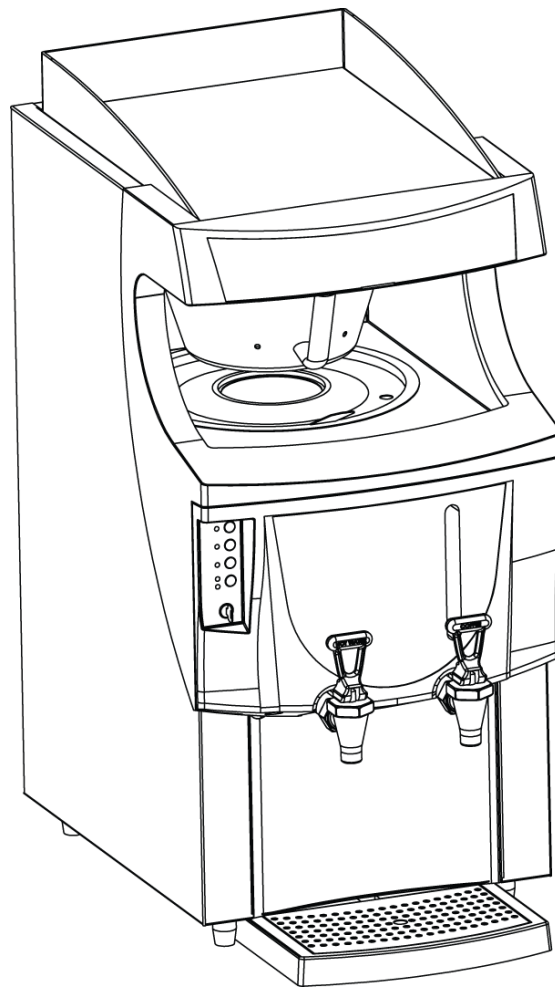




SERVICE MANUAL

Model: Qwikbrew 2, Version 2, 2004 onwards



Marco Beverage Systems Ltd.
63d Heather Road,
Sandyford Industrial Estate,
Dublin 18,
Republic of Ireland

Ireland Tel: (01) 295 2674
Ireland Fax: (01) 295 3715

UK Tel: (0207) 2744577
UK Tel: (0207) 9788141

Content:

- 1. Introduction**
- 2. Safety Instructions**
- 3. General description**
- 4. Basic Instructions**
 - 4.1 First time operation**
 - 4.2 Brewing coffee**
 - 4.3 Brew calibration Instructions**
 - 4.4 Temp calibration instructions**
 - 4.5 Cleaning**
 - 4.6 Descaling**
- 5. Technical data**
 - 5.1 Troubleshooting**
 - 5.2 Access to internal components**
 - 5.3 Main PCB connection and identification**
 - 5.4 Probe removal**
 - 5.5 Replacing the heating element**
 - 5.6 Wiring diagram 2.8Kw**
 - 5.7 Parts list QB2 P/N1000379**
 - 5.8 Parts list QB1 P/N1000495**

1. INTRODUCTION

The information provided in this manual is intended to assist in the installation and maintenance of the Marco Qwikbrew 2 Boiler Brewer. Please read the instructions carefully to prevent accidents and ensure an efficient installation.

This manual is not a substitute for any safety instructions or technical data affixed to the machine or its packaging. All information in this manual is current at the time of publication and is subject to change without notice.

Only technicians or service providers authorised by Marco should carry out installation and maintenance of these machines.

Marco accepts no responsibility for any damage or injury caused by incorrect or unreasonable installation and operation.

2. SAFETY INSTRUCTIONS

- Read all instructions.
- To protect against electric shock do not immerse cord and plugs in water or other liquid.
- Do not let cord hang over edge of table or counter; or touch hot surfaces.
- Switch off at mains (unplug from outlet) and turn off water supply when not in use and before cleaning. Allow to cool before putting on or taking off parts.
- Do not operate any appliance with a damaged cord, plugs, or after the appliance malfunctions or has been damaged in any manner.
- The use of spares and accessories not recommended by Marco may cause damage and/or injuries.
- Do not use outdoors. Do not place on or near a hot gas or electric burner.
- Close supervision is necessary when the appliance is used by or near children.
- Do not use the appliance for anything other than its intended use.
- Save these instructions.

3. GENERAL DESCRIPTION

Qwikbrew 2 – 2.8kW

Performance	Coffee output: Half Brew Full Brew Hot Water: Immediate Draw Off Total Recovery at 2.8kW:	Up to 3.4 litres (6 pints) Up to 6.8litres (12 pints) 5.7 litres (10pints) 0.48litres/min (0.85pints/min)
Electrical	Connection	230V 2.8kW c/w 1.5m flex + 13A plug
Plumbing	Fittings Pressure	0.75" BSP Food grade inlet hose supplied 5-50 psi (35-345 kPa)
Dimensions	Height Height incl. Cup Rail Width Depth Depth incl. Drip Tray	705mm 775mm 365mm 440mm 575mm

Qwikbrew 2 – 5.6kW

Performance	Coffee output: Half Brew Full Brew Hot Water: Immediate Draw Off Total Recovery at 5.6kW:	Up to 3.4 litres (6 pints) Up to 6.8litres (12 pints) 5.7 litres (10pints) 0.96litres/min (1.70pints/min)
Electrical	Connection	
Plumbing	Fittings Pressure	0.75" BSP Food grade inlet hose supplied 5-50 psi (35-345 kPa)
Dimensions	Height Height incl. Cup Rail Width Depth Depth incl. Drip Tray	705mm 775mm 365mm 440mm 575mm

4. Basic Instructions:

Plumbing:

Water pressure: 5 - 50 psi (min.-max.) 35 - 345 kPa (min.-max.)

1. Fit a stop valve on a cold-water line and attach a 3/4" BSP male fitting
2. Connect the straight tail-piece of the flexible hose to the stop valve fitting. Make sure that pre-attached sealing washer is secure.
3. Connect the right-angled tail-piece of the hose to the inlet valve of the brewer (in the base of the machine); again making sure that the pre-attached sealing washer is secure.
4. Turn on water supply and check that the fittings have sealed.
5. A hose is not a permanent connection, so it is advisable to close the stop valve when not in use for long periods (e.g. weekends/holidays)

For model 1000384 Push Button Rear Delivery, there is an optional drain hose to allow urn to be emptied into a drain or container by turning the key on the side panel. However, the bunged hose must be replaced with a suitable hose to facilitate this.

For model 1000385, the Coffee and Hot Water output is controlled via Front Push Buttons. These operate in a "Push and Hold" mode. To drain the coffee urn a key switch is located at the front on the unit. When operated this key switch will open the Coffee output valve and allow the coffee urn to drain. A suitable container should be used.

ELECTRICAL

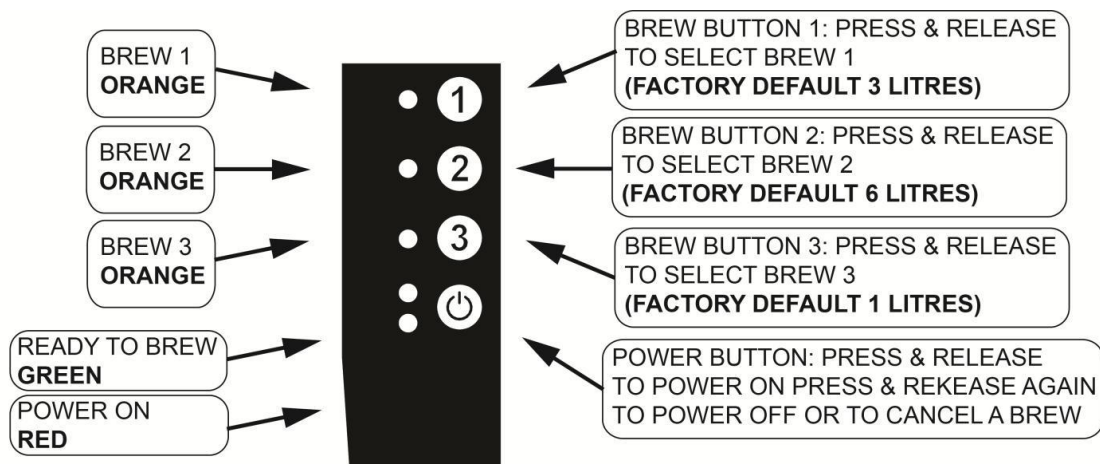
When installing the product, always observe the local regulations and standards.

Products without an electrical plug are to be connected by an authorised professional installer.

4.1. First time operation:

1. Check that all installation procedures have been carried out.
2. Switch on the power to the unit by pressing the Power Button (See below); all the LEDs on the control panel will flash momentarily.
3. The machine will automatically take in water. The 'Power On' LED will begin to flash until water has passed safely above the elements (~ 3 minutes).
4. Heating will begin, and the 'Power On' LED will stop flashing and glow.
5. When the water has reached the high level and is up to temperature, the green 'Ready to Brew' light illuminates. The appliance is now ready for brewing and water can be drawn off from the hot water tap.

QUICK OPERATION INSTRUCTIONS



4.2. Brewing coffee:

HOT WATER OPERATION

Approx. 5.7L of water is available as an immediate draw-off; after this no water is available until the machines heat fill cycle has recovered. This is to ensure that any water drawn off is at the correct temperature.

BREWING OPERATION

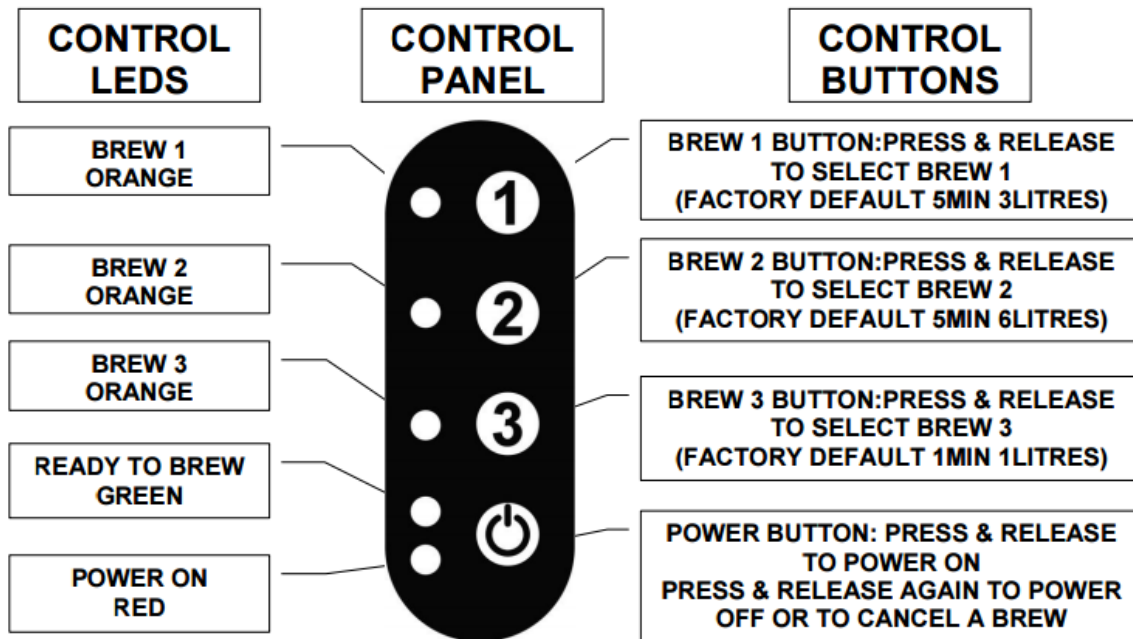
1. A brew can be selected any time the green 'Ready to brew' light is illuminated.
2. Slide out the coffee filter bowl and place a single sheet of filter paper in the bowl.
3. Put the desired amount of ground coffee into the filter paper. Your coffee supply company may have pack sizes to suit the brews of your Qwikbrew 2. Depending on the coffee grind and roast, and on water quality, you may have to adjust these quantities to obtain the optimum flavour.
4. Level off the surface of coffee by gently shaking the filter bowl.
5. Slide the coffee filter bowl into the guide rails in the brew head and push fully home.
6. Select the correct brew on the control panel by pressing the required Brew Button.

N.B. If you make a mistake press the Power Button to turn the machine off. Wait 3 seconds and turn back on again. Select the correct brew.

7. A 3L brew should take around 4-5min. A 6L brew should take around 8-10min.
8. As soon as possible after brewing – remove the filter paper with the spent grinds.

Note: allow time for all the coffee to drain from the filter bowl before removing.

4.3 Brew calibration Instructions:



Setting Brew Water Volumes:

When in volume calibration mode you are selecting the overall **water flow time** for each brew. The spray head outputs approx. 700mL/minute which is 11.66ml/second. You can select 1, 2 or all 3 brew volumes in the one calibration session, they can be selected in any order, e.g. brew 2 could be the lowest or highest volume depending on when you press the brew 2 button. So if you want a volume of 3.5L in brew 2 you would press 2 after 5min (=300sec), (11.66mlx300s=3.5L), see table guide.

To Calibrate Volume:

1. Turn the brewer on by pressing the power button.
2. Press and hold any of the brew buttons for 5+ seconds, your timer should be started the moment you press the button down. (any brew button can be pressed to enter calibration mode, e.g. you could press & hold brew 1 if only calibrating brew 3)
3. The power on red LED will blink to show you are in volume calibration mode, no water will flow at this time.
4. When the desired time has passed as per table 1 below press the desired brew button 1,2,3 to select the corresponding volume for that brew.

- When all required brews are selected turn the brewer off using the power button to save your settings.

(To disable a brew button select a water flow time of less than 10seconds.)

Brew Water Volume *	Calibration Time Estimate
1L	1min 25 sec (85sec)
1.5L	2min 8sec (128sec)
2.0L	2min 51sec (171sec)
2.5L	3min 15sec (214sec)
3.0L	4min 17sec (257sec)
3.5L	5min (300sec)
4.0L	5min 43sec (343sec)
4.5L	6min 26sec (386sec)
5.0L	7min 8sec (428sec)
5.5L	7min 51sec (471sec)
6.0L	8min 34sec (514sec)

Table 1

WARNING- The urn will overflow at volumes of over 6.1L, if preheating your urn using no coffee it is best to use a lower volume.

NOTE- * A certain volume of Brew water will be retained in the coffee grinds and so the Coffee volume will be less than the Brew Water volume. This will depend on the Coffee grind and weight. Trails will be required to determine this volume. On average 1gram of coffee absorbs 2ml of water.

Verification of Volume Settings:

- Select a brew and measure the actual water output, if it is too low or too high a volume you can recalibrate and extend or reduce your water flow time. e.g. if you set brew 1 to have a water flow time of 3min you would expect to get 6L (as the flow rate is approx 2L/min), if you got 6.1L then you will want to reduce it by 100ml –assuming the estimate of 33.3ml per second of time this would be a 3 second reduction from the original 3mins. So you would go to water volume settings and select a flow time of 2min 57sec.
- If you need to recalibrate any brew button follow the calibration instruction for that button. Once you have recalibrated the required brew button press the power button to save this new setting. It is not necessary to recalibrate the other brew buttons. Pressing the power button in calibration mode will only save the settings which have been changed. All previously saved settings will remain.
- Recalibration can be carried out on both the Volume Calibration and Brew Time Calibration settings.

4.4 Temp calibration

The Ecoboiler control PCB (1600345) has the ability to have the desired set-point temperature at whatever setting is required. During manufacture of the PCB it is set to the default temperature of around 95°C.

If the temperature setting needs to be modified on-site please follow the steps below:

1. To Enter Calibration mode:
 - a. Turn the machine off at the mains power supply.
 - b. Then, whilst pressing the tactile switch on the PCB, turn the mains power back on whilst pressing the tactile and remove your hand once power is on.
 - c. All available LED's on the front panel will now blink continuously.
 - d. The machine is now in Calibration mode.
2. In Calibration Mode the machine will heat continuously until the tactile switch on the PCB is pressed for a second time (NB: The tactile switch should be pressed for at least 1 second)
3. Using a thermometer to measure the temperature at the thermistor pocket, the machine should be allowed to reach the desired set-temperature. (NB: It may be necessary to let the unit cool down if the desired set point is lower than the units current temperature)
4. Following a correct calibration procedure, the tank temperature should be maintained within 3°C of the desired set-point temperature.

In the event of an incorrect calibration process the steps below should be followed:

5. If the tactile switch is pressed too early and the temperature is set lower than desired, the tester should simply repeat calibration.
6. If the tactile switch is pressed too late and the set temperature is too high, the tester will need to wait for the temperature in the tank to cool, or add cool water, and then repeat calibration.

4.5 Cleaning:

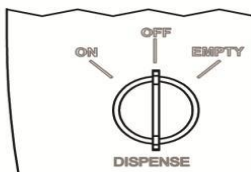
Like any cooking utensils the coffee urn of your Qwikbrew 2 must be cleaned properly and regularly.

Marco recommends cleaning after each days brewing using a suitable urn-cleansing compound. Marco's own brand cleaner is available (Part Number 8000235), instructions are given on each tub. Your Qwikbrew 2 is supplied with one large urn cleaning brush and one small sight-glass cleaning brush – to assist thorough cleaning.

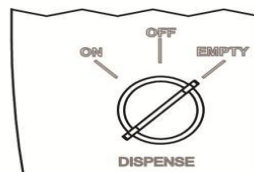
The exterior of the machines may be cleaned with a damp cloth and a light detergent. Do not use abrasive cloths or creams, as this will spoil the finish of the machine. Do not use a water jet or spray. Beware of accidentally operating the draw off tap when cleaning the front of the machine.

For machines with Push Button Delivery

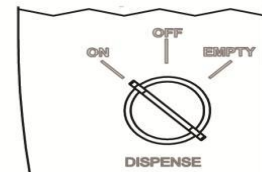
For model 1000384 Push Button Rear Delivery. This model comes with an optional drain hose to allow the user to empty the Urn into a drain or container by turning the key on the front panel. However some residue can be left in the tap and dispense valve and this residue should be also drained off prior to performing a new brew. The key should be removed after use and stored in a safe place to remove the possibility of accidental emptying of Urns.



Keyswitch position OFF
Solenoids disabled
and backlights LEDs off



Keyswitch position EMPTY
Coffee dispense solenoid open
and backlight LEDs off



Keyswitch position ON
Dispense solenoids enabled
and backlight LEDs ON

For model 1000384 Push Button Rear Delivery. This model comes with an optional drain hose to allow the user to empty the Urn into a drain or container by turning the key on the front panel. However some residue can be left in the tap and dispense valve and this residue should be also drained off prior to performing a new brew. The key should be removed after use and stored in a safe place to remove the possibility of accidental emptying of Urns.

4.6 Descaling:

The only regular maintenance required is occasional de-scaling.

In common with all coffee brewer manufacturers, service calls resulting from limescale are not covered by warranty. Fitting a scale reducer is recommended, especially in hard water areas. Marco can advise on suitable water treatment by contacting sales@marco.ie

A service agent should descale the machine regularly. Marco suggests that the machine be descaled every 3 months if the unit is in a hard water area. In soft water environments every 6 months should suffice.

5. Technical data:

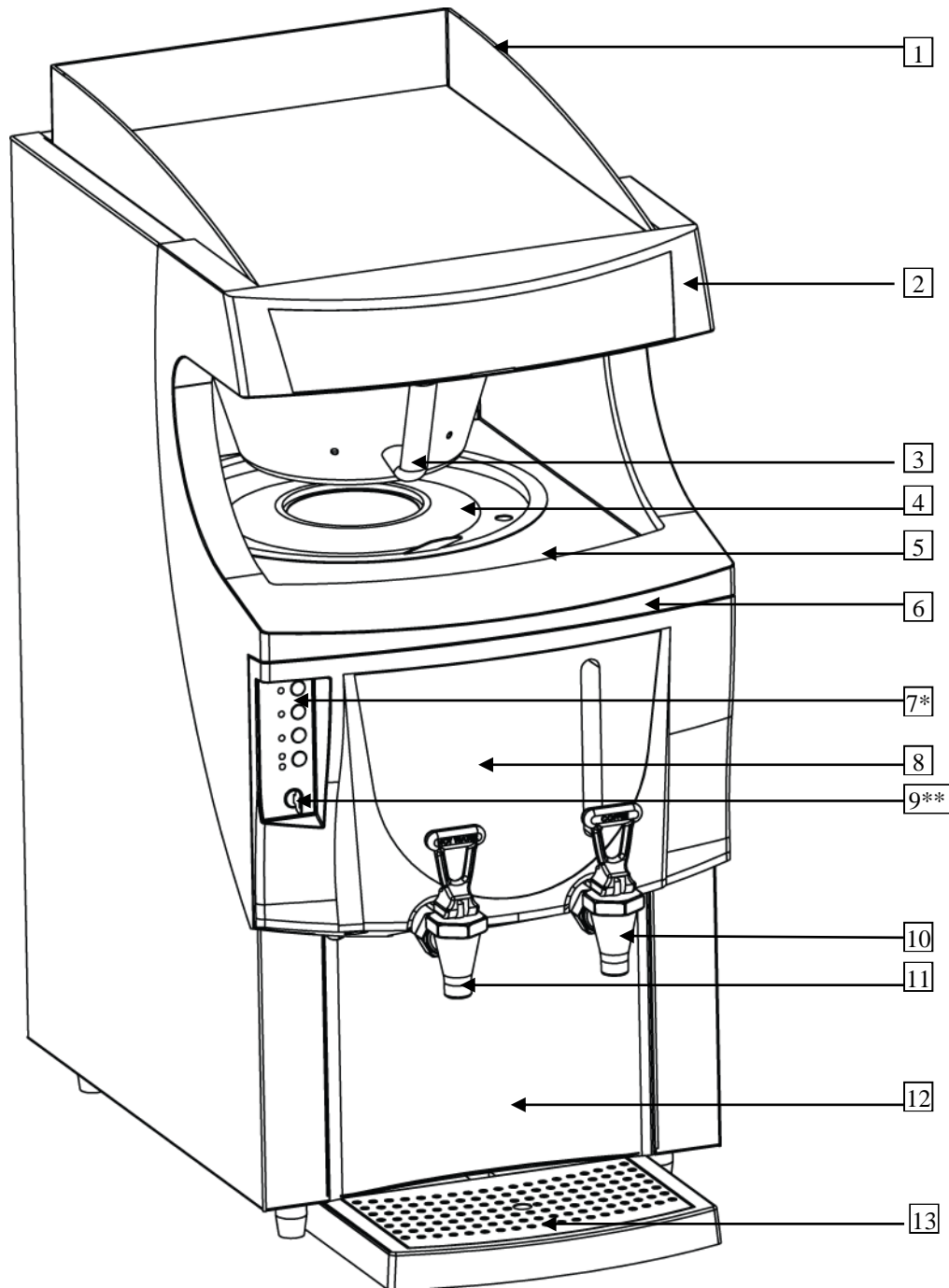
5.1 Troubleshooting:

The Marco Qwikbrew 2 uses an electronic diagnostic system to help determine faults. If an error is detected a sequence of flashes is displayed through the POWER light.

DIAGNOSTIC LIGHT GUIDE

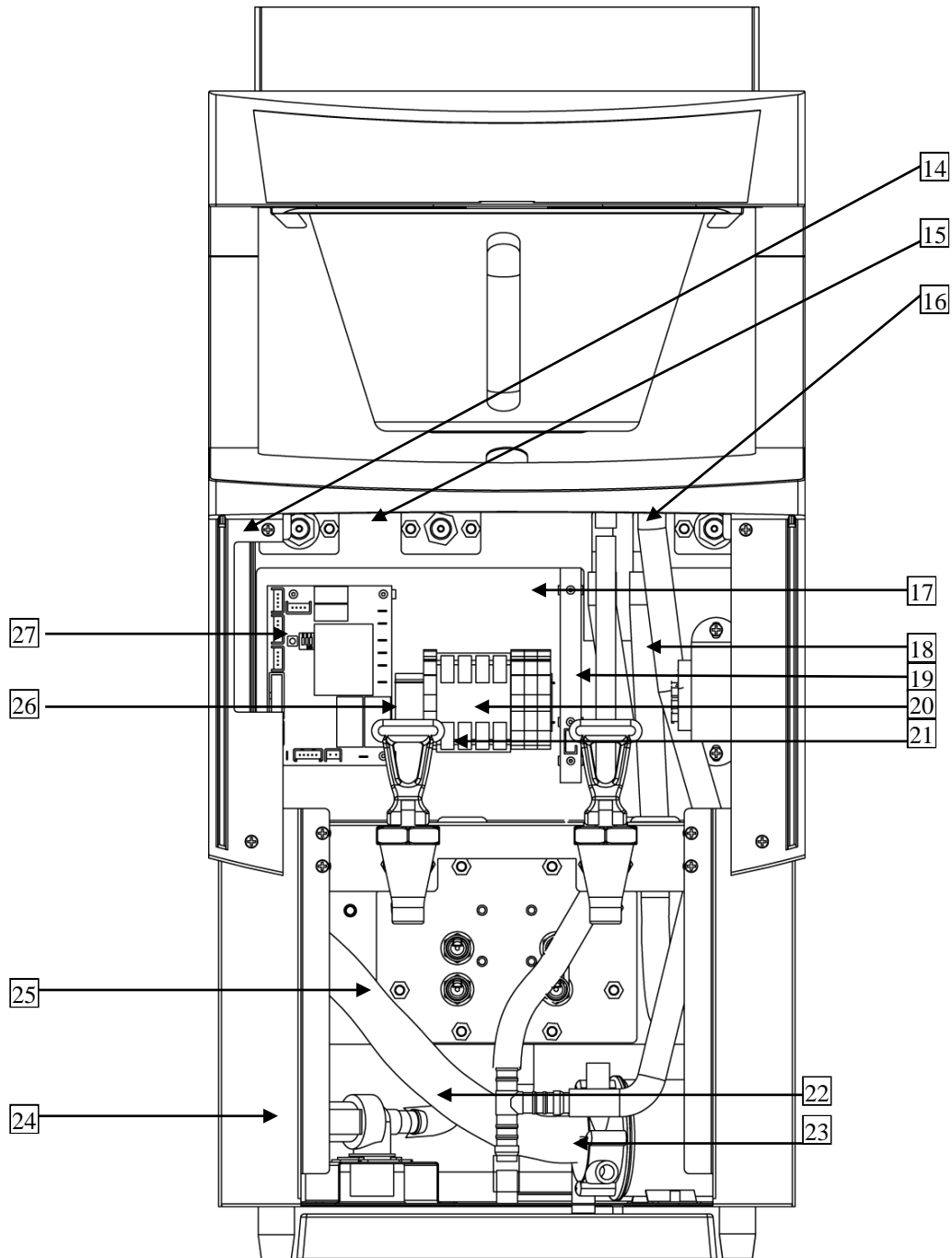
No of flashes	Symptom	Action required
2	Water level below elements. Normal when machine first fills.	Check water pressure, if this is OK - call service agent.
3	Temperature sensor failure (o/c)	Call service agent
4	Water not heating	Call service agent
5	Temperature sensor failure (s/c)	Call service agent
6	Machine not filling	Check water pressure. If this is OK and the machine has not returned to normal operation after 15 min – call service agent

Fig.1 – Qwikbrew Overview – External components



Description	Description
1. Cup Rail - 1801510	8. Label Bottom Marco QB2 Single- 1900700
2. Label Header Marco - 1900690	9. **Only for machines with keyswitch capabilities Switch keylock 3 position -1501727
3. Basket complete - 2300087	10. Tap Coffee - 2100295
4. Urn Lid - 2300350	11. Tap Hot Water - 2100275
5. Panel Top Qwikbrew 2- 1801531	12. Curved Panel
6. Panel Service Qwikbrew 2- 2200466	13. Drip Tray Complete (255mmX186mm)- 2300299
7. *If the machine has a keyswitch use: Label QB2 3Brew w/ keyswitch - 1900711 For machines without a keyswitch use: Label QB2 3Brew - 1900712	

Fig.2 – Qwikbrew Overview – Internal components



Description and Part Number	Description and Part Number
14. Probe Brew Level - 2300310	21. Terminal 6mm - 1502000
15. Probe High Level - 2300300	22. Tee Plastic Overflow - 1801250
16. Probe Low Level - 2300320	23. Pump Nikkiso - 1501540
17. Sight Glass - 1700260	24. Inlet Solenoid Valve – 1502190
18. Transformer 24V/220V 50VA - 1502140	25. Element 2.8kW 230V – 1500975
19. LED PCB Qwikbrew - 1600447	26. Contactor 240V Benedikt,Jager - 1500840
20. Terminal 6mm - End Stop - 1502040	27. P.C.B. Ecoboiler Control Rev 4.0 - 1600371

5.2 Access to internal components:

The Qwikbrew 2 has been designed with ease of service in mind. All the components (PCB's, inlet solenoid, probes, pump and element) are accessible from the front of the machine.

Switch off and unplug machine.

Remove the two mounting screws positioned in the plastic service panel (near the tap spigots). Pull the bottom of the plastic service panel away from the curved steel panel. Push the service panel down towards the counter, to release the tongue (top edge), from the plastic body. Gently lift away from the taps **(the display board is still connected to the machine!)**

Remove curved steel panel by levering the top edge out first.

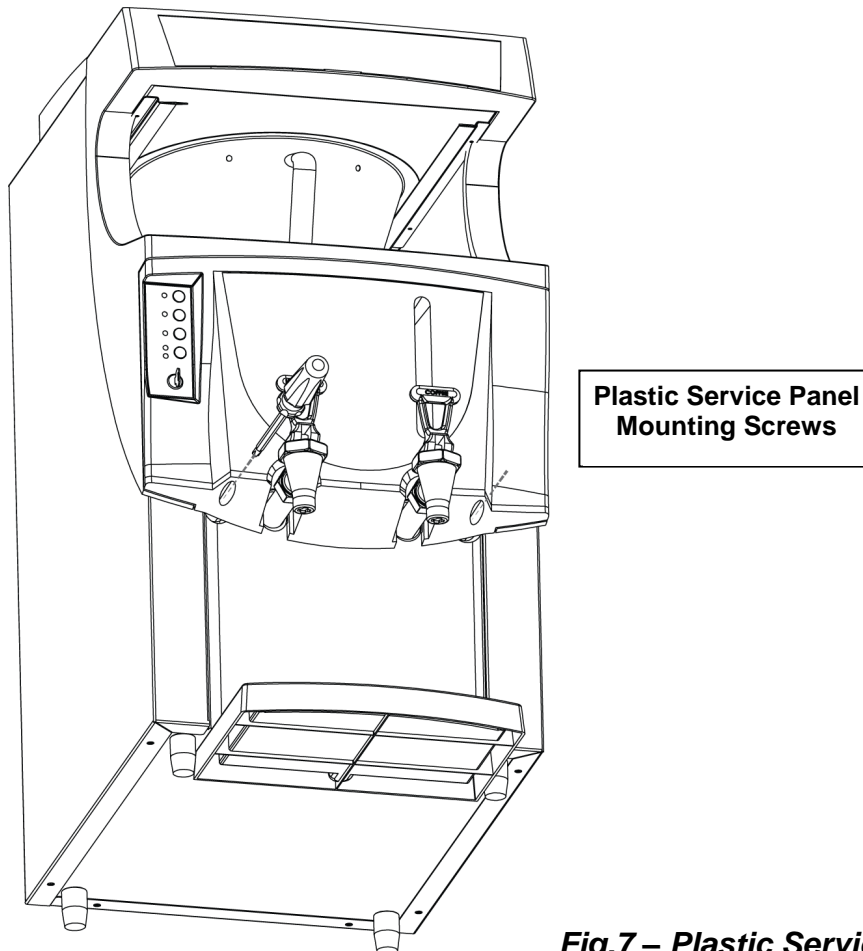
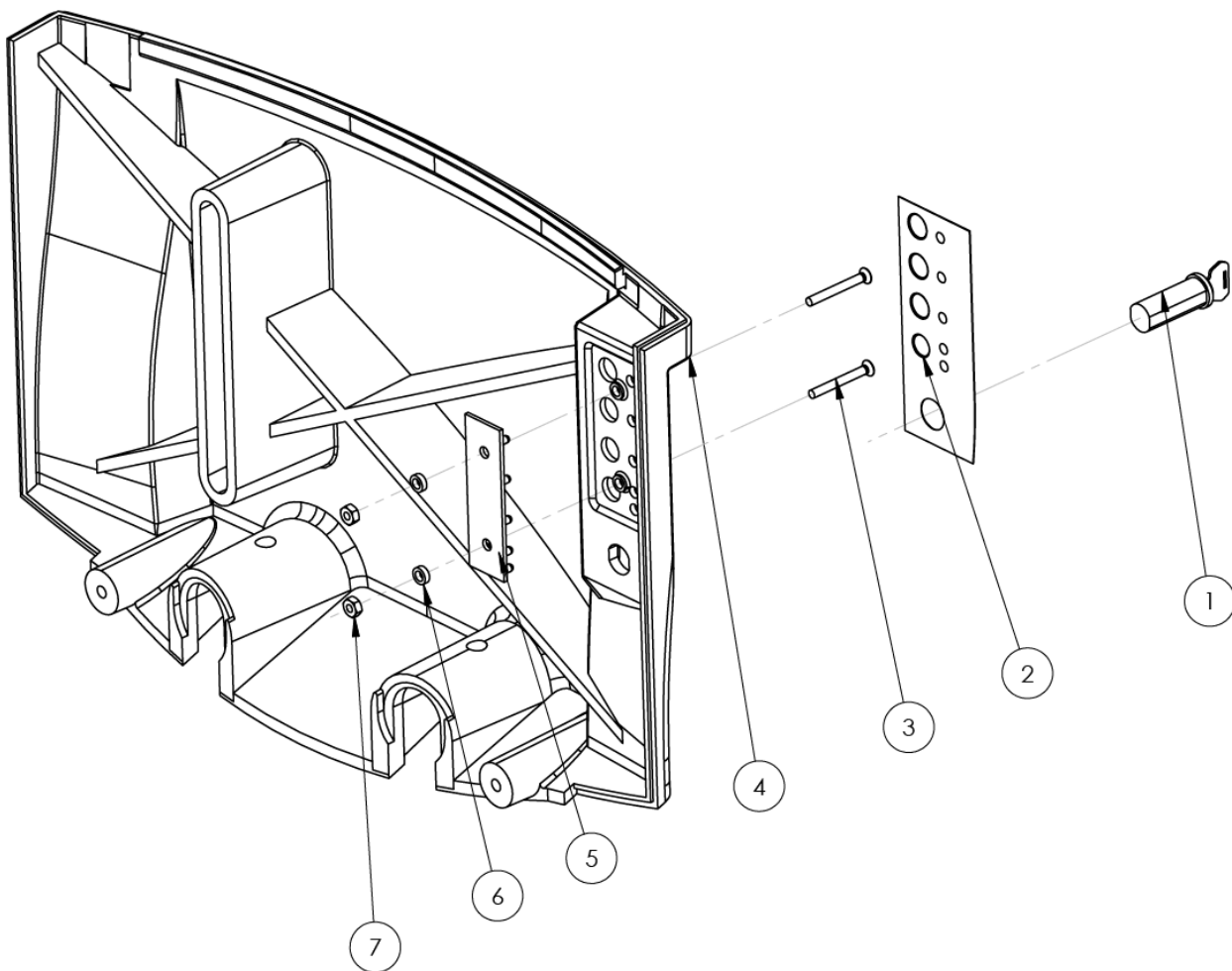


Fig.7 – Plastic Service Panel



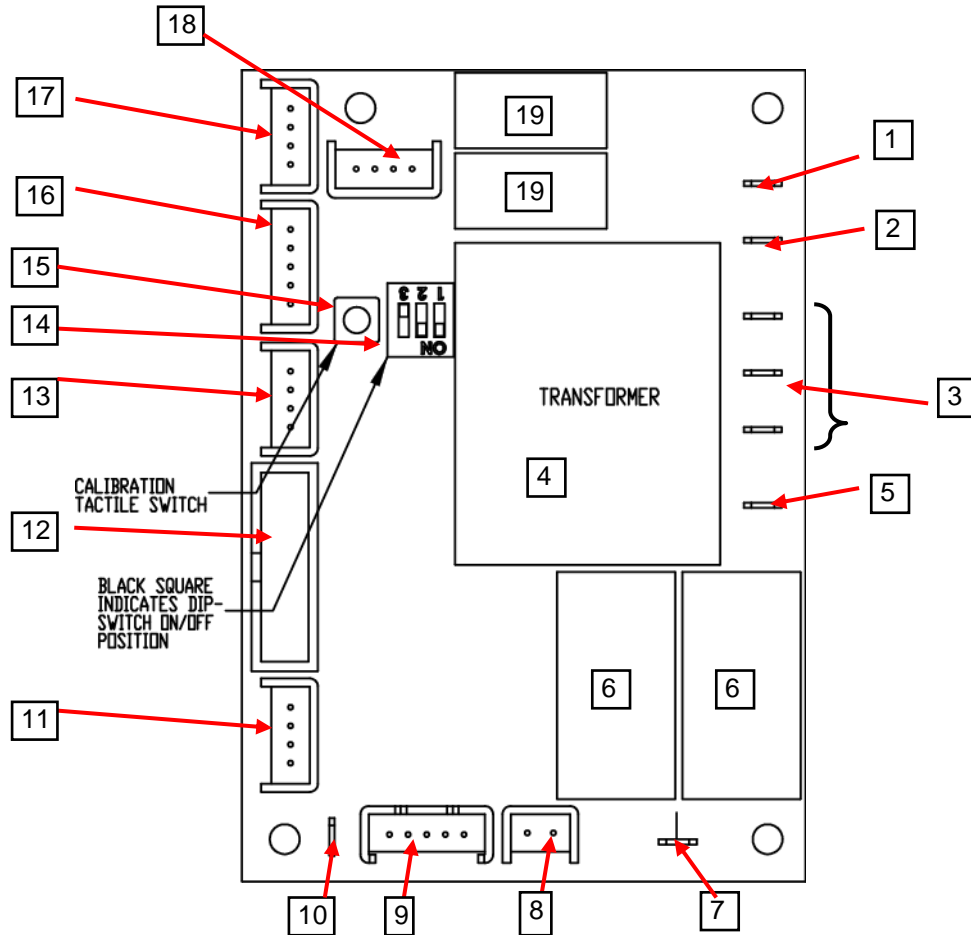
The label must be removed to take off the control PCB, if taken off with care it can be stuck back on again. The control PCB is held in place with 2 counter sunk screws. These pass through the front panel from the outside.

A nylon spacer is used at the back and secured with a brass M4 nut (this spacer prevents electrical short circuits).

Always check the label is not pressing in the switches due to incorrect spacing distance.

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	1501727	Switch keylock 3 position	1
2	1900711	Label QB2 3Brew w/ keyswitch	1
3	1401811	M4 x30mm CSK	2
4	2200466	Panel Service Qwikbrew 2	1
5	1600356	P.C.B. 3 Brew Display Surface Mount	1
6	1401876	Spacer Nylon 4.3x7x2.3mm	2
7	1401140	Nut M4 Brass	2

5.3 Main PCB connection identification



3-Brew Main PCB 1600371

1. Dispense Solenoid Tab
2. Inlet Solenoid Tab
3. Neutral Tabs
4. Transformer
5. Mains Live In Tab
6. Relays - Heater
 - Switch the element
7. Heater Tab
8. On/Off 2-way Connector
 - Short circuited on this Ecoboiler machines – power switch controlled through the display PCB
9. LED 5-way Connector
10. Earth Tab
11. Daughter PCB Connector (low voltage)
 - Connects to Daughter PCBs – allows switching of more than one element
12. External Connector
13. Thermistor Connector
14. Dip Switch – 3 way
 - Allows selection of software for specific machine
15. Tactile Switch
 - For use during calibration procedure (refer to Calibration in Sec 3.3)
16. Water Level – 5-way connector (low voltage)
 - Connects to Low level and High level probes. Also connects push button on PB variants.
17. Button Connector – 4-way
18. Data I/O Connector – 4-way
19. Relays – Inlet Solenoid

5.4 Probe removal:

The Qwikbrew 2 has 3 level probes (low level, high level and brew level).

Note: Tank does not have to be drained to remove any probes.

The probes and bracket are sealed against the wall of the tank with 2 M6 nuts

Please see Fig 1 below for part identification:

Low Level Probe assembly - 2300320

The low level probe is mounted on the sight glass side of the machine, and is connected to the Brew Board PCB with a yellow wire.

High Level Probe assembly - 2300300

The high level probe is mounted in the top centre of the tank, and is connected to the Brew Board PCB with an orange wire.

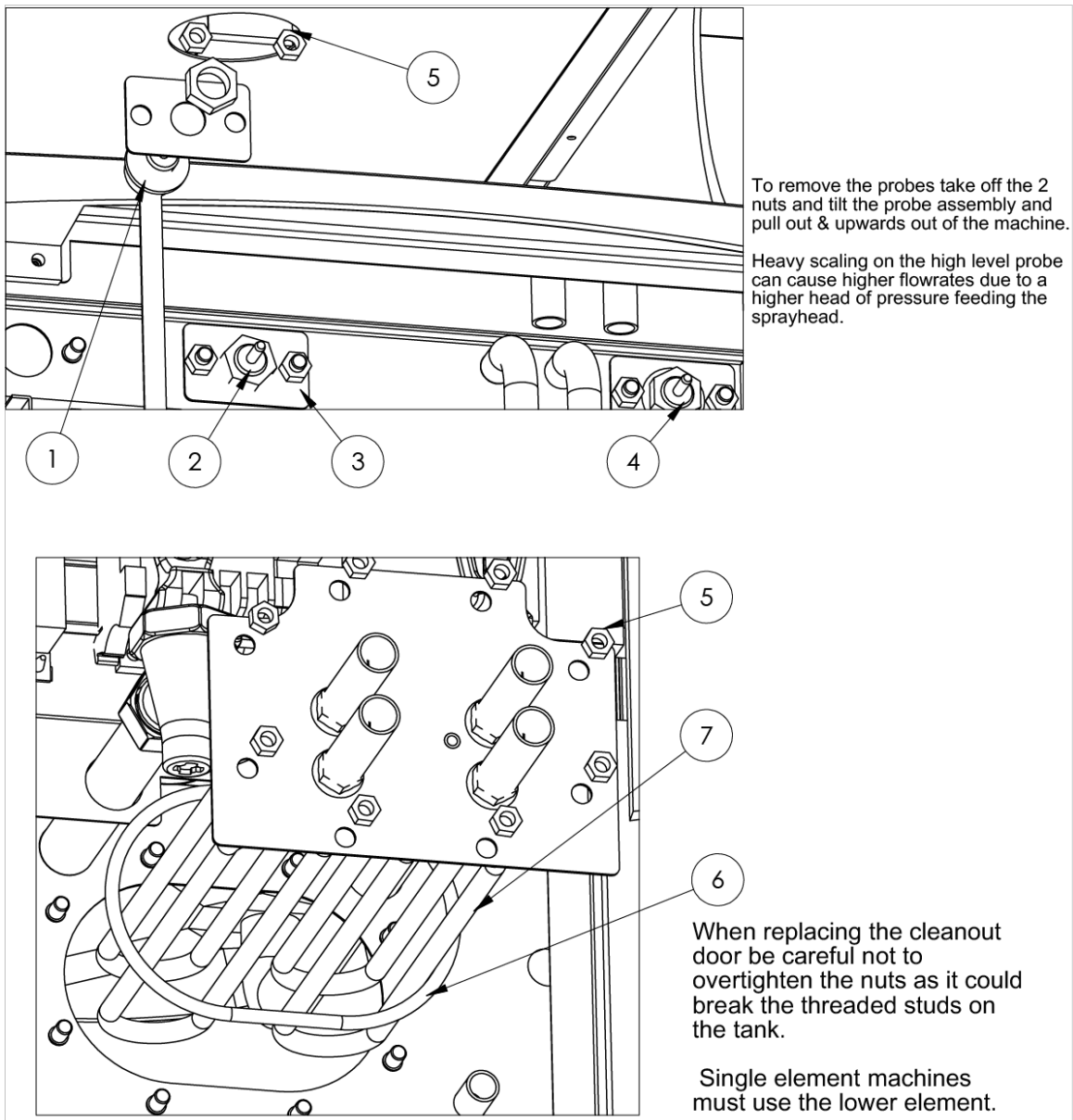
Brew Level Probe assembly - 2300310

The brew level probe is mounted on the tank near to timer PCB, and is connected to the Brew Board PCB with a red wire.

5.5 Replacing the Heating element:

- Switch off the machine and remove the plug from the socket. Drain the tank using the drain valve at the front of the machine.
- Unscrew the 8 M6 nuts that clamp the clean out door against the tank wall. Pull clean out door back and check element.
- Note the position of the red silicone o-ring - remove and discard. Remove element by sliding one leg out at a time.
- Replace in reverse order. Use a new red silicone **O-ring (1800770)**. Do not over-tighten M6 nuts. Check that the clean out door is sealed at temperature before leaving site.

Please see Fig 1 below for part identification

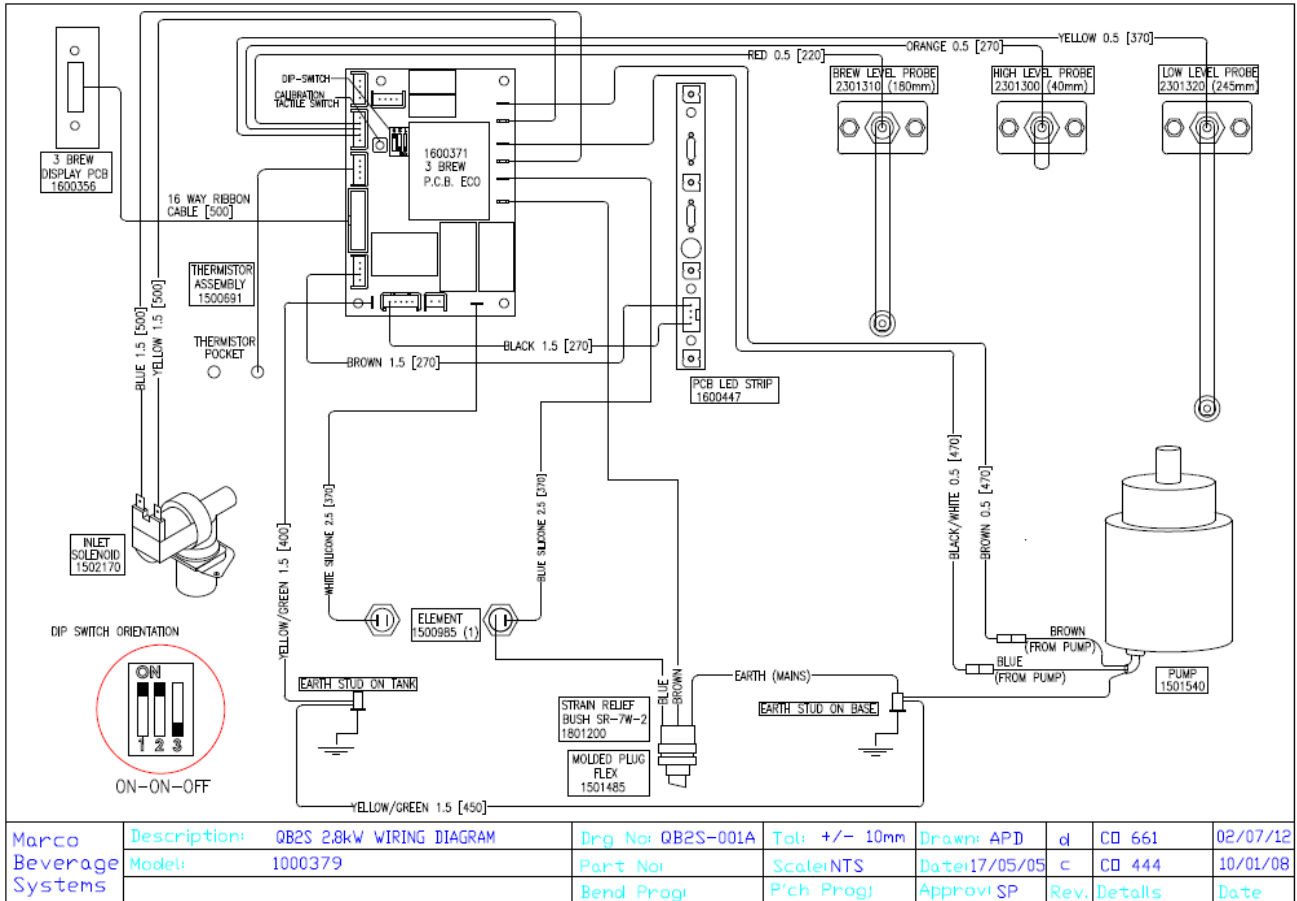


ITEM NO.	PART NUMBER	DESCRIPTION	Element and probe service/QTY.
1	2300310	PROBE BREWER COMPLETE ASSEMBLY 180mm	1
2	2300463	PROBE COMPLETE ASSEMBLY 40mm	1
3	2300479	SINGLE PROBE MOUNT	3
4	2300320	PROBE BREWER COMPLETE ASSEMBLY 245mm	1
5	1401280	NUT M6 S/S	14
6	1800770	O RING CLEANOUT DOOR	1
7	1500975	ELEMENT 2.8kW 230V M SHAPE LONG	2

DESCRIPTION:	Probe and element assembly	DWG NO.:	QB2S-020A	DRAWN BY:	FM	15-02-12	C.O.	661
--------------	----------------------------	----------	-----------	-----------	----	----------	------	-----

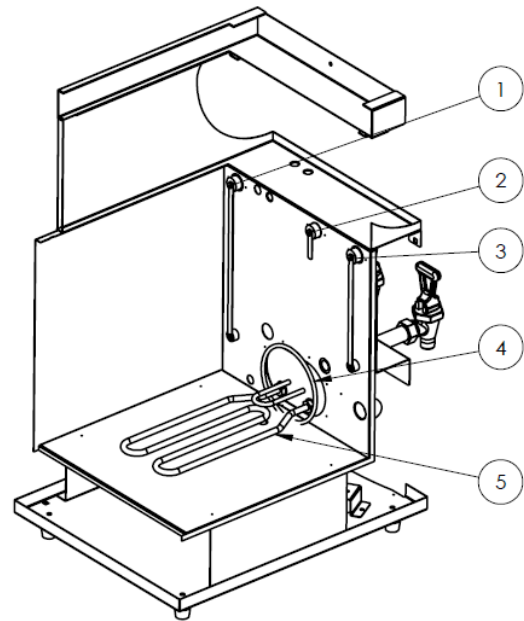
Fig 1

5.6 WIRING DIAGRAM 2.8KW



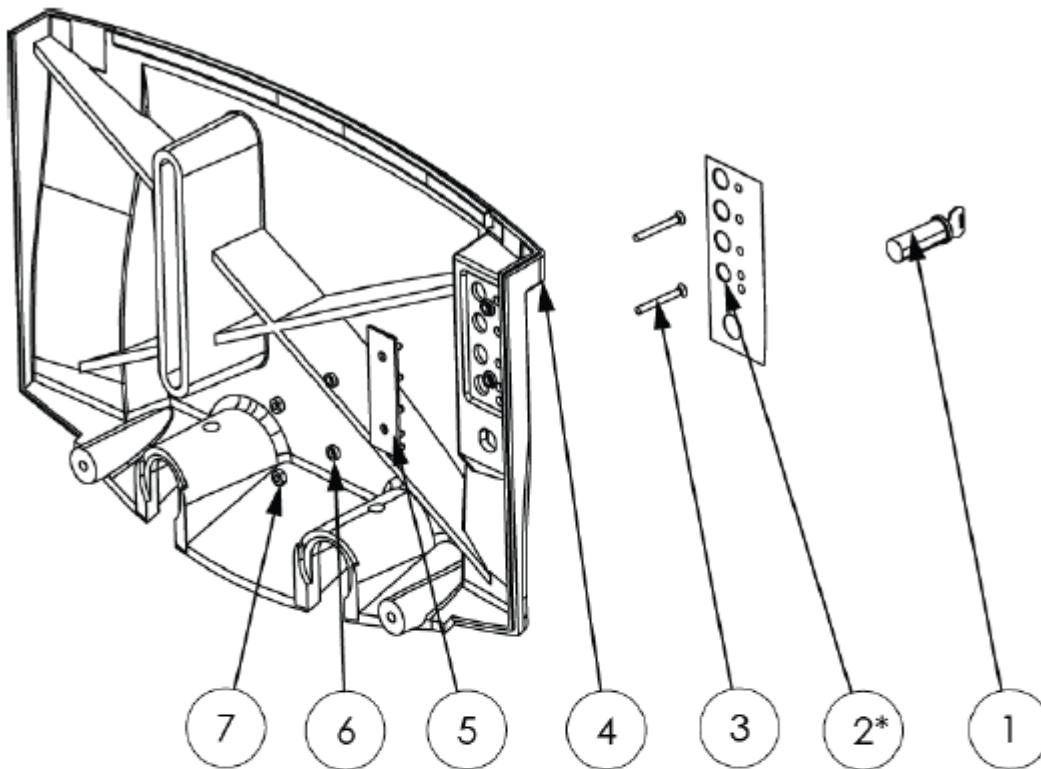
5.7 PART LISTS QB2 P/N1000379

ITEM NO.	PART NUMBER	DESCRIPTION
1	2301320	PROBE BREWER COMPLETE ASSEMBLY 245mm
2	2301463	PROBE COMPLETE ASSEMBLY 40mm
3	2301310	PROBE BREWER COMPLETE ASSEMBLY 180mm
4	1800770	O RING CLEANOUT DOOR
5	1500975	ELEMENT 2.8kW 230V M SHAPE LONG



DESCRIPTION:	INTERNAL CUTAWAY	MACHINE NAME:	QWIKBREW 2	DATE:	23/07/08	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: LINEAR: $\pm 0.2\text{mm}$ SCALE: 1:6
		MACHINE NUMBER:	1000379	REVISION:	A	

5.7 PART LISTS QB2 P/N1000379

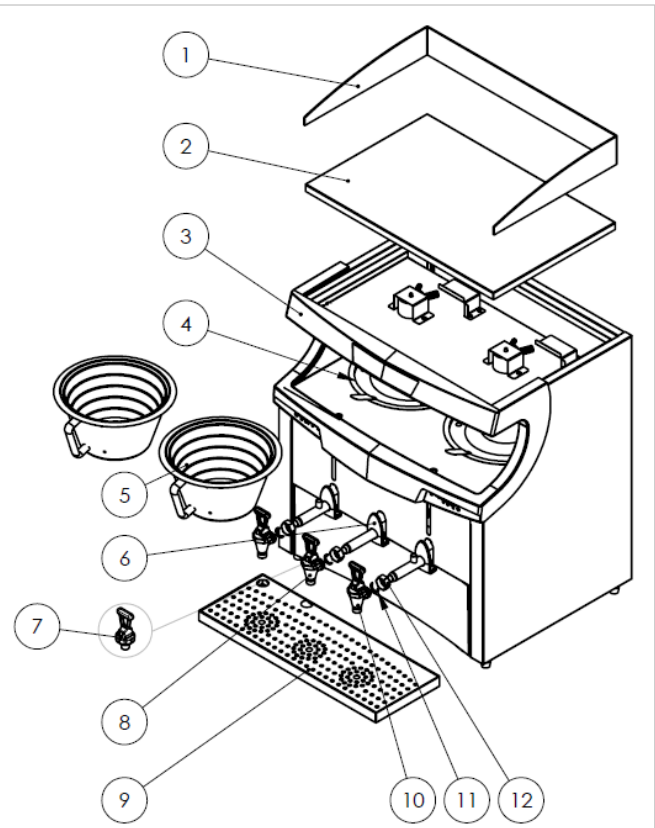


ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	1501727	Switch keylock 3 position	1
2	1900712*	Label QB2 3Brew	1
2	1900711	Label QB2 3Brew w/ keyswitch	1
3	1401811	M4 x30mm CSK	2
4	2200466	Panel Service Qwikbrew 2	1
5	1600356	P.C.B. 3 Brew Display Surface Mount	2
6	1401876	Spacer Nylon 4.3x7x2.3mm	2
7	1401140	Nut M4 Brass	2

*Replaced 1900711 with 1900712 Label QB2 3Brew for machines without a keyswitch.

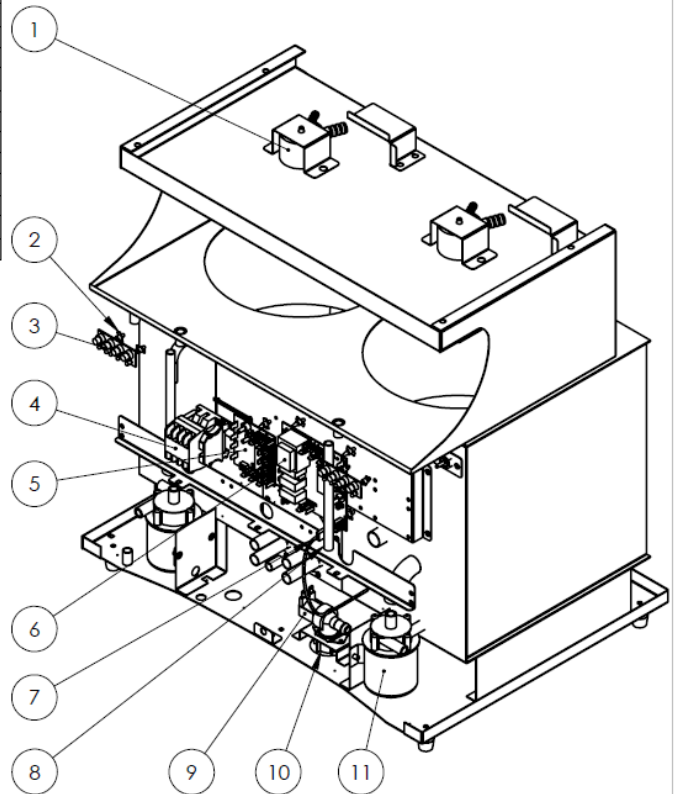
5.8 PART LISTS QB2 TWIN P/N1000495

ITEM NO.	PART NUMBER	DESCRIPTION
1	1801511	CUP RAIL ACRYLIC QB2 TWIN
2	2300419	OUTER LID
3	1801570	PLASTIC FASCIA QB2 TWIN
4	2300996	LID COFFEE URN 275mm COMPLETE
5	2300087	BASKET COMPLETE 271mm x 136mm
6	1801560	PLASTIC ROSE MBT2/QBT2
7	2100155	TAP HANDLE ASSEMBLY HOT WATER
8	2100275	TAP TOM BLACK HOT WATER
9	2300175	DRIP TRAY COMPLETE
10	2100290	TAP TOM BLACK COFFEE
11	1400550	CIRCLIP FOR SPIGOT
12	1401170	NUT CP 3/4" BSP CHROMED



DESCRIPTION:	EXPLODED EXTERNAL	MACHINE NAME:	QWIKBREW TWIN	DATE:	30/07/08	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: LINEAR: +/0.2mm SCALE:1:10
		MACHINE NUMBER:	1000495	REVISION:	A	

ITEM NO.	PART NUMBER	DESCRIPTION
1	1402550	SPRAYHEAD COMPLETE QB2
1.1	1801183	SPRAYHEAD DISC 2.1mm 5 HOLES
2	1801230	PILLAR SUPPORT PCB
3	1600324	PCB BREWER DISPLAY BOARD
4	1500840	CONTACTOR B&J 24V AC
5	1600323	PCB TIMER DUAL 2003 + CONNECTOR
6	1600326	PCB BREW BOARD
7	1600691	THERMISTOR ASSEMBLY
8	1700260	SIGHTGLASS QWIKBREW 12mm x 170mm
9	1502170	VALVE INLET 90 DEG 220V 12mm
10	1800690	WATER INLET HOSE WHITE
11	1501540	PUMP NIKKISO



DESCRIPTION:	EXPLODED INTERNAL	MACHINE NAME:	QWIKBREW TWIN	DATE:	30/07/08	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS TOLERANCES: LINEAR: +/0.2mm SCALE:1:5
		MACHINE NUMBER:	1000495	REVISION:	A	

5.8 PART LISTS QB2 TWIN P/N1000495

