

Clarifire®



PROPANE GAS HEATER

MODEL NO: GRH35

PART NO: 6920016

OPERATION & MAINTENANCE INSTRUCTIONS



GC01/14

INTRODUCTION

Thank you for purchasing this CLARKE Gas Heater. designed for industrial use only, i.e. **NOT** for domestic use.

This portable gas heater is designed to BS 4096 for industrial applications, to give safe, efficient and reliable operation, and is for use with **Propane Gas only**. Propane gas bottles are not supplied with the unit, but are readily available from builders merchants or gas suppliers.

As with all mechanical equipment, optimum performance will only be achieved if the correct application and servicing procedures are followed.

Before attempting to use this product, please read this manual thoroughly and follow the instructions carefully. In doing so you will ensure the safety of yourself and that of others around you, and you can look forward to your purchase giving you long and satisfactory service.

Proper combustion depends upon the air flow; therefore, the heater must not be modified or operated with parts removed or missing. Likewise, safety systems must not be circumvented or modified in order to operate the heater.

GUARANTEE

This product is guaranteed against faulty manufacture for a period of 12 months from the date of purchase. Please keep your receipt which will be required as proof of purchase.

This guarantee is invalid if the product is found to have been abused or tampered with in any way, or not used for the purpose for which it was intended.

Faulty goods should be returned to their place of purchase, no product can be returned to us without prior permission.

This guarantee does not effect your statutory rights.

UNPACKING

1. Remove heater from carton.
2. Remove all protective material which may have been applied to the heater for shipment.
3. Check the heater for possible shipping damage. Should any damage be apparent, please notify your Clarke dealer immediately.

GENERAL SAFETY PRECAUTIONS

Read, and make sure you fully understand the following precautions and the hazards associated with this type of equipment.

1. Check the heater thoroughly for damage. DO NOT operate a damaged heater.
2. DO NOT modify the heater or operate a heater which has been modified from its original condition.
3. Use only propane gas.
4. Use only VAPOUR WITHDRAWAL propane supply. If there is any question about vapour withdrawal, ask your propane dealer.
5. Mount the propane cylinders vertically (shut-off valve up). Secure them from falling or being knocked over and protect them from damage.
6. Locate propane containers at least 6ft.
7. IMPORTANT: Use only the hose and regulator assembly provided with the heater. Inspect the hose assembly before each use of the heater. If there is excessive abrasion or wear, or hose is cut, replace with the hose assembly listed on the parts list before using the heater.
8. Not to be used for the heating of habitable areas of domestic premises; for use in public buildings, refer to national regulations.
9. For indoor use only in well ventilated areas.
10. If at any time gas odor is detected, IMMEDIATELY STOP operation until the source of gas has been located and corrected.
11. Install the heater such that it is not directly exposed to water spray, rain and/or dripping water.
12. Maintain minimum clearance from normal combustible material (e.g. like paper) stated on page 4.
13. Due to the high surface and exhaust temperatures, adults and children must observe sufficient clearances to avoid burns or clothing ignition.
14. Operate only on a stable, level surface.
15. Do not use with duct work. Do not restrict air inlet or exit.
16. Do not move, handle or service while hot or burning.
17. Use only in accordance with local codes
18. Do not place torsional stress on any hoses.

MINIMUM FRESH AIR OPENING REQUIREMENTS

- Do not use in unventilated areas.
- The flow of combustion and ventilation air must not be obstructed.



Warning: PROVIDE AT LEAST 3FT² OPENING OF FRESH, OUTSIDE AIR WHILST RUNNING THIS HEATER. IF PROPER FRESH OUTSIDE AIR VENTILATION IS NOT PROVIDED, CARBON MONOXIDE POISONING CAN OCCUR.

MINIMUM CLEARANCES FROM COMBUSTIBLES

Front	8 Ft	Top	4 Ft
Sides	4 Ft		

RISKS OF CARBON MONOXIDE POISONING

Even though this heater operates very close to 100 percent combustion efficiency, it still produces small amounts of carbon monoxide.

- Carbon Monoxide (CO) is toxic.
- Pregnant women, persons with a heart or lung condition, anaemia or under the influence of alcohol, or those at high altitude, are more likely to be effected by Carbon Monoxide.
- CO can build up in a confined space and failure to provide adequate ventilation can be fatal.

The early symptoms of asphyxiation caused by inadequate ventilation are:

- headache
- dizziness
- nausea
- dry mouth or sore throat

Should anyone show these symptoms, they must GET FRESH AIR IMMEDIATELY. Turn off the heater and have it serviced before using again.

Be sure to follow all warnings in this manual.

WE RECOMMEND THE USE OF A CARBON MONOXIDE DETECTOR

IF YOU SMELL GAS

LP gas and natural gas have man-made odorants added specifically for detection of fuel gas leaks.

If a gas leak occurs you should be able to smell the fuel gas. Since Propane (LP) is heavier than air you should smell for the gas odour near to the floor. **ANY GAS ODOUR IS YOUR SIGNAL TO GO INTO IMMEDIATE ACTION!**

1. Do not take any action that could ignite the fuel gas. Do not operate any electrical switches. Do not pull any power supply or extension cables. Do not light matches or any other source of flame. Do not use your telephone.
2. Get everyone out of the building and away from the area immediately.
3. Close all propane (LP) gas tank or cylinder fuel supply valves, or the main fuel supply valve located at the meter if you use natural gas.
4. Propane (LP) gas is heavier than air and may settle in low areas. When you have reason to suspect a propane leak, keep out of all low areas.
5. Use your neighbours phone and call your fuel gas supplier and your fire department. Do not re-enter the building or area.
6. Stay out of the building and away from the area until declared safe by the firefighters and your fuel gas supplier.
7. **FINALLY**, let the fuel gas service person and the firefighters check for escaped gas. Have them ventilate the building and area before you return. Properly trained service people must repair any leaks, check for further leakages, and then re light the appliance for you.
8. If you smell even a small amount of gas, **CONTACT YOUR FUEL GAS SUPPLIER IMMEDIATELY. DO NOT WAIT!**

NO ODOUR DETECTED

1. Some people cannot smell the odour added to propane (LP) or natural gas. You must determine if you can smell the odourant in these fuel gases.
2. Learn to recognize the odour of propane (LP) gas and natural gas. Local propane (LP) gas dealers will be more than happy to give you a scratch and sniff pamphlet. Use it to become familiar with the fuel gas odour.
3. Smoking can decrease your ability to smell. Being around an odour for a period of time can affect your sensitivity to that particular odour. Odours present in animal confinement buildings can mask fuel gas odour.

ODOUR FADING

1. The odourant in propane (LP) gas and natural gas is colorless and the intensity of its odour can fade under some circumstances.
2. If there is an underground leak, the movement of gas through the soil can filter the odourant.
3. Propane (LP) gas odour may differ in intensity at different levels. Since Propane (LP) gas is heavier than air, there may be more odour at lower levels.
4. Always be sensitive to the slightest gas odour. If you continue to detect any gas odour, no matter how small, treat it as a serious leak.

CRITICAL POINTS TO REMEMBER!

1. Propane (LP) gas has a distinctive odour. Learn to recognize the odours.
2. A periodic sniff test around the joints; i.e. hose, connections, etc., is a good safety practice under any conditions.

FEATURES

Understanding the basic operation of the heater will reinforce the need to maintain the unit in top condition at all times whilst always observing the safety precautions.

The heater comprises three basic systems:

1. The gas system.
2. The ignition system.
3. The safety control system.

GAS SYSTEM

The gas supply to the machine is by means of a high pressure hose, connected to a LPG cylinder, via a pressure regulator.

When the gas valve is opened, gas will flow to the Control Valve and finally the burner.

This heaters is designed for use with PROPANE gas ONLY. Gas bottles are not supplied, but are readily available from builders merchants or gas suppliers etc.

This heater is designed to operate with a minimum 20 pound (9 kg) propane tank. You may need two or more tanks or one larger tank in colder weather. Use a 100 pound (45 kg) tank for longer operation or in very cold weather. Less gas is vaporized at lower temperatures. Your local propane gas dealer will help you select the proper supply system. The minimum surrounding air temperature rating for each heater is -20° F (-29°C).

IGNITION SYSTEM

A Piezo-electric igniter is positioned at the burner head. When the Igniter button is depressed, a high intensity spark is generated, which ignites the gas. Heat from the flame is sensed by a thermocouple, which is connected to the Flame Failure Valve. As the thermocouple heats up the cut-off valve opens, so that after a short period, the Control Valve button (see Operation) may be released and the main flame is established.

THE SAFETY CONTROL SYSTEM

Should the flame extinguish for any reason, the Thermocouple will quickly cool, causing the Flame Failure Valve to close, shutting off the gas supply.

Additionally, the machine is fitted with a 'Tip Over Switch', which operates should the heater be moved from the vertical position i.e. tip over, thereby shutting off the gas.

ALWAYS ensure that the Tip-Over switch is perfectly vertical and secure.

INSTALLATION

Read these instructions carefully. Do not allow anyone who has not read these instructions to light, adjust, or operate this heater.

Do not attempt to operate the heater with any gas other than propane.

This heater, including hose and regulator assembly, must be inspected at least annually by a qualified service person. If the hose shows evidence of excessive abrasion or wear or if the hose is cut, it must be replaced prior to the heater being put into operation. The replacement hose assembly shall be that specified by the Clarke International.

LOCATING THE HEATER

Although this heater incorporates a 'tip-over' switch, the heater and propane gas cylinder must be located on a hard, flat, level surface to minimize the risk of accidental tipping. The propane gas cylinder should be adequately restrained to prevent accidental tipping. **Only operate this heater with the supply cylinder in the upright position.**

This appliance must be installed only in locations where the potential for physical damage to the appliance, or to individuals (burns), is reduced to a minimum.

The heater must be installed in a location such that it will not be exposed directly to water spray, rain and/or dripping water.

Use of this heater in a draft/windy area decreases its efficiency. If possible, operate the unit in a draft free area.

The heater must be located at least 6 feet away from the propane cylinder and must not be directed towards any gas cylinder.

If more than one heater is to be used, they and the supply cylinders must be separated by at least 20 feet.

Position the heater at a safe distance from combustible materials.

This heater must not be placed on wooden floors or other combustible materials.

When used, the heater should rest on suitable insulating material at least 1 inch thick and extending 3 ft. or more beyond the heater in all directions.

GAS CONNECTION

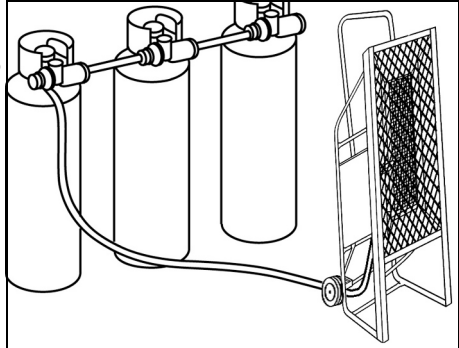
The connection to a propane cylinder must be made in a well ventilated area using the regulator and hose assembly supplied with the appliance. **DO NOT** attempt to adjust this regulator. It has been preset at the factory to provide safe and proper operation of the appliance.

Attach the regulator to the gas cylinder ensuring the cylinder orifice is perfectly clean - blow out with compressed air if necessary, or open the gas valve quickly and briefly to blast away any dust or dirt. Turn the nut in an anticlockwise direction - i.e. LEFT HAND THREAD, until tight. DO NOT use a thread compound on threads. To check for leaks, use soapy water, or liquid soap ONLY.

IMPORTANT: The gas hose and cylinder must ALWAYS be located behind the machine - at a distance of at least 6 feet.

In order to reduce the risk of icing up, when operating at long periods of maximum capacity, you should use a larger capacity gas bottle or two/three bottles in parallel, as shown.

The tee piece and 'pigtails' are readily available from builders merchants or gas suppliers.



WARNING: Propane Gas cylinders must be used and stored in accordance with the 'HIGHLY FLAMMABLE LIQUIDS AND LIQUEFIED PETROLEUM GASES REGULATIONS 1972.

Open the cylinder's gas valve and check all gas connections with a soap and water solution. DO NOT USE A FLAME.

Always use full cylinders with good air circulation and no frost on the cylinders.



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

OPERATING INSTRUCTIONS



WARNING: BEFORE STARTING THE HEATER, YOU MUST ENSURE THAT THE MINIMUM VENTILATION REQUIREMENTS ARE OBSERVED TO AVOID THE RISK OF CARBON MONOXIDE POISONING.

FIRST USE

The heater reaches a very high temperature and during first use you may notice an odour coming from the heater - this is quite normal and will disperse quickly (It is recommended the heater is initially run outside to enable the odour to clear).

It should also be noted that the paint on the surface of the heater will discolour due to the heat being produced.

LIGHTING THE HEATER

1. Ensuring there is sufficient gas, and that it is correctly connected and leak free, turn on the gas supply and check all fittings and connections for gas leaks using a mild soap and water solution. NEVER use a match to check for gas leaks. When satisfied, open the valve on the gas cylinder.

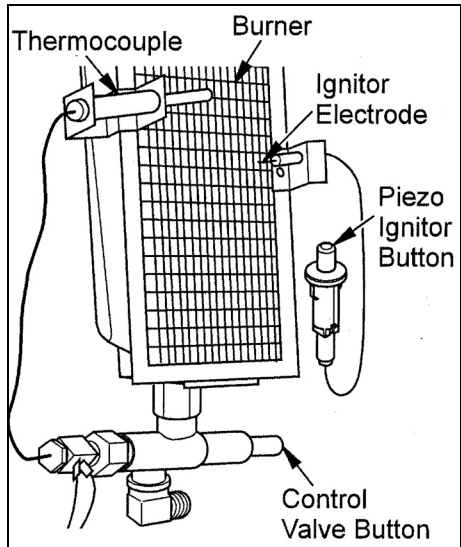
NOTE: The heater, has a fixed, regulated gas flow.

2. Press and hold the control valve plunge as shown whilst continually pressing the piezo-electric button until the burner ignites.

- Once the burner ignites, keep the button pressed for one (1) minute or until the burner stays lit after it is released.

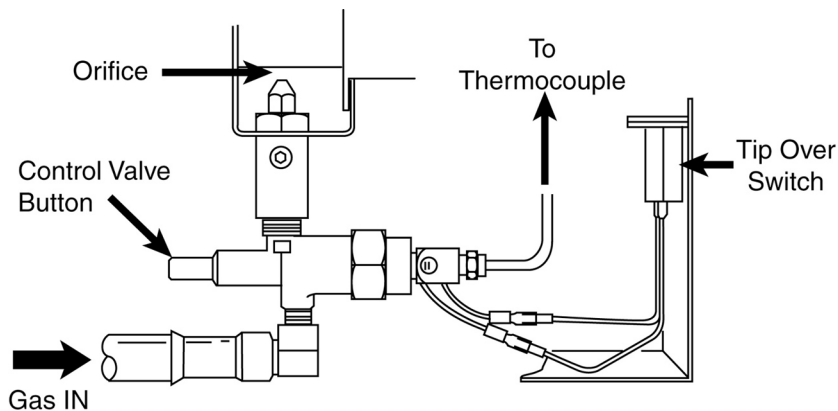
WARNING: DO NOT FACE THE HEATER ELEMENT WHEN STARTING - ALWAYS STAND TO ONE SIDE.

NOTE: If a new gas cylinder has been connected, it may take some time for the gas line to be purged of air. Press the Piezo electric button every 10-15 seconds until it ignites.



3. Alternatively, hold a lit taper to the burner face while pressing and holding the control valve button. After

the burner ignites, keep button pressed for one (1) minute or until the burner stays lit after releasing button.



WARNING: WHEN LIGHTING THE BURNER WITH A TAPER, LIGHT AT THE BOTTOM OF THE SCREEN, NOT AT THE ORIFICE.

NOTE: In cases where long runs of gas supply lines have been installed ahead of the appliance, it may be necessary to bleed trapped air out of supply lines before lighting pilot. New installations generally require bleed of supply lines. Wait a minimum of five minutes after bleeding supply lines before attempting to light heater.



CAUTION: THIS APPLIANCE IS HOT DURING NORMAL OPERATION. AVOID PHYSICAL CONTACT. DO NOT PLACE CLOTHING OR OTHER COMBUSTIBLE MATERIALS ON THIS APPLIANCE.

SHUTTING OFF THE HEATER

1. Close propane gas supply cylinder valve.
2. Observe the burner until flame is extinguished.
3. Listen for closure of the safety valve.
4. DO NOT re-open the propane gas supply cylinder valve before the safety valve closes.

CLEANING & MAINTENANCE



WARNING: NEVER ATTEMPT TO SERVICE THE HEATER WHILE IT IS CONNECTED TO THE PROPANE SUPPLY, IS OPERATING, OR IS HOT. (SEVERE BURNS CAN OCCUR).

1. Turn heater off and let it cool for at least 20 minutes before cleaning.
2. Keep the heater clean. Clean the heater annually or as needed to remove dust and debris. If the heater is dirty or dusty, clean with a damp cloth. Use household cleaners on difficult spots. To clean the reflector, remove the screen by undoing the four securing screws at the front of the unit.
3. Inspect the heater before each use. Check the connections for leaks. Apply a mixture of liquid soap and water to the connections. Bubbles forming show a leak. Correct all leaks at once.
4. Clean the inside of the heater using compressed air where possible. Blow air back and forth along the entire burner face until all dust has been dislodged from the surface of the screen. Blow air through the venturi from the control (orifice) end of the heater.
5. Inspect the hose/regulator assembly before each use. If the hose is highly worn or cut it must be replaced.
6. The heater should be inspected before each use and at least annually by a qualified person.

TROUBLESHOOTING

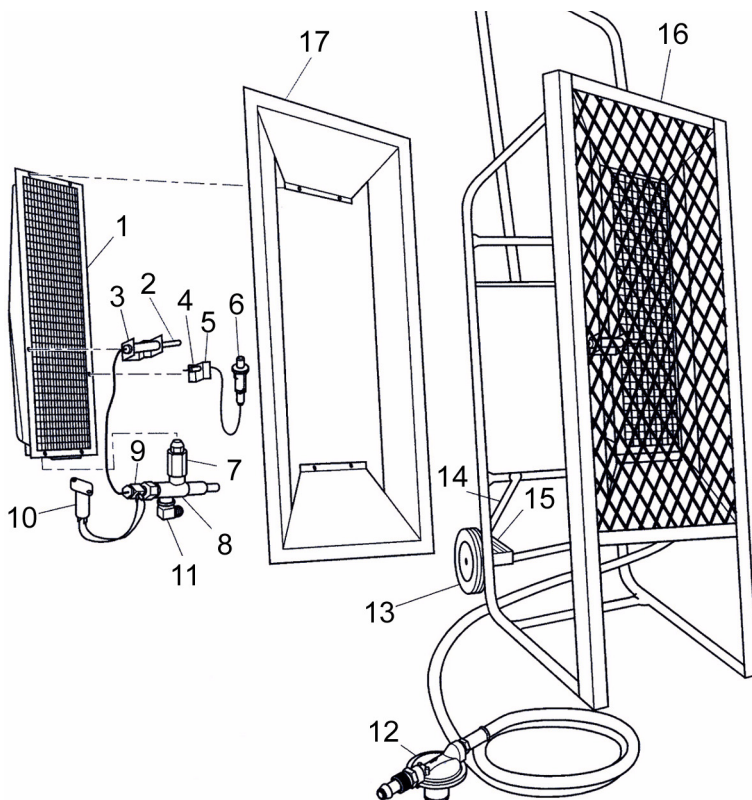
Fault	Cause	Remedy
Burner fails to light	<ol style="list-style-type: none"> 1. Gas supply valve closed. 2. Excess-flow check valve. 3. Excess-flow check valve. 4. Piezo ignition not sparking. 	<ol style="list-style-type: none"> 1. Open gas supply valve slowly 2. Close propane supply valve closed propane tank and re-open slowly. 3. Replace burner orifice. 4. Check igniter electrode gap is 5.0 mm (0.195 in). Check wire lead for damage Replace piezo igniter and/or igniter electrode as necessary. Do not bend electrode, this may cause breakage.
No gas flow to the burner.	<ol style="list-style-type: none"> 1. Cylinder gas tap closed. 2. Cylinder is empty. 3. Orifice is obstructed. 4. Gas leaks from the supply hose or from the tap. 5. Low gas pressure. 6. Thermocouple loose or needs to be replaced 7. Automatic control valve needs to be replaced. 8. Loose wires on tip over switch. 9. Loose or broken wire. 10. Loose/mis-located thermocouple. 11. Defective thermocouple. 12. Defective control. 	<ol style="list-style-type: none"> 1. Open the gas tap 2. Replace cylinder. 3. Remove the orifice and clean it. 4. Use soapy water to find the leak and repair. 5. Check for proper gas supply. 6. Tighten connection or replace thermocouple. 7. Replace automatic control valve. 8. Tighten wires on power switch. 9. Tighten or repair wire. 10. Tighten thermocouple. Make sure that thermocouple is located correctly between reverberator and grid thermocouple wire. 11. Replace thermocouple. 12. Replace controller.

Fault	Cause	Remedy
Heater stops during operation.	<ol style="list-style-type: none"> 1. Excessive gas supply. 2. Insufficient gas supply due to ice formation on the cylinder. 3. The tip-over switch has tripped. 	<ol style="list-style-type: none"> 1. Check the pressure regulator and replace if necessary. 2. Check & use larger cylinder, or two or more in parallel. 3. Investigate the cause, heater has fallen over. Right it and investigate the cause. Take steps to prevent re-occurrence.

SPECIFICATIONS

Model	GRH35
Gas Type	Propane
Output	10.25 kW (35,000 BTU/Hr)
Maximum Pressure	Bottle Pressure
Minimum Pressure	10psi
Fuel Consumption	0.74 kg/hr
Gas Hose Length	3000 mm
Weight unpacked	9.2 kg
Dimensions (L x W x H)	308 x 230 x 850 mm

PARTS DIAGRAM



PARTS LIST

1	Burner	115286-01
2	Thermocouple	114121-01
3	Bracket	117384-01
4	Igniter Electrode	115291-01
5	Igniter Bracket	117385-01
6	Piezo-Igniter Kit	102445-01
7	Orifice	115287-01
8	Valve	115285-01

9	Junction Block	115289-01
10	Tip Switch	115285-01
11	Brass Elbow	111090-02
12	Hose/Regulator	115290-04
13	Wheel	115292-01
14	Wheel Bracket	114156-02
15	Wheel Lock	115294-01
16	Main Frame Assy	117297-01
17	Reflector	117310-01

DECLARATION OF CONFORMITY



Clarke[®]
INTERNATIONAL

Hemnal Street, Epping, Essex CM16 4LG

DECLARATION OF CONFORMITY

This is an important document and should be retained.

We hereby declare that this product(s) complies with the following directive(s):

2009/142/EC Gas Appliance Directive (GAD)

The following standards have been applied to the product(s):

BS EN 16129:2013, BS 3212:1991.

The technical documentation required to demonstrate that the product(s) meet(s) the requirement(s) of the aforementioned directive(s) has been compiled and is available for inspection by the relevant enforcement authorities.

The CE mark was first applied in: 2006

Product Description: Portable Gas Radiant Heaters

Model number(s): GRH35, GRH125

Serial / batch Number: N/A

Date of Issue: 07/10/2013

Signed:

J.A. Clarke
Managing Director

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