

Installation and Instructions Manual

Greenhouse Heater



Caution! Please read the installation and instructions manual carefully before using the heater!

1. Important safety instructions

This appliance must only be used for space heating. IT IS NOT FOR DOMESTIC USE. Use only in a well-ventilated area, do not use in Leisure Vehicles such as Caravans, Awnings and Mobile homes, It must not be used in high-rise flats, basements, bathrooms or bedrooms or as fixed heating. Do not position the heater close to walls, furniture, curtains, bed linen, or any other inflammable materials where their positioning may create a fire risk. The unit cannot be used underground.

The unit can only be used with a fixed pressure regulator. The output pressure of the regulator must match the pressure indicated in the rating label (37 mbar). The rating label can be found on the heater. The pressure regulator must be approved according to the relevant standards.

The unit can only be used with propane gas.

Check for the presence and proper condition (no damage) of the seals on the cylinder valve each time the gas cylinder is changed. Do not use any additional seals.

The Gas cylinder must be protected against heat (for instance, strong direct sunlight).

The heater must only be used with the cylinder in a vertical position.

Make sure the high pressure rubber gas hose is not bent or twisted. The rubber gas hose must be approved according to the relevant standards.

The flexible hose must be placed in such a manner as to avoid contact with the heated parts of the unit. Replace the hose as soon as it starts presenting signs of damage or deterioration (inspect regularly).

After assembling the heater, check all connection points for the presence of leaks using a leak detection spray.

Never use a naked flame to perform this leakage test and keep naked flames away when conducting a leak test. In the event of gas leakage, the appliance MUST be turned off at the gas cylinder valve. Do not move the unit when it is in operation or hot.

The unit must always be kept under regular supervision during its operation.

Do not touch the outside casing of the unit during or immediately after being used to avoid getting burnt. The guard on this appliance gets hot when in use, do not touch or remove when using the heater. Any modification to the heater may be dangerous and is not authorised unless it is made by authorised and qualified personnel only.

Keep naked flames and ignition sources (such as sparks and others) away during the change of a cylinder. Close the cylinder valve fully before changing the cylinder.

When using the greenhouse heater, place it on a flat, stable and non-flammable surface and keep it at a safe distance from any flammable materials and fabrics. The minimum distances required are, 40cm for overhead surfaces and 10cm for adjacent side surfaces. The distance for surfaces to the rear is achieved through the assembled brackets.

When using the greenhouse heater only use the brackets (feet) supplied with the unit when assembling and mounting the heater.

Maintenance and repair should be performed by authorised and qualified personnel only.

Please contact the manufacturer to ask for the technical instructions needed to do the maintenance or repair the heater. Maintenance or repairs are for authorised and qualified personnel only.

2. Assembling and connecting the heater to the gas cylinder

This appliance must be installed in accordance with the regulations in force.

Before operating the heater, the two supplied brackets (feet) must be mounted on the bottom of the greenhouse heater with screws supplied (*see image A*).

Before operating the heater, make sure that the gas connection supply components i.e. type of gas and gas pressure regulator for this heater are compatible. The regulation values for this unit can be found on the rating label and in this manual. This unit does not include an exhaust gas evacuation system. It must be mounted and connected according to the instructions. **Pay special attention to the ventilation requirements.**

Attention: After assembling the gas hose to the heater and to the gas regulator, check all connection points for the presence of gas leakages by using only leak detection spray or a water and soap solution. Never use a naked flame.

The following items are required to enable the heater to be assembled for use:

- Commercial Gas Cylinder 13kg or 19kg or 47kg;
- Pressure regulator fixed 37 mbar (standardized and approved) in accordance with the cylinder with a minimum amount of gas flow of 1,0kg/h;
- Hose (standardized and approved) with sufficient length (approx. 80cm);
- Leak detection spray or water with soap;

The greenhouse where you use the appliance must have a minimum volume of 8 CBM. It must have a section of free flowing ventilation of at least 50 cm², both in the top and bottom parts of the greenhouse.

3. Operating the heater

1. To improve the efficient operation of your heater make sure your heater is raised off the greenhouse floor by at least 30 cm (12 inches). This will reduce the effect of cold strike from the greenhouse floor onto the thermostat body.

2. To improve the efficient operation of your heater detach the thermostat probe from its 2 plastic securing clips at the rear of the heater and fully uncoil the wire that is attached to the probe (see image E). Position the probe DIRECTLY above the heater at a similar height at which you require the greenhouse temperature to be sensed. **MAKE SURE THE PROBE IS NOT SECURED TO ANYTHING METALLIC AS THIS WILL ADVERSELY AFFECT THE TEMPERATURE SENSING EFFICIENCY OF THE THERMOSTATIC PROBE AND CAUSE EXCESSIVE GAS USAGE AS WELL AS CAUSING THE GREENHOUSE TO BE HOTTER THAN THE DESIRED TEMPERATURE SETTING ON THE HEATER. N.B. THE CLOSER THE PROBE IS TO THE HEATER THE LESS TIME THE HEATER WILL BE ON SO THE COOLER THE GREENHOUSE WILL BE**

3. Open the cylinder valve

4. Turn the thermostat setting knob clockwise until you reach the stop. This will align the No 0 setting with the datum mark which is a hole at a 12 'o clock position ABOVE the Thermostat setting knob. (See image B)

5. Depress the gas valve button (see image B) and hold for at least 30 seconds. Whilst continuing to depress the gas valve button press the piezo ignitor button (see image C) repeatedly to generate a spark that will ignite the pilot flame. If the flame of the pilot assembly does not ignite repeat the process again. **N.B. THE GAS VALVE BUTTON WILL NEED TO BE HELD DOWN FOR WELL IN EXCESS OF 30 SECONDS ON FIRST IGNITION AND AFTER PERIODS OF NON USE TO ENSURE ALL THE AIR HAS BEEN PURGED FROM THE HEATER'S GAS SYSTEM.**

6. After successful ignition, keep the gas valve button depressed to ensure the thermocouple probe, which sits adjacent to the pilot flame, is properly heated to enable the main gas valve to stay open. The pilot flame should now stay lit.

7. You can now adjust your thermostat by turning the thermostat setting knob (see image D) to your desired setting. 0 setting will give basic frost protection whilst setting 1 to 6 which is the maximum setting will give temperature ranges (+/- 3 degrees) as detailed in the Thermostat section on page 3.

N.B. YOUR HEATER IS THERMOSTATICALLY CONTROLLED TO PILOT, YOU CANNOT ADJUST THE FLAME. THE ACCURACY AND EFFICIENCY OF YOUR HEATER IS DETERMINED BY HOW WELL IT IS SET UP IN YOUR GREENHOUSE. SPECIFICALLY THE POSITIONING OF THE THERMOSTATIC PROBE.

4. Turning off the heater

To turn off the heater, rotate the thermostat button to 0 and close the cylinder valve fully.

5. Care and Cleaning

Allow the heater to cool down before cleaning it. Do not clean it when the heater is in operation or just turned off. Use a soft dry cloth. Do not use abrasive cleaning agents or materials that may scratch the unit or flammable substances. Only use cleaning products that are specifically designed for paint and stainless steel. Periodically check that the gas hose is intact, undamaged and the date mark is within 5 years. If the date has expired, get a qualified or authorised person to change the gas hose.

To ensure the correct operation of the burner, we recommend annual maintenance to be performed at an authorised service centre.

Attention: spiders or small insects could take up residence inside the burner, pilot assembly or nozzles, altering the flow of gas and adversely affecting combustion. It is advised to frequently inspect the

mentioned points, and have the heater cleaned if necessary by a specialised person. **SUCH INFESTATION IS NOT COVERED UNDER WARRANTY**

Be careful not to allow cleaning products inside the burner.

6. Storage instructions

Close the cylinder valve after usage or in case of damage.

Remove the pressure regulator by turning the nut clockwise to loosen. Always check the seal of the gas cylinder valve for damage. In case of doubt or actual damage call an expert or filling station. Never keep a gas cylinder below ground level or in an unventilated place.

When the season is over put the heater in a dry place after covering it to minimise the chances of the heater being contaminated by insects or dust.

7. Important instructions on safety

If a gas leak is detected:

Close the gas cylinder valve immediately and avoid naked flames that could ignite the gas.

Open the windows and fully ventilate the greenhouse.

Do not operate any electrical switch and put out any naked flame.

Call authorised and qualified personnel only.

Do not try to find the leak using a naked flame.

Caution: Certain accessible parts of the heater can become very hot. Keep small children away from the heater.

The unit is equipped with a protection device against lack of oxygen. When CO₂ levels exceed the values allowed, the gas is cut off by extinguishing the pilot flame cooling the fitted flame failure device (thermocouple)

8. Before calling in Technical Service

The heater does not ignite:

1 - Check if there is gas in the bottle and that the regulator is correctly fitted with the cylinder valve open.

2 - Check to see that the gas tube is connected with no twists.

3 - Check that the instructions have been followed correctly.

4 - If this occurs after changing bottles it may be due to:

4.1 - There is air in the bottle. Press the ignition button down for a longer period of time until the pilot flame ignites. Then adjust the thermostat setting knob to the desired position.

4.2 - The bottle may have been exposed to low exterior temperatures. Apply fairly hot wet cloths to the upper part of the bottle to increase gasification and the normal exit of gas.

4.3 - If the pilot flame fails to hold after completing the detailed ignition instructions, repeat the operation, following the instructions carefully.

5 - If the heater goes out after working for some time, it is likely that it is operating in an oxygen depleted atmosphere. ventilate the greenhouse and reignite the heater. The heater is equipped with a protection device against lack of oxygen, the heater may stop because of the safety cut off device on the heater in the Oxygen Depletion System, that is to say if the CO₂ levels exceed the values allowed, the gas input is cut-off. This is not a malfunction, but a safety feature.

6 - If the heater goes out after a really short period of time, ensure that it is not exposed to air currents or that the bottle has not run out.

7 - It is advised that these heaters should not be used in Polytunnels, they should only be used in a well ventilated greenhouses, where air circulation and ventilation is essential.

Thermostat:

This greenhouse heater is supplied with a thermostatic device that can allow you to control the air temperature. The approximate temperatures in reference to the numbers on the thermostat control knob are:

Position 1 - 7°C / Position 2 - 12°C / Position 3 - 17°C / Position 4 - 22°C

Position 5 - 27°C / Position 6 - 32°C

Note: As this thermostat is mechanical you have a +/- 3°C tolerance with regard to these values.

1 - Ensure that the thermostat probe (the copper probe situated behind the heater secured by 2 plastic clips) is placed where you can control the general air temperature of the greenhouse otherwise you may have a general temperature inside the greenhouse of 20°C but because the probe is placed where the temperature is 15°C the heater will keep working.
The consumer must carefully select the place where they have the probe positioned to achieve the temperature they desire in the greenhouse.

2 - This is a mechanical thermostat not an electronic one so there is a difference between the temperature in the greenhouse and the one detected by the probe from the thermostat (+/-3°C), therefore there may be some discrepancies between an electronic thermometer (which will give you the exact temperature) and the mechanical thermostat used in the greenhouse heater.

3 - When the probe senses the temperature chosen via the thermostat knob, only the burner shuts down. The pilot flame stays alight, this doesn't mean the heater has a malfunction but the burner will only ignite again when the temperature in the probe is below the temperature chosen via the thermostat control knob.

3.1 - Example: The range from the thermostat is between 7°C and 32°C, therefore if you operate the heater and you turn it to position 3, this represents a temperature in the probe between 14°C and 19°C. If the temperature is higher than 19°C in the vicinity of the probe the main burner will not light until the ambient temperature in the vicinity of the thermostatic probe drops below 14°C.

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SYMPTOMS	FAULT	REMEDY
1. Pilot will not light	No spark across electrode gap or the spark is weak.	(a) Ensure that piezo-electric igniter is functioning correctly. (b) Check that the piezo cable is not damaged. (c) Check that the piezo cable is attached securely to the piezo button
2. Pilot will not light but good strong spark is visible	Insufficient purging of the air within the gas hose and pipework of the heater	On first ignition or after periods of non use the gas takes a long time to finally reach the jet for the pilot assembly. It can take in excess of 1 minute with the control valve button depressed to finally realise a full flow of gas to the pilot assembly. If ignition is tried too early then you are trying to ignite air and not gas.
3. Pilot will not light automatically but points (a) (b) and (c) in No 1 are satisfactory and the pilot will light with a match.	Incorrect position of spark in relation to pilot gas flow.	Re-position spark plug on the pilot assembly so that a clearly visible spark jumps across gas flow.
4. Heater will not remain alight when pressure is released from the control valve button.	Electro-magnetic valve closes while heater is alight.	(a) Ensure that thermocouple probe is located in pilot flame. (b) Ensure thermocouple nut is tightened into the main valve. (c) when pilot flame is alight make sure flame is full and not burning above the spark emitter on the pilot assembly (d) Check thermocouple. (e) Check electromagnetic valve (d) and (e) ONLY TO BE ATTEMPTED BY A GAS ENGINEER. AFTER PERIODS OF NON USE THE PILOT ASSEMBLY IS PRONE TO SPIDER INFESTATION THIS WILL RESULT IN EITHER NO PILOT FLAME OR A YELLOW PILOT FLAME WHICH WILL NOT HOLD WHEN THE BUTTON IS RELEASED. THOROUGH CLEANING OF THE PILOT ASSEMBLY IS REQUIRED TO REMOVE ANY IMPEDIMENTS. SPIDER / INSECT INFESTATION IS NOT COVERED UNDER WARRANTY
5. Main burner emits large yellow flames when alight	Blockage in the main paddle burner	After periods of non use the main burner assembly is also prone to spider infestation either within the burner body or at the primary air intake of the main burner assembly. These partial blockages will create an imbalance in the gas and air mixture for the main burner resulting in poor combustion of the gases. If not addressed a build up of soot will occur further effecting the efficiency of combustion and eventually resulting in complete main burner blockage. Regular cleaning of the burner and primary air intake are recommended. SPIDER / INSECT INFESTATION IS NOT COVERED UNDER WARRANTY
6. After setting thermostat to desired position heater will either not go off or will not come on. EXCESSIVE GAS USAGE	Thermostatic probe is not in the correct position within your greenhouse	You must ensure that the thermostat probe (copper tube situated behind the heater secured by 2 plastic clips) is detached and placed where you want to control the general air temperature of the greenhouse. Incorrect positioning of the probe will severely affect the efficiency and the heating accuracy of your greenhouse.
7. Heater goes out during period of use	Lack of adequate ventilation in the area of use particularly in the lower area of the greenhouse where Gas Emissions will collect as they are heavier than the normal atmosphere.	The heater is fitted with an ODS SENSOR (Oxygen Depletion System) IF THE ATMOSPHERE WITHIN THE AREA OF USE CONTAINS A LOWER THAN THE CERTIFIED CONTENT OF OXYGEN THEN THE HEATER WILL SHUT DOWN. THIS IS A SAFETY DEVICE NOT A FAULT. MAKE SURE THE HEATER RECEIVES ADEQUATE VENTILATION WITHIN THE GREENHOUSE IN WHICH IT IS BEING USED

9. Technical data

Country- Great Britain (GB) GAS TYPE / G31 Pressure/ 37mbar	ODS - 21100/267 Norm-EN461 CE 0464-12
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MODEL	OUTPUT	CONSUMPTION	INJECTOR
LFS921P	2.0kW	145 gr/h	0.68
LFS922P	4.2kW	305 gr/h	0.75-0.75

IMAGES



