BP6013G3 Tech Sheet

Customer: **Balboa Water Group**

Part Number:	59259	825 Incoloy 3.0kW
	59390	825 Incoloy 3.0kW "3S" heater
	56834-03	Titanium 3.0kW

Custom Box Overlay ☐

Box Overlay Part Number N/A

CE System Model For 3.0kW: BP21-BP6013G3-RCA3.0K

Software Version ID: M100_226 V43.0

Software Version: 43.0

File Name: BP6013_43.0_BP6013G3.hex

Configuration Signature: C36EF137

Eng. Project Number: 5302

Control Panels:

spaTouch™2	Any version (version 2.0 or later required for bba™2 fully integrated functionality; version 2.19 or later required for CHROMAZON3™ support)
Icon spaTouch™	Any version (version 3.36 or later required for bba™2 fully integrated functionality)
Menued spaTouch™	Any version (version 2.8 or later required for bba™2 integrated functionality)
TP900	Version 3.1 and later (Version 3.13 or later required for bba™)
TP800	Version 3.1 and later (Version 3.13 or later required for bba™; version 4.11 or later required for bba™2 integrated functionality)
TP600	Version 2.7 and later (Version 2.12 or later required for bba™/bba™2 On/Off control via menu)

System Revision History

Part #	EPN	Date	Originator	Changes Made
ZT000254	4697	05-01-16	BWG	BP6013 system with expander board and splitter + fused adapter.
56833 56834	4697	05-10-16	BWG	Release to production.
56833-01 56834-01	4776	10-26-16	BWG	Updated to latest software version, adding topside-intergrated bba™2 support. Released to production.
56833-02 56834-02	4890	05-31-17	BWG	Updated to latest software version, adding bba™/bba™2 On/Off support to TP600/TP400 Menus. Also corrections to wiring diagram. Released to production.
56833-03 56834-03	5098	11-26-18	BWG	Redesigned BP6013 board. + updated software to support CHROMAZON3™ & M8.
59259	N/A	06-17-19	BWG	Add 3.0kW 825 Incoloy system PN.
59392	5302	11-26-19	BWG	Add 3.0kW 825 Incoloy "3S" system PN. 800 Incoloy system PN 56833-XX discontinued.

bba™ & bba™2 (Balboa Bluetooth Amp) connection is documented seperately.

bba™ is integrated into graphic display panels (TP800, TP900 and spaTouch™). With TP600/TP400, use the "BT" entry on the menu to toggle bba™ power On/Off.

bba™2 is integrated into graphic display panels (TP800, TP900 and spaTouch™). With TP600/TP400, use the "BT" entry on the menu to toggle bba™2 power On/Off.

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water group

Basic Functions Setup 1-9

Power Requirements:

Single Service [3 wires (line, neutral, ground)]
230VAC, 50/60Hz*, 1þ, 32A, (Circuit Breaker rating = 40A max.)

Dual Service N/A

3-Service [5 wires (line 1, line 2, line 3, neutral, ground)]
230VAC line-to-neutral**, 50/60Hz*, 3þ, 16A, (Circuit Breaker rating = 20A max each phase line.)

> **HiPot Testing Note:**
> Disconnect slip terminal with green wires from J11 prior to performing HiPot test. Failure to disconnect may cause a false failure of the test. Reconnect terminal to J11 after successful completion of HiPot test.

* BP systems automatically detect 50Hz vs 60Hz. However, power frequency (50Hz vs 60Hz) is just one of many differences between North American (UL) and CE power, and it is because of these other differences that different BP systems must be used for UL vs CE territories. Also, there are a few countries that use CE power but 60 Hz (such as South Korea) which need CE systems, and a few countries that use UL power but 50 Hz which need UL systems.

** 3-phase service measured line-to-line will read about 400V, but BP systems do not use it line-to-line.

IMPORTANT - Service must include a neutral wire, with a line to neutral voltage of 230VAC.

Notes regarding DIP switch A5 in 1x32A service:

By default, A5 is configured to be ON in 1x32A service, because when running 3 pumps of 12A max each, only 2 of them can be on high-speed at a time.

DIP switch A5 has no effect in any Setups other than those which have 3 pumps.

If the 3 pumps are 9A each and no blower is used, then switch A5 can definintely be turned OFF. Between 9A and 10.5A, it depends on whether a circ pump is being used and whether A/V is being used whether DIP switch A5 needs to be ON or can be turned OFF.

If the 3 pumps are 8A each plus a blower is used, then switch A5 can definintely be turned OFF. Between 8A and 9A, it depends on whether a circ pump is being used and whether A/V is being used whether DIP switch A5 needs to be ON or can be turned OFF.

Ie, you have to add up the amperages of all the 230V equipment (including the circ pump if any, the ozone if any, and A/V if any) and make sure it is no more than 32A if you want to turn DIP switch A5 OFF.

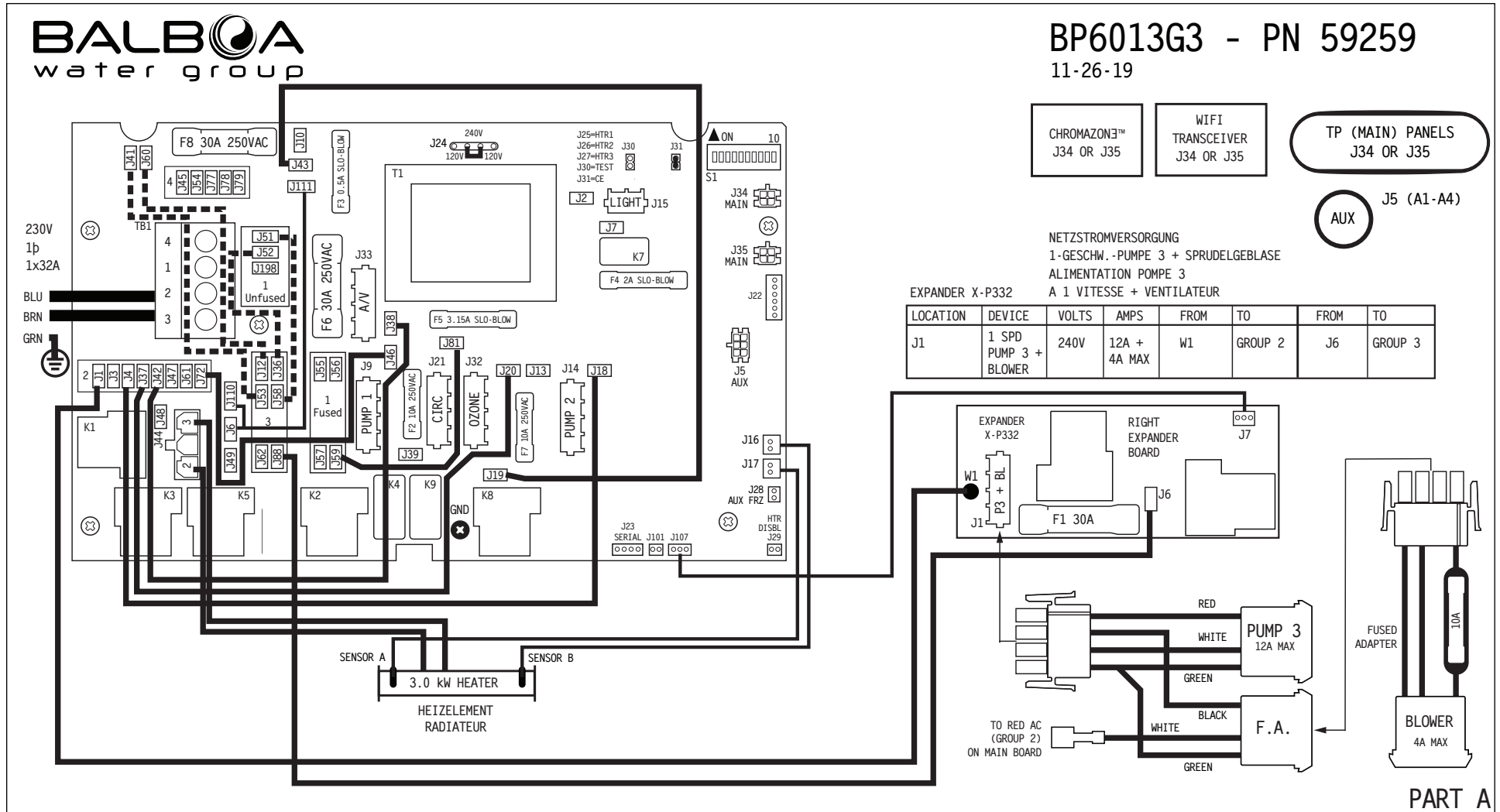BALBOA
water group

Basic Functions Setup 1-9

System Ouputs:

Pump 1   230VAC   2-Speed   12A max   15-minute timer (30-minute timer for P1 Low in non-circ setups only)
1-Speed in Setups in Setups 4 - 6
This is the heater pump in Setups 7 - 9.
Must deliver 20 GPM through heater

Pump 2   230VAC   1-Speed   12A max   15-minute timer

Pump 3   230VAC   1-Speed   12A max   15-minute timer
Used in Setups 1, 2, 4, 5, 7 & 8

Blower   230VAC   1-Speed   4A max   15-minute timer
Used in Setups 1, 3, 4, 6, 7 & 9

Circ Pump   230VAC   1-Speed   2A max   Programmable Filtration Cycles + Polling
This is the heater pump in Setups 1 - 6.
Must deliver 20 GPM through heater

Ozone   230VAC   .5A max   Slaved to Circ Pump in Circ Setups 1 - 6.
Independent in Non-Circ Setups 7 - 9.

Spa Light   10VAC   On/Off   2A* max   240-minute timer.

A/V (Stereo) 230VAC   Hot   2A max   Always on

Heater   3.0kW @ 240VAC max

* 2A max limit is shared by On/Off Spa Light <u>and</u> CHROMAZON3™.

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Hardware Setup

Wiring Diagram for normal heater versions

BP6013G3 - PN 59259
11-26-19

CHROMAZONE™ J34 OR J35

WIFI TRANSCEIVER J34 OR J35

TP (MAIN) PANELS J34 OR J35

AUX

J5 (A1-A4)

NETZSTROMVERSORGUNG
1-GESCHW.-PUMPE 3 + SPRUDELGEBLASE
ALIMENTATION POMPE 3
A 1 VITESSE + VENTILATEUR

EXPANDER X-P332

LOCATION	DEVICE	VOLTS	AMPS	FROM	TO	FROM	TO
J1	1 SPD PUMP 3 + BLOWER	240V	12A + 4A MAX	W1	GROUP 2	J6	GROUP 3

F8 30A 250VAC

240V
J24 120V 120V
J25=HTR1
J26=HTR2 J30
J27=HTR3
J30=TEST
J31=CE J31

ON 10
S1

J34 MAIN

J35 MAIN

230V
1φ
1x32A

BLU
BRN
GRN

F3 0.5A SLO-BLOW

T1

LIGHT J15

J2

J7

K7

F4 2A SLO-BLOW

J22

J5 AUX

F6 30A 250VAC

F5 3.15A SLO-BLOW

A/V J33

J81

PUMP 1

F2 10A 250VAC CIRC

OZONE

PUMP 2

F7 10A 250VAC

1 Fused

J16
J17
J28 AUX FRZ
HTR DISBL J29

J23 SERIAL J101 J107

EXPANDER X-P332

RIGHT EXPANDER BOARD

J7

W1

P3 + BL

J1

F1 30A

J6

GND

K1 K3 K5 K2 K4 K9 K8

1 Unfused

SENSOR A SENSOR B

3.0 kW HEATER
HEIZELEMENT
RADIATEUR

RED
WHITE
GREEN

PUMP 3 12A MAX

FUSED ADAPTER 10A

BLOWER 4A MAX

TO RED AC (GROUP 2) ON MAIN BOARD

WHITE
BLACK
F.A.
GREEN

PART A

BALBOA water group

Hardware Setup

Settings for normal heater versions

SINGLE SERVICE 230V 1þ / 1x32A, THREE-SERVICE 230V 3þ / 3x16A

LOCATION	DEVICE	MAX AMPS
J9	NETZSTROMVERSORGUNG 2/1-GESCHW.-PUMPE 1 ALIMENTATION POMPE 1 A 2/1 VITESSES 2/1-SPD PUMP 1	12A
J14	1-SPD PUMP 2 NETZSTROMVERSORGUNG 1-GESCHW.-PUMPE 2 ALIMENTATION POMPE 2 A 1 VITESSE	12A
J15	10V BELEUCHTUNG ECLAIRAGE BAIN HYDRO SPA LIGHT	2A* (@10V)
J21	KREISLAUF PUMPE POMPE DE CIRCULATION CIRC PUMP	2A
J32	OZONGENERATOR GENERATOROZONE OZONE GENERATOR	0.5A
J33	TV / AV	2A
J44	HEATER	3.0kW

* 2A LIMIT IS SHARED BY J15 SPA LIGHT AND CHROMAZON∃™

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

*SWITCH # 6 SHOULD BE SET TO OFF UPON FINAL INSTALLATION.

SETUP #	CIRC PUMP	PUMP 1	PUMP 2	PUMP 3	BLOWER	TEMP SCALE
1	FILTERS + POLLING	2-SPEED	1-SPEED	1-SPEED	1-SPEED	°C
2	FILTERS + POLLING	2-SPEED	1-SPEED	1-SPEED	NONE	°C
3	FILTERS + POLLING	2-SPEED	1-SPEED	NONE	1-SPEED	°C
4	FILTERS + POLLING	1-SPEED	1-SPEED	1-SPEED	1-SPEED	°C
5	FILTERS + POLLING	1-SPEED	1-SPEED	1-SPEED	NONE	°C
6	FILTERS + POLLING	1-SPEED	1-SPEED	NONE	1-SPEED	°C
7	NONE	2-SPEED	1-SPEED	1-SPEED	1-SPEED	°C
8	NONE	2-SPEED	1-SPEED	1-SPEED	NONE	°C
9	NONE	2-SPEED	1-SPEED	NONE	1-SPEED	°C

INSTEAD OF SETUP #1, THIS SYSTEM IS CONFIGURED IN SETUP #:

230V 3þ 3x16A
OFF ON
◄ A2
◄ A3
◄ A5
3 BRN
1 BRN
BLU
2 BRN
GRN

REMOVE JUMPER WIRES
J51-J58
J52-J36

FOR SUPPLY CONNECTIONS, USE CONDUCTORS SIZED ON THE BASIS OF 60°C AMPACITY BUT RATED MINIMUM OF 90°C.

USE COPPER CONDUCTORS ONLY. EMPLOYER UNIQUEMENT DES CONDUCTEURS DE CUIVRE.

TORQUE RANGE FOR MAIN TERMINAL BLOCK (TB1): 27-30 IN. LBS. (31.1-34.5 kg cm)
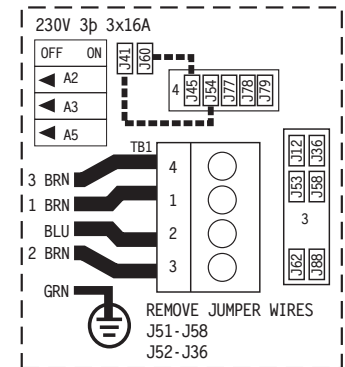
BALBOA water group

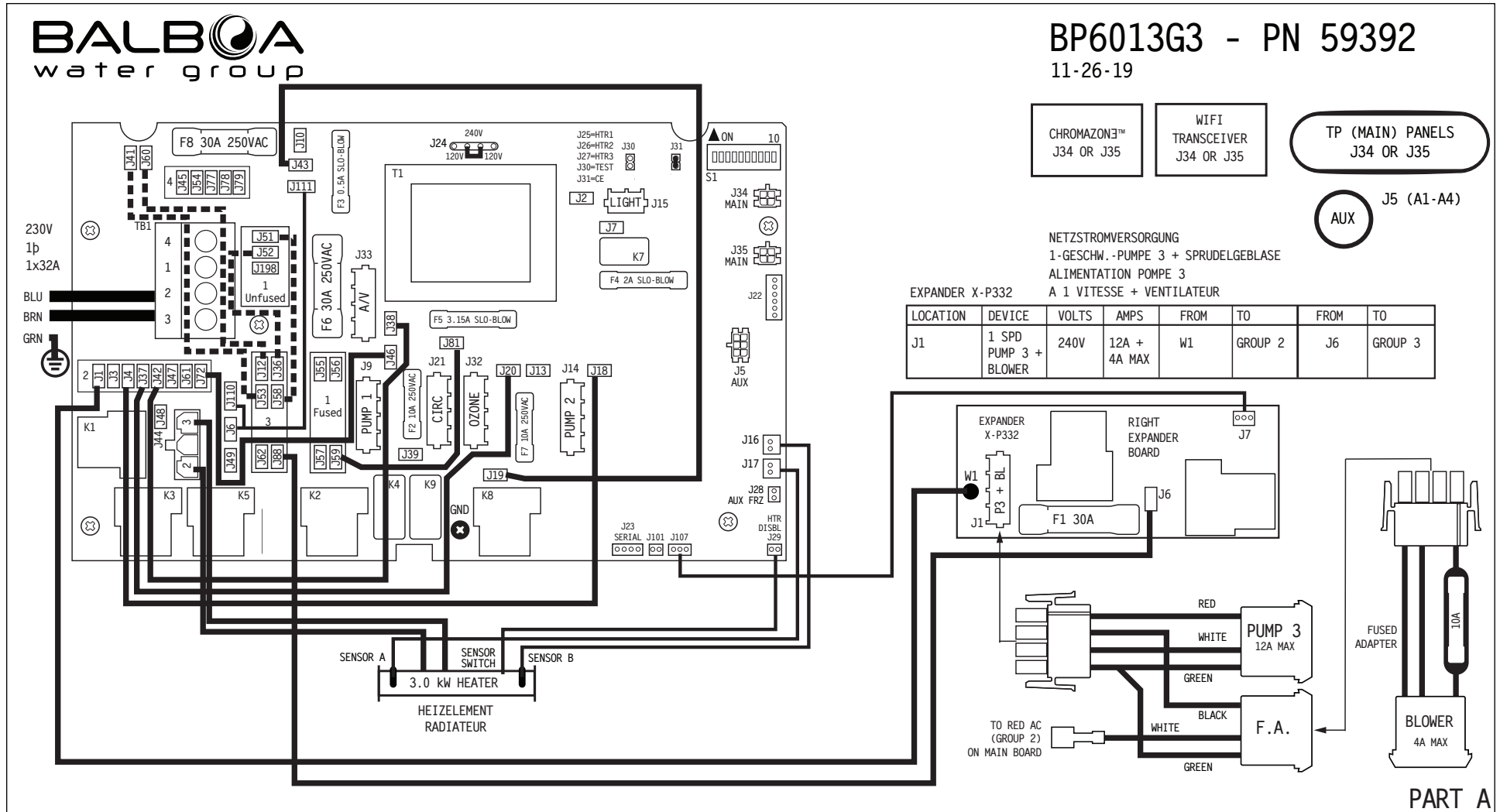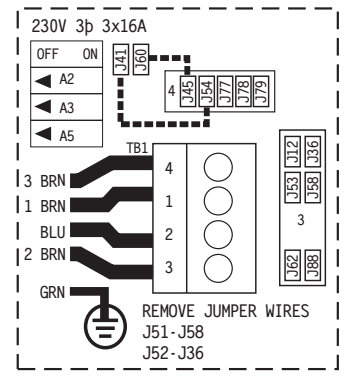BP6013G3 - PN 59259
11-26-19

PART B

BALBOA water group

Hardware Setup

Wiring Diagram for "3S" heater version

BALBOA water group

BP6013G3 - PN 59392
11-26-19

CHROMAZON∋™ J34 OR J35

WIFI TRANSCEIVER J34 OR J35

TP (MAIN) PANELS J34 OR J35

AUX

J5 (A1-A4)

NETZSTROMVERSORGUNG
1-GESCHW.-PUMPE 3 + SPRUDELGEBLASE
ALIMENTATION POMPE 3
A 1 VITESSE + VENTILATEUR

EXPANDER X-P332

LOCATION	DEVICE	VOLTS	AMPS	FROM	TO	FROM	TO
J1	1 SPD PUMP 3 + BLOWER	240V	12A + 4A MAX	W1	GROUP 2	J6	GROUP 3

F8 30A 250VAC
J10
J43
J111
240V
J24
120V 120V
J25=HTR1
J26=HTR2
J27=HTR3
J30=TEST
J31=CE
J30
J31
ON 10
S1
J41 J60
J45 J54 J77 J78 J79
4
F3 0.5A SLO-BLOW
T1
J2
LIGHT J15
J7
J34 MAIN
TB1
230V
1ϕ
1x32A
4
1
2
3
J51
J52
J198
1 Unfused
F6 30A 250VAC
A/V
J33
K7
F4 2A SLO-BLOW
J35 MAIN
J22
BLU
BRN
GRN
2 J1 J3 J4 J37 J42 J61 J72
J48
J44
3
2
J110
J53 J58
J12 J36
J55 J56
J9
J46
J38
F5 3.15A SLO-BLOW
J81
J21
CIRC
F2 10A 250VAC
J32
OZONE
J20 J13
J14 J18
PUMP 2
F7 10A 250VAC
PUMP 1
1 Fused
1
3
J49
J62 J88
J57 J59
J39
J5 AUX
K1
K3
K5
K2
K4 K9
K8
GND
J16
J17
J28 AUX FRZ
J19
J23 SERIAL J101 J107
HTR DISBL J29
EXPANDER X-P332
RIGHT EXPANDER BOARD
J7
W1
P3 + BL
J1
F1 30A
J6
RED
WHITE
PUMP 3 12A MAX
GREEN
FUSED ADAPTER
10A
BLACK
SENSOR A
SENSOR SWITCH
SENSOR B
3.0 kW HEATER
HEIZELEMENT RADIATEUR
TO RED AC (GROUP 2) ON MAIN BOARD
WHITE
F.A.
GREEN
BLOWER 4A MAX

PART A

BALBOA water group

Hardware Setup

Settings for "3S" heater version

SINGLE SERVICE 230V 1þ / 1x32A, THREE-SERVICE 230V 3þ / 3x16A

LOCATION	DEVICE	MAX AMPS
J9	NETZSTROMVERSORGUNG 2/1-GESCHW.-PUMPE 1 ALIMENTATION POMPE 1 A 2/1 VITESSES 2/1-SPD PUMP 1	12A
J14	1-SPD PUMP 2 NETZSTROMVERSORGUNG 1-GESCHW.-PUMPE 2 ALIMENTATION POMPE 2 A 1 VITESSE	12A
J15	10V BELEUCHTUNG ECLAIRAGE BAIN HYDRO SPA LIGHT	2A* (@10V)
J21	KREISLAUF PUMPE POMPE DE CIRCULATION CIRC PUMP	2A
J32	OZONGENERATOR GENERATOROZONE OZONE GENERATOR	0.5A
J33	TV / AV	2A
J44	HEATER	3.0kW

* 2A LIMIT IS SHARED BY J15 SPA LIGHT AND CHROMAZON∃™

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

*SWITCH # 6 SHOULD BE SET TO OFF UPON FINAL INSTALLATION.

SETUP #	CIRC PUMP	PUMP 1	PUMP 2	PUMP 3	BLOWER	TEMP SCALE
1	FILTERS + POLLING	2-SPEED	1-SPEED	1-SPEED	1-SPEED	°C
2	FILTERS + POLLING	2-SPEED	1-SPEED	1-SPEED	NONE	°C
3	FILTERS + POLLING	2-SPEED	1-SPEED	NONE	1-SPEED	°C
4	FILTERS + POLLING	1-SPEED	1-SPEED	1-SPEED	1-SPEED	°C
5	FILTERS + POLLING	1-SPEED	1-SPEED	1-SPEED	NONE	°C
6	FILTERS + POLLING	1-SPEED	1-SPEED	NONE	1-SPEED	°C
7	NONE	2-SPEED	1-SPEED	1-SPEED	1-SPEED	°C
8	NONE	2-SPEED	1-SPEED	1-SPEED	NONE	°C
9	NONE	2-SPEED	1-SPEED	NONE	1-SPEED	°C

INSTEAD OF
SETUP #1,
THIS SYSTEM IS
CONFIGURED IN
SETUP #:

230V 3þ 3x16A

REMOVE JUMPER WIRES
J51-J58
J52-J36

FOR SUPPLY CONNECTIONS,
USE CONDUCTORS SIZED ON THE
BASIS OF 60°C AMPACITY BUT
RATED MINIMUM OF 90°C.

USE COPPER CONDUCTORS ONLY.
EMPLOYER UNIQUEMENT
DES CONDUCTEURS DE CUIVRE.

TORQUE RANGE FOR
MAIN TERMINAL BLOCK (TB1):
27-30 IN. LBS.
(31.1-34.5 kg cm)

BALBOA water group

BP6013G3 - PN 59392
11-26-19

PART B

Balboa water group

Setup Reference Table

Setup #	Circ Pump	Pump 1	Pump 2	Pump 3	Blower	Temp Scale
1	Programmable Filtration + Polling	2-Speed	1-Speed	1-Speed	1-Speed	°C
2	Programmable Filtration + Polling	2-Speed	1-Speed	1-Speed	None	°C
3	Programmable Filtration + Polling	2-Speed	1-Speed	None	1-Speed	°C
4	Programmable Filtration + Polling	1-Speed	1-Speed	1-Speed	1-Speed	°C
5	Programmable Filtration + Polling	1-Speed	1-Speed	1-Speed	None	°C
6	Programmable Filtration + Polling	1-Speed	1-Speed	None	1-Speed	°C
7	None	2-Speed	1-Speed	1-Speed	1-Speed	°C
8	None	2-Speed	1-Speed	1-Speed	None	°C
9	None	2-Speed	1-Speed	None	1-Speed	°C

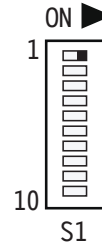**System** (and any replacement board) **is shipped in Setup 1**

BALBOA
water group

Changing Software Setups with spaTouch™ Icon-Driven Panels

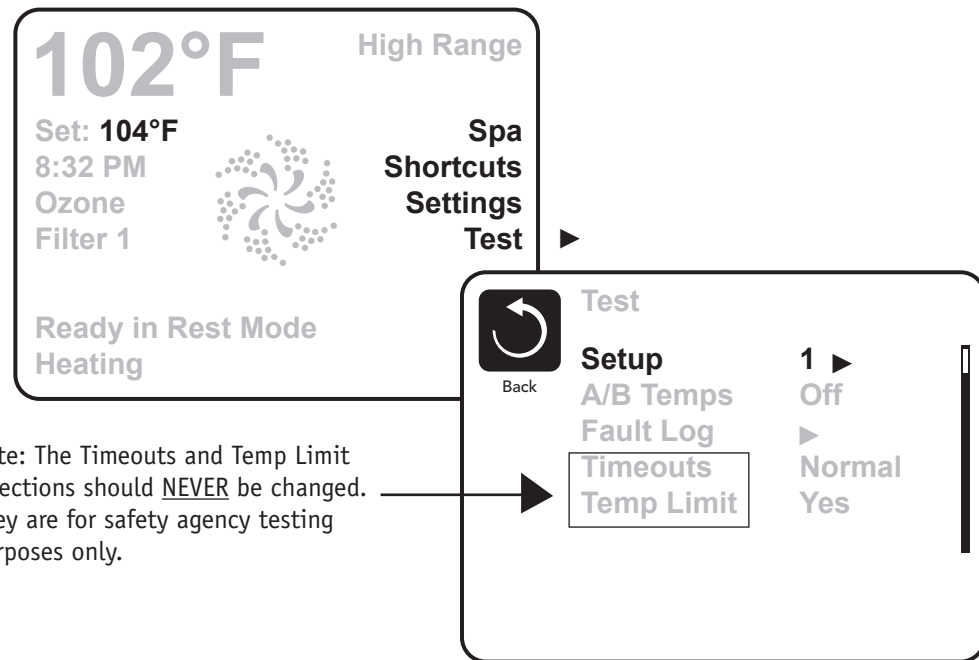## Test Menu Access (S1, Switch 1 ON) *Service Technician ONLY.*

DANGER! HIGH VOLTAGE WILL BE ACCESSIBLE! SERVICE TECHNICIAN ONLY!

While the system is running, move DIP Switch 1 (on S1 on the Main circuit board) to ON.
The system will enter Test Mode.
Moving DIP Switch 1 to OFF will exit Test Mode.

The example screens shown here are from the spaTouch 1 Icon-Driven Panel, but the screens on the spaTouch 2 Panel are similar. The main difference is that the spaTouch 2 display is wider.
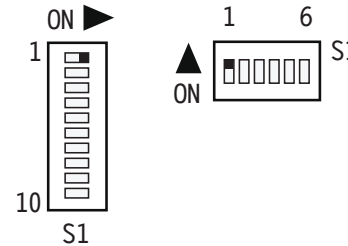
To Change Software Setups:

While in Test Mode, press the indicated icons to move from screen to screen.
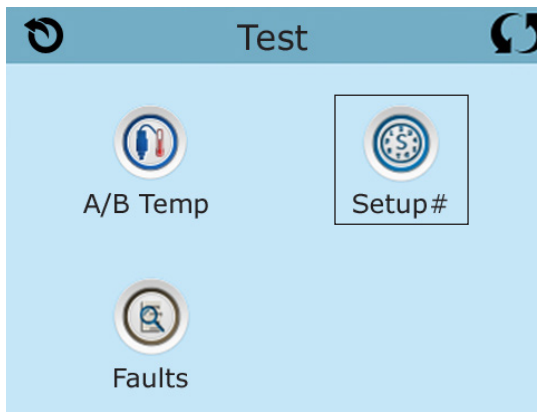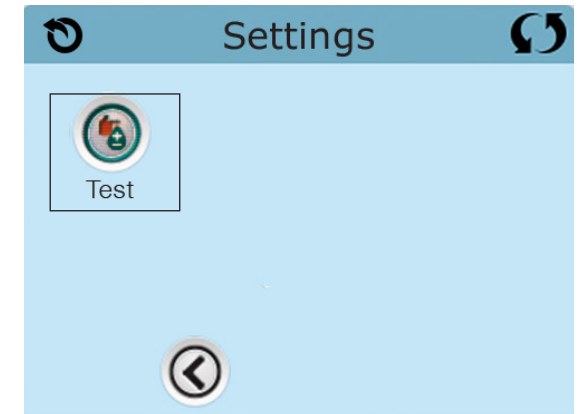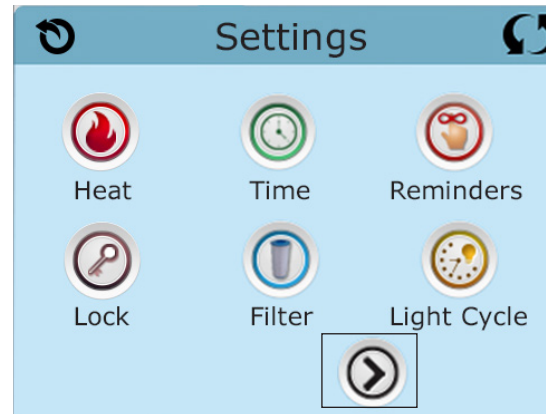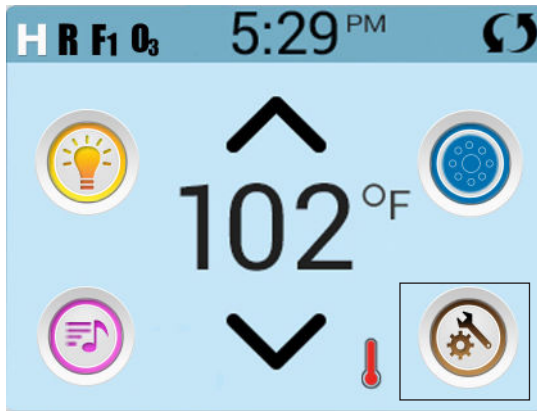
Once on the Setup Selection screen, press the Up or Down icon to select the desired Setup Number, then press the Check Mark icon to confirm and to have the spa restart.

After the system restarts, you may see a message that "The settings have been reset"; this is normal after changing Setups with DIP Switch 6 in the OFF position. Press "Clear" to dismiss this message.
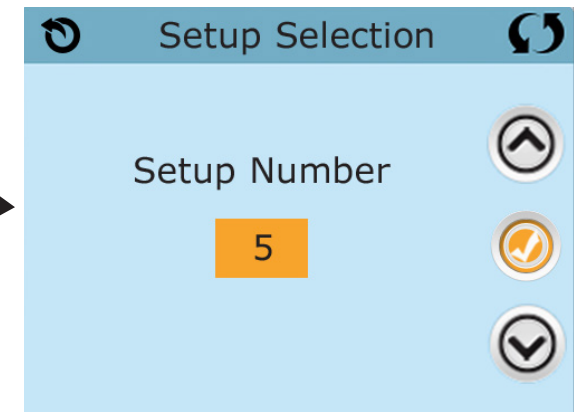
Changing Software Setups with TP800 / TP900 / spaTouch™ Menued Panel

Test Menu Access (S1, Switch 1 ON) *Service Technician ONLY.*

DANGER! HIGH VOLTAGE WILL BE ACCESSIBLE! SERVICE TECHNICIAN ONLY!

While the system is running, move DIP Switch 1 (on S1 on the Main circuit board) to ON. The system will enter Test Mode.
Moving DIP Switch 1 to OFF will exit Test Mode.

Software Setups

Under the TEST Menu, the Setup screen will allow changing the Setup from 1 to any number established by the Manufacturer. Changing the Setup may require wiring changes as well.

ON ▶
1

10
S1

102°F   High Range

Set: **104°F**   **Spa**
8:32 PM   **Shortcuts**
Ozone   **Settings**
Filter 1   **Test**   ▶

Ready in Rest Mode
Heating

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

Test

Back

Setup   **1** ▶
A/B Temps   Off
Fault Log   ▶
Timeouts   Normal
Temp Limit   Yes

BALBOA
w a t e r   g r o u p

Changing Software Setups with TP600 / TP400

Test Menu Access (S1, Switch 1 ON) *Service Technician ONLY.*

DANGER! HIGH VOLTAGE WILL BE ACCESSIBLE! SERVICE TECHNICIAN ONLY!

While the system is running, move DIP Switch 1 (on S1 on the Main circuit board) to ON.
The system will enter Test Mode.
Moving DIP Switch 1 to OFF will exit Test Mode.

▶ 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
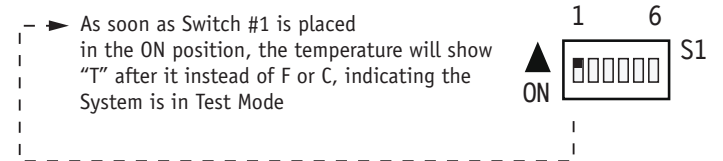
Software Setups

Under the TEST Menu, the Setup screen will allow changing the Setup from 1 to any number established by the Manufacturer.
Changing the Setup may require wiring changes as well.

You will have 1 minute to complete the setup change after you manually exit Priming Mode. (Once familiar with the process,
the Setup change should take less than 15 seconds.)

| RUN | PMPS | PURG | AIR | -- -- -- -- |

When the panel displays RUN PMPS PURG AIR, press any Temperature button ONCE to exit Priming Mode.
You should see "---T" where the T indicates the system is in Test Mode.

-- -- --°T
READY   RANGE
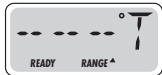
Continued on Next Page.

BALB◯A
w a t e r   g r o u p

Changing Software Setups with TP600 / TP400 Continued

Again, **You will have 1 minute** to complete the setup change after you manually exit Priming Mode.
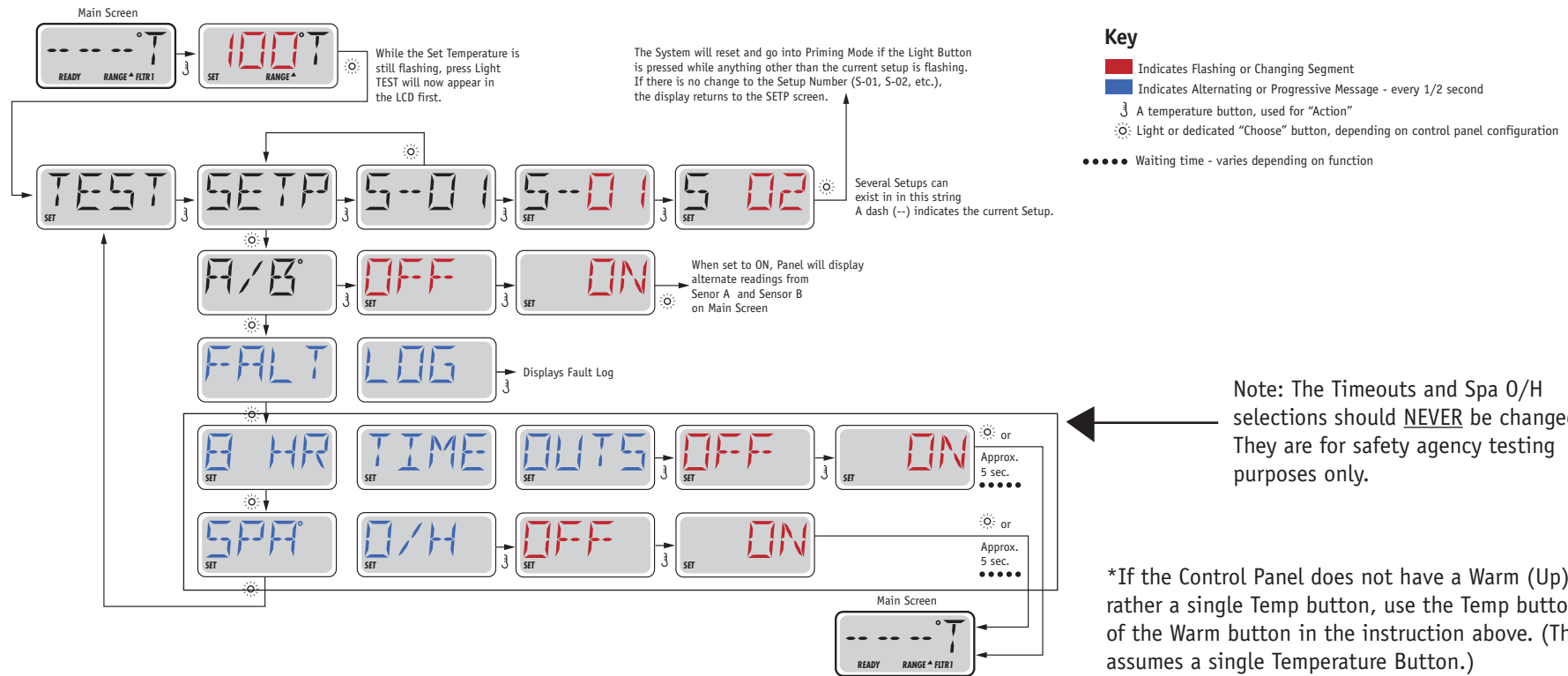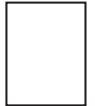
Immediately after exiting Priming Mode, press this sequence of buttons: Warm*, Light, Warm, Warm, Warm, Warm. Continue to press Warm until the diplay shows the Setup Number (S-01, S-02, etc.) you want to switch to. When the correct setup number is showing, press Light once, and the system will reset, using the newly-selected Setup from that point on.

Move DIP Switch 1 to the OFF position to take the spa out of Test Mode. °F or °C will replace °T.

Using a permanent marker, write the Setup number on the Setup label mounted inside the system lid (right). This is very important to any service person in the future who may need to replace a circuit board or system and needs to change the Setup on a replacement part while in the field.

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

THIS SYSTEM IS
CONFIGURED AS
SETUP #

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.

Several Setups can exist in in this string A dash (--) indicates the current Setup.

Key
Indicates Flashing or Changing Segment
Indicates Alternating or Progressive Message - every 1/2 second
A temperature button, used for "Action"
Light or dedicated "Choose" button, depending on control panel configuration
••••• Waiting time - varies depending on function

When set to ON, Panel will display alternate readings from Senor A and Sensor B on Main Screen

Displays Fault Log

Note: The Timeouts and Spa O/H selections should NEVER be changed. They are for safety agency testing purposes only.

Approx. 5 sec.

Approx. 5 sec.

Main Screen

*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 in the instruction above. (The flow chart assumes a single Temperature Button.)

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Equipment Expansion

Expansion Features

Control Connection	Default	Fuse
Relay 1 (J101)	Undefined	None
Relay 7/8 (J107)	See below	30A
	1-speed Pump 3 + 1-speed Blower (using splitter +fused adapter)	

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DIP Switch Functions

Fixed-fuction DIP Switches

ON ▶

1

10
S1

A1   Test Mode (normally Off).

A2   In "ON" position, add one high-speed pump (or blower) with Heater.

A3   In "ON" position, add two high-speed pumps (or 1 HS Pump and Blower) with Heater.

A4   In "ON" position, add four high-speed pumps (or 3 HS Pumps and Blower) with Heater.

A5   In "ON" position, enables Special Amperage Rule B. See Special Features section under Configuration Options for functionality with your system.
            In "OFF" position, enables Special Amperage Rule A.

A6   Persistent memory reset (Used when the spa is powering up to restore factory settings as determined by software configuration).
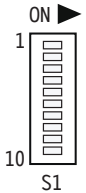
A2, A3, and A4 work in combination to determine the number of high-speed devices and blowers that can run before the heat is disabled. i.e. A2 and A3 in the ON position and A4 in the OFF position will allow the heater to operate with up to 3 high-speed pumps (or two HS Pumps and Blower) running at the same time. Heat is disabled when the fourth high-speed pump or blower is turned on.
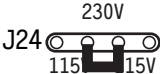
Note: *A2/A3/A4 all off = No heat with any high-speed pump or blower.*

Assignable DIP Switches

A7   In "ON" position, enables a 5-minute cooldown for some gas heaters (Cooling Time B).
            In "OFF" position, enables a 1-minute cooldown for electric heaters (Cooling Time A).

Undesignated switches are not assigned a function.

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Jumper Definitions

J109	Not present on BP6013 board.

J91	Not present on BP6013 board.

J30	Do Not Use

J31   Jumper on 1 pin with 2.0kW or smaller heater

Jumper on 2 pins with a 3.0kW or higher heater

J31

J29   Heater Disable Switch Connection. If J29 is shorted by any means, the heater will not run until J29 is no longer shorted.

J29

If J29 is shorted during power-up "J29" will appear on the panel.
The message can be dismissed with a button press, and is the only control panel notification of J29 being shorted.
No message is displayed if J29 is shorted after power-up, but the heater will not run until J29 is no longer shorted.

J29 expects a switch closure (not a voltage) as the command signal.

In some areas, a local power company may offer discounts based on voluntary "power shedding" devices that may be installed in conjunction with the spa.

J25, J26, J27   Not present on BP6013 board.

J24   Jumper on center two pins (230V) when heater is running at 240V.

Two Jumpers installed; one on left 2 pins and one on right 2 pins (115V) when heater is running at 120V.

J24   230V
115V   115V

Warning!

Setting DIP switches or jumpers incorrectly may cause abnormal system behavior and/or damage to system components.

Refer to Switchbank illustration on Wiring Configuration page for correct settings for this system.

Contact Balboa if you require additional configuration pages added to this tech sheet.

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Replacement Parts

PCBA:
Main PCBA:	59145
Expander PCBA:	59097

HEATER(s):

Plug + Click Heater Kit: 58301 3.0kW 825 Inc
58302 3.0kW Titanium
58433KIT 3.0kW 825 Inc "3S" heater

Temp Sensor Kit: 53605

CABLES: 25681 (fused adapter for Blower)
25859 (splitter)

FUSES:

Part Number	Amperage	Location
30136	30A	F6, F8, F1 (Expander)
26307	2A SLO	F4
26905	0.5A SLO	F3
26904	10A	F2, F7
26976	3.15A SLO	F5

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BP6013 Configuration Options

General Features

Feature	Default	
Pump 1 in Filter Cycle (Circ Only)	No	
Pump 1 Low Timer	30 Minutes	Applies in non-circ Setups (configurations) only
General Pump Timer	15 Minutes	Applies to all pumps, except Pump 1 low in Non-Circ Setups
Blower Timer	15 Minutes	
Mister Timer	15 Minutes	
Light Timer	240 Minutes	
Circ (when enabled)	Programmable + Polling	
Cleanup Cycle	*30 Minutes*	
Cleanup as Preference setting	*Yes*	
Ozone	With Heater Pump*	
Ozone Suppression	OFF	
Pump Purge	60 Seconds	
Blower Purge	30 Seconds	
Mister Purge	5 Seconds	
Purge Type	Serial - Pumps at lowest speed	

* The heater Pump can be either a Circ Pump or Pump 1 Low.

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BP6013 Configuration Options

Temperature Features

Feature	Default
Temperature Display	°C

All temperatures must be specified in °F. The system converts °F to °C dynamically. If Celsius is required for default settings, choose a desired °C value that (after rounding) corresponds to a Fahrenheit value.

°C	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
°F	39	41	43	45	46	48	50	52	54	55	57	59	61	63	64	66	68	70	72

°C	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
°F	73	75	77	79	81	82	84	86	88	90	91	93	95	97	99	100	102	104

Hi-Range Min. Set Temp	80°F
Hi-Range Max. Set Temp	104°F
Hi-Range Default Temp*	100°F
Lo-Range Min. Set Temp	50°F
Lo-Range Max. Set Temp	99°F
Lo-Range Default Temp*	70°F
Freeze Threshold	44°F
Freeze Type	Rotating - Pumps at Lowest Speed
Temp Lock Type	Temp + Settings

*May be changed by end-user (if enabled)

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BP6013 Configuration Options

Time Features

Feature	Default
Time Format*	24 Hour
Filter 1 Start Hour*	20:00 (8:00 PM)
Filter 1 Duration*	2 Hours
Filter Cycle 2 Default*	OFF
Filter 2 Start Hour*	08:00 (8:00 AM)
Filter 2 Duration*	15 Minutes
Light Cycle	Disabled
Light Cycle Default*	OFF
Light Cycle Start Hour*	21:00 (9:00 PM)
Light Cycle Duration*	15 Minutes
Cooling Time A	1 Minute
Cooling Time B	5 Minutes

May be changed by end-user (if enabled)

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BP6013 Configuration Options

Reminder Features

Feature	Default
Reminders Shown*	*Yes*
Check pH	*OFF*
Check Sanitizer	*OFF*
Clean Filter	30 Days
Test GFCI	*65 Days*
Drain Water	*100 Days*
Change Cartridge	OFF
Clean Cover	*OFF*
Treat Wood	*OFF*
Change Filter	365 Days

May be changed by end-user (if enabled)

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BP6013 Configuration Options

Special Features

Feature	Default
Special Amperage Rule A	No Limitation
Special Amperage Rule B	2 High Speed Pump Maximum
Drain Mode	Disabled
Demo Mode	Disabled
GFCI Trip	Not Applicable for CE Models
Ozone Slaved to Heater Pump	*Yes in circ setups* *No in non-circ setups*
Dual Voltage Heater	Always Input Voltage
Safety Suction	Disabled

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TP900 Panel Configuration

Button Layout Table

Feature #	Setups 1 & 4	Setups 2 & 5	Setups 3 & 6	Setup 7	Setup 8	Setup 9
A1	N/A	N/A	N/A	N/A	N/A	N/A
A2	Jets 1	Jets 1	Jets 1	Jets 1	Jets 1	Jets 1
A3	Jets 2	Jets 2	Jets 2	Jets 2	Jets 2	Jets 2
A4	Jets 3	Jets 3	Blower	Jets 3	Jets 3	Blower
A5	Blower	Light 1	Light 1	Blower	Light 1	Light 1
A6	Light 1	Invert	Invert	Light 1	Invert	Invert
A7	Invert	(Circ Icon)	(Circ Icon)	Invert	Undefined	Undefined
A8	(Circ Icon)	Undefined	Undefined	Undefined	Undefined	Undefined
A9	Undefined	Undefined	Undefined	Undefined	Undefined	Undefined
A10	Undefined	Undefined	Undefined	Undefined	Undefined	Undefined
A11	N/A	N/A	N/A	N/A	N/A	N/A
A12	N/A	N/A	N/A	N/A	N/A	N/A
A13	Jets 1	Jets 1	Jets 1	Jets 1	Jets 1	Jets 1
A14	Jets 2	Jets 2	Jets 2	Jets 2	Jets 2	Jets 2
A15	Jets 3	Jets 3	Blower	Jets 3	Jets 3	Blower
A16	Light 1	Light 1	Light 1	Light 1	Light 1	Light 1

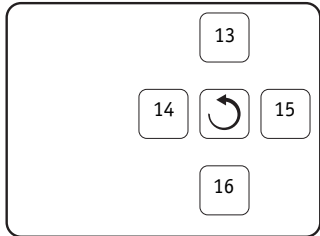*A Circ Icon will appear when a Circ Pump is configured.*

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TP900 Panel Configuration

Button #
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16

Spa Screen

Shortcuts Screen

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TP800 Panel Configuration

Button Layout Table

Feature #	Setups 1 & 4	Setups 2 & 5	Setups 3 & 6	Setup 7	Setup 8	Setup 9
A1	N/A	N/A	N/A	N/A	N/A	N/A
A2	Jets 1	Jets 1	Jets 1	Jets 1	Jets 1	Jets 1
A3	Jets 2	Jets 2	Jets 2	Jets 2	Jets 2	Jets 2
A4	Jets 3	Jets 3	Blower	Jets 3	Jets 3	Blower
A5	Blower	Light 1	Light 1	Blower	Light 1	Light 1
A6	Light 1	Invert	Invert	Light 1	Invert	Invert
A7	Invert	(Circ Icon)	(Circ Icon)	Invert	Undefined	Undefined
A8	(Circ Icon)	Undefined	Undefined	Undefined	Undefined	Undefined
A9	Undefined	Undefined	Undefined	Undefined	Undefined	Undefined
A10	Undefined	Undefined	Undefined	Undefined	Undefined	Undefined
A11	N/A	N/A	N/A	N/A	N/A	N/A
A12	N/A	N/A	N/A	N/A	N/A	N/A
A13	Jets 1	Undefined	Undefined	Jets 1	Undefined	Undefined
A14	Jets 2	Undefined	Undefined	Jets 2	Undefined	Undefined
A15	Blower	Undefined	Undefined	Blower	Undefined	Undefined
A16	Light 1	Undefined	Undefined	Light 1	Undefined	Undefined
B1	Jets 1	Jets 1	Jets 1	Jets 1	Jets 1	Jets 1
B2	Jets 2	Jets 2	Jets 2	Jets 2	Jets 2	Jets 2
B3	Jets 3	Jets 3	Blower	Jets 3	Jets 3	Blower
B4	Light 1	Light 1	Light 1	Light 1	Light 1	Light 1

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TP800 Panel Configuration

Spa Screen

B1

B2 B3

B4

| ↺ | A2 | A3 | A4 | A5 |
| A6 | A7 | A8 | A9 | A10 |

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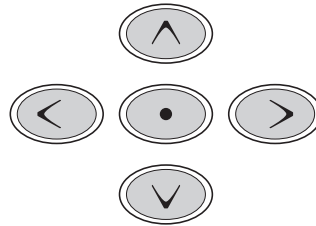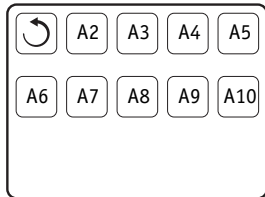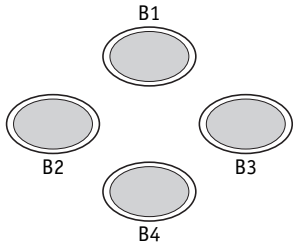
Note: Button B2 is ALWAYS unused on TP800 when used with this sytsem. A custom overlay will be required.

Shortcuts Screen

B1

B2 B3

B4

A13

A14 ↺ A15

A16

A13

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A14 ⟨ • ⟩ A15

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A16
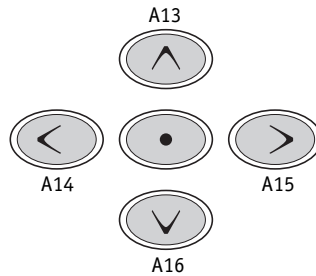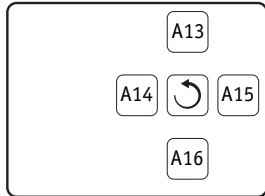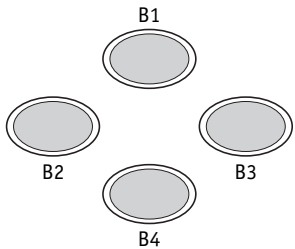
Note: Buttons 11 and 12 are not used in this configuration.

Button 1 is fixed.

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TP600 Panel Configuration

Button Layout Table

Button #	Setups 1, 4 & 7	Setups 2, 5 & 8	Setups 3, 6 & 9
1	Jets 1	Jets 1	Jets 1
2	Jets 2	Jets 2	Jets 2
3	Jets 3	Jets 3	Blower
4	Temperature	Up	Up
5	Light 1	Light 1	Light 1
6	Blower	Down	Down
LED 1	Jets 1	Jets 1	Jets 1
LED 2	Jets 2	Jets 2	Jets 2
LED 3	Light 1	Light 1	Light 1
LED 4	Heat On	Heat On	Heat On
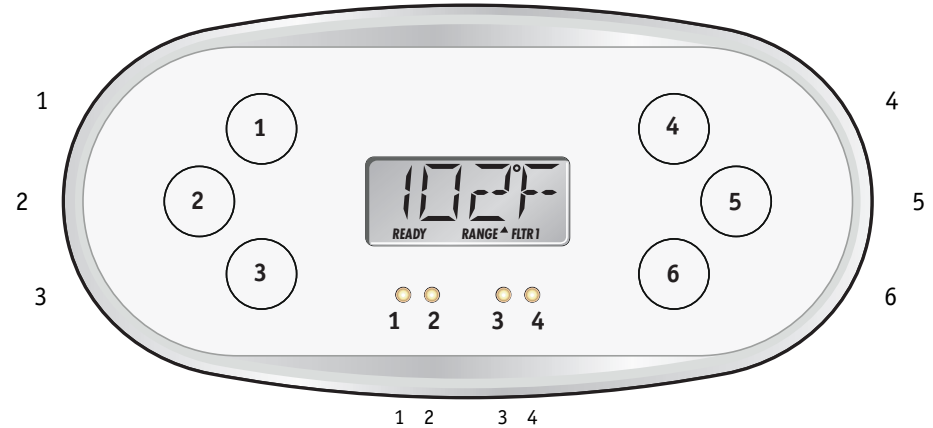
Setups 2, 3, 5, 6, 8 & 9 can use an overlay such as 12762:

Setups 1, 4 & 7 require a different overlay, such as 13579:

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BP6013 Configuration Options

Auxiliary Panel Features on Bank 1*

Feature	Default
Aux Button A1	Jets 1
Aux Button A2	Jets 2
Aux Button A3	Jets 3 in Setups 2, 5 & 8 Blower in other Setups
Aux Button A4	Light

*Bank 1 consists of J5 on the Main Circuit Board.
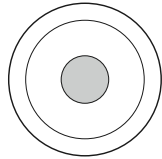
Aux Connection Splitter PN 25257 may be required.

Buttons that are assigned to equipment that is
not defined in a Setup will not do anything in that Setup.

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BP6013 Configuration Options

Auxiliary Panel Features

AX10 Panels on Bank 1*

A1, AX10A1   No O/L   52803

A2, AX10A2   No O/L   52804

A3, AX10A3   No O/L   52805 ▶

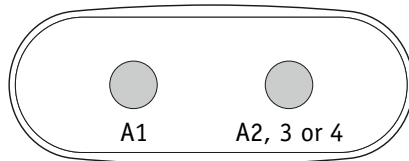A4, AX10A4   No O/L   52806

Call Customer Service for additional information about Auxiliary Panels.

*Bank 1 consists of J5 on the Main Circuit Board.
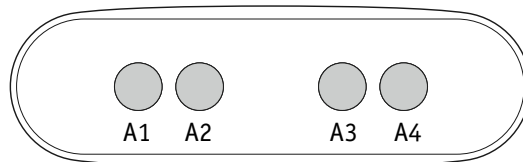
Aux Connection Splitter PN 25257 may be required.

AX20

AX20 A1A2   No O/L   52800

AX20 A1A3   No O/L   52801

AX20 A1A4   No O/L   52802

A1   A2, 3 or 4

AX20 Auxiliary Panel plugged into Bank 1 will operate A1 + A2, A3 or A4.

AX40

AX40   No O/L   52799

A1   A2   A3   A4

AX40 Auxiliary Panel plugged into Bank 1 will operate A1 + A2, A3 and A4.

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