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
ADVERTENCIA PROP. 65 PARA LOS RESIDENTES DE CALIFORNIA
⚠ Cancer y Daño Reproductivo - www.P65Warnings.ca.gov

TUNGSTEN SMART-HEAT™ PORTABLE HEATER
BY BROMIC

INSTALLATION, INSTRUCTION AND SERVICE MANUAL

SUITABLE FOR GAS RADIANT HEATER MODELS:
TUNGSTEN SMART-HEAT™ Propane
TUNGSTEN SMART-HEAT™ Natural Gas

⚠ WARNING

Do not store or use petrol or other flammable vapor and liquids in the vicinity of this or any other appliance.
An Propane-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.

⚠ DANGER

If you smell gas:

1. Shut o˜ gas t o the appliance
2. Extinguish any open °ame
3. If odour continues, keep away from the appliance and immediately call your gas supplier or ÿre department.

⚠ WARNING: For Outdoor Use Only.
This appliance shall not be installed or used indoors.



This product is patented.

Version 2.2 USA / CAN

⚠ IMPORTANT

This manual contains important information about the assembly, operation, and maintenance of TUNGSTEN Smart-Heat™ Heaters. Please pay close attention to the important safety information shown throughout this instruction manual. Any safety information will be accompanied by the following safety alert symbols:

⚠ DANGER, ⚠ WARNING, ⚠ IMPORTANT

READ THIS MANUAL CAREFULLY before installing or servicing this product

- 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.
- Improper installation, operation, or maintenance can result indeath, severe injury, or property damage.
- This manual must be left with the consumer following installation & the consumer must retain them for future reference.

BROMIC® HEATING

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Email: info@bromic.com **Web:** www.bromic.com

Note: Bromic Heating Pty Ltd reserves the right to make changes to specifications, parts, components and equipment without prior notification. This Installation, operation and service manual may not be reproduced in any form without prior written consent from Bromic Heating Pty Ltd.

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IMPORTANT NOTES AND WARNINGS

⚠ WARNING

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

- 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.
- Do not use or store flammable materials near this appliance
- Do not spray aerosols or flammable materials in the vacinity of this appliance while it is in operation
- **Any guard or other protective device removed for servicing (conducted by an authorised person) must be replaced before operating the heater.**
- **Children and adults should be alerted to the hazards of high surface temperatures and should stay away to avoid burns or clothing ignition.**
- **Children should be carefully supervised when they are in the area of the heater.**
- **Clothing or other flammable materials should not be hung from the heater or placed on or near the heater.**
- Do not perform maintenance until heater has been turned off, 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 authorised 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.
- **The whole gas system, hose assembly, regulator, pipes, and burner should be inspected for damage and leaks before each use and at least annually by an authorized person for the life of the heater.**
- 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 must be purchased from Bromic Heating Pty Ltd.
- 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 authorised person.
- This radiant heater is NOT intended to be installed on recreational vehicles and/or boats.
- Improper installation, adjustment, or alteration can cause personal injury, property damage, or even death.
- Do not attempt to alter the unit in any manner.
- Do not paint any surface of the heater or top canopy reflector.
- **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).
- 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 appliance is suspected, discontinue use immediately and contact the supplier or qualified person for repair.
- 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.
- The pressure regulator and hose assembly supplied with the appliance must be used. Replacement regulator and hose assemblies must be purchased from Bromic Heating Pty Ltd.
- Storage of the appliance indoor is permissible only if the heater is disconnected from Propane gas cylinder or Natural Gas fixed supply line.
- A cylinder must be stored outdoors in a well-ventilated area out of the reach of children. A disconnected cylinder must have dust caps tightly installed and must not be stored in a building, garage or any other enclosed area.
- Do not store a spare Propane-gas cylinder under or near this appliance;
- Never fill the cylinder beyond 80% full
- The heater head angle slip pin must be inserted if transporting the heater to ensure no damage during transit.

⚠ WARNING

Installation of this appliance at altitudes above 2000 ft (610 m) shall be in accordance with local codes, or in the absence of local codes, ANSI Z223.1/NFPA 54 or CSA B149.1.

Where the appliance is located at an altitude of 2000 ft (600 m) or above, the installer is to first use the Bromic Heating rated input at sea level to select the orifice size as directed, then use Table E.1.1(d) in NFPA54-2015 ANSI Z223.1 to select the equivalent orifice size for use at the higher altitude.

PRODUCT DESCRIPTION

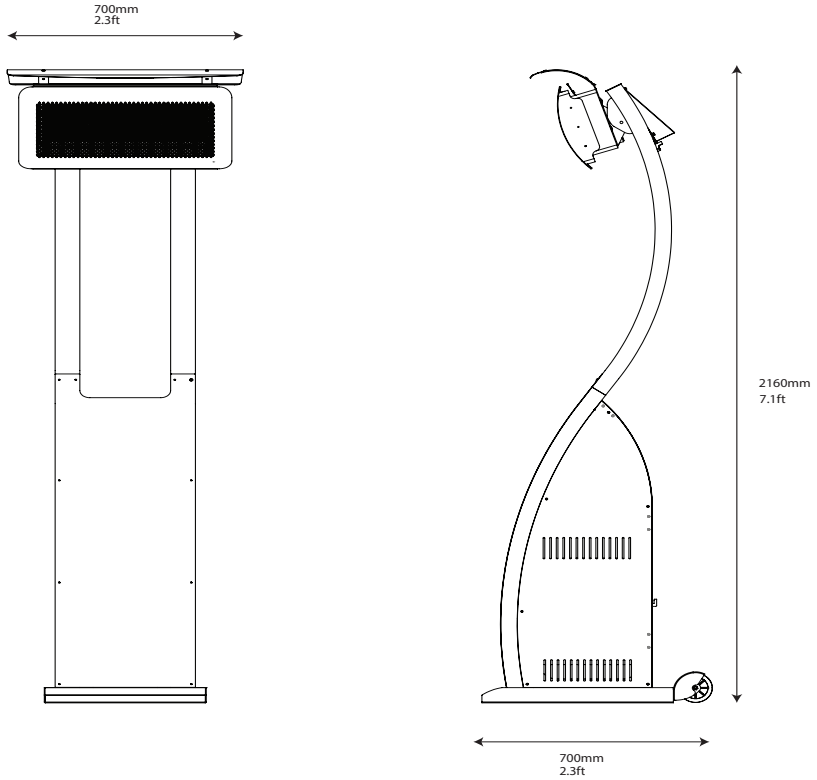
The TUNGSTEN Gas Radiant Heater is designed to provide effective outdoor heating to both commercial and residential premises whilst offering an appealing design.

The heater incorporates a pivoting head and adjustable heat output for precise heat control. The heater has been designed to withstand the rigors of the outdoors.

SPECIFICATIONS

	TUNGSTEN Smart-Heat™	
Gas type	**Propane Gas**	**Natural Gas**
Ignition	1.5V repetitive spark ignitor	
Manufactured by	BROMIC PTY. LTD	
ETL approval number	4009079	
Gas consumption	38,500 BTU/HR	
Weight	56Kg - 123.5lB	
Safety features	Flame failure device, anti-tilt switch	
Gas Supply	20Lb (9kg) Propane- Gas Cylinder	Natural Gas
Injector size	0.85mm	1.30mm
Gas supply pressure	Min 11” W.C. - Max 14” W.C.	Min 6” W.C. - Max 14” W.C.
Manifold pressure	10” W.C.	5” W.C.

TUNGSTEN SMART-HEAT™ HEATER DIMENSIONAL DETAILS



⚠ IMPORTANT

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

This appliance shall only be used in an above ground, open-air situation with sufficient natural ventilation. The heater must not be operated in any stagnant areas and should be positioned where any potential gas leakage and products of combustion are rapidly dispersed by wind and natural convection.

PRODUCT OVERVIEW CONTINUED...

GENERAL INFORMATION

The TUNGSTEN Gas Patio Heaters are suitable for outdoor spaces. In addition to the installation Instructions provided, authorized installers must abide by 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. Please note that these standards are subject to change.

PRODUCT FEATURES

TUNGSTEN Gas Patio Heaters are revolutionizing the outdoor heating industry by introducing ground breaking benefits never seen before in traditional gas or electric heaters. TUNGSTEN heaters have set the industry benchmark with stylish good looks and world-first innovation.

TUNGSTEN heaters excel in the areas of:

- Aesthetic appeal
- Innovation
- Performance
- Flexibility
- Cost effectiveness

For more detailed product information, visit www.bromic.com

⚠ IMPORTANT

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.

This appliance shall only be used in above ground open-air situations 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 at least one permanent opening at ground level (ref. Appendix A, Example 1)
2. Within a partial enclosure that includes an overhead cover and no more than two walls (ref. Appendix A, Example 2)
3. Within a partial enclosure that includes an overhead cover and more than two walls, the following shall apply:
   - At least 25% of the total wall area is completely open (ref. Appendix A, Example 4), and
   - At least 30% of the remaining wall area is open and unrestricted (ref. Appendix A, Example 4)

Note: The definition of outdoors is an above ground open-air situation with natural ventilation, without stagnant areas, where gas leakage and products of combustion are rapidly dispersed by wind and natural convection.

GAS REQUIREMENTS

TUNGSTEN Smart-Heat Propane Model:

- Use Propane gas cylinder 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

TUNGSTEN Smart-Heat Natural Gas Model:

- Use Natural Gas only
- Always use a Natural Gas regulator (supplied with heater).
- 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

IMPORTANT

The Propane gas cylinder must be:

- Constructed and marked in accordance with the Specifications for propane-gas cylinders of the U.S. Department Transportation (DOT); or the Standard for Cylinders, Spheres and Tubes for Transportation of Dangerous Goods and Commission, CAN/CSA-B339, as applicable;
- Provided with a listed overfilling prevention device; and
- Provided with a cylinder connection device compatible with the connection for the appliance.
- Cylinder must include a collar to protect the cylinder valve

The Natural Gas hose must be:

- Constructed, marked and approved for use with Natural Gas

LOCATION CLEARANCES

When selecting the location for the TUNGSTEN Gas Patio Heater, the following clearances should be followed.

Care should be taken to ensure that the heater is not installed:
- Where heat/ignition can cause damage to gas cylinders/lines
- Near other combustible materials
- In open locations subject to rain

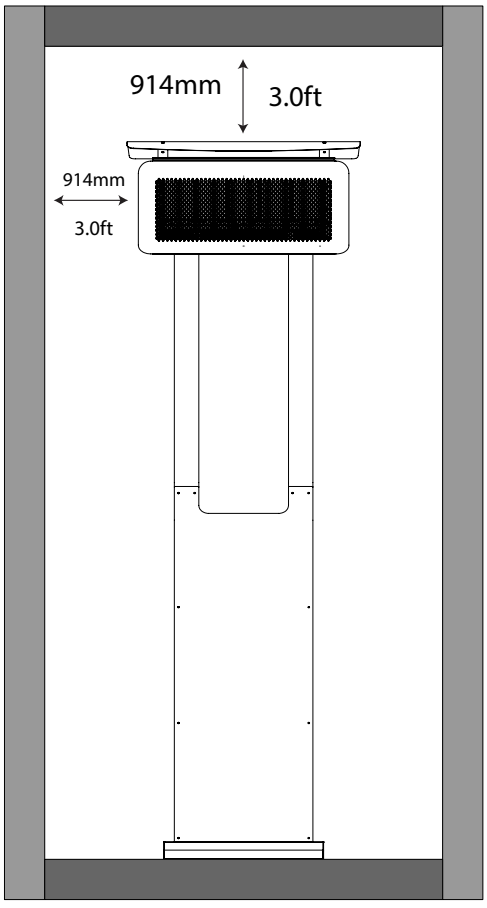
Note: Heater should be installed in such a way so as to allow adequate;
- Clearance around air openings to combustion chamber
- Clearance from combustible material
- Provisions for accessibility and clearance for combustion and ventilating air supply.

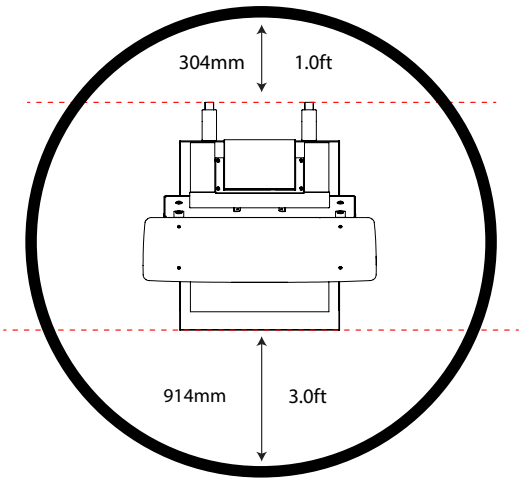
For Natural Gas Model
- Heater must be installed no further than 2m from fixed supply line outlet.
- Ensure chain is attached to heater and to a fixed connection external to heater.
  Note: The restraining chain is to prevent stress being imparted onto the hose assembly when the appliance is moved out of its normal operating position.
- Ensure hose from fixed supply line to heater is placed away from all walkways, pathways or areas where the hose may be subject to accidental damage or cause a trip hazard.

⚠ IMPORTANT

This appliance must only be used in a well ventilated area.

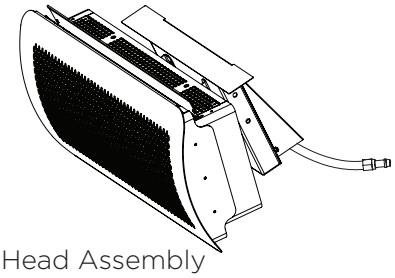
When selecting the installation location for the Tungsten Smart-Heat Portable, the following clearances should be followed.





CONTENTS PACKED IN (2) BOXES

Box 1 Contents

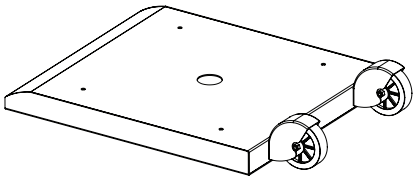


Head Assembly

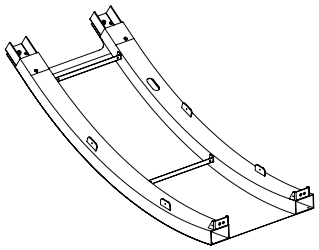


AAA Battery

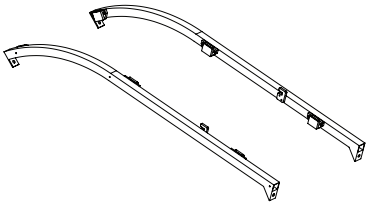
Box 2 Contents



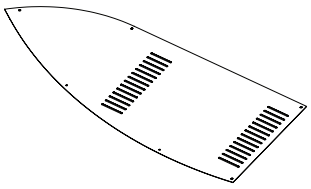
Base Assembly



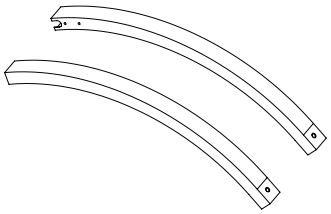
Front Assembly



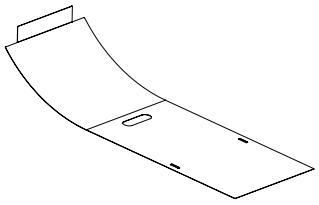
Rear Arm Assembly x 2



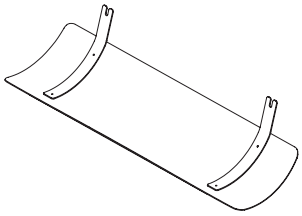
Side Panels x 2



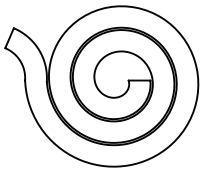
Top Arms x 2



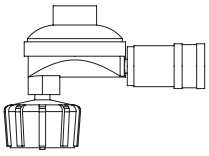
Rear Cover

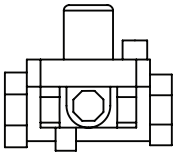


Top Flame Deflector



Gas Gose

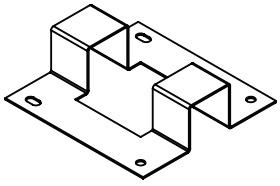




LPG or Natural Gas Regulator

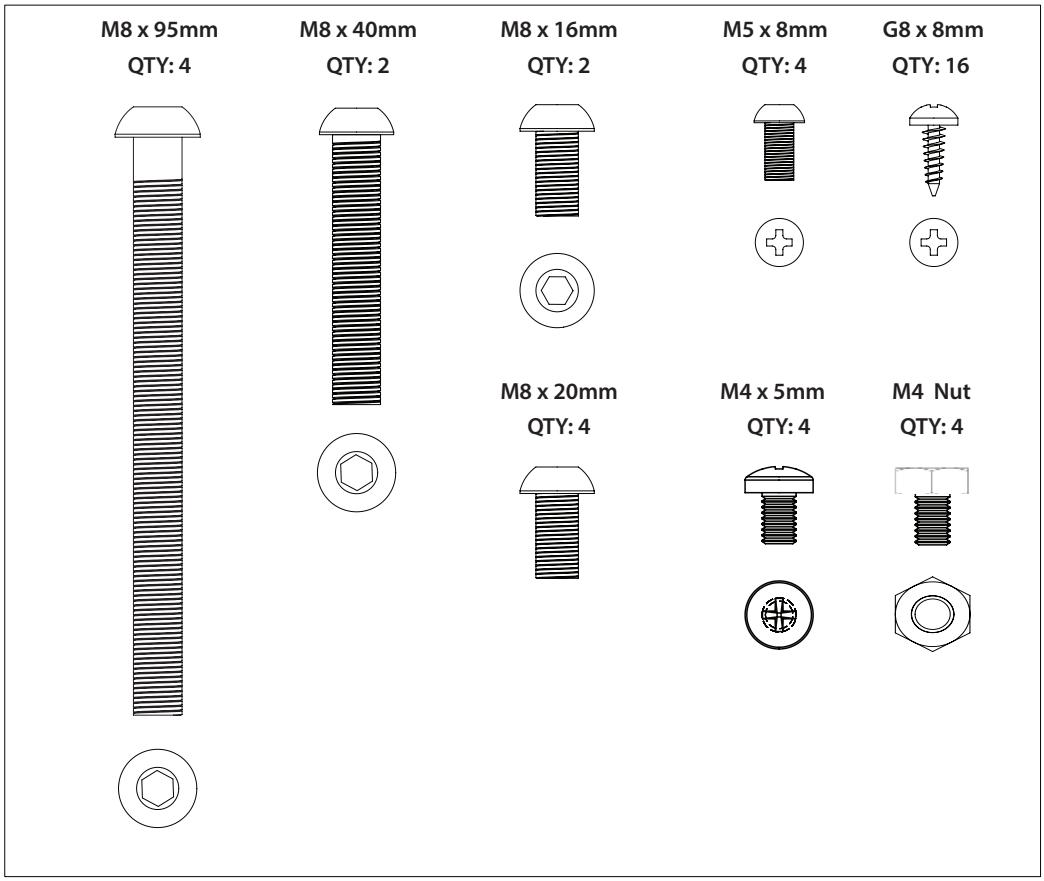


Retaining Chain (Natural gas only)

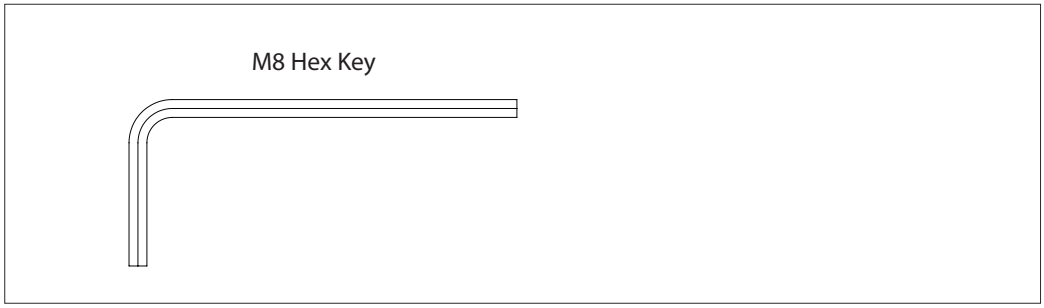


Mounting Bracket (Natural gas only)

Supplied Fasteners



Supplied Tools

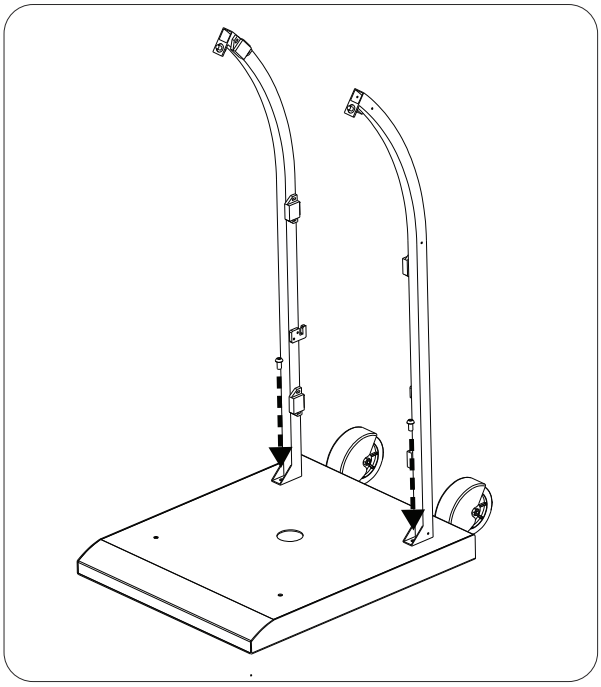


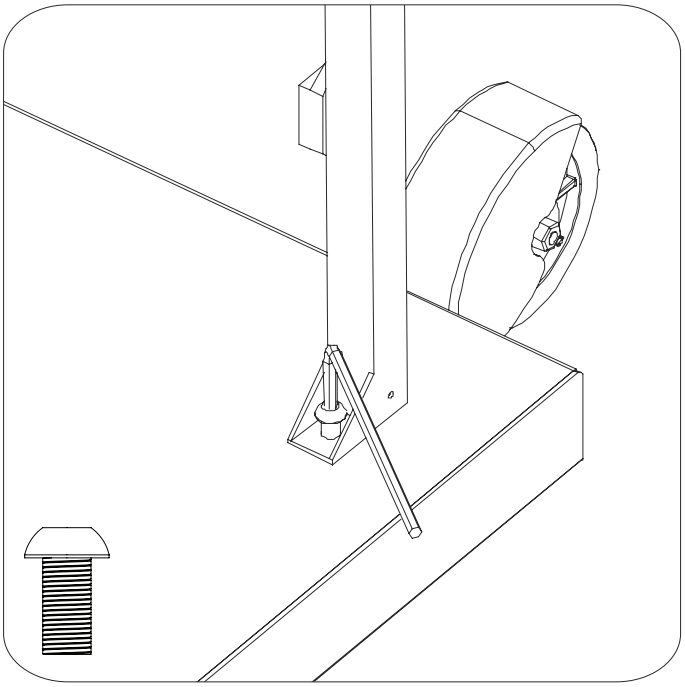
Tools Not Included

Phillips head screw driver and Spray Bottle

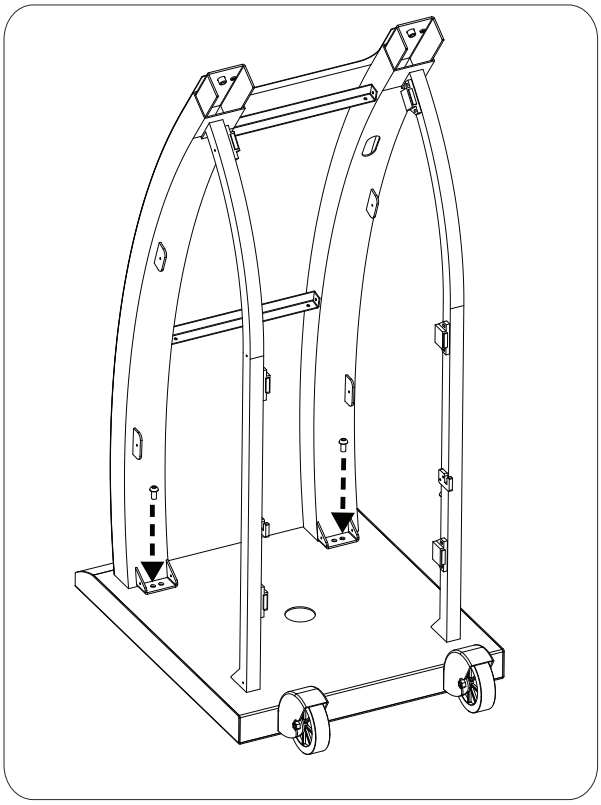
STEP 1:
Unpack boxes and place all items on a non abrasive surface.

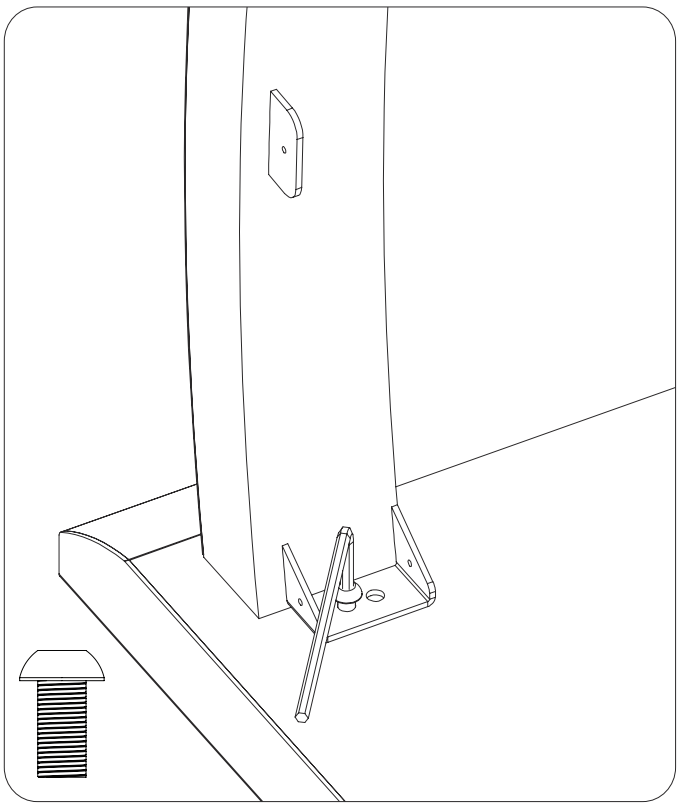
STEP 2:
Fasten rear arms to base using 2 x M8 20mm screws and the supplied M8 Hex Key.



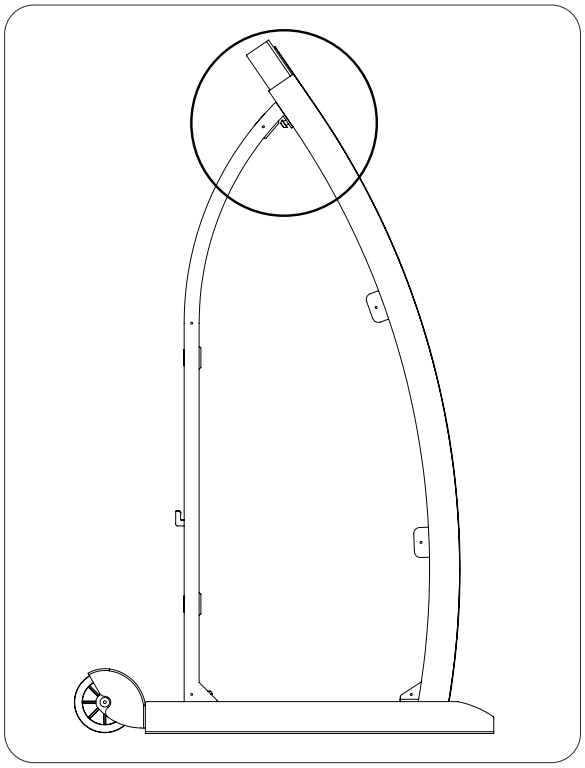


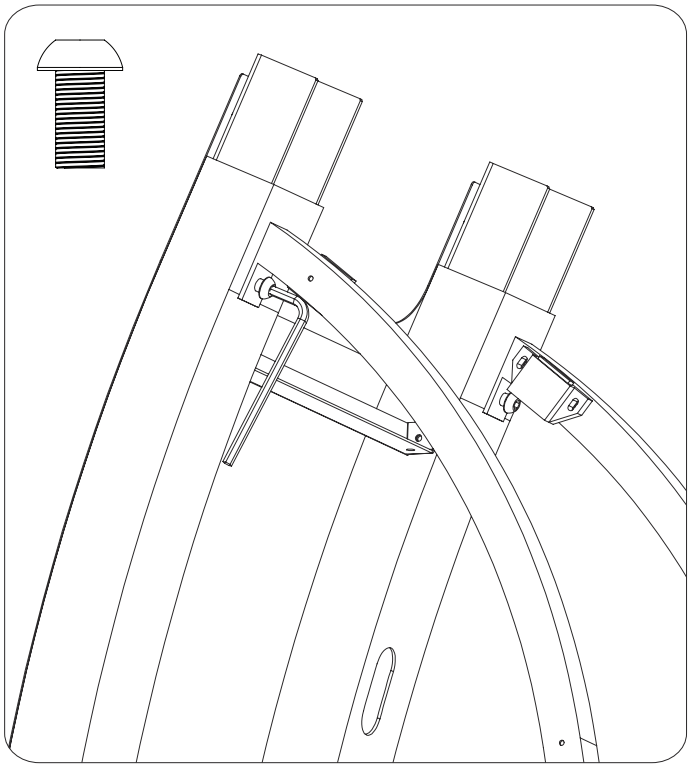
STEP 3:
Position front assembly and fasten using 2 x M8 20mm screws using supplied M8 Hex Key.



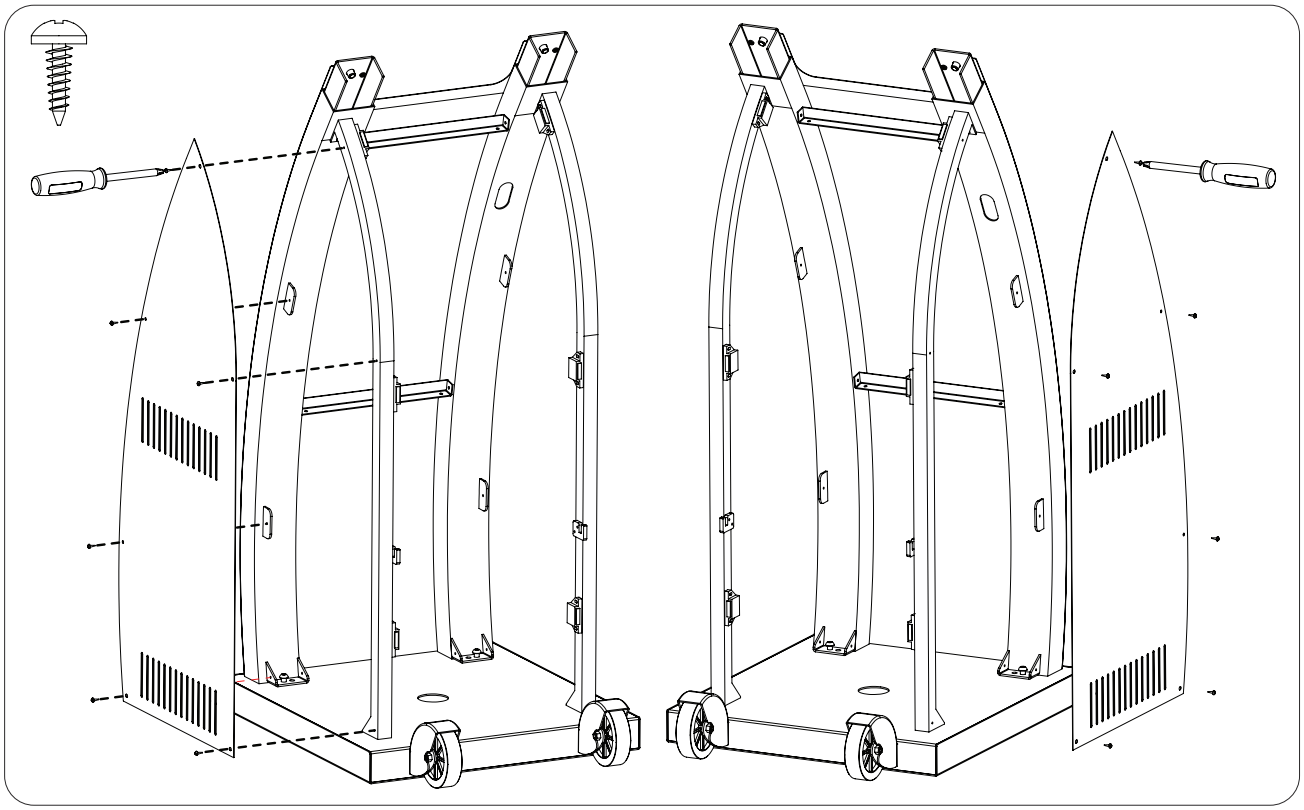


STEP 4:
Secure the rear arms to front assembly using 2 x M8 x 16mm screws and supplied M8 Hex Key.

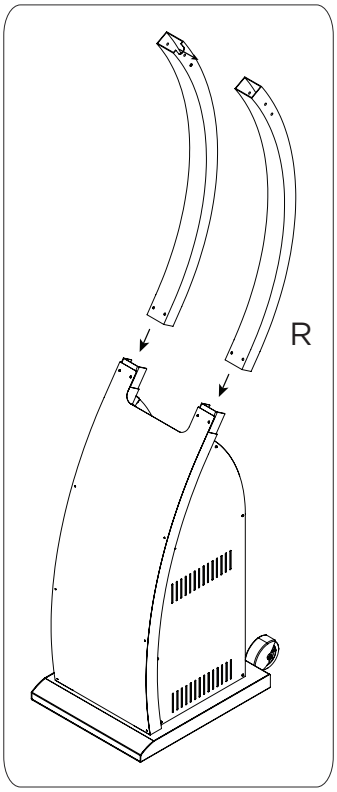


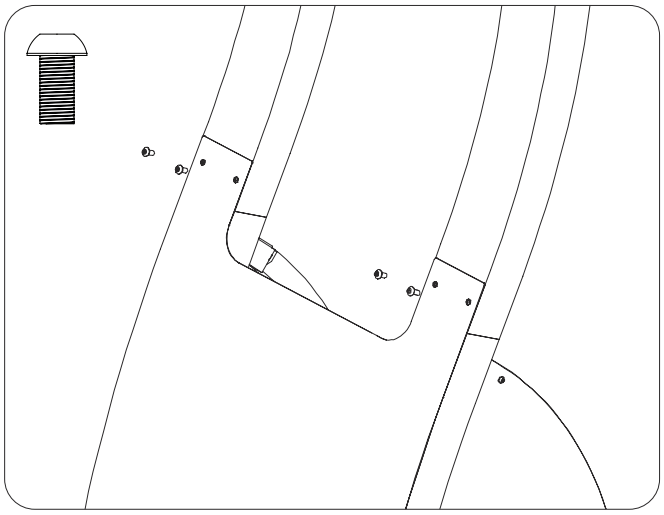


STEP 5:
Secure the side panels to frame using 12 x G8 screws - A Phillips screw driver is required for this step.
Repeat for opposite side.



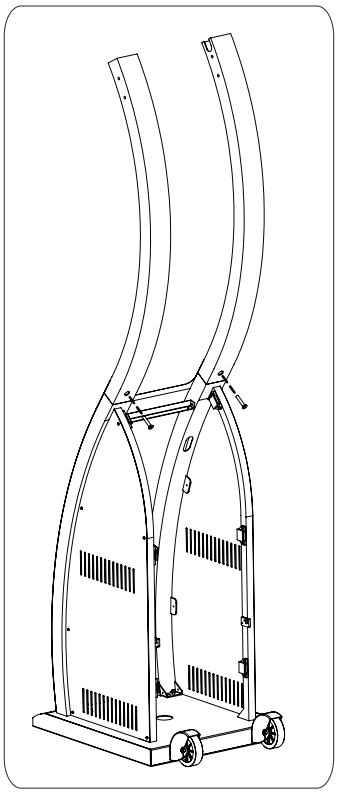
STEP 6:
Slide top arms over front assembly slip joints - Ensure top screw holes are faced inwards.
Secure the front panel to top arms using 4 x M5 screws.

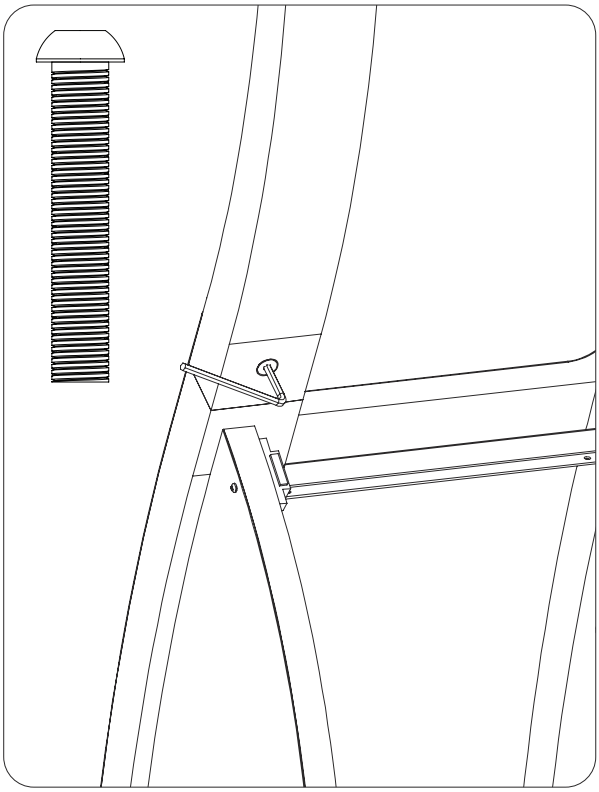




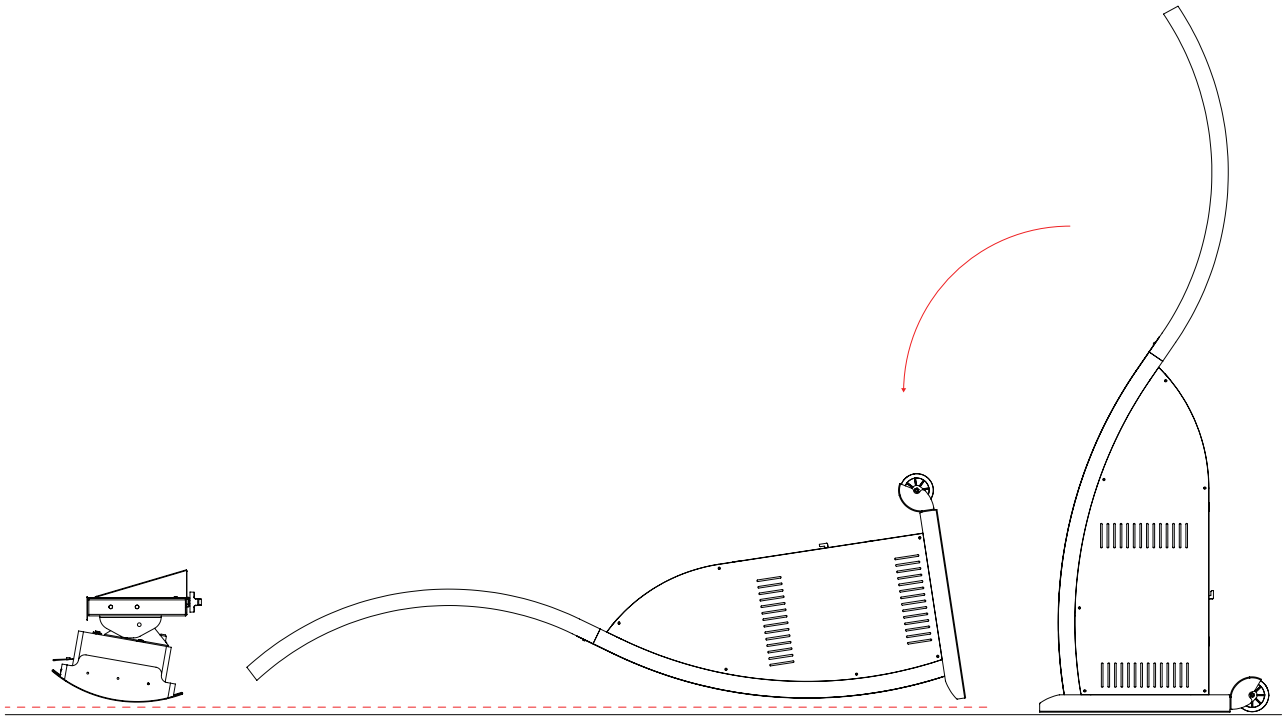
* Note: The joint between the lower and upper arms is firm to ensure` rigidily and stability of the product. To engage slowly lever the two sections together using some force and push down fully

STEP 7:
Secure the top arms to lower arm slip joint using 2 x M8 x40 screws and supplied M8 Hex Key.



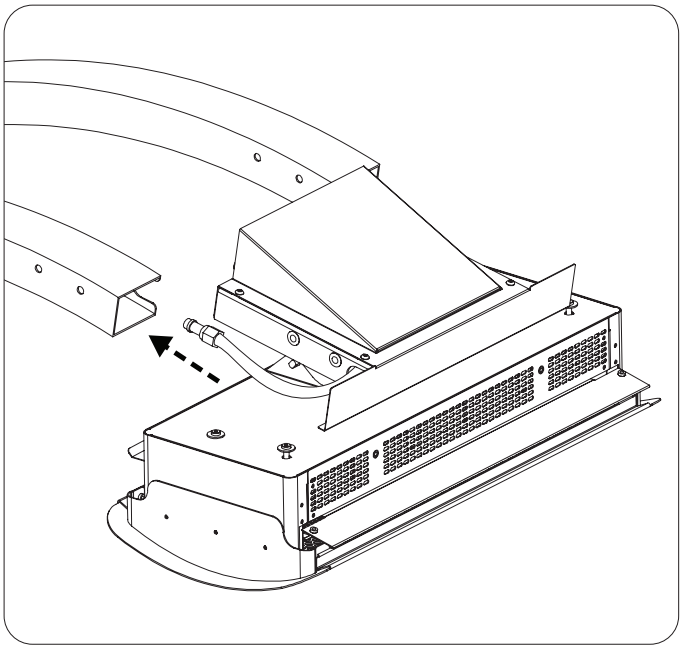


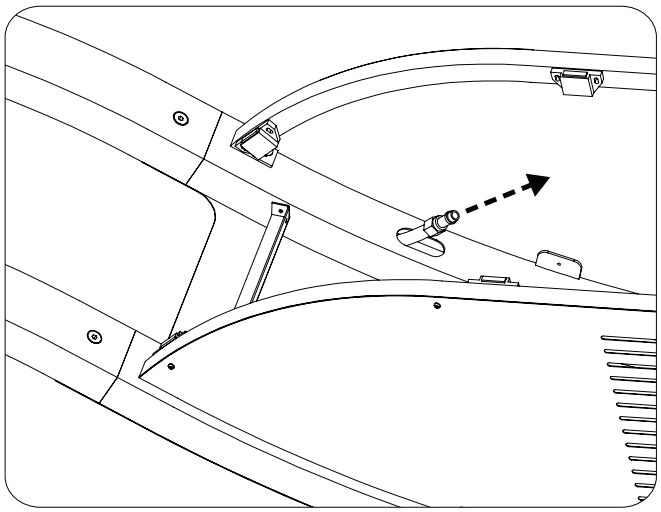
STEP 8:
Lay both heater head and stand on a non abrasive surface as shown. Two people are required for this step.



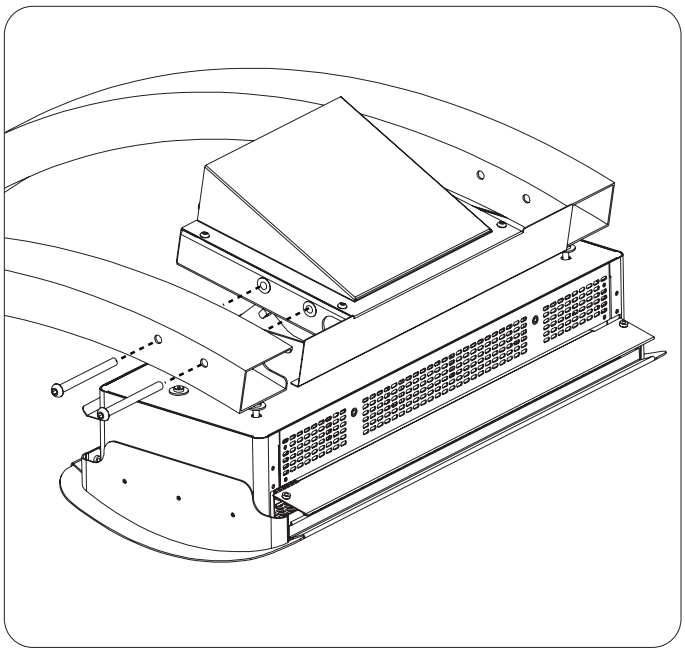
NON ABRASIVE SURFACE

STEP 9:
Feed gas hose through arm slot and push through until it reaches slot in bottom arm. Keep feeding hose until all slack is taken up.

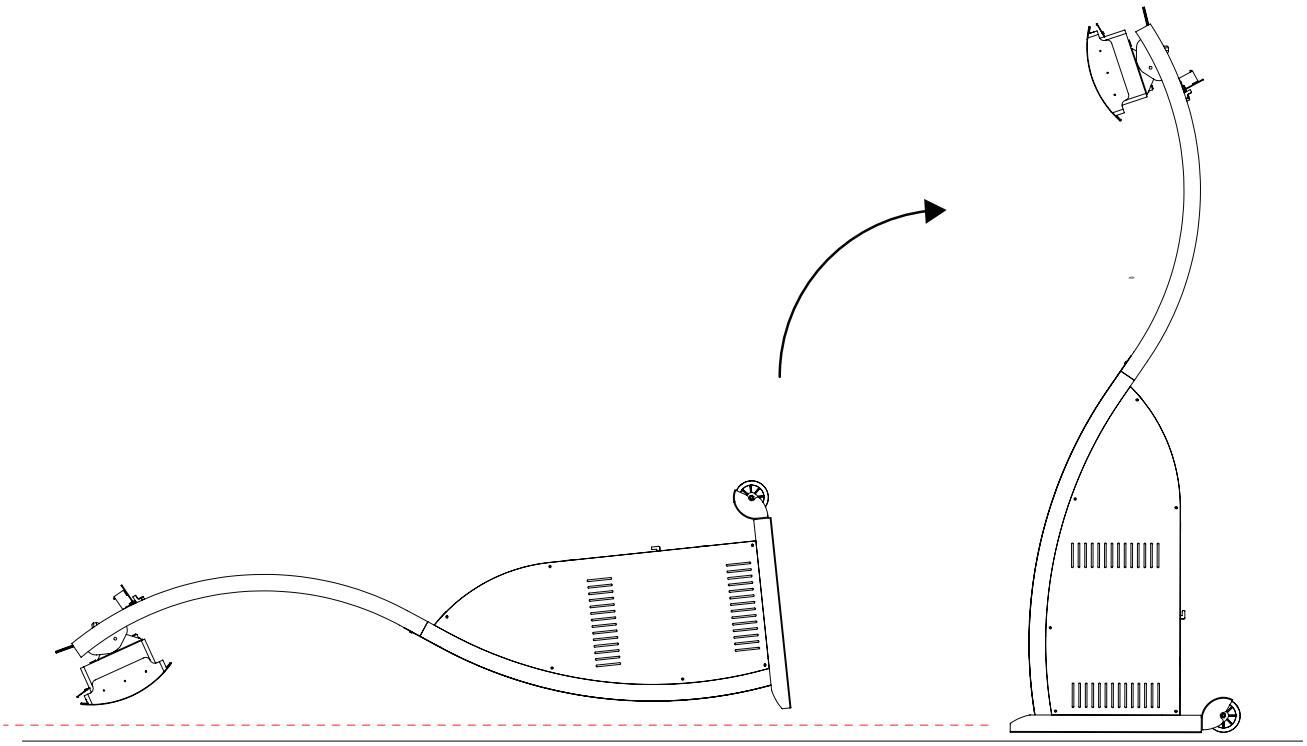




STEP 10:
Secure the heater head to arms using 4 x M8 screws and supplied washers with M8 Hex Key.

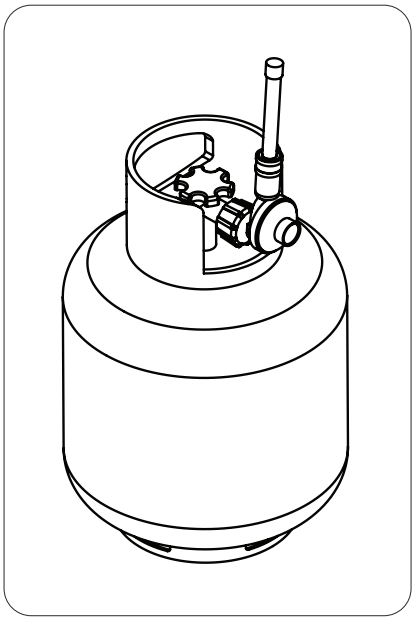


STEP 13:
Return heater to upright position. Two people are required for this step.

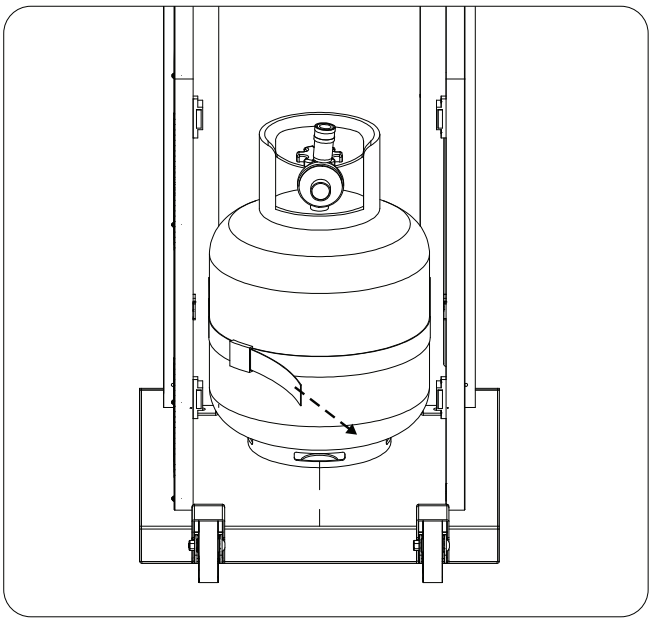


LPG Model

STEP 14:
Attach regulator assembly to gas bottle.

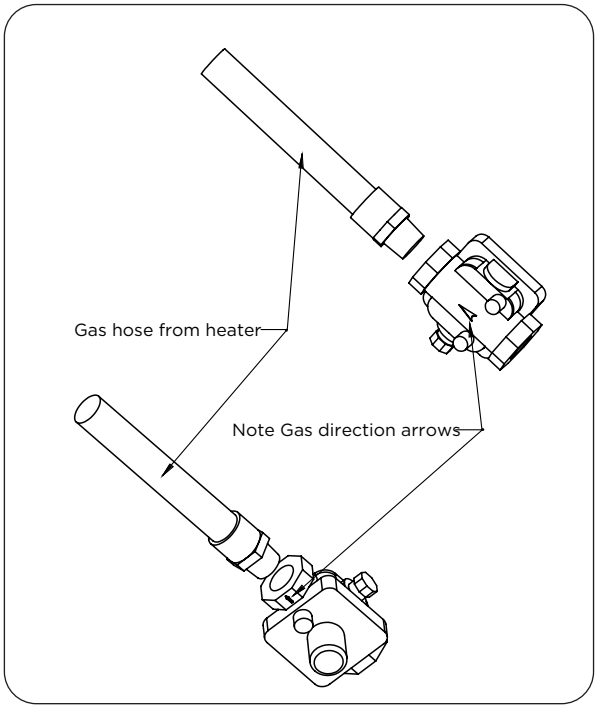


STEP 15:
Place gas bottle into lower enclosure and fasten strap tightly.

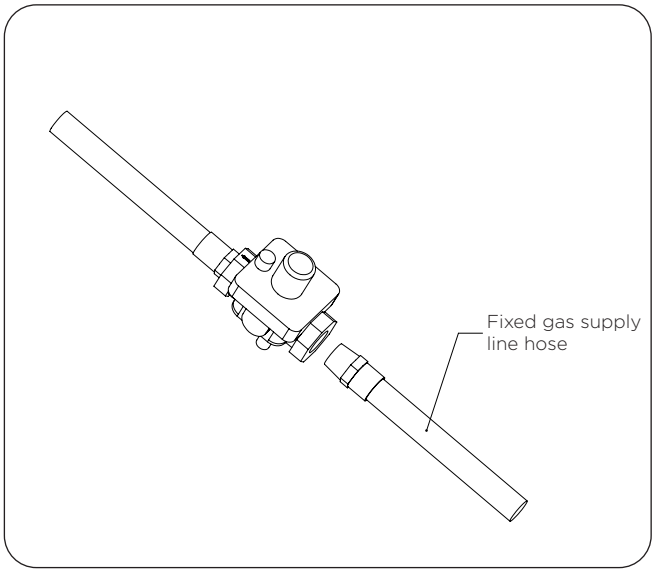


Natural Gas Model

STEP 14:
Attach heater hose to regulator outlet (note gas direction arrow).

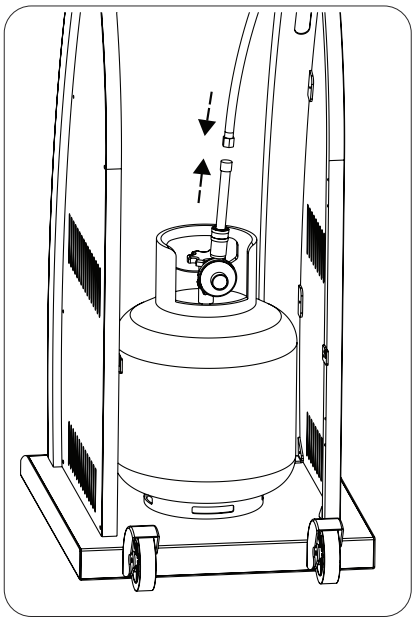


STEP 15:
Attach fixed Natural Gas supply hose to regulator inlet. Must be attached tightly with two spanners.

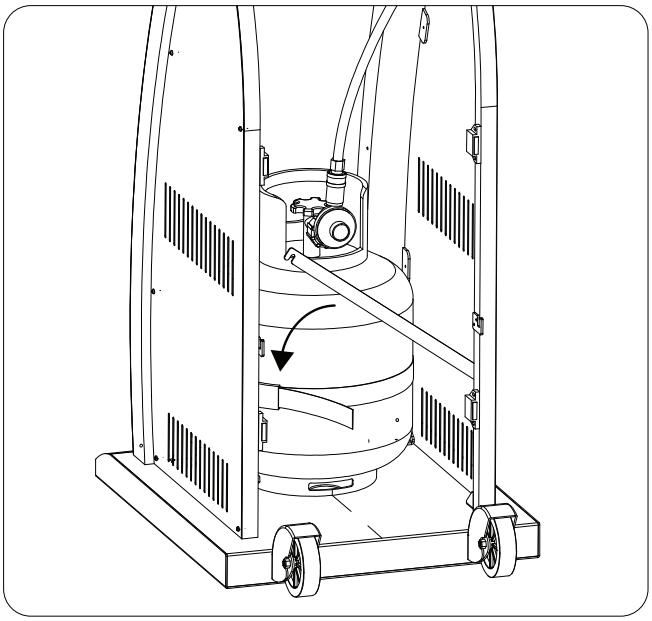


LPG Model

STEP 16:
Attach hose to regulator assembly. Must be attached tightly with 2 spanners.



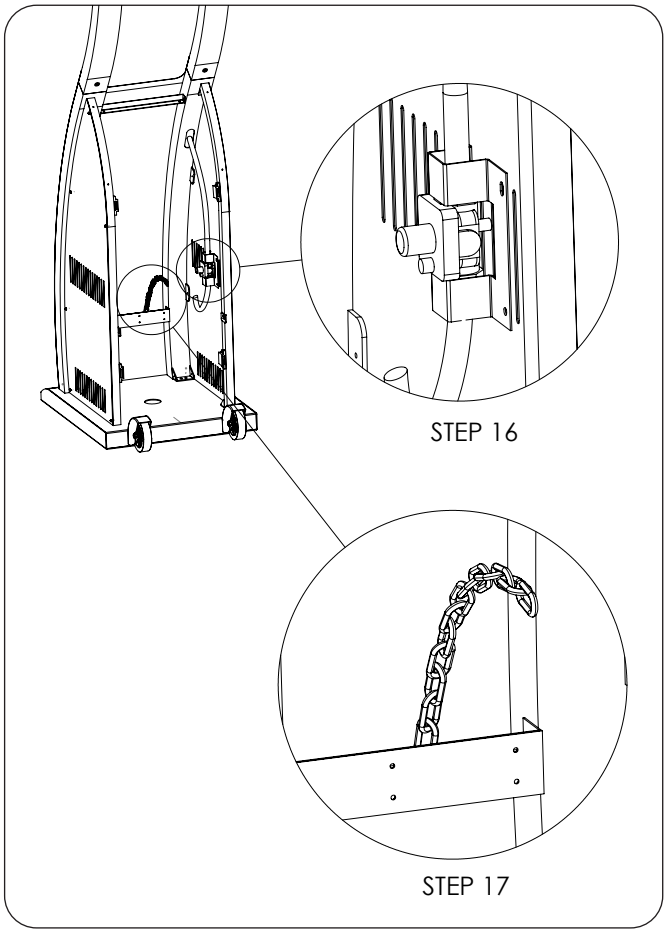
STEP 17:
Lower gas bottle bracket into position.



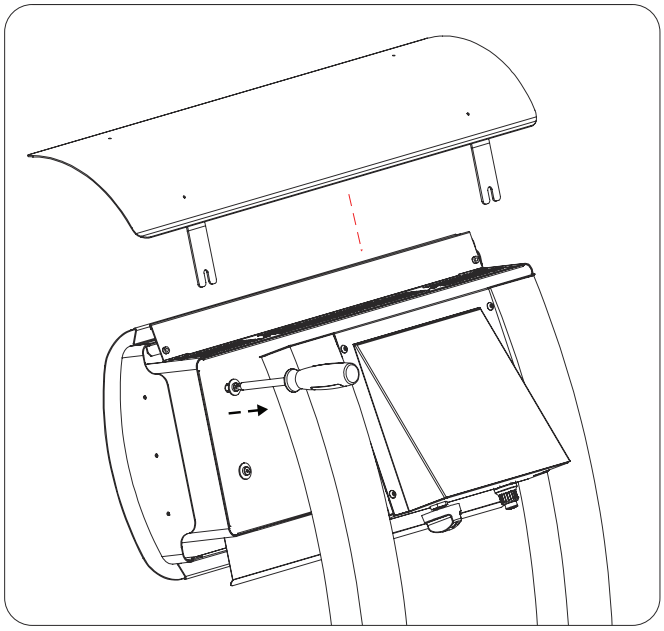
Natural Gas Model

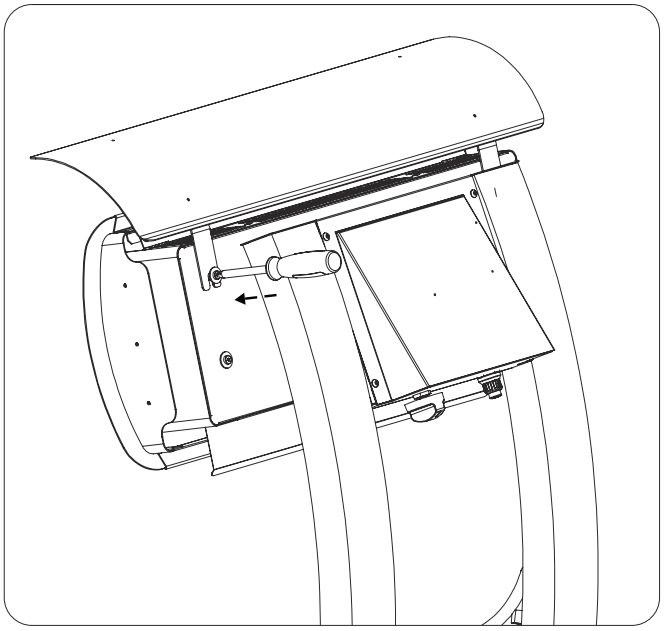
STEP 16:
Mount regulator between regulator bracket and side panel using four M4 bolts and nuts supplied.

STEP 17:
Attach chain to inner cross beam

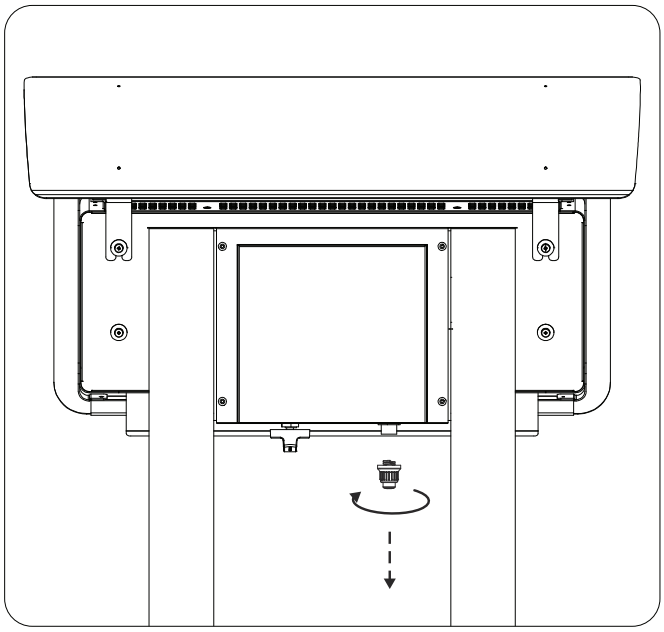


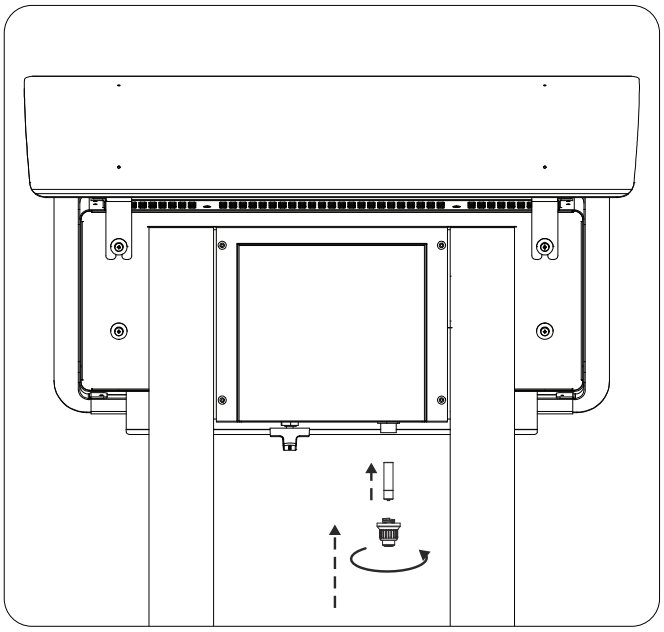
STEP 18:
Secure deflector to heater by loosening the two screws and secure brackets underneath washers.
Re-tighten screws to original position using screw driver.





STEP 19:
Unscrew igniter cap. Insert supplied AAA battery into cap and re-scew to original position



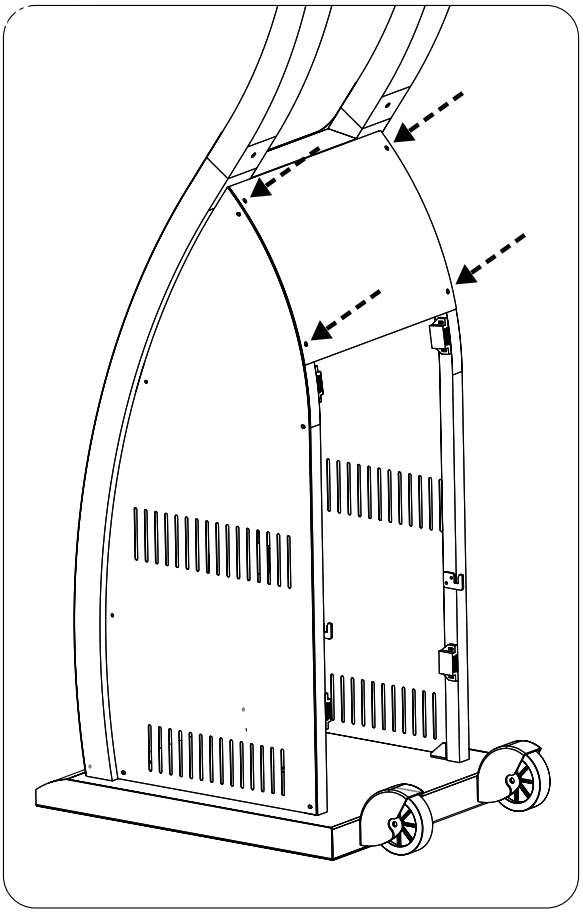


STEP 20:
Perform Gas leakage test as shown on page 20

STEP 21:
Secure the top piece of rear cover to frame using 4 x G8 screws - A Phillips screw driver is required for this step.

The bottom piece of rear cover is secured by magnets. Firstly position slots in back cover over the two hooks then lower cover to allow magnets to catch

For Natural Gas Model only:
Feed fixed supply line hose and chain through hole in the rear cover.



STEP 22 (Natural Gas model only):

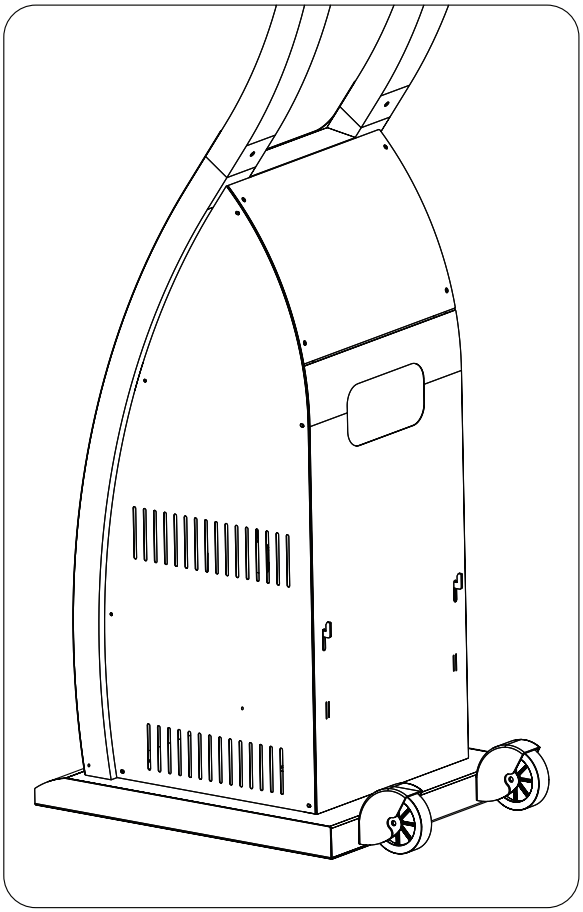
Attach chain to fixed point near fixed gas supply line.

NOTE: The restraining chain is used to prevent accidental movement of heater while still connected to fixed gas supply line. Movement of heater while still connected to fixed gas supply line could impart stress onto hose assembly, causing deterioration or rupture.

⚠ CHAIN MUST BE USED DURING OPERATION OF NATURAL GAS MODEL.

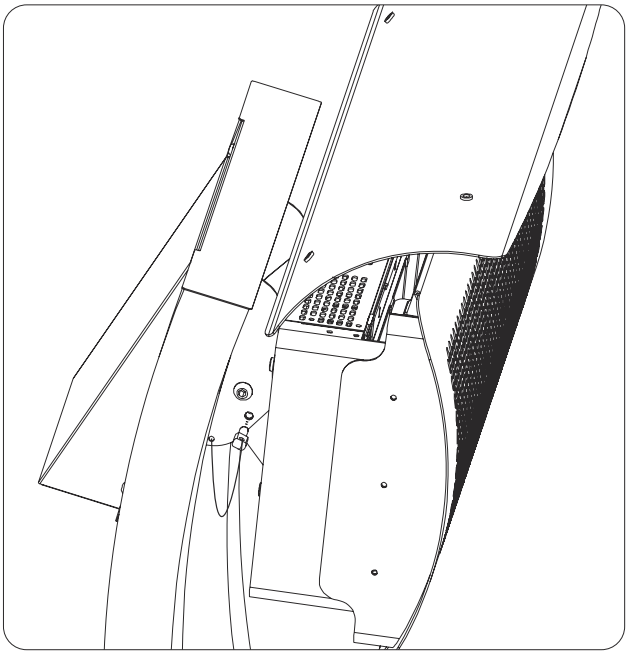
STEP 23 (Natural Gas model only):

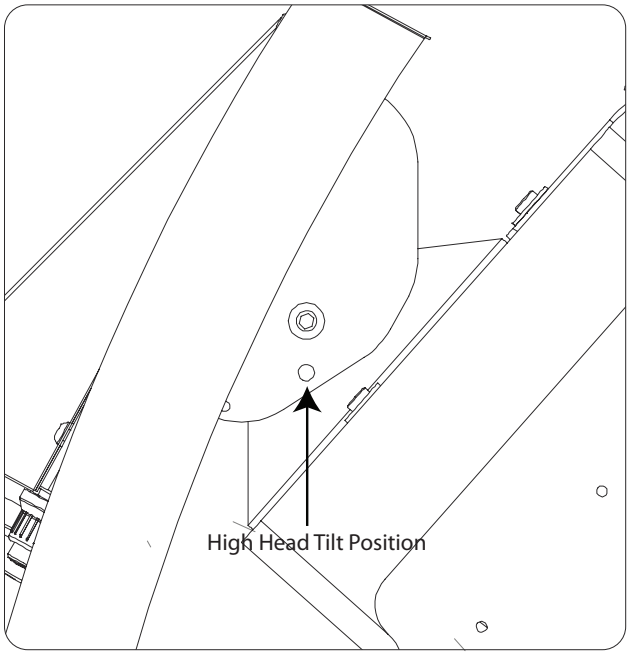
Connect fixed supply line hose to fixed Nautral Gas supply line.



Adjusting the heater head angle

CAUTION: ONLY ADJUST THE HEATER HEAD ANGLE PRIOR TO OPERATION. ADJUSTING WHILST UNIT IS IN OPERATION OR POST OPERATION CAN CAUSE SERIOUS BURNS





To set heater head angle at high position, manually push heater head up to align hole then insert slip pin.

To set heater head angle at low position, remove slip pin & allow heater head to rest in low position. Slip pin does not need to be inserted.

Note:
The slip pin must be inserted if transporting the heater to enure no damage during transit.

LEAK TEST

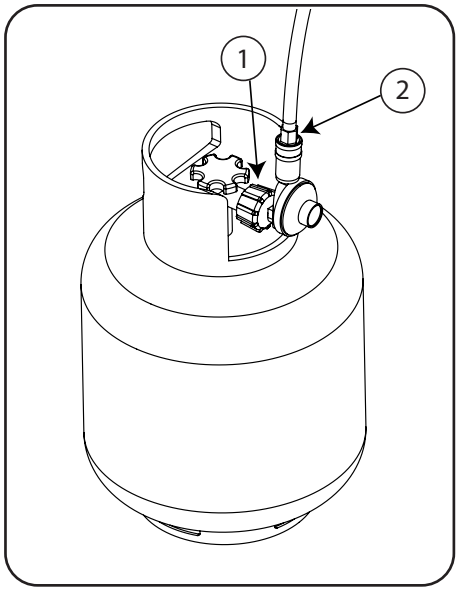
Gas connections on heater are leak tested at the factory prior to shipment. A complete gas leak test must also be performed after assembly before operating the heater due to possible damage occurring during transportation.

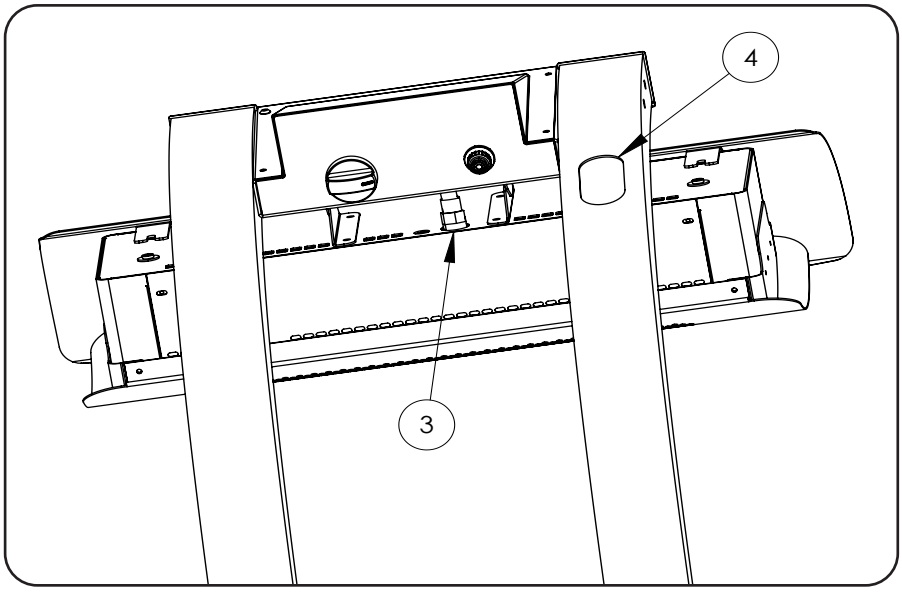
For Natural Gas Model:

- The appliance and its individual shutoff valve 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.
- 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.

For NG/Propane Model:

- Never leak test while smoking.
- The heater must be checked with a full gas cylinder (Propane model only)
- Ensure connection all 3 connections illustrated below are connected correctly & tight.
- Make sure the control knob is in the OFF position.
- Make a mild soapy water solution. The soapy solution can be applied with a spray bottle, or soft cloth.
- Turn on the gas supply at the gas cylinder.
- Apply the soapy water solution to the 4 connections illustrated below. For Natural gas model, replace connections 1 and 2 with hose connections either side of regulator.
- To check connection #3 the gas control knob must be pressed in to open the gas valve.
- If bubbles appear at any of the connections, there is a gas leak.
- If a gas leak is detected, turn off the gas supply. Tighten any leaking fittings, and repeat process described above.
- If soap bubbles still appear (gas is still leaking), turn off the gas supply at the cylinder, disconnect the regulator from the gas cylinder or fixed gas supply hose from natural gas supply outlet, and contact the store of purchase for assistance and advice.
- If gas connections are gas tight, the heater is ready to be used.

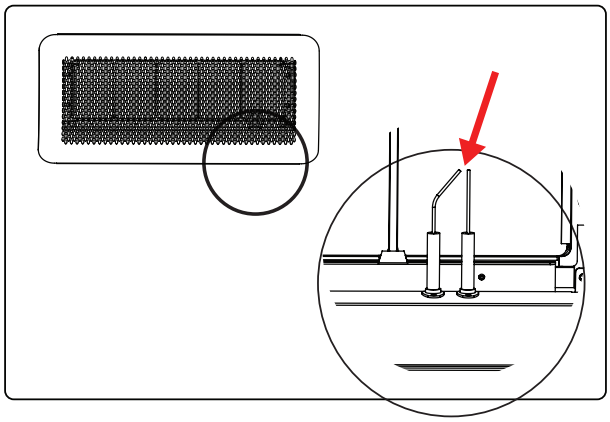




TURNING THE APPLIANCE ON

1. Ensure that installation has been carried out in accordance with the manufacturers instructions outlined in this document.

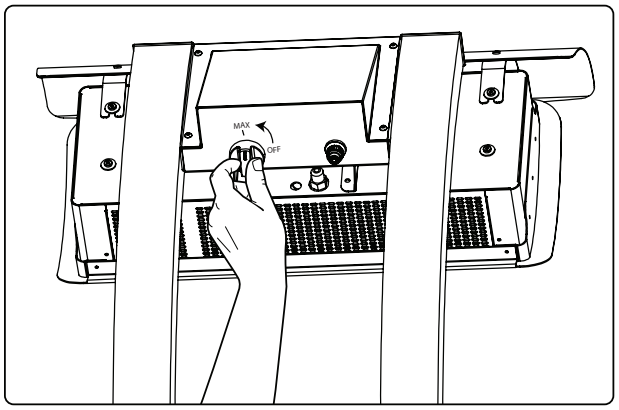
2. Test the spark ignite button is working correctly by pressing the button and observing sparks at the ignition rods at the front of the heater. If sparks are not observed do not proceed with turning appliance on. Contact the store of purchase for assistance and advice.



⚠ WARNING
Do not turn the heater on with people standing in front of heater. Heater must be turned on while standing behind the heater.

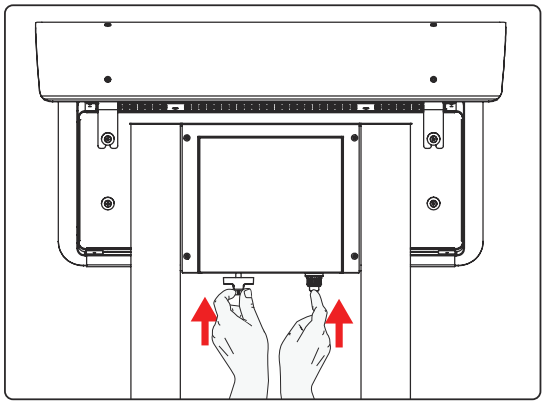
⚠ WARNING
Improper lighting procedures can cause personal injury, property damage, or even death.

3. Turn ON the gas supply at the LPG storage bottle.
4. Turn on gas control knob to IGNITION setting.

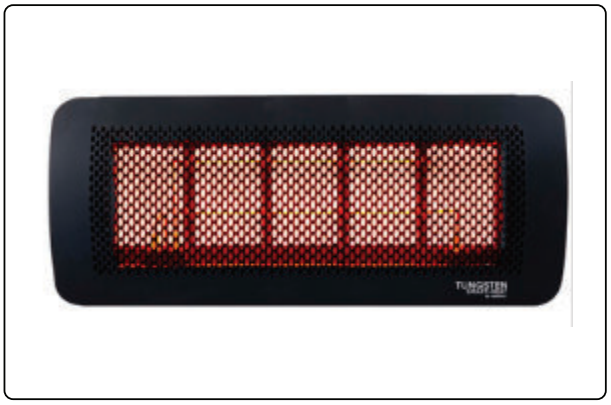


5. Once at IGNITION position, press control knob while simultaneously pressing the spark ignition button. Continue to hold in controls for 10 seconds for ignition to complete.

Release the controls and turn knob to MAX position. If the heater has not ignited wait 5 minutes and then repeat Step 5.



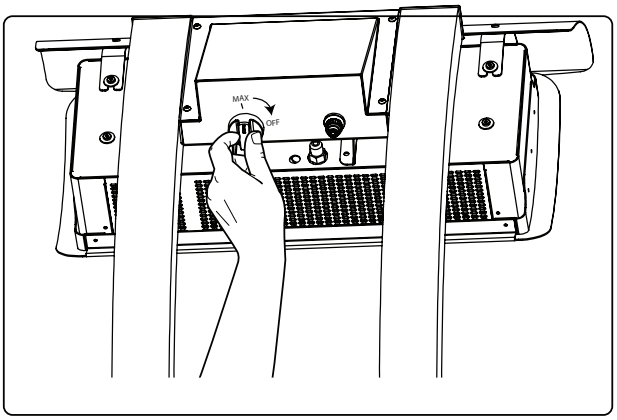
6. When appliance is correctly turned on the tiles will start to glow red.

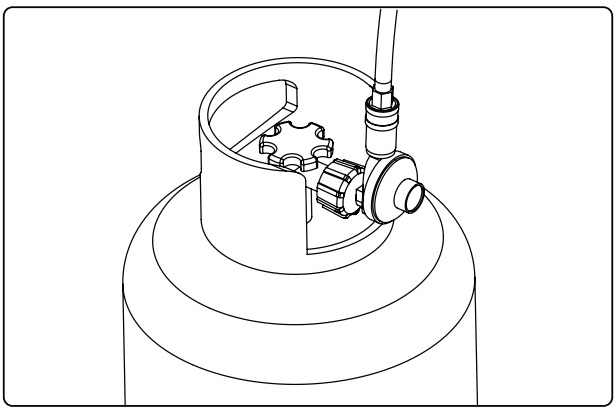


TURNING THE APPLIANCE OFF

1. Press and turn the control knob to "OFF" position to stop the supply of gas to the burner. The tiles should change colour from red to black.

2. Turn OFF the gas supply at the Propane storage bottle or disconnect natural gas supply hose from natural gas supply
3. WARNING - After turning heater off, you must wait a minimum 5 minutes to let excess gas dissipate before lighting again.



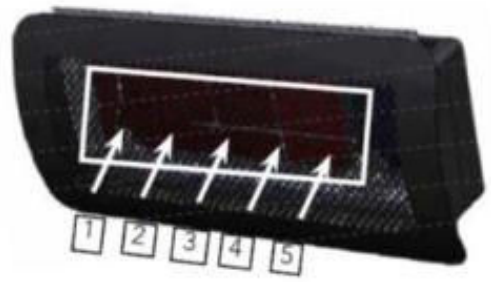


It is important that regular maintenance is carried out on the heater to maintain efficient operation. All maintenance should be carried out ONLY by authorized service personnel. Inspect and clean at least every six months or more frequently in adverse conditions.
Never obstruct the flow of combustion 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. The whole gas system, hose assembly, regulator, pipes, and burner should be inspected for damage and leaks before each use and at least annually by an authorized person for the life of the heater. To check the gas hose within the mounting arm, disassemble heater by reversing the installation instructions as outlined in installation section of this manual. 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 must be purchased from Bromic Heating Pty Ltd.

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 translucent face, or by peering down the product combustion passageway. 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 manifold and injectors: Undo gas hose from gas valve outlet (heater should be switched off) 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. Remove salt spray from the heater immediately to prolong heater life. Check frequently for corroded areas and repair them promptly.
8. The exterior components of the heater are constructed from stainless steel, and high temperature black paint.
9. Over the life of the heater internal non-painted parts may slightly discolour from high temperatures emitted by the heater. This is a normal occurrence and does not affect the operation of the appliance.
10. Replacement parts can be purchased to restore the heater to its original appearance from Bromic Heating Pty Ltd.

⚠ IMPORTANT

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.

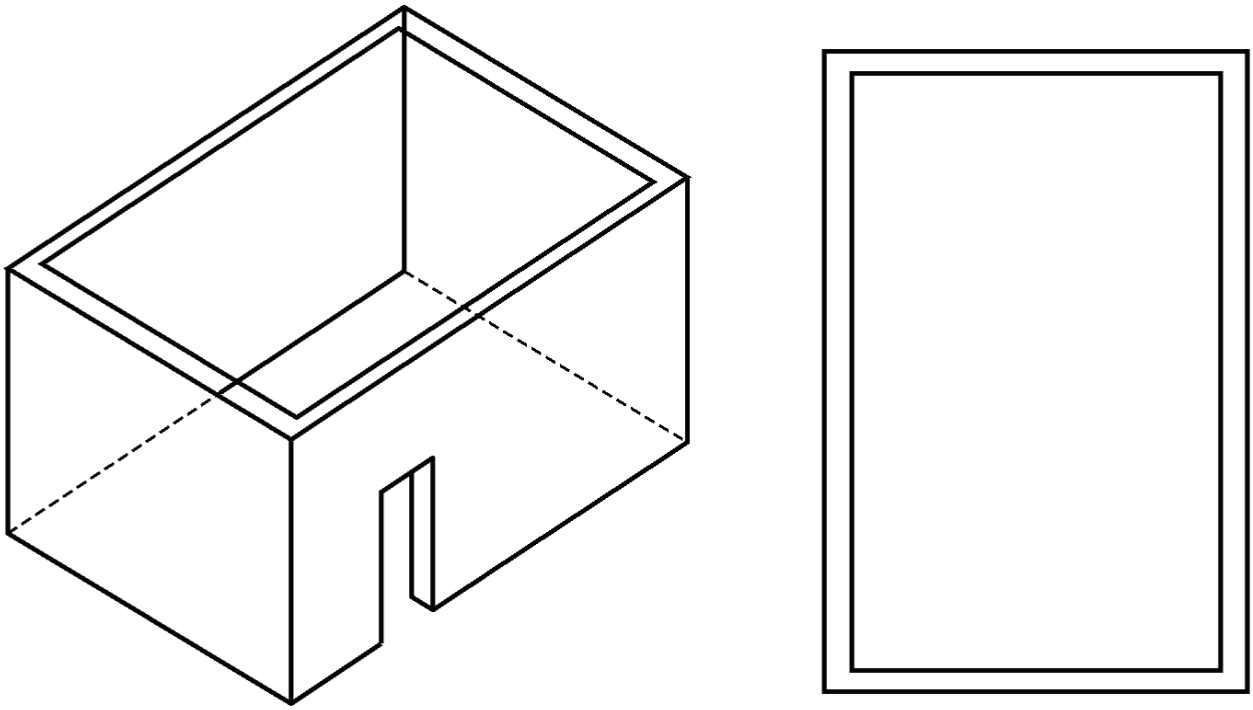
More frequent cleaning may be required as necessary. It is imperative that control compartment, burners and circulating air passageways of the heater be kept clean.

⚠ IMPORTANT

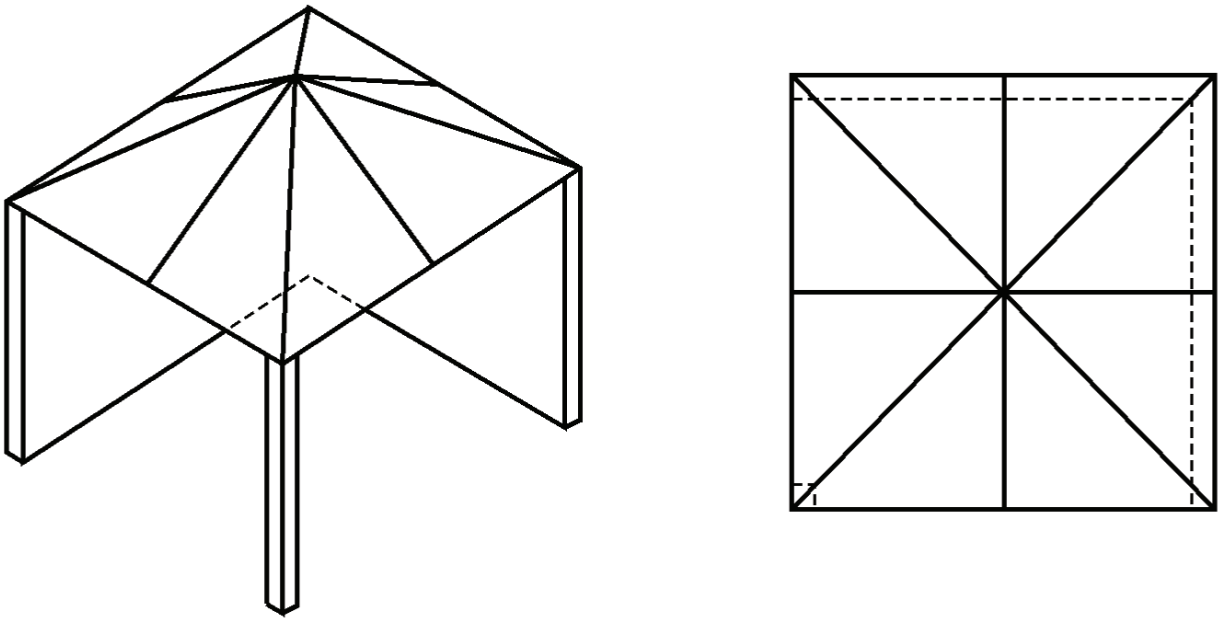
Do not apply any additional surface coating to the heater under any circumstances. Use of additional coating other than those applied during manufacture could result in hazardous reactions such as toxic fumes or fires. Additional coatings will void the warranty.

TROUBLESHOOTING

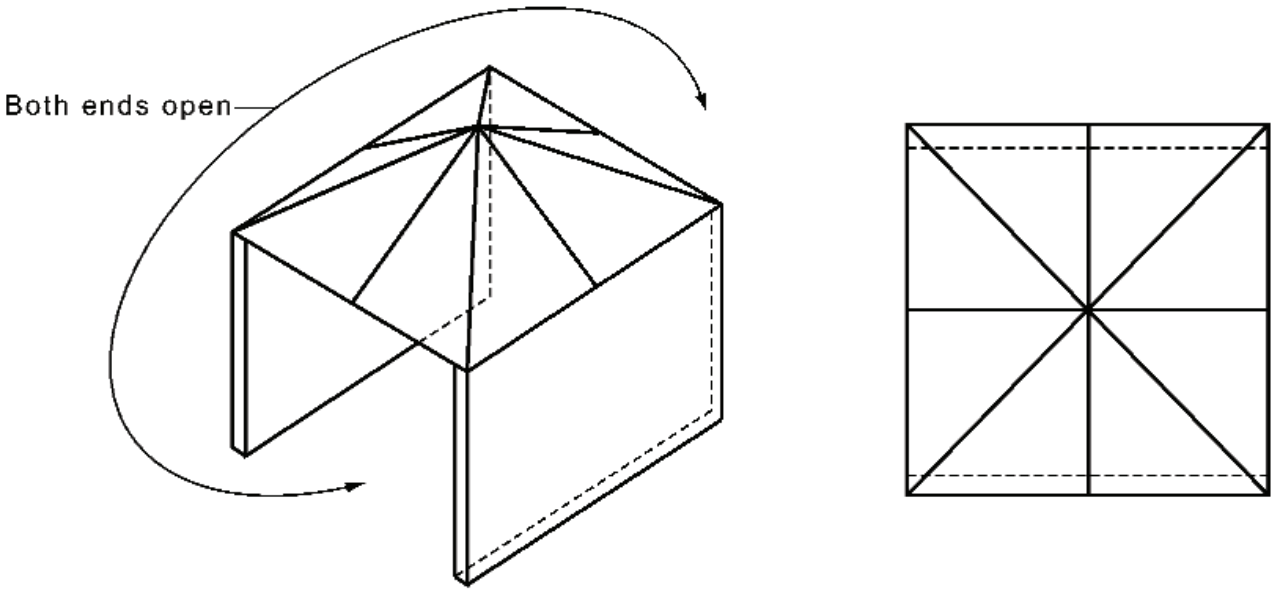
Problem	Possible cause	What you can do (if these do not work, contact an authorised technician)	What ONLY an authorised service technician can do
Burner will not light	• Gas valve may be OFF • Tank fuel empty • Opening blocked • Loose connections • Low gas pressure • Thermocouple bad • Not in correct location	• Turn the gas valve ON • Check all fittings • Replace cylinder with a new cylinder	• Refill LPG tank • Remove and clean • Replace thermocouple
Burner will not stay on	• Loose connections • Thermocouple bad • Gas leak in line • Lack of fuel pressure • Tank near empty	• Tighten connections • Check connections	• Clean dirty area • Replace thermocouple • Refill LPG tank.
Burner flame is low	• Supply hose is bent or twisted	• Straighten hose and perform leak test on hose	
Emitter glows uneven	• Low gas pressure • Base is not on a level surface	• Replace cylinder with a new cylinder • Place heater on a level surface	
Thick black smoke	• Blockage in burner	• Turn off the heater and let it cool.	• Remove blockage and clear burner inside and outside
Carbon build-up	• Dirt or film on reflector and flame screen	• Clean reflector and flame screen	



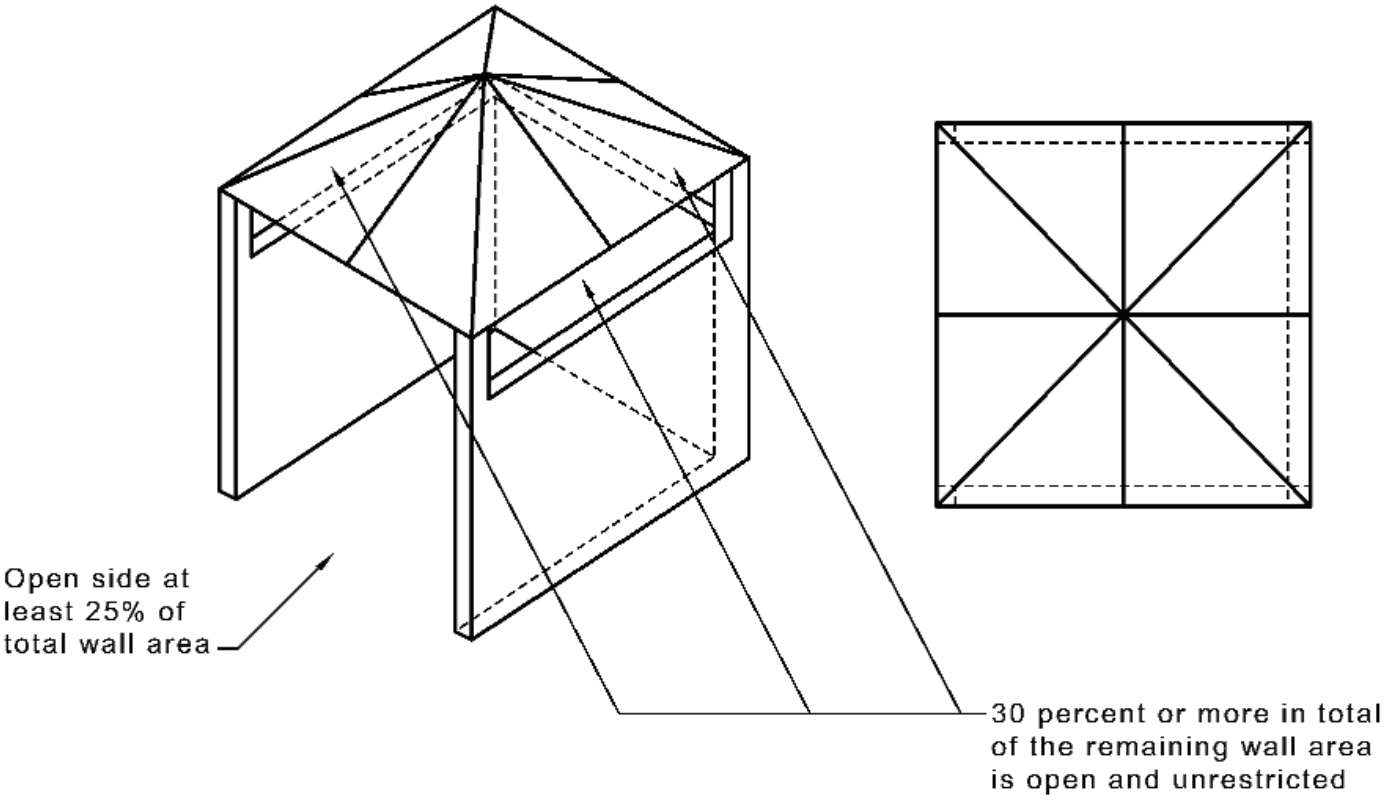
OUTDOOR AREA–EXAMPLE 1



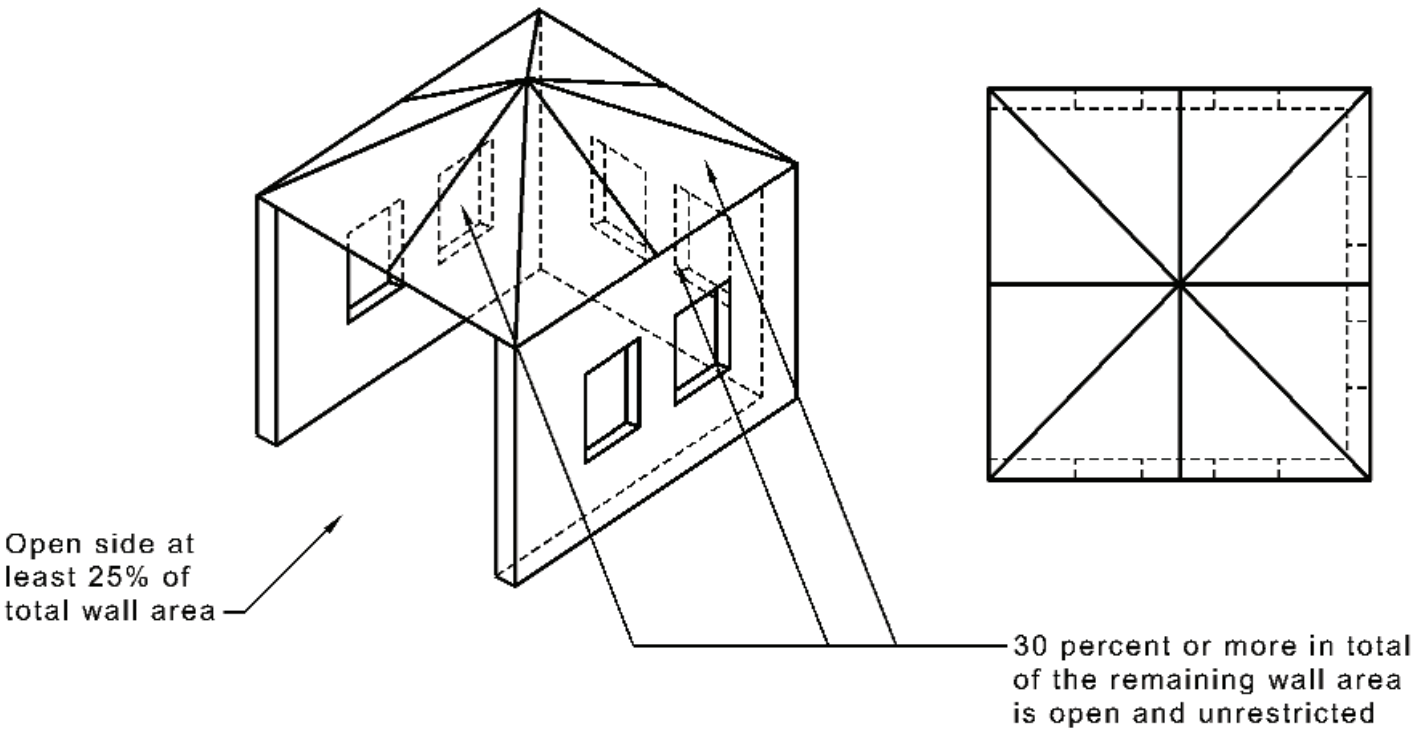
OUTDOOR AREA–EXAMPLE 2



OUTDOOR AREA–EXAMPLE 3



OUTDOOR AREA–EXAMPLE 4



OUTDOOR AREA–EXAMPLE 5