

OWNERS MANUAL

WATERCO
Water, the Liquid of Life



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Waterco Limited ABN 62 002 070 733

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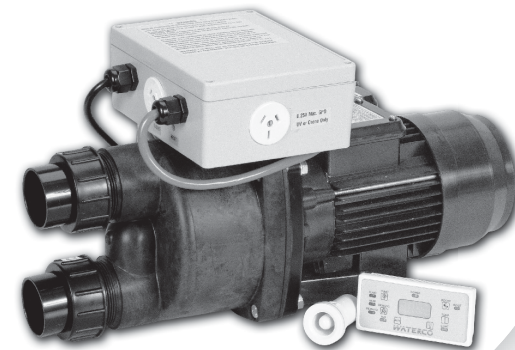
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PORTAPAC



This equipment must be installed and serviced by an authorised technician. Improper installation can create electrical hazards which could result in property damage, serious injury or death. Improper installation will void the warranty.



Notice to Installer

This manual contains important information about the installation, operation and safe use of this product. Once the product has been installed **this manual must be given to the owner/ operator of this equipment.**

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IMPORTANT SAFETY INSTRUCTIONS

When installing and using this electrical equipment, basic safety precautions should always be followed, including the following:

READ AND FOLLOW ALL INSTRUCTIONS



WARNING
RISK OF ELECTRIC SHOCK

Connect only to a grounding type receptacle protected by a ground-fault circuit-interrupter (GFCI) or a Residual Current Device (RCD) with a rated residual current not exceeding 30mA. Contact a qualified electrician if you cannot verify that the receptacle is protected by a GFCI or an RCD.



WARNING

To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times.

To reduce the risk of Electric Shock, if the electrical power supply cord is damaged it must be replaced immediately by the manufacturer, service agent or similarly qualified person in order to avoid hazard.

15 Amp units must be connected to a 15 Amp power supply.

The power supply cord should be located and protected to prevent the cord from sustaining damage from lawn mowers, hedge trimmers and other equipment. Do not bury cord.

Do not run this product on an extension cord. Damage to the electrical components may result.

Install in a well ventilated area. Do not bundle excess power supply cord near items that generate heat. Property damage, serious injury or death may result.

The products mentioned in this manual are specifically designed to work with clean water at a temperature between 15°C (59°F) and 40°C (104°F).

Any modification of this product requires the prior consent of the manufacturer. Original replacement parts and accessories authorised by the manufacturer ensure a high level of safety. The manufacturer accepts no liability for the damage and injuries caused by unauthorised replacement parts and accessories.



CAUTION
RISK OF ELECTRIC SHOCK

Installation or repairs should be carried out by the manufacturer, service agent or a similarly qualified person in order to avoid hazards.

Work may only be performed on this product after disconnecting it from the mains power.



CAUTION

In the event the Portapac's Over Temperature Switch is activated and the Portapac shuts down, the cause of the fault **MUST** be fixed before the Over Temperature Switch is reset. The Over Temperature Switch will activate if the water in the Portapac reaches 45°C. The activation of this safety switch indicates a significant fault with the system. If the fault is not fixed before resetting, the Over Temperature Switch will activate again.

SAVE THESE INSTRUCTIONS

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GENERAL INFORMATION

The Waterco Limited portable spa pool and spa bath pumps have been designed to be simple to install and easy to operate.

The pumps have been designed to fit within the surroundings of a portable spa and are supplied with flexible electrical cable and plug for single phase power supply connection.

The Air Switch Model Portapacs (Demand & Demand Elite) are supplied WITHOUT Air Switches. There are many different styles of Air Switch available and as a result the Air Switches are sold separately.

Depending on the selected pump model, a maximum of either 10A or 15A can be drawn by the unit.

Waterco Limited portable spa and spa bath pumps are designed to comply with Australian Standard AS/ NZS 3136 and AS/ NZS 3350-2-41.

The models of Portapac covered by this manual include.

Air Switch Models

- Portapac Demand 10A
- Portapac Demand Elite 15A

Touch Pad Models

- Portapac SSC Air 10A
- Portapac SSC Air 15A
- Portapac SSC Boost 10A
- Portapac SSC Boost 15A
- Portapac Premium SSC Boost 10A
- Portapac Premium SSC Boost 15A

INSTALLATION

- It is important for trouble free operation that the pump is adequately ventilated. Ensure there is at least 100mm free space behind the motor fan cowl for free airflow to cool the motor. Ensure the area enclosing the pump is adequately ventilated so hot air can escape.
- The spa pump must be accessible for maintenance and to adjust the temperature thermostat on top of the pump (when fitted).
- The pump must not be put into a position that is prone to flooding.
- The installation must conform to local electrical standards or guidelines. Contact your power supply company for further information on electrical requirements.
- The external temperature sensor **MUST** be installed. To ensure accurate operation, refer to "Installing the Temperature Sensor" on page 5.

PIPING

1. Use only the PVC half unions that are supplied with the pump.
2. Use only 40mm pipe, or larger, for both suction and discharge lines.
3. The piping must be well supported to reduce piping load on the equipment and excess stress on the piping.
4. This is **NOT** a self priming pump. Install below water level. Install suction piping without high points that can trap air.
5. Install the piping with the least number of bends (elbows) and fittings possible.
6. The Waterco pump must be connected to at least two (2) separate suction points in the water via a common line, no less than 600mm apart. Check local codes for proper installation requirements.
7. The spa outlets (pump suction line) should be located as far below the water level as possible to prevent the pump from running dry. Spa inlets should be located well below the water level.
8. If the pump is installed below water level, shut off valves (either Waterco diverter or ball valves) should be installed on both the suction and discharge piping to prevent back flow of pool water during routine servicing of the pump and other circulation equipment.

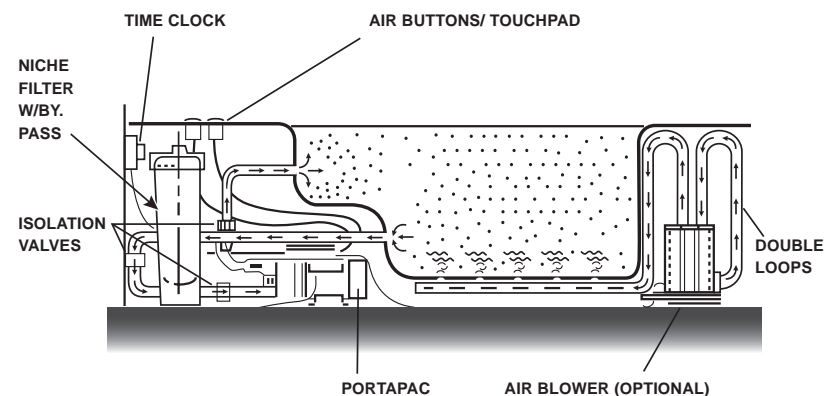


Figure 1

If a blower is installed it is essential that steps are taken to ensure water does not enter the blower. An electrical hazard may result. A double loop fitted prior to the blower is recommended. Consult your blower manual for further details.

INSTALLING THE TEMPERATURE SENSOR

All models of Portapac are packaged with a temperature sensor and sensor housing. The temperature sensor/ probe is an integral part of the operation of the Portapac. If the sensor and its housing are not installed correctly the Portapac will not function properly.

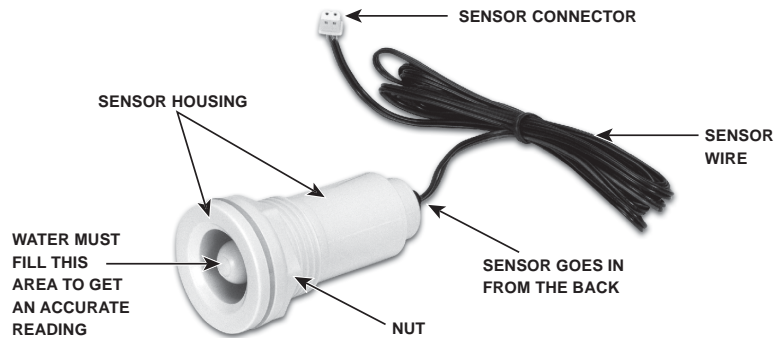


Figure 2: Temperature Sensor and Housing

1. Mark a place for the sensor housing on the wall of the spa, 300mm below the water level where the water flows freely.
2. Cut away a reasonable amount of insulation on the spa to enable access for installation.
3. Drill a 30mm diameter hole in the spa wall.
4. Place the gasket on the sensor housing and insert the housing through the hole in the spa wall. Place the nut on the housing and tighten.
5. Insert the probe into the housing making sure it is pushed all the way in. The result should look similar to that shown in Figure 3.

NOTE: It may be necessary to secure the sensor in the housing. Avoid placing anything on the metal part of the temperature sensor as this will affect the accuracy of the readings.

6. For Portapac Air Switch Models you will need to connect the sensor connector to the side of the Portapac control box. There is only one socket that it will fit in to. The design of the probe connector is such that it will only fit into the socket when you have it the correct way around.

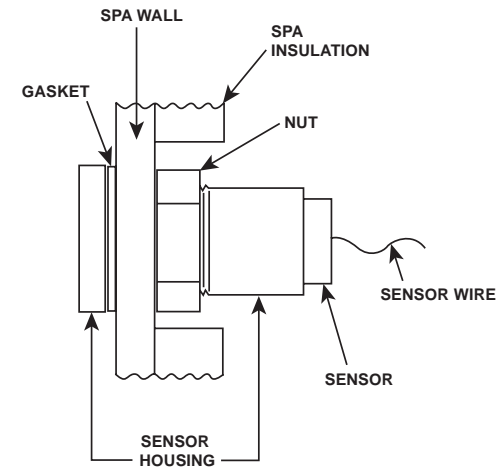


Figure 3 - Side view of installed sensor and housing

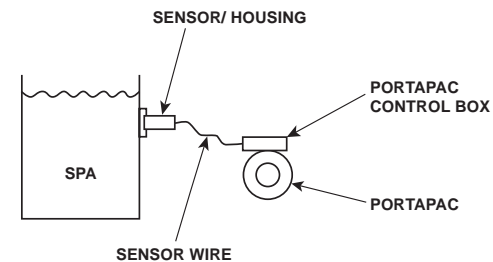


Figure 4

Do not allow the probe wire to touch the ground, metal or the motor of the pump as this can affect the temperature reading. Make sure the probe wire is not bundled up. The result should look similar to that shown in Figure 4.

INSTALLING THE AIR SWITCH

As there are many varieties of Air Switch available for the Portapac, the exact installation of the Air Switch cannot be explained. However, there are a few things to consider for all Air Switches.

1. The Air Switch must be connected to the clear flexible tube supplied with the Portapac.
2. The clear tube must remain free of kinks and blockages.
3. The Air Switch should be no further than 2.8m from the Portapac.

INSTALLING THE TOUCH PAD

These model Portapacs are fitted with a touch pad rather than an air switch to control the system. The Portapac Touch Pad should be located on the ledge of the spa, no further than 1.2m from the Portapac. The hole for the touch pad should be made to 46mm x 101 mm.

OPERATION – AIR SWITCH MODELS

Demand & Demand Elite

MANUAL OPERATION

These Portapacs are controlled by an adjustable thermostat and a four-stage sequential “air switch”. The button for the air switch will most likely be located on the spa coping or timber cabinet.

When switched on at the power supply the Portapac will default into Demand Mode. Demand Mode is also the 4th press of the button.

Fully depress the button and the Portapac will change modes in the following sequence,

1st press is STANDBY Mode.

Power is supplied to the Portapac but the pump, heater and blower are switched off. The power indicator light on the side of the control box on the Portapac will glow.

2nd press is PUMP Mode.

The Pump is switched on. The heater will automatically switch on whenever the spa temperature drops by approximately 2°C below the preset temperature. The preset temperature is set using the dial on the control box of the Portapac.

3rd press is BLOWER Mode.

The blower is switched on and the heater is switched off. The pump remains operational. The heater is switched off to compensate for the extra current drawn (power usage) by the blower. This is commonly called “load shedding”.

4th press is DEMAND Mode.

The blower is switched off. When the spa temperature drops by approximately 2°C both the pump and heater will automatically switch on to heat the spa to the preset temperature. The preset temperature is set using the dial on the control box of the Portapac.

The Demand Mode is best suited for when the spa is not being used. The Demand Cycle will keep the water at the desired temperature 24 hours a day, 7 days a week. In most spa pool applications this is more efficient than letting the water cool to room temperature and then heating it up when you want to use it again.

Note: The use of a spa cover or blanket will help maintain spa temperature and greatly improve the efficiency of the Portapac.



WARNING

Do not run the Portapac dry. Doing so may cause serious damage to the pump and will void the warranty.

OPERATION – TOUCH PAD MODELS

SSC Air 10A & 15A, SSC Boost 10A & 15A, Premium SSC Boost 10A & 15A

THE TOUCH PADS

Please identify your model touch pad from the following.

Portapac SSC Air Models

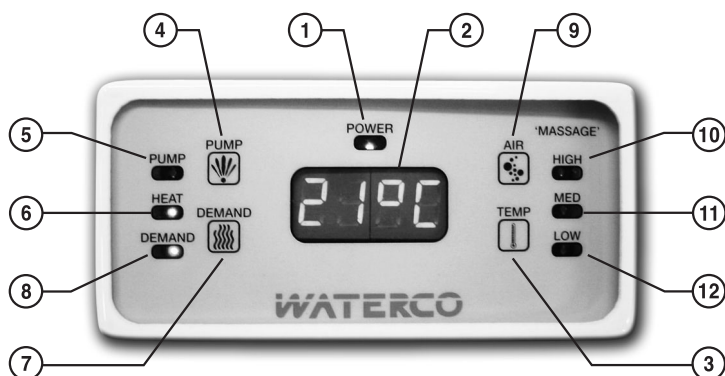


Figure 5: Portapac SSC Air Touch Pad

1. **Power indicator light.** Indicates power is being supplied to the unit.
2. **Digital display.** Displays the Spa Temperature, Desired Temperature and Temperature Bias.
3. **Temperature button.** Adjusts the Desired Temperature and the Temperature Bias.
4. **Pump on/ off button.** Turns Pump Mode on or off.
5. **Pump indicator light.** Indicates Pump Mode is operating.
6. **Heater indicator light.** Indicates the heater is on.
7. **Demand Mode on/ off button.** Turns Demand Mode on or off.
8. **Demand Mode indicator light.** Indicates Demand Mode is operating.
9. **Air on/ off button.** Turns blower on or off.
10. **Air High indicator light.** Indicates blower is operating on high.
11. **Air Medium indicator light.** Indicates blower is operating on medium.
12. **Air Low indicator light.** Indicates blower is operating on low.

Portapac SSC Boost Models

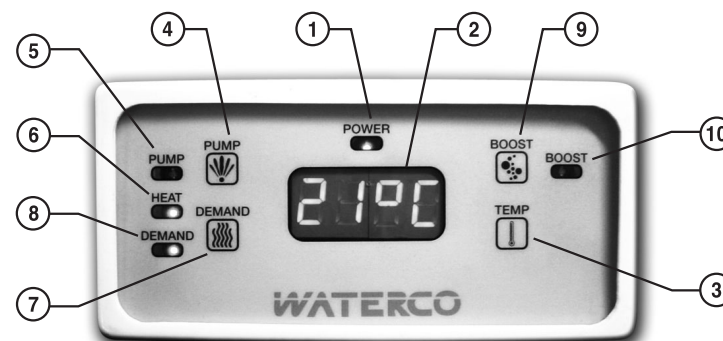


Figure 6: Portapac SSC Boost Touch Pad

1. **Power indicator light.** Indicates power is being supplied to the unit.
2. **Digital display.** Displays the Spa Temperature, Desired Temperature and Temperature Bias.
3. **Temperature button.** Adjusts the Desired Temperature and the Temperature Bias.
4. **Pump on/ off button.** Turns Pump Mode on or off.
5. **Pump indicator light.** Indicates Pump Mode is operating.
6. **Heater indicator light.** Indicates the heater is on.
7. **Demand Mode on/ off button.** Turns Demand Mode on or off.
8. **Demand Mode indicator light.** Indicates Demand Mode is operating.
9. **Boost on/ off button.** Turns ancillary unit (usually a blower or boost pump) on or off.
10. **Boost indicator light.** Indicates ancillary unit is on.

Portapac Premium SSC Boost

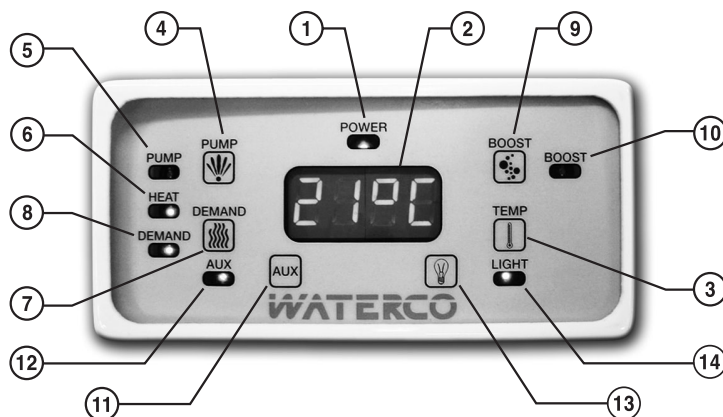


Figure 7: Portapac Premium SSC Boost Touch Pad

1. **Power indicator light.** Indicates power is being supplied to the unit.
2. **Digital display.** Displays the Spa Temperature, Desired Temperature and Temperature Bias.
3. **Temperature button.** Adjusts the Desired Temperature and the Temperature Bias.
4. **Pump on/ off button.** Turns Pump Mode on or off.
5. **Pump indicator light.** Indicates Pump Mode is operating.
6. **Heater indicator light.** Indicates the heater is on.
7. **Demand Mode on/ off button.** Turns Demand Mode on or off.
8. **Demand Mode indicator light.** Indicates Demand Mode is operating.
9. **Boost on/ off button.** Turns ancillary unit (usually a blower or boost pump) on or off.
10. **Boost indicator light.** Indicates ancillary unit is on.
11. **Aux on/ off button.** Turns auxiliary unit on or off.
12. **Aux indicator light.** Indicates the auxiliary unit is operating.
13. **Light on/ off button.** Turns spa light on or off.
14. **Light indicator light.** Indicates the spa light is on.

THE FOLLOWING SECTIONS ARE COMMON TO ALL TOUCHPAD MODELS OF PORTAPAC UNLESS OTHERWISE STATED.

After familiarising yourself with the layout of the touch pad (see previous pages), it is time to set up your spa.

Note: It is always a good idea to be familiar with all the settings available. We suggest that you instruct all the people who will use the spa on how to operate it as well, either by giving them this manual or by showing them yourself.

Reading, understanding and following this guide should lead to trouble free operation of the Portapac SSC Spa Pump.

SWITCHING ON THE PORTAPAC

1. Fill the spa with water.
2. Untangle the Portapac's electrical cord, plug it into the electrical power supply and switch it on. DO NOT bundle excess cord in the pump compartment. Overheating of the cord may result, which could damage the equipment. The cord should be carefully located and protected to prevent personal injury or accidental damage.
3. The touch pad Power Indicator Light (1) will turn on and one of the following will occur (refer to "Loss of Power" on page 19),
 - a. The Digital Display (2) will remain blank and nothing else will happen, or,
 - b. The Portapac will start running in Demand Mode and the Spa Temperature will be displayed on the Digital Display (2).
4. The Portapac is ready for operation. Refer to "USING THE TOUCH PAD" on Page 14 for details on operating the Portapac.

In the interests of personal health, it is advised that no person should stay in the warm spa for more than twenty (20) minutes at a time.

Every once in a while it is a good idea to check that the temperature displayed on the Digital Display (2) is the same as the water temperature when measured with a thermometer. If the temperatures differ, the Temperature Bias must be altered. To do this, please refer to "Calibrating the Portapac's Temperature" on Page 17.

If you come across a screen that says SP1 or SP2, press the Demand button a few times until the Digital Display (2) goes blank. These two settings are used for adjusting air blower speed and are factory set. DO NOT change them.



WARNING

Do not run the Portapac dry. Doing so may cause serious damage to the pump and may void the warranty.

USING THE TOUCH PAD

The Portapac can switch between Pump Mode, Demand Mode, Boost Mode (Boost and Premium Boost Models only) and Air Mode (Air Models only) at any desired time. When any mode of the Portapac is active the water temperature will be displayed on the Digital Display (2), except when you are altering the Desired Temperature or the Temperature Bias. To deactivate a mode when it is operating, simply press the respective on/ off button. When all modes of Portapac operation are disabled the Digital Display (2) on the touch pad will be blank.

Pump Mode and Indicator Light

Press the Pump Button (4) at any time to activate/ deactivate the Pump Mode. The PUMP Indicator Light (5) will glow if the Pump Mode is active. After twenty (20) seconds, the heater and its indicator light (6) will switch on automatically if the water temperature is lower than the Desired Temperature (refer to "Changing the Desired Temperature" on Page 17). The heater and its indicator light (6) will switch off once the Desired Temperature is reached.

If the Portapac is left to run continuously in Pump Mode for thirty (30) minutes, the Portapac will revert to Demand Mode.

Premium SSC Boost Models Only: If a UV Light or Ozonator is connected to the Portapac (in the correct GPO), it will switch on when the pump is switched on. Note that the maximum current that can be drawn from this GPO is 0.5 Amps.

Demand Mode and Indicator Light

Pressing the Demand Button (7) will turn the Demand Mode on/off. While the Portapac is in Demand Mode, the DEMAND Indicator Light (8) will glow. The Demand Mode is best suited for when the spa is not being used. The Demand Cycle will keep the water at the Desired Temperature 24 hours a day, 7 days a week. In most spa pool applications this is more efficient than letting the water cool to room temperature and then heating it up when you want to use it again.

When this mode is selected, the pump, heater and the heater indicator light (6) will operate automatically until the water has reached the Desired Temperature. Once this temperature is reached, the pump and heater will switch off until the water falls by one (1) to two (2) °C, at which point the pump and heater will switch on again. The Demand Indicator Light (8) will glow regardless of whether the pump and heater are operating or not.

Premium SSC Boost Models Only: If a UV Light or Ozonator is connected to the Portapac (in the correct GPO), it will switch on when the pump is switched on. Note that the maximum current that can be drawn from this GPO is 0.5 Amps.

Air Mode and Indicator Light SSC Air Models Only

To activate Air Mode, or to cycle between different types of Air Mode, press the Air Button (9). The different types of Air Mode can be activated as follows,

Note: The pump will be switched on and the heater will be switched off when the Air Mode is activated.

1st Press: Turns the Blower on and the Heater off. The Blower will activate at the high speed setting and the High Indicator Light (10) will glow.

2nd Press: Switches the Blower to Med setting. The Med Indicator Light (11) will glow.

3rd Press: Switches the Blower to Low setting. The Low Indicator Light (12) will glow.

4th Press: Switches the Blower to Massage setting. The Blower speed will gently cycle between High and Low settings creating a massage effect. The Low Indicator Light (12) will glow and the High Indicator Light (10) will blink in this mode.

5th Press: Switches the Air Mode off.

After running the Portapac in Air Mode continuously for thirty (30) minutes the Air Mode will be deactivated and the Portapac will revert to Demand Mode.

If you come across a screen that says SP1 or SP2, press the Demand button a few times until the Digital Display (2) goes blank. These two settings are used for adjusting air blower speed and are factory set. DO NOT change them.



WARNING

Do not connect a pump to this outlet. Damage to the pump or Portapac control circuitry may result.

Boost Mode and Indicator Light SSC Boost & Premium SSC Boost Models Only

To switch on/ off a blower or a secondary pump (if attached) press the Boost Button (9). The BOOST Indicator Light (10) will glow if activated.

Note: The pump will be switched on and the heater will be switched off when the Boost Mode is activated.

After running the Portapac in Boost Mode continuously for thirty (30) minutes the Boost Mode will be deactivated and the Portapac will revert to Demand Mode.

Auxiliary Button and Indicator Light Premium SSC Boost Models Only

Press the AUX Button (11) to switch on/ off an auxiliary device, such as a radio, that is plugged into the Portapac. The AUX Indicator Light (12) will glow when the device is on.

If the Pump or Demand Modes are operating and Aux is activated the heater will cut out. If Pump or Demand Modes are in operation and both Aux and Boost are activated, the heater, pump and sanitiser will cut out. After 30 minutes the pump will switch on, Aux will remain active and the heater will switch off.

Light Button and Indicator Light Premium SSC Boost Models Only

Press the Light Button (13) to switch on/ off the spa light. The Light Indicator Light (14) will glow when the device is switched on.

Temperature Button and Digital Display

The Temperature Button (3) allows you to change the Desired Temperature (ranging from 10°C to 40°C) and the Temperature Bias (-5°C to +5°C) of the Portapac. The Desired Temperature is the temperature at which the heater will maintain the water while in operation. Calibrating the Temperature Bias ensures the displayed temperature on the Digital Display (2) of the touch pad will be the same as the actual water temperature when measured with a thermometer.

Viewing the Desired Temperature

Press the Temperature Button (3) once and the Desired Temperature will flash on the Digital Display (2) on the touch pad. After five (5) seconds the Spa Temperature will be displayed again.

Changing the Desired Temperature

View the Desired Temperature (see above). While the display is flashing, pressing the Temperature Button (3) will increment the Desired Temperature by one (1) °C at a time until it reaches 40°C. At this point the display will reset to 10°C and the display will continue to count upwards.

Note: If you hold down the Temperature Button (3), the display will continuously count upwards until you let go of the button.

Calibrating the Portapac's Temperature

The following steps explain the simplest way of calibrating the Portapac.

1. Run the Portapac in Demand mode until the temperature displayed on the Digital Display (2) of the touch pad is the same as the Desired Temperature.
2. Using a thermometer, take the water temperature and compare your reading with that on the display. Take note of the Desired Temperature and the Thermometer Temperature.

3. If the temperatures are not the same, alter the Temperature Bias as follows,

- a. Switch off the Demand Mode by pressing the Demand Button (7). Make sure all other modes are switched off as well. Only the Power Indicator Light (1) should be lit. The Digital Display (2) should be blank.
- b. Determine the Temperature Bias that will give the correct Displayed Temperature.

Example 1: Displayed Temperature 40°C
Thermometer Temperature 36°C
Existing Bias needs to be reduced by 4°C

Example 2: Displayed Temperature 40°C
Thermometer Temperature 42°C
Existing Bias needs to be increased by 2°C.

Read through the next steps once before trying it out on the Portapac.

- c. Press and hold the Temperature Button (3) for ten (10) seconds. The Existing Temperature Bias will blink on the Digital Display (2).
- d. Adjust the Temperature Bias to suit.

Example 1 (cont): If the existing bias is 0°C
The new bias should be -4°C

Example 2 (cont): If the existing bias is -3°C
The new bias should be -1°C

Press the Temperature Button (3) to increment the Temperature Bias by one (1) °C at a time. If at the bias point of (+) 5°C the button is pressed again the Temperature Bias will drop back to minus (-) 5°C. **If the Temperature Button is not pressed for ten (10) seconds the display will go blank and normal operation may resume.** Alternatively, to exit the Temperature Bias setting mode, press the Demand Button (8) three (3) times.

- e. To check the bias setting, press the Demand Button (8) and check that the displayed temperature on the Digital Display (2) is the same as the thermometer temperature. If the temperatures are not the same, repeat the process.

Note: If you come across a screen that says SP1 or SP2, press the Demand button a few times until the Digital Display (2) goes blank. These two settings are used for adjusting air blower speed and are factory set. They should not be changed.

Loss of Power

If the power supply to the Portapac is lost, either by disconnecting it from the power supply or from a "blackout", when power is restored the Portapac will operate as follows,

1. **Portapac was powered but no devices were running.** The Portapac will start up as it was before losing power.
2. **Portapac was in operation (e.g. in Pump, Demand Modes etc.).** The Portapac will start up in Demand Mode.

EMPTYING THE SPA

If you intend emptying the water from the spa, disconnect the Portapac from the power supply (e.g. at the wall socket) to ensure the Portapac will not be accidentally switched on while the spa is empty. If the Portapac is run without water in the spa, serious damage or injury may result.

OVER-TEMPERATURE DEVICE (45°C)

The Over-Temperature device is a safety mechanism that ensures the water in the spa will not rise above 45°C. If, for any reason, the water inside the Portapac reaches 45°C, the Over-Temperature device will automatically shut down the Portapac and the Power Indicator Light (1) will begin blinking. If this occurs, the cause of the problem must be fixed (refer to Troubleshooting on page 21). Once the problem is resolved, you must press the small RESET button located on the control box on top of the Portapac. This should be done whilst the power to the Portapac is off and should only be done after the water in the Portapac has cooled below 45°C. After a short delay the Portapac will be ready for operation again. If the problem has not been resolved, the Over-Temperature device will automatically shut down the Portapac again.

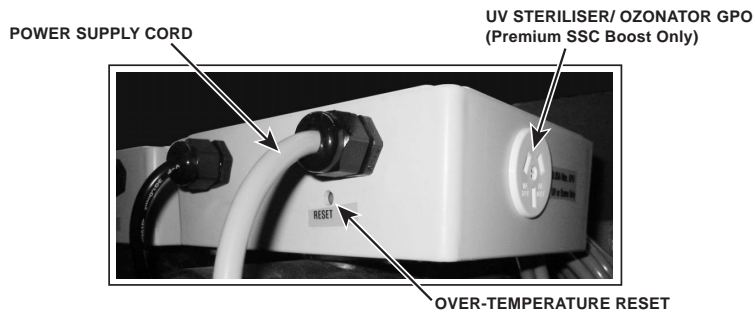


Figure 8: Portapac Control Box



This safety device indicates a significant fault in the spa system and should not be ignored or tampered with.

WATER CHEMISTRY

All Waterco Limited portable spa and bath pumps have been designed to withstand the harsh environments of spa or bath systems. Non corrosive (non metallic) materials are used extensively, however metal parts are used in the heater element.

The heater element can be damaged due to incorrect chemical balance of the spa water. It is very important to maintain the chemical balance of your spa. By doing so you will help prevent corrosion of the heater element and ensure a long, trouble free life.

The chemical balance of water is a relationship between its pH, total alkalinity, calcium hardness and water temperature. Testing kits are available to test water yourself or alternatively a professional pool and spa shop can test your water to ensure that it is chemically balanced in accordance with the Langelier saturation index.

Chlorine levels should not exceed **5.0ppm** and have an ideal range of between **1.5ppm & 3.0ppm**. It is recommended that in water that exceeds 30°C, you should use bromine as an effective sanitizer with a similar concentration to chlorine.

High levels of chlorine, bromine and ozone may corrode the heater element and stainless steel components as well as the pump mechanical seal.

Extremely hard water above 300ppm of calcium with a high pH level can cause scaling of the heater element. This will cause a reduction in heating efficiency.

NEVER ADD CHEMICALS TO YOUR SPA VIA YOUR SKIMMER BOX.

When adding chemicals always mix them into a bucket of water and evenly disperse the mixture over the spa surface.

The water must be maintained at all times to the following

pH Level	7.2 - 7.8
Total Alkalinity	80 - 150 ppm
Calcium Hardness	150 - 300 ppm
Langelier Saturation Index	-0.2 to +0.2

Failure to meet these requirements may void the warranty.



WARNING

KEEP CHEMICALS OUT OF REACH OF CHILDREN.

TROUBLESHOOTING

The spa pump should only be serviced by qualified service technicians. However, some problems can be checked and rectified by the owner before making a service call.

FAULT	POSSIBLE CAUSE	ACTION
Portapac will not run	No power	Check the flexible electrical supply cord is plugged in and not damaged.
	Blown fuse	Check the power circuit fuse or circuit breaker has not blown or tripped.
	RCD tripped	Reset RCD.
	Pump impeller jammed	Call service.
	Motor burnt out	A strong smell of plastic will be present if burnt out. Call service.
	Air switch	Check air tube is connected and not blocked/ kinked (air switch models only).
	Touch pad	Check electronic touch pad is connected to Portapac (touch pad models only). If not, call service.
	Over-Temperature Device tripped.	See " Over-Temperature Device tripped " below.
Constantly Flashing Heater Indicator Light (touch pad models)	Over-Temperature Sensor not properly connected.	Call service to check Over-Temperature Sensor connections.
Over-Temperature Device tripped (touch pad power indicator light will blink on touch pad models)	Water inside Portapac reached, and stayed at, 45°C (spa water still cold)	Check for and remove blockages in the filter and pipe-work. Call service to check for blockages in the impeller. Press Over-Temperature RESET.
	Water in spa reached 45°C (touch pad shows lower temperature)	Properly secure sensor in housing (refer to " Installing the Temperature Sensor "). Press Over-Temperature RESET. Touch pad models-Recheck Temperature Bias (refer to " Calibrating the Portapac's Temperature "). Press Over-Temperature RESET.

FAULT (cont)	POSSIBLE CAUSE (cont)	ACTION (cont)
Over-Temperature Device tripped shortly after power-up	Over-Temperature Sensor not connected or faulty	Call service to connect or replace.
Touch pad display shows 00	Temperature Sensor not connected.	Call service to connect the sensor.
	Temperature Sensor faulty.	Call service to replace the Temperature Sensor.
Heater will not operate	Water level too low	Add water to operate pressure switch.
	Faulty element	Call service.
Water temp too low	Thermostat setting too low (does not apply to touch pad models)	Rotate clockwise to increase temp.
	Touch pad desired temp too low	Increase the desired temp.
	Temperature sensor not operating correctly	Properly secure sensor in housing (refer to "Installing the Temperature Sensor"). Call service to replace if sensor is faulty.
	Faulty element or switch	Call service.
Water temp too high	Incorrect Temperature Bias setting - Touch pad models only	Change the Temperature Bias (refer to "Calibrating the Portapac's Temperature").
	Temperature Sensor not operating correctly	Properly secure sensor in housing (refer to "Installing the Temperature Sensor"). Air switch models - Plug Temp Sensor into side of control box or replace if faulty. Touch pad models - Call service to connect the sensor or replace.
Blower will not start	No power	Check the flexible electrical cable is plugged in and not damaged. Plug another device into the blower power supply and turn on to check power point (eg radio or light).
	Motor burnt out	Check if water has entered the blower. If so, call service.



WARNING

If the Waterco Limited Product is within the stated warranty period and you experience faults always contact your supplier or the nearest Waterco Limited branch for advice. Failure to do this may void the warranty. Refer to Warranty Terms and Conditions supplied with the pump.

All electrical work is to be carried out by an Authorised Electrician. Under no circumstances should you attempt repairs on the electrical components of Waterco Limited products unless you are qualified to do so.

TECHNICAL SPECIFICATIONS

Model	Max. Amps	Pump HP	Heater kW	Boost/ Air Max. kW	Aux Max. kW	Operating Temp °C
Demand	10	1	1.6	1.6	X	20 - 40
Demand Elite	15	1.5	2.4	2.4	X	20 - 40
SSC Air						
10A	10	1	1.6	1.6	X	10 - 40
15A	15	1.5	2.4	2.4	X	10 - 40
SSC Boost						
10A	10	1	1.6	1.6	X	10 - 40
15A	15	1.5	2.4	2.4	X	10 - 40
Premium SSC Boost						
10A	10	1	1.6	1.6	1.6	10 - 40
15A	15	1.5	2.4	2.4	2.4	10 - 40

If the water temperature is below the operating temperature of the Portapac, the Portapac will run in Demand Mode until the set temperature is reached.