

REDRING **HOT/BOX**

Redring Hotbox Boiler

Models L318 and LP330

User and Installer Instructions



Please keep these instructions safe, should you move house,
please hand them over to the next occupier.

COMPLIANT TO : BS EN 60335-2, BS EN 55014-2 and BS EN 50081-1

Redring Hotbox Boiler

THE HALOGEN BOILER, L318, LP330

HALOGEN POWERED WALLMOUNTED BOILER

USER&INSTALLERS INSTRUCTIONS

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1. Introduction

The Halogen Boiler is a wall-mounted appliance, suitable for installation onto small sealed heating systems. It incorporates all the components for sealed system requirements, these include, pressure gauge, pressure relief valve, expansion vessel, circulating pump and manual reset overheat thermostat. A manual air vent is also located on the appliance. There are two controls on the appliance, one adjusts the water flow temperature, and the other is an on/off switch. A 2 m long electrical flex with integral plug enables the appliance to be connected into a standard 13A ring main socket or via the 24 hour plug in timer supplied.

2. Technical Specification

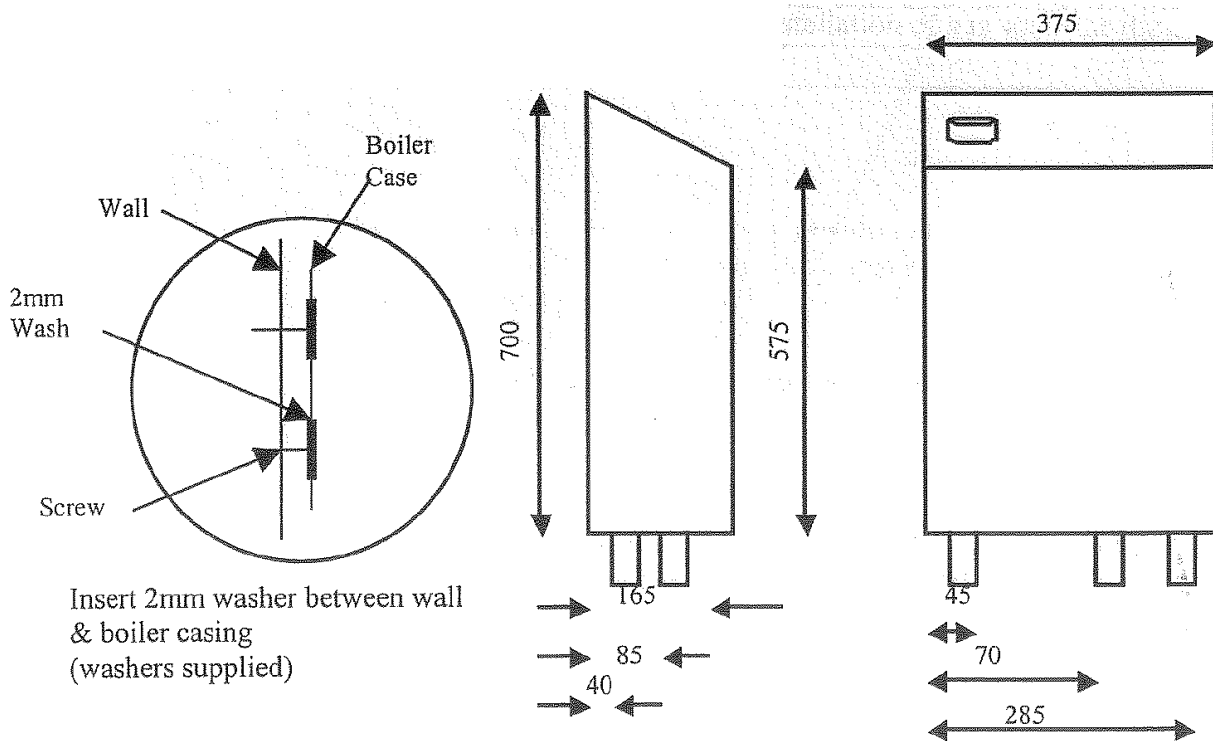
Performance Data

		L318	LP330
Electrical Input	kW	6 x 0.300	10 x 0.300
Heat Output to Water	kW	1.71	2.85
Heat Output Convection	kW	0.09	0.15

General Specification

	L318	LP330
Product Catalogue Number	29-394601	29-394602
Halogen Bulb Heat Source	6 x 300W	10 x 300W
Electricity Supply	220 - 240V ~ 50 Hz	220 - 240V ~ 50 Hz
External Fuse (supplied plug)	10A	13A
Water Connections Flow	22 mm Copper	22 mm Copper
Water Connections Return	22 mm Copper	22 mm Copper
Expansion Vessel Charge	0.5 bar	0.5 bar
Minimum operating flow temp.	20°C	20°C
Maximum operating flow temp.	70°C	70°C

Overall Dimensions & Minimum Clearances



Clearances		Operational	Maintenance
Side	mm	5	5
Top	mm	200	200
Bottom	mm	200	200
Front	mm	5	500

3. Installation Requirements

Statutory Requirements

The installation should also be in accordance with the relevant recommendations in the current editions of the following British Standards:

BS 7074: Pt 1	Expansion vessels and ancillary equipment for sealed water systems
BS 5449	Forced circulation hot water systems for domestic premises
BS 7671	Requirements for Electrical Installations. IEE Wiring Regulations.
BS 4814	Expansion Vessels using an internal diaphragm for sealed hot water systems.
BS 6798	Installation of gas fired boilers of rated input not exceeding 70 kW Net.
BS 6759: Pt 1	Safety valves
BS 1362	General purpose fuse links for domestic & similar purposes. (Primarily for use in plugs).
BS 5376	Code of Practice for selection & installation of gas space heating

Boiler Location

The boiler is not suitable for external installation. The position selected must be within the building unless protected by a suitable enclosure. There must be adequate space for installation, servicing and operation of the boiler as well as adequate air circulation.

If the boiler is to be placed in a cupboard this cupboard should not be used as a storage cupboard. Ventilation should be provided as detailed below.

Ventilation

This boiler does not require a purpose provided air ventilation in the room, however it does require room air to circulate through the boiler to ensure the convection heat output performance is maintained.

If the boiler is installed in an enclosure or small cupboard, there must be an equivalent ventilation free area in the enclosure or small cupboard to that of the boiler.

Upper Ventilation Free Area	These should be the same or larger than in the appliance case mm ²
Lower Ventilation Free Area	As above

Electrical Supply

This appliance must be earthed

The appliance is supplied with a 2 m electrical flex with integral fused plug, which requires a standard 220 - 240V ~ 50Hz supply via a normal ring main socket. If required, the plug connection can be made via the 24 hour plug in timer supplied.

All fuses must be ASTA approved to BS 1362

In the event of an electrical fault after installation of the boiler, preliminary electrical system checks must be carried out. i.e. earth continuity, short circuit, polarity and resistance to earth.

Central Heating Systems

This boiler is designed specifically for use in small, pressurised, sealed system installations. The installation must comply with BS 6798.

Safety Valve – The safety valve, which is pre-set at a maximum of 3 bar is an integral part of the boiler and cannot be adjusted. Its relief outlet must be piped to a suitable outside position.

Pressure Gauge

This indicates the system fill pressure. It will show a higher pressure when the system is hot.

Circulating Pump

The circulating pump is located inside the boiler case. Its performance is suitable for all systems to which the boiler should be connected.

Expansion Vessel

The expansion vessel, which is located inside the boiler case, has a capacity of 2.0 L, with a pre-charge of 0.5 bar.

The maximum heating system water content using this integral expansion vessel is 24.0 L. This is with a cold fill of 0.5 bar.

Should the system volume be in excess of that specified, a second expansion vessel must be connected to the heating system. BS 5449 gives further guidance for expansion vessel sizing.

Vessel Charge and Initial System Fill Pressure	Bar	0.5	1.0	1.5
For Expansion Vessel Capacity (Multiply the system Volume by)		0.0833	0.109	0.156
Total system water capacity using the integral 2.0 L expansion vessel	Litres	25.0	18.4	12.8

Example: 30L system total capacity requires an expansion vessel capacity of $30 \times 0.0833 = 2.5$ litres with a 0.5 bar vessel charge and system cold fill pressure.

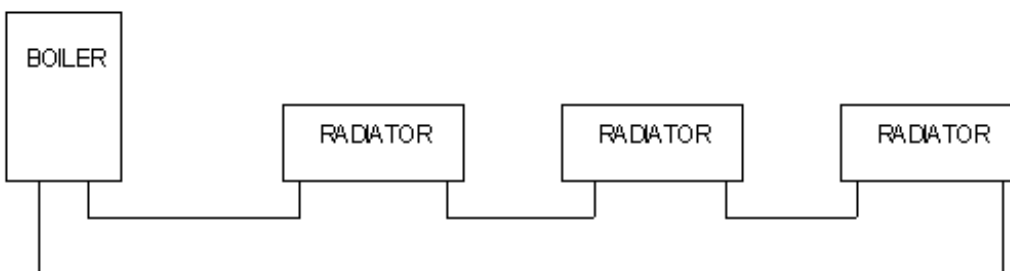
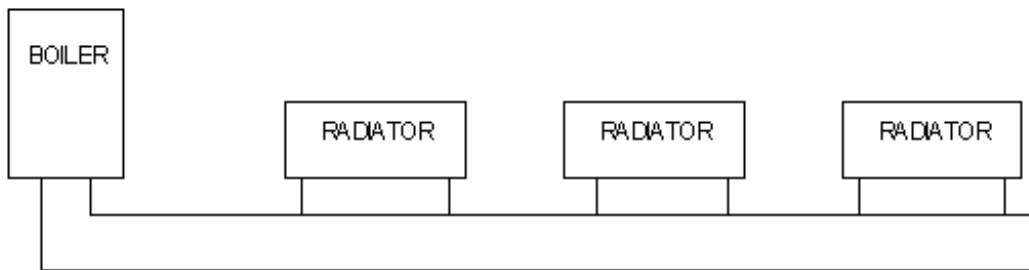
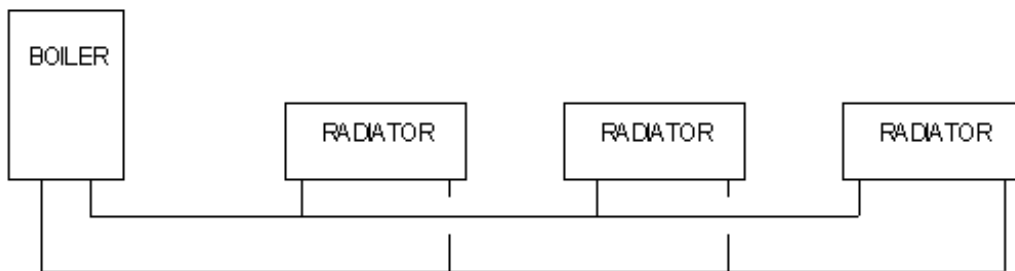
Filling Point

The heating system must be provided with a suitable filling mechanism to both complete the initial fill and top up the system if necessary. The filling device must comply with Water Supply (water fittings) Regulations and the local Water Authority Regulations. Refer to BS 5376: for guidance.

Typical System Diagrams

Thermostatic radiator valves should NOT be used with this boiler.

The boiler is designed for small sealed heating systems usually operating within a single room.



4. Installing The Appliance

Unpacking The Appliance

Unpack the appliance and check the contents with the list below.

- 1 Boiler
- 4 Screws
- 4 Rawlplugs
- 1 Installation & Servicing Instructions including Guarantee
- 1 Plug in 24 hour timer

Location

Before installing the boiler check that the chosen location is suitable, ensuring a dequate clearance is available for both installation and servicing. The appliance must be mounted on a flat vertical wall.

Prepare the Appliance

Remove the front panel by unscrewing the two screws at the bottom of the case. Rotating the case forwards at the bottom 10 mm and lifting it off in an upward direction.

Preparing the Wall

Using the diagrams earlier in these instructions, or the appliance as a template, mark four positions on the wall were the fixing screws will fit. Ensure the appropriate clearances for the boiler have been established.

The wall should be drilled with a 4 mm masonry drill after ensuring there are no electric cables within the hidden fabric of the building.

Insert the rawl plugs followed by the two upper screws. These should be inserted to within 2 mm of the wall.

Mark a suitable position for the pressure relief discharge pipe ensuring a suitable position outside. Drill through the wall with a 16 mm minimum diameter masonry drill to accept a 15 mm copper pipe. This is for the pressure relief discharge.

Mounting the Boiler

Locate the boiler onto the two screws. Fit the two lower screws and tighten all 4 screws to secure the appliance in position.

Water Connections

Refer to Section 3 for detailed information.

The boiler flow and return service valves should be connected directly to the heating system. The flow is on the right hand side, the return being on the left hand side. Each is marked accordingly.

A suitable method of filling the system should be fitted to the system. The method used for filling the system must comply with the local Water Authority Regulations. A drain cock should be fitted to the lowest point of the system. The pressure relief outlet should be connected to a suitable outside position.

Electrical Connections

The appliance is supplied with a 2 m length of 3-cone cable with a normal plug pre-wired. This can be plugged directly into a suitable 220 - 240V ~ 50 Hz, ring main 13 A wall socket.

If required, the plug in timer supplied can be added to control the appliance on / off periods.

5. Commissioning & Testing

The front cover to the boiler should now be replaced.

Fill and flush the system with all the valves open. Refill the system and check for soundness. Vent the system, including each radiator and the boiler. At this point the heating system should have been thoroughly flushed with cold water, filled and vented to a pressure of 0.5 bar cold and be free from leaks.

Note: With the appliance switched on and the thermostat set at the lowest (off) position the pump will circulate water around the system but the halogen bulbs are prevented from operating.

Plug in the boiler and switch on the electrical supply. Switch the appliance switch on and turn the control knob to high. The pump should start to circulate water around the system and the Halogen bulbs will start to heat the water. A thermostat within the boiler will control the temperature of the water as set on the control knob.

Allow the heating system to reach operating temperature and then examine for water leaks.

Turn off the boiler and drain whilst still hot.

Refill and vent the heating system ensuring all air is cleared from the system and the cold fill pressure is set at the design pressure.

The pressure gauge should be at 0.5 bar.

Set the indicator on the pressure gauge to co-inside with this initial cold fill pressure.

Allow the appliance to operate to its maximum temperature to ensure correct operation of the boiler controls. Check the maximum pressure of the system when at this maximum temperature and ensure no water has been expelled from the pressure relief outlet.

Hand the instructions to the user for retention and instruct in the efficient and safe operation of the boiler. Advise the user of the precautions necessary to prevent damage to the heating system and building in the event of the system remaining inoperative during frost conditions.

6. Operation and User notes

During normal operation of the boiler and its heating system there should only be a need to switch the boiler on and off as required. The 24 hour plug in timer provided can be used to provide this function.

The operation pressure will rise and fall in line with temperature increase and decrease of the heating system water temperature. This is normal operation. However should the pressure fall below that set on the pressure gauge (0.5 bar) this is an indication there is either a leak in the heating system or the expansion vessel is too small for the heating system volume. You should consult your Service Engineer in order to correct the fault.

To shut off the boiler for short periods turn the thermostat switch to the off position. This will leave the pump circulating water around the heating system.

To shut off the boiler for longer periods turn the boiler switch to the off position, this will switch the pump and the heating bulbs off, allowing the heating system to cool to ambient temperature.

To shut off the boiler for extended periods whilst the house may be unoccupied when there is a possibility of frost turn the boiler switch to the off position and electrically isolate the boiler. Drain the heating system down. If a suitable anti freeze has been introduced into the heating system it may not be necessary to drain down.

WARNING:- Do not switch on the appliance if there is a possibility that the water in the heater is frozen.

Your installer will advise you about draining the system

7. Routine Servicing and Replacement of Parts

As this is an electrical boiler there is no need for regular preventative maintenance, however at periodic intervals each of the bulbs should be checked for operation.

Before commencing any service operation, ISOLATE the mains electrical supply to the boiler by switching off at the mains plug and removing the plug from the socket. Remove the boiler front cover by first unscrewing the two screws at the base of the boiler and rotating and lifting the cover off the boiler.

After completing any service operation, refit the boiler cover and re commission the boiler as detailed in Section 5.

Should the supply cord become damaged it must be replaced by a special cord assembly available from the manufacturer or its service agent.

Replacing a bulb

- Remove the lid from the bulb box, remove the faulty bulb and replace with a new bulb. Do not touch the bulb with bare fingers, as this will reduce the life of the bulb. Use clean tissue paper or similar to hold the bulb.
- Check that the bulb is seated correctly on the contacts.
- Replace the top of the bulb box, locating it onto the pins provided.

Replacing a bulb temperature limit thermostat

- The bulb temperature limit thermostat can only be replaced as a complete lamp holder unit as follows.
- Disconnect the power supply from the lamp holder at one side of the holder and the limit thermostat and withdraw the lamp holder from the lamp box.
- Replace with a new lamp holder assembly, locating it onto the pins provided.
- Ensure the wires are connected correctly.

Replacing the control thermostat

- Pull off the electrical connections from the thermostat body, noting the termination positions on the body.
- Pull off the control knob from the spindle.
- Remove the two fixing screws and lower the thermostat.
- Withdraw the thermostat phial from the pocket located on the side of the boiler flow pipe.
- Withdraw the thermostat and capillary from the boiler.
- Replace in reverse order taking care to route the capillary away from any electrical connections and that the electrical connections to the thermostat body are arranged as the original.

Replacing the overheat thermostat

- Pull off the electrical connectors from the thermostat body.
- Remove the locknut securing the thermostat body to the lower casing panel and lift the thermostat from its mounting position.
- Remove the phial from the pocket on the side of the boiler flow pipe and withdraw the thermostat and capillary from the boiler.
- Replace in reverse order taking care to route the capillary away from any electrical connections.

Replacing the circulating pump

- Isolate the pump using the valves at each side of the pump or the appliance isolation valves on the flow and return connections to the boiler.
- Disconnect the plug and socket connection in the pump electrical supply.
- Remove the pump from the pipe work.
- Refit a replacement pump in reverse order ensuring it is pumping in the correct direction and the electrical wiring is correct.
- Open the isolation valves, ensure the system cold fill pressure is correct, there are no water leaks and the system is correctly vented of all air.

Replacing the expansion vessel

- Isolate the boiler using the appliance isolation valves on the flow and return connections to the boiler.
- Remove the expansion vessel from the pipe work.
- Refit a replacement expansion vessel in reverse order using a recognised method of sealing the threaded joint.
- Open the isolation valves, ensure the system cold fill pressure is correct, there are no water leaks and the system is correctly vented of all air.

Replacing the pressure relief valve

- Isolate the boiler using the appliance isolation valves on the flow and return connections to the boiler.
- Disconnect the pressure gauge tapping from the top of the relief valve.
- Release the discharge pipe from the valve.
- Remove the pressure relief valve from the pipe work.
- Refit a replacement pressure relief valve in reverse order using a recognised method of sealing the threaded joint.
- Open the isolation valves, ensure the system cold fill pressure is correct, there are no water leaks and the system is correctly vented of all air.

Replacing the pressure gauge

- Isolate the boiler using the appliance isolation valves on the flow and return connections to the boiler.
- Remove the pressure gauge from the pipe work as described above.
- Depress the locating tabs on the gauge body and push the body through the mounting bracket.
- Refit a replacement pressure gauge in reverse order ensuring the seal at the pressure relief valve is sound.
- Open the isolation valves, ensure the system cold fill pressure is correct, there are no water leaks and the system is correctly vented of all air.

8. Fault Diagnosis

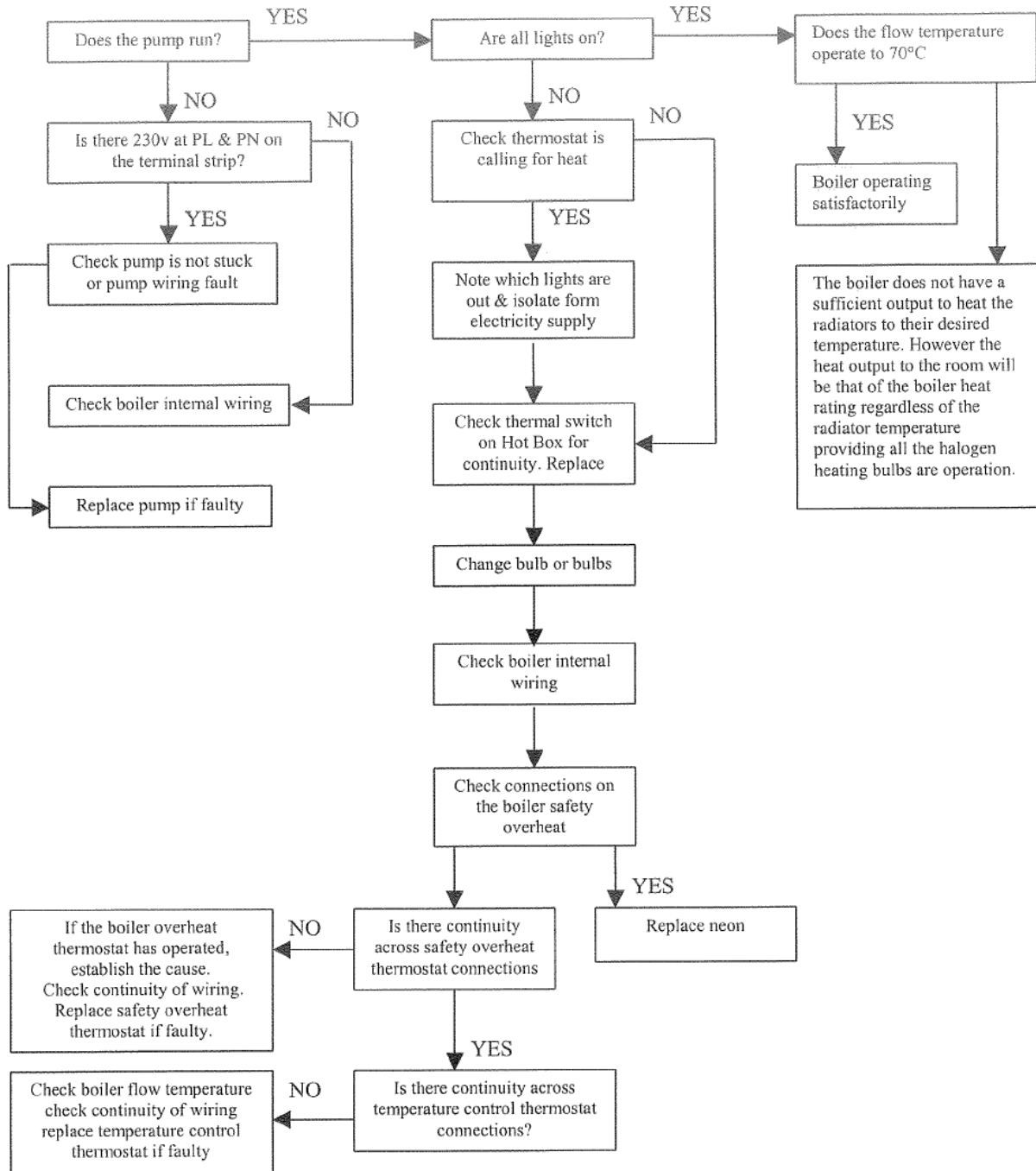
If a fault develops, or is suspected, call your Service Engineer as soon as possible

Go through the following checklist before you make contact

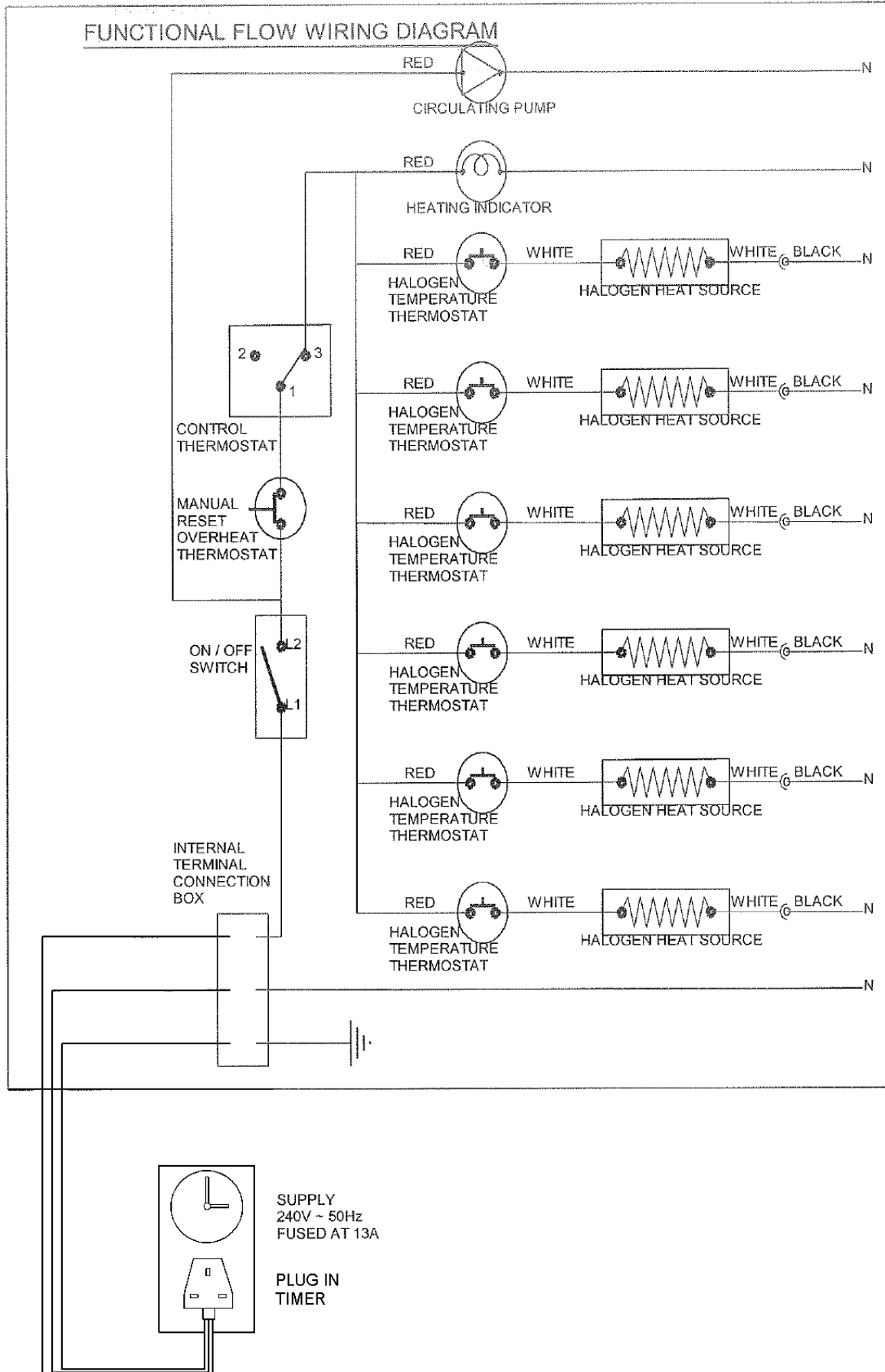
- Is the electricity supply on?
- Are the lamps lit?
- Has the limit thermostat tripped?
- Are the boiler isolation valves open?
- Are the pump isolation valves open?
- Is the boiler switch on (giving a red “Power ON” light)?
- Is the heating system water pressure correct?
- Is the boiler temperature control set correctly?
- Is the time clock (if fitted) calling for central heating?
- Is the room thermostat (if fitted) set high enough?
- Are the radiator valves open?

Fault Finding Chart

If the radiators do not get hot or do not reach the boiler flow operating temperature follow the guide below to establish the possible cause.



9. Wiring Diagram



10. Spare Parts Information

Item	Part Number	Description	Quantity
1	97392070	300 W linear halogen bulb	Model dependant
2	97392071	Hot box replacement head	1
3	97392072	Pressure relief valve	1
4	97392073	Pressure gauge	1
5	97392074	Control thermostat	1
6	97392075	Limit Thermostat	Model dependant
7	97392076	Overheat thermostat	1
8	97392077	Water Pump	1
9	97392078	2lt Expansion Vessel	1
10	97392079	Neon Indicator	1
11	97392080	Air Vent	1
12	97392081	Rocker switch	1
13	97392082	Sight Glass	1
14	97392083	White 2m long mains lead	1
15	97392084	Front cover	1
16	97392085	Control knob	1

GUARANTEE

Terms and Conditions for UK & ROI (outside UK & ROI contact your local distributor)

We, Applied Energy Products Limited, guarantee this product **for domestic use** only, for the period of 12 months from the date of purchase.

Within the guarantee period we will resolve, free of charge, any manufacturing defects in the product resulting from faulty workmanship or material on condition that:-

- a) The appliance has been correctly installed in accordance with our instructions and is being used on the supply circuit or voltage printed on the rating plate,
- b) The appliance has been used in accordance with these instructions and has not been tampered with or otherwise subject to misuse, neglect or accident.
- c) The appliance has not been taken apart, modified or repaired except by a person authorised by us.
- d) Evidence of the date of purchase in the form of an invoice or receipt will be required in order to qualify for an in-guarantee repair,
- e) For the service work to be undertaken free of charge, the work must be only undertaken by Applied Energy Products Limited, or our approved agents.
- f) Service under guarantee has no effect on the expiry date. The guarantee on any exchanged parts or product ends when the original guarantee period ends.

EXCLUSIONS

This guarantee **DOES NOT** cover damage or defects arising from poor or incorrect installation, improper use or lack of maintenance, including build-up of limescale. It is the responsibility of the installer to check that the installation parameters meet the requirements of the product, and any relevant regulations.

If we are called out to a fault, which is subsequently identified as being an installation fault, we will make a charge. It is important that the routine checks are completed before calling us out, as many issues can be simply diagnosed and resolved.

We make no guarantees as to response times for repairs. We will endeavour to achieve the most timely response possible but while we indicate an average response time, this should not be taken as a guarantee.

The guarantee applies to a repair or replacement (at our discretion) of the product subject to the conditions above, and **DOES NOT** cover compensation for the loss of the product or consequential loss of any kind.

The guarantee **DOES NOT** apply to the repair or replacement of halogen lamp heaters, pressure relief devices, accessories, isolating switches, electrical cable, fuses and/or circuit breakers.

This guarantee does not affect your statutory rights.

Full details of terms and conditions are available on request from :-



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