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Issue 6F



Heatsource
HS2000
Heater



Vehicle
Installation
&
Operation Instructions

ENGINEERED FOR
COMFORT & RELIABILITY

SAFETY WARNINGS & GENERAL INFORMATION

The Heatsource HS2000 is intended for use only as a space heater in caravans, motor caravans, mobile homes/units and boats (see b below).

- a) Installation and servicing of this appliance must only be carried out by persons registered with the Gas Safety Register (GB), Corgi (NI), or the relevant national organisation, in accordance with the relevant regulatory and safety requirements.
- b) Heater installations must comply with the current British standards for Motorhomes / Caravans and BS 5482 Part 3 for Boats, and must not be used incorrectly. Heatsource HS2000 is only suitable for boats when supplied / fitted with the correct marine installation kit.
- c) This heater is not suitable for installation on the outside of the vehicle.
- d) The heater must not be operated when refueling: the vehicle, towing vehicle, other appliances or when the vehicle is in a confined space, such as a garage.
- e) The exhaust gas outlet must not be fitted on the entry door nor in any position where combustion products may enter the interior.
- f) The heater is designed to operate on Propane gas 37mbar or Butane at 28 or 30mbar (I₃₊ and I_{3B/P} (30)). The HS2000 may also be used on 30mbar propane but the heat output will be reduced. A 50mbar Propane model is also available. Under no circumstances should an adjustable regulator be used.
- g) Do not allow materials to come in to direct contact with the heater. Under no circumstances must the re-circulation air inlet be covered or obstructed at any time.
- h) The Heatsource HS2000 heater has a type C₅₃ flue, and has been tested and passed the relevant sections of the following standards:

EN 50081-1:1992, EN 55014-1:1993, EN 60945:1997, EN 298(NNA):1995, EN 55014-2:1997, EN 50165:1997, EN 50082-1:1997, BS EN 624:2000, BS EN 298:1994
- i) A data label is situated adjacent to the gas inlet.
- j) The gas supply line should be checked regularly for damage or leaks and tested under pressure with a proprietary leak tester. **NEVER TEST FOR GAS LEAKS WITH NAKED FLAME.** If a gas leak is detected or smelt, turn off gas at the bottle immediately and ventilate the area. Contact a registered installer (see a) above) to rectify the problem.
- k) Countries of Destination: GB,IE,FR,IT,ES,BE,PT,DE,NL,DK,SE,FI,CH,LU, NO,GR

IMPORTANT: Do not direct the combustion products outlet terminal (exhaust flue) towards the combustion air inlet terminal.

FAULT FINDING

The Heatsource HS2000 is equipped with an electronic diagnostic system which will detect fault conditions ranging from poor gas or electricity supply to internal heater malfunctions. In the event of a failure the yellow light on the thermostat or timer control will flash a certain amount of times, pause, and repeat until switched off. Count the amount of flashes and refer to the table below.

Manual Overheat Cut-Out. The HS2000 incorporates an overheat cut-out which has to be reset manually. If the heater reaches an unusually high temperature during operation the cut-out will disengage the gas solenoid valve, cutting off the gas supply to the burner. The operation of this cut-out could be caused by either a restricted hot air outlet or air inlet, or the heater being switched off by a battery isolating switch depriving it of its purge cycle. To find the cut-out, remove the electronics cover on the heater and look for it positioned above the PCB with 2 yellow wires attached to it. Press the small red button between the terminals, the fault code is 7 flashes.

FAULT FINDING TABLE

Number of flashes	Fault	Remedy
2	Flame failure	Check gas supply making sure there is gas in the bottle and no blockage in the gas line. Ensure propane is used at temperatures below +5°C. Clear lockout as described below.
3	Low/ high voltage	Minimum operating voltage is 10v and max operating voltage is 15v (for 12v heaters) when measured at the heater. Check battery voltage. If above 10v, check connections between heater and battery. Check alternator or external battery charging. Clear lockout as described below.
5	Combustion air fault	Check combustion air flue and exhaust flue for blockages. Possible blockage in combustion air inlet/outlet duct. Inspect duct for blockage/damage. Inspect inlet pipe on the heater (closest to the back) for signs of damage.
7	Overheat fault	Hot air temperature is too high. Check the air ducts and vents are not blocked or restricted. We recommend you wait at least 5 to 10 minutes to allow the heater to cool before clearing lockout as described below. Check ducting for blockages.
6,9,10	Other faults	Attempt to clear lockout as shown below. If this fails, contact Propex
No flashing	PCB not powered up	Check the supply to the heater as above. Otherwise contact Propex

Gas Lockouts

Gas lockouts must be cleared by moving the left-hand knob from gas on (flame) position to off position then back to the on position. The complete sequence of switch movements must be completed within 2.5 seconds for a lockout to be successfully cleared. If there is air in the gas line, e.g. after a gas bottle change, the space heater may require several attempts before it lights.

- f) A 0.75 metre length of 22mm flexible stainless steel tubing with a special end cap is supplied for ducting the products of combustion away to the edge of the vehicle. The tubes may not be shortened but can be extended for certain applications

A “P” clip is provided for fixing the end of the pipe to the underside of the vehicle with the end cap slightly protruding under the sill or bumper and pointing towards the rear of the vehicle.

The maximum overall length of the flue and inlet pipe combined can be up to 2 metres if required. However, the flue pipe should never be shorter than the combustion air inlet pipe.

A 0.75m length of combustion air pipe is provided, which is also fitted with an end cap. This should be attached to the heater with the hose clip provided and pointed in the same direction as the flue pipe.

Note: The combustion air pipe can be terminated underneath the vehicle making sure the end of it is at least 0.5 metres away from the end of the exhaust and that they are not pointing directly at each other. Take care to ensure that both pipes have a slight downward slope to prevent any possibility of water traps. Make sure that neither the flue or the combustion air inlet pipe are terminated in an under-floor box section.

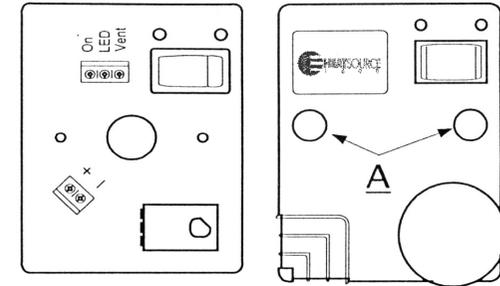
GAS CONNECTION

- The heater uses an 8mm (5/16”) gas connection but can be fitted with an adaptor to take ¼” copper pipe if preferred.
- The gas supply should be connected with copper gas pipe with an isolating valve and all connections made with brass compression fittings, fitted with copper olives.
- Both the air inlet and exhaust hoses **MUST** be sealed with silicone (tape or beading) to ensure a gas tight seal and must be inspected annually in accordance with national regulations.
- When the gas line is complete all joints should be tested for leaks using leak detection solution - **NEVER WITH A NAKED FLAME.**
- Gas pressure should be verified where the gas pipe connects to the heater using a low pressure gauge or “U” tube, any tests or connections should only be undertaken by a registered person (see item a) on page 2).

NOTE. Net Heat Input: 2.1kw, average consumption 148 g/h.

WIRING INSTRUCTIONS

Stat Ref	Cable Colour.
+	Red
-	Black
On	Orange
LED	White
Vent	Green



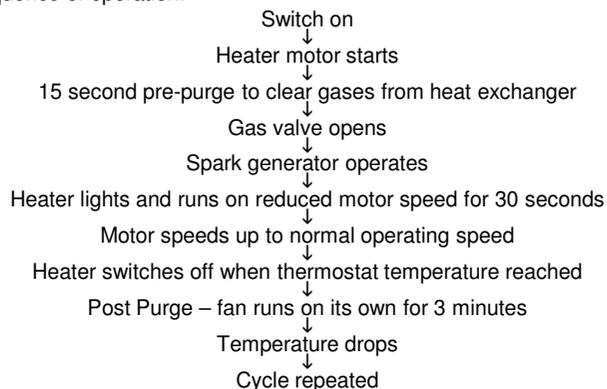
- The Heatsource HS2000 heater is supplied with 2 wiring looms, a 2 core (red and black) and a 5 core (red, black, orange, white and green), both are fitted with terminals and housings to plug into the main PCB positioned under the removable electronics cover on the heater. The connectors on the PCB are marked CN24 (power) and CN27 (switches) Grommets are fitted to the looms which should slide into the slots above the air inlet.
- Find a suitable location for the thermostat between waist and shoulder height. Make sure that it is not mounted in an area with poor air circulation or in an area with above average heat, such as above a cooker, refrigerator or in direct sunlight.
- When you have chosen the location, drill a pilot hole in the area you expect to retrieve the 5 core cable. If the clearance is OK, open the pilot hole out to 10mm.
- Run the 5 core cable from the heater to the thermostat location and remove approximately 60mm of the outer insulation.
- Remove the thermostat knob by gently prizing it off and undo screws “A” to remove the cover.
- Fix the backplate with the PCB to the wall making sure the 5 core cable is pulled through the hole in the centre.
- Connect the cable to the terminal blocks as in the diagram and refit the lid.
- Replace the thermostat knob and push the finishing caps into the lid to cover the screw heads
- Run the 2 core cable to a convenient supply (usually at the battery) and connect using the fuse holder supplied. Check battery is 12v or 24v as appropriate. Refer to data label for heater voltage. Insert the 5 amp fuse and test.

OPERATION

Before use: Pay particular attention to the exhaust outlet and combustion air inlets to check that neither have been blocked or damaged, e.g. in winter, ensure that any snow or slush is removed.

- Check the gas supply is turned on and that the battery voltage is correct (see specifications).
- Rotate the thermostat dial fully anti-clockwise and push the 3 position switch to the left.
- Rotate the thermostat dial until the green light illuminates. After 2 seconds the heater motor will start and ignition should occur after a 15 second pre-purge cycle. When gas is running yellow light is illuminated.
- Find the desired temperature setting by adjusting the dial on the thermostat. The heater will then cycle on and off to maintain that temperature.
- When the set temperature is reached the green and yellow light will go out and the heater will start its post purge cycle.
- If the 3 position switch is depressed on the right, the green LED will illuminate and the fan will blow cold air continuously.

g) Sequence of operation:



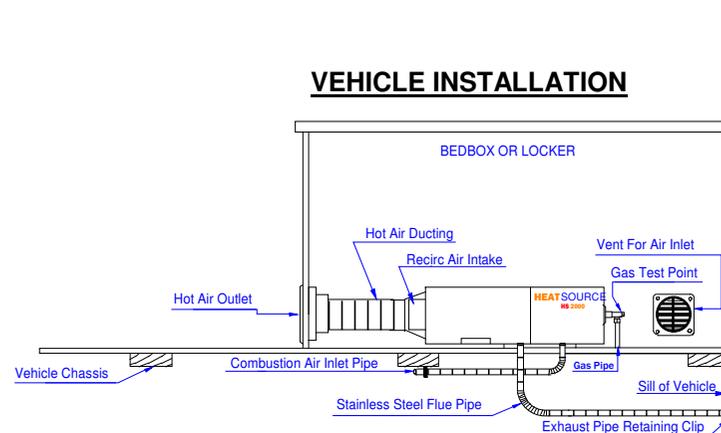
MAINTENANCE

The installation must be inspected and tested annually by a registered person (see item A on page 2) and any servicing and cleaning identified carried out. Servicing and removal of the main cover must only be performed by an approved fitter or the manufacturer.

The heater should not be left for long periods without use. It is advisable to run the unit for short periods throughout the summer.

The exhaust and inlet pipes should be inspected periodically for damage and any build-up of dirt around the ends. Clean or replace as necessary.

VEHICLE INSTALLATION



FITTING THE HEATER

- Find a suitable location which allows access to the heater with suitable room for service and inspection, usually in a bed-box or locker. The Heatsource HS2000 should be fitted in an area allowing a minimum distance of 25mm from adjacent walls, ceiling or shelves from the main body of the heater. Check that there are no chassis members underneath the location of the exhaust and combustion air spigots.
- Using the template provided, drill a 3mm pilot hole through the exhaust and combustion air spigot centres. Examine underneath the vehicle to check that there is adequate clearance for a 40mm hole saw. Cut away any carpet or matting around the exhaust and open out the holes to 40mm. Ensure that three sides of the underfloor space are kept open and are not obstructed.
- Loosen the 4 x M4 screws on the base of the heater and slot the mounting brackets into position, then re-tighten the screws. Mount the heater in position and mark the 4 mounting holes on the floor of the vehicle for screwing the heater down. Remove the heater and drill 4 x 3.5mm holes in the marked positions, then screw the heater in place with the 3/4 x N0.8 self tapping screws provided.
- Find suitable locations for the hot air outlet and re-circulation air inlet vent and drill a 5mm pilot hole through each centre. Using a 95mm hole saw, drill out the holes and fix the vents in position using the black 1/2 x No.8 counter sunk self tapping screws provided.
- Fix the 60mm reducer (push fit) into the back of the hot air outlet. Cut the 60mm ducting to length and fix to the heater and the outlet using the 50-70mm hose clips provided.

NOTE: There is no reducing spigot provided for the air inlet vent, as it is not necessary to put ducting on it.