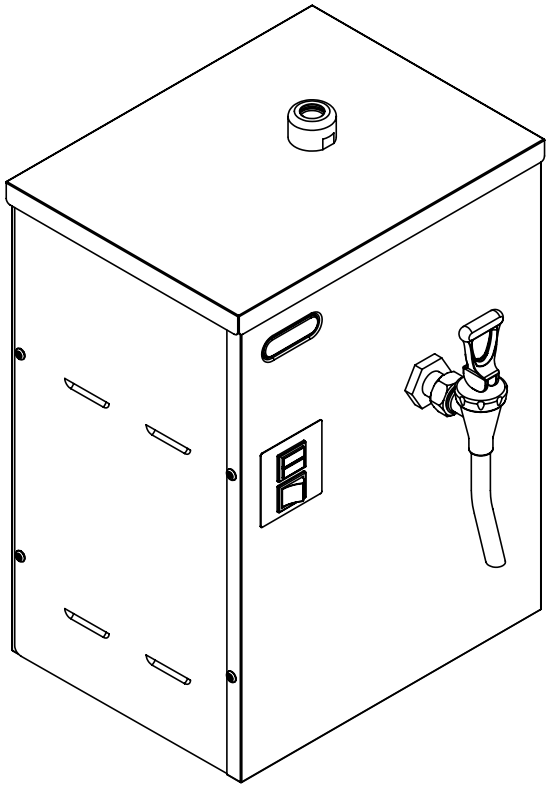
MODELS: CB32
CB22
CB12

INSTALLATION, OPERATION AND SERVICING INSTRUCTIONS



Issue 7
12/7/07
DCR 737

Please read these instructions carefully before operating your boiler for the first time

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CONTENTS

INTRODUCTION

Thank you for purchasing a Calomax CB boiler. All our products are designed to give years of simple, reliable operation. To ensure this, it is important that the installation and subsequent servicing is carried out by a suitably qualified engineer in accordance with these instructions.

For assistance in finding a suitable engineer in your area, contact our service department on 0113 249 6681 or e-mail: service@calomax.co.uk
This product conforms to the CE marking directive 93/68/EEC through compliance with the following standards:

CE

Electromagnetic Compatibility Directive

Low Voltage Directive 73/23/EEC in accordance with:

BS EN 60335-2-75:2004

Compliance with these standards has been confirmed through testing by an independent NAMAS approved body

CHECK LIST

Before commencing installation, check that the following parts have been supplied with the boiler:

1. Alternative (low pressure) float valve restrictor

CONSTRUCTION

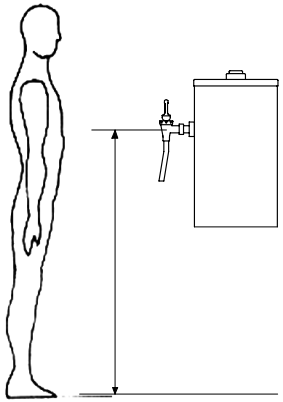
All metallic components of the machine are manufactured from high quality 304 grade stainless steel, or non ferrous materials, providing maximum resistance to corrosion.

INSTALLATION

A suitably qualified engineer must install this unit. Plumbing and electrical installation work is involved.

LOCATION

The appliance must at least be installed in a location where it can be overseen by trained personnel, but may be installed in a location where its use and servicing is restricted to trained personnel



To comply with recommendations from the health and safety executive it is important that due consideration be given to safe operation of the controls of the boiler. The boiler should therefore be mounted in such a manner that the operator can stand directly facing the machine with the controls at a recommended height from the floor to the draw-off tap handle of 1200mm +/- 100mm. Consideration should also be given to the servicing requirements of the machine.

The maximum and minimum ambient operating conditions must be between 5 °C and 35 °C. The appliance is not suitable for installation where a water jet could be used. Install the boiler in a position having adequate ventilation, on a level and firm surface suitable for near boiling temperatures. Allow clearance for the easy removal of the outer casing lid and left hand side panel.

Start the installation

Unscrew the chromed lid vent and remove the outer casing lid. Remove the left hand side outer casing panel to make connections. Holes are provided in the boiler base for fastening down. Use M5 bolts and nuts.

New boiler outer-casings have a protective vinyl coating, which is easier to remove when warm after commissioning, but make sure access will still be available to do this before fixing the boiler.

COLD WATER INLET

In hard water districts the use of a Dosaphos Scale Reducer (obtainable from Calomax Limited), for the alleviation of scale is recommended. (See Accessories - Page 13).

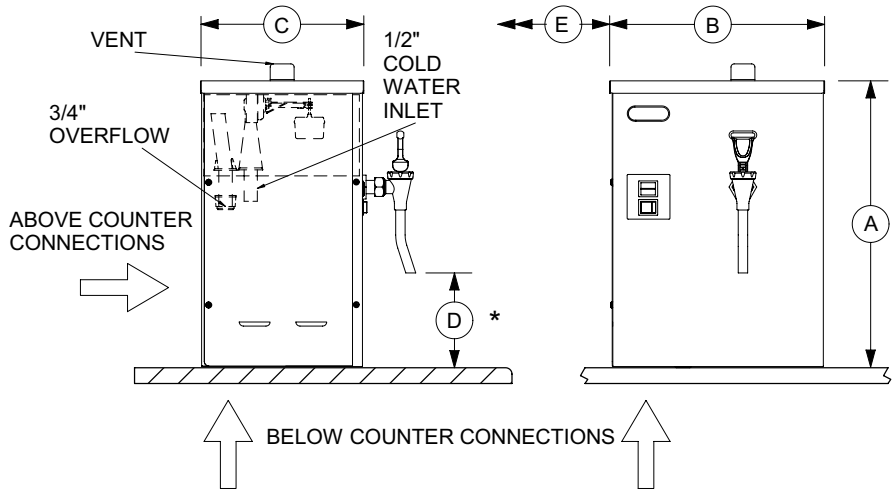
The boiler must be connected to a suitable potable water supply in a manner which complies with UK water regulations. The boiler should be connected to a ½" (15mm) drinking water supply within a constant pressure range from 20 KPa to 1000 KPa (0.2 to 10 Bar), via an isolating stop cock fitted near the boiler. The boiler is supplied with 'High Pressure' and 'Low Pressure restrictors. It is the responsibility of the Installation Engineer to select the appropriate restrictor and fit it to the float valve in accordance with the instruction sheet provided. Correct selection of restrictor can significantly reduce noise associated with Water Hammer / Pipe Hammer. Note: HP restrictor is factory fitted.
BEFORE CONNECTING, THE SUPPLY PIPE MUST BE THOROUGHLY FLUSHED OUT TO ENSURE THAT FOREIGN MATTER DOES NOT BLOCK THE FLOAT VALVE

If the water supply contains excessive solids in suspension it is recommended that a fine mesh "in line" water filter is fitted in the pipe work after the stop cock.

When tightening the union connection to the float valve, hold the float valve body to prevent it turning inside the tank and disturbing the joint in the tank bottom. Jointing paste must **NOT** be used as this will corrode the plastic threads of the valve.

Check that the float valve operates correctly whilst initially filling the boiler and ensure that it cuts off at the level indicator. The float must not foul against the side of the tank. **For further details see Service Instructions. Note: The valve is 'slow closing' and so may take upto 15 seconds to close fully when the float arm is raised to the horizontal position.**

IMPORTANT Ensure cold water can be drawn from the draw off tap before switching on the electricity supply. (The electric supply to the boiler must always be turned off before the water supply).



MODEL		A	B	C	D*	E	DRY WEIGHT	WORKING WEIGHT
CB32 CB22 CB12	mm	457	340	260	152	250	11.5 KG	31KG

* Dimension D can be increased to a maximum of 203mm by fitting of alternative tap bodies.
(See spare parts page 16)

OVERFLOW

The overflow connection should be plumbed to a safe and visible point of discharge using 22mm diameter pipe. “NOT A CLOSED WASTE”.

BELOW COUNTER CONNECTIONS can be concealed inside the outer casing to make a neat installation.

ABOVE COUNTER CONNECTIONS can be made after removing the blanking plugs at the rear of the outer casing.

ELECTRICAL CONNECTIONS

The boiler should be connected to a 220-240v , 50-60 Hz electrical supply, in accordance with current I.E.E. Regulations.

The incoming cable must be heat resistant and clamped securely using the supplied strain relief bar. A means for all pole disconnection must be incorporated, including appropriately rated fuse. The installation of a residual current device (RCD) having a rated residual operating current not exceeding 30 mA is advisable.

An equipotential conductor connection terminal is provided on the rear of the unit.

The supply should be connected as follows:

Brown----------Live L
Blue----------Neutral N
Green / Yellow-------Earth ⏚

Cable entry can be made either from under the counter (through the base) or above counter (through the rear casing of the unit). If the cable enters through the rear, a hole must be pierced in the rubber entry grommet that protects the cable from sharp metalwork.

GENERAL

The boiler vent on the lid must not be obstructed by placing anything over the outlet, or in close proximity above it.

After the water supply has been switched on, make sure there are no leaks and that the boiler, all pipe work and fittings are dry before replacing the boiler side panel and lid.

Remove protective vinyl coating from all metalwork before use.

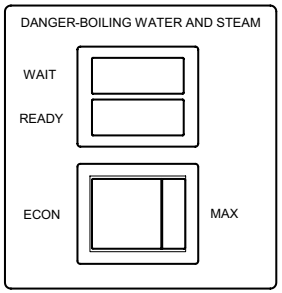
USER INSTRUCTIONS

During normal operation some external parts will become very hot, particularly the tap body and lid vent. Care must be taken to avoid injury, a burn or scald.

Switch on the electrical supply **only after making sure that the water supply is on and the boiler is full.** Initially, the top red ‘wait’ light will illuminate as the water is heating up. When the water is at operating temperature, the red light will go out and the bottom green ‘ready’ light will illuminate. Hot water can now be drawn from the tap. If the rocker switch is set to MAX (maximum) the element will remain on until the bottom thermistor is satisfied and the entire boiling chamber is at operating temperature.

The economy selector switch saves electricity when the maximum draw off capacity is not required. When in the “MAX” position, the maximum rapid draw off capacity is available. When in “ECON” position, approximately half the rapid draw off capacity is available.

If a large volume of water is drawn off, the cold water entering the unit to replace it may chill the remaining capacity left in the unit. If this happens, the “READY” light will go out and the “WAIT” light will illuminate until the water has been heated to the correct operating temperature.



If both WAIT and READY lights are illuminated at the same time, a “lockout condition” has occurred and the machine will not operate until the fault is rectified. See ’Trouble shooting’ (page 19).

GENERAL OPERATION

- Place a suitable jug or vessel beneath the tap nozzle (On the drip tray). This machine is primarily designed for filling large vessels (not cups). Where cups are being used, (not recommended) extra care must be taken to avoid injury through splashing or over-filling caused by the high flow rate and the run-on of water after the tap has been closed.

- To begin filling, pull the handle forward or push it backward – hot water begins to flow.

- To stop filling, release the handle so it returns to the upright position. NOTE. Depending on the length of the nozzle fitted, some ‘run-on’ will occur after the tap has been closed. This is the volume of water that has passed the operating mechanism, but has yet to exit the tap body and nozzle. Always wait for a few seconds to allow this ‘run-on’ to exit before removing the vessel. NEVER PASS YOUR HAND BENEATH THE NOZZLE.

GENERAL NOTES

- Please retain these instructions for future reference

- Ensure that a suitable drip tray is positioned below the tap nozzle. This will help keep the surrounding work surfaces and floor free from drips or splashes. Various options are available and are outlined on the Accessories page of this booklet (page 13).

- All de-scaling and servicing must be performed by a suitably qualified engineer.

CLEANING

Avoid using any abrasive materials. Wiping the outer casing with a damp cloth or using a stainless steel cleaner should be sufficient. Always disconnect the electrical supply before cleaning.

NEVER USE A SPRAY JET OR ANY OTHER METHOD WHICH COULD CAUSE WATER TO ENTER THE ELECTRICAL CHAMBER.

SCALE

The production of scale is a natural phenomenon and commonly occurs in hot water systems. The nature of the scale produced and its rate of formation varies widely throughout the country.

To ensure continuous, reliable operation, the boiler should be regularly de-scaled by a suitably qualified engineer. Depending on the water in your area, some de-scaling may be required within the first twelve months. This is not covered under the product's warranty as this is not a fault. The use of a Dosaphos Scale Reducer (see Accessories on page 13) is recommended for the alleviation of scale and corrosion.

SERVICE INSTRUCTIONS

Once the lid or side panel are removed, access to the Service Area has been gained. This access must be restricted to persons having knowledge and practical experience of the appliance, in particular as far as safety and hygiene are concerned.

De-scale

Note: Whenever the body lid has been removed from the boiler a new lid gasket will be required to ensure a steam-tight joint. Damage to the unit caused by a poor lid seal is not covered under the warranty of the unit.

Scale deposits should be removed from all internal surfaces, particularly the heating element and thermistor's, by gently tapping or scraping. If the deposits are soft, use a nylon pad and flush out. Abrasive cleaning materials containing scouring powders and detergents must not be used, such materials can cause taste problems. Chemical de-scalants must only be used in accordance with the manufacturer's instructions.

Basic operation

The water-fill and heat functions of the CB boiler are completely independent of each other.

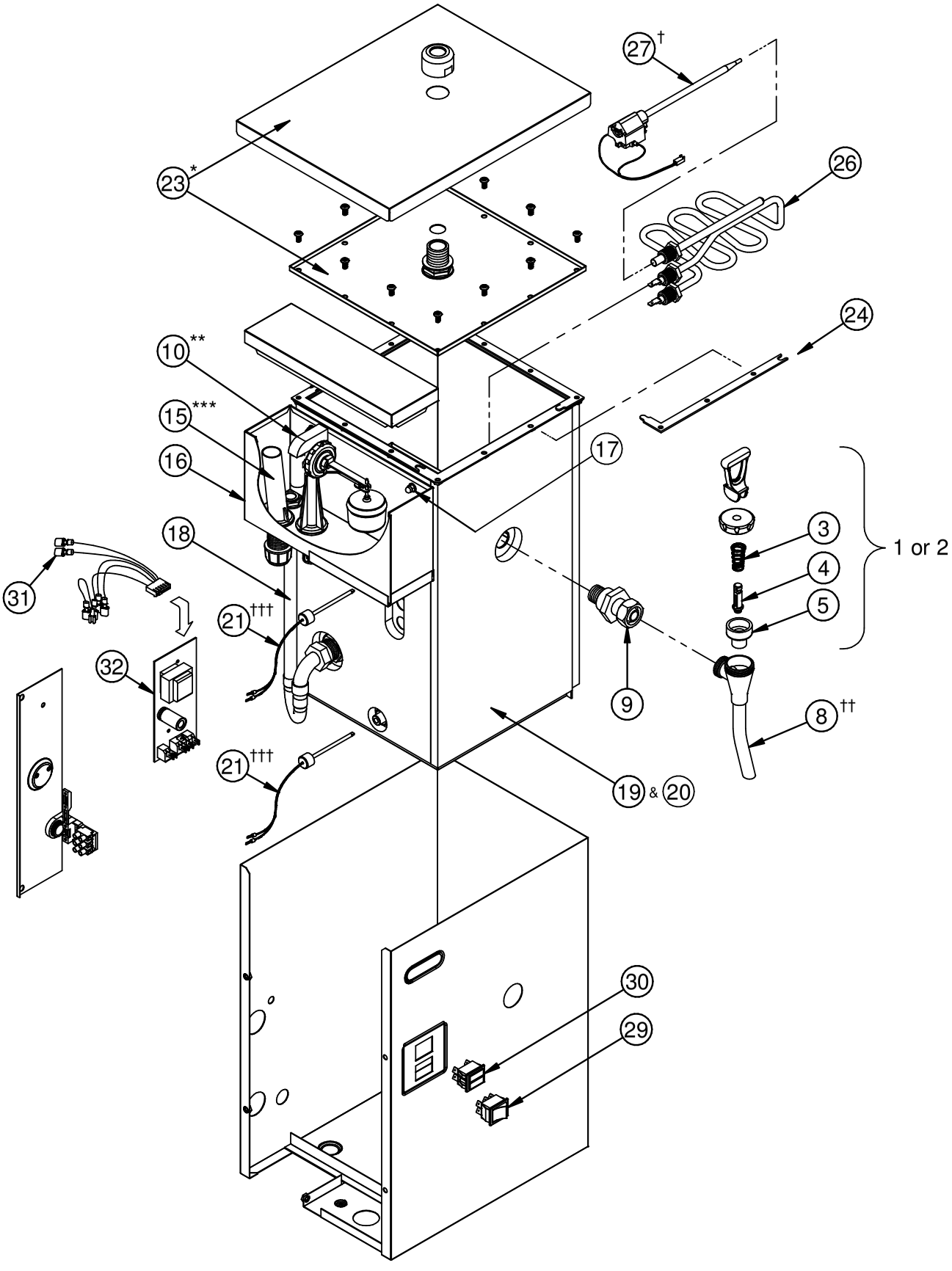
Heater function

The printed circuit board (PCB) controls the heating function of the boiler by monitoring the top and bottom thermistors, the safety cutout and the economy switch. The function of this switch is to bring the bottom thermistor in or out of circuit. In the 'ECON' position, the bottom thermistor is ignored resulting in a reduced volume of water being maintained at operating temperature. In the 'MAX' position, both thermistors are monitored and a larger volume of hot water is available for use at any one time. The PCB also controls the external light unit to indicate when the water is at the correct temperature: green for ready (i.e. top thermistor satisfied), red for wait (i.e. water below temperature). If both lights are displayed together, the low water safety cutout has tripped, or some section of its circuit has become open. This would occur either because the machine has been switched on without first allowing it to fill with water, (and the element has energised in air), the safety cutout is faulty (and should be replaced), or there is a poor contact at the PCB connector pins. Removing and re-fitting the connector usually remedies the latter

CONTIUED ON PAGE 14

Exploded parts view

(To be read in conjunction with the spare parts list)



* Complete assembly
** Incorporating 11, 12, 13 & 14
*** Supplied with insect filter & gaskets

† Includes 28
†† Fitted as standard, 6 or 7 as alternatives
††† Includes thermistor pocket, all washers & nuts

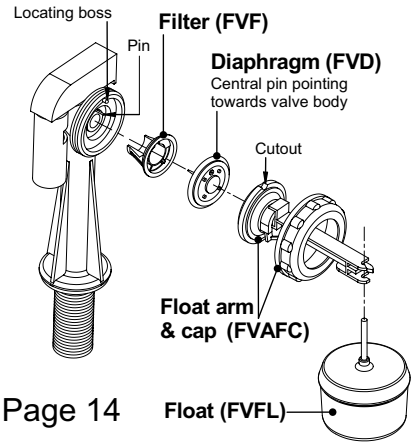
fault. The possibility also exists that the setting of the cutout has been turned down. These are factory set to 120°C, but turning it down below 100°C would cause it to constantly trip. The red LED on the PCB will flash when first energised indicating program initialisation. There after the LED indicates 'Neutral' switched to element. Note: the element has a permanent 'Live' feed.

Should an element fail and need to be replaced, it is necessary to replace the four-piece lid gasket to ensure a reliable steam-seal.

In the event of a PCB failing and a replacement being required, full instructions will be supplied. It is important to note, however, that the integral Triac must be securely mounted against the copper heat-sink / mounting bracket to ensure reliable heat dissipation.

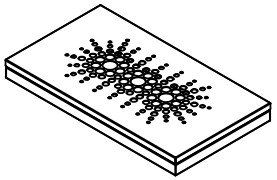
Water-fill function

A Torbeck float valve controls the water level in the cold water tank, which feeds the main boiling chamber (referred to as the 'body'). This is generally a reliable component, but problems can arise if the incoming water supply contains debris. Occasionally, dirt can pass through the internal filter and become lodged on the diaphragm, causing the valve to weep. This can be remedied by dismantling the valve (as shown opposite) and gently cleaning the diaphragm with fresh water. When re-assembling the valve, the diaphragm must be re inserted with its central pin facing into the body of the valve and with the pin on the body passing through the hole in the diaphragm. Before tightening the nut, ensure that the cut-out in the float arm is positioned around the locating boss on the valve body. The nut should be hand-tightened only. **Note: The valve can take up to 15 seconds to fully close after the float arm is raised. This is a normal feature of the valve and is intended to reduce the effects of water / pipe hammer**



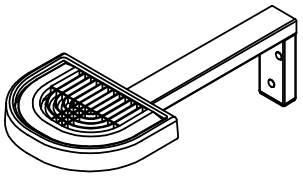
For further assistance,
contact our service department on
0113 249 6681
e-mail service@calomax.co.uk.
or find a local service engineer at
www.calomax.co.uk

Accessories



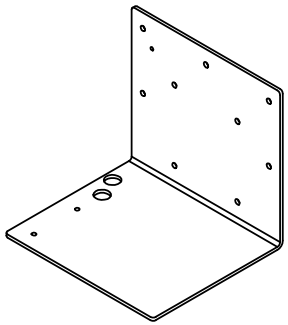
Worktop-mounting Stainless Steel drip tray

Ref. SSDTK (freestanding)
SSDTWDK (with drain outlet)



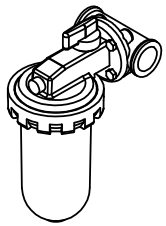
Wall-mounting drip tray
(To be used in conjuction with CBWMBK)

Ref. WMPDTK3



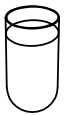
Wall-mounting bracket (for boiler)

Ref. CBWMBK

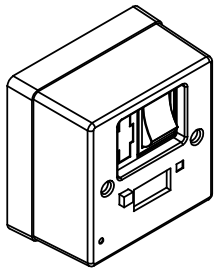


Scale reducer (complete with single cartridge

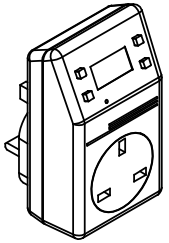
Ref. D250



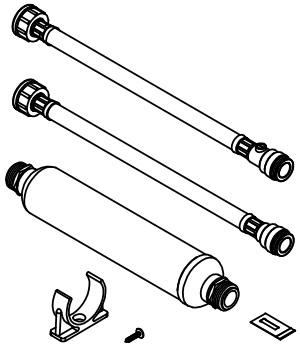
Ref. RRC (Pack of 8 refill cartridges to suit D250)



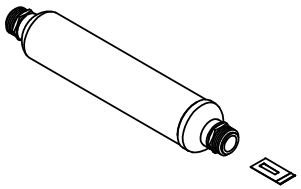
Fused spur time switch
Ref. 7DFST
Max 3kW



Plug-in time switch
Ref. 7DPIT
Max 3kW



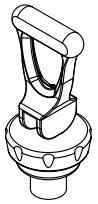
Water filter kit
(To reduce taste & odour problems)
Ref. 10TOSCK

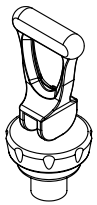


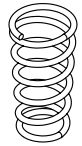
Ref. 10TOSC
(Filter & timestrip replacement for kit shown above)

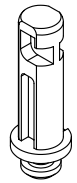
For more information visit our website at www.calomax.co.uk or call 0113 249 6681

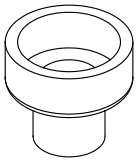
SPARE PARTS
(Refer to centre pages for location).

1

CTT
TWIN CAM TAP TOP ASSEMBLY

2

CBTT
SINGLE CAM TAP TOP ASSEMBLY

3

CBTS
TAP SPRING

4

CBTSS
TAP SLOTTED STEM

5

CBTCW
TAP CUP WASHER

6

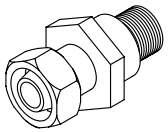
CTB
DRAW OFF TAP BODY (NO EXTENSION)

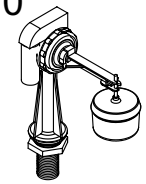
7

CBSPLTBC
DRAW OFF TAP BODY (50mm EXTENSION)

8

CB32TBC
DRAW OFF TAP BODY (100mm EXTENSION)

9

CBOLPK
OUTLET LINER PIPE KIT

10

CBFVM
FLOAT VALVE ASSEMBLY

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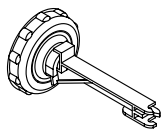
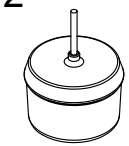
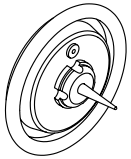
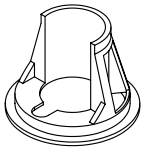
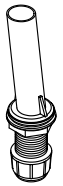
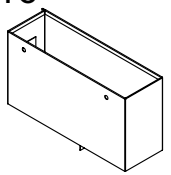

FVAFC
FLOAT VALVE ARM AND CAP

12

FVFL
FLOAT VALVE FLOAT

13

FVD
FLOAT VALVE DIAPHRAGM

14

FVF
FLOAT VALVE FILTER

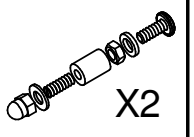
15

CBOMK
OVERFLOW UNIT

16

CBWT
WATER TANK

NB: Not to scale.

Spare parts are usually available ex-stock. Please quote Model & Serial Number. (See page 24)

17



CBWTNA

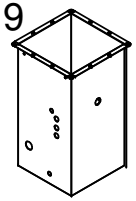
WATER TANK NUT ASSEMBLY

18

CB32WP

WATER PIPE

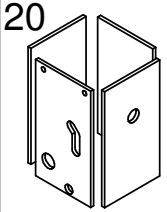
19



CB32BK

BODY KIT

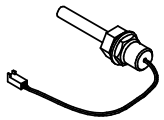
20



CB32IS

INSULATION SET

21

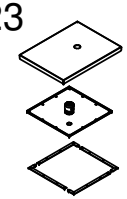


CBTAK

THERMISTOR ASSEMBLY

22

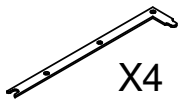
23



CBBLA

BODY LID ASSEMBLY

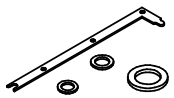
24



CBBLG

BODY LID GASKET

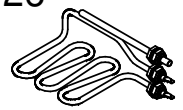
25



CBGS

GASKET SET

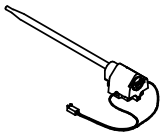
26



CBE1K
CBE2K
CBE3K

ELEMENT 1,2 or 3kW WITH STAT POCKET

27



CBT120

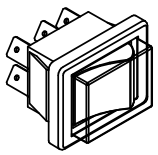
SAFETY CUTOUT SET TO 120°C

28

CBTW

SAFETY CUTOUT WIRE

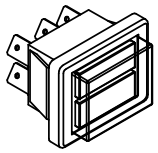
29



CBRSK

ECONOMY SELECTOR SWITCH KIT

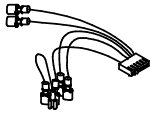
30



CBNLK

2 LIGHT INDICATOR UNIT KIT

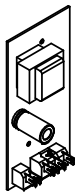
31



CB34WH

WIRING HARNESS

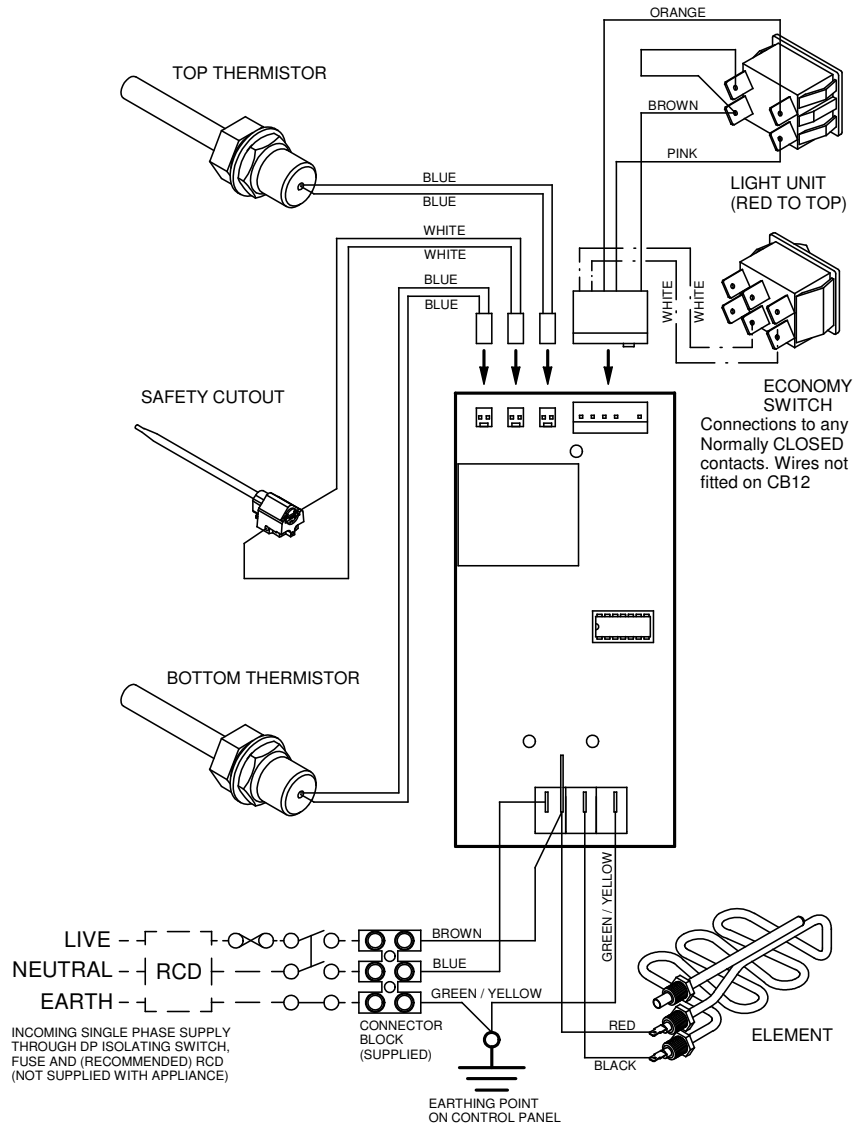
32



CB32PCBT

PRINTED CIRCUIT BOARD

Wiring Schematic for Calomax CB32/22/12 Water Boilers



Symptoms	Possible Cause	Remedy
No water available	Broken tap top	Replace tap top (or component)
	Faulty float valve. (See 'water fill function' page 15)	Replace valve
Continually boils	Excessive internal scale. (See 'De-Scale' page 14)	De-scale the boiler (Particularly thermistor's)
	Faulty wiring to thermistors / faulty thermistors	Repair / replace as required
	Temperature controller needs adjusting (Note: the rod thermostat does not control temperature)	Lower operating temperature
	Defective Printed Circuit Board	Replace Circuit Board
Overflows	Dirt in float valve. (See 'water fill function' page 15)	Clean diaphragm
	Incorrect or no Restrictor fitted	Fit low pressure or high pressure restrictor
	Water in float	Replace float
Both wait and ready lights illuminated	Boiler in 'lockout' condition. (See 'heater function' page14)	Re-seat the safety cut-out plug to circuit board
		Check safety cut-out set to 120 degrees
		Ensure water available at tap
		Power down machine for 20 seconds and switch on. If symptoms persist replace safety cut-out.

PLEASE ENTER MODEL AND SERIAL NUMBER FOR FUTURE REFERENCE

Model	CB
Serial Number	
Draw off Capacity	14 / 15 Litres
Heat-up Time CB32 (MAX) CB22 (MAX) CB12 (MAX)	45 Minutes 65 Minutes 135 Minutes
Flow rate from tap (Standard nozzle)	5 Litres / Minute
Voltage	220 - 240 V ac 50-60 Hz
Power rating	CB32 3kW (MAX) CB22 2kW (MAX) CB12 1kW (MAX)

Note: All measurements are approximate.

WARRANTY - CB RANGE

We shall repair or replace, without charge, Product or component parts thereof, found to be faulty in material or workmanship, that are returned to our works within 12 months from the Original Date of Despatch.

PLEASE CONTACT OUR SERVICE DEPARTMENT FOR ASSISTANCE

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