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JZ6013X2 Tech Sheet

Customer: **Jazzi**

Part Number: ZT000166   800 Incoloy 3kW

Custom Box Overlay   ☐

Box Overlay Part Number   N/A

CE System Model: BP21-JZ6013X2-RCA3.0K

Software Version ID: M100_226 V22.0

Software Version: 22.0

File Name: BP6013_22.0_JZ6013X2_6SU.hex

Configuration Signature: FED08E71

Eng. Project Number: 4496

Control Panels:

TP800   Version 3.1 and later (Version 3.13 or later required for bba™)

TP600CE   Version 2.7 and later - TP600 (non-CE) should not be used

BALBOA water group

System Revision History

Part #	EPN	Date	Originator	Changes Made
ZT000166	4496	04-14-15	Customer	Higher-end custom BP6013-based System.

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

bba™ is only integrated into graphic display panels (TP800, TP900 and spaTouch™). With TP600 the Aux button operation of bba™ must be used.

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Basic Functions Setup 1-6

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)]
400VAC, 50/60Hz*, 3þ, 16A, (Circuit Breaker rating = 20A max each phase line.)

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

*BP systems automatically detect 50Hz vs 60Hz.

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.

In 3x16A Service:

Pump 4 (if any) and Blower (if any) are on one service.

Pump 2, Pump 3 and the Heater are on another service.

Everything else is on the remaining service.

BALBOA
water group

Basic Functions Setup 1-6

System Ouputs:

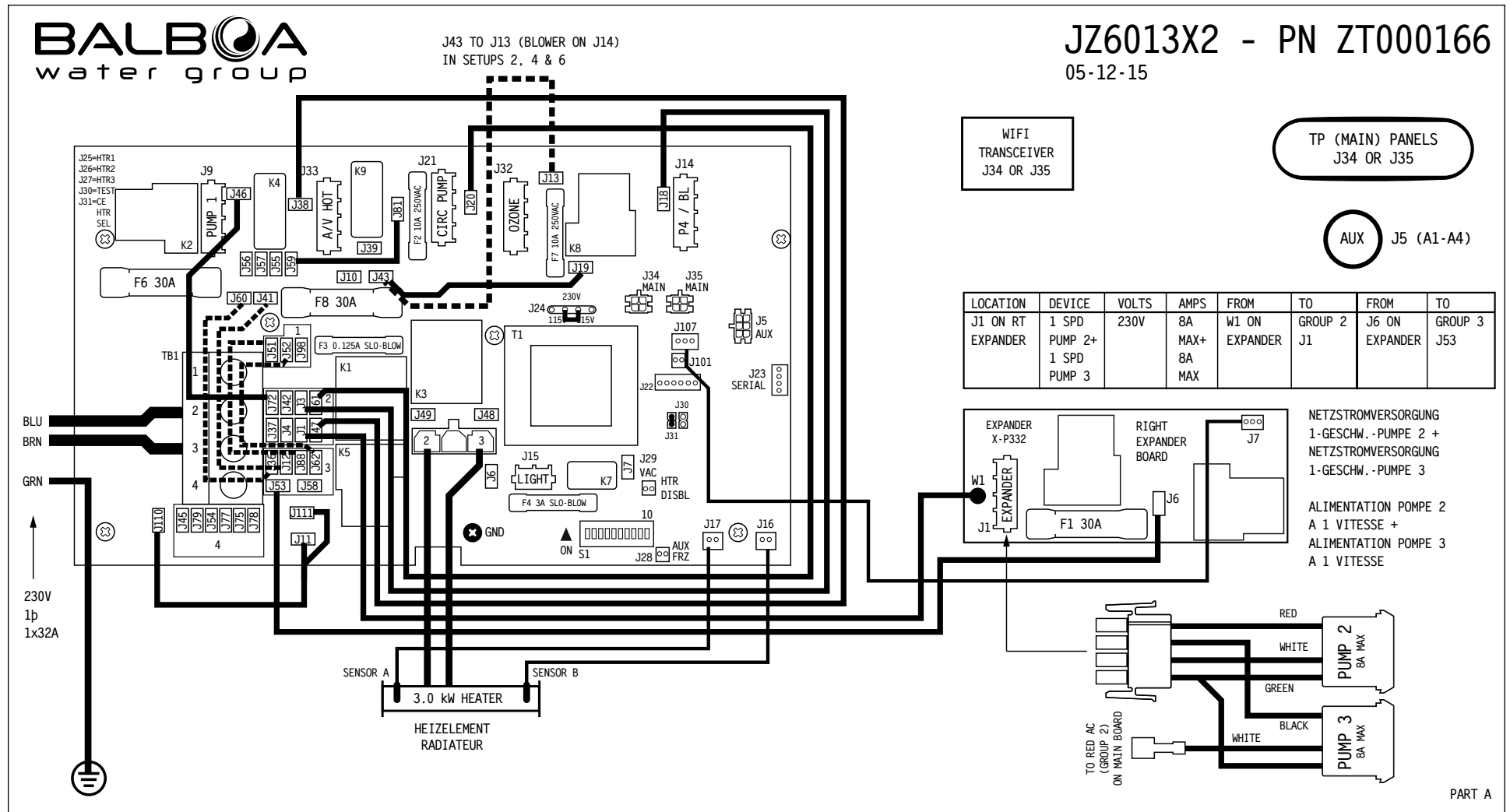|				
Pump 1	230VAC	2-Speed 1-Speed in Setups 1 & 2	10A max	15-minute timer (30-minute timer in low speed in non-circ Setups only)
		This is the heater pump in Setups 5 & 6 Must deliver 20 GPM through heater		
Pump 2	230VAC	1-Speed	8A max	15-minute timer
Pump 3	230VAC	1-Speed	8A max	15-minute timer
Pump 4	230VAC	1-Speed Used in Setups 1, 3 & 5.	10A max	15-minute timer
Blower	230VAC	1-Speed Used in Setups 2, 4 & 6.	2A max	15-minute timer
Circ Pump	230VAC	1-Speed	2A max	Programmable Filtration Cycles + Polling
		This is the heater pump in Setups 1 - 4. Must deliver 20 GPM through heater		
Ozone	230VAC		.5A max	Slaved to Circ Pump in Setup 1 - 4 Independent in Setups 5 & 6
Spa Light	10VAC	On/Off	1A max	240-minute timer
A/V (Stereo)	230VAC	Hot	4A max	Always on
Heater	3.0kW @ 240VAC max			

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Hardware Setup

Wiring Diagram

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J43 TO J13 (BLOWER ON J14) IN SETUPS 2, 4 & 6

JZ6013X2 - PN ZT000166
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WIFI TRANSCEIVER J34 OR J35

TP (MAIN) PANELS J34 OR J35

AUX   J5 (A1-A4)

LOCATION	DEVICE	VOLTS	AMPS	FROM	TO	FROM	TO
J1 ON RT EXPANDER	1 SPD PUMP 2+ 1 SPD PUMP 3	230V	8A MAX+ 8A MAX	W1 ON EXPANDER	GROUP 2 J1	J6 ON EXPANDER	GROUP 3 J53

NETZSTROMVERSORGUNG 1-GESCHW.-PUMPE 2 + NETZSTROMVERSORGUNG 1-GESCHW.-PUMPE 3

ALIMENTATION POMPE 2 A 1 VITESSE + ALIMENTATION POMPE 3 A 1 VITESSE

J25=HTR1
J26=HTR2
J27=HTR3
J30=TEST
J31=CE
HTR SEL

PUMP 1

A/V HOT

CIRC PUMP

OZONE

P4 / BL

F2 10A 250VAC
F7 10A 250VAC

F6 30A
F8 30A
F3 0.125A SLO-BLOW

230V
115   115V

J34 MAIN   J35 MAIN

J5 AUX

J23 SERIAL

BLU
BRN
GRN

230V
1ø
1x32A

LIGHT

J29 VAC
HTR DISBL

F4 3A SLO-BLOW

GND

ON   S1

AUX FRZ

SENSOR A   SENSOR B

3.0 kW HEATER
HEIZELEMENT
RADIATEUR

EXPANDER X-P332

RIGHT EXPANDER BOARD

W1

EXPANDER

F1 30A

RED
WHITE
GREEN
BLACK
WHITE

PUMP 2 8A MAX
PUMP 3 8A MAX

TO RED AC (GROUP 2) ON MAIN BOARD

PART A

BALBOA water group
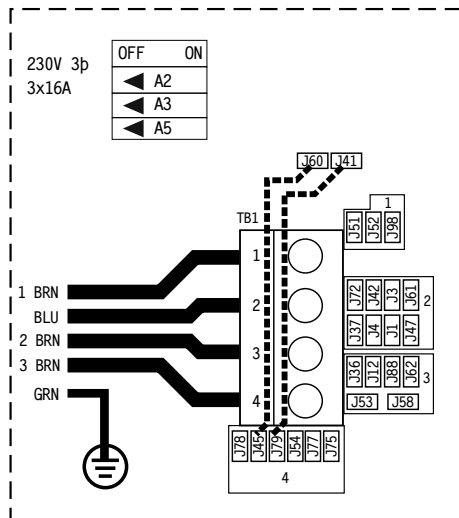
Hardware Setup

Settings

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

LOCATION	DEVICE
J9	NETZSTROMVERSORGUNG 2/1-GESCHW.-PUMPE 1 ALIMENTATION POMPE 1 A 2/1 VITESSES 2/1-SPEED PUMP 1
J14	NETZSTROMVERSORGUNG 1-GESCHW.-PUMPE 4 ALIMENTATION POMPE 4 A 1 VITESSES 1-SPEED PUMP 4 /
	SPRUDELGEBLASE VENTILATEUR BLOWER
	P4 LINE 1 CONNECTION J19 to J43 IN SETUPS 1, 3 & 5
	BL LINE 1 CONNECTION J13 to J43 IN SETUPS 2, 4 & 6
J15	10V BELEUCHTUNG ECLAIRAGE BAIN HYDRO SPA LIGHT
J21	KREISLAUF PUMPE POMPE DE CIRCULATION CIRC PUMP
J32	OZONGENERATOR GENERATOROZONE OZONE GENERATOR
	CIRC AND OZONE LINE 1 CONNECTION J81 to J59
J33	TV / AV
J5	AUX PANEL(S) - AX10, AX20, AX30, AX40

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

J60 J41

TB1

1 BRN
BLU
2 BRN
3 BRN
GRN

230V 1þ
1x32A

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.

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)

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05-12-15

PART B

Balboa water group

Setup Reference Table

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

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

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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.
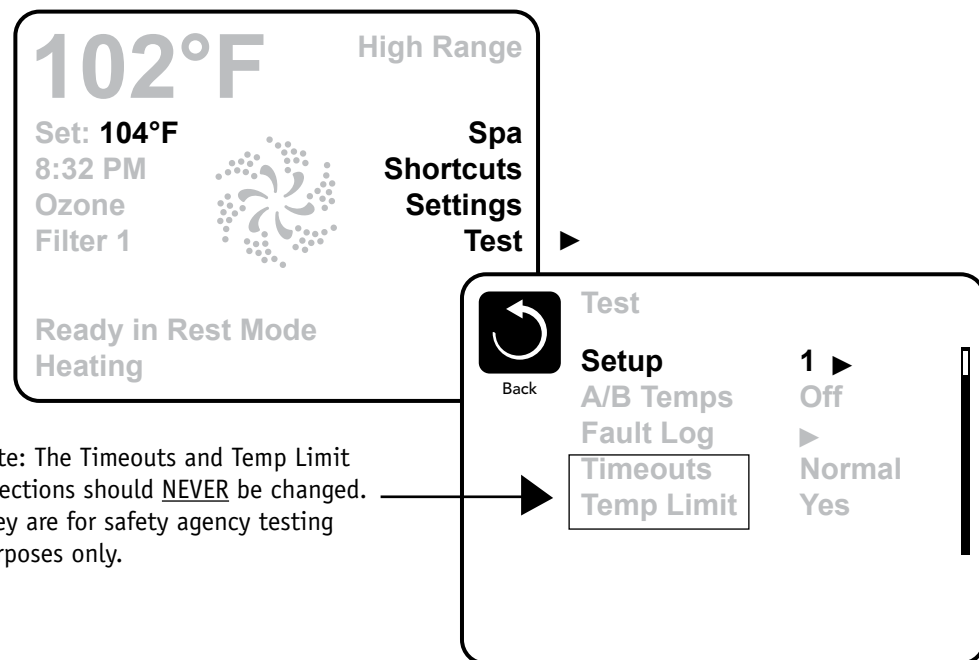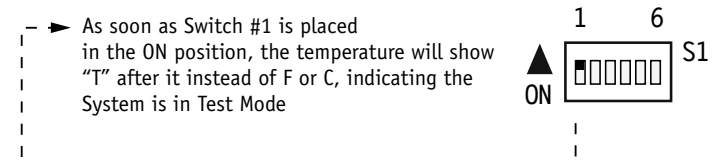Moving DIP Switch 1 to OFF will exit Test Mode.

ON ▶
1
10
S1

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.

102°F   High Range

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

Ready in Rest Mode
Heating

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

Back

Test

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

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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.)

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.
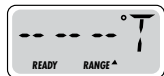
Continued on Next Page.

Changing Software Setups with TP600 / TP400 Continued

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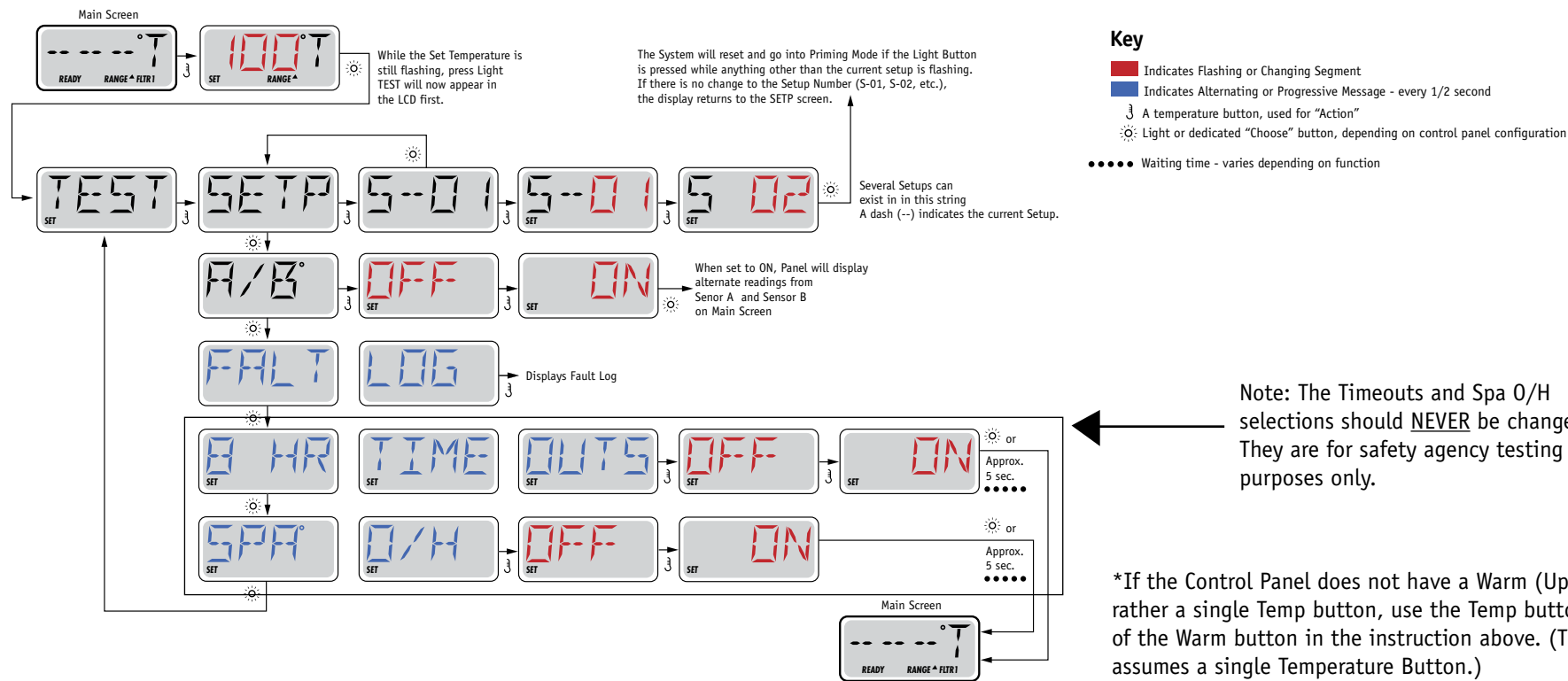
Immediately after exiting Priming Mode, press this sequence of buttons: Warm*, Light, Warm, Warm, Warm, Warm. Continue to press Warm until the diplay shows the Setup Number (S-01, S-02, etc.) you want to switch to. When the correct setup number is showing, press Light once, and the system will reset,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

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

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

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.)

BALBOA water group

Equipment Expansion

Expansion Features

Control Connection	Default	Fuse
Relay 1 (J101)	Undefined	None
Relay 7/8 (J107)	See Below	30A
	1-Speed Pump 2 And 1-Speed Pump 3 (With Splitter)	

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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).
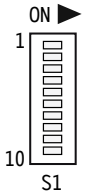
A2, A3, and A4 work in combination to determine the number of high-speed devices and blowers that can run before the heat is disabled. i.e. A2 and A3 in the ON position and A4 in the OFF position will allow the heater to operate with up to 3 high-speed pumps (or two HS Pumps and Blower) running at the 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
J29	Heater Disable Switch Connection. If J29 is shorted by any means, the heater will not run until J29 is no longer shorted. 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.

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: 56613-02 3.0kW Models

                                  56732-01 2.0kW Models

Expander PCBA: XXXXX

HEATER(s):

Plug + Click Heater Kit: 58300 3.0kW 800 Inc

                                  58301 3.0kW 825 INC

                                  58302 3.0kW Titanium

                                  58289 2.0kW 800 Inc

Temp Sensor: 30344

CABLES: PS-23

FUSES:

Part Number	Amperage	Location
30136	30A	F6, F8, F1 (Expander)
20600	3A	F4
26397	1/8A	F3
30122	10A	F2, F7

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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*	
Cleaup 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	3 high-speed pumps max. Blower turns off with 3 high speed pumps
Drain Mode	Disabled
Demo Mode	Disabled
GFCI Trip	Not Applicable for CE Models
Ozone Slaved to Heater Pump	*Yes*
Dual Voltage Heater	Always Input Voltage
Safety Suction	Disabled

Balboa water group

TP800 Panel Configuration

Button Layout Table

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

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TP800 Panel Configuration

Spa Screen

B1

B2   B3

B4

↺	A2	A3	A4	A5
A6	A7	A8	A9	A10

∧

< • >

∨

Shortcuts Screen

B1

B2   B3

B4

A13

A14 ↺ A15

A16

A13

∧

< • >
A14   A15

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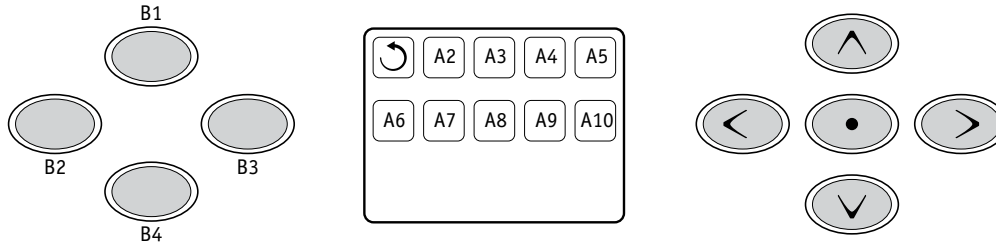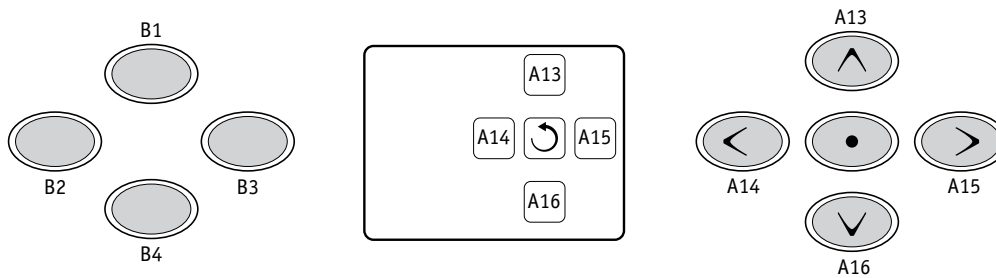
Note: *Buttons 11 and 12 are not used in this configuration.*

Button 1 is fixed.

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TP600 Panel Configuration

Button Layout Table

Button #	Setups 1, 3 & 5	Setups 2, 4 & 6
1	Jets 1	Jets 1
2	Jets 2	Jets 2
3	Jets 3	Jets 3
4	Temperature	Temperature
5	Light 1	Light 1
6	Jets 4	Blower
LED 1	Jets 1	Jets 1
LED 2	Jets 2	Jets 2
LED 3	Light 1	Light 1
LED 4	Heat On	Heat On
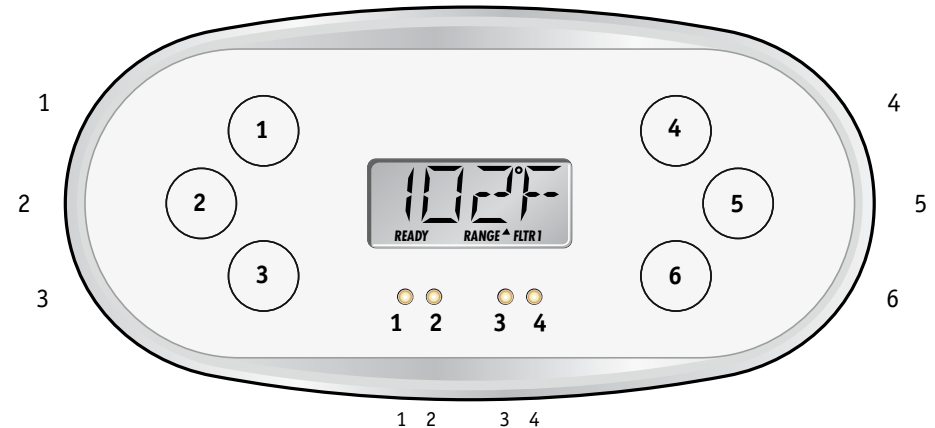
TP600CE

50015-XX

No Overlay

TP600 (non-CE) should not be used.

Balboa water group

BP6013 Configuration Options

Auxilliary Panel Features on Bank 1*

Feature	Default
Aux Button A1	Jets 1
Aux Button A2	Jets 2
Aux Button A3	Blower
Aux Button A4	Light

*Bank 1 consists of J5 on the Main Circuit Board.

Aux Connection Splitter PN25257 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

Auxilliary Panel Features

AX10 Panels on Bank 1*

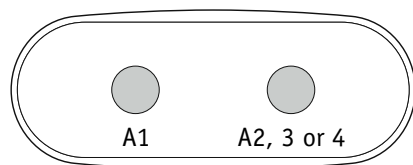|		
A1, AX10A1	No O/L	52803
A2, AX10A2	No O/L	52804
A3, AX10A3	No O/L	52805 ▶
A4, AX10A4	No O/L	52806
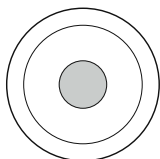
Call Customer Service for additional information about Auxiliary Panels.

*Bank 1 consists of J5 on the Main Circuit Board.
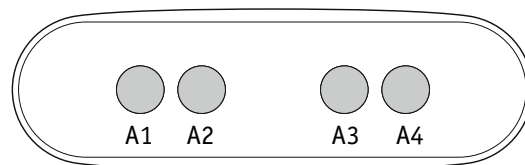
Aux Connection Splitter PN25257 may be required.

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.

BALBOA water group