2000 Series Engine Heater

Thank you for purchasing a P1 Australia 2000 Series Engine Heater.

Use these instructions for heater codes #092301-092320, 032401-032434. Code is on the bottom of heater.

This guide is to assist you with understanding, operating and storing the unit.
We have designed the unit to be simple operation with minimal maintenance required.
The heater has an internal preset thermostat that enables an aluminium V8 engine to achieve heating temperature 170*F / 45 mins. pending ambient temperature and conditions.
Please read the instructions carefully before operating.

General Recommendations

- All connection ports MUST be a minimum AN8 size for optimum heating.
- Radiator inhibitor is recommended to prevent heater corrosion.
- Diesel is recommended but Kerosene can be used.
- Ensure that exhaust is facing outwards with an unobstructed path to allow hot exhaust gases to escape.
- NEVER refuel whilst heater is operating.
- Charge battery after every 4-5 hours of heater operation.
- Drain all coolant if heater is subjected to freezing temperatures, whilst in storage or transportation.
- Do not operate heater outdoors when raining. It has electrical components!

Initial Heater Set up.

1. Remove heater from packaging.
2. Remove battery charger from packaging box and connect supplied cable to battery outlet on the 2000 Series Engine Heater and a suitable 110v power source to ensure battery is fully charged before operation.
3. The charger will display a green light when fully charged.
4. Install -8 hose fittings to the pushlock hoses.
   1 x-8 straight hose end and 1 x -8 90* hose end fitting to each pushlock hose.
5. Install -8 Red female quick disconnect (QR)fitting to hose.
6. Install -8 Red QR hose to the heater fitting icon marked “To Engine”.
7. Install -8 Blue female quick disconnect (QR)fitting to hose.
8. Install -8 Blue QR to the icon marked “From Engine”.
9. Disconnect battery charger.
10. Remove engine heater radiator cap and fill with radiator inhibitor.
11. Remove engine heater fuel cap and fill tank with diesel or kerosene.
12. Engine Heater is now ready to use.

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Connecting heater to engine to circulate coolant.

(Recommended whenever cooling system has been emptied. E.g. new engine installed. This ensures that all air is evacuated from the cooling system. Failure to do this may cause the heater to operate incorrectly when heating is attempted.)

1. Connect Red QR hose to Red QR fitting on engine. (Red fitting should be the top fitting on the remote bracket).
2. Connect Blue QR hose to Blue QR fitting on engine. (Blue fitting should be the lower fitting on the remote bracket).
3. Open control panel flap.
4. Press red main power switch on “I”.
5. Press small black Pump switch on “I”.
6. Close control panel flap.
7. Engine heater will now circulate coolant only. NO heating.

Disconnecting heater from engine after circulating coolant

1. Disconnect Blue QR hose to Blue QR fitting on engine.
2. Open control panel flap.
3. Press small black Pump switch off “O”.
4. Press red main power switch off “O”.
5. Close control panel flap.
6. Disconnect Red QR hose to Red QR fitting on engine.

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Connecting heater to engine to begin heating.

1. Connect Red QR hose to Red QR fitting on engine.

(Red fitting should be the top fitting on the remote bracket).

2. Connect Blue QR hose to Blue QR fitting on engine.

(Blue fitting should be the lower fitting on the remote bracket).

3. Open control panel flap.
4. Press red main power switch on “I”.
5. Press big black switch twice. (press once is stand by mode, press twice activates the heater firing)

Green heat icon will illuminate first then red line will illuminate.

6. Close control panel flap.
7. Heating will now begin. (When the heater activates it will sound like a jet plane taking off. There may be a slight delay from turning the unit on and hearing this sound).

*****DO NOT PRESS THE PUMP SWITCH. PUMP AUTOMATICALLY ACTIVATES BY PRESSING THE BIG BLACK SWITCH*****

Disconnecting heater from engine after heating

1. Disconnect Blue QR hose from engine.
2. Open control panel flap.
3. Press big black switch twice. Red and green lights will vanish.
   (If heater is in heating mode press once to allow cycling off, then press a second time) **Failure to allow the heater to cool down will damage the heater.**
4. Press Red main power switch off “O”.
5. Close control panel flap.
6. Disconnect Red QR hose from engine.

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Weekly Maintenance

- Wipe over with clean shop towel to remove any dust or debris.
- Ensure that all switches in control panel are off. “O”
- Check coolant level and refill as required.
- Check fuel level and refill as required.
- Charge battery.
- Inspect & clean air filter. (only required monthly)

Prolonged Storage

- Ensure that all switches in control panel are in the off position. “O”
- Drain all fuel and coolant from the heater.
- Inspect & clean air cleaner.
- Ensure battery is fully charged before storage.
- Start the heater once every three months for 30 minutes of operation.

General Specifications

- Fuel tank capacity: 2.8L / 0.739 Gal.
- Fuel consumption / per hour: 0.45L/Hr / 0.12G/Hr.
- Coolant tank capacity: 2L / 0.528 Gal
- Radiator cap pressure: 1.93 Bar / 28psi
- Battery specifications: 12v 40HA Lithium

Contact us if you have any questions sales@p1australia.com

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2000 Series Engine Heater Error Codes

When the 2000 Series Engine heater is operating correctly a green light and solid red light will illuminate on the big black switch, indicating all is ok.

Should any faults occur, a red light will “flash” on the big black switch. If this happens, disconnect power to the heater for 3 seconds, then turn on again. The fault should be cleared.

If the fault code is not cleared it will remain until the fault is rectified.

The user will need to count the number of “flashes” of the red light and then refer to the troubleshooting table below.

ERROR CODE (red light flashes)	FAULT	TROUBLESHOOTING
1	Ignition failure	Two ignition failures have occurred. Check fuel, air and exhaust for supply or blockage.
2	Heater suddenly stops operating during normal operation	Check fuel and supply lines, check excessive carbon buildup in heater. Check if fuel pump is operating.
3	The voltage is too high	The voltage is continuously higher than 16V for 5 seconds. (not common)
4	Low battery voltage	The voltage is continuously lower than 10V for 20 seconds.
5	Water temperature sensor failure	Water temperature sensor has loose connection or faulty. Reconnect and test.
6	Overheating sensor	Overheating temperature sensor has loose connection or faulty. Reconnect and test.
7	Fuel pump failure	Check fuel pump electric plug connection is secure. Check pump is not seized. Check pump is rotating when powered.
8	Fan failure	Check fan electric plug connection is secure. Check fan is not seized and rotating when powered.
9	Ignition failure	Check ignition plug connection is secure. If fault persists ignition plug requires replacement.
10	Ignition power	Ignition plug requires replacement.
11	Heater has overheated	Check the coolant hoses are not blocked or leaking. Low coolant level can cause air in the system. Check engine for air locks.
12	Overheating Lock	The heater has overheated. Allow to cool down and then re-start. After three consecutive overheating failures the heater will be in a locked state. Remove the 20A heater fuse for 1 minute before reinstalling. Possible temperature sensor failure
13	Ignition failure	The heater failed E-1 twice in a row, and the machine is locked. Remove the 20A heater fuse for 3 seconds before reinstalling.
14	Water pump failure	Check the water pump electric plug connection is secure. Check that the pump is not seized and rotating when powered.

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