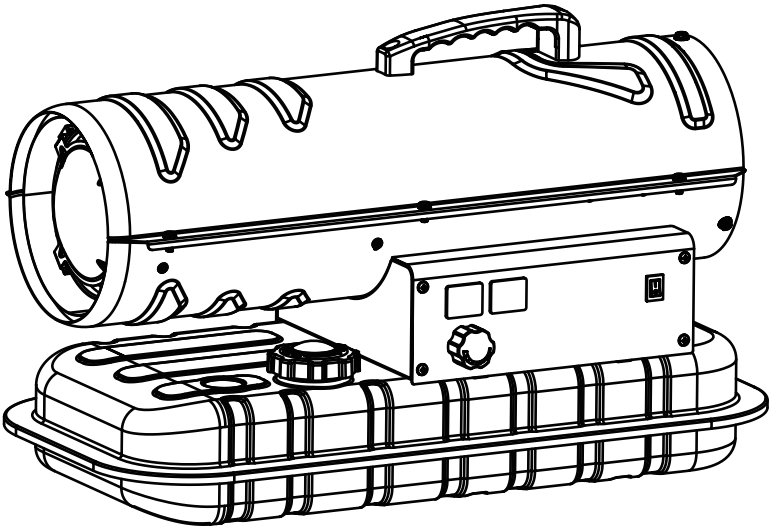
SGS-ENGINEERING.COM



SPAH20

SGS Portable Air Heater 20KW

OWNER'S MANUAL

IMPORTANT! PLEASE READ THESE INSTRUCTIONS CAREFULLY. NOTE ALL SAFETY INSTRUCTIONS AND WARNINGS. USE THE PRODUCT CORRECTLY AND WITH CARE FOR THE PURPOSE FOR WHICH IT IS INTENDED. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY CAUSE DAMAGE TO PROPERTY AND/OR PERSONAL INJURY.
PLEASE KEEP THESE INSTRUCTIONS SAFE AND AVAILABLE FOR FUTURE REFERENCE.

1. GENERAL SAFETY RULES

READ INSTRUCTIONS CAREFULLY. READ AND FOLLOW ALL INSTRUCTIONS. PLACE INSTRUCTIONS IN A SAFE PLACE FOR FUTURE REFERENCE. DO NOT ALLOW ANYONE WHO HAS NOT READ THESE INSTRUCTIONS TO ASSEMBLE, LIGHT, ADJUST OR OPERATE THE HEATER. IF THE INFORMATION IN THIS MANUAL IS NOT FOLLOWED EXACTLY, A FIRE OR EXPLOSION MAY RESULT CAUSING PROPERTY DAMAGE, PERSONAL INJURY OR LOSS OF LIFE.

SERVICE MUST BE PERFORMED BY A QUALIFIED TECHNICIAN.

UNVENTED PORTABLE HEATERS USE AIR (OXYGEN) FROM THE AREA IN WHICH IT IS USED. ADEQUATE COMBUSTION AND VENTILATION AIR MUST BE PROVIDED. REFER TO INSTRUCTIONS.

⚠ WARNING

DO NOT STORE OR USE DIESEL OR OTHER FLAMMABLE VAPORS AND LIQUIDS IN THE VICINITY OF THIS OR ANY OTHER APPLIANCE.

⚠ WARNING

FIRE, BURN, INHALATION, AND EXPLOSION HAZARD. KEEP SOLID COMBUSTIBLES, SUCH AS BUILDING MATERIALS, PAPER OR CARDBOARD, A SAFE DISTANCE AWAY FROM THE HEATER AS RECOMMENDED BY THE INSTRUCTIONS. NEVER USE THE HEATER IN SPACES WHICH DO OR MAY CONTAIN VOLATILE OR AIRBORNE COMBUSTIBLES, OR PRODUCTS SUCH AS GASOLINE, SOLVENTS, PAINT THINNER, DUST PARTICLES OR UNKNOWN CHEMICALS.

⚠ WARNING

DIRECT-FIRED HEATERS MAY CAUSE CARBON MONOXIDE (CO) POISONING WHEN INCORRECTLY USED, E.G INDOORS WITHOUT ADEQUATE AIR CIRCULATION, OR IF NOT PROPERLY WORKING. CO POISONING MAY LEAD TO DEATH.

⚠ GENERAL HAZARD WARNING

FAILURE TO COMPLY WITH THE PRECAUTIONS AND INSTRUCTIONS PROVIDED WITH THIS HEATER, CAN RESULT IN DEATH, SERIOUS BODILY INJURY AND PROPERTY LOSS OR DAMAGE FROM HAZARDS OF FIRE, EXPLOSION, BURN, ASPHYXIATION, CARBON MONOXIDE POISONING, AND/OR ELECTRIC SHOCK. ONLY PERSONS WHO CAN UNDERSTAND AND FOLLOW THE INSTRUCTIONS SHOULD USE OR SERVICE THIS HEATER. IF YOU NEED ASSISTANCE. CONTACT SGS CUSTOMER SERVICE.

⚠ WARNING

NOT FOR HOME OR RECREATIONAL VEHICLE USE.

⚠ WARNING

**YOUR SAFETY IS IMPORTANT TO YOU AND TO OTHERS,
SO PLEASE READ THESE INSTRUCTIONS BEFORE YOU OPERATE THIS HEATER.**

⚠ **THE ELECTRICAL SYSTEM TO WHICH THE APPLIANCE IS CONNECTED MUST COMPLY WITH CURRENT LEGISLATION. INSTALLATION REQUIRES A RESIDUAL CURRENT CIRCUIT BREAKER (RCCB) IN THE MAIN ELECTRICAL DISTRIBUTION BOARD.**

⚠ **UNPLUG THE APPLIANCE BEFORE PERFORMING ANY MAINTENANCE OPERATIONS.**

⚠ **ALWAYS CHECK THE POWER CABLE BEFORE USING THE APPLIANCE. IT MUST NOT BE BENT, TAUT, STRETCHED, CRUSHED OR IN ANY WAY DAMAGED.**

⚠ **THE POWER CABLE MUST BE REPLACED BY QUALIFIED PERSONNEL ONLY. USE AN ORIGINAL POWER CABLE ONLY WITH A 3-PIN APPROVED PLUG.**

⚠ **THE FRONT OUTLET IS VERY HOT DURING OPERATION. DO NOT TOUCH! BURN DANGER.**

2.PRODUCT DESCRIPTION

• Diesel or Kerosene direct-fired mobile/portable space heater with open combustion chamber

3.TECHNICAL SPECIFICATIONS

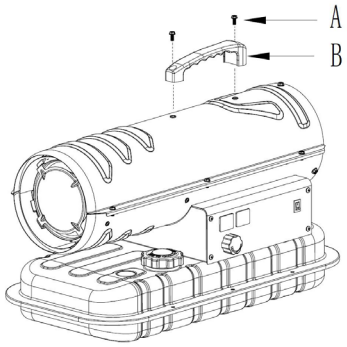
Model	SPAH20
Heat Input [kW]*	20
Air Flow Rating [m^3/h]	550
Fuel Type	Diesel-Kerosene
Fuel consumption [kg/h]	1.65
Voltage [V/Hz]	AC220-240V/50
Air Pressure Setting [bar]	0.31
Current Rating [A]	0.9
Electrical Power [W]	230
Fuse Rating	T3.15A
Dimensions	
Net Weight (kg)	10.1
Length (mm)	620
Width (mm)	310
Height (mm)	380
Tank Capacity (l)	14
Operating range (h)	~7
Standard Accessories	
Fuel gauge	yes
Handle	1
Ambient thermostat	built-in
Malfunction detection light	built-in

*Based on Gross Calorific Value[Hrs]

4.ASSEMBLING INSTRUCTIONS

Extract the heater from its carton. If the unit is anyhow damaged, do not use it and contact SGS Customer Service.

Attach Handle B using 2 x Screws A, tighten with a screwdriver (Fig.1).



Pos.	Description	Qty
A	Screw	2
B	Handle	1

Fig.1

5.INSTALLATION INSTRUCTIONS

Position the heater on a flat, level, non-flammable, solid surface.
Direct-fired heaters are intended for use in outdoor open areas or in indoor well ventilated areas. For indoor use, provide permanent ventilation openings of at least 25 cm^2/kW, equally distributed between floor and high level, with a minimum of 600 cm^2.

- Only install the heater in normal upright position.
- Do not place the heater near walls, corners or low ceilings.
- Do not place the heater below a socket outlet.
- Do not place the heater on moving vehicles or where it can tip over.
- Keep the heater away from flammable, combustible, explosive or corrosive materials.
- Keep the heater away from curtains or similar materials that could block the air inlet and outlet.
- Never block or restrict the air inlet and outlet for any reason.
- Keep the power cable away from heat sources, sharp edges, cutting and moving parts.
- Do not expose directly to the weather or to excessive humidity.
- Do not place the heater in the immediate surroundings of a bath, shower or swimming pool.

- Follow general and special fire safety regulations in force in all fields of applications. In any case ensure the following minimum safety clearances from materials or objects in the surroundings of the heater:
  - Side: 0.6 m
  - Air inlet side: 1 m
  - Top: 1.5 m
  - Hot air outlet side: 3 m
  - Floor: 0 m
- Do not connect direct-fired heaters to air ducts.

6.INSTRUCTIONS FOR USE

6.1. Start-up

Fill tank with clean fuel. Only use Diesel or Kerosene.
The fuel gauge on top of the tank allows you to check fuel level
Connect the power cord plug to a AC220-240V 50 Hz earthed electrical supply system.
Earthing is mandatory.
Push the power switch to "ON"(1) position.
The default temperature setting is 20°C, it will be shown on the left display window.
If the ambient temperature is lower than default temperature, the electrodes start sparking, after 7 seconds, the heater starts.
If the ambient temperature is higher than default temperature, turn thermostat control knob to desired temperature, the electrodes start sparking, after 7 seconds, the heater starts.
COLD START-UP: at low temperature keep the air vent hole (see Fig. 5) closed by a finger during ignition to make start-up easier.
ABNORMAL OPERATION: in case of malfunction (flame failure, reduced air flow, bad combustion, etc.) the heater stops and the indicator light starts FLASHING (THE LOCK-OUT MODE code will be showed on the display window).

6.2. Manual reset/restart

If the heater is in lock-out mode, refer to Trouble shooting. Check and remove the cause of lock-out before restarting the heater. To reset, turn the ON/OFF switch to 0 and then again to I. In case of repeated malfunction, call SGS Customer Service. Turning the thermostat control knob will NOT reset the heater.

6.3. Shut-down

Move switch to "OFF" (0) position. Unplug the unit when not used for a long time.

⚠ Do not cover the heater. Do not block the air inlet and outlet.

⚠ The heater outlet is very hot during operation and after use. Do not touch! Use personal protecting equipment if needed.

⚠ Children should be supervised to ensure that they do not play with the appliance.

⚠ The appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge.

⚠ Unplug the heater before moving it. Never pull the cable to unplug or move the unit.

⚠ Do not leave the heater unattended when in use.

⚠ Never use the appliance with wet hands or when either the heater or the power cable is wet.

⚠ If the supply cable is damaged, it must be replaced by the manufacturer, by a service agent or a similar qualified person.

7.CLEANING, MAINTENANCE AND STORAGE

Regularly wipe the enclosure using a soft sponge or cloth. For very dirty parts, wet a sponge with lukewarm water and a mild detergent, then dry using a clean cloth.
Keep air inlet and fan free from dust and dirt. To clean inner parts, gently blow compressed air through air inlet.
Regularly inspect the power cable: if worn, cracked or damaged have it replaced by a qualified technician.
Before storing the heater, make sure it is perfectly cool and dry. Cover the unit with a plastic bag, put it in its packing box and store it in a dry, ventilated place.

⚠ Before starting any maintenance task, shut down, unplug and let the heater cool down for at least 15 minutes.

⚠ Do not attempt any electrical repair yourself. If the heater needs service or repair, contact a qualified technician.

⚠ Do not use a faulty unit unless a qualified technician has inspected and repaired it.

⚠ When cleaning, make sure that water does not enter the unit.

⚠ Do not open the enclosure to clean the inner parts. Do not spray water into the heater.

⚠ Never use solvents, gasoline, toluene and similar aggressive chemicals to clean the heater.

The following checks BY QUALIFIED PERSONNEL ONLY are recommended before every seasonal use:
Nozzle
Carefully unscrew nozzle from nozzle fitting. Blow compressed air through nozzle orifice to free it from dirt. Replace nozzle if necessary.

Air Filters

Clean air filters. Remove filter end cover (11), wash air intake filter (10) using a light detergent and dry it thoroughly before re-installing. Replace air delivery filter (9) once a year (Fig.2)

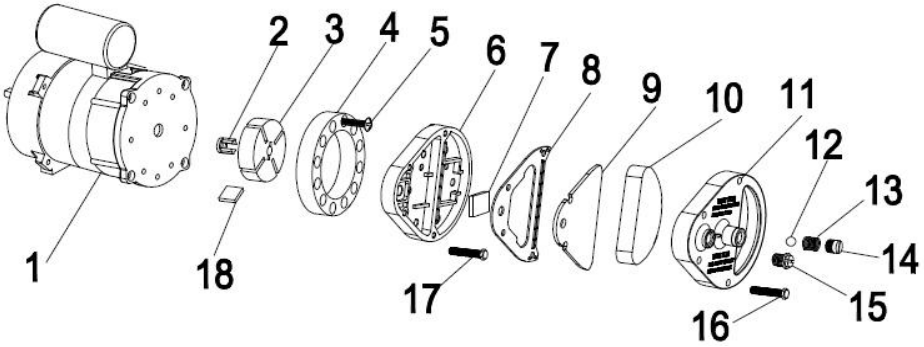


Fig.2

Ignition Electrodes

Clean, adjust and if necessary replace ignition electrode. For electrode gaps see Fig. 3-4 (dimensions in mm).

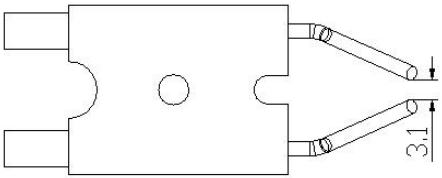


Fig.3

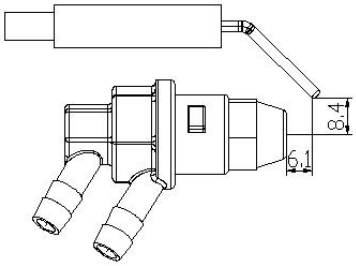
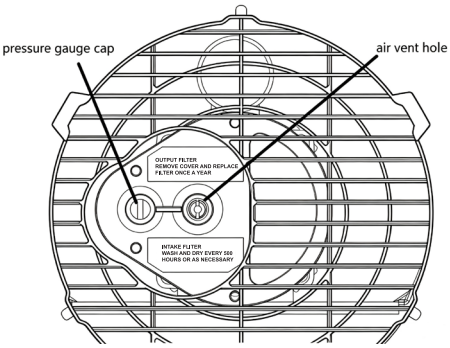


Fig.4

Compressor Pressure Adjustment (Fig. 5)

⚠ The compressor pressure is factory set and must be checked and adjusted by qualified technicians only. Tampering with the unit may be dangerous.

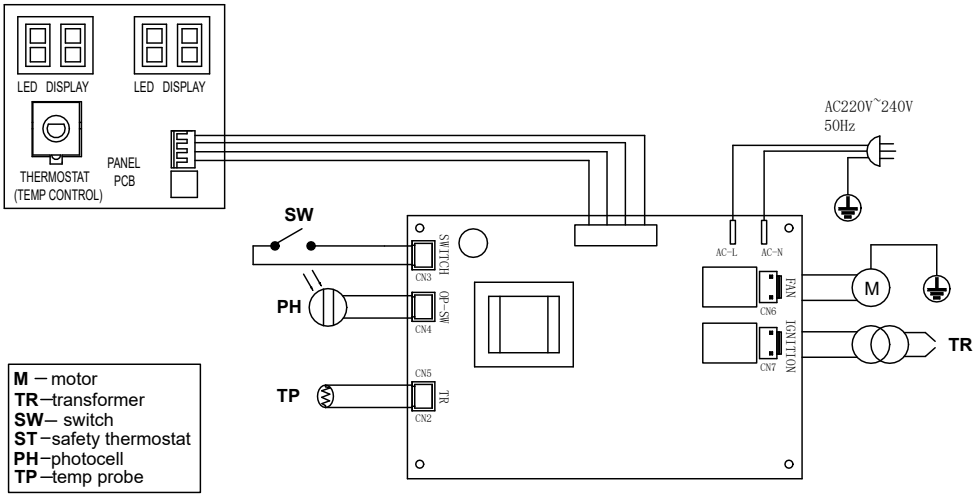
Remove pressure gauge cap. Connect a pressure gauge on the pressure measuring port on the rear guard. Start heater and read air pressure value. If necessary adjust pressure to the correct value turning the adjusting screw (the air vent hole in the adjusting screw middle) clockwise to increase, anticlockwise to decrease the pressure:



Model	Air Pressure (bar)
SPAH20	0.31

Fig.5

8. WIRING DIAGRAM



Wiring diagram for **SPAH20**

9. TROUBLESHOOTING

PROBLEM	CAUSE	REMEDY
Motor does not start E1 displayed on the screen	No power or low voltage	Check power line and voltage
		Check fuse and replace if necessary
	Faulty or damaged power cord	Check and replace if needed
	Faulty motor/capacitor	Check and if necessary replace
	Lock-out of appliance due to previous overheating	Detect the cause of overheating Shut the appliance down Check air inlet and outlet Wait some minutes and restart the appliance
E2 displayed on the screen	The temperature probe is faulted or the connector for temperature probe is loosen	Check and replace if the temperature probe if needed
		Check and replace the PCB if needed
Motor runs, but the heater does not ignite and locks out after a short time E1 displayed on the screen	Empty fuel tank, dirty or wrong fuel	Remove wrong or dirty fuel Fill the tank with clean Diesel or kerosene
	Fuel filter clogged	Clean or replace fuel filter
	Air leaks in oil line	Check hoses, tighten connections, if necessary replace
	Burner nozzle clogged	Clean nozzle blowing compressed air, replace if necessary
	Fuel viscosity increased at low temperature	Mix Diesel with 10-20% kerosene
Flames come out of flue outlet E1 displayed on the screen	Insufficient airflow into combustion chamber	Check air inlet, fan, motor
	Compressor pressure too high	Check air pressure, adjust if needed*
Heater stops during operation Ambient temperature displayed on the screen	The room temperature set on room thermostat has been reached	Normal operation To start turn the temperature control knob clockwise on a higher setting
Heater stops during operation E1 displayed on the screen	Flame failure	Check and remove the cause(s) of malfunction To reset, turn On/Off switch to 0 and then to Call SGS Customer Service
	Bad combustion	
	Reduced airflow	
	Overheating	
LC displayed on the screen	Failed 3 times for igniting will lock the PC B and stop working	With electricity on, it will be unlocked after 3 times power switch to ON in 10 seconds;

Model identifier(s): SPAH20				
Indirect heating functionality: no				
Direct heat output: 20 (kW)				
Indirect heat output: N/A (kW)				
Minimum permissible total flue duct length(vertical+horizontal pipe):NA (m)				
Fuel	Diesel/Kerosene	Nitrogen oxides(NOx) emissions		
		Valve	unit	
Select fuel type[liquid]		64	**[mg/ kWh$_{input}$] (GCV)**	

Item	Symbol	Valve	Unit
Heat output			
Nominal heat output	P_{nom}	20.0	kW
Minimum heat output (indicative)	P_{min}	N/A	kW
Auxiliary electricity consumption			
At nominal heat output	el_{max}	0.2	kW
At minimum heat output	el_{min}	N/A	kW
Power consumption			
In off-mode	P_0	N/A	W
In standby mode	P_{sm}	N/A	W
In idle mode	P_{dle}	N/A	W
In networked standby mode	P_{nsm}	N/A	W
Standby mode with display of information or status		no	
Permanent pilot flame power requirement			
Pilot flame power requirement (if applicable)	P_{pilot}	0	kW

Item	Symbol	Valve	Unit
Efficiency (NCV)			
Useful efficiency at nominal heat output	$\eta_{th,nom}$	96	%
Useful efficiency at minimum heat output (indicative)	$\eta_{th,min}$	N/A	%
Seasonal space heating energy efficiency	η_s	81.2	%

Type of heat output/room temperature control (select one)	
Single stage heat output, no room temperature control	no
two or more manual stages, no room temperature control	no
Mechanic thermostat room temperature control	no
electronic room temperature control	yes
Electronic room temperature control plus day timer	no
Electronic room temperature control plus week timer	no
Other control options (multiple selections possible)	no
room temperature control, with presence detection	no
Room temperature control, with open window detection	no
distance control option	no
adaptive start control	no
working time limitation	no
black bulb sensor	no
Self-learning functionality	no
Control accuracy	no

SGS Engineering (UK) Ltd
Unit 1 West Side Park
Raynesway
Derby, DE21 7AZ

EC Declaration of Conformity

This is an important document and should be retained

MANUFACTURER'S NAME: SGS Engineering (UK) Ltd

TYPE OF EQUIPMENT: Portable Air Heater

PART NUMBER: SPAH20

APPLICATION OF EC COUNCIL DIRECTIVES / STANDARD:

EN 60335-1:2012+A11+A13+A1+A14+A2+A15+A16
EN 60335-2-102:2016
EN 62233:2008

I, the undersigned, hereby declare that the equipment specified above conforms to the above European Communities Directive(s) and Standard(s).

PLACE: Derby, UK

DATE: 17th July 2026

(Signature)

Neil Sansom
CEO

CE