

Trouble Shooting

All Models excluding 1.5 ltr unit

Birko TempoTronic and USB

On Wall and Undersink Boiling Water Heaters

Note:

This manual excludes the 1.5 ltr on wall model as it has a different internal design.



Contents

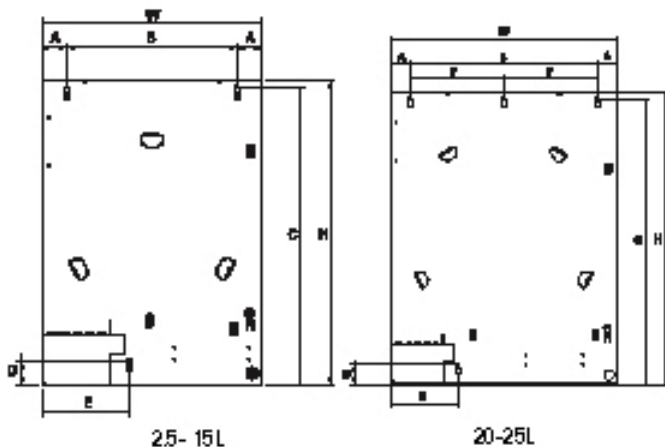
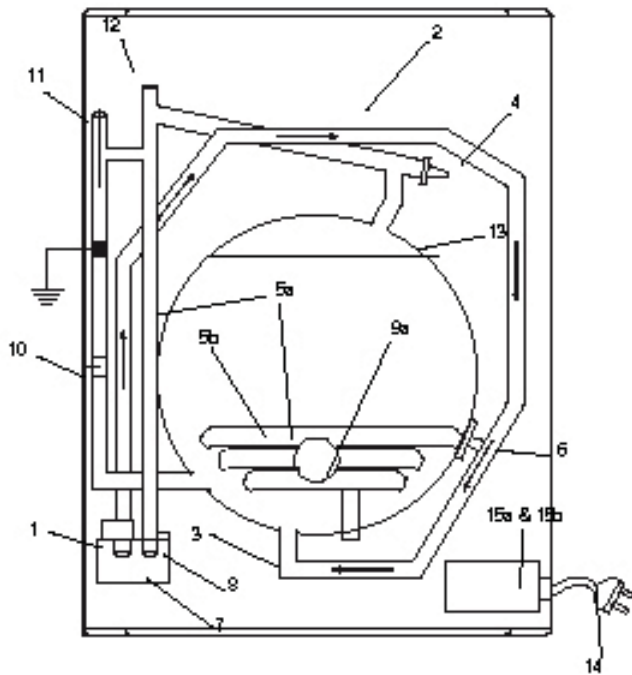
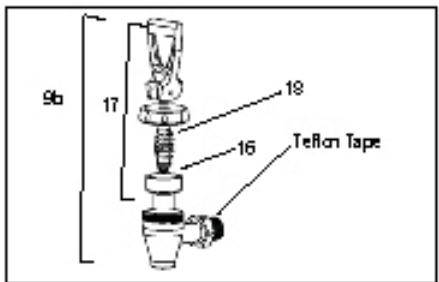
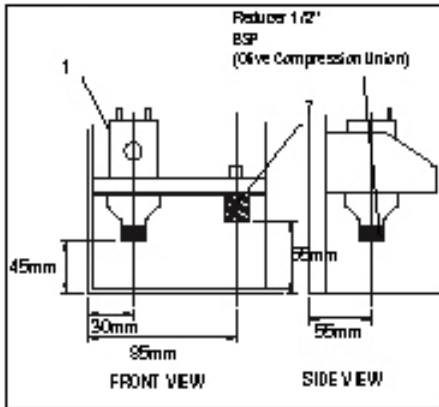
Subject	Page
General Product Operation.....	2
Spares Diagram and List.....	3
Unit Dimensions.....	3
Problem Solving.....	4
Tank Access.....	5
Parts Replacement Guide.....	5 - 6
Wiring Diagram / PCB Layout.....	7
Pump replacement.....	8 - 9
Notes.....	10 - 11
Address.....	12

The General Operational Process

1. After fixing to wall and checking all connections, turn on power and water together.
2. The solenoid valve will now open and fill the tank until it reaches the low water level sensor.
3. When the low water level sensor is contacted, the filling process stops and the heating cycle starts, the heating will continue until the water reaches approximately 98-99°C.
4. Once this temperature is reached the heating stops and filling restarts, this process of heat/fill/heat/fill continues until the top water level sensor is reached. When water makes contact with the high water level sensor, the PCB isolates the filling cycle from this function, and the element controlled by the PCB remains in circuit to monitor for any heat top up's that may be required.
5. If any subsequent water is used and the unit drops away from the high level water sensor, the heat/fill/heat /fill process restarts until water is back at the high level water sensor and at maximum temperature.
6. In the case of the Under Sink Boiler models, water is dispensed through the electronic tap fixed to the sink top. When the touch pad is activated, boiling water is pumped up from the undersink unit and dispensed through the electronic tap to a safe position. Water will continue to be dispensed while the touch pad is activated or until the tank capacity is exhausted. A short re-fill time must then be observed.

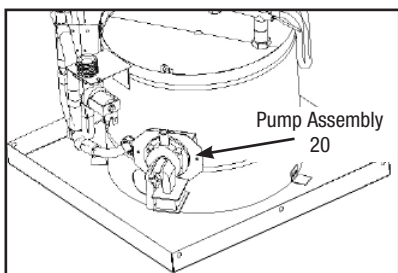
Spare parts and diagrams for location and installation dimensions.

Ref	Part No.	Description	Ref	Part No.	Description
1	13110100	Water Solenoid Valve	11	1311048	Probe (maximum water level)
2	1311044	Condensor Assembly	12		Steam Vent Outlet
3		Cold Water Inlet To Tank	13		Maximum Water Level
4	1311043	Thermistor Steam Sensor	14	1310842	Power Cord and Plug Assembly
5a		Element and Tank Assembly	15a	1311042	Control Board Assembly (2.5ltr) pre 2005
5b	1311032	Element and Tank Assembly 5 - 25 ltr	15b	1311042	Control Board Assembly (5 - 25ltr) pre 2005
6	1311006	Manual Reset Thermostat (boil dry protection)	15c	1311093	Control Board Assembly all model (2005 onwards)
7		Steam Vent Outlet (half inch BSP)	16	1311058	Tap Cup Seal
8	1311022	Auto Reset Thermostat (steam vent overflow)	17	1311060	Tap Insert
9a		Water Outlet Fitting (half inch BSP)	18	1310732	Tap Spring
9b	1311056	Tap Assembly	4a	1311085	Thermistor Steam Sensor (2005 onwards)
10	1311082	Sensor (minimum water level)	20	1311405	Pump Assembly (USB only)



Wall Mounting Dimensions (mm)

	2.5L	5-7.5L	10-15L	20-25L
A	56.4	41.4	41.4	41.4
B	198.0	278.0	395.0	392.0
C	41.45	48.45	54.45	60.45
D	42.45	42.45	42.45	42.45
E	143.4	143.4	143.4	143.4
F				200
H	430.8	500.8	557.8	621.8
W	310.8	360.8	417.8	481.8



Problem Solving - TempoTronic

Symptom	Solution
Unit filling to low level but not heating	<ol style="list-style-type: none"> 1. Possible replacement PCB 2. Check Element
Unit not filling	<ol style="list-style-type: none"> 1. Check top probe (No.11 page 3) and ensure that the probe is not in contact with tubing. Also check for scale build up. 2. Check solenoid valve (No.1 page 3) with multimeter set to Ohms scale, it should read between 3.9 - 4.2. 3. Check water supply. 4. Turn power supply on then off to see if you can hear the "squirt" of water from the solenoid valve.
Unit continually boiling	<ol style="list-style-type: none"> 1. Replace thermistor steam sensor (No.4 page 3) 2. If above does not solve problem, replace PCB (No.15a or 15b page 3).
Manual reset thermostat (Unscrew) (Element boil dry protection)	<ol style="list-style-type: none"> 1. Check water supply to tank. 2. Check element. 3. Replace manual reset.
Tap leaking	<ol style="list-style-type: none"> 1. Replace tap cup seal (No.15 page 3) 2. Replace tap assy (No.9 page 3). Re-tape with teflon.

Problem Solving - USB

NOTE:

The TempoTronic problem solving points above apply to the USB series also.

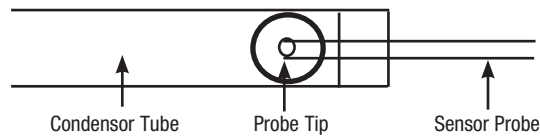
Symptom	Solution
No water	<ol style="list-style-type: none"> 1. Check water and power supply to tank 2. Check electrical flying lead connection between tap and boiling unit. 3. Check electrical connections to the pump unit, if wiring is ok, check pump, if faulty replace pump unit. (No.20 page 3). 4. Check tap assembly touch pad, if no water, disconnect tap electrical flying lead lead and test with the override button on the relay. If water dispenses, replace tap assembly. 5. Check PCB and relay for visual faults, burns, wires off etc. If faulty, replace.

Tank access and replacing parts

Task	Operation
Unit cover removal	<ol style="list-style-type: none"> 1. Turn power and water off 2. Drain unit via tap, be carefull of boiling water. 3. Remove the tap assy by unscrewing counter-clockwise 4. Undo self-tapping screws, 2 at top and 2 at bottom of case. Remove the cover by drawing towards you.
Replace Solenoid	<ol style="list-style-type: none"> 1. Directions as above in Cover Removal. 2. Disconnect wires to valve. 3. Disconnect the water fitting attached to valve. 4. Unscrew securing screws fixing valve. Remove old valve and replace with new valve. 5. Re-connect fitting, turn on water and check for leaks.
Replace Element	<ol style="list-style-type: none"> 6. Refit case and return to operation. 1. Directions as above in Cover Removal. 2. Disconnect element wiring. 3. Disconnect wiring from the manual re-set thermostat and remove by unscrewing. 4. Remove the panel at the top of the tank, then the 3 nuts securing the element, 2 at the bottom and 1 on the side of tank. 5. Remove the element through the top opening. 6. Replacement is the reverse procedure. 7. Refit case and return to operation. <p>NOTE: After replacing the element the top panel must be re- sealed to ensure water tight operation.</p>
Replace Tap assembly	<ol style="list-style-type: none"> 1. Directions as above in Cover Removal. Steps 1-3. 2. Re-fit the new tap assembly. 3. Ensure new thread seal tape is applied.
Replace Manual Re-Set Thermostat	<ol style="list-style-type: none"> 1. Directions as above in Cover Removal. 2. Remove the connecting wires, unscrew the cutout. 3. Replacement is the reverse procedure.
Replace PCB.	<ol style="list-style-type: none"> 1. Directions as above in Cover Removal. 2. Disconnect connecting wires and unscrew PCB. 3. Replacement is the reverse procedure. 4. Refit case and return to operation. <p>NOTE: PCB wiring is colour coded please ensure that the wires go back onto the same connection terminals. All connections are 240 volt, take great care. The temperature is non-adjustable. PCB No.181801 is for 2.5 ltr. PCB No.181815 is for 5ltr and larger.</p>

Tank access and replacing parts con't.

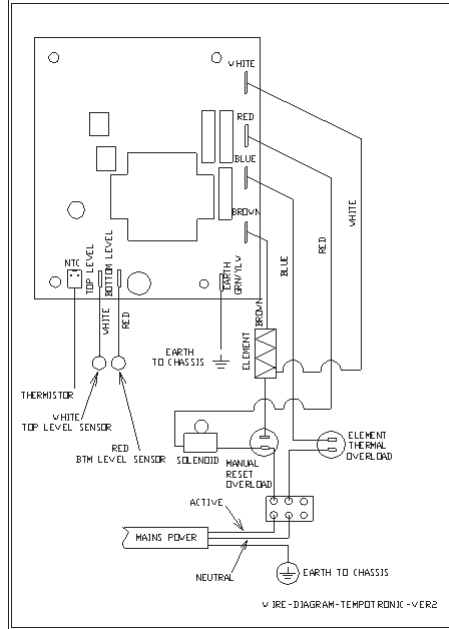
Task	Operation
Replace Thermistor Steam Sensor	<ol style="list-style-type: none"> 1. Directions as above in Cover Removal. 2. Remove PCB cover plate. 3. Remove the thermistor. 4. The probe end of the thermistor pushes into the condensor tube so that the tip just covers the hole drilled in the condensor tube. 5. Re-connect the sensor to the PCB at either NTC 1 or NTC 2, in any order.



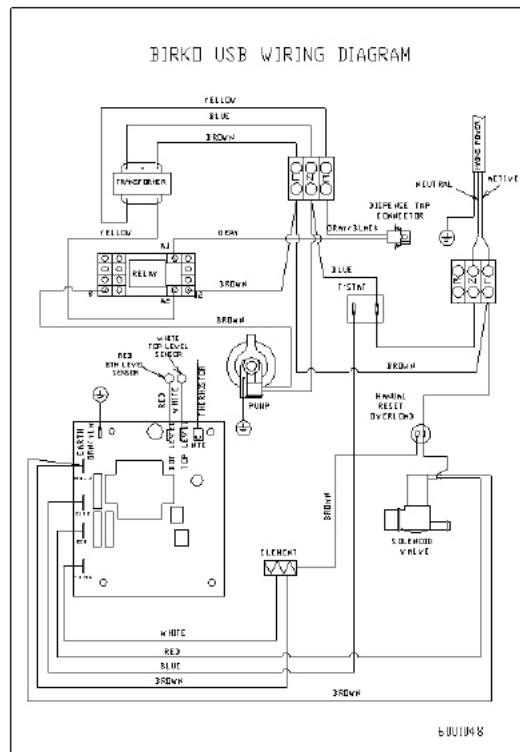
Tank access and replacing parts. USB

Task	Operation
Remove cover	<ol style="list-style-type: none"> 1. Disconnect power and water, remove the boiling water element from the tank. 2. Remove self-tapping screws around the base and draw the cover upwards. Replace
Pump	<ol style="list-style-type: none"> 1. This is a detailed operation, go to pages 8 & 9. Full details of replacement of old or current style pumps are covered.
Element replacement	<ol style="list-style-type: none"> 1. Refer to cover removal. 2. Disconnect element leads from PCB. 3. Disconnect and remove the condensing tubes, probe and associated silicon tubing form the tank lid, ensure you note the positioning of all components. 4. Remove the insulation from the tank lid, using the two (2) metal tags, lever up the tank lid. It is secured by silicon sealant. 5. On the heater base there are two (2) fixing points for the tank, remove the screws and carefully position tank so you have access to the element securing nuts. Undo these nuts and remove the element. 6. Re-installation of a new element is the reverse procedure, ensure you clean off old sealant and apply new. Birko uses and recommends Dow Corning 732. If not available use a suitable food grade alternative with acetic cure properties.

Wiring diagram and PCB layout. (2005-onwards)



Item	Value
Solenoid Coil	3.9 - 4.2 K ohms
Element	2.4kw / 10 amp



Birko Water Pump Replacement Kit

P/N 1311405

Replacement of Ascoll (grey) pump with the Colbec CP3 (beige) pump
or straight replacement.



Image 1

Identification of previous generation pump assembly configurations:

Before you commence with the pump replacement, you will need to establish which pump assembly you currently have. This is essential for correct removal instructions contained in the document.

Generation 1

Grey Ascoll pump, supported on the base tray by a box frame support. There is a thread on the plastic pump inlet tube. (See Image 1)

Generation 2

Grey Ascoll pump, supported by two stainless steel straps from the top of the tank. There is a thread on the plastic pump inlet tube. (See image 2)

Generation 3

Grey Ascoll pump, supported from the tank / pump adaptor nut by a U-shaped bracket. There is no thread on the plastic pump inlet tube. (See image 3)

Generation 4 (Current)

Beige Colbec CP3 pump, supported from the tank / pump adaptor nut by a U-shaped bracket and plate. (See image 4)



Image 2

Old Pump Removal:

1. Disconnect the water and electrical supplies to ensure safe operating conditions.
2. Remove the undersink unit from the cupboard space, and place in a position that is safe and secure to work.
3. Remove the outer case to reveal the pump assembly located at the rear of the unit.
4. Disconnect the electrical wiring, one earth lead, and two power leads from the pump assembly.
5. Allow the water to cool to a temperature that will not scald or cause discomfort to the repairer before attempting to drain the heater.
6. Remove the tank lid by levering it off using the tabs located on the top edge opposite each other. Two screw drivers will do the job, sufficient force will need to be applied as the lid is held in place with sealant.
7. Before removing the pump ensure that the water level inside the tank is below the pump assembly.
 - (a) For generation 1 and 2 pump arrangements, remove the screws that fix the supports to the tray base or the top of tank respectively. Using suitable spanners, loosen the compression nut on the inside of the tank, and remove the pump and bracket assembly.
 - (b) For generation 3, remove the M3 nuts and screws on either side of the pump housing. Slide the pump housing out of the tank / pump adaptor leaving the U shaped bracket attached to the tank. Using suitable spanners remove the compression nut from the inside of the tank, then remove the tank / pump adaptor and support bracket.



Image 3



Image 4

Birko Water Pump Replacement Kit

P/N 1311405

Replacement of Askoll (grey) pump with the Colbec CP3 (beige) pump
or straight replacement.

- (c) Generation 4 is current and should only require the removal of the faulty pump. This may be achieved by removing the M3 nuts and screws that fix the pump mounting plate against the bracket. Slide the pump housing out of the tank / pump housing adaptor leaving the U-shaped bracket attached to the tank.

New Pump Installation:

1. The tank insulation on Generation 1 & 2 pump units requires trimming to allow clearance for the U-shaped bracket. The insulation can be cut away with a "stanley knife" to the dimensions of the mounting bracket. (See image 5)
2. The pump in it's kit form may be pre-assembled, separate the mounting plate and the bracket by removing the M3 nuts and screws. Slide the pump out of the tank / pump adaptor taking care not to lose the red "o"ring when you do so.
3. Fix the tank / pump adaptor and bracket assembly to the side of the tank using the compression nut and washers provided. Place one washer on the inside of the tank and the other on the outside, ensuring that the bracket is orientated horizontally with respect to the fixing holes. Tighten the compression nut sufficiently to ensure that the tin plated copper washers are well bedded in.
4. Carefully assemble the pump into the tank / pump adaptor with the pump outlet orientated upwards. There are two "o"rings in the adaptor, one located halfway along the bore of the adaptor and a second located in the opening. Ensure that both "o"rings are correctly positioned during the assembly. Fix the mounting plate to the bracket using the two M3 nuts and screws. (A light smearing of food grade grease on the pump inlet will assist in ease of assembly). (See image 6)
5. The pump outlet tube supplied is suitable in length for a 10 ltr unit. It will need to be trimmed back by 45mm for the 2.5 and 5 ltr models. After adjusting the length of the tube, if required, push the tube over the pump outlet and clamp with cable tie provided, allowing the fitting at the other end to be free to fasten through the case later.
6. Connect the electrical cables and tie them up to an elevated position away from the base tray. Attach the earth cable to an earthed screw on the tank assembly. (See image 7)
7. Fill the tank to a level above the pump and check for leaks. If leaks are detected disassemble and reassemble following the instructions carefully.
8. Once you are satisfied that there are no leaks you can reseal the lid in place using Dow Corning (R) 732 Multi-Purpose Clear Sealant (or equivalent)
9. To complete the assembly and commission, reverse the earlier dismantalling procedures.



Image 5



Image 6



Image 7

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Notes

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