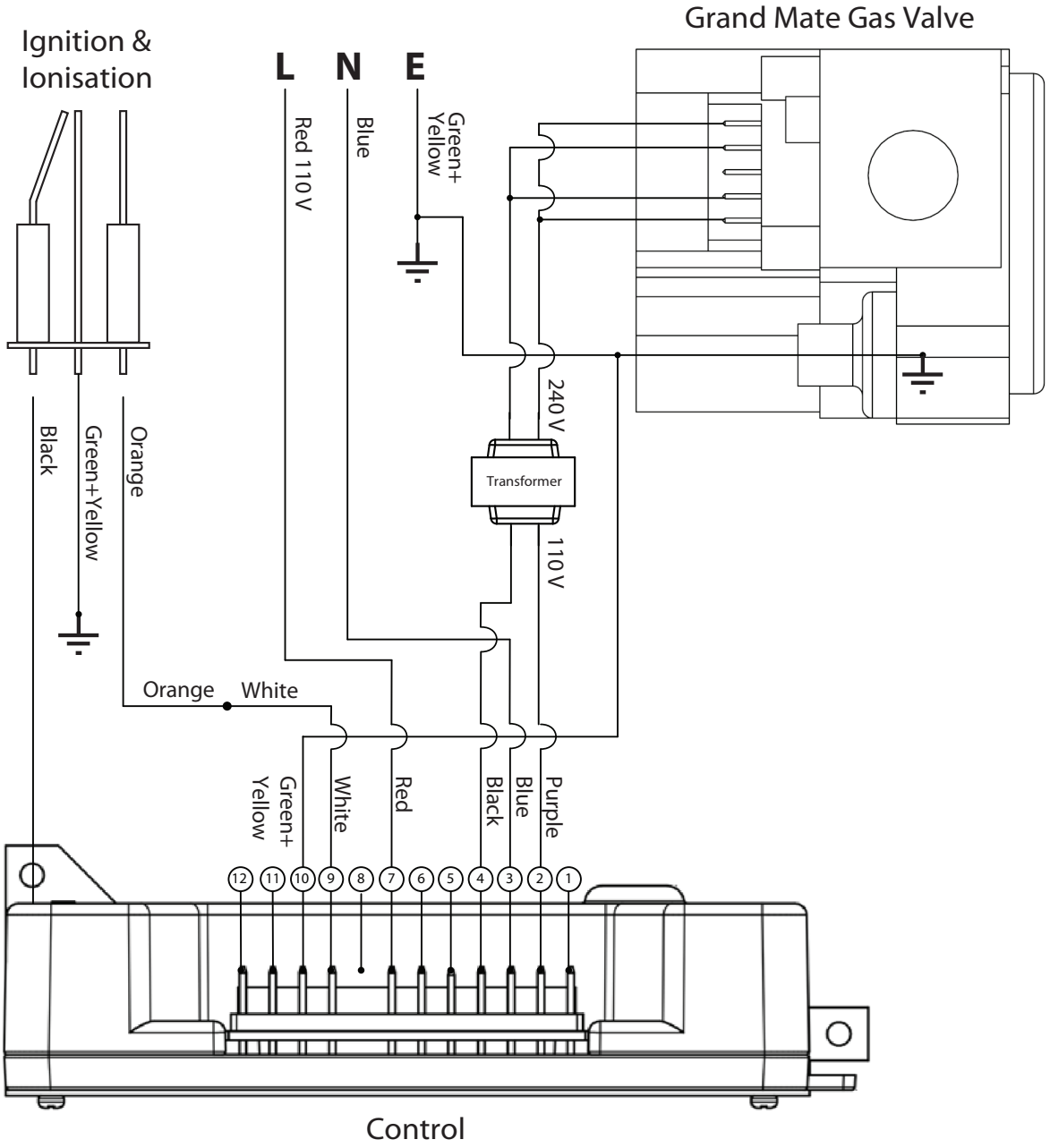
The exterior Cobalt Gas Heater head components are constructed from stainless steel.

Prolonged use, may slightly discolour from high temperatures emitted by the heater. This is a normal occurrence and does not affect the operation of the appliance.

Replacement parts can be purchased to restore the heater.

ELECTRICAL DIAGRAM

SEE INSTRUCTION MANUAL FOR DETAILS ON HOW TO CONNECT THE ELECTRICAL COMPONENTS.

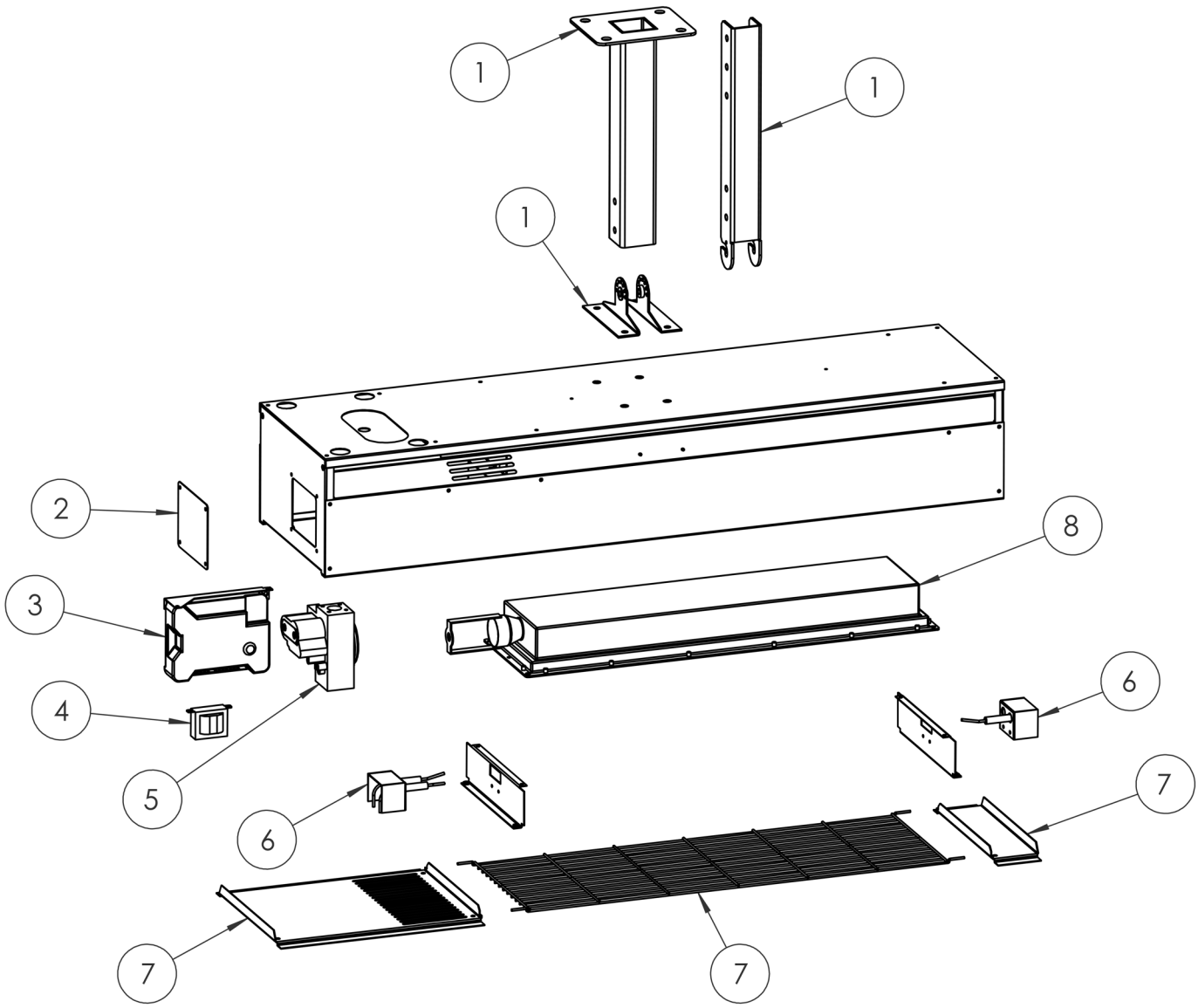


Note:

If any of the original wire as supplied with the heater must be replaced, it must be replaced with 18AWG, 90°C type UL approved wire or its equivalent. If Transformer must be replaced, a UL approved model of similar type must be used.

Field wiring having a minimum temperature rating of at least 105°C shall be used and supply circuit wiring shall have a minimum size of 18AWG.

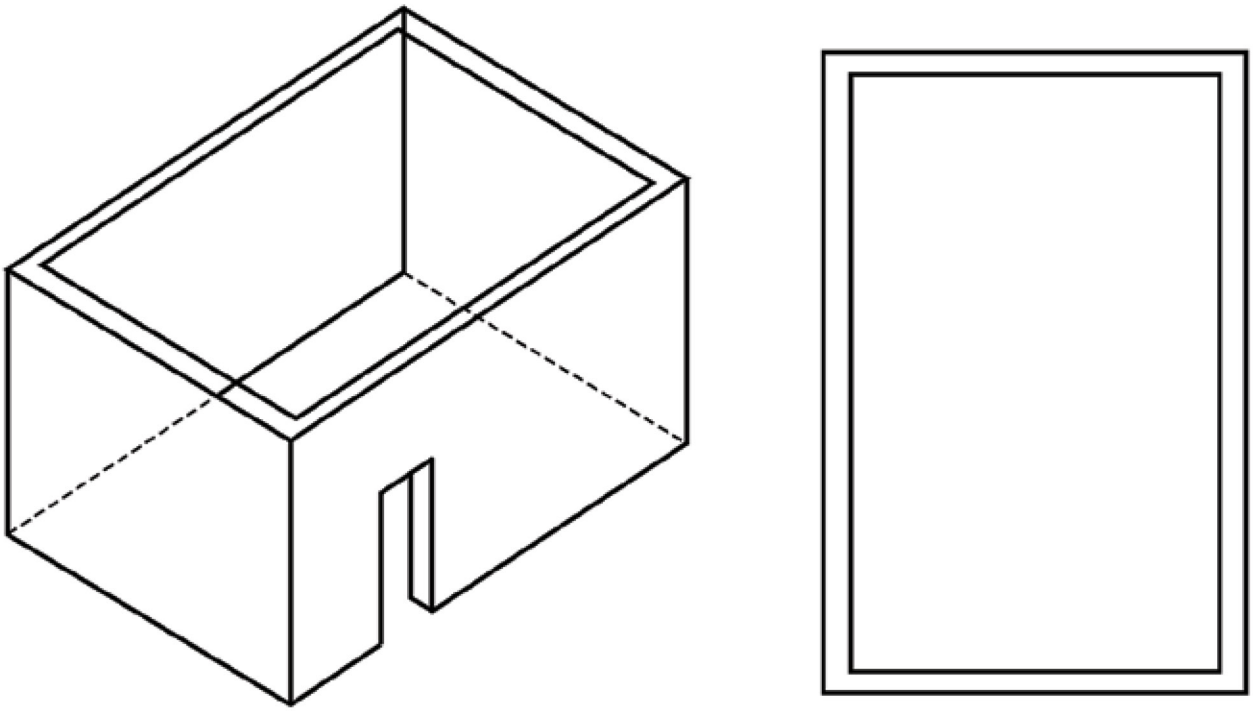
REPLACEMENT PARTS



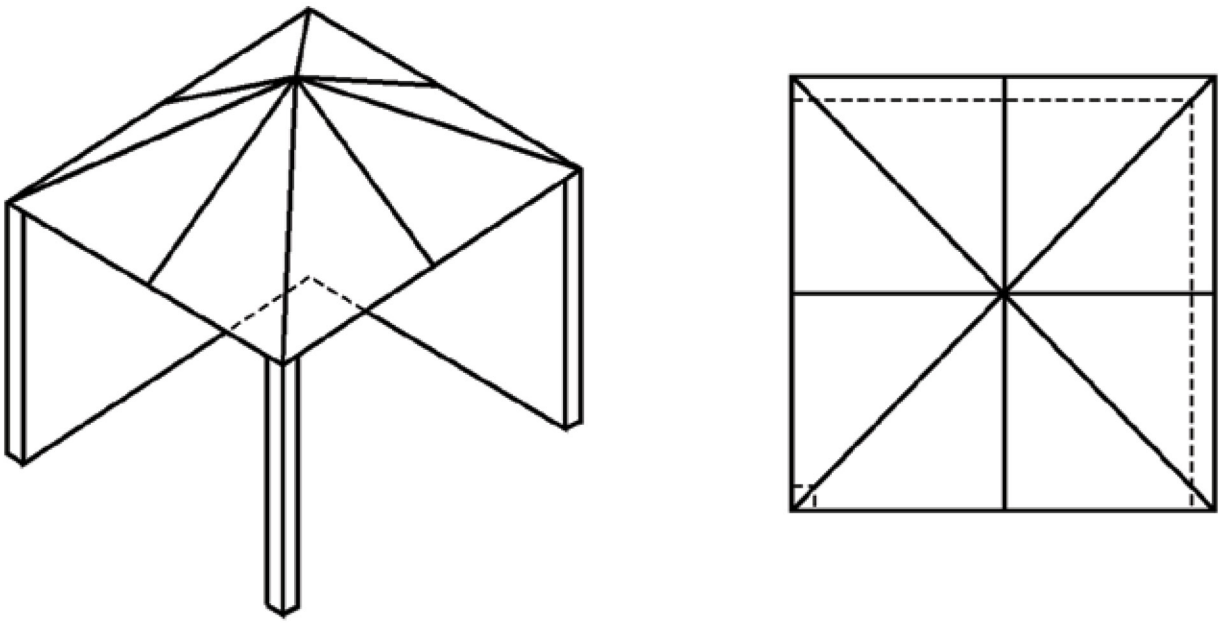
No.	Description	Part No.
1	Mounting Bracket Set	BHXXXXXXX
2	Control Cover Plate	BHXXXXXXX
3	Control	BHXXXXXXX
4	Transformer	BHXXXXXXX
5	Gas Valve	BHXXXXXXX
6	Wiring Harness	BHXXXXXXX
7	Front Cover Set	BHXXXXXXX
8	Burner	BHXXXXXXX
9	Internal Gas Hose	BHXXXXXXX

TROUBLESHOOTING

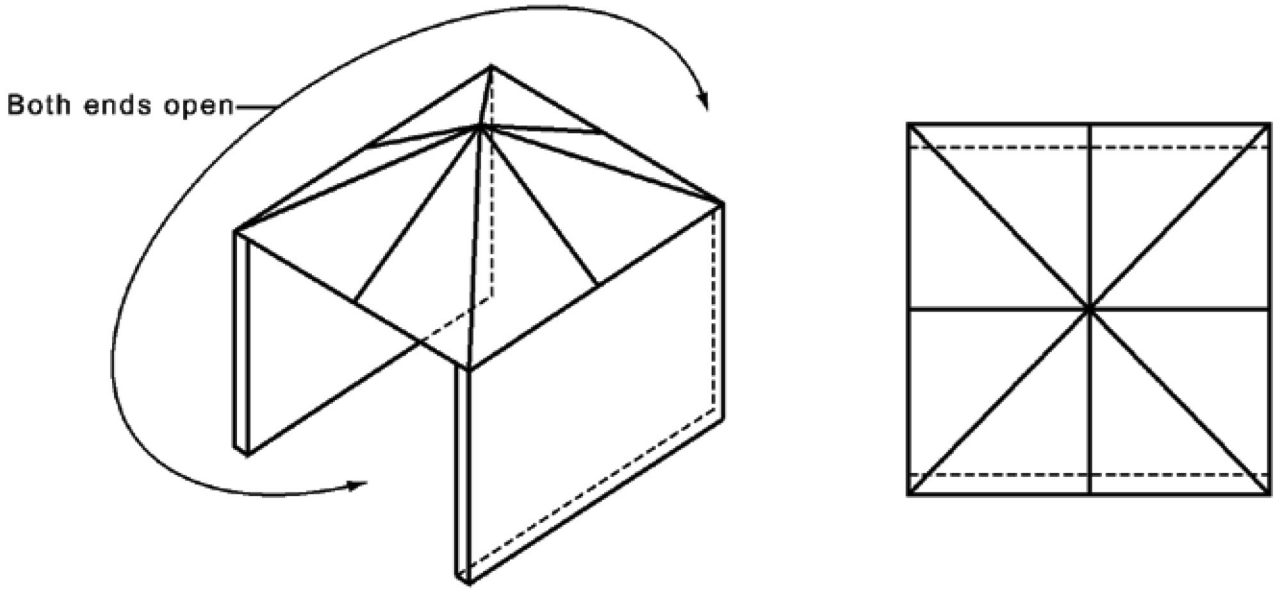
SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
Heater will not turn on	1. No power 2. No gas	1. Have authorized electrician check power supply 2. Have authorized gas fitter check gas supply
Heater turns on, but then cycles on and off	1. Insufficient flame on ionisation rod 2. Drafty conditions 3. Insufficient earth connection between heater and control box	1. • Check and set gas pressure • Check and clear obstruction to burner venturi and injectors 2. Discontinue use in high winds 3. Replace wiring harness and clean connections to ensure good grounding
Low ceramic tile surface temperature	1. Low manifold gas pressure 2. Low gas inlet pressure 3. Orifice partially blocked with foreign matter 4. Combustion by-products not adequately ventilated 5. Manifold misaligned fr om excessive torque applied on pipe at installation 6. Gas supply piping too small 7. Foreign matter in venturi tube	1. Adjust valve regulator until 5"W.A for natural gas, or 11" W.A for propane is obtained 2. Adjust main supply regulator until at least 6" W.C for natural gas or 11" W.C for propane precedes heater's control assembly 3. Clean orifice 4. Provide adequate ventilation of by-products 5. Replace manifold 6. Increase gas pressure or replace piping 7. Remove with bottle brush
Gas odour	1. Loose pipe connection 2. Defective regulator 3. Defective manual shut-off valve 4. Defective gas control valve 5. Loose flexible hose	1. Check all connections with soap solution and tighten where necessary 2. Replace regulator 3. Replace manual shut-off valve 4. Replace gas control valve 5. Tighten flexible hose
Burning of gas/air mixture inside burner casting (flashback)	1. Separation of ceramic tiles 2. Ceramic tile(s) cracked 3. Heater mounted at incorrect angle 4. Excessive drafts	1. Replace burner assembly 2. Replace burner assembly 3. Check angle of heater. See heater nameplate. 4. Shield or relocate heater.
Control assembly is overheating	1. Heater not mounted correctly	1. Mount wall bracket/control housing against a vertical flat surface, following the instructions outlined in the installation section of this manual. Always use supplied parts to mount heater.
Carbon formation on ceramic tile surface of burner	1. Misaligned orifice 2. Obstruction in venturi tube 3. Low gas pressure 4. Wrong gas supplied to heater	1. Consult sales agent or factory 2. Clean with bottle brush 3. Provide required pressure 4. Check label for type of gas required



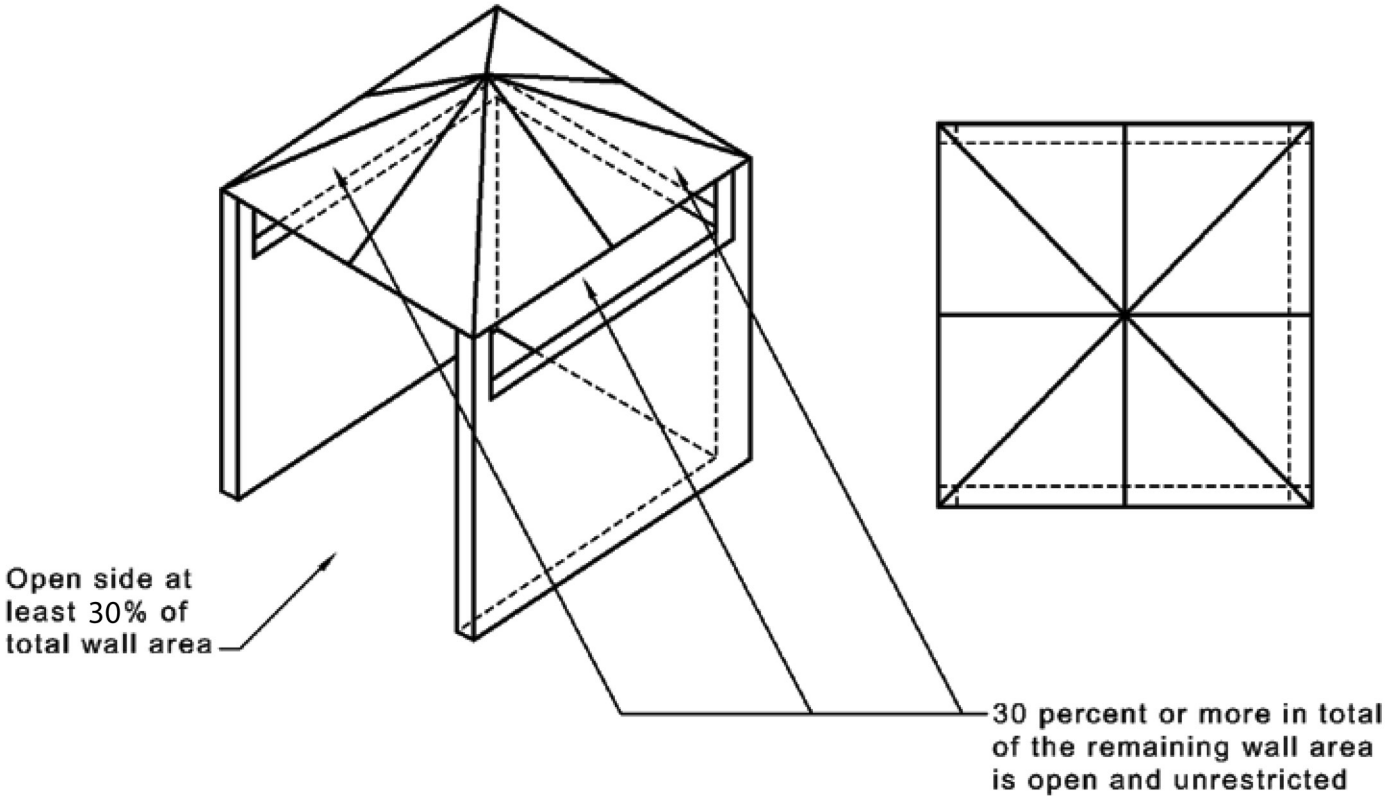
OUTDOOR AREA–EXAMPLE 1



OUTDOOR AREA–EXAMPLE 2



OUTDOOR AREA–EXAMPLE 3



OUTDOOR AREA–EXAMPLE 4