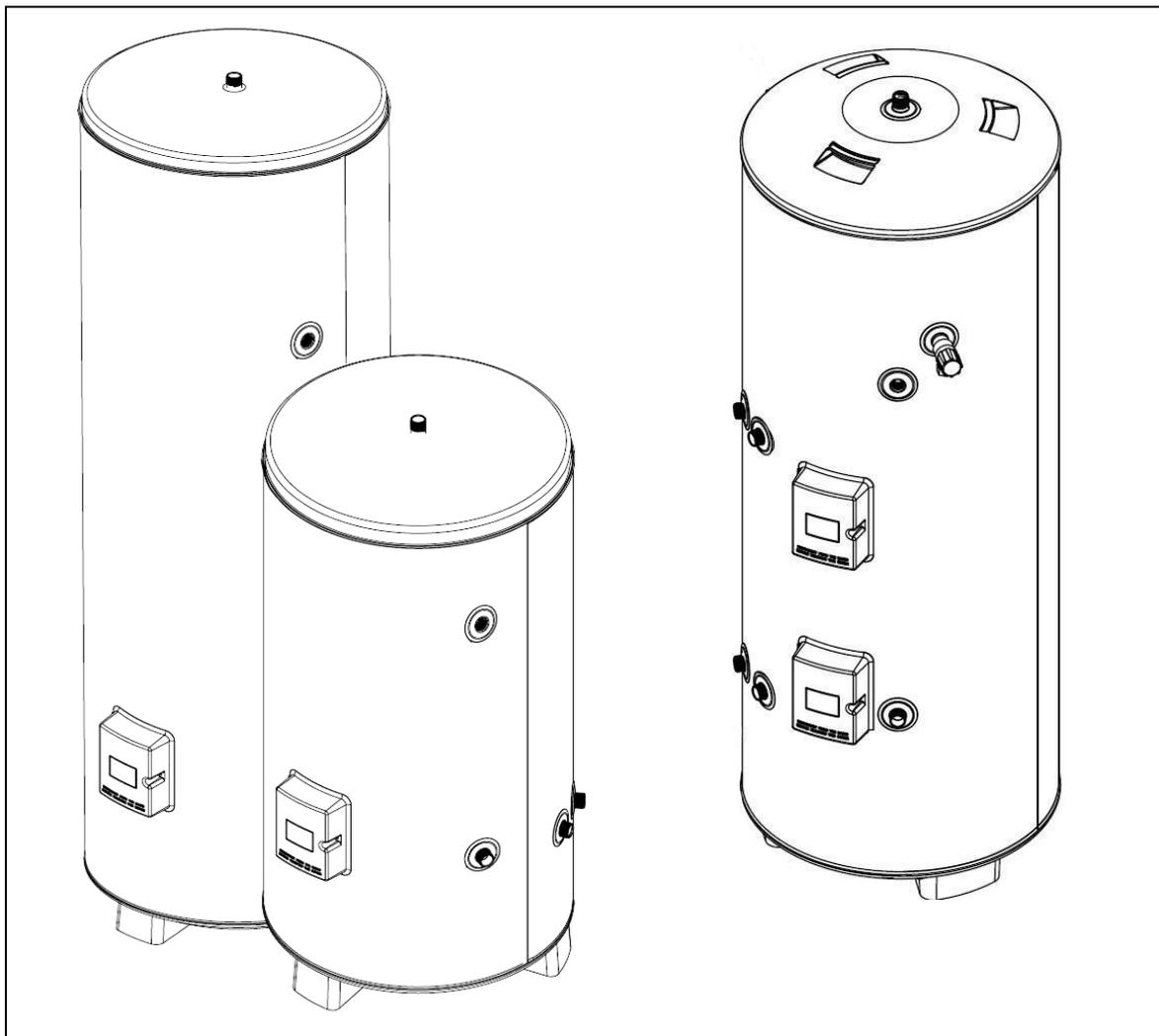


# New Zealand version

# BAXI

PremierPlus single coil 200 & 300 litre, and  
twin-coil 300 litre solar, mains pressure hot water  
cylinder installation manual



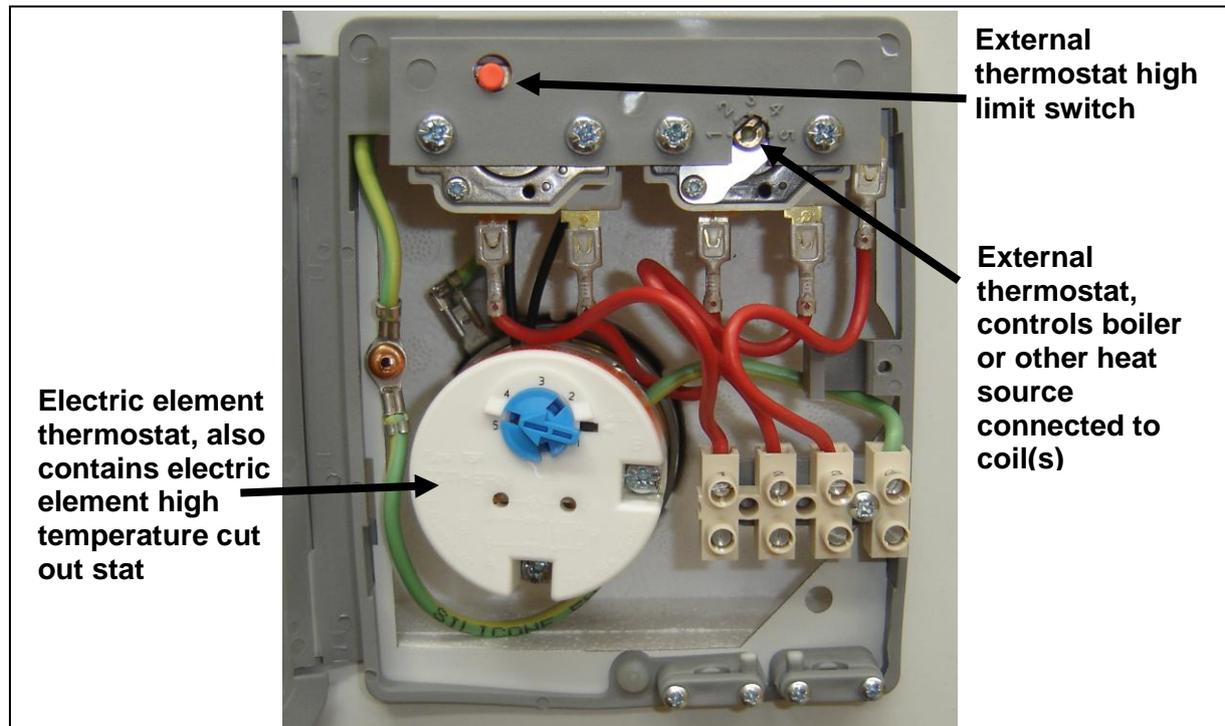
## Legal and Safety Requirements

This cylinder is a mains pressure cylinder which should be fitted in accordance with **G12:AS1**, by a registered plumber, following these instructions.

The *Baxi premier plus hot water cylinder* must be fitted with a pressure relief valve rated at 850kPa. Failure to provide adequate pressure relief will invalidate any guarantee and lead to a dangerous installation.

## Electricians: Please read this before you ring us.....

This cylinder comes with 2 different types of thermostats, (1) to control external heat sources such as boilers that are used to heat the cylinder via the coil, and (2) a thermostat to control the electric element that comes with the element.



## Warning: Cable size

Some information supplied with this hot water cylinder suggests the use of 1.5mm<sup>2</sup> cable to supply electrical power to the electric elements used with these cylinders.

This is not correct in New Zealand. Cable of at least 2.5mm<sup>2</sup> must be used to supply electrical power to the electrical heating elements.

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Manual last updated 26 January 2011

## 1 Single Coil technical specifications

### Single and twin coil cylinders

Operating pressure	5 bar (500kPa)
Test pressure (hydraulic)	15 bar
Connections	G <sup>3/4</sup> (3/4" BSP) male threaded (15mm TPR outlet)
Minimum recommended supply pressure	1 bar (100kPa)
Max. primary circuit working pressure	3 bar (circuit from boiler) (300kPa)
Electrical rating (electric element)	2.7kW @ 230V single phase
TPR pressure (single coil)	8.5 bar (850kPa)
TPR temperature (single coil)	99°C
Insulation	50mm CFC/HCFC free expanded polyurethane foam

Weights	200 litre	300 litre	300 litre solar (twin coil)
Weight empty (kg)	38	60	67
Weight full (kg)	238	360	367

### Twin coil solar cylinder 300 litre

Max. primary working pressure (Solar Coil)	6 bar
Opening temperature of T&P Relief Valve	99°C
Opening pressure of TPR Valve	10 bar

The Premier Plus is a purpose designed mains pressure hot water cylinder. The unit has a Duplex stainless steel inner vessel which ensures an excellent standard of corrosion resistance. The outer casing is a combination of resilient thermoplastic mouldings and corrosion proofed steel (Plastisol) sheet. All Premiers are insulated with CFC/HCFC free polyurethane foam.

### Note on Wetbacks

**These cylinders cannot be used with a thermo-siphoning wetback as the coil inlet and outlet are at the same level. The wetback circuit requires a pumped configuration.**

### 1.1 New Zealand Building Code

The Baxi cylinders have been approved as an alternative solution to G12:AS1. G12:AS1 doesn't cover cylinders with internal heating coils, heated from boilers which are controlled heat sources, which is why an alternative solution is needed. It should also be noted that these cylinders only have electric elements for emergency heating and are intended for use primarily heated by a boiler and not by electricity.

## 1.2 Water Quality

As a Duplex Stainless Steel cylinder the Baxi premier plus range are more resistant to corrosion than other types of stainless steel or copper.

Care should still be taken, especially with desalinated or bore-hole water. If in doubt get a water test done by a laboratory such as Hills Laboratory or Citilab. These tests cost around \$100.

Indicators of poor water quality are:

- Low pH values (6.5 or less)
- High chloride level (250mg/l)
- High total dissolved solids (500/1000 mg/l - galvanic corrosion)
- Stagnant water (microbes / evaporation)
- Use of brazing flux in pipework preparation (zinc chloride)
- Chlorinated disinfectant (poor flushing / localised concentration)

If poor water quality is present any copper or brass fittings are at more risk than the stainless steel cylinder.

## 2 General Requirements

### 2.1 Components Supplied

Premier Plus hot water cylinders supplied as:

Single coil	Twin coil
TPR kit supplied.	Factory fitted TPR Valve
Factory fitted with low position thermostat and high temperature cut-out that can be connected to a boiler	Factory fitted with mid position thermostat, and high temperature cut-outs in mid and lower position. The mid position thermostat can be used with a boiler.
	Mid position electric element with own thermostat and high temperature cut out.

### Accessory

2.7 kW electric heating element. Can be fitted to low position on both cylinders and mid and low on the solar twin coil cylinder.



Reliance 850kPa, 99°C TPR kit supplied with the 200 and 300 litre single coil cylinders. May need to fitted before siting the cylinder if headroom is limited.



TPR fitted with Tee and reducer. 240mm is needed above top surface of the cylinder to allow enough room to test the TPR.

## 2.2 Siting the Unit

The Premier Plus must be installed vertically.

Although location is not critical, the following points should be considered:

- The Premier Plus should be sited to ensure minimum dead leg distances, particularly to the point of most frequent use.
- Avoid siting where extreme cold temperatures will be experienced. All exposed pipe work should be insulated. This is not an outside unit.
- Design and installation of relief valves and their drains should comply with NZBC G12:AS1.
- Access to associated controls and electric elements should be possible to allow for periodic servicing and maintenance.
- Ensure that the base chosen for the Premier Plus is level and capable of permanently supporting the weight when full of water.

## **2.3 Installation – General**

### **Pipe Fittings**

All pipe fittings are made via 3/4" BSP male parallel threaded pipe connections with the exception of valve drains and the circulating main return which are 15mm.

### **Cold Feed**

A 20mm cold water supply is recommended however, if a 15mm supply exists which provides sufficient flow this may be used (although more flow noise may be experienced). A stopcock or servicing valve should be incorporated into the cold water supply to enable the Premier Plus Solar and its associated controls to be isolated and serviced.

### **Drain Tap**

A suitable draining tap should be installed in the cold water supply to the PremierPlus unit between the inlet valves and the water cylinder at as low a level as possible. It is recommended that the outlet point of the drain pipework be at least 1 metre below the level of the heater (this can be achieved by attaching a hose to the drain tap outlet spigot).

### **Ring main plumbing**

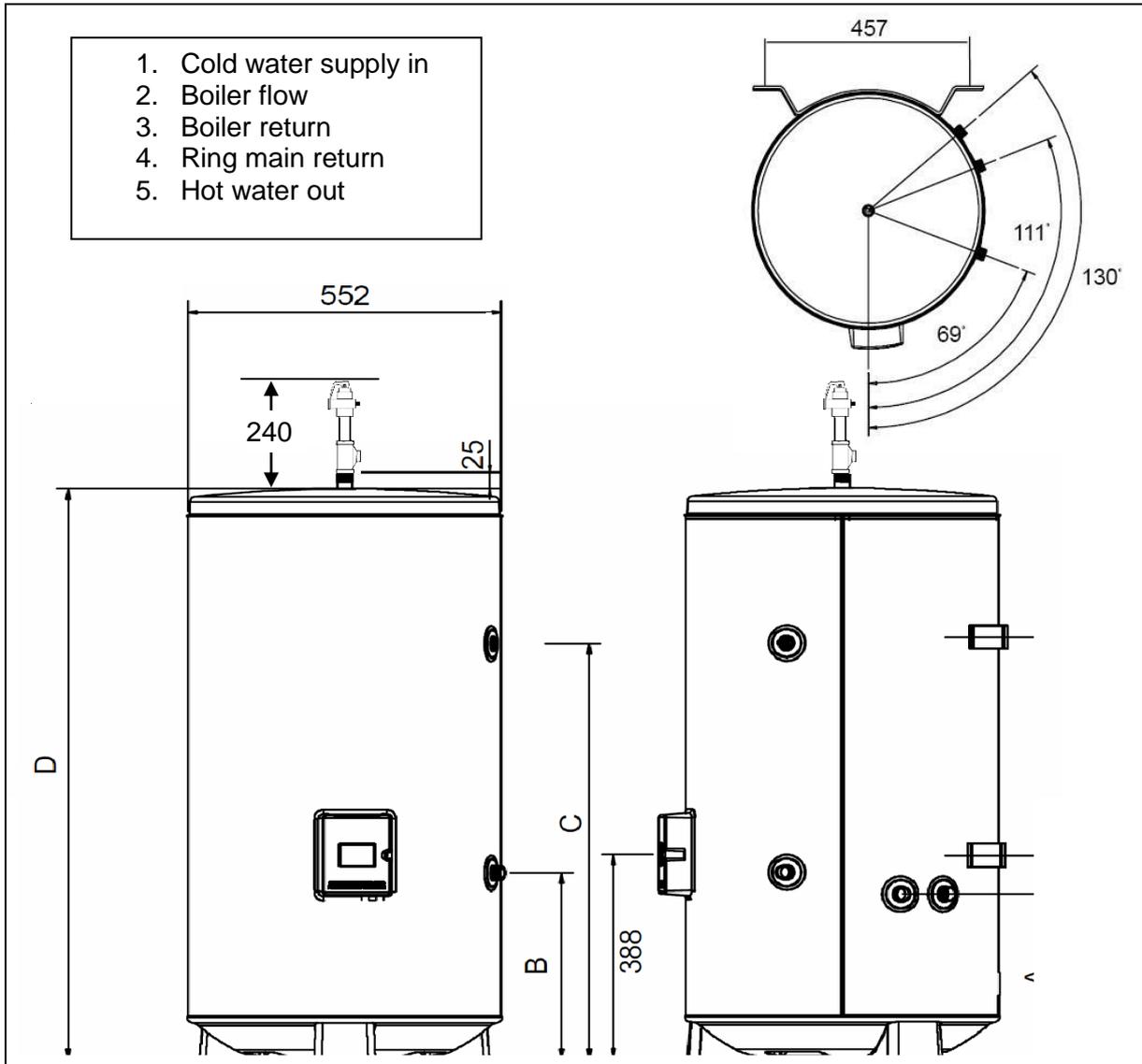
If ring main plumbing is required it is recommended that it be connected to the PremierPlus as shown in the installation section. The secondary return pipe should be in 15mm pipe and incorporate a check valve to prevent backflow. A suitable bronze circulation pump will be required.

### **Outlet**

The hot water outlet is a 3/4" threaded fitting located at the top of the cylinder. Hot water distribution pipework should be sized appropriately with short runs of pipe to terminal fittings such as sinks and basins. Pipe sizes may vary due to system design.

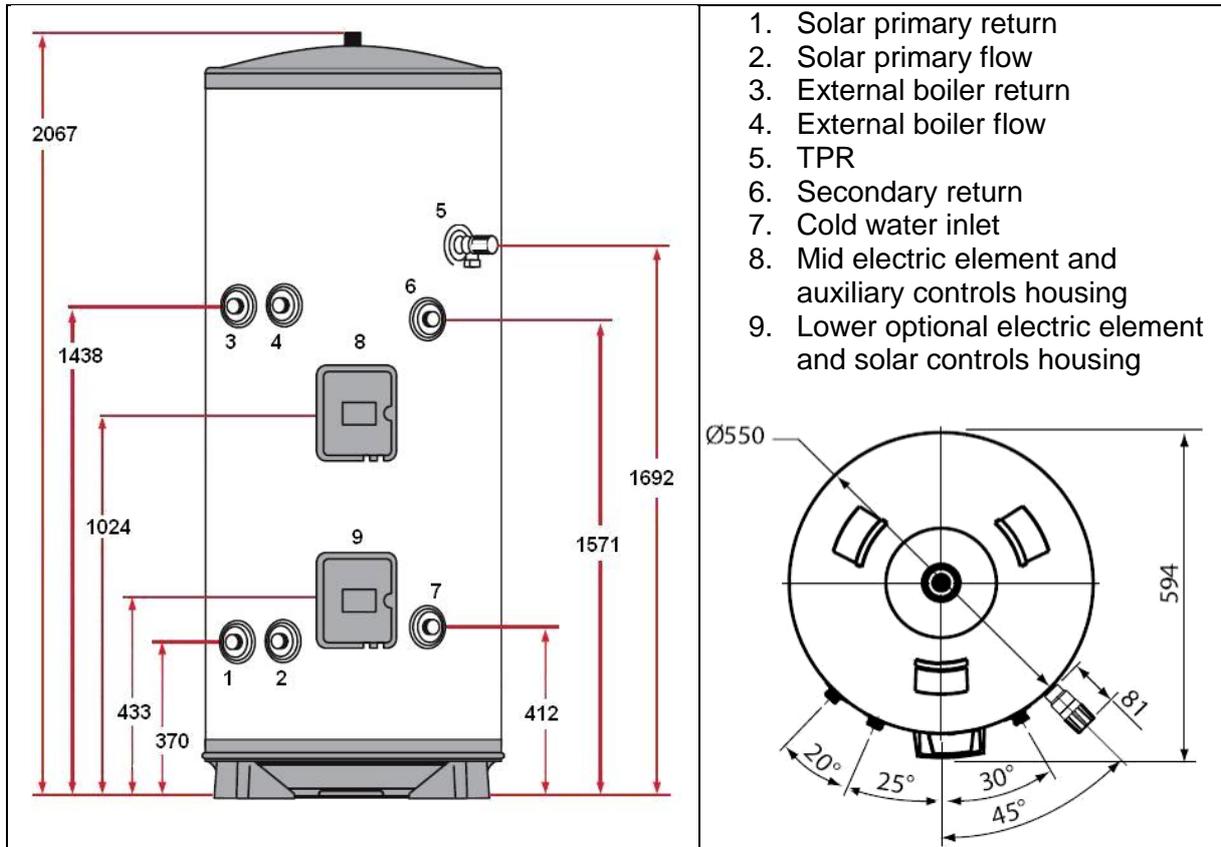
## 2.4 Cylinder dimensions

### 2.4.1 Single coil



Capacity	Dimensions (mm)						Weight (kg)	
	A	B	C	D	E	F	Empty	Full
200	314	354	1094	1474	1088	382	38	238
300	314	354	1480	2040	N/A	N/A	60	360

2.4.2 Twin coil



Nominal capacity (litres)	Solar (lower) coil surface area (m <sup>2</sup> )	Upper volume (litres)	Upper coil		
			Surface area (m <sup>2</sup> )	Rating (kW)	Recovery (mins)
300	1.1	210	0.79	20	23

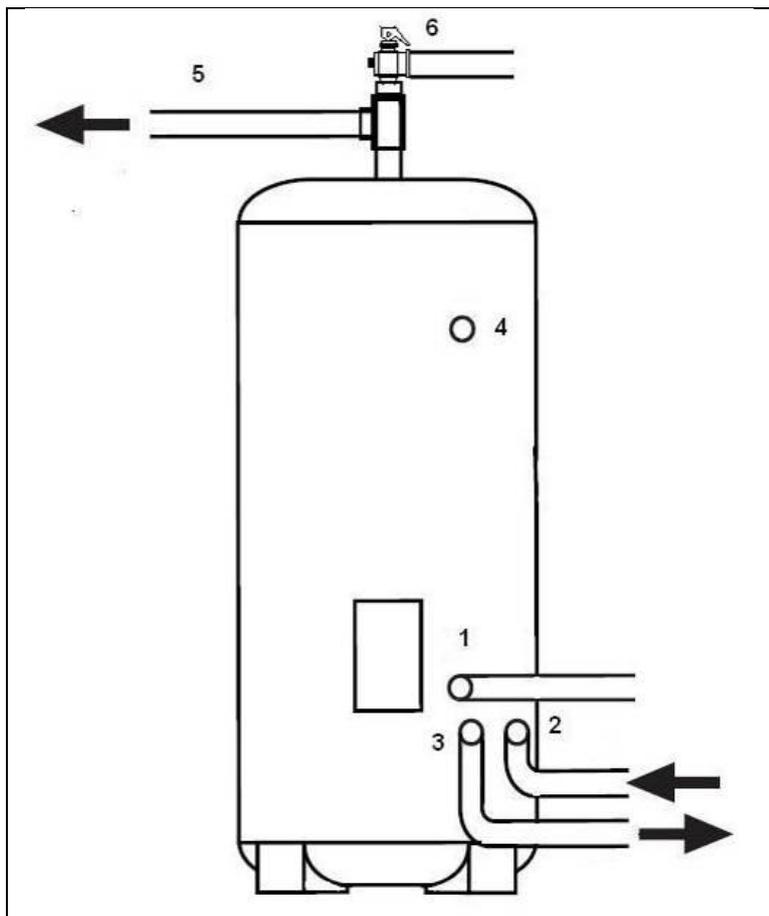
Recovery time is based on heating 70% of the volume to 45°C via the coil from an appropriately sized boiler.

### 3 Installation – Plumbing

The sanitary water INLET is marked BLUE, the OUTLET is marked RED. Several hot outlets can be served, however, individual site demands should be considered when choosing capacity and the number of outlets to be served.

**The primary (boiler) heating circuit MUST be fully pumped.**

It is recommended that an air bleed point or automatic air vent is incorporated in the primary return pipe work close to the hot water cylinder.

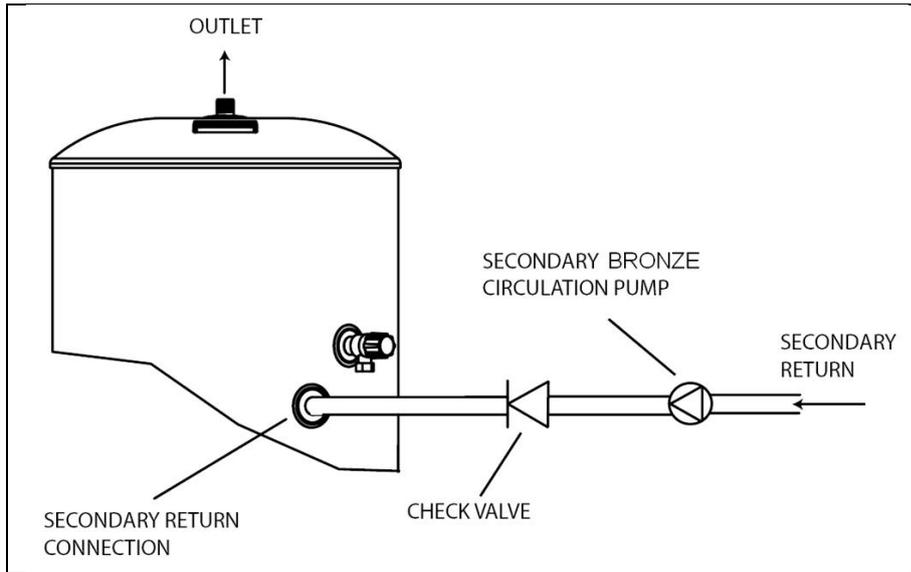


#### Single coil 200 and 300 litre units

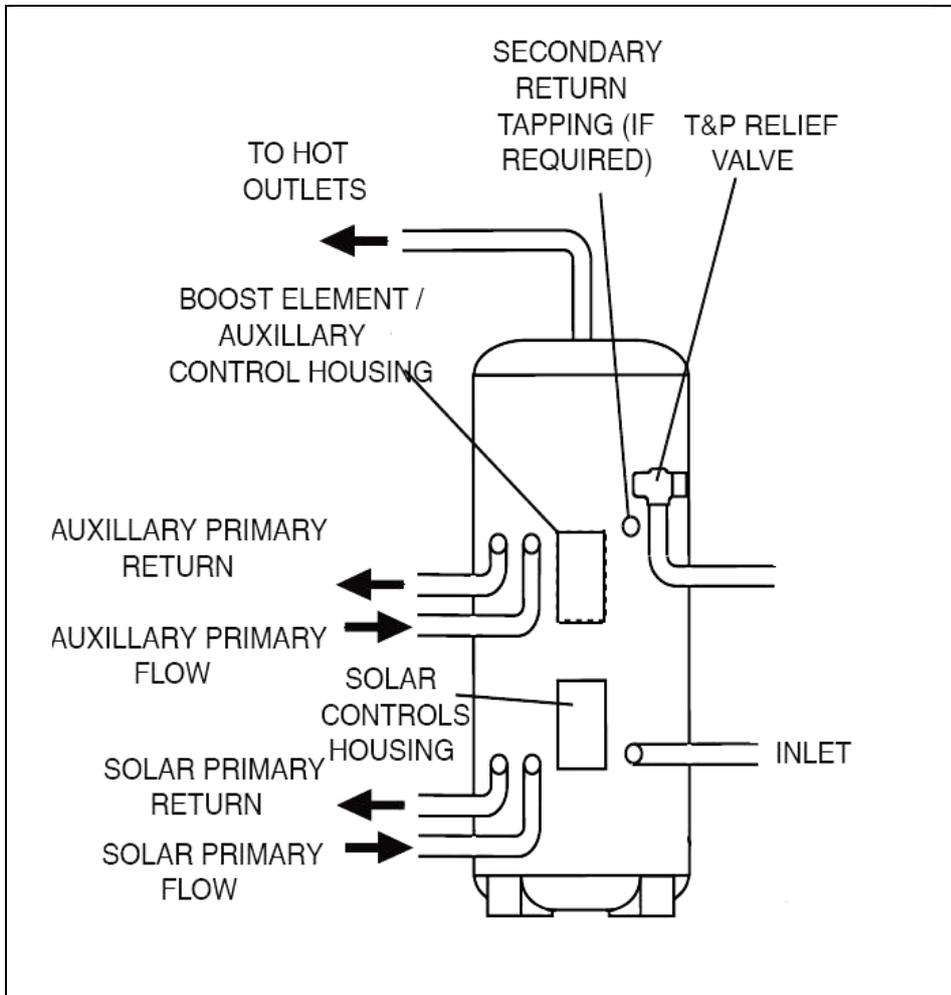
1. Cold water supply
2. Primary circuit flow (hot)
3. Primary circuit return
4. Circulating main
5. Hot water outlet
6. TPR to drain\*

TPR supplied as kit.

A ring main can be installed on the sanitary water circuit. A connection is provided for the re-circulation circuit return pipe (threaded ½ " female). This connection is supplied with a blanking plug fitted.



Secondary hot water or circulating main plumbing.



Twin coil connection to primary circuits and controls.

### 3.1 Wetback connection

Any wetback fitted will have to use pumped circulation as thermo-siphoning will not work with the coils in this cylinder. However pumped circulation means the cylinder can be at any level in relation to the wetback and the pipe work between the wetback and cylinder can be smaller than the larger pipe work needed for thermo-siphon systems.

The pipes used between the cylinder and the wetback must be copper.

The primary circuit between the wetback and cylinder coil must be open vented.

### 3.2 Installation - Solar Primary (Twin coil units only)

#### Connection to Solar Primary Circuit

The lower (solar) coil of the Premier Plus Solar must be connected to a fully pumped solar primary circuit. The connections are threaded ¾" BSP male parallel.

The solar primary circuit should have its own dedicated circulating pump and safety controls which must be installed as per the manufacturer's instructions.

## 4 Electrical and controls connections

The *BAXI Premier Plus hot water cylinder* is suitable for use with most gas or oil fired boilers provided the boiler has adequate thermostatic control and over-temperature protection. If in doubt consult the boiler manufacturer.

***The primary flow from the boiler MUST be pumped. Gravity circulation will not work due to the special design of the primary heat exchanger.***

#### If you are using a Baxi gas boiler

If the cylinder is to be heated using a **Baxi gas boiler** supplied by Central Heating New Zealand the hot water sensor supplied with the boilers DHW kit can be used instead of the factory fitted thermostat. See boiler manual.

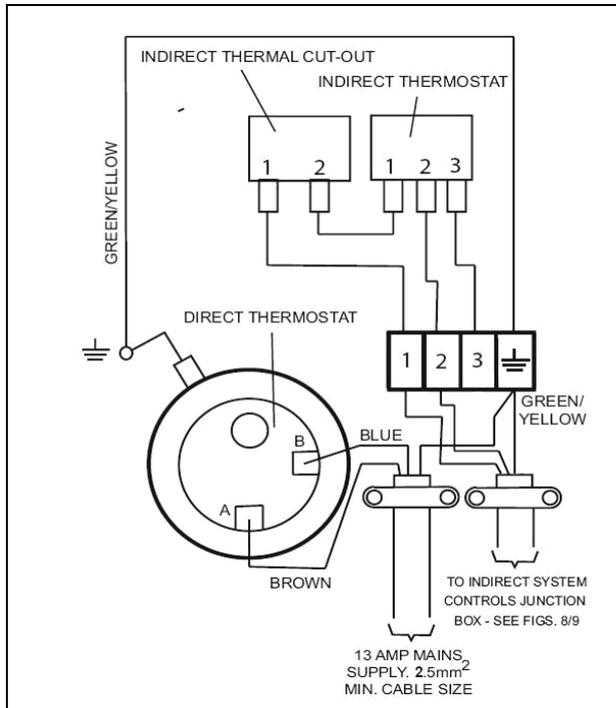
#### If you are using Honeywell Smartfit Controls

If Honeywell Smartfit controls are being used the temperature sensor with the Smartfit kit must be used instead of the cylinders own thermostat. This will require a section of the outer case to be removed along with the insulation behind it so that the temperature sensor will have metal on metal contact.

### 4.1 Factory Fitted External Heating Control Thermostat

The hot water cylinder is fitted with a thermostat that can be used to control a boiler or heat pump to heat the cylinder via a coil. This thermostat should be connected, via the terminal block provided, to the boiler or heat pump controls.

The external heating thermal controls and supplementary electric element (optional) are located behind the grey plastic cover on the front of the hot water cylinder. **DISCONNECT THE ELECTRICAL SUPPLY BEFORE OPENING THE COVER.** The cover is secured by a screw on the right hand side of the cover. When removed the cover hinges open to the left.

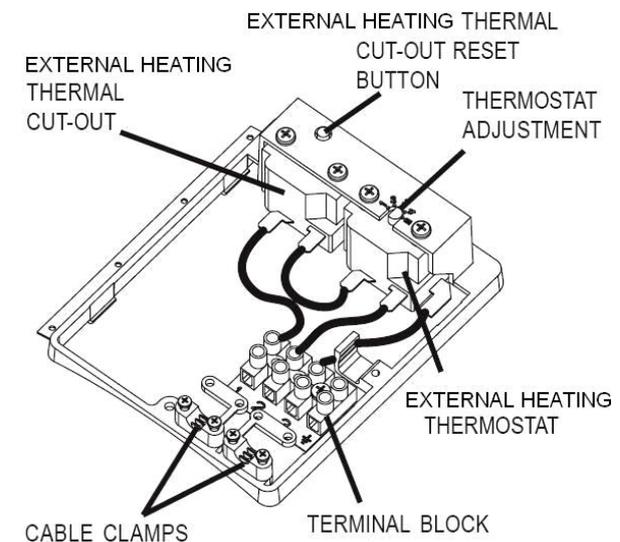
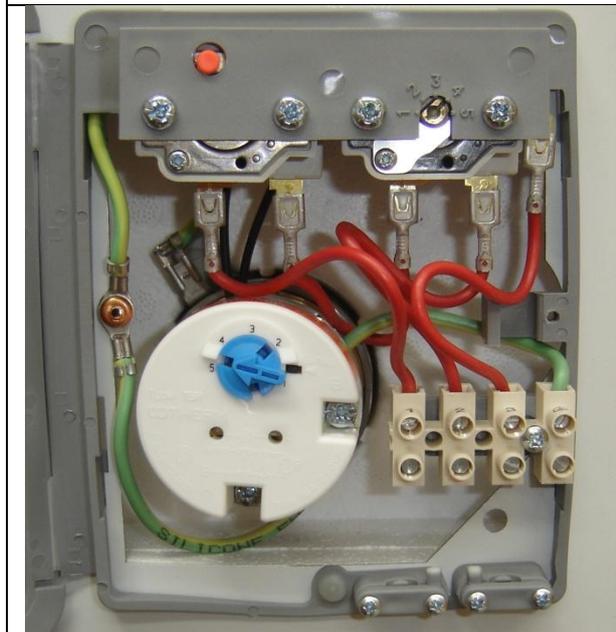


**External Heating Control** (cylinder heated by one or both coils).

The electrical cable should enter the terminal cover via one of the cable grips provided. The outer sheath of the cable should be secured by the cable grip. Connection to the terminal block will depend on the primary control arrangement.

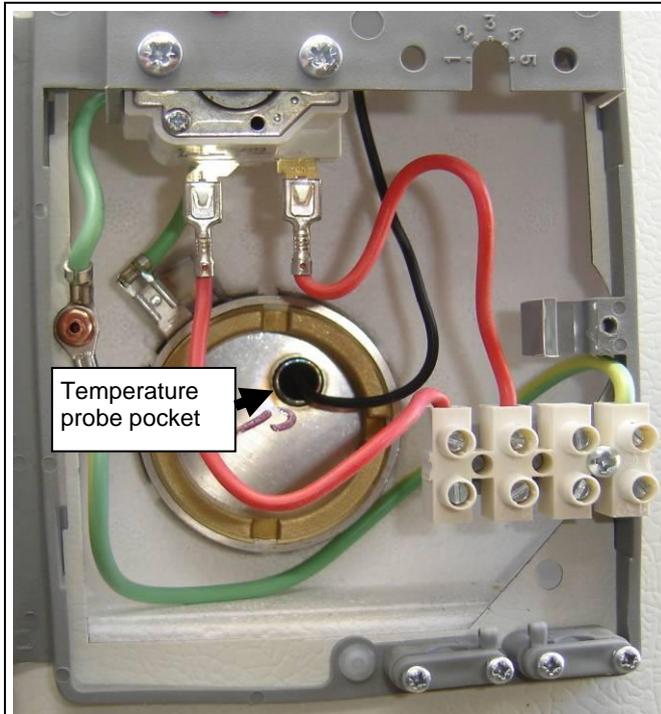
Drawing and photo on the left shows wiring to both electric element thermostat, (circular object on the left) and the external indirect and thermal cut-out at the top of the drawing. Either or both can be used depending on controls design.

Normally connections 1 & 2 on the indirect thermostat are used. They will close to call for heat.



## 4.2 Control of Solar Primary Circuit (twin coil only)

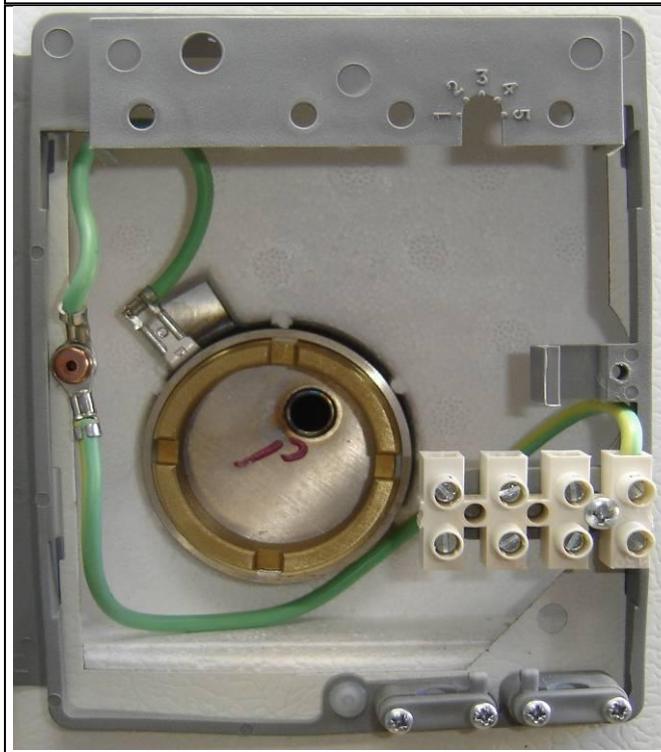
Temperature control of the Premier Plus Solar must be carried out using a suitable Solar Controller.



The lower controls housing on the twin coil cylinder is supplied with only a high limit cut-out for an external heat source.

If the probe for that thermostat prevents the solar temperature sensor from being inserted in the pocket the whole thermostat can be removed by undoing the 2 screws, top, and disconnecting the 2 red wires from the connecting block.

The cylinder temperature sensing probe (supplied with the solar controller) should be fully inserted into the pocket provided on the Premier Plus Solar and its cable secured using the cable clamps on



The lower controls housing showing the high limit thermostat removed.

Connection to the solar controller should be in accordance with manufacturer's instructions.

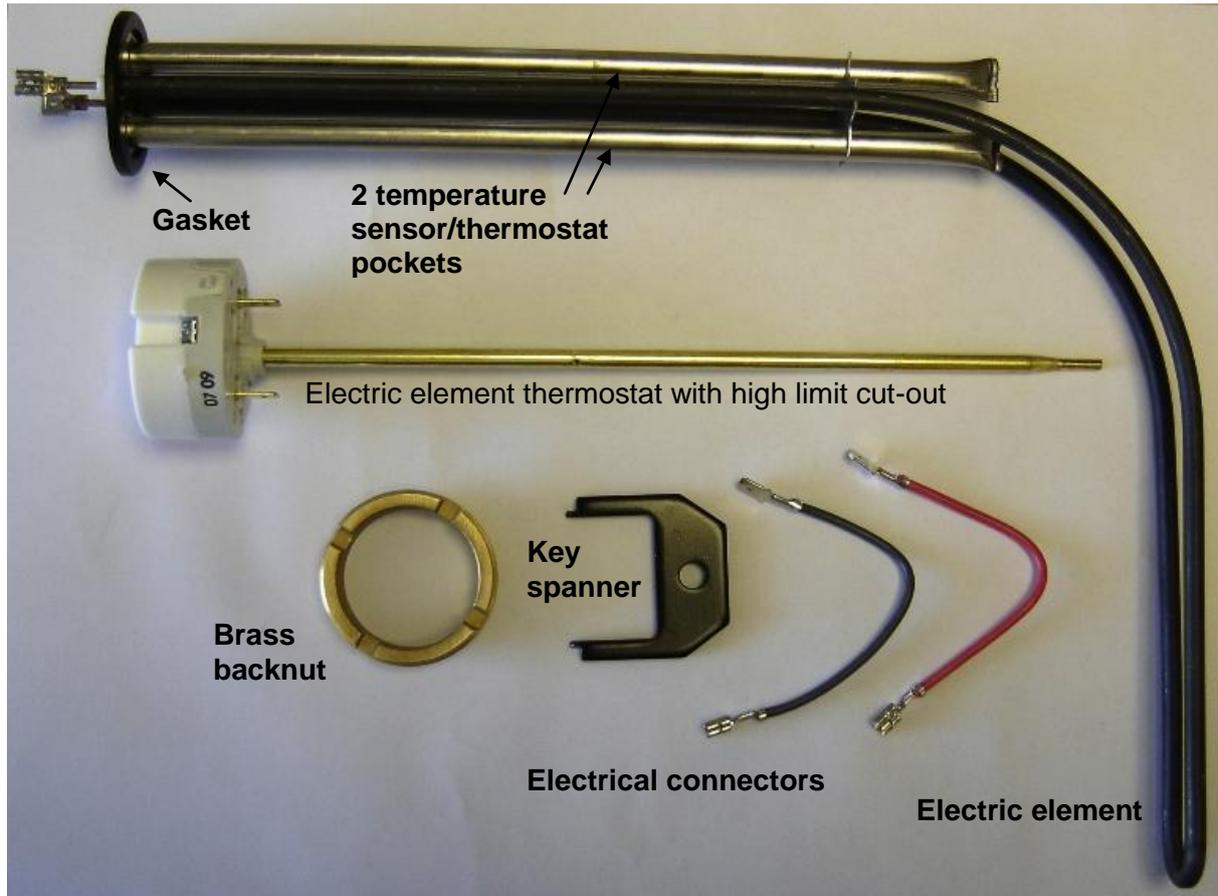
Both coils can be connected together to make one long coil for faster reheat. In this case the external heatsource thermostat that comes in the upper controls housing will need to be moved to the lower controls housing.

## 5 Fitting an Electric element

The twin-coil solar unit comes fitted with a mid position electric element and the single coil cylinders without any electric element. Additional or replacement elements can be ordered.

The single coil cylinder can be fitted with an optional supplementary electric element complete with its own thermostatic control and over-temperature cut-out. The electric element is rated 2.7kW at 230V single phase.

### Contents of electric element kit



### 5.1 Fitting the electric element

To fit the electric element the indirect controls thermostat mounting pocket will first need to be removed. This is located behind the grey plastic cover on the front of the hot water cylinder. The cover is secured by a screw on the right hand side of the cover. When removed the cover hinges open to the left. **DISCONNECT THE ELECTRICAL SUPPLY BEFORE REMOVING THE COVER.** The hot water cylinder must be completely emptied before removing the thermostat pocket. Switch off and disconnect the electrical supply and shut down the boiler. Turn off the water supply to the hot water cylinder.

Open a hot tap served by the hot water cylinder to relieve any system pressure. Empty the hot water cylinder by opening the drain valve in the inlet pipe work.

Remove the indirect thermostat and thermal cut-out sensors from the pocket. Unscrew the brass back-nut securing the pocket using the key spanner provided. Remove the pocket.

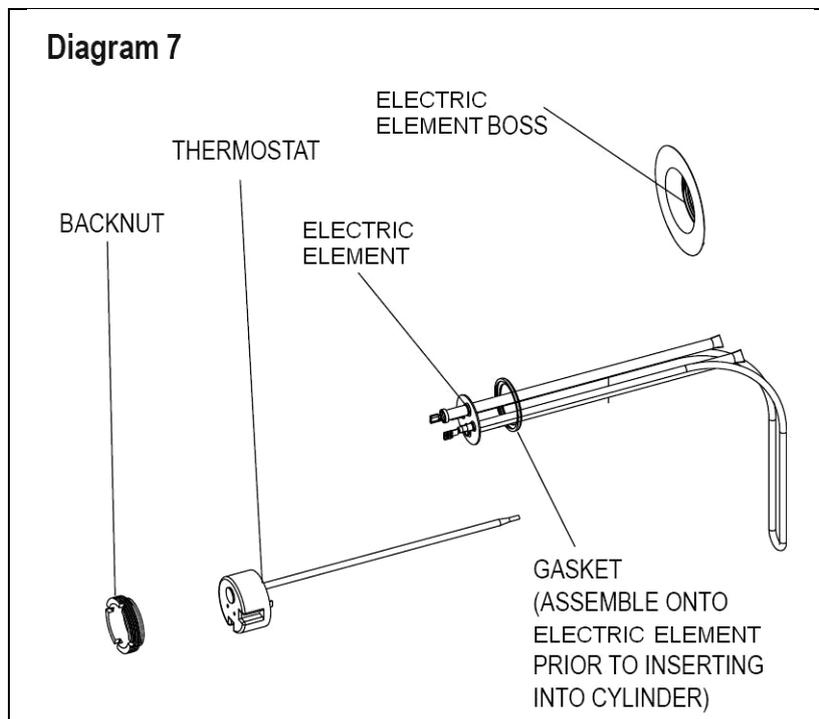
Insert the electric element into the boss. Ensure the heating element points vertically towards the base of the hot water cylinder. Ensure that the sealing gasket is correctly fitted and is not displaced when inserting. See Diagram 7.

It may be helpful to support the electric element using a round bladed screwdriver inserted into the thermostat pocket. Hand tighten the brass back-nut.

Secure the electric element in position by tightening with the key spanner provided.

Insert the indirect thermostat and thermal cut-out sensors into the lower pocket.

Insert the thermostat stem into the thermostat pocket and ensure that the male terminations on the underside of the thermostat head align with the female terminations on the element tails. Carefully push the thermostat onto the terminations until fully located.



## 5.2 Electric element – Electrical Requirements

The hot water cylinder can be fitted with an optional supplementary electric element complete with thermostatic control and over-temperature cut-out. The electric element is rated 2.7kW at 230V single phase.

If fitted, the electric element is located behind the grey plastic cover on the front of the hot water cylinder. The cover is secured by a screw on the right hand side of the cover. When removed the cover hinges open to the left. **DISCONNECT THE ELECTRICAL SUPPLY BEFORE REMOVING THE COVER.**

The electric element **MUST** be earthed.

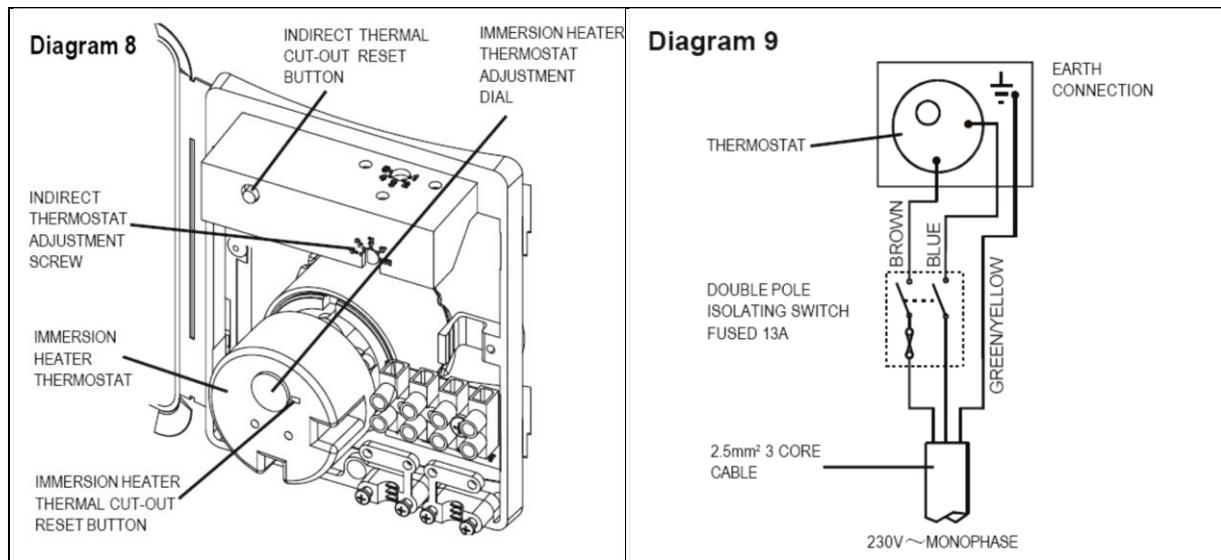
All electrical wiring should be carried out by a competent electrician and be in accordance with the latest national Wiring Regulations. The circuit must be protected by a suitable fuse and double pole isolating switch with a contact separation of at least 3mm in both poles.

The electric element should be wired in accordance with Diagram 9. The supply cable must be routed through the cable gland provided and the outer sheath of the cable firmly secured by tightening the screw on the cable gland. Always replace the cover before operating.

DO NOT operate the electric element until the hot water cylinder has been filled with water.

It is recommended that the electric element thermostat is set to between position 4 and 5 (60°C to 65°C), however it can be set between 1 and 5 (10°C and 70°C).

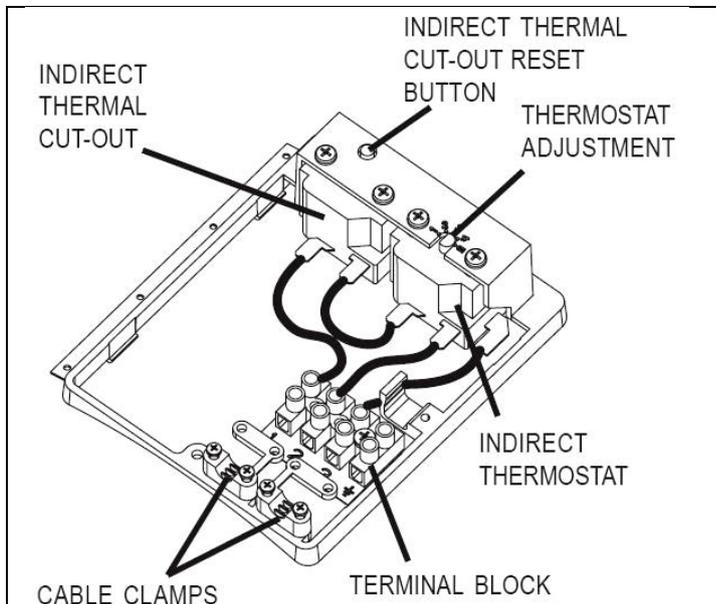
The thermostat incorporates an over-temperature thermal cut-out that will switch off the electric element in the event of a thermostat failure. The thermal cut-out reset button is indicated on Diagram 8. DO NOT bypass the thermal cut-out in any circumstances.



## 6 Commissioning

1. DO NOT switch on either the electric element or boiler until the hot water cylinder has been filled with water and checked for leaks.
2. Check that all installation, electrical and discharge pipe requirements have been met.
3. Check that all water and electrical connections are correctly made and are tight.
4. Open a hot tap supplied by the hot water cylinder, turn on the cold water supply to the hot water cylinder.
5. Allow the hot water cylinder to fill and leave the hot tap running for a short while to purge any air and flush out the pipework. Close the hot tap.
6. Open successive hot taps to purge any air from the system.

7. With all hot taps closed, check the system for water leaks and rectify as necessary.
8. Manually test the operation of the Pressure Relief Valve. Ensure water flows freely from the valve and through the discharge pipe.
9. Fill the primary circuit following the boiler manufacturers commissioning instructions. If motorised valves are used to control the primary flow ensure these are set to the manual open position for commissioning. When the primary circuit is full return the motorised valves to the AUTO position. Vent any trapped air by opening the air bleed point or automatic air vent.
10. For heating by electric element, switch on the electrical supply to the hot water cylinder and allow the hot water cylinder to heat. The thermostat is factory set to control the storage temperature to approx. 60°C. If necessary the temperature can be adjusted by inserting a flat bladed screwdriver in the adjustment knob of top of the electric element thermostat and rotating. The adjustment range, 1 to 5, represents a temperature range of 10°C to 70°C. **DISCONNECT THE ELECTRICAL SUPPLY** before making any adjustments.
11. For heating by indirect heat exchanger switch on the electrical supply to the boiler and ensure the programmer is set to HOT WATER mode. Check that any motorised valves or primary pumps are working and allow the hot water cylinder to heat. The indirect control thermostat is factory set to give a storage temperature of approx. 60°C. If necessary the temperature can be adjusted by inserting a flat bladed screwdriver in the adjustment knob and rotating. The adjustment range 1 to 5 represents a temperature range of 30°C to 70°C. The thermostat minimum temperature setting is 10°C.



## 7 Maintenance, de-scaling the electric element

Little maintenance is required, however in hard water areas the hot water cylinder will require periodic de-scaling to ensure efficient operation. To de-scale the hot water cylinder:

1. Switch off and disconnect the electrical supply and shut down the boiler. Turn off the water supply to the cylinder.
2. Open a hot tap served by the hot water cylinder to relieve any system pressure. Empty the hot water cylinder by opening the drain valve in the inlet pipework.
3. Open the terminal cover and disconnect wiring from the electric element thermostat. Remove the electric element thermostat by carefully pulling outwards from the electric element. If present carefully remove the indirect control thermostat and thermal cut-out sensing bulbs from its pocket on the electric element by pulling outwards. Be careful not to kink the capillary tubes.
4. Unscrew electric element backnut. A key spanner is provided with the hot water cylinder for easy removal/tightening of the electric element backnut. Remove the electric element from the hot water cylinder. NOTE over time the electric element gasket may become stuck to the mating surface, to break the seal insert a round bladed screwdriver into one of the pockets on the electric element and gently lever up and down.
5. Carefully remove any scale from the surface of the element. DO NOT use a sharp implement as damage to the element surface could be caused.
6. Ensure sealing surfaces are clean and seals are undamaged. If in doubt fit a new gasket.
7. Replace electric element ensuring the element hangs vertically downwards towards the base of the hot water cylinder. Secure in place by re-fitting electric element backnut and tightening. It may be helpful to support the electric element using a round bladed screwdriver inserted into one of the element pockets whilst the backnut is being tightened.
8. Replace the indirect control thermostat and thermal cutout sensing bulbs into the lower pocket of the electric element. Ensure it is fully inserted, ensure the capillary tube is not kinked and does not come into contact with the electric element terminals.
9. Replace the electric element thermostat by carefully plugging the two male spade terminations on the underside of the thermostat head into the corresponding terminations on the element. Ensure the thermostat is pushed fully home.
10. Rewire the electric element in accordance with Diagram 9. Close and secure the terminal cover.
11. DO NOT SWITCH ON EITHER THE BOILER OR ELECTRIC ELEMENT UNTIL THE HOT WATER CYLINDER HAS BEEN RE-FILLED WITH WATER. Re-commission the hot water cylinder following the Installation and COMMISSIONING instructions.

## 8 Maintenance – de-scaling the water heater

1. Switch off and disconnect the electrical supply and shut down the boiler (indirect water heaters). Turn off the water supply to the water heater.
2. Open a hot tap served by the water heater to relieve any system pressure. Empty the water heater by opening the drain valve in the inlet pipework.
3. Open the terminal cover and disconnect wiring from the electric element thermostat. Remove the electric element thermostat by carefully pulling outwards from the electric element. If present carefully remove the indirect control thermostat and thermal cut-out sensors from their pocket. Be careful not to kink the capillary tube.
4. Unscrew electric element backnut. A key spanner is provided with the water heater for easy removal/tightening of the electric element backnut. Remove the electric element or thermostat pocket from the water heater. NOTE over time the electric element gasket may become stuck to the mating surface, to break the seal insert a round bladed screwdriver into one of the pockets on the electric element and gently lever up and down.
5. The loose scale in the base of the water heater can be removed by inserting the suction hose on a “wet and dry” vacuum cleaner and sucking the scale out of the water heater.
6. Replace electric element or thermostat pocket ensuring the element hangs vertically downwards towards the base of the water heater. Secure in place by refitting electric element backnut and tightening. It may be helpful to support the electric element using a round bladed screwdriver inserted into one of the element pockets whilst the backnut is being tightened.
7. If used, replace the indirect control thermostat and thermal cut-out sensors into the lower pocket of the electric element or into the pocket. Ensure they are fully inserted, ensure the capillary tube is not kinked and does not come into contact with the electric element terminals.
8. Replace the electric element thermostat by carefully plugging the two male spade terminations on the underside of the thermostat head into the corresponding terminations on the element. Ensure the thermostat is pushed fully home and its base is in contact with the brass boss on the thermostat pocket.
9. Rewire the electric element in accordance with the diagram in the *Fitting an electric element* section. Close and secure the terminal cover.
10. DO NOT SWITCH ON EITHER THE BOILER OR ELECTRIC ELEMENT UNTIL THE WATER HEATER HAS BEEN RE-FILLED WITH WATER. Recommission the water heater following the Installation and COMMISSIONING instructions

## 9 Maintenance - Safety Valves

The Pressure Relief valve and any other safety valves fitted should be regularly checked for correct operation.

Manually operate the valve(s) and ensure that water flows freely from the valve and through the discharge pipe. **NOTE: the water discharged may be very hot.** Ensure the valve re-seats correctly when released.

## 10 User Instructions

The *BAXI Premier Plus water heater* stores water at the temperature set on the adjustable thermostat. This is factory set to give a storage temperature of approx. 60°C. However, this can be set to give temperatures in the range 10°C to 70°C.

60°C is required to prevent the risk of legionella.

The adjustable thermostat is located inside the terminal cover on the front of the water heater, it is recommended that any adjustment is carried out by a qualified person. In any event **DO NOT OPEN THE TERMINAL COVER UNTIL THE ELECTRICAL SUPPLY IS DISCONNECTED.**

To avoid any risk of freezing when the water heater is not in use for long periods during the winter months, do not switch off the boiler or electric element and set the control thermostat to its minimum position. NOTE: this will not protect other parts of the system pipe work.

To ensure the water heater continues to operate at its optimum performance it should periodically be maintained in accordance with the instructions given under the sections headed MAINTENANCE.

### IMPORTANT NOTES TO THE USER

- **Do not block or restrict the discharge from any safety valve fitted**
- **Do not tamper with any safety valve fitted**
- **Do not bypass the thermal cut-outs in any circumstances**
- **If a fault is suspected contact a qualified engineer to check the system**

## 11 Warranty

This water heater is guaranteed for a period of 10 years pro-rata from the date of delivery, provided that:

- The water heater has been installed in accordance with these instructions and all necessary inlet controls and safety valves have been fitted correctly.
- Any valves or controls are of the manufacturers recommended type.
- The water heater has not been tampered with and has been regularly maintained as detailed in these instructions.
- The water heater has been used only for heating potable water.

- If the cylinder fails within the warranty period, we require a water quality survey to be provided to us as per 1.2 of this manual. Should a water quality issue be found to be present, CHNZ reserves the right to withdraw the warranty.

All electrical components have one year guarantee.

The water heater is NOT guaranteed against damage by frost or due to build up of scale.

*Please note this guarantee does not include freight & labour costs*

This guarantee does not affect the statutory rights of the consumer.

## 12 Environmental Information

This hot water cylinder is manufactured from many recyclable materials. At the end of its useful life it should be disposed of at an approved Recycling Centre to realize the full environmental benefits.

The insulation material is 50mm CFC/HCFC free expanded polyurethane foam with an ozone depletion factor of zero.

## 13 Performance Characteristics

Mode l (l)	Heat exchanger surface area (m <sup>2</sup> )	Primary circulation (m <sup>3</sup> /h)	Heat exchanger pressure drop (bar)	Heat exchanger output (kW)	Continuous flow output (l/h at Dt 35K)	Heating time from boiler (15 to 60°C) (minutes)	Standing heat loss (kWh/24h)
200	0.79	2.0	0.2	30	735	20	2.30
300	0.79	2.0	0.2	30	735	30	2.72

### Electric element

Model	Heating output	Heating time lower element (15 to 60°C)
(l)	(kW)	(minutes)
200	2.7	210
300	2.7	315

### Twin Coil (solar)

Nominal capacity (litres)	Solar coil surface area (m <sup>2</sup> )	Auxiliary volume (litres)	Auxiliary coil		
			Surface area (m <sup>2</sup> )	Rating (kW)	Recovery (mins)
300	1.1	210	0.79	20	23

Recovery time is based on heating 70% of the volume to 45°C.