INSTRUCTION MANUAL

NEO 2100

SPA CONTROL SYSTEM

Waterway™

Designed, Engineered & Manufactured in the USA.

2200 East Sturgis Road, Oxnard CA 93030 • **Phone 805.981.0262** • Fax 805.981.9403
waterway@waterwayplastics.com • **www.waterwayplastics.com**

807-1930.0114

©2014 Waterway Plastics

NEO 2100
SPA CONTROL SYSTEM

SAVE THIS MANUAL

PLEASE MAKE IT AVAILABLE TO ALL OTHER SPA USERS

⚠ WARNING! Qualified Technician Required for Service and Installation

BASIC INSTALLATION AND CONFIGURATION GUIDELINES

- Use minimum 6AWG copper conductors only.
- Readily accessible disconnecting means to be provided at time of installation.
- Permanently connected power supply.
- Connect only to a circuit protected by a Class A Ground Fault Circuit Interrupter (GFCI) or Residual Current Device (RCD) mounted at least 5' (1.52M) from the inside walls of the spa/hot tub and in line of sight from the equipment compartment.
- CSA enclosure: Type 2
- Refer to Wiring Diagram inside the cover of the control enclosure.
- Refer to Installation and Safety Instructions provided by the spa manufacturer.

WARNING! People with infectious diseases should not use a spa or hot tub.

WARNING! To avoid injury, exercise care when entering or exiting the spa or hot tub.

WARNING! Do not use a spa or hot tub immediately following strenuous exercise.

WARNING! Prolonged immersion in a spa or hot tub may be injurious to your health.

WARNING! Maintain water chemistry in accordance with the Manufacturers instructions.

WARNING! The equipment and controls shall be located not less than 1.5 meters horizontally from the spa or hot tub.

WARNING! GFCI OR RCD PROTECTION.

The Owner should test and reset the GFCI or RCD on a regular basis to verify its function.

continued next page

CAUTION! CSA COMPLIANCE / CONFORMITÉ

- Test the ground fault circuit interrupter before each use of the spa.
- Read the instruction manual.
- Adequate drainage must be provided if the equipment is to be installed in a pit.
- For use only within an enclosure rated CSA Enclosure 3.
- Connect only to a circuit protected by a Class A ground fault circuit interrupter or residual current device.
- To ensure continued protection against shock hazard, use only identical replacement parts when servicing.
- Install a suitably rated suction guard to match the maximum flow rate marked.

WARNING!

- Water temperature in excess of 38°C may be injurious to your health.
- Disconnect the electrical power before servicing.

ATTENTION!

- Toujours verifier l'efficacite du disjoncteur differentiel avant d'utiliser le bain.
- Lire la notice technique.
- Lorsque l'appareillage est installe dans une fosse, on doit assurer un drainage adequat.
- Employer uniquement a l'interieur d'une cloture CSA Enclosure 3.
- Connecter uniquement a un circuit protege par un disjoncteur differentiel de Class A.
- Afin d'assurer une protection permanente contre le danger de shock electrique, lors de l'entretien employer seulement des pieces de rechange identiques.
- Les prises d'aspiration doivent etre equipees de grilles convenant au debit maximal indique.

ADVERTISSEMENT!

- Des temperatures de l'eau superieures a 38°C peuvent presenter un danger pour la sante.
- Deconnecter du circuit d'alimentation electrique avante l'entretien.

WARNING! / ADVERTISSEMENT!

- Disconnect the electric power before servicing. Keep access door closed.
- Deconnecter du circuit d'alimentation electrique avant l'entretien. Garder la porte fermer.

WARNING! Qualified Technician Required for Service and Installation

WARNING! SHOCK HAZARD! NO USER SERVICEABLE PARTS.

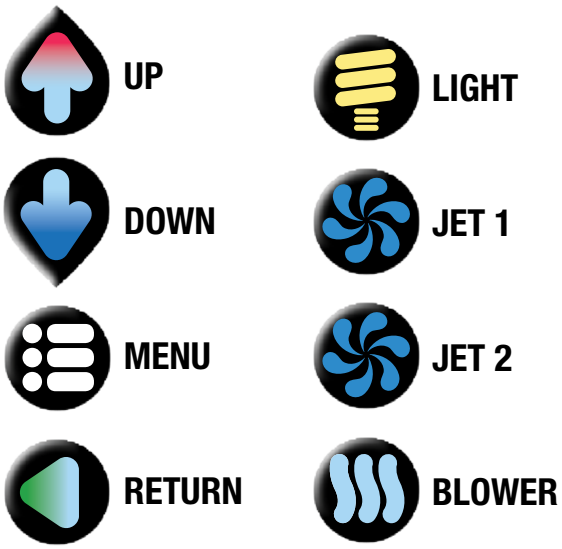
Do not attempt service of this control system. Contact your dealer or service organization for assistance. Follow all owner's manual power connection instructions. Installation must be performed by a licensed electrician and all grounding connections must be properly installed.

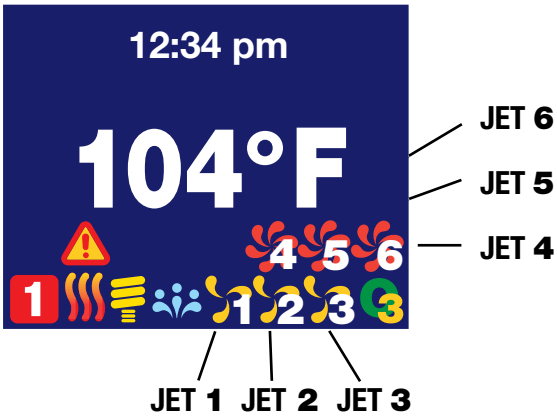
CAUTION!

High voltage levels exist inside the control box and can cause injury or possibly electrocution. To prevent premature control failure do not hose down, flood or allow water to enter the control box.

LIMITED WARRANTY

Please contact your point of purchase for Warranty information.



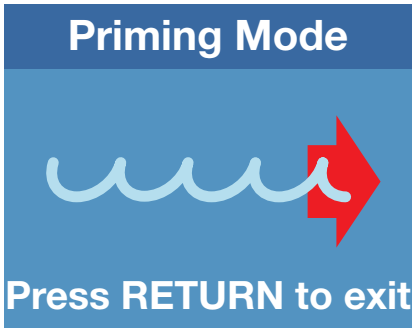


MAIN SCREEN:

The main screen displays current time, water temperature, and status of the system accessories. The screen below from bottom, left to right indicates LIGHT ON, BLOWER ON, JET 1 at low speed, and JET 2 at high speed.

PRIMING MODE:

When power is ON, the system will enter a priming mode with priming screen display on the panel. In this mode, all devices such as JETS, BLOWERS or LIGHT are operable. JETS can be turned on and off to prime the pump. System will exit priming mode and go to MAIN display when RETURN button is pushed, or after 4 minutes of inactivity.



SPA OPERATION:

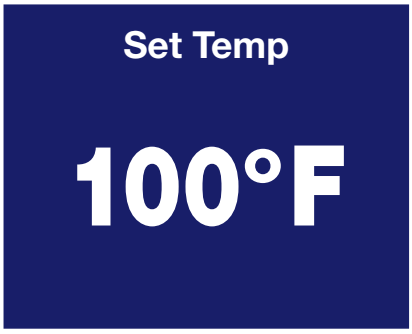
Turn system accessories ON and OFF by pushing appropriate button on the right side of panel (LIGHT, JET 1, BLOWER, JET 2…) These accessories have timeout defaults from the manufacturer and will turn OFF automatically after the time has expired. Timeout time for LIGHT default is 60 minutes; BLOWER default is 15 minutes; JET at low speed default is 60 minutes; and JET at high speed is 15 minutes. User can change these default times in "DEVICE TIMEOUT" setting menu.

MENU NAVIGATING:

- MENU button: use to enter setting menu and sub-menu screens. For screens with several settable fields (example: DATE-TIME screen), use MENU button to navigate between different fields within the screen.
- UP and DOWN button: use to navigate between different options or changing values of a field.
- RETURN button: use to confirm the setting and goes back to previous screen.

SETTING TEMPERATURE:

To change water set temperature, use UP and DOWN buttons to set the desired temperature. The screen will display "SET TEMP" with the current set temperature. After 5 seconds without any change to the set temperature, the screen will reverse back to MAIN screen with current water temperature display. Changing set temperature will make heat pump turn on to get accurate water temperature to determine if water needs to be heated up.



SELECTION ICONS:

FILTER CYCLE 1	ENERGY SAVING HEAT MODE	OZONE ON
FILTER CYCLE 2	VACATION HEAT MODE	JET ON LOW SPEED
FILTER CYCLE 3	CLEANER CYCLE	JET ON HIGH SPEED
FILTER CYCLE 4	POLLING CYCLE	BLOWER ON
LIGHT ON	TEMPERATURE LOCK	SPECIAL TEMP SELECT
HEATER ON	PANEL LOCK	OPTION

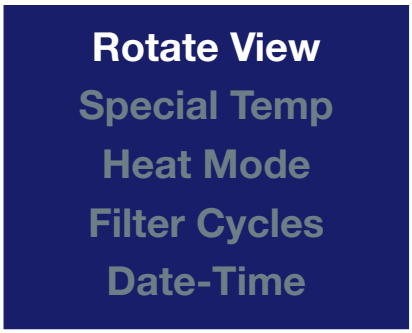
PANEL TIMEOUT:

If user is in Setting Menus and no button is pushed within 15 seconds, the screen will timeout, current screen setting will be lost and panel reverts back to MAIN screen.

In MAIN screen, if no buttons is pushed within 60 minutes, all LED and LCD lights will turn off and panel goes to sleep. Any button pushed in this time will wake the panel up, LED and LCD lights will turn back on and panel will poll for water temperature.

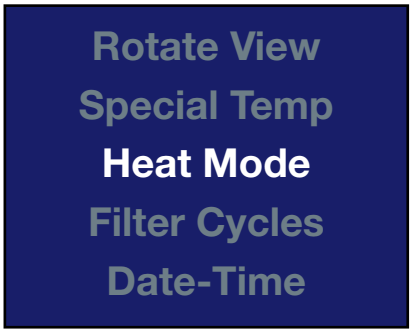
ENTER SETTING SCREENS:

Press MENU button to display a list of set up screens.



Use UP and DOWN to navigate between various set up screens.

Press MENU again to enter a particular set up screen or press RETURN to goes back to MAIN screen.



SETTING SCREENS:

- **ROTATE VIEW:** rotate the view 180 degrees, the UP and DOWN button also swap when rotated. With ROTATE VIEW highlighted press MENU to enter ROTATE VIEW setting. Use UP/DOWN to select the desire setting and RETURN to exit and confirm the setting.
- **SPECIAL TEMP:** to temporarally heat spa to 105°F or 106°F once, and return to previous temperature setting. With SPECIAL TEMP highlighted press MENU to enter SPECIAL TEMP setting. Use UP/DOWN to select the desired setting and RETURN to exit and confirm the setting.
- **HEAT MODE:** select STANDARD heating mode for most users or ENERGY SAVING mode (reduces polling for water temperature) or VACATION mode (set temp set to 50°F). With HEAT mode highlighted press MENU to enter HEAT mode setting. Use UP/DOWN to select the desired setting and RETURN to exit and confirm the setting.
- **FILTER CYCLES:** set up filter cycle start time, duration and date for filtering the spa. For FILTER CYCLE 1 and 2, if duration is set to zero the system will do a purge cycle at the start time setting. With FILTER CYCLE highlight press MENU to enter FILTER CYCLE 1, 2, 3, or 4 setting. Select a FILTER CYCLE and press MENU again to enter TIME/DURATION setting screen. In this screen, press MENU to move between HOURS, MINUTES and DAYS setting; UP/DOWN to change the values and RETURN to exit and confirm the setting.
- **DATE-TIME:** set up date and time for the spa. With DATE-TIME highlighted press MENU to enter DATE-TIME setting. In this screen, pressing MENU will move and highlight various fields that can change the setting; UP/DOWN to change the values and RETURN to exit and confirm the setting.
- **DEGREE F/C**: displays spa temperature in Celsius or Fahrenheit. This option is only available for 60 Hz countries and automatically displays Celsius for 50 Hz. With DEGREE F/C highlighted press MENU to enter DEGREE F/C setting. Use UP/DOWN to select the desired setting and RETURN to exit and confirm the setting.
- **TIME DISPLAY:** display spa time in AM/PM or 24 hours time. With TIME DISPLAY highlighted press MENU to enter TIME DISPLAY setting. Use UP/DOWN to select the desired setting and RETURN to exit and confirm the setting.
- **DEVICES TIMEOUT:** allows changes to timeout setting for various devices. LIGHT can set to a maximum of 4 hours; PUMP in high speed and BLOWER can be set to a maximum of 1 hour; and PUMP in low speed can set to a maximum of 2 hours. With DEVICES TIMEOUT highlighted press MENU to enter and select various devices setting. Use UP/DOWN to select the desired time setting and RETURN to exit and confirm the setting.
- **PANEL LOCK:** locks all panel buttons except MENU button. With PANEL LOCK highlighted press MENU to enter PANEL LOCK setting. Use UP/DOWN to select the desired setting and RETURN to exit and confirm the setting.
- **TEMP LOCK:** locks TEMPERATURE setting with UP/DOWN buttons. With TEMP LOCK highlighted press MENU to enter TEMP LOCK setting. Use UP/DOWN to select the desired setting and RETURN to exit and confirm the setting.
- **SERVICE MODE:** *only available for Authorized Dealers and Spa Manufacturer.*
- **DEMO MODE:** to demonstrate all device capabilities of the spa. With DEMO MODE highlighted press MENU to enter MODE setting. Use UP/DOWN to select the desired setting and RETURN to exit and confirm the setting.
- **GENERAL INFORMATION:** displays general information for the spa. With GENERAL INFORMATION highlighted press MENU to enter GENERAL INFORMATION menu. Use UP/DOWN to view different pages and information and RETURN to exit the page.
- **LANGUAGES:** to select various languages for the spa display. With LANGUAGES highlighted press MENU to enter and select a specific language. Use UP/DOWN to select the desired setting and RETURN to exit and confirm the setting.
- **SERENITY MODE:** to turn off all outputs and provide a quiet time setting. With SERENITY MODE highlighted press MENU to enter and select a specific time. Use UP/DOWN to select the desire time setting. Press MENU again to navigate to EXIT/START. Select the desired option and RETURN to exit and confirm the setting.
- **ENERGY INTERVAL:** *only available for Non-Circ systems.* With ENERGY INTERVAL highlighted press MENU to enter ENERGY INTERVAL setting. Use UP/DOWN to select the desired minutes setting and RETURN to exit and confirm the setting.
- **SILENT TIME:** *only available for Non-Circ systems.* Set up the time for no polling. With SILENT TIME highlighted press MENU to enter SILENT TIME setting. In this screen, pressing MENU will move and highlight various fields that can change the setting; UP/DOWN to change the values and RETURN to exit and confirm the setting.
- **CLEANER CYCLE:** *only available for Non-Circ systems.* To turn on filtration after using the spa for short cleaning period. With CLEANER CYCLE highlight press MENU to enter and select a specific duration. Use UP/DOWN to select the desired time setting. Press Menu again to navigate to Exit/Start. Select the desired option and RETURN to exit and confirm the setting.

ERROR SCREENS:

Plumbing Error

Press RETURN to clear

Error caused when SENSOR 1 and SENSOR 3 have been plugged in incorrectly. Swap the SENSOR 1 and SENSOR 3 plug in controller to correct this problem.

Insufficient Flow

Press RETURN to clear

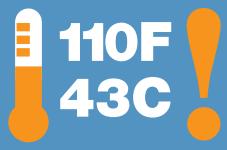
Error caused by no water flow through heater or no water in heater. Check to be sure there is enough water flow through heater.

Low Flow

Press RETURN to clear

Check to be sure there is enough water flow through heater.

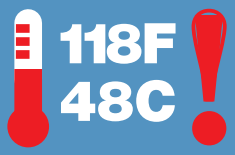
Water Overheat



Press RETURN to clear

Wait for water temperature to cool down.

Heater Overheat



Press RETURN to clear

Wait for water temperature to cool down. Check to be sure there is enough water flow through heater.

Potential Freeze

Press RETURN to clear

Error casued when SENSOR 1, 2, or 3 detects low temperature. All JETS and BLOWERS will turn on automatically to protect plumbing from freezing. JETS and BLOWERS will shut down when all 3 SENSORS reach a desired temperature.

Sensor 1 open

Press RETURN to clear

Check SENSOR 1 connection.

Sensor 1 short

Press RETURN to clear

Check SENSOR 1 connection or replace SENSOR 1.

Sensor 2 open

Press RETURN to clear

Check SENSOR 2 connection.

Sensor 2 short

Press RETURN to clear

Check SENSOR 2 connection or replace SENSOR 2.

Sensor 3 open

Press RETURN to clear

Check SENSOR 3 connection.

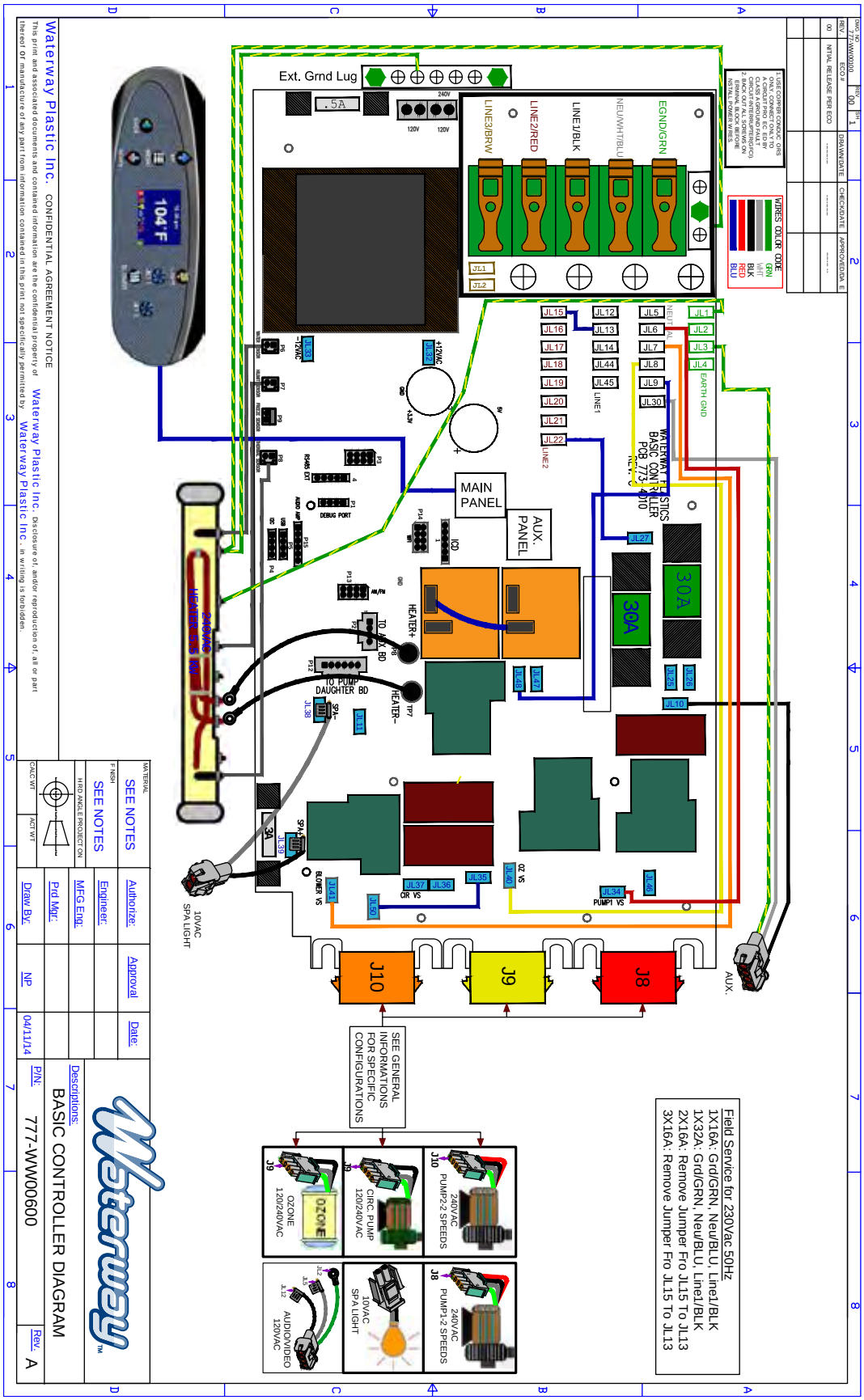
Sensor 3 short

Press RETURN to clear

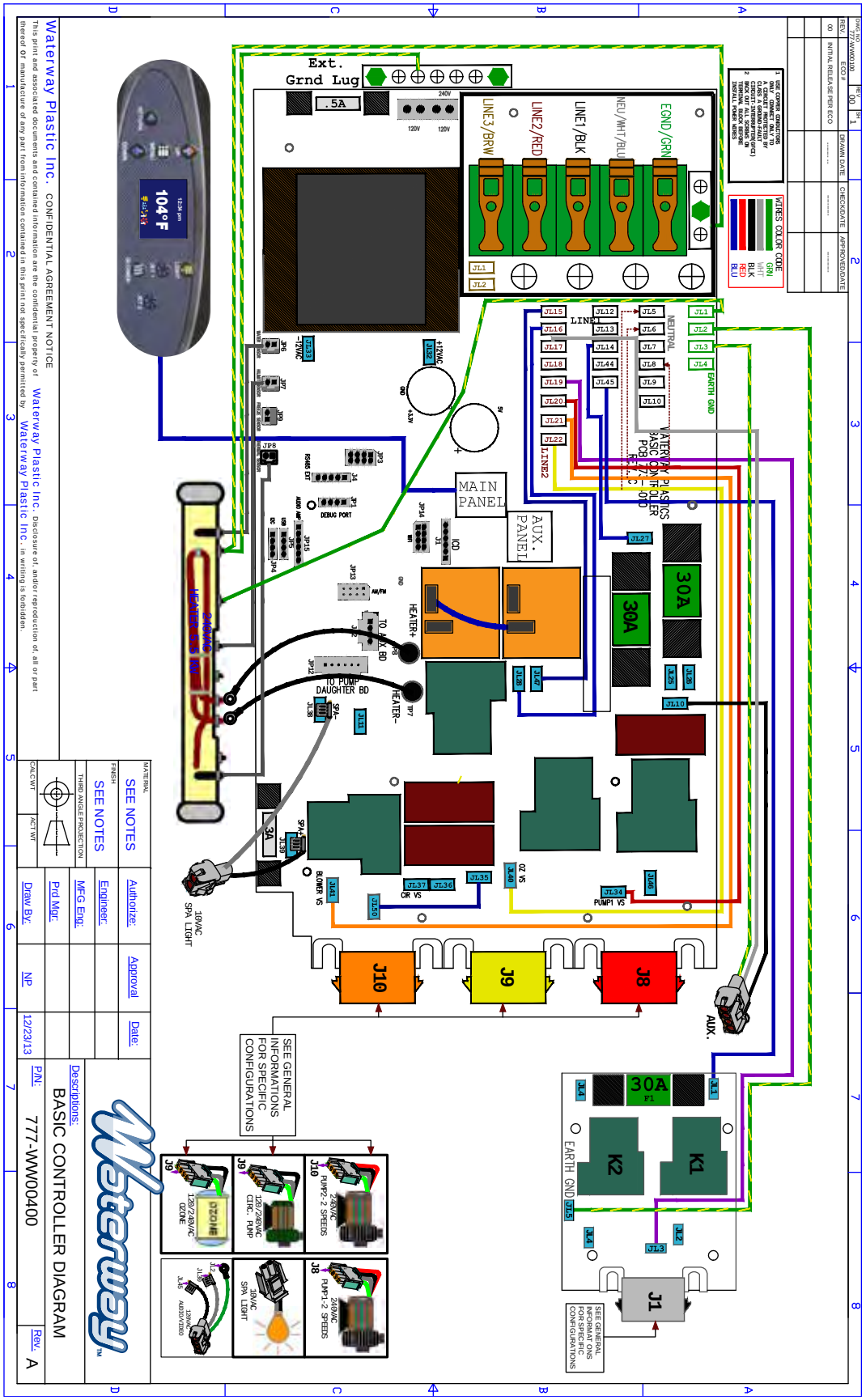
Check SENSOR 3 connection or replace SENSOR 3.

continued next page

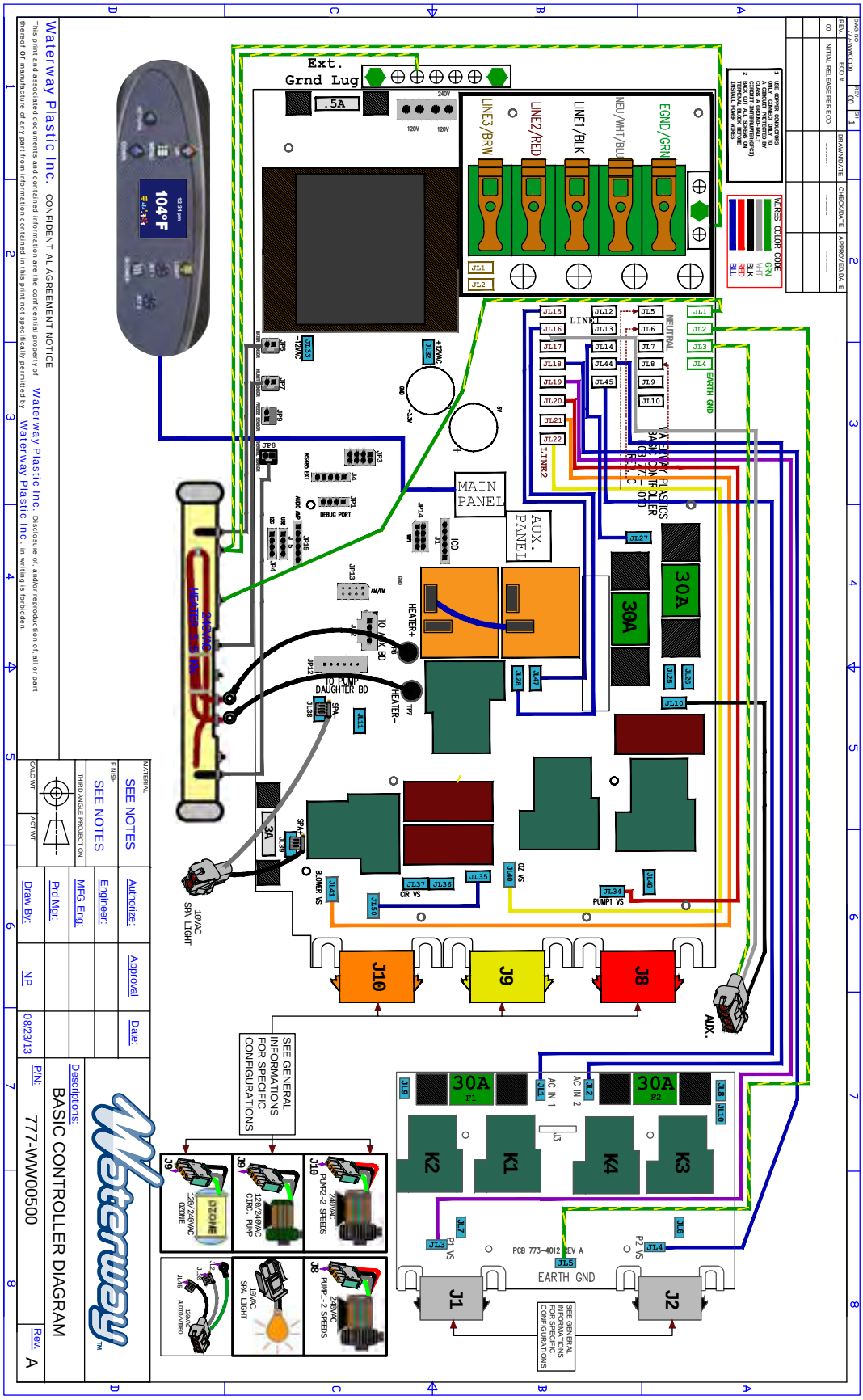
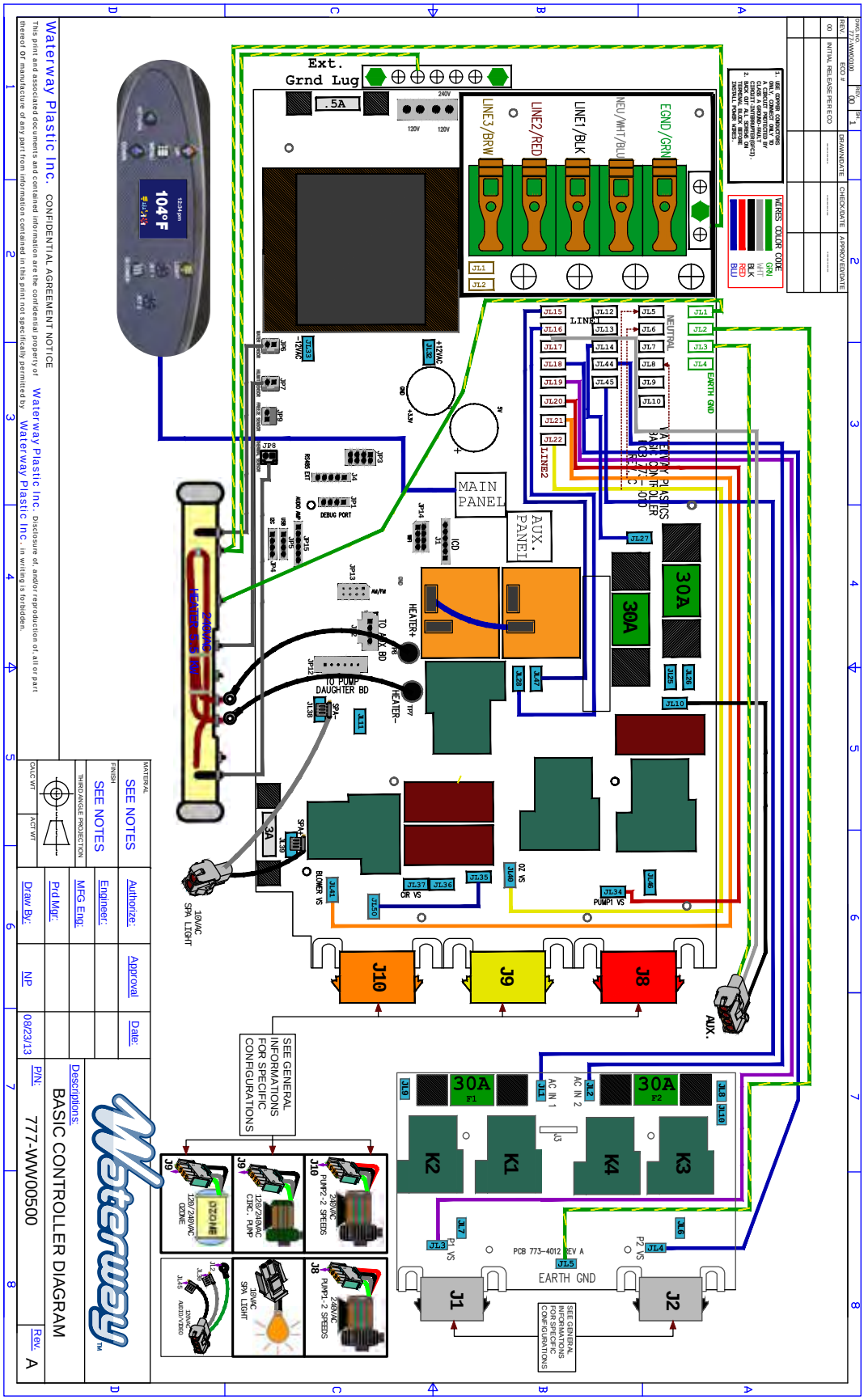
WIRING DIAGRAM (without Daughter Board)



WIRING DIAGRAM with Daughter Board (DB1)



WIRING DIAGRAM with Daughter Board (DB2)



WIRING DIAGRAM xxxxxxxxx)