

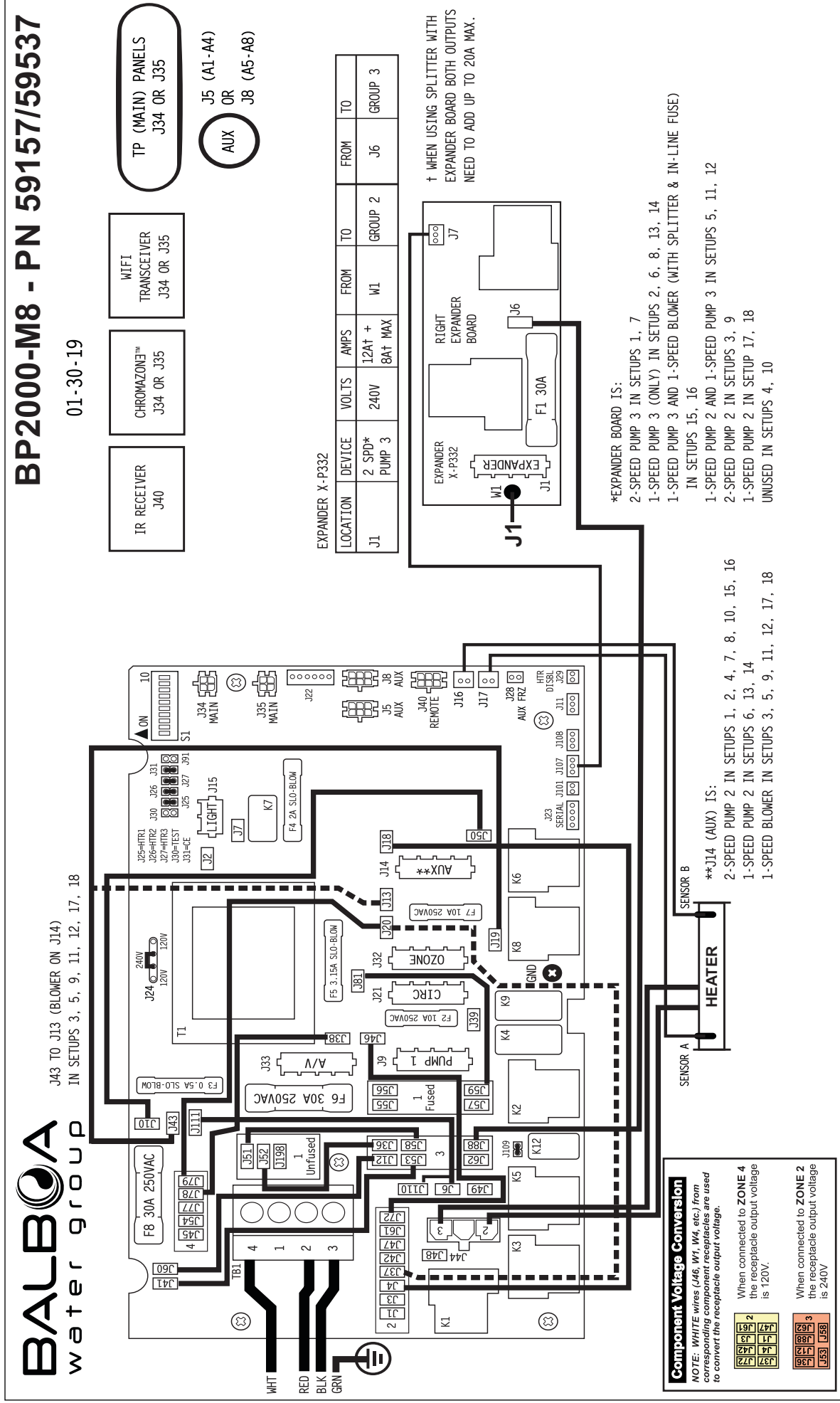
BP2000 Wiring Configuration

Setup (As Shipped)

- 240V Pump 1, 2-Speed
- 240V Pump 2, 2-Speed
- 240V Pump 3, 2-Speed

- 240V Heater
- Support TP Series Main Panels
- Support AX Series Aux Panels

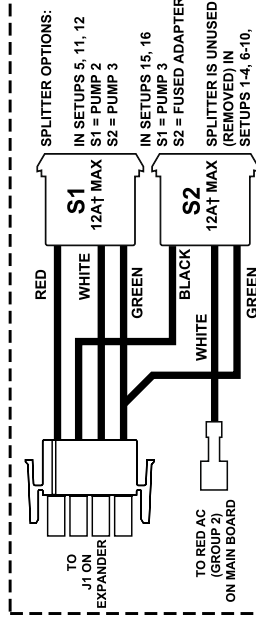
Wiring Diagram



BP2000 Setup and DIP Switch Definitions

LOCATION	DEVICE	VOLTS	MAX AMPS	FROM	TO
J9	PUMP 1	240V	12A MAX	J46	J72-GROUP 2
J14	AUX	240V	12A MAX	J18	J3-GROUP 2
J15	AUX LINE 1 CONNECTION	240V	J19	J43	
J21	SPA LIGHT	12V	1A	J20	J79-GROUP 4
J32	OZONE	120V	2A MAX	J20	
			1A		
J33	CIRC AND OZONE LINE 1 CONNECTION	120V	J81	J59	
J44	TV / AV	120V	3A	J38	J45-GROUP 4
	HEATER	240V	5.5 KW		

* FOR 240V CIRC PUMP AND OZONE, CONNECT J20 TO J42 (IN GROUP 2)



‡ OPTIONAL BP2X-WIRE KIT PN 30893

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

PUMP 1 LOW TIMEOUT IS 15 MINUTES.

‡SETUPS 5, 11, 12, 15 AND 16 REQUIRE BP2X-WIRE KIT PN30893

BALBOA
water group**BP2000-M8 - PN 59157/59537**
02-11-14

IMPORTANT SETUP NOTES

*EXPANDER BOARD IS:

2-SPEED PUMP 3 IN SETUPS 1, 7

1-SPEED PUMP 3 (ONLY) IN SETUPS 2, 6, 8, 13, 14

1-SPEED PUMP 3 AND 1-SPEED BLOWER (WITH SPLITTER & IN-LINE FUSE)

IN SETUPS 15, 16

1-SPEED PUMP 2 AND 1-SPEED PUMP 3 IN SETUPS 5, 11, 12

2-SPEED PUMP 2 IN SETUPS 3, 9

UNUSED IN SETUPS 4, 10

1-SPEED PUMP 2 IN SETUPS 17, 18

**J14 (AUX) IS:

2-SPEED PUMP 2 IN SETUPS 1, 2, 4, 7, 8, 10, 15, 16

1-SPEED PUMP 2 IN SETUPS 6, 13, 14

1-SPEED BLOWER IN SETUPS 3, 5, 9, 11, 12, 17, 18

SWITCHBANK S1 OFF

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 A
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.

USE COPPER CONDUCTORS ONLY.

EMPLOYER UNIQUEMENT DES CONDUCTEURS DE CUIVRE.

#6 AWG MIN. WIRE = 90°

FOR SUPPLY CONNECTIONS, USE CONDUCTORS SIZED ON THE BASIS OF

60° C AMPACITY BUT RATED MINIMUM OF 90° C.

TORQUE RANGE FOR MAIN TERMINAL BLOCK (TB1):

27-30 IN. LBS. (31.1-34.5 kg cm)

CONNECT ONLY TO CIRCUITS PROTECTED BY A CLASS A GFCI.

A DISCONNECTING MEANS MUST BE INSTALLED WITHIN SIGHT FROM

THE EQUIPMENT AND AT LEAST 5 FEET (1.52 M) FROM THE

INSIDE WALLS OF THE POOL, SPA, OR HOT TUB.

TOTAL OUTPUT AMP DRAW NOT TO EXCEED INPUT RATING OF SPA.

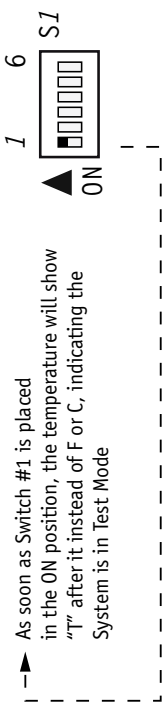
USE EARTH GROUND CONNECTIONS AS INDICATED INSIDE THE SYSTEM

ENCLOSURE

Changing Software Setups with TP600/400

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.

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 TP600/400 Continued

You will have 1 minute

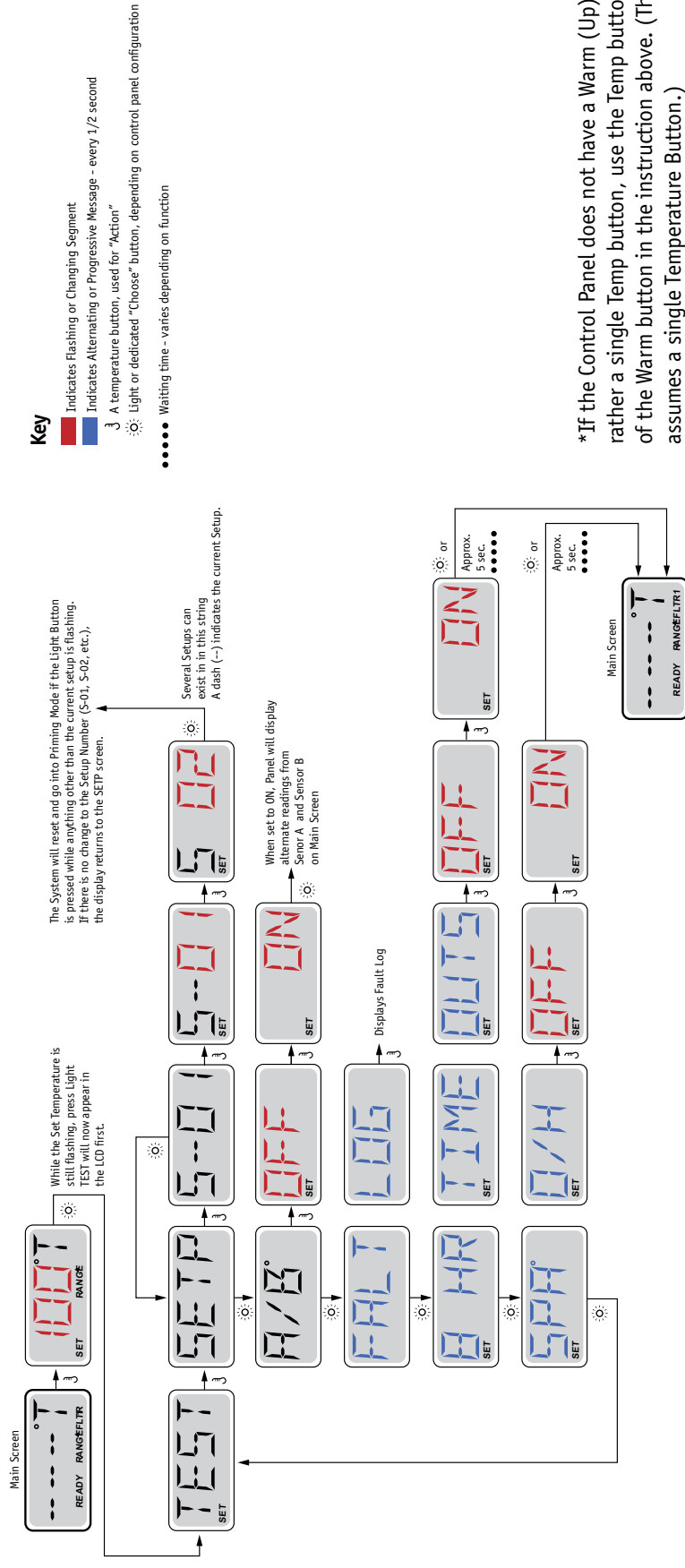
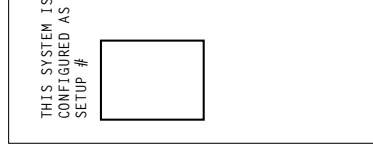
Again, to complete the setup change after you manually exit Priming Mode.

Immediately after exiting Priming Mode, press this sequence of buttons: Warm*, Light, Warm, Warm, Warm. Continue to press Warm until the display 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.



Changing Software Setups with TP800 / TP900 / spaTouch™ Menued Panel

Service Technician ONLY.

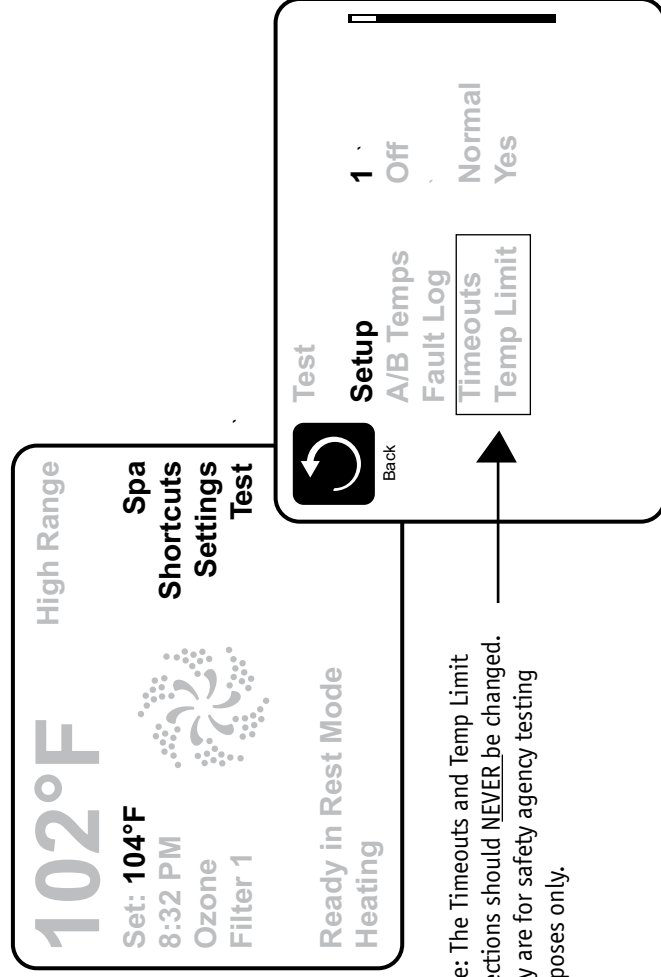
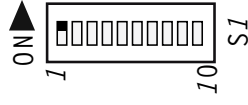
DANGER! HIGH VOLTAGE WILL BE ACCESSIBLE! SERVICE TECHNICIAN ONLY!

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.



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

TP400, TP600 Message Codes

The following are messages and features that can appear on the TP400 and TP600 panels.

NOTE: LCD readouts may look slightly different than shown on screen.

DEMO (DEMO MODE)

Demo Mode is not always enabled, so it may not appear. This is designed to operate several devices in a sequence in order to demonstrate the various features of a particular hot tub.

INFO (SYSTEM INFORMATION SUB-MENU)

The System Information Menu displays various settings and identification of the particular system. As each item in the menu is highlighted, the detail for that item is displayed at the bottom of the screen.

SSID (SOFTWARE ID)

Displays the software ID number for the System.

MODL (SYSTEM MODEL)

Displays the Model Number of the System.

SETP (CURRENT SETUP)

Displays the currently selected Configuration Setup Number.

SIG (CONFIGURATION SIGNATURE)

Displays the checksum for the system configuration file.

HEATER VOLTAGE (FEATURE NOT USED ON CE RATED SYSTEMS)

Displays the operating voltage configured for the heater.

HEATER WATTAGE AS CONFIGURED IN SOFTWARE (CE SYSTEMS ONLY)

Displays a heater kilowatt rating as programmed into the control system software (1-3 or 3-6).

H _ (HEATER TYPE)

Displays a heater type ID number.

SW _ (DIP SWITCH SETTINGS)

Displays a number that represents the DIP switch positions of S1 on the main circuit board.

PANL (PANEL VERSION)

Displays a number of the software in the topside control panel.

GFCI (GFCI Test) (Feature not available on CE rated systems.)

GFCI Test is not always enabled, so it may not appear. This screen allows the GFCI to be tested manually from the panel and can be used to reset the automatic test feature. If the GFCI Test Feature is reset, the device will trip within 7 days.

TP400, TP600 Messages (cont.)

A / B (A/B SENSOR TEMPERATURES)

When this is set to On, the temperature display will alternate to display temperature from Sensor A and Sensor B in the heater.

FALT LOG (FAULT LOG)

The Fault Log is a record of the last 24 faults that can be reviewed by a service tech.

SCROLLING TP400/TP600 MESSAGES

The following messages will scroll across the TP400/TP600 panels. **NOTE:** LCD readouts may look slightly different than shown on screen.

RUN PMP5 PURG AIR ----

PRIMING MODE – M019

Each time the spa is powered up, it will enter Priming Mode. The purpose of Priming Mode is to allow the user to run each pump and manually verify that the pumps are primed (air is purged) and water is flowing. This typically requires observing the output of each pump separately, and is generally not possible in normal operation. Priming Mode lasts 4 minutes, but you can exit it earlier by pressing any Temp button. The heater is not allowed to run during Priming Mode.

NOTE: If your spa has a Circ Pump, it will turn on with Jets 1 in Priming Mode. The Circ Pump will run by itself when Priming Mode is exited.

-- -- -F -- -- -C

Water Temperature is Unknown

After the pump has been running for 1 minute, the temperature will be displayed.

42 F TOO COLD

Too Cold - Freeze Protection

A potential freeze condition has been detected, or the Aux Freeze Switch has closed, and all pumps and blower are activated. All pumps and blower are ON for at least 4 minutes after the potential freeze condition has ended, or when the aux freeze switch opens. In some cases, pumps may turn on and off and the heater may operate during Freeze Protection. This is an operational message, not an error indication.

WATR TOO HOT -- -- --

Water is too Hot (OHS) – M029

One of the water temp sensors has detected spa water temp 110°F (43.3°C) and spa functions are disabled. System will auto reset when the spa water temp is below 108°F (42.2°C). Check for extended pump operation or high ambient temp.

SFTY TRIP -- -- --

Safety Trip - Pump Suction Blockage* – M033

The Safety Trip error message indicates that the vacuum switch has closed. This occurs when there has been a suction problem or a possible entrapment situation avoided. (Note: not all spas have this feature.)

HTR FLOW LOSS -- -- --

Heater Flow is Reduced (HFL) – M016

There may not be enough water flow through the heater to carry the heat away from the heating element. Heater start up will begin again after about 1 min. See "Flow Related Checks" below.

HTR FLOW FAIL -- -- --

Heater Flow is Reduced (LF)* – M017

There is not enough water flow through the heater to carry the heat away from the heating element and the heater has been disabled. See "Flow Related Checks" below. After the problem has been resolved, you must press any button to reset and begin heater start up.

HTR MAY BE DRY -- -- -- WAIT -- -- --

Heater May be Dry (dr)* – M028

Possible dry heater, or not enough water in the heater to start it. The spa is shut down for 15 min. Press any button to reset the heater start-up. See "Flow Related Checks" below.

HTR TOO HOT -- -- --

HTR is too Hot (OHH)* M030

One of the water temp sensors has detected 118°F (47.8°C) in the heater and the spa is shut down. You must press any button to reset when water is below 108°F (42.2°C). See "Flow Related Checks" below.

TP400, TP600 Messages (cont.)

PRES BTM TO RSET -- -- --

A Reset Message May Appear with other Messages.

Some errors may require power to be removed and restored.

FLOW-RELATED CHECKS

Check for low water level, suction flow restrictions, closed valves, trapped air, too many closed jets and pump prime.

On some systems even when spa is shut down, some equipment may occasionally turn on to continue monitoring temperature or if freeze protection is needed.

102°F S MSR BAL-- R NCE

Sensor Balance is Poor – M015

The temperature sensors MAY be out of sync by 2°F or 3°F.

S MSR SYNC -- -- -- CALL FOR SRVC -- -- --

Sensor Balance is Poor* – M026

The temperature sensors ARE out of sync. The Sensor Balance is Poor fault has been established for at least 1 hour.

S MSR A -- -- -- CALL FOR SRVC -- -- --

S MSR B -- -- -- CALL FOR SRVC -- -- --

Sensor Failure – Sensor A: M031, Sensor B: M032

A temperature sensor or sensor circuit has failed.

NO COMM

No Communications

The control panel is not receiving communication from the System.

BETA VER-- SION -- -- --

Pre-Production Software

The Control System is operating with test software.

10217

°F or °C is replaced by °T

The Control System is in Test Mode.

MEM FAIL -- -- --

Memory Failure - Checksum Error* – M022

At Power-Up, the system has failed the Program Checksum Test. This indicates a problem with the firmware (operation program) and requires a service call.

MEM RSET -- -- --

Memory Warning - Persistent Memory Reset* – M021

Appears after any system setup change. Contact your dealer or service organization if this message appears on more than one power-up, or if it appears after the system has been running normally for a period of time.

CLOCK FAIL -- -- --

Memory Failure - Clock Error* – M020

Not Applicable on the BP1500.

CNFG FAIL -- -- --

Configuration Error - Spa will not Start Up

GFCI FAIL -- -- --

GFCI Failure - System Could Not Test/Trip the GFCI – M036

NORTH AMERICA ONLY. May indicate an unsafe installation.

STUCK PUMP -- -- --

A Pump Appears to be Stuck ON – M034

Water may be overheated. POWER DOWN THE SPA. DO NOT ENTER THE WATER.

HOT FALT -- -- -- CALL FOR SRVC -- -- --

A Pump Appears to have been Stuck ON when spa was last powered – M035

POWER DOWN THE SPA. DO NOT ENTER THE WATER.