User's Instructions

Powermax HE

**85, 115 & 150 Litre
Condensing Boilers with
Integrated Hot Water Storage**

Quick Guide to the Controls

**When the Powermax was installed, the Installer should
have -**

left or given you these and other instructions including the
Benchmark Log Book and Potterton Warranty Envelope.

left the programmer showing the current day and time of
day. **Note:** The programmer has default On/Off time
periods for both Hot Water and Central Heating.

About the Control Panel

Status display

Window used to show either operating status e.g. central
heating or hot water, the selected hot water temperature, or
heating system pressure - see chart on Page 7. **Note:** The
display defaults to pressure P (in bar).

Operating errors or fault lock-out conditions are displayed
as E (number) or A (number) - see chart on Page 7. **Note:**
Please record the fault code and the boiler Serial No. (see
page 8) when contacting the Service department.

Reset button

Use this button to scroll display when setting the desired
hot water temperature, or checking status or pressure. Use
also to re-start boiler after fault is repaired.

Amber neon - indicates that the mains electricity
supply to the boiler is switched on.

Green neon - indicates that the burner is lit and heating
either the Hot Water or Central Heating.

Red neon - indicates that the boiler has gone to lock out
and needs to be reset by pressing the Lock-Out reset
button.

Hot water - the temperature of the stored hot water can
be adjusted over the approximate range of 45 °C to 65
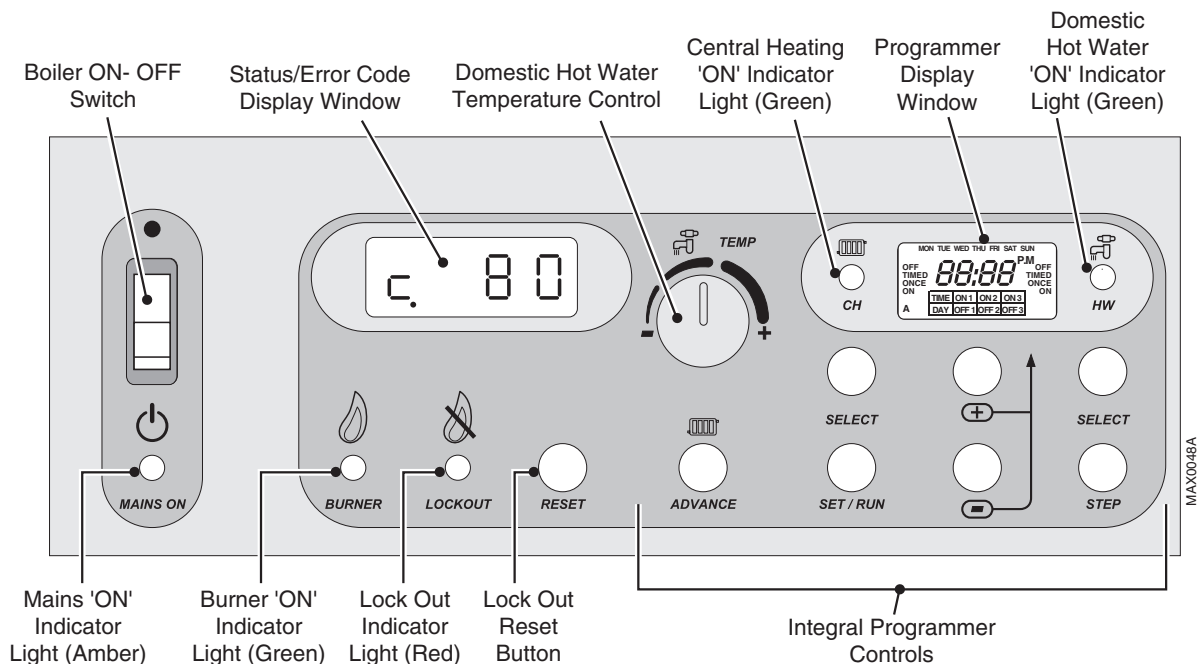°C.

About the Programmer

The programmer display window will show the current
day, current time of day (12 hour clock) and control status
of both the Hot Water and Central Heating.

If the Central Heating is in a timed OFF period and you
wish to bring it on manually, just press the 'Advance'
button. Similarly if the system is ON and you wish to
switch it OFF, again, press the 'Advance' button.

The programmer settings can be changed to have
different On/Off times for both Hot Water and Central
Heating for each day of the week.

Other Controls

A room thermostat, if fitted, will further control central
heating operation.

Boiler ON- OFF Switch

Status/Error Code Display Window

Domestic Hot Water Temperature Control

Central Heating 'ON' Indicator Light (Green)

Programmer Display Window

Domestic Hot Water 'ON' Indicator Light (Green)

Mains 'ON' Indicator Light (Amber)

Burner 'ON' Indicator Light (Green)

Lock Out Indicator Light (Red)

Lock Out Reset Button

Integral Programmer Controls

MAX0048A

About Safety

Benchmark Installation, Commissioning and Service Record Log Book

(benchmark)

Potterton is a member of the Benchmark initiative and fully supports the aims of the programme. Benchmark has been introduced to improve the standards of installation and commissioning of central heating systems in the UK and to encourage the regular servicing of all central heating systems to ensure safety and efficiency.

Important – Failure to install and commission this appliance to manufacturer's instructions may invalidate the warranty. This note does not affect your statutory rights.

CORGI

All CORGI registered installers carry a CORGI identification card and have a registration number. Both should be recorded in your boiler Log Book.

You can check your installer is registered by telephoning +44 (0) 1256 372300 or writing to:-
CORGI. 1 Elmwood, Chineham Business Park, Crockford Lane, Basingstoke, RG24 8WG.

Important - Installation, Commissioning, Service & Repair

This appliance must be installed in accordance with the manufacturer's instructions and the regulations in force. Read the instructions fully before installing or using the appliance.

In GB this must be carried out by a competent person as stated in the Gas Safety (Installation & Use) Regulations.

Definition of competence: A person who works for a CORGI registered company and holds current certificates in the relevant ACS modules, or valid ACoP equivalents, is deemed competent.

In IE this must be carried out by a competent person as stated in I.S. 813. "Domestic Gas Installations".

- This appliance must be earthed. Connection shall be made to a 230 V ~ 50 Hz supply. The appliance must be protected by a 3 amp fuse.

- Do not interfere with any sealed components on this appliance

- The appliance must not be operated without the casing correctly fitted. It is important that the inner casing panels are not removed for any reason other than for servicing by a qualified service engineer.

- Regular skilled servicing is required to maintain the safe and efficient operation of your boiler throughout its working life. Further information on this subject is given at a later stage.

- If it is known or suspected that a fault exists on the appliance, it must not be used until the fault has been corrected by a competent person. If a gas leak is suspected turn off the appliance and consult your local gas supplier or service engineer.

- Flammable materials must not be stored in close proximity to the boiler.

- Do not obstruct any purpose provided ventilation openings.

- The minimum clearances must be observed at all times for safety and servicing.
  Front - 450 mm (unless behind openable door).
  Top - 200 mm twin pipe vertical flue/250 mm concentric flue though 400 mm is recommended for both instances.

- Do not hang items on the boiler to dry. If a storage shelf is fitted it should be at least 75 mm above the top of the case and **removable**.

- Any warning labels on the appliance must be adhered to.

- The programmer has a replaceable battery (to provide memory for the programmer set and default times). The battery must be disposed of in a safe manner.

About the Guarantee

- Information about your guarantee is detailed separately. Please note that it only covers the boiler and *not your pipework, radiators, valves, etc.* If you call a Potterton service engineer out during the guarantee period to anything other than an actual boiler fault- you will be charged for the visit and any work carried out.

About the Boiler

- This is a Floor Mounted, Fan Assisted Balanced Flue Gas Boiler. This boiler is for use with Natural Gas (G20) only at 20 mbar and for use in GB/IE only.

- The information given in these instructions will help you obtain the maximum comfort from your boiler with the minimum trouble and cost. ***Please take time to read through these instructions as they will help you understand how to get the best use out of the boiler.***

- Powermax HE is a condensing combination boiler in which the gas burner heats the contents of the built-in hot water store to provide domestic hot water. A pre-mixed burner is used to ensure that the gas is burned cleanly and efficiently.

- To reduce running costs, timed operation of the central heating is essential and a Powermax programmer is built-in to provide this function. It enables both hot water and heating periods to be timed for both comfort and economy. Your installer may have fitted another make of programmer remote from the boiler and should have provided you with instructions on its use.

Lighting

Check that the mains electricity and gas supply are both turned ON. The amber neon on the control will light when electricity is being supplied. Set the boiler On/Off Switch to 'I' (ON), the boiler is now operational.

If the programmer is set to an ON period for Hot Water the green 'burner' neon will light to indicate that the burner has ignited and is heating the water (unless the pre-set hot water temperature has already been reached).

If the programmer is set to an ON period for Central Heating the green 'burner' neon will light to indicate that the burner has ignited and is heating the radiators (unless the pre-set hot water store temperature has **not** been reached or the system thermostat is not calling for heat).

If the burner fails to light, the ignition sequence will be automatically repeated until either the burner lights or a safety Lock-Out condition is signalled by the red neon. If the red neon lights note the error display code,see Page 7. If appropriate, press the reset button on the control panel and the boiler will re-set itself.

Operating Hints

When the burner is heating the water, the approximate flow temperature can be indicated in the status display window by a 't' for Hot Water or 'c' for Central Heating.

The temperature of the Hot Water can be adjusted by turning the Temperature Control knob on the control panel. The control temperature of this knob ranges approximately from 45 °C to 65 °C. We recommend a setting of 55 °C for normal operation.

During the summer period you can turn the Central Heating off at the programmer. The life of the Central Heating pump will be prolonged if you switch the Central Heating on for a few minutes or so each week during the summer period. **Note:** The boiler control will operate the pump for a few seconds every day.

To turn the boiler off for short periods - set the central heating and hot water channels to the OFF position at the programmer. This leaves the boiler's built in frost protection operational. *To turn the boiler off for long periods* - set the boiler On/Off switch to the 'O' (OFF) position and isolate the gas supply at the boiler. It may be advisable to contact your Service Engineer if you wish to do this.

How your boiler Works

Control of the Boiler
The boiler is fitted with a control panel which indicates basic functions and also contains a programmer. If your installer has fitted another make of programmer remote from the boiler, the programmer display on the control panel will operate as a clock only.

The burner automatically adjusts its heat output to meet the demand of your central heating or hot water.

Central Heating
Your new Powermax HE works as part of a 'sealed'; pressurised hot water system which is why the boiler has a pressure gauge and a means of re-filling the central heating circuit.

Constant pressure in the pipework will find old or badly made joints and allow water to weep or leak through. Your installer should have advised you of this possibility and recommended a course of action. It is not a fault of the boiler.

Hot Water
To ensure a plentiful supply of hot water the Powermax HE has a built in water store which during timed 'On' periods is maintained around the selected temperature.

Your hot water taps may also leak due to the pressure increase.

Hot water always takes priority over central heating during a timed 'On' period. Where a significant volume of hot water is drawn off (e.g. a bath) whilst the central heating is on, the boiler will temporarily shut down the heating until the required store temperature is restored (this will typically take only 10 to 15 minutes).

Optional Immersion Heater
The hot water storage cylinder in your Powermax HE may have been fitted with the optional electric immersion heater. This is of a special type fitted with a safety cut-out which switches off the heater in an overheat situation. It is not interchangeable with standard immersion heaters. Should it fail, use only a genuine Powermax or Heatrae 'Mega' replacement (Part No. P3223/5106143) which must be fitted by a competent person.

A thermostat setting of around '3' (approx. 55 °C) is recommended in hard water areas. Should the overheat cut-out operate, it can be manually reset by pressing the red button at the side of the thermostat dial. ALWAYS investigate the cause of overheating before resetting.

Things you need to be aware of

Air Locks
The boiler pump is fitted with an automatic air vent and will bleed air from the boiler when required.

To access the bleed screw for this vent, pull off the top front cover, remove the small inner panel and the screw cap is situated just below the opening. Unscrew by no more than one turn when air in the system is suspected. e.g. after replacing a radiator. Tighten screw again after 24 hours.

C.H. System Pressure
The Status Display window shows the actual water pressure in the central heating system. It will drop slightly when the central heating starts and will rise by anything up to 1.5 bar as the central heating reaches full temperature.

We recommend that the system pressure, when cold be between 1.0 and 1.5 bar. If the pressure is falling, the status display will flash **'P 0.9' or lower and it is advised to top up at this stage**. If the pressure drops below 0.5 bar the boiler will not light, the status display will show 'P 0.4' or 'A 15' and it will be necessary to top up the pressure.

To top up: Pull bottom panel off front of boiler and connect filling loop to valve on cold water inlet. Open both valves slowly and allow pressure to rise. Close valves, disconnect filling loop and re-fit bottom panel. **If regular topping up is needed get your installer to check the system for leaks**.

Severe loss of system pressure is indicated by 'A 15' on the display and the red 'Lockout' neon will be on. Top up as above then press the 'Reset' button, this will reset the boiler and it should now light.

Flue
This exits through the roof or outside wall. Ensure it does not become obstructed, particularly by foliage or snow. Due to the high efficiency of the boiler and the resulting low flue gas temperature, a plume of white condensate may be emitted from the flue outlet terminal. This will be particularly noticeable during cold weather and does not indicate a problem with the boiler.

The flue pipe becomes very hot when the boiler is operating. If the pipe is visible (such as in a loft space) it is important that no flammable materials are allowed to come into contact with the pipe.

Freezing Conditions
If the water temperature within the boiler drops below 5 °C, a sensor operates and runs the burner to keep the water from freezing. This will only operate if the electricity supply to the boiler is ON. If you are away during periods of cold weather we recommend leaving your boiler on and adjusting your control system (e.g thermostat) to suit.

Condensate Outlet Pipe
If this has been run externally, it may drip water. This is perfectly normal. Steps should be taken to prevent the outlet freezing in very cold weather.

Safety Discharge Pipe
Ask your installer to identify the discharge pipe from the pressure relief valve. Normally no water is vented but scalding water and steam may be emitted and indicate a fault condition. Switch off the boiler and call your Installer.

Precautions should be taken to prevent the outlet becoming blocked and to minimise the hazard to persons (especially children) where the pipe discharges.

Cleaning
The outer case parts can be wiped down with a damp cloth to remove any marks. Do not use abrasive cleaning agents as they may damage the finish on the case parts.

Other controls
These may be fitted within the system e.g. room thermostat. Full instructions on their use should have been supplied with them.

In an Emergency

Gas - In the event of a gas leak turn off the supply at the isolating cock. If the leak is in the pipe from the gas meter then turn off the isolating cock at the meter as well. Call your gas supplier immediately.

Electricity - The boiler can be isolated from the mains supply by removing the plug from the socket or switching the fused supply off.

Central Heating system - If a radiator, pipe or the boiler starts leaking, set the boiler On/Off Switch to 'Off' as this will stop the pump from working and will minimise loss of water. Reference can be made to the Installation & Servicing Instructions on how to remove the outer casing and close the isolating cocks to the central heating flow and return.

Hot Water - If a hot water pipe starts to leak, set the boiler On/Off Switch to 'Off', turn off the mains water supply at the stopcock and collect the water in a suitable container, *take care, it could be **Very Hot***.

(Remember to switch on any supplies you have closed once the problem has been corrected).

How to set the Programmer

This section is relevant only if your programmer has been enabled. Refer to 'Programmer not working' on Page 7 if unsure.

Using the Powermax programmer, you can set your Hot Water and/or Central Heating to come on for three time periods per day, with different or common times for Hot Water and Central Heating.

It does take time for the boiler to produce the required temperatures, so set the programmer to switch on, for example, 30 minutes earlier than you will require Central Heating and around 20 minutes earlier than that to allow the Hot Water store to heat up.

Other controls in your system (such as a room thermostat) may affect the switching of your boiler. So although the indicator shows that the central heating is on, the boiler itself could be off.

(Ask your installer how they work).

Setting the Programmer for Built-in Times

The programmer already has built-in time periods, which are shown below (represented as a 12 hour clock).

Central Heating - Monday to Friday					
ON1	OFF1	ON2	OFF2	ON3	OFF3
07.00	09.30	12.00	12.00	5.00	11.00

Domestic Hot Water - Monday to Friday					
ON1	OFF1	ON2	OFF2	ON3	OFF3
06.30	09.30	12.00	12.30	4.40	11.00

Central Heating - Saturday and Sunday					
ON1	OFF1	ON2	OFF2	ON3	OFF3
07.30	10.30	12.00	12.00	4.30	11.30

Domestic Hot Water - Saturday and Sunday					
ON1	OFF1	ON2	OFF2	ON3	OFF3
07.00	10.30	12.00	1.00	4.00	11.30

These times can be used, by setting the correct time of day as described in Section 2.0, Page 6.

To set up your own ON/OFF times, refer to Section 3.0, Page 6.

If you wish to return to the built in time periods, after changes have been made to them, firstly ensure the programmer is in Normal Operation (Section 1.0, Page 6). Then press & hold down the ⊕ and ⊖ buttons together, after 2 seconds or so, release the two buttons and the built in periods will be active.

Using the HW and CH 'SELECT' Button
During normal operation, by pressing these buttons you can select how you wish your system to work:

OFF	When selected, the boiler will stay turned off.
TIMED	Allows the Central Heating and/or Hot Water to run to the times you have set in the programmer's memory.
ONCE	Allows your Central Heating and/or Hot Water to run once a day, from the first ON time to the last OFF time.
ON	Will turn the Central Heating and/or Hot Water on continuously 24 hours a day.

Using the 'ADVANCE' Button
The ADVANCE button allows you to go forward to the next ON or OFF time for Central Heating only, when **timed** is selected. To advance the programme, simply press the ADVANCE button and the Central Heating neon will go OFF (if on) or ON (if off), press again to return to original setting.
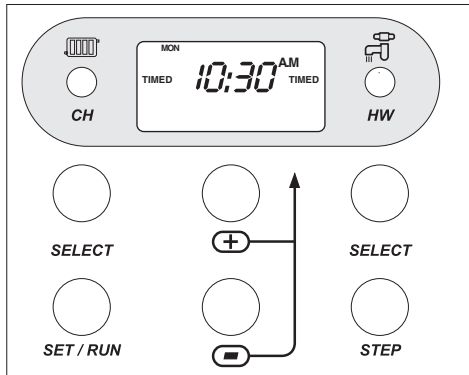
Programmer Memory Backup
If the electricity fails or is switched off, the display will go blank, but the programmer will maintain the set times and the clock for 12 hours. When the power comes back on, you may have to reset the clock and switch times.
Note: During the time that the electricity is off, any electrical items, e.g. Boiler, pumps, etc. will not operate.
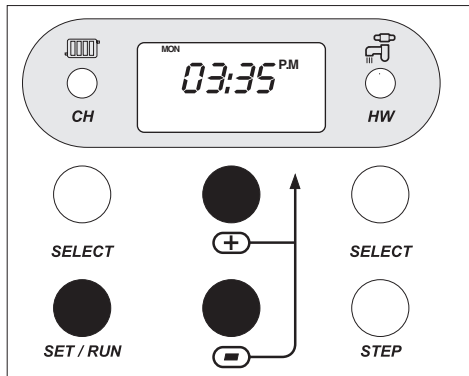
If the programmer battery fails, a replacement (Part No. 5106294) is available. Always dispose of the old battery in a safe manner.
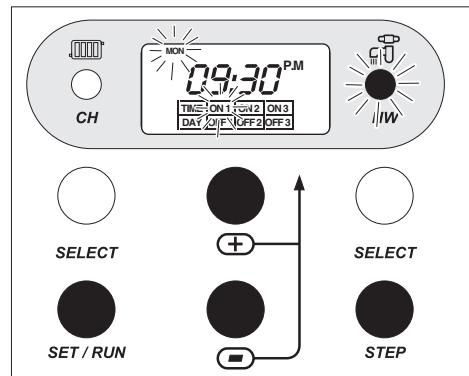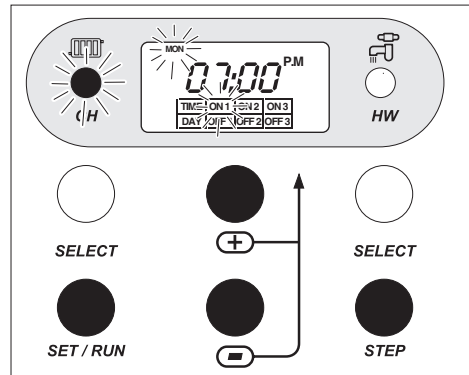
How to set the Programmer

1.0

2.0

3.0

MAX0049A

Reminder.

SET/RUN enters the programming mode and lets you change the current time and current day, **SET/RUN** also returns the programmer to normal operation.

1.0 Normal Operation

1.1 During normal operation the display will show the day, time and programme option selected e.g. OFF, TIMED, ONCE or ON.

2.0 Setting the Time & Day

2.1 Press **SET/RUN**. The time will be now be displayed and the hours will flash.
Adjust using ⊕ or ⊖.

Press **STEP** and minutes will flash.
Adjust using ⊕ or ⊖.

Press **STEP** and the day will flash
Adjust using ⊕ or ⊖.

2.2 If you wish to change the ON/OFF times press **STEP** and go to 3.2 otherwise press **SET/RUN** to return to normal operation.

3.0 Setting the On/Off Times for CH and HW

Note: On/Off times can only be set in intervals of 10 minutes. Also, the programmer will not accept a "midnight" setting. It is recommended to use a time before midnight e.g. 11:50pm.

3.1 Unless continuing from 2.1, press **SET/RUN** and use **STEP** until ON1 is flashing.

3.2 The CH neon will flash, indicating you are in the CH On/Off area starting with Monday. If you wish only to change the HW times, press the **SELECT** button under the HW neon and it will start to flash.

Adjust using ⊕ or ⊖.

Press **STEP** and OFF1 will flash.
Adjust using ⊕ or ⊖.

3.3 ON2, OFF2, ON3, OFF3 can be set by repeating the procedure shown for ON1/OFF1.

3.4 Once OFF3 has been set, press **STEP** and Tuesday will now flash.

3.5 Repeat the procedure for Tuesday and all other days of the week.

3.6 Once OFF3 has been set for Sunday press **STEP**, the CH neon will go out, the HW neon will flash and ON1 will flash.

3.7 Repeat the procedures shown above to set the On/Off times for each period and each day.

3.8 Once OFF3 has been set for Sunday, press **SET/RUN** to revert back to normal operation.

Basic Troubleshooting

Boiler not working
- Are all the gas and water supplies turned on at the main supply ?
- Is the electricity supply on and is the amber neon lit underneath the Boiler On/Off Switch ?
- Is the programmer set to an 'On' period for central heating and are any other controls such as room thermostat and thermostatic radiator valves set to their maximum on settings ?

Programmer not working
- **No Display (boiler switched 'On')** - Check the mains electricity supply to the boiler is ON (the amber neon underneath the Boiler On/Off Switch will be lit). If not, check the fuse at the plug or switched socket.
- **Display only shows Clock** - Has your installer fitted a programmer away from the boiler, if so, the built in programmer will be disabled and only display the clock. Refer to Page 21 of the Installation & Servicing Instructions.

- **No Central Heating or Hot Water** - Is the programmer set correctly for current time, day, programme times etc ? For central heating, are any room thermostats or thermostatic radiator valves in the system calling for heat ?
- **Incorrect Time & Day Displayed** - Set the correct time and day as shown on Page 6.
- **ADVANCE Button Not Working** - ADVANCE Button will not function if central heating is set to OFF.

Above are the basic items you the user can check and remedy, if you call out a Potterton service engineer and the fault is one of those listed above you will be charged for the visit.

C.H. System Pressure
- Even a very small leak of water from the heating circuit will cause the status display to **flash** 'P 0.9'. If left and the pressure drops below 0.5 bar, the boiler will shut down as a safety precaution and the status display will show 'P 0.4' or 'A 15'.
- If the pressure indicated at normal working temperatures (80 °C) shows 'P 3.1 or higher, switch off the boiler and contact your service engineer.

DISPLAY		INFORMATION / FAULT	ACTION	FURTHER ACTIONS
P 0.1 - 0.4	bar	Loss of pressure in heating system	Replenish CH system & purge air	Find leak(s) and repair
P 0.5 - 0.9	bar	Water pressure in CH system low	Replenish CH system & purge air	Find leak(s) and repair
P 1.0 - 2.9	bar	Normal pressure, system warm/hot	O.K.	
P 3.0 - 3.5	bar	Pressure too high, boiler off	Reduce CH system pressure	* Check/replace expansion vessel
U 60		DHW temperature selected (by knob)	Adjust if required - 55° C recommended	Range: 65° C (winter) / 45° C (summer)
c 80		Indicative flow temperature to CH	O.K. Scroll to pressure display "P"	Press RESET button to scroll display
t 80		Indicative flow temperature to DHW	O.K. Scroll to pressure display "P"	Press RESET button to scroll display
b 52		Indicative cylinder temperature	O.K. Cylinder being re-heated	Press RESET button to scroll display
0 00		Boiler in standby mode	O.K.	
A 01		Burner failed to light	Check gas is on, Press RESET button	Check condensate outlet is not blocked
A 02		System response fault	Open radiator valves if shut, press RESET	If repeated, call Powermax service
A 03		Over temperature lock-out	Switch off boiler for 10 minutes	Check/replenish system pressure & purge air
A 04		Overheat 'stat open/gas valve failure	Press RESET button	* Check system pressure & gas valve operation
A 05		Relay failure (control)	Switch electricity off - on. Press RESET	If repeated, call Powermax service
A 07		Heat exchanger response fault	Check gas is on, Press RESET button	If repeated, call Powermax service
A 09-12		Internal boiler control failure	Switch electricity off - on. Press RESET	If repeated, call Powermax service
A 15		Loss of pressure in system	Check/replenish system pressure	Find leak(s) and repair. Press RESET
A 18		Control / sensor failure	Switch off boiler	Call Powermax service
A 19		Flame detection / gas valve fault	Switch off boiler	* Check/replace gasvalve, press RESET
A 20		Flame detected with closed gasvalve	Switch boiler off - on. Press RESET	If repeated, call Powermax service
A 33		Fan speed incorrect	Switch boiler off - on. Press RESET	If repeated, call Powermax service
A 40		System response fault	Open radiator valves if shut, press RESET	If repeated, call Powermax service
E 03		Flow temperature abnormally high	Switch off boiler for 10 minutes	Check / replenish system pressure & purge air
E 04		Flow sensor open circuit	Check connections at control	* If repeated, renew sensor/cable
E 06		Flow sensor short circuit	Check wires not damaged	* If repeated, renew sensor/cable
E 07		DHW sensor open circuit	Check connections at control	If repeated, renew DHW sensor/cable
E 08		DHW sensor short circuit	Check wires not damaged	If repeated, renew DHW sensor/cable
E 13/16/19		Internal boiler control error	Switch electricity off - on. Try re-starting	If repeated, call Powermax service
E 20		Premature flame signal	Switch off boiler for 10 minutes	Check condensate outlet not blocked
E 21		Live & Neutral supply reversed	Correct the electrical supply	
E 22		Electrical supply not 50Hz	Correct the electrical supply	
E 29		Boiler circuit fault	Switch electricity off - on. Try re-starting	If repeated, call Powermax service
E 40		Return sensor open circuit	Check sensor connections	* If repeated, renew sensor or cable
E 41		Return sensor short circuit	Check wires not damaged	* If repeated, renew sensor or cable
E 42		Internal boiler control error	Switch electricity off - on. Try re-starting	If repeated, call Powermax service

* Work to be performed by Baxi Potterton/Corgi technician only   MAX0055C

When contacting Baxi Potterton please have the following information to hand:

    Appliance Name
    Model Number
    Serial Number

The Label (detailing serial and G.C. numbers) is behind the top front panel. To remove: pull the bottom edge of the top panel forward and up to clear fixings.

The serial number labels are located as shown.

Heat Engine Serial Number data badge behind top front panel

Cylinder Serial Number label on outside of bottom plinth
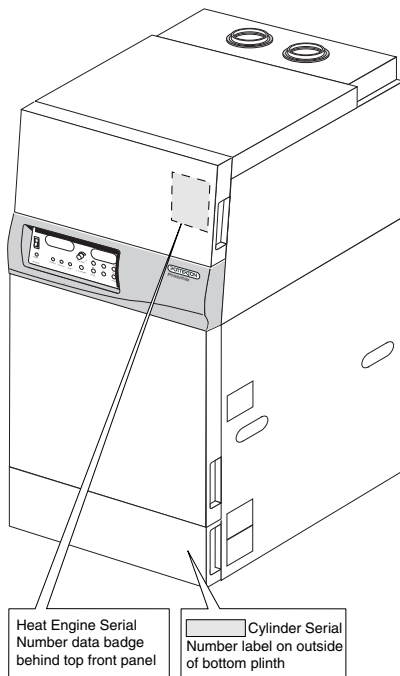
General Enquiries (GB)
Tel. 08706 060 780

Sales (GB)
Tel. 08706 060 403
Fax. 01772 695 416

Technical (GB)
Tel. 08706 060 955

Service (GB)
Tel. 08706 060 933
Fax. 08706 060 966

Literature Request (GB)
Tel. 08706 060 623

Spares (GB)
Tel. 08706 000 454

Technical (IE)
Tel. 1850 560570

All descriptions and illustrations provided in this leaflet have been carefully prepared but we reserve the right to make changes and improvements in our products which may affect the accuracy of the information contained in this leaflet. All goods are sold subject to our standard Conditions of Sale which are available on request.