

WATER PRO PRODUCTS

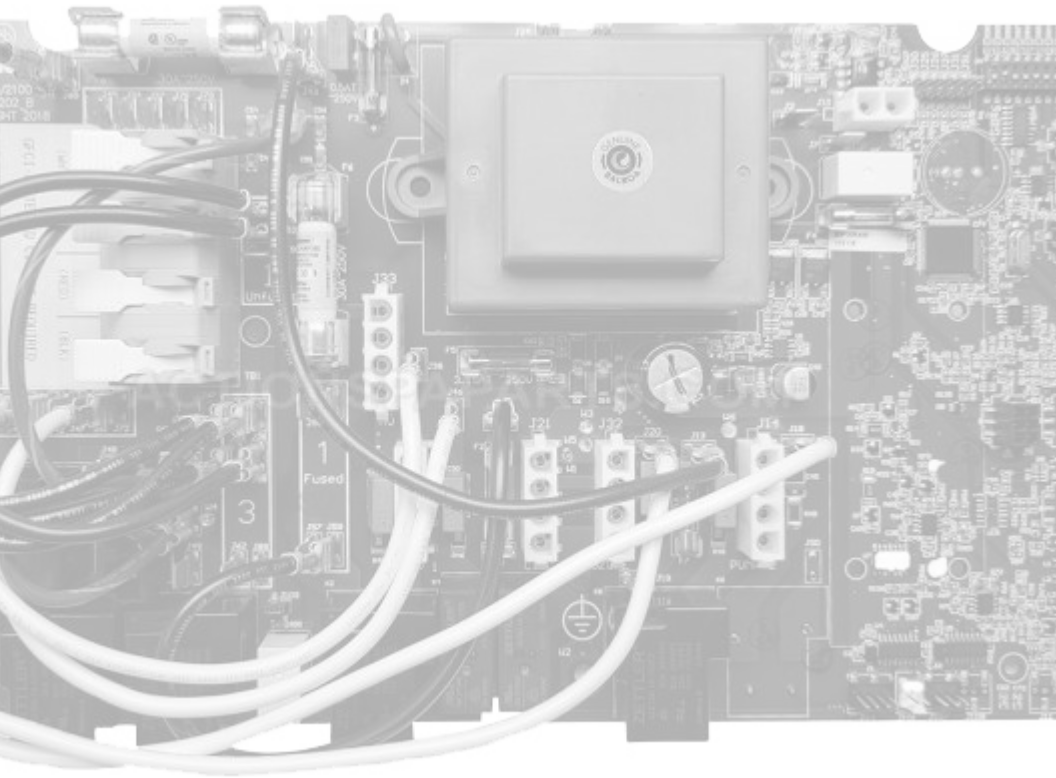
by **HYDROQUIP™**

BP7 PRINTED CIRCUIT BOARD REPLACEMENT INSTRUCTIONS

Tools Needed:

Screwdriver - Slotted
Screwdriver - Phillips
Multi-Meter/Voltmeter
Large Channel Locks

Needle Nose Pliers
Wire Cutters
Digital Camera/Phone
Patience(optional)



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BP7 SERIES CIRCUIT BOARD REPLACEMENT

Thank you for purchasing your circuit board from Hydro-Quip. Explore our full range of spa and hot tub replacement parts and accessories at www.hydroquip.com.

Follow these step-by-step instructions to install your new circuit board.

Portable Spa Printed Circuit Board Replacement

This Instruction sheet pertains to all makes and models of Printed Circuit Boards (PCB's) used in Portable Spas.

Included with your PCB you will find all the support material specific to your make and model with further details for the replacement as well as the specifics to properly configure and/or program your specific model.

Important Safety Notice: If you are not comfortable using hand tools and a multi-meter, STOP and engage a qualified spa service technician to perform this installation.

NEVER WORK ON A LIVE CIRCUIT – ENSURE ALL POWER TO THE SPA/HOT TUB IS DISCONNECTED

You will need the following before you begin:

Digital camera or cell phone to document wire, jumper, plug and terminal placement

Multi-Meter/Voltmeter to perform basic voltage measurements

Large channel locks or medium sized pipe wrench to loosen heater union nuts for control removal

Medium Philips screwdriver for PCB mounting screws (see illustration)

Medium and large straight blade screwdriver to disconnect incoming power (see illustration)

Medium needle nose pliers for removal of wire terminals

Tape and pen to label each wire before removal

NOTE: While the replacement of the PCB can be accomplished with the control box under the spa/hot tub, the replacement is most easily performed with the control box removed and serviced on a flat working surface with good light.

Portable Spa Printed Circuit Board Replacement

Disconnect Power

1. Turn off all supply breakers and/or the GFCI disconnect
2. All lights, panels and displays should be off
3. Verify Power is Off
4. Use a Multi-meter to confirm zero voltage at the terminal block inside the spa control box
5. Remove the front cover of the control box to expose the circuit board
6. It is a good idea to label each wire or plug that you disconnect BEFORE you unplug any components.
7. Once you have the wires labeled, using a digital camera or cell phone, take photos from multiple angles before you unplug any wires or components.

Removal the Original PCB

1. With power OFF, first disconnect the power wires from the input Terminal Block
2. Unplug all other components:
 - Topside control
 - Pumps
 - Blower & ozone (if installed)
 - Sensors
 - Any other auxiliary equipment

DO NOT remove any jumpers or change the position of any of the Dip Switches on the PCB

Heater connections (**DO NOT** Disconnect terminals on the heating element, special tools are required)

Refer to the "Terminal and Mounting Screw Identification Sheet" included with your PCB and remove each mounting screw noting the location of each screw lengths

Once all the screws, wires and plugs have been disconnected or removed, carefully remove the board from the control box.

Note: The PCB will remove easily, if it offers resistance, STOP and locate the screw you missed.

Jumpers & Dip Switches: While you have both the old and new PCB's in front of you, now is the best time to assure that the dip switches on the new board are the same as the old PCB. If dip switch changes are made with power on, the power would have to be reset to accept changes made.

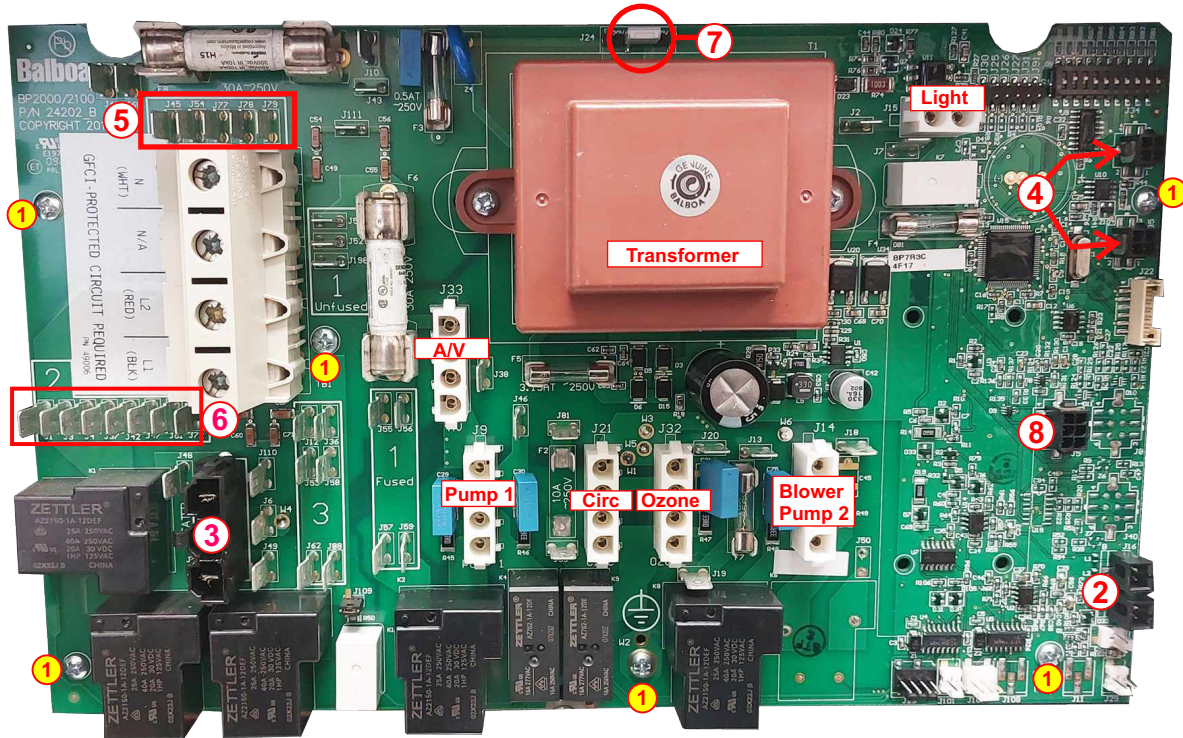
Install the New Board by reversing the above steps

Refer to your photos and/or tagged wires to confirm correct placement

Ensure wiring matches the original setup

Configuration and Programming Details are located on "PCB Configuration and Programming Sheet"

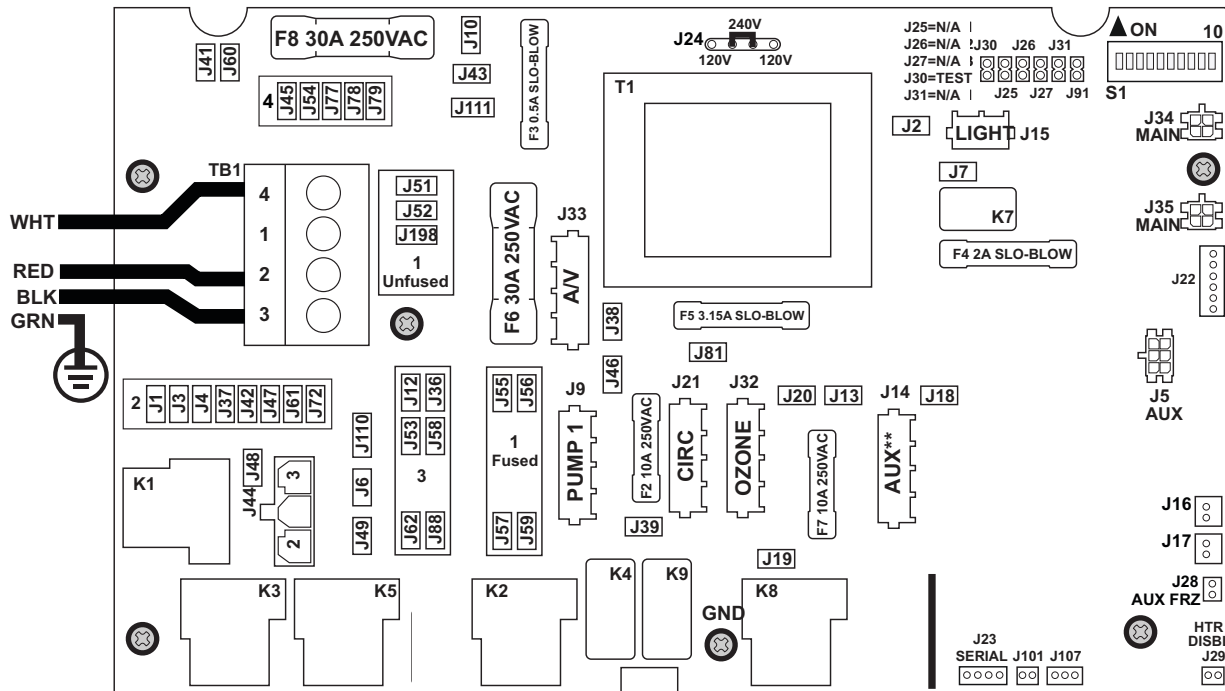
BP7 CIRCUIT BOARD LAYOUT



- ① Mounting Screws
- ② M7 Sensor Plugs
- ③ Heater Connection
- ④ Main Spaside Connections

- ⑤ Neutral Bank 120V(Area 4)
- ⑥ Line 2 Bank 240V(Area 2)
- ⑦ Voltage Conversion Jumpers
- ⑧ Aux Spaside Connection

BP7 CIRCUIT BOARD DIAGRAM AND DIP SETTINGS



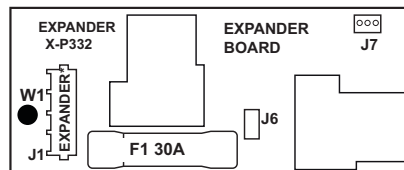
DIP SWITCH SETTINGS

SWITCHBANK S1 OFF

SWITCHBANK S1 ON

TEST MODE OFF	◀ A1	TEST MODE ON
DON'T ADD 1 HS PUMP W/HTR	A2 ▶	ADD 1 HS PUMP WITH HEAT
DON'T ADD 2 HS PUMPS W/HTR	◀ A3	ADD 2 HS PUMPS WITH HEAT
DON'T ADD 4 HS PUMPS W/HTR	◀ A4	ADD 4 HS PUMPS WITH HEAT
SPECIAL AMPERAGE RULE A	◀ A5	SPECIAL AMPERAGE RULE B
STORE SETTINGS**	◀ A6	MEMORY RESET**
1 MIN HTR COOLDOWN (ELEC)	◀ A7	5 MIN HTR COOLDOWN (GAS)
NOT ASSIGNED	◀ A8	NOT ASSIGNED
NOT ASSIGNED	◀ A9	NOT ASSIGNED
NOT ASSIGNED	◀ A10	NOT ASSIGNED

EXPANDER BOARD



BP7 CIRCUIT BOARD SETUP NUMBERS

Setup Reference Table for Setups 1-32

Setup #	Circ Pump	Pump 1	Pump 2	Pump 3	Pump 4	Blower	MicroSilk®	Temp Scale
1	Programmable Filtration + Polling	2-Speed	2-Speed	None	None	1-Speed	None	°F
2	Programmable Filtration + Polling	2-Speed	1-Speed	None	None	1-Speed	None	°F
3	Programmable Filtration + Polling	1-Speed	1-Speed	None	None	1-Speed	None	°F
4	Programmable Filtration + Polling	2-Speed	None	None	None	1-Speed	None	°F
5	Programmable Filtration + Polling	1-Speed	None	None	None	1-Speed	None	°F
6	None	2-Speed	2-Speed	None	None	1-Speed	None	°F
7	None	2-Speed	1-Speed	None	None	1-Speed	None	°F
8	None	2-Speed	None	None	None	1-Speed	None	°F
9	Programmable Filtration + Polling	2-Speed	2-Speed	1-Speed	None	None	None	°F
10	Programmable Filtration + Polling	2-Speed	1-Speed	1-Speed	None	None	None	°F
11	Programmable Filtration + Polling	1-Speed	1-Speed	1-Speed	None	None	None	°F
12	Programmable Filtration + Polling	2-Speed	2-Speed	None	None	None	None	°F
13	Programmable Filtration + Polling	2-Speed	1-Speed	None	None	None	None	°F
14	Programmable Filtration + Polling	1-Speed	1-Speed	None	None	None	None	°F
15	Programmable Filtration + Polling	2-Speed	None	None	None	None	None	°F
16	Programmable Filtration + Polling	1-Speed	None	None	None	None	None	°F

Setup #	Circ Pump	Pump 1	Pump 2	Pump 3	Pump 4	Blower	MicroSilk®	Temp Scale
17	None	2-Speed	2-Speed	1-Speed	None	None	None	°F
18	None	2-Speed	1-Speed	1-Speed	None	None	None	°F
19	None	2-Speed	2-Speed	None	None	None	None	°F
20	None	2-Speed	1-Speed	None	None	None	None	°F
21	None	2-Speed	None	None	None	None	None	°F
22	Programmable Filtration + Polling	2-Speed	2-Speed	None	None	None	1-Speed	°F
23	Programmable Filtration + Polling	2-Speed	1-Speed	None	None	None	1-Speed	°F
24	Programmable Filtration + Polling	1-Speed	1-Speed	None	None	None	1-Speed	°F
25	Programmable Filtration + Polling	2-Speed	None	None	None	None	1-Speed	°F
26	Programmable Filtration + Polling	1-Speed	None	None	None	None	1-Speed	°F
27	None	2-Speed	2-Speed	None	None	None	1-Speed	°F
28	None	2-Speed	1-Speed	None	None	None	1-Speed	°F
29	None	2-Speed	None	None	None	None	1-Speed	°F
30	Programmable Filtration + Polling	2-Speed	1-Speed	1-Speed	1-Speed	None	None	°F
31	Programmable Filtration + Polling	1-Speed	1-Speed	1-Speed	1-Speed	None	None	°F
32	None	2-Speed	1-Speed	1-Speed	1-Speed	None	None	°F

Color Key	Output
	XP332 - Expander Board
	XP332 and Splitter
	J14 (Aux) on Main Board

PCB CONFIGURATION AND PROGRAMMING

The first step in programming the Setup numbers regardless of spaside being used is to move dip switch #1 to ON. With system on or off move DIP Switch 1 (on S1 bank on the Main circuit board) to ON(up). The system will then enter Test Mode.

Moving dip switch 1 to Off will exit Test Mode.

Under the TEST Menu, the Setup screen will allow changing the Setup from 1 to any number established by the Manufacturer.

NOTE: Changing the Setup may require wiring changes as well - refer to the wiring diagram or wiring diagram addendum.

As soon as Switch #1 is placed in the ON position, the temperature will show "T" after it instead of F or C, indicating the System is in Test Mode

- Key:**
- Indicates Flashing or Changing Segment
 - ⌄ A temperature button, used for "Action"
 - ☀ Light or dedicated "Choose" button, depending on control panel configuration

TP600 / TP400 / TP200 Programming Procedure

Main Screen

While the Set Temperature is still flashing, press Light TEST will now appear in the LCD first.

The System will reset and go into Priming Mode if the Light Button is pressed while anything other than the current setup is flashing. If there is no change to the Setup Number (S-01, S-02, etc.), the display returns to the SETP screen.

Once correct Setup# is set, press the Light button to "lock in"

TP500 Programming Procedure

Main Screen

Press Menu/Select ≡ button "TEST" will appear

Press Menu/Select the system will reset and go into priming mode

If the Control Panel does not have a Warm(UP) button, but rather a single Temp button, use the Temp button in place of the Warm button.

TP700 Programming Procedure

Accessing Set Up menu on TP700:

Once in Test Mode, from Home Screen, press the "Right" navigation button get to Main menu, locate and select the Test Icon to enter the Setup Menu, then you can change the Setup number to match your preferred configuration.

Home Screen

Main Menu

Test Menu

Setup Menu

TP800 / TP900 Programming Procedure

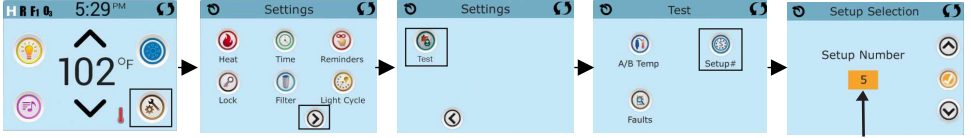
Change Setup # to correct setting.

Note: The Timeouts and Temp Limit selections should NEVER be changed. They are for safety agency testing purposes only.

PCB CONFIGURATION AND PROGRAMMING Cont'd

spaTouch and Icon Driven Menus Programming Procedure

While in Test Mode, press the indicated icons to move from screen to screen.



Once on the Setup Selection screen, press the Up or Down icon to select the desired Setup Number, then press the Check Mark icon to confirm and to have the spa restart.

BP Platform Upgrades and Products Available

Water Pro Ozonators



UV Sanitizers



Spa Touch™ (touch screen) Spaside Controls



Spa Touch™ 2



Spa Touch™ mini



Spa Touch™ 3



Spa Touch™ 4



Spa Touch™ 4+

Control My Spa Wi-Fi Kit



Water Pro LED Lighting



Water Pro BP7 Series Retro-Kits*



Low Flow Heater Series



Slide Heater Series



Fixed Heater Series

*BP100 Series Available also

For more information on these products and many more, go to: www.hydroquip.com



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