

CLARKE®



GAS HEATER

Model No: Little Devil II (inc ss)

PART NO: 6926020, 6926025 (SS)

OPERATION & MAINTENANCE INSTRUCTIONS



LS0618 ISS 6

INTRODUCTION

Thank you for purchasing this CLARKE Gas Heater.

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.

This manual was written for use in the United Kingdom. Please note that in some countries there may be differences in the requirements outlined in this manual and in these cases the local regulations should be consulted by the user.

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.

FUNCTION AND OPERATING PARAMETERS

This is gas powered heater. It's intended use is for drying and the warming of commercial/industrial buildings where adequate ventilation is provided.

- It must be operated as prescribed in the operating manual.
- Is not intended to be used for domestic use or for the heating of habitable areas.
- Is not intended to be used to reach and maintain a certain level of human thermal comfort within an enclosed space in which the heater is situated.
- Is not intended to be used in enclosed areas with restricted ventilation.
- Is not for use in areas with high levels of fluctuating drafts.
- Is not intended for warming animals or live stock.

GENERAL SAFETY PRECAUTIONS

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

1. ONLY use with the voltage specified and ensure the heater is properly earthed.
2. Use only the hose and factory preset regulator provided with the heater.
3. Only use propane gas, set up for vapour withdrawal.
4. Provide adequate ventilation. Before using the heater, provide at least a 1.5 ft.² (1400 cm²) opening of fresh outside air.
5. For indoor use only. Do not use heater outdoors.
6. Not to be used for the heating of habitable areas of domestic premises; for use in public buildings, refer to national regulations.
7. Do not use the heater in a basement or below ground level. Propane gas is heavier than air. If a leak occurs, propane gas will sink to the lowest possible level.
8. Keep the heater area clear and free from combustible materials, gasoline, paint thinner and other flammable vapours and liquids.
9. Do not use heater in areas with high dust content. Dust is combustible.
10. Do not point the heater at propane tank.
11. Keep propane tank(s) below 100°F (37.8°C).
12. Check the heater for damage before each use. Do not use a damaged heater.
13. Check the hose before each use of the heater. If highly worn or cut, replace with hose specified by the manufacturer before using the heater.
14. Locate the heater on a stable and level surface if the heater is hot or operating.
15. Not intended for use on finished floors.
16. Never block the air inlet (rear) or air outlet (front) of the heater.
17. Keep the heater away from strong drafts, water spray, rain or dripping water.
18. Do not leave the heater unattended.
19. Keep children and animals away from the heater.
20. Never move, handle or service a hot, operating or plugged-in heater.
21. To prevent injury wear gloves when handling the heater.
22. Never attach duct work to front or rear of the heater.
23. Do not alter the heater. Keep the heater in its original state.
24. Do not use the heater if altered.
25. Turn off the propane supply and unplug the heater when not in use.
26. Use only original replacement parts. This heater must use design-specific parts. Improper replacement parts could be highly dangerous.
27. Do not place torsional stress on any hoses.

MINIMUM CLEARANCES FROM COMBUSTIBLES

Outlet	6 Ft. (1.83 m)	Top	6 Ft. (1.83 m)
Sides	6 Ft. (1.83 m)	Rear	2 Ft. (0.61 m)

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

UNPACKING

When unpacking, check the heater for possible shipping damage. Should any damage be apparent, please notify your Clarke dealer immediately. Your heater is fully assembled, - only the electrical and gas supplies need connecting.

ELECTRICAL CONNECTIONS



WARNING: READ THESE ELECTRICAL SAFETY INSTRUCTIONS THOROUGHLY BEFORE CONNECTING THE PRODUCT TO THE MAINS SUPPLY.

Connect the mains lead to a standard, 230 Volt (50Hz) electrical supply through an approved BS1363/A plug fitted with a BS1362 13 amp fuse.

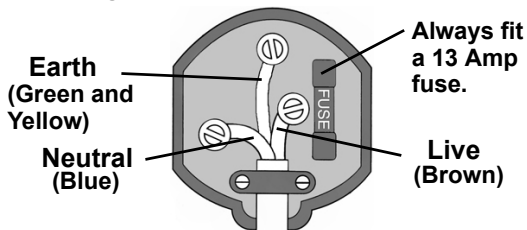
If the plug has to be changed because of damage, it must be removed and a replacement fitted, following the wiring instructions shown below. The old plug must be discarded safely, as insertion into a power socket could cause an electrical hazard.



**WARNING: WIRES IN THE MAINS LEAD ARE COLOURED IN ACCORDANCE WITH THE FOLLOWING CODE:
GREEN/YELLOW = EARTH, BLUE = NEUTRAL, BROWN = LIVE.**

- The BLUE wire must be connected to the terminal which is marked N or coloured black.
- The BROWN wire must be connected to the terminal which is marked L or coloured red.
- The YELLOW AND GREEN wire must be connected to the terminal which is marked E or \perp or coloured green.

Plug must be BS1363/A approved.



Ensure that the outer sheath of the cable is firmly held by the clamp

We strongly recommend that this machine is connected to the mains supply through a Residual Current Device (RCD)

If you are not sure, consult a qualified electrician. DO NOT try to do any repairs.

THEORY OF OPERATION

THE FUEL SYSTEM: The hose/regulator assembly attaches to the propane gas supply. This provides fuel to the heater.

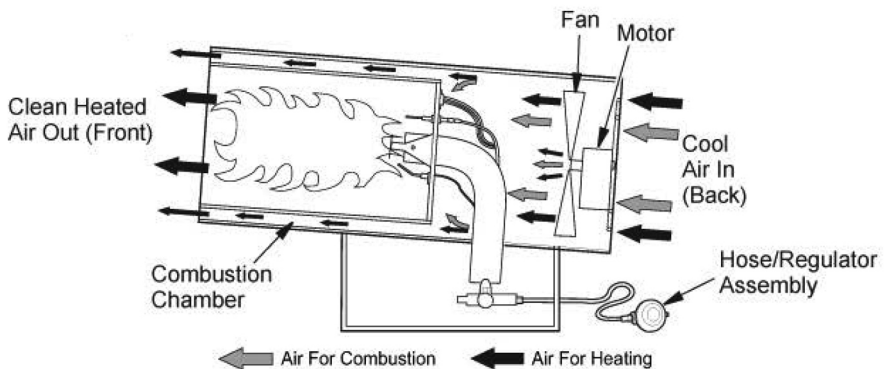
THE AIR SYSTEM: The motor turns the fan. The fan pushes air into and around the combustion chamber. This air is heated and provides a stream of clean, hot air.

THE IGNITION SYSTEM: The piezo ignitor lights the burner.

THE AUTOMATIC 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.

Similarly, should there be a power failure, the safety shut off valve (solenoid) will shut off the gas supply.

The machine is also fitted with a thermal overload protection, which will operate should the unit overheat, shutting off the gas supply to the heater.



Cross Section Operational View

PROPANE GAS SUPPLY



WARNING: THE FITTING AND CHANGING OF THE GAS CYLINDERS MUST BE CARRIED OUT IN A FLAME FREE ATMOSPHERE.

WARNING: YOU SHOULD ONLY USE PROPANE GAS CYLINDERS AVAILABLE FROM BUILDERS MERCHANTS OR GAS SUPPLIERS.

This range of portable, direct fired gas heaters is designed to give safe, efficient and reliable operation, and are for use with propane gas only.

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



WARNING: PROPANE GAS CYLINDERS MUST BE USED AND STORED IN ACCORDANCE WITH THE 'HIGHLY FLAMMABLE LIQUIDS AND LIQUEFIED PETROLEUM GASES REGULATIONS 1972'

In order to reduce the risk of icing up when operating at long periods at maximum capacity, you should use a larger capacity gas bottle.

Ensure the Propane gas bottle, gas hose and electric cable, are positioned behind the unit, away from the heat.

IN THE EVENT OF A GAS LEAK

1. Put out all smoking materials and other open flames.
2. Do NOT operate electric switches or light matches.
3. Close all supply valves on gas tank or cylinder.
4. Do NOT use your phone. USE a neighbor's phone or your mobile phone from outside the building or wherever you detected the gas leak to call the fire service.
5. Immediately get everyone out of the building or area.
6. Do NOT re-enter the building, or area until a trained service person or the fire service advises it is safe to return.

INSTALLATION



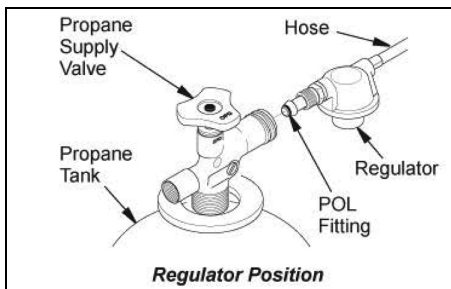
WARNING: READ AND UNDERSTAND THE WARNINGS IN THE SAFETY INFORMATION SECTION, PAGE 3. THEY ARE NEEDED TO SAFELY OPERATE THIS HEATER. FOLLOW ALL LOCAL REGULATIONS WHEN USING THIS HEATER.



WARNING: TEST ALL GAS PIPING AND CONNECTIONS FOR LEAKS AFTER INSTALLATION OR SERVICING. NEVER USE AN OPEN FLAME TO CHECK FOR A LEAK. APPLY A MIXTURE OF LIQUID SOAP AND WATER TO ALL JOINTS. BUBBLES FORMING SHOW A LEAK. CORRECT ALL LEAKS AT ONCE.

1. Provide a propane supply system (see Propane Gas Supply).
2. Connect POL (Prest-o-Lite) fitting on hose/regulator assembly to the propane tank(s).
 - Turn POL fitting anti-clockwise into the threads on the tank. Tighten firmly using a wrench.

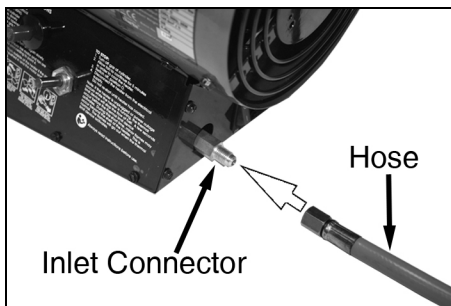
IMPORTANT: Position the regulator so that the hose leaving the regulator is in a horizontal position. This places the regulator vent in the proper position to protect it from the weather.



3. Connect the hose to the valve inlet connector. Tighten firmly using a wrench.

IMPORTANT: Use extra hose or piping if needed between hose/regulator assembly and propane tank. You must use the regulator supplied with heater.

4. Open the propane supply valve on the propane tank(s) slowly.



- NOTE:** If the supply valve is not opened slowly, the check valve on the propane tank will activate and stop gas flow. If this happens, close the propane supply valve and open again slowly.
5. Check all connections for leaks. Apply a mixture of liquid soap and water to all gas joints. Bubbles forming show a leak that must be corrected.
 6. Close the propane supply valve.

VENTILATION



WARNING: PROVIDE AT LEAST A 1.5 FT² (1400 CM²) OPENING OF FRESH, OUTSIDE AIR WHILE RUNNING HEATER. IF PROPER FRESH, OUTSIDE AIR VENTILATION IS NOT PROVIDED, CARBON MONOXIDE POISONING CAN OCCUR. PROVIDE PROPER FRESH, OUTSIDE AIR VENTILATION BEFORE RUNNING HEATER.

STARTING PROCEDURE



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

TO START THE HEATER

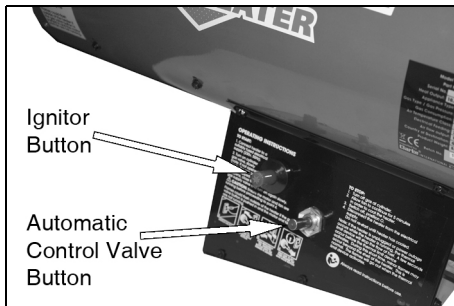
1. Follow all installation, ventilation, and safety information.
2. Locate the heater on stable and level surface.
 - Make sure strong drafts do not blow into the front or rear of the heater.
3. Plug the heater into a suitable 230V mains socket.
4. Set the on/off switch to the on position.
 - The motor will start, the fan will turn, forcing air from the front of the heater.
5. Open the propane supply valve on the propane tank(s) slowly.

NOTE: If not opened slowly, the excess-flow check valve on the propane tank will stop the gas flow. If this happens, close the propane supply valve and open again slowly.



WARNING: MAKE SURE THAT THE MOTOR AND FAN ARE RUNNING BEFORE PUSHING IN AUTOMATIC CONTROL VALVE BUTTON. FLAMES COULD FLASH OUTSIDE HEATER IF THE MOTOR AND FAN ARE NOT RUNNING.

6. Push in and hold the automatic control valve button.
7. Push the piezo ignitor button.
 - You may need to push the piezo ignitor button 3-8 times until the burner lights.
 - When the burner lights, keep the automatic control valve button pushed in.



8. Release the automatic control valve button after 15 seconds.

NOTE: If the heater fails to ignite, the hose may have air in it. If so, keep the automatic control valve button pressed and wait 20 seconds. Release the automatic control valve button and wait 20 seconds for unburned fuel to exit the heater, repeat steps 6-8.

STOPPING PROCEDURE

TO STOP THE HEATER

1. Tightly close propane supply valve on propane tank(s).
 - The heater will burn away gas left in supply hose.
2. Allow the heater to cool down for 5 minutes, then switch off the heater.
3. Unplug the heater.

TO RESTART THE HEATER

1. Wait five minutes after stopping the heater.
2. Repeat steps under 'To Start The Heater'.

STORAGE



CAUTION: DISCONNECT THE HEATER FROM PROPANE SUPPLY TANK(S)

1. Store propane tank(s) in safe manner.
 - Follow all local regulations.
 - Always store propane tanks outdoors.
2. Place plastic cover caps over any brass fittings, the connector and hose/regulator assembly.
3. Store in a dry, clean and safe place.
4. When taking heater out of storage, always check inside of heater. Insects and small animals may place foreign objects in heater.

MAINTENANCE



WARNING: NEVER SERVICE THE HEATER WHILE IT IS PLUGGED IN, CONNECTED TO THE PROPANE SUPPLY, OPERATING OR HOT. SEVERE BURNS OR ELECTRIC SHOCK MAY OCCUR.

WARNING: KEEP THE HEATER CLEAR AND FREE FROM ANY COMBUSTIBLE MATERIALS, GASOLINE AND OTHER FLAMMABLE VAPOURS AND LIQUIDS.

WARNING: DO NOT BLOCK THE FLOW OF COMBUSTION OR VENTILATION AIR.

1. Keep heater clean. Clean heater annually or as needed to remove dust and debris. If heater is dirty or dusty, clean heater with a damp cloth.
2. Inspect the heater before each use. Check connections for leaks. Apply mixture of liquid soap and water to connections. Bubbles forming show a leak. Correct all leaks at once.
3. Inspect the hose/regulator assembly before each use. If the hose is highly worn or cut, replace with a hose specified by the manufacturer.
4. Have heater inspected yearly by a qualified service agency.
5. Keep the inside of the heater free from combustible and foreign objects.

TROUBLESHOOTING



WARNING: NEVER SERVICE THE HEATER WHILE IT IS PLUGGED IN, CONNECTED TO PROPANE SUPPLY, OPERATING OR HOT. SEVERE BURNS AND ELECTRICAL SHOCK CAN OCCUR.

OBSERVED FAULT	POSSIBLE CAUSE	REMEDY
Fan does not turn when heater is plugged in	No electrical power to the heater	Check voltage to electrical outlet. If voltage is good, check heater power cable for breaks
	Structural damage	Return to your dealer for repair.
	Defective motor	Return to your dealer for repair.
Heater will not ignite	User did not follow installation or operation instructions properly	Repeat installation and operation instructions. See Installation and Starting, page 8+9
	<p>No spark at ignitor. If no spark seen, the fault may be:</p> <p>A) Loose or disconnected ignitor wire</p> <p>B) Wrong spark gap</p> <p>C) Piezo ignitor loose</p> <p>D) Bad ignitor electrode</p>	<p>A) Check ignitor wire. Tighten or reattach loose ignitor wire.</p> <p>B) Set gap between ignitor electrode and target plate to 0.17" (0.43 cm)</p> <p>C) Tighten nut holding piezo ignitor to base of heater</p> <p>D) Replace ignitor electrode.</p> <p>If you see a spark at the ignitor have the heater serviced by a qualified service person.</p>

OBSERVED FAULT	POSSIBLE CAUSE	REMEDY
Heater shuts down while running	High surrounding air temperature causing thermal limit device to shut down heater	This can happen when running heater in temperatures above 85°F. Only run the heater in cooler temperatures
	Restricted air flow	Check heater inlet and outlet. Remove any obstructions

SPECIFICATIONS

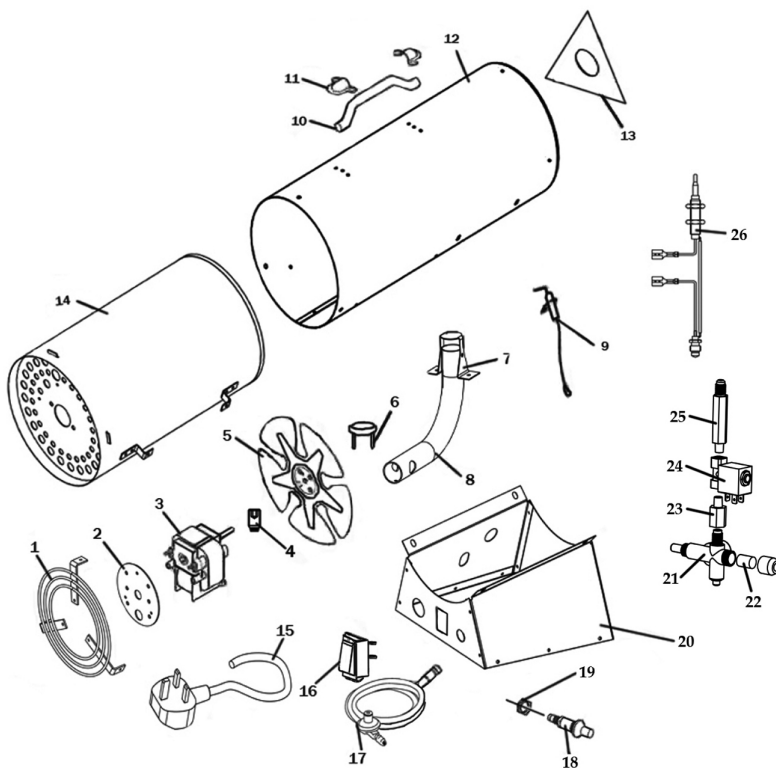
Output Rating	35,000 Btu/hr
Fuel	Propane Vapour
Gas Pressure	0.69 bar
Air Flow	169.8 m ³ /hr
Gas Consumption	0.74 kg/hr
Ignition Type	Manual, Piezo
Motor Voltage	230 Volt/50 Hertz
Power rating (Watts)	35
Fuse Rating (Amps)	13
Dimensions (D x W x H)	465 x 210 x 325 mm
Weight	5.4 Kg

ENVIRONMENTAL PROTECTION



These products contain valuable raw materials. Do not dispose of this product with general household waste. All tools, accessories and packaging should be sorted and disposed off appropriately by taking to a recycling centre.

PARTS DIAGRAM



1	Grill Assembly	GFLDEV201	14	Middle Cylinder Assembly	GFLDEV214
2	Motor Mounting Bracket	GFLDEV202	15	Power Cord	GFLDEV215
3	Motor Assembly	GFLDEV203	16	On/off Switch	GFLDEV216
4	Screw, 45# 1/4"-28*1/3	GFLDEV204	17	Hose/regulator Assembly	GFLDEV217
5	Fan	GFLDEV205	18	Piezo Ignitor	GFLDEV218
6	Thermal Switch Kit	GFLDEV206	19	Palnut Fastener	GFLDEV219
7	Burner Tube Part 2	GFLDEV207	20	Control Box Assembly	GFLDEV220
8	Burner Tube Part 1	GFLDEV208	21	Control Valve Assembly	GFLDEV221
9	Electrode Ignitor	GFLDEV209	22	Magnet Valve	GFLDEV222
10	Handle	GFLDEV210	23	Regulator Connector	GFLDEV223
11	Handle Clip	GFLDEV211	24	Magnet Valve Assembly	GFLDEV224
12	Outer Cylinder	GFLDEV212	25	Air Tube	GFLDEV225
13	Front Guard	GFLDEV213	26	Thermocouple	GFLDEV226

DECLARATION OF CONFORMITY



Clarke[®]
INTERNATIONAL

Hemnall 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):

- 2014/35/EU *Low Voltage Equipment Directive.*
- 2014/30/EU *Electromagnetic Compatibility Directive.*
- 2016/426 *Appliances Burning Gaseous Fuels.*
- 2011/65/EU *Restriction of Hazardous substances.*

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

- EN 1596:1998/A1:2004, EN 60335-1:2012/A11: 2014, EN 60335-2-102:2006/A1:2010,*
- EN 55014-1:2006/A2:2011, EN 55014-2:1997/A2:2008, EN 61000-3-2:2014, EN 61000-3-3:2013.*

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: 2011

Product Description: Gas Heaters
Model number(s): Little Devil II, Devil 700, 900, 1600, 2100, 4000.
Serial / batch Number: N/A
Date of Issue: 19/06/2018

Signed:

J.A. Clarke
Director

A SELECTION FROM THE VAST RANGE OF

Clarke®

QUALITY PRODUCTS

AIR COMPRESSORS

From DIY to industrial, Plus air tools, spray guns and accessories.

GENERATORS

Prime duty or emergency standby for business, home and leisure.

POWER WASHERS

Hot and cold, electric and engine driven - we have what you need

WELDERS

Mig, Arc, Tig and Spot. From DIY to auto/industrial.

METALWORKING

Drills, grinders and saws for DIY and professional use.

WOODWORKING

Saws, sanders, lathes, mortisers and dust extraction.

HYDRAULICS

Cranes, body repair kits, transmission jacks for all types of workshop use.

WATER PUMPS

Submersible, electric and engine driven for DIY, agriculture and industry.

POWERTOOLS

Angle grinders, cordless drill sets, saws and sanders.

STARTERS/CHARGERS

All sizes for car and commercial use.



PARTS & SERVICE: 0208 988 7400

E-mail: Parts@clarkeinternational.com or Service@clarkeinternational.com

SALES: UK 01992 565333 or Export 00 44 (0)1992 565335

Clarke® INTERNATIONAL Hemnall Street, Epping, Essex CM16 4LG
www.clarkeinternational.com