



RADtec EF-RUBY Ellipse Flame Heater Instruction Manual

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RADtec EF-RUBY Ellipse Flame Heater



WARNING

- Read the instructions before installation and use.
- This appliance must be installed and the gas cylinder stored in accordance with the regulations in force.
- This appliance requires installation by a competent person.
- For use only in well-ventilated areas. An amply ventilated area must have a minimum of 25% of the surface area open. The surface area is the sum of the walls surface.
- The use of this appliance in enclosed areas can be dangerous and is prohibited.
- This appliance shall not be used for the heating of domestic premises.
- This appliance shall be used for space heating only.
- This appliance shall not be used in basements or below ground level.
- This appliance has no atmospheric sensing device. It shall be used for heating well-ventilated buildings used for animal rearing, or for outdoor use only.
- Use only the type of gas and the type of cylinder specified by the manufacturer. Do not place items on or against this appliance.
- Do not store chemicals or flammable materials or spray aerosols near this appliance. Do not operate this appliance in an explosive atmosphere like in areas where gasoline or other flammable liquids or vapors are stored.
- Protect the hot glass tube from rain, water splash or anything that will cause a sudden change in temperature which may lead to cracking or shattering.

WARNING

- Turn off the gas valve immediately & smell of gas is detected.
- Extinguish any open flame.
- If odour continues, contact your gas supplier immediately.

WARNING The user assumes all risk in the assembly and operation of the gas heater. Failure to follow the warnings and instructions in this manual can result in severe personal injury, death or property damage. If user cannot read or fully understand the instruction manual, please contact your dealer. Manufacturer or supplier will not be responsible for user's negligence.

CAUTION PLEASE READ THE FOLLOWING SAFETY GUIDELINES (CAREFULLY) BEFORE.

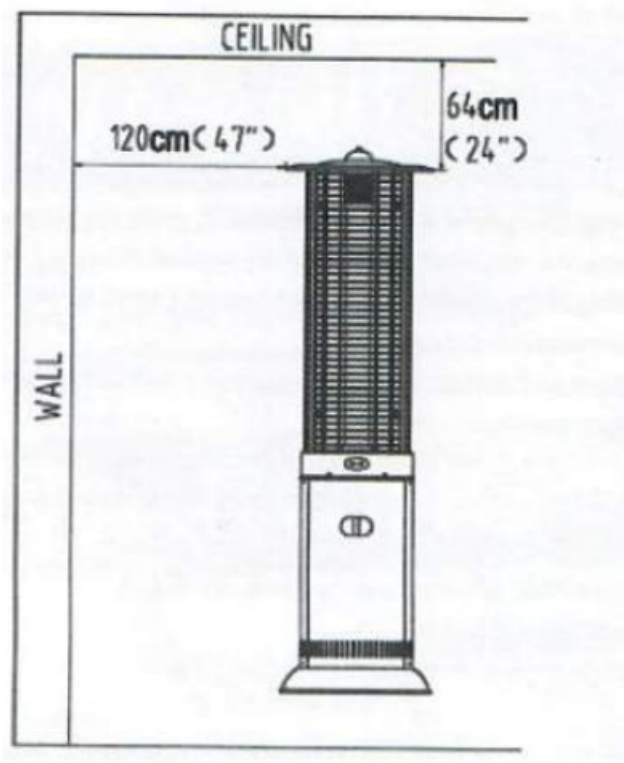
OPERATION.

- This Goliath flame heater is for outdoor use only (see attached diagrammatical representations of outdoor areas)
- This outdoor heater is not intended to be installed on recreational vehicles and/or boats.
- Do not use the heater for the heating of domestic premises.
- Do not use the heater in the basements or below ground level.
- Gas heaters without atmospheric sensing device should only be used for heating well-ventilated buildings used for animal rearing or for outdoor use.
- This appliance must be installed and the gas cylinder stored in accordance with the regulations in force. * Installation and repair should be done by a qualified service person.
- Improper installation, adjustment, alteration can cause personal injury or property damage.
- Do not attempt to alter the unit in any manner.
- Never replace or substitute the regulator with any regulator other than the factory-suggested replacement.
- Remove transit protection before use.
- Do not store or use petrol or other flammable vapors or liquids in the heater unit.
- The whole gas system, hose, regulator, pipe or burner should be inspected for leaks or damage before use, and at least annually by a qualified service person.
- Check the flexible hose is at least once per month and each time the cylinder is changed. If it shows signs of cracking, splitting or other deterioration it should be exchanged for new hose of the same length and of the equivalent quality.
- The flexible hose must be changed within the prescribed intervals.
- All leak tests should be done with a soapy water solution. Never use an open flame to check for leaks.
- Do not use the heater until all connections have been leak tested. Turn off the gas valve immediately if a smell of gas is detected.
- Do not transport the heater while it's operating.
- Do not move the heater after it has been turned off until it has cooled down.
- Shut off the valve at the gas cylinder or the regulator before moving the appliance.
- Use only the type of gas and the type of cylinder specified by the manufacturer.
- In case of violent wind particular attention must be taken against tilting of the appliance.
- Keep the ventilation opening of the cylinder enclosure free and clear of debris. Do not paint the flue screen, windshield or reflector.

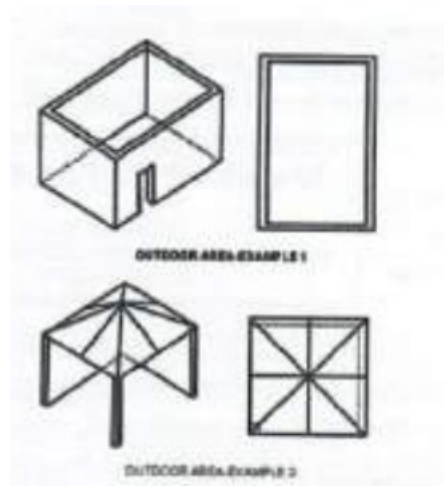
- Control compartment, burner and circulation air passageways of the heater must be kept clean. Frequent cleaning may be required as necessary.
- Protect the heater from bumps to avoid delicate parts like the glass tube from getting damaged.
- Protect the hot glass tube from rain, water or anything that might cause a sudden change in temperature which may lead to cracking or shattering
- The gas cylinder should be turned off when the heater is not in use.
- Avoid twisting the flexible tubes and hoses * Any guard or other protective device removed for servicing the heater must be replaced before operating the heater.
- Adults and children should stay away from high temperature surfaces to avoid burns.
- Children should be carefully supervised when they are in the area of the heater.
- Clothing or other flammable materials should not be hung on the heater or placed on or near the heater.

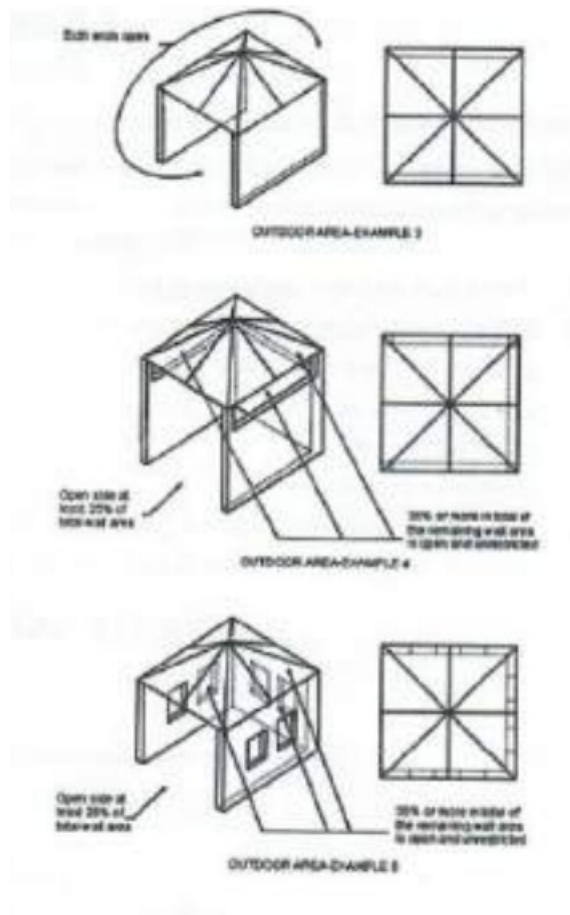
HEATER LOCATION

- The heater is primarily for outdoor use only (see diagrammatical representations of outdoor areas. Do not use it for indoors or in an enclosed area. Always ensure that adequate fresh air ventilation is provided.
- Do not use the heater for the heating of domestic premises.
- Do not use the heater in basements or below ground level. This appliance should only be used in 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.
- Any enclosure in which the appliance is used shall comply with one of the following:
 - An enclosure with walls on all sides, but at least one permanent opening at ground level and no overhead cover.
 - Within a partial enclosure that includes an over head cover and no more than two walls.
 - 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, and
 - At least 30% of the remaining wall area is open and unrestricted.
 - In the case of balconies, at least 20% of the total wall area shall be and remain open and unrestricted.
- Always maintain clearance from combustible materials; from the top 60 cm, and sides 120cm
- Heater must be placed on level firm ground.
- Never operate heater in an atmosphere where gasoline or other flammable liquids or vapors are stored



DIAGRAMMATICAL REPRESENTATIONS OF OUTDOOR AREAS





GAS REQUIREMENTS

- Use propane or LPG only.
- The heater is designed for use with 11-15kg cylinder. Maximum size of cylinder suitable for the appliance, with regulator attached, is $\phi 42 \text{ cm} \times 73 \text{ cm}$. Inner dimension of stand within the side panels is $< 42 \text{ cm} \times 73 \text{ cm}$.
- The appliance requires approved gas hose and regulator
- Regulator maximum inlet pressure must not exceed 680 kPa (100 PSI).
- Regulator outlet pressure must be 28-30 mbar.
- The hose and regulator assembly must conform to local standard codes.
- The installation must conform to local codes, or in the absence of local codes, to the standard for the storage and handling of liquid petroleum gases
- A dented, rusted or damaged gas cylinder may be hazardous and should be checked by your gas supplier. Never use a gas cylinder with a damaged valve connection.
- The gas cylinder must be arranged to provide for vapor withdrawal from the operating cylinder.
- Never connect an unregulated gas cylinder to the heater.
- Disconnect the gas cylinder when the heater is not use.

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. The heater must be checked with a full cylinder.

1. Make sure that the appliance is switched off.
2. Make a soapy water solution of one part liquid detergent and one part water. The soapy water solution can be

applied with a spray bottle, brush or rag to all gas connections. Soap bubbles will appear in case of a leak.

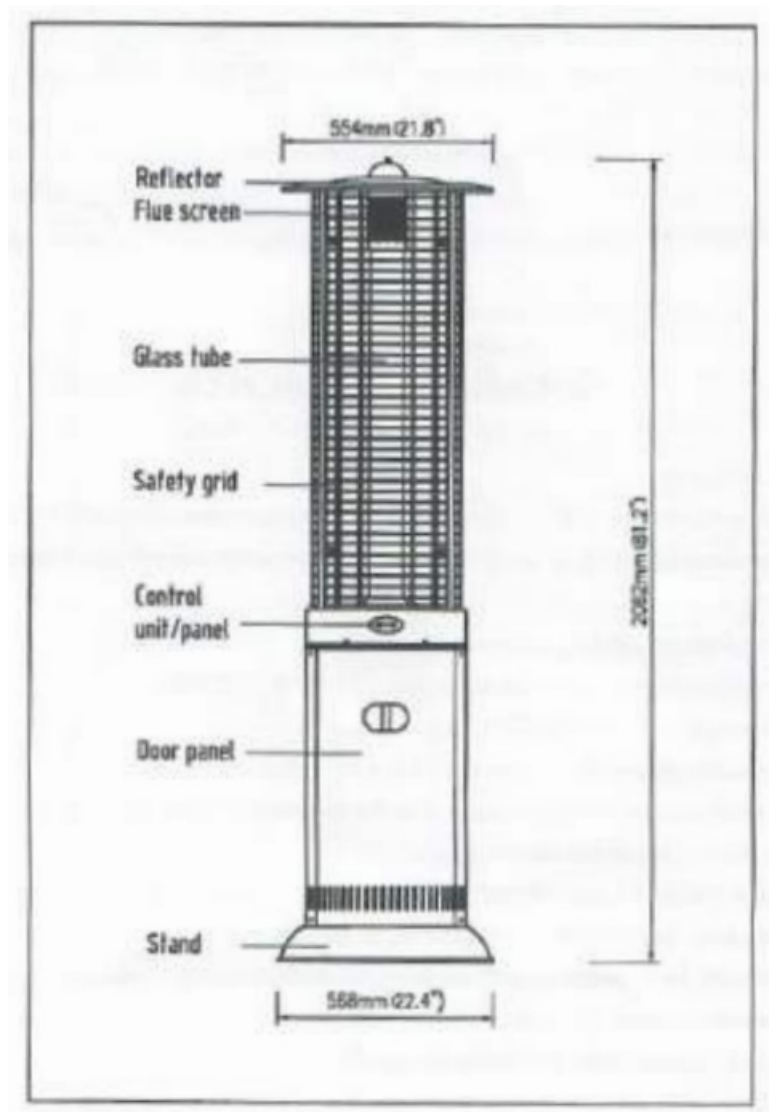
WARNING

Never leak test while smoking.

3. Switch on the gas supply.

In case of a leak, switch off the gas supply. Tighten any leaking fittings, then turn the gas supply ON and recheck. Contact your dealer or gas supplier for assistance if bubbles continue to appear.

PARTS AND SPECIFICATIONS



Construction and characteristics

- Heater with dancing flame enclosed in transparent glass tube
- Heat emission from the reflector
- Heat resistant infrared mesh provides more warmth.
- Tip switch shuts off heater automatically when appliance is accidentally knocked down
- Optional wheels for mobility

Specifications

- For outdoor use only
- Use propane only
- Burner pressure: 28-30/37 mbar
- Pilot injector: 0.20 mm
- Burner Injector: 1.9mm – Max.Power(Gross):41000BTU
- Consumption: 450 g/hr – 870 g/hr
- Weight: 30.2kg
- Height: 2062mm

ASSEMBLY PART

- Adjustable opening wrench (2) 20 cm long
- Slip joint pliers 23 cm long
- Philips screwdriver wi medium blade
- Spray bottle of soap solution for leakage test

Parts supplied

- Preassembled round flame heater
- Cover with 1 pcs bolts 10 * 15mm, 10 pcs bolts 08 × 15 mm
- 60 cm gas hose conforming to local standard codes (pressure regulator included)
- Wheels

WARNING

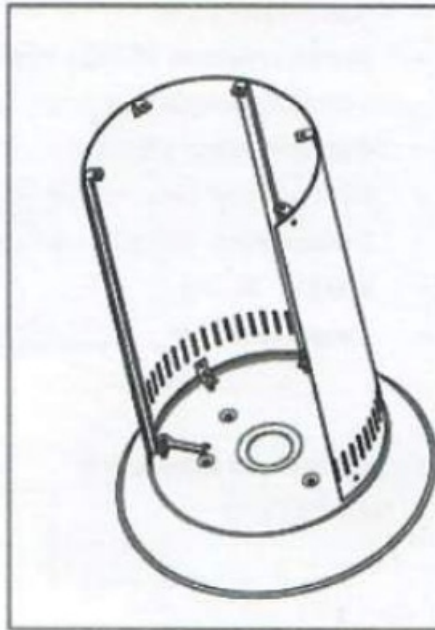
This appliance required regulator that is defined under the GAS REQUIREMENTS. Use only the type of gas and the type of cylinder specified by the manufacturer.

HEATER ASSEMBLY PROCEDURES

Flame Heater Round is preassembled at the factory. User needs to complete a couple of assembly procedures to make the appliance operational.

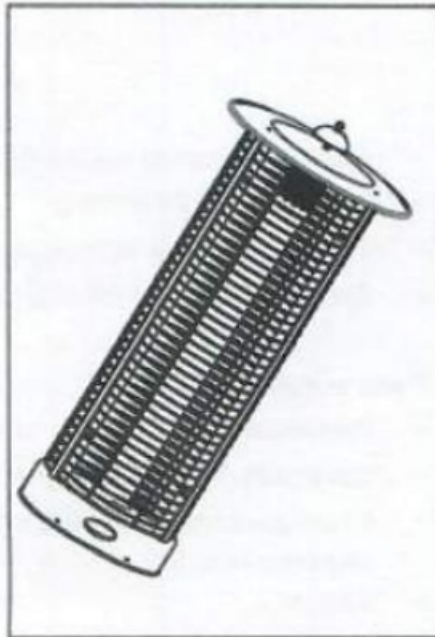
1. Step1

1. As shown, put five root support bar respectively in the each position of chassis;
2. Connect the support bar to the chassis with five M8 by 15 mm screws.



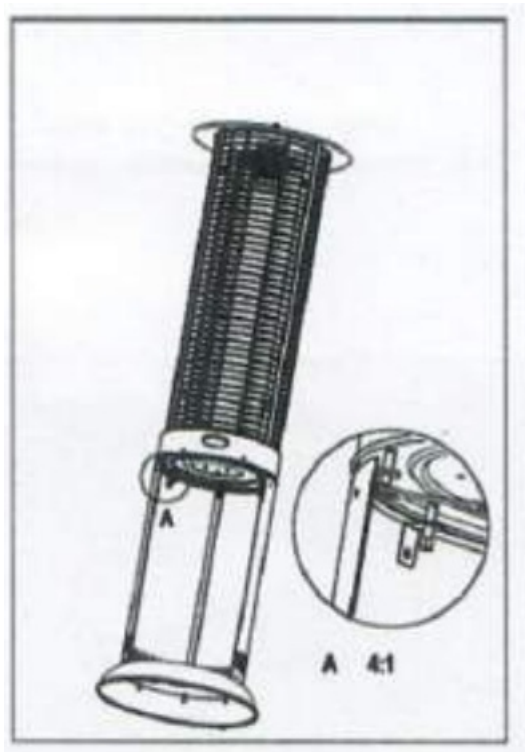
2. Step 2

1. Remove the small cover;
2. Turn the heater into the nut of reflection cover on the top with M10 x 35 um screw, and also be tighten;



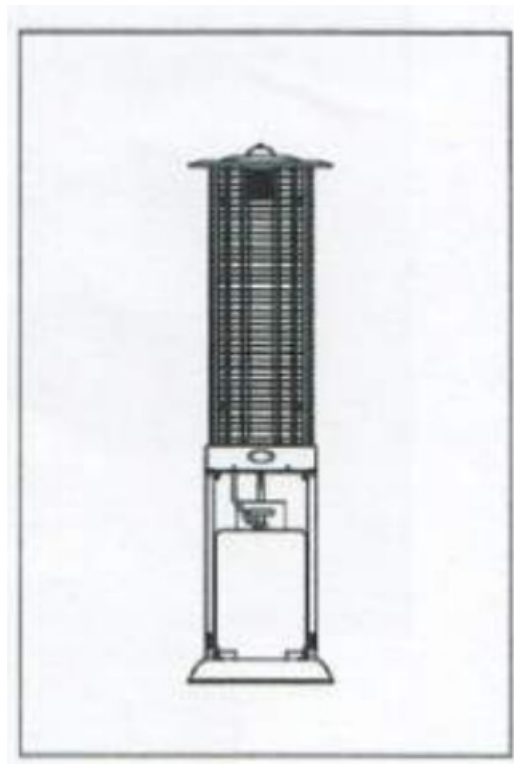
3. Step 3

1. Put the barrel body on the ground which was installed in the first step, and then put the heater on it, 3-2. aimed at the bolt hole;
2. Connect the support bar to the heater chassis on the top with five MB x15 mm screws



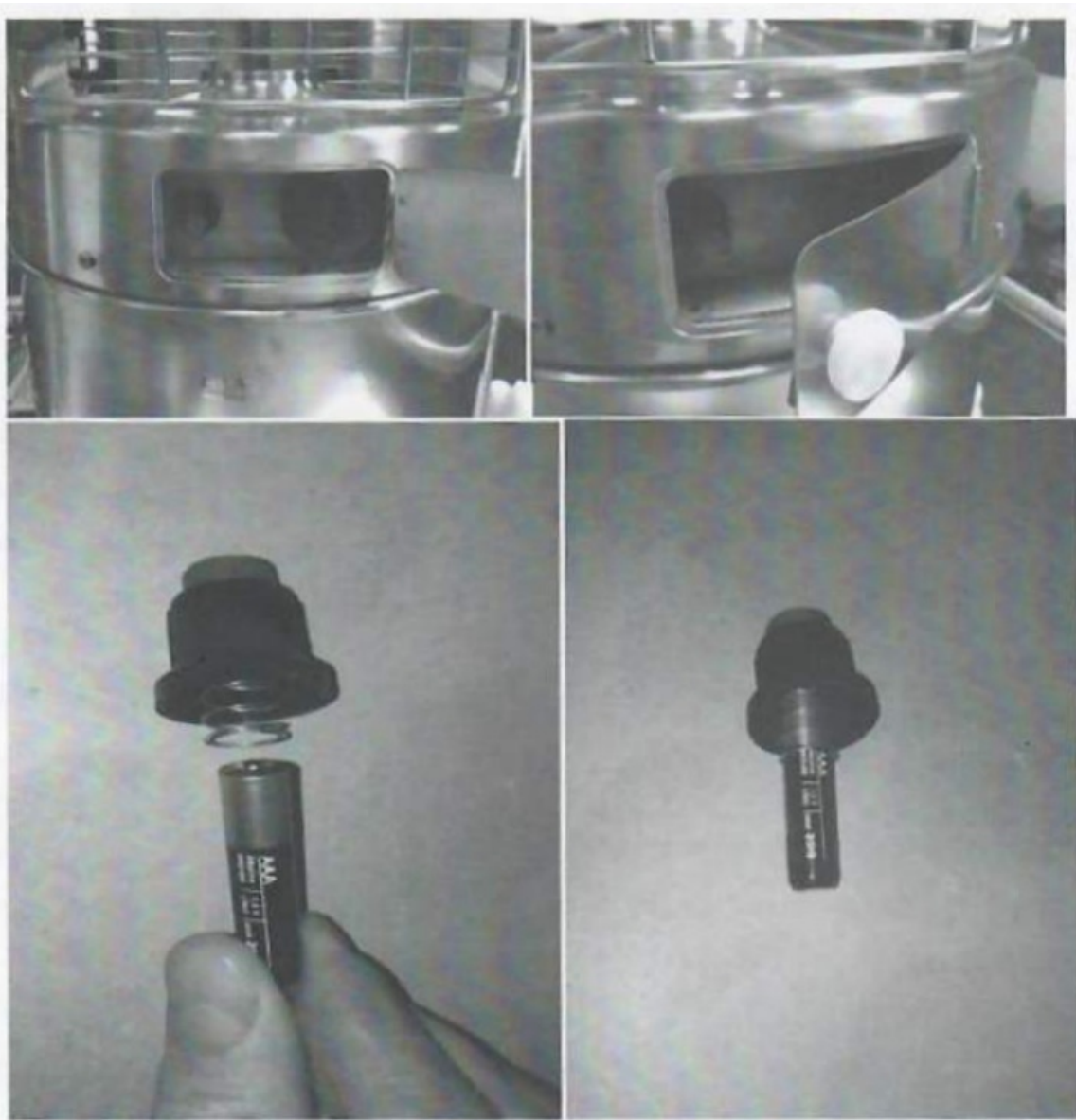
4. Step 4

1. Connect the rubber hose which was on the gas pressure reducing valve to the heater air intake, and also be tighten.
2. Turning the pressure reducing valve (counterclockwise) and connect in a gas bottle, and also be tighten with an adjustable wrench;



5. Step 5

1. Remove ignition switch cap and insert AAA battery as shown below



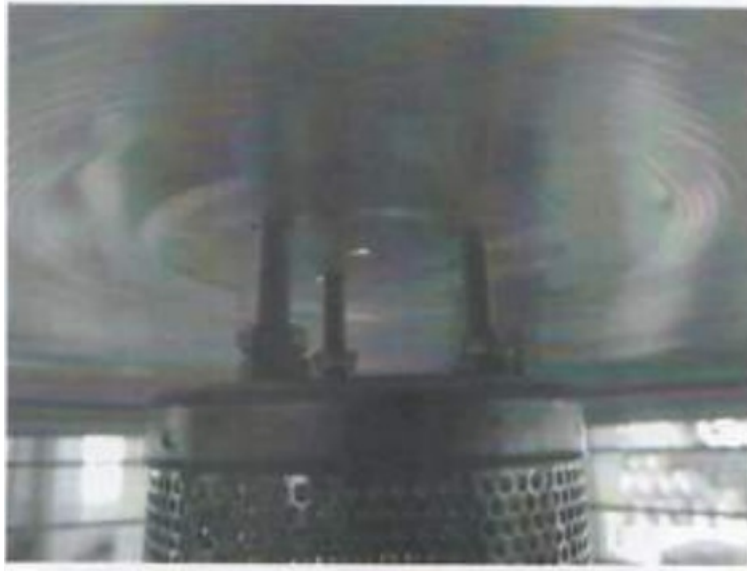
2. Screw ignition switch back into the unit

6. Step 6

1. Place two pieces of ceramic (non asbestos) cord into fiue screen and glass tube holder



2. Release the 3 screw nuts under the aluminum reflector in clockwise direction



3. Lift the screen by one hand and place the glass tube inside



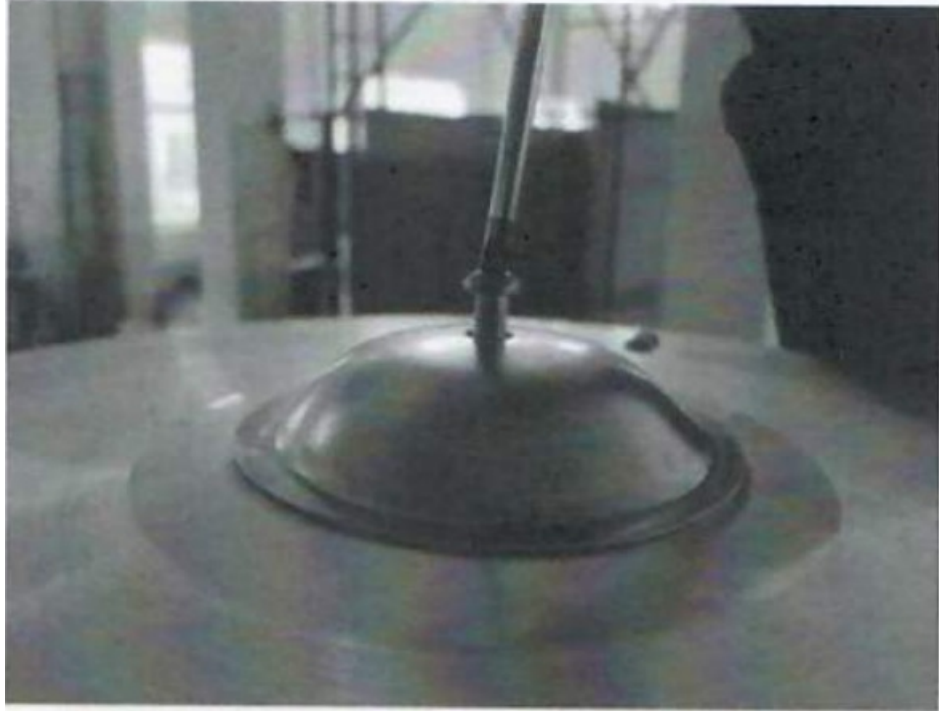
4. Press the flue screen and tighten the 3 screw nuts under the aluminium reflector in counterclockwise direction



5. Tighten the screw nuts on top of the aluminum reflector



6. Use M8*30 screw to tighten the small hat on top of the aluminum reflector



7. Use 4 pcs of M5*10 screw to tighten the safety grid



OPERATION

TO TURN ON THE HEATER

1. Turn on the valve of the gas supply cylinder.
2. Press and turn the variable control knob to PILOT position (counter-clockwise 90°).
3. Press down the variable control knob and hold for 30 seconds. While holding down the variable control knob, press the igniter button several times until the pilot flame ignites. Release the variable control knob 20-30 seconds after the ignition.

Note

- If a new tank has just been connected, please allow at least one minute or more for the air in the gas pipeline to purge out through the pilot hole, or simply do step 3. When lighting the pilot flame make sure that the variable control knob is continuously depressed while pressing the igniter button. Variable control knob can be released after the pilot flame is lit for 20-30 seconds.
 - Pilot flame can be watched and checked from the peephole located on the base of burner. If the pilot flame does not light or it goes out, repeat step 3.
4. Turn the variable control knob to the desired temperature setting.
 5. If the burner flame goes out accidentally or it is blown out by wind, turn off the heater and wait at least 5 minutes or more to let the gas dissipate before re-lighting to avoid possible gas explosion. Repeat steps 2 to 4:

TO TURN OFF THE HEATER

1. Turn the variable control knob to PILOT position.
2. Press and turn the variable control knob to OFF position.
3. Turn off the valve of the gas cylinder and disconnect the cylinder.



WARNING

1. The whole gas system, hose, regulator, pilot or burner should be inspected for leak before use.
2. Check the hose assembly for sign of extreme abrasion, cuts or wears. Suspected areas should be leak tested. If the hose leaks, it must be replaced with a new one that conforms to local standard codes.
3. Avoid twisting the flexible tubes and hoses.
4. Make sure the ventilation opening of the cylinder enclosure, control compartment, burner and circulation air passageways of the heater are free and clear of debris. If debris, spider or insect nests are found, clean the holes with heavy-duty pipe cleaner or compressed air.
5. Always keep a dry chemical fire extinguisher readily available.
6. For safety, always allow a 5-minute complete shut-off period before re-lighting a hot heater.

WARNING

1. Close the valve of the gas cylinder or the regulator after use.
2. Do not move the heater, or cover it with protective cover after it has been turned off until the temperature has cooled down.

REPLACING THE GAS CYLINDER

1. Close the valve of the gas cylinder.
2. Disconnect the regulator from the cylinder following the instructions that came with your regulator.
3. Replace the cylinder.
4. In the absence of any flame, remove the plug or seal cap from the cylinder valve.
5. Check for the presence and good state of the gasket before connecting the regulator.
6. Perform leak test using soapy water solution.

WARNING

1. Changing of cylinder must be undertaken in a flame- free atmosphere.
2. Make sure that all taps on the consuming appliance are in closed position.

STORAGE

- Always close the valve of the gas cylinder after use or in case of a disturbance.
- Remove the pressure regulator and the hose attachment if the heater is not to be used for a period of time.
- Cylinder must be stored outdoors in a well-ventilated area out of the reach of children. Disconnected cylinder must have threaded valve plugs tightly installed and must not be stored in garage or any other enclosed area. Storage of heater indoors is permissible only if the cylinder is disconnected and removed from the heater.
- Check the tightness of the gas valve and for damage. If you suspect you have a damaged gas valve, have it changed by your gas dealer.
- Never store liquid gas cylinder in a sub-terrain, or at places without adequate air ventilation.

CLEANING AND CARE

- Wipe off powder-coated surfaces with soft, moist rag and soap water. Do not clean heater with cleaners that are combustible or corrosive.
- Remove debris, spider and insect nests from ventilation opening of the cylinder enclosure, 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 article that will break and block the ports.
- If carbon deposits develop, remove the reflector and flame screen and clean them with soap water. Do not paint the flame screen, control panel or reflector.
- Cover the burner unit with the supplied protective cover when the heater is not in use. Wait until the heater is cool before covering.
- 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.

WARNING

1. Do not perform maintenance after heater has been turned off until the temperature has cooled down.
2. Do not expose the pilot, controllers and parts underneath the burner to water. Do not use the heater if any of these parts are exposed to water until the appliance is inspected or repaired by a qualified service person
3. Do not try to clean the glass tube in any way to avoid causing damage to the glass, and personal injury.

GENERAL SAFETY

- Equip your home with a least one smoke detector on each floor.
- Keep at least one dry-powder operative ABC-type fire extinguisher in the home at all times.
- Keep areas around heat sources free of papers and trash.
- Store paints, solvents, and flammable liquids away from all heat and ignition sources.
- Develop a fire escape plan before a fire occurs. Be certain every person understands the plan and is able to carry out the plan in case of emergency.
- If your clothing does catch fire don't run. Drop down immediately and roll to smother the flames.

FIRST AID FOR A BURN

EYES

Seek medical attention IMMEDIATELY. Do not put ointments or liquids in eye.

ELSEWHERE

- Consult a doctor if the burn is not healed in 24 hours, or the burn is larger than the size of a palm.
- If serious, send promptly for an ambulance or a doctor.
- If possible, run affected area under cold water, not ice or ice water, for 10-15 minutes if the skin is intact. Cut and gently lift away any clothing covering the burned area, without pulling clothing over the burns. Leave in place any clothing that is stuck to the burns. Do not put any creams or greases on the burned area.
- If the casualty's hands or wrists have been burned remove jewelry if possible without causing further injury (rings, watches, and so forth) and place in his pockets. This prevents the necessity to cut off jewelry since swelling usually occurs as a result of a burn.
- Do not pop any blisters. Cover the burn with a light gauze dressing.
- if blisters pop, apply a light antibiotic ointment and dress as above.

ABNORMAL OPERATION AND TROUBLESHOOTING

For abnormal operations see problems checklist for problem and solution. If service is required, contact an authorized or qualified service person to service the appliance.

SERVICING

It is recommended that before using the heater after a period of 3 months or before the start of the heating season the owner should:

- Check the condition of the gas cylinder.
- Check the hose assembly for any wear or damage. If the hose and regulator assembly is damaged or more

than 5 years old replace with an approved hose and regulator assembly.

- The recommended frequency of checking the tubing or the flexible hose is at least once per month and each time the cylinder is changed. If it shows signs of cracking, splitting or other deterioration it shall be exchanged for new hose of the same length and of the equivalent quality.
- The tubing or the flexible hose must be changed within the prescribed intervals.
- Check for leaks.

WARNING

Servicing shall be carried out by an authorized or qualified service person only. If service is required, remove the reflector hood and burner mesh assembly to access the ignition system and gas valve. Replace the faulty item with correct approved component. Any replacement or accessories are available from your local distributors/dealer.

SOLVING COMMON PROBLEMS

The 3 most common problems associated with any gas heater are gas leaks, wrong gas pressure and dirt


- **DO NOT USE YOUR HEATER WITHOUT CHECKING FOR LEAKS.** Leaks can occur during shipment and installation. A simple solution of soap and water dabbed on the fittings will bubble if a gas leak is present.
- **WRONG GAS PRESSURE.** Too much gas pressure may severely damage your heater. Too little gas pressure and your heater will not burn correctly. If your installer cannot check gas pressure, call your gas supplier.
- **DUST AND DIRT.** This heater requires some cleaning. If the pilot light will not stay, your heater is probably due for a good cleaning. Replacement of thermocouple or pilot assembly is generally not needed. Review **CLEANING AND CARE** in this manual.

PROBLEMS CHECK LIST

<u>PROBLEM</u>	<u>PROBABLE CAUSE</u>	<u>SOLUTION</u>
There is no spark at pilot when the control knob is pressed in and turned counterclockwise to Pilot position	<ul style="list-style-type: none"> Igniter electrode positioned wrong. Igniter electrode broken. Igniter cable pinched or broken. 	<ul style="list-style-type: none"> Replace igniter electrode. Replace electrode. Free electrode cable. If damaged, replace it.
There is spark but no ignition when the control knob is pressed in and turned counterclockwise to Pilot position	<ul style="list-style-type: none"> Gas supply turned off. Control knob not in pilot position. Control knob not pressed in while in pilot position. Pilot is clogged. Air in gas lines. 	<ul style="list-style-type: none"> Turn on the gas supply. Turn variable control knob to pilot position. Press in control knob while in pilot position. Call a qualified person. Purge air from lines by pressing the control knob continuously until there's a faint gas smell.
Pilot lights but flame goes out when control knob is released.	<ul style="list-style-type: none"> Control knob not pressed long enough. Pilot flame not touching the thermocouple. Problem could be result of one or both of the following: <ul style="list-style-type: none"> Partially clogged pilot injector. Low gas pressure. Thermocouple damaged. Thermocouple connection is loose at gas control valve. Gas control valve damaged. 	<ul style="list-style-type: none"> After pilot lights, keep control knob pressed in approx. 30 seconds. Contact a qualified service person or your gas supplier. Replace thermocouple. Hand tight until snug then tighten 1/4 turn with a wrench. Replace gas control.
Burner does not light after pilot is lit	<ul style="list-style-type: none"> Burner injector clogged. Low gas supply pressure. 	<ul style="list-style-type: none"> Clean burner injector. Call your gas supplier.
Burner flame goes off immediately after ignition	<ul style="list-style-type: none"> Low gas pressure 	<ul style="list-style-type: none"> Let the pilot flame stay lit for 10 minutes before setting variable knob to LO.
Delayed ignition	<ul style="list-style-type: none"> Main burner carry over ports clogged. Low gas supply pressure 	<ul style="list-style-type: none"> Clean main burner ports. Call your gas supplier.
Inadequate combustion on burner	<ul style="list-style-type: none"> Not enough air. 	<ul style="list-style-type: none"> Check air passageways and burners for dirt and debris, and clean with compressed air.
Burner flame is low	<ul style="list-style-type: none"> Supply hose is bent or twisted Blockage in burner injector 	<ul style="list-style-type: none"> Straighten hose and perform leak test on hose. Clean or replace burner injector.
Emitter glows uneven	<ul style="list-style-type: none"> Blockage in burner injector Base is not on a level surface Low gas pressure 	<ul style="list-style-type: none"> Clean or replace burner injector. Place heater on a level surface. Replace cylinder with a new cylinder.

<u>PROBLEM</u>	<u>PROBABLE CAUSE</u>	<u>SOLUTION</u>
Slight smoke and odour during initial operation	<ul style="list-style-type: none"> Residue from manufacturing processes. 	<ul style="list-style-type: none"> Will stop after approx. 30 minutes of operation.
Thick black smoke	<ul style="list-style-type: none"> Blockage in burner 	<ul style="list-style-type: none"> Turn off the heater and let it cool. Remove blockage and clean burner inside and outside.
Heater produces a whistling noise when burner is lit.	<ul style="list-style-type: none"> Air passageways blocked. Air in the gas line. 	<ul style="list-style-type: none"> Check minimum installation clearances and air passageways for debris. Operate burner until the air is completely purged.
Heater produces a clicking noise just after burner is lit or turned off.	<ul style="list-style-type: none"> Metal expanding and contracting, respectively. 	<ul style="list-style-type: none"> This is common with heaters. If noise is excessive, contact a qualified person.
Gas odour even when control knob is in OFF position	<ul style="list-style-type: none"> Gas leaks. Gas control defective. 	<ul style="list-style-type: none"> Locate and correct leaks immediately. Replace gas control.
Gas odour during combustion	<ul style="list-style-type: none"> Foreign matter in gas or on burner ports. Heater burning vapors from paint, impurities in air. Gas leakage from: <ul style="list-style-type: none"> Regulator and hose connection. Valve and pipes connection. Pipes 	<ul style="list-style-type: none"> Check gas passageway and burner. Stop storing and using odour-causing products near the heater. Locate and correct leaks, or contact your gas supplier.
Carbon build-up	<ul style="list-style-type: none"> Dirt or film on reflector and flame screen 	Clean reflector and flame screen

Documents / Resources

 <p>RADtec The Outdoor Heating Specialist ELLIPSE FLAME HEATER</p>	<p>RADtec EF-RUBY Ellipse Flame Heater [pdf] Instruction Manual</p> <p>EF-RUBY Ellipse Flame Heater, EF-RUBY, Ellipse Flame Heater, Flame Heater, Heater</p>
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References

- [User Manual](#)

