



Sense & Dispense™

Troubleshooting Guide

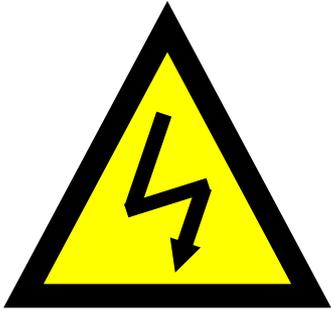


**AQL-CHEM
&
AQL-CHEM2(-240)
AQL-CHEM3-120/240**

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Sense & Dispense Diagnostics



High Voltage Electrocution Hazard

Hazardous voltage can shock, burn, cause serious injury and or death. To reduce the risk of electrocution and or electric shock hazards:

- Only qualified technicians should remove the panel
- Replace damaged wiring immediately
- Insure panel is properly grounded and bonded

Important Information

- Sense and Dispense™ is designed for use with the following Goldline Controls:
 - ProLogic™ (Version 3.0 or greater)**
 - Aqua Plus™ (Version 3.0 or greater)**
 - AquaRite Pro™**
- In all cases, verify that proper water flow is passing through the flow cell.
- Remember to recalibrate the pH probe anytime it has been cleaned or replaced.
- Always measure the complete water chemistry using a third party test kit(s) capable of testing salt, free chlorine, pH, alkalinity, stabilizer, calcium hardness, and phosphates.



Maintenance

Recommended probe maintenance schedule:

Residential – at least once every three months.

Commercial – every 30 days.

Important Maintenance Information:

1. Probes must be clean and free of oils, mineral deposits, and contamination in order to function properly.
2. Probe tips must be kept wet at all times, if left out of water or storage solution the probes will dry out and permanent damage will result.
3. Probes must be removed and kept wet during winterization.
4. Replace acid feed tubing annually.

Probe maintenance indicators:

1. Slow response to water chemistry changes.
2. Increased need to calibrate pH.
3. Inconsistent readings.

Maintenance – Probe Cleaning

Note: During the cleaning process it is crucial to keep the tips of both the ORP and pH probes wet. If the probes dry out they will be incapable of providing an accurate reading.

Step 1



Disconnect the probe connectors from the flow cell.

Step 2



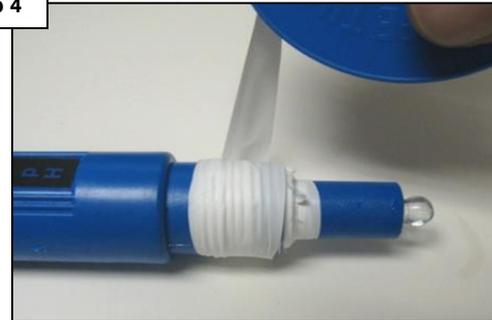
Unscrew & remove the probes from the flow cell chamber.

Step 3



Clean the probe tip and white reference area with a soft tooth brush and regular toothpaste or liquid dish washing detergent.

Step 4



Rinse with fresh water, remove and replace the Teflon tape, & reinstall the probes. Finally recalibrate the probe (Page 5 for Pro Logic or Page 6 for Aqua Rite Pro).

Calibrating the pH Probe (Pro Logic)

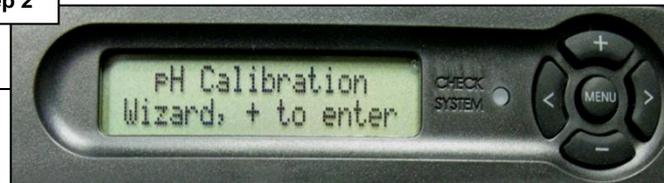
Always verify that the pH probe is clean prior to running the calibration procedure. Also, when testing the pH reading independently, it is important to obtain test water from the flow cell chamber (where the probes measure the water).

Step 1



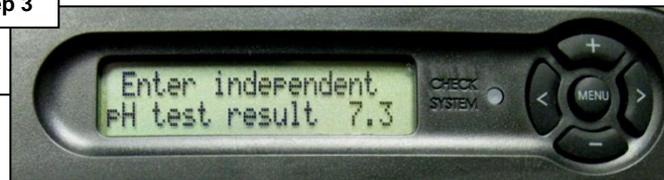
Press the 'Menu' button until 'Maintenance Menu' is displayed.

Step 2



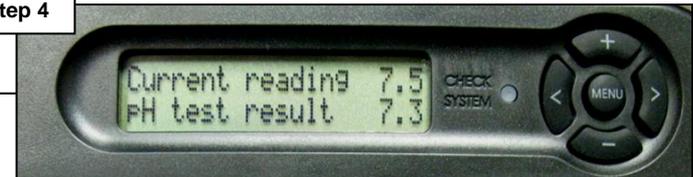
Press the right arrow button one time and press the plus (+) button to enter pH calibration.

Step 3



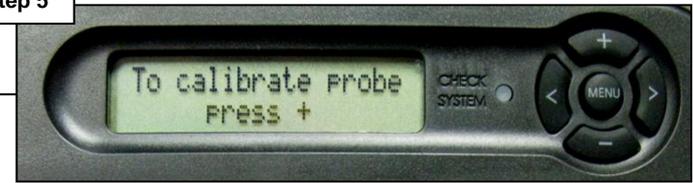
Use the plus (+) or minus (-) keys to increase or decrease the pH value.

Step 4



Press the right arrow key to show current reading and new results. Press the right arrow again.

Step 5



Press the plus (+) key to save the value.

Step 6



Press the right arrow key twice to complete the calibration.

Calibrating the pH Probe (Aqua Rite Pro)

Always verify that the pH probe is clean prior to running the calibration procedure. Also, when testing the pH reading independently, it is important to obtain test water from the flow cell chamber (where the probes measure the water).

Step 1



Settings
Menu

Press the 'Settings' button shown above. The 'Settings Menu' will appear.

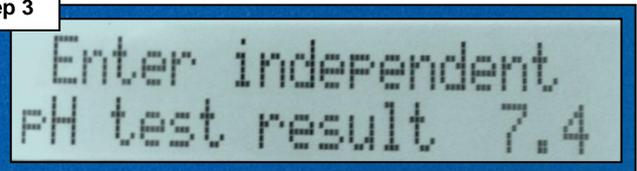
Step 2



pH Calibration
Wizard, + to enter

Press the right arrow button three times and press the plus (+) button to enter pH calibration.

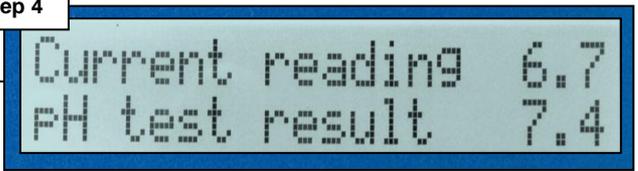
Step 3



Enter independent
pH test result 7.4

Use the plus (+) or minus (-) keys to increase or decrease the pH value.

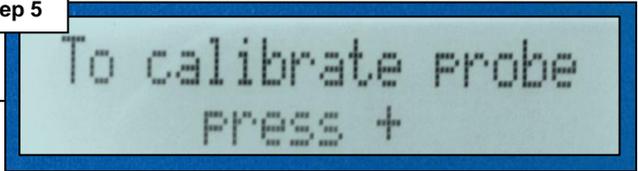
Step 4



Current reading 6.7
pH test result 7.4

Press the right arrow key to show current reading and new results. Press the right arrow again.

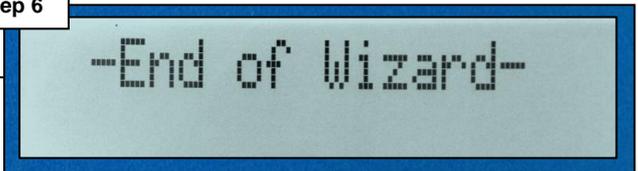
Step 5



To calibrate probe
press +

Press the plus (+) key to save the value.

Step 6



-End of Wizard-

Press the right arrow key twice to complete the calibration.

Resetting the pH/ORP Timeout Error

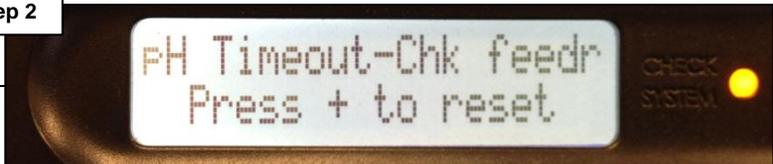
ProLogic

Step 1



Press the 'Menu' button until the 'Default Menu' appears.

Step 2



Press the right arrow button until the 'pH/ORP Timeout - Chk Feedr' appears.

Step 3



Press the plus button (+) to clear the error.

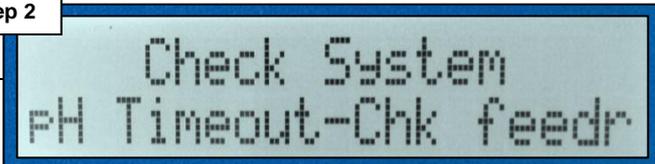
Aqua Rite Pro

Step 1



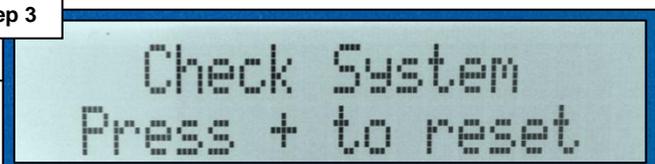
Press the 'Info' button shown above. The 'Info Menu' will appear.

Step 2



Press the right arrow button until the 'pH/ORP Timeout - Chk Feedr' appears.

Step 3



Press the plus button (+) to clear the error.

Check System Light On

CSM Comm Error

'CSM Comm Error' (Chemistry Sensing Module) will appear with the sensing module is not communicating with the main circuit board.

Verify the CSM cable is not cut, kinked or damaged in any way.

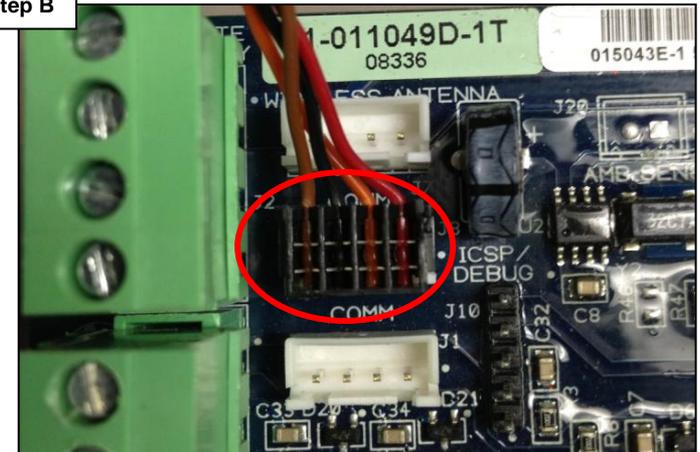
Step A



If the cable is damaged then it will need to be replaced. If the cable does not have any damage, go to step B.

With the power off, verify the CSM cable is plugged in.

Step B



If not connected, plug in and reboot the system. If connected or error does not go away, power unit up and go to step C.

Check System Light On CSM Comm Error

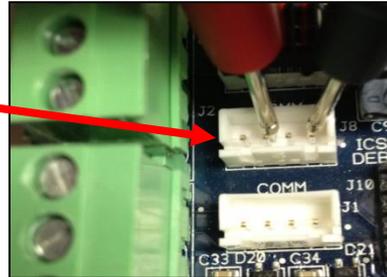
'CSM Comm Error' (Chemistry Sensing Module) will appear with the sensing module is not communicating with the main circuit board.

Measure for 10-15 Volts DC across pins 2 and 4 (Black and Red).

Step C



If no/low voltage is present, try another COMM port (if available), if not replace PCB. If the voltage is OK, go to step D.



Unplug harness. Check across pins 2 (Black) & 4 (Red) for 10-15VDC.

Verify the location of the flow cell. Make sure it is not exposed to direct sunlight.

Step D



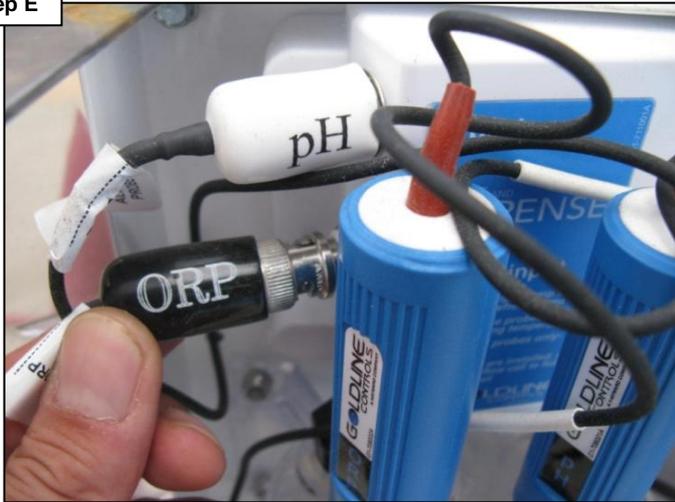
If the flow cell is in direct sunlight, relocate it or reduce sun exposure (extreme heat can cause a 'CSM Comm Error'). If this does not correct the problem or it is not in direct sunlight, replace the module (GLX-SD-ELEC-MOD).

Check System Light On

pH Probe Error / ORP Probe Error

Verify that the pH probe and ORP probe are plugged in to the correct terminals.

Step E



The pH probe plugs into the top terminal and the ORP probe plugs into the bottom terminal. If the sensors are attached correctly go to step F.

Inspect the probe connections to ensure that the connectors are clean.

Step F



If the connectors are clean replace the probe that corresponds with the error (GLX-PROBE-PH) or (GLX-PROBE-ORP). In some rare cases the problem can be caused by a bad module (GLX-SD-ELEC-MOD).

Check System Light On pH Low

The factory setting (non-adjustable) for pH Low is a pH level of 6.9 or less.

Test the water to verify the pH value of the water.

Step G



It is important to test the pH value of the water in the flow cell as well as the water in the pool. If pH is low in both the pool and flow cell, add soda ash to raise and go to step L. If the pH is low in the flow chamber only, go to step H. If the pH is not low at all go to step J.

If a CO₂ tank or Stenner pump is being used for pH reduction check the injection point.

Step H



Inspect the pH reduction feeder for proper operation. The injection point must be down stream of all equipment and the water connections for flow cell. Also make sure water is flowing through the flow cell chamber. 1 GPM is ideal, while .8 to 2.2 GPM is acceptable. Turn the pump off, remove the probes, flush out the flow cell using mild dish soap and water (make sure the probe tips are stored in water to ensure they do not dry out). Once the flow cell is clean fill up with water and reinstall probes.

Check System Light On pH Low

The factory setting (non-adjustable) for pH Low is a pH level of 6.9 or less.

Clean the pH probe and run system for 120 minutes.

Step J



Follow the steps on page 4. Once probe is clean, run the filter pump for 2 hours. Check readings. If the readings are not accurate within 10% go to step K.

Recalibrate the probe under the 'pH Calibration Wizard'.

Step K



If attached to a ProLogic follow instructions on page 5. If attached to an Aqua Rite Pro follow instructions on page 6. After recalibrating the probe, if the variance between the independent test and the system's reading is more than 10% different, then replace the pH probe.

Check System Light On pH Low

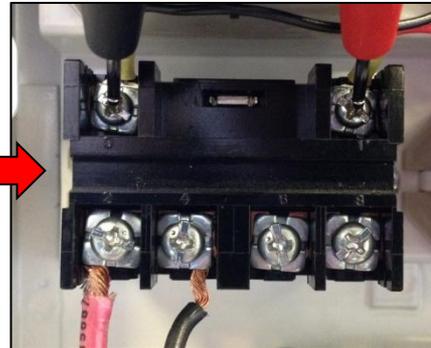
The factory setting (non-adjustable) for pH Low is a pH level of 6.9 or less.

If a CO₂ tank or Stenner pump is being used, turn pump off and check pH reduction circuit for 120 or 240VAC.

Step L



If the voltage is present then the pH reduction circuit has been compromised and the main board will need to be replaced (GLX-PCB-PRO or GLX-PCB-AR-PRO). If voltage is 0 and CO₂ is being used, go to step M.



If dispense is tied to a relay check low voltage side for 20-25VDC. If present replace board, if not and dispense is running replace relay (GLX-RELAY).

For AQL-CHEM2 only:

With the pump off, make sure CO₂ is not being released.

Step M



If the valve continues to release CO₂ despite the absence of power replace the valve (AQL-CHEM2 or AQL-CHEM2-240).

Check System Light On pH High

The factory setting (non-adjustable) for pH High is a pH level of 8.1 or higher.

Test the water to verify the pH value of the water.

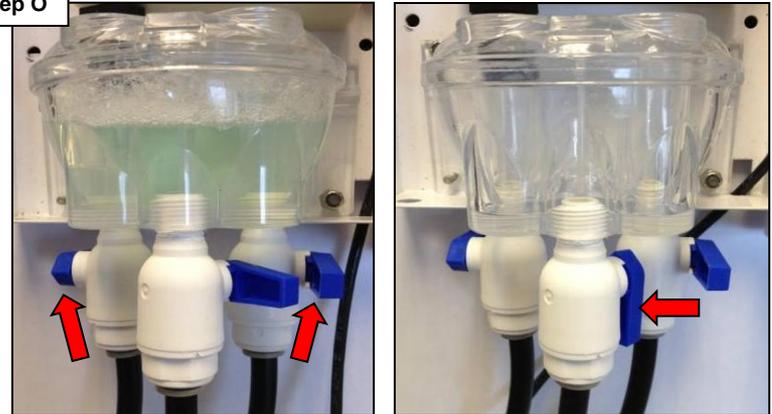
Step N



It is important to test the pH value of the water in the flow cell as well as the water in the pool. If pH is high in both the pool and flow cell, add muriatic acid to lower and go to step P. If the pH is high in the flow chamber only, go to step O. If the pH is not high at all go to step R.

Remove the probes, close the valves and clean the flow cell with dish soap.

Step O



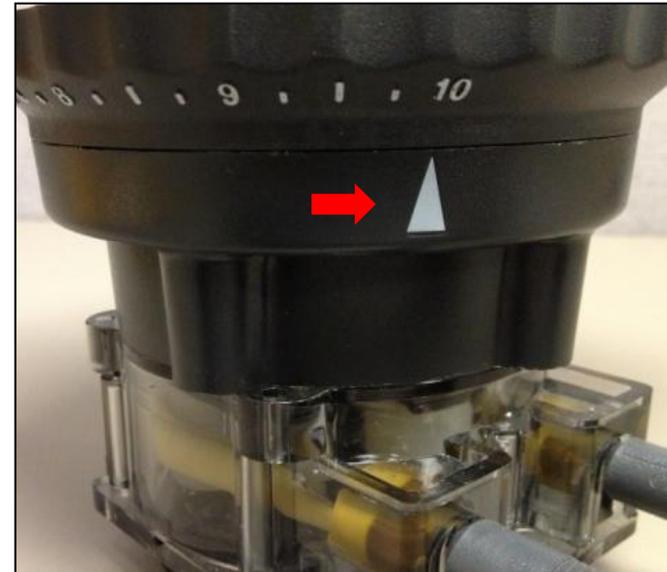
It is important to keep the probe tips wet at all times when removing the probes. Close both influent and effluent lines and use a teaspoon of dish soap (left). Drain the flow cell (right) and fill flow cell with water, reinstall probes and open valves. Retest pH levels. Go to step R.

Check System Light On pH High

The factory setting (non-adjustable) for pH High is a pH level of 8.1 or higher.

If a CO₂ tank or Stenner pump is being used for pH reduction, check tank to make sure it is not depleted, clogged or turned off.

Step P



If tank is depleted, refill or replace the canister. If the Stenner pump is being used, make sure the speed is set to 10 (on the right) and the pump toggle switch is set to ON, also inspect feed tubes. For CO₂, make sure the tank's valve is all the way in the open position. If salt chlorination is being employed, go to step Q.

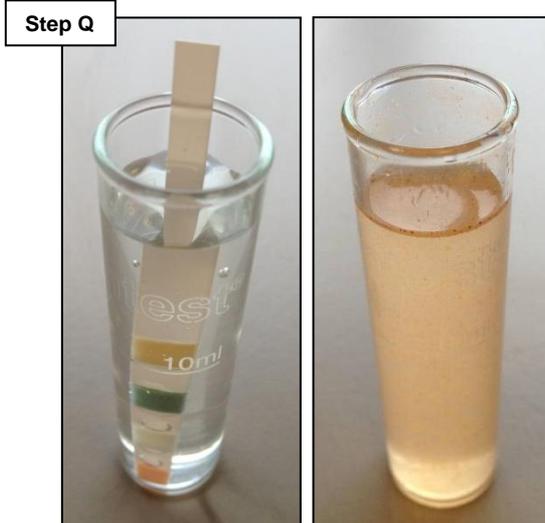
Note: If a Stenner pump is being used make sure the #5 tube (GLX-SP-LP5TUBE) is installed this will maximize the amount of acid dispensed for pH reduction.

Check System Light On

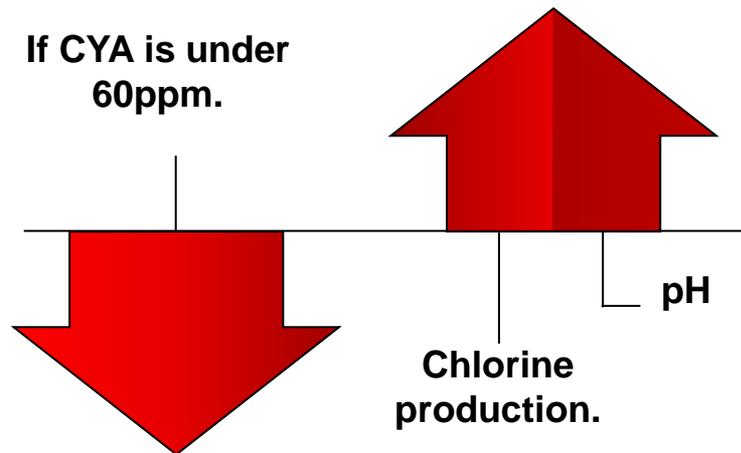
pH High

The factory setting (non-adjustable) for pH High is a pH level of 8.1 or higher.

Check the chemistry in the pool with emphasis on the free chlorine and the Cyanuric Acid levels.



If chlorine is high, lower the chlorinator percentage or ORP set point. The process to make high levels of chlorine can cause the pH to rise (right).



If the CYA is lower than 60ppm a larger percentage of chlorine is being broken down by UV light. As a result a longer chlorine run time is required which raises the pH level in the pool. Balance chemistry according to the owner's manual.

Check System Light On pH High

The factory setting (non-adjustable) for pH High is a pH level of 8.1 or higher.

Clean the pH probe and run the system for 120 minutes.

Step R



Follow the steps on page 4. Once probe is clean run the filter pump for 2 hours. Check readings. If the readings are not accurate within 10% go to step S.

Recalibrate the probe under the 'pH Calibration Wizard'.

Step S



If attached to a ProLogic follow instructions on page 5. If attached to an Aqua Rite Pro follow instructions on page 6. After recalibrating the probe, if the variance between the independent test and the system's reading is more than 10% different, then replace the pH probe.

Check System Light On pH Timeout – Chk Feedr

Test the water to verify the pH value of the water.

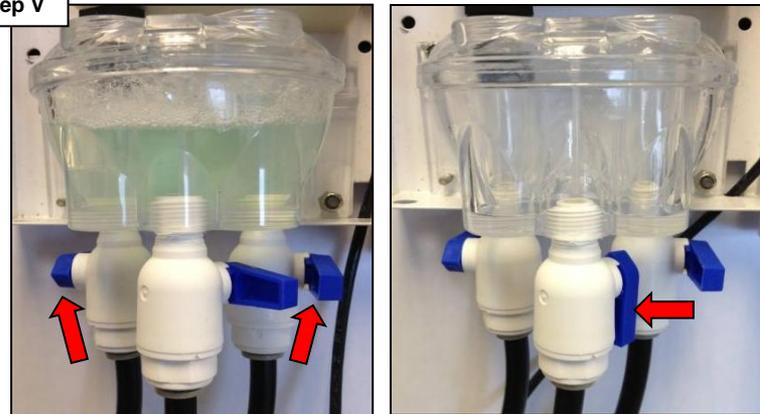
Step T



It is important to test the pH value of the water in the flow cell as well as the water in the pool. If pH is high in both the pool and flow cell, add muriatic acid to lower and go to step U. If the pH is high in the flow chamber only, go to step V. If the pH is not high at all go to step W.

Remove the probes, close the valves and clean the flow cell with dish soap.

Step V



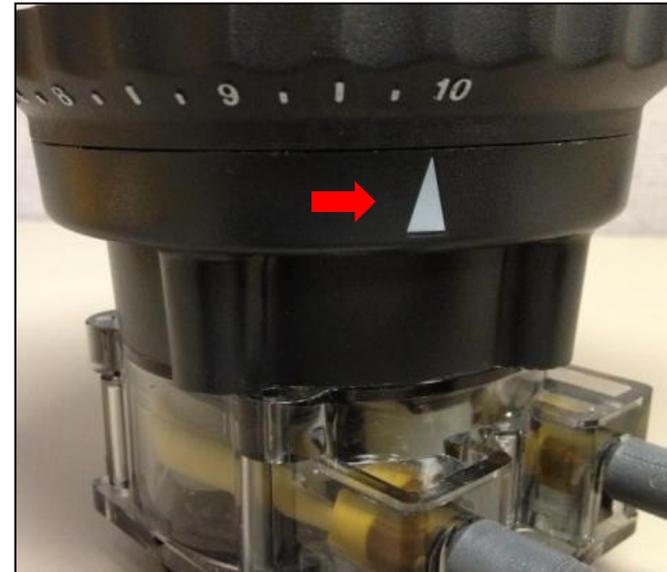
It is important to keep the probe tips wet at all times when removing the probes. Close both influent and effluent lines and use a teaspoon of dish soap (left). Drain the flow cell (right) and fill flow cell with water, reinstall probes and open valves. Retest pH levels. Go to step W.

Check System Light On pH Timeout – Chk Feedr

The factory setting (non-adjustable) for pH High is a pH level of 8.1 or higher.

If a CO₂ tank or Stenner pump is being used for pH reduction, check tank to make sure it is not depleted, clogged or turned off.

Step P



If tank is depleted, refill or replace the canister. If the Stenner pump is being used, make sure the speed is set to 10 (on the right) and the pump toggle switch is set to ON, also inspect feed tubes. For CO₂, make sure the tank's valve is all the way in the open position. If salt chlorination is being employed, go to step X.

Note: If a Stenner pump is being used make sure the #5 tube (GLX-SP-LP5TUBE) is installed this will maximize the amount of acid dispensed for pH reduction.

Check System Light On pH Timeout – Chk Feedr

The pH Timeout error will occur when the pH set point has not been achieved within the time frame specified.

Clean and the pH probe and run the system for 120 minutes.

Step W



Follow the steps on page 4. Once probe is clean run the filter pump for 2 hours. Check readings. Recalibrate (page 5-6). After recalibrating the probe, if the variance between the independent test and the system's reading is more than 10% different, then replace the pH probe.

Extend the pH feed timeout and reset 'pH Timeout – Check Feeder'.

Step X



Go to 'Chemistry Config. Wizard' press plus button to enter, scroll to right until 'pH feed timeout' option appears. Press the (+) button to extend up to 120 minutes. Once complete, follow instructions on page 7 to reset the 'Timeout Error'.

Check System Light On pH Calibration Error

Note: This error occurs when the pH probe reads more than $1.0 \pm$ the calibrated value.

Clean the pH probe and run system for 120 minutes.

Step Y



Follow the steps on page 4. Once probe is clean run the filter pump for 2 hours. Check readings and go to step Z.

Recalibrate the probe under the 'pH Calibration Wizard'.

Step Z

A photograph of a digital display screen showing the text 'pH Calibration Wizard, + to enter' in a pixelated font.

If attached to a ProLogic follow instructions on page 5. If attached to an Aqua Rite Pro follow instructions on page 6. After recalibrating the probe, if the 'pH Calibration Error' does not go away replace the pH probe.

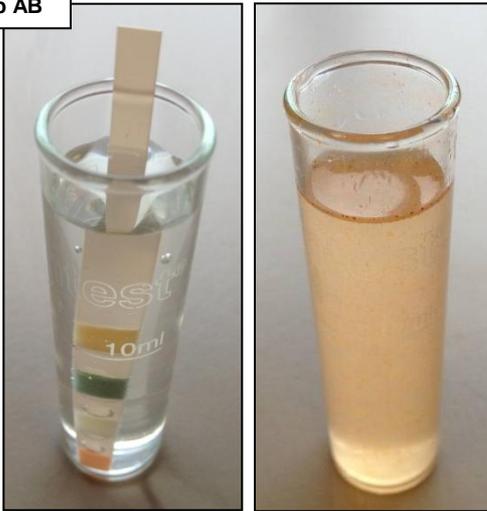
Check System Light On

ORP Low – Chk Chlor.

Note: ORP Low will be displayed if an ORP level of 350mV or less is detected.

Check the free chlorine level in the pool (1.0 - 3.0ppm).

Step AB



If chlorine is low put the system in 'Super Chlorinate' for at least 24hours and retest. If chlorine is high, go to step AC.

If the chlorine feed is set to 'Auto Sensing' (under the 'Chemistry Config. Wizard') temporarily change to 'Timed %' to allow the 'Super Chlorinate' function to be applied.

Verify whether or not a chlorine reducer is being added to the pool.

Step AC



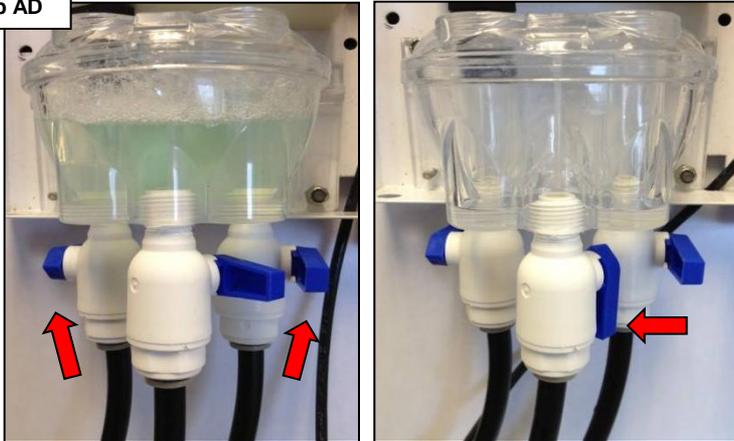
Chlorine reducers such as Sodium Sulfite cause the ORP probe to read low (if the system is configured to 'Chlorine Feed – Auto Sensing' the unit will compensate by making more chlorine, this condition can turn into a circular pattern. If chlorine reducers are being used, suspend use and go to step AD. If no reducers have been used go to AE.

Check System Light On ORP Low – Chk Chlor.

Note: ORP Low will be displayed if an ORP level of 350mV or less is detected.

Remove the probes, close the valves and clean the flow cell with dish soap.

Step AD



It is important to keep the probe tips wet at all times when removing the probes. Close both influent and effluent lines and use a teaspoon of dish soap (left). Drain the flow cell (right) and fill flow cell with water. Repeat this process several times, then go to step AE.

Clean and the ORP probe and run system for 120 minutes.

Step AE



Follow the steps on page 4. Once probe is clean run the filter pump for 2 hours. Check readings. If the value continues to remain low, despite high free chlorine in the pool, then replace the probe (GLX-PROBE-ORP).

Check System Light On

ORP High – Chk Chlor. / Chlor. Off

Note: ORP High will be displayed if an ORP level of 950mV or greater is detected.

Measure the chlorine levels using a third-party test kit.

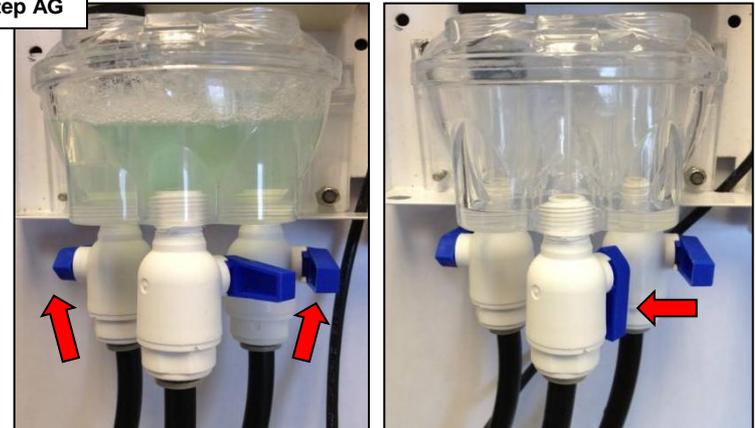
Step AF



It is important to test the chlorine level of the water in the flow cell as well as the water in the pool. If chlorine levels are high in both the pool and flow cell, then lower the ORP set point or lower the chlorinator percentage. If the chlorine level are high in the flow cell only go to step AG. If the chlorine levels are normal/low go to step AH.

Remove the probes, close the valves and clean the flow cell with dish soap.

Step AG



It is important to keep the probe tips wet at all times when removing the probes. Close both influent and effluent lines and use a teaspoon of dish soap (left). Drain the flow cell (right) and fill flow cell with water, reinstall probes and open valves. Retest pH levels. Go to step AH.

Check System Light On ORP High – Chk Chlor. / Chlor. Off

Note: ORP High will be displayed if an ORP level of 950mV or greater is detected.

Clean and the ORP probe and run system for 120 minutes.

Step AH



Follow the steps on page 4. Once probe is clean run the filter pump for 2 hours. Check readings. If the value continues to remain low ,despite high free chlorine in the pool, then replace the probe (GLX-PROBE-ORP).

Check System Light On

ORP Timeout – Chlor. Off

ORP Timeout will be displayed if the unit has been chlorinating for more than the selected sanitizer timeout setting without reaching the desired level. The chlorinator has been turned off.

Measure the chlorine levels using a third-party test kit.

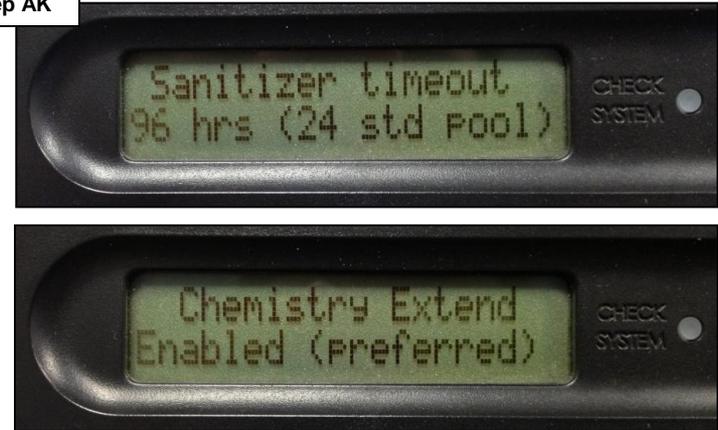
Step AJ



Measure the complete water chemistry, including phosphates and stabilizer, using an external test kit to ensure the water is balanced. Balance the water if needed. If chlorine levels are low put the system in 'Chlorine Feed – Timed %' and 'Super Chlorinate' of a minimum of 24 hours. If chlorine levels still remain low go to AK. If chlorine levels are high go to step AM.

Increase the amount of time for ORP Timeout (Chemistry Extend is default) and allow the system to run.

Step AK



The range is 1 – 96 hours, but should be set equal to or less than the pump runtime. Once complete, follow instructions on page 7 to reset the 'Timeout Error' then go to step AL.

Check System Light On ORP Timeout – Chlor. Off

ORP Timeout will be displayed if the unit has been chlorinating for more than the selected sanitizer timeout setting without reaching the desired level. The chlorinator has been turned off.

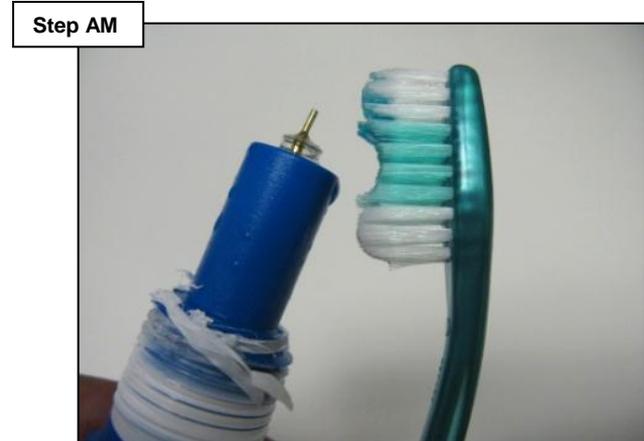
Compare the pool size, cell size and filter run times.



Cell Size	Maximum Capacity	Chlorine Output	Pump Run Time
T-CELL-15	40,000gal	1.45lbs	24hrs
T-CELL-9	25,000gal	.98lbs	24hrs
T-CELL-5	18,000gal	.73lbs	24hrs
T-CELL-3	15,000gal	.56lbs	24hrs

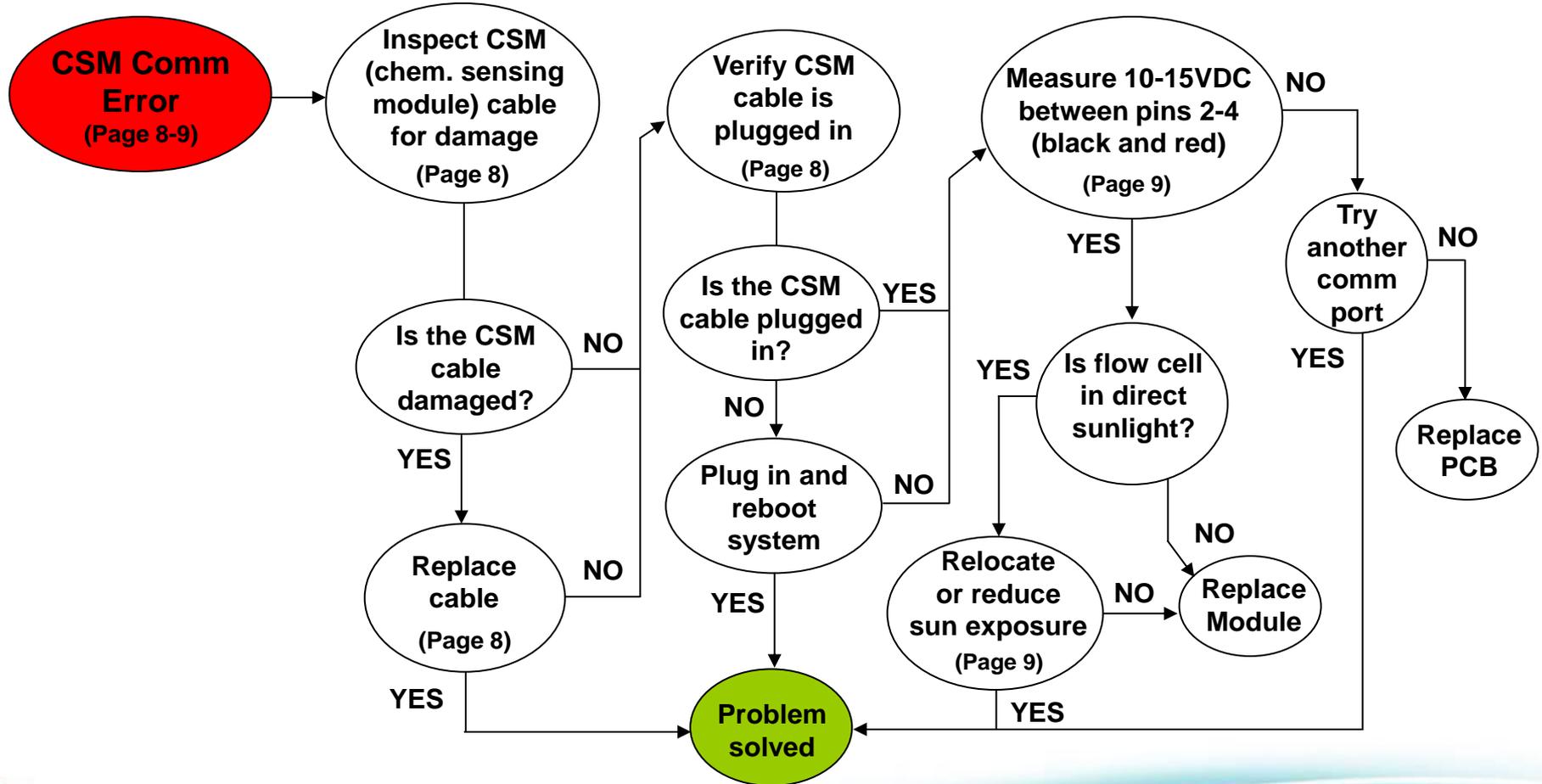
The chart (above) outlines the turbo cell's chlorine potential based on 24hrs of production. If the pump is running less than 24hrs scale the output back accordingly. If cell is undersized extend filter run time or upgrade to a larger cell.

Clean and the ORP probe and run system for 120 minutes.

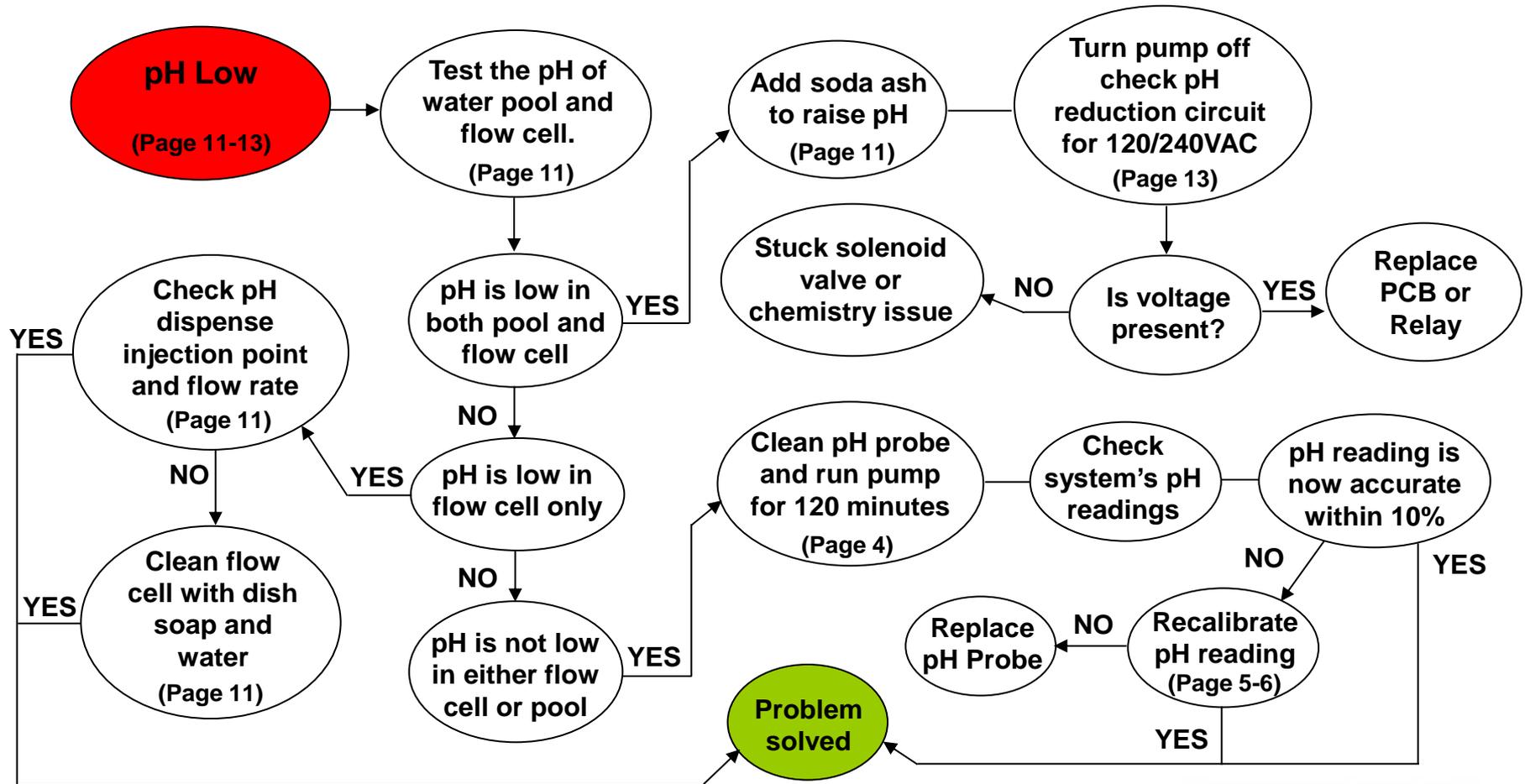


Follow the steps on page 4. Once probe is clean, run the filter pump for 2 hours. Check readings. If the value continues to remain low, despite high free chlorine in the pool, then replace the probe (GLX-PROBE-ORP). Once complete, follow instructions on page 7 to reset the 'Timeout Error'.

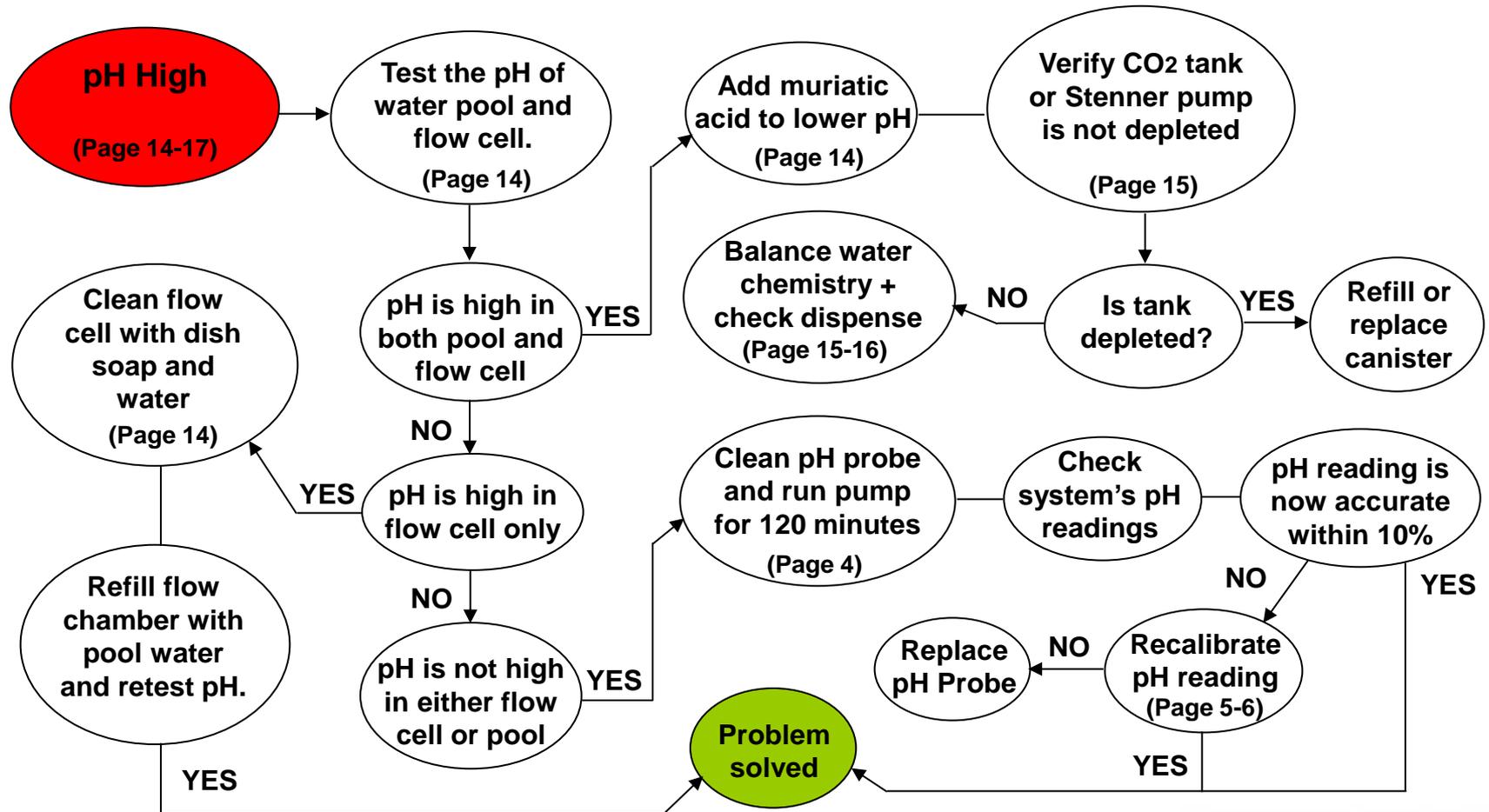
Check System: CSM Comm Error Troubleshooting Chart



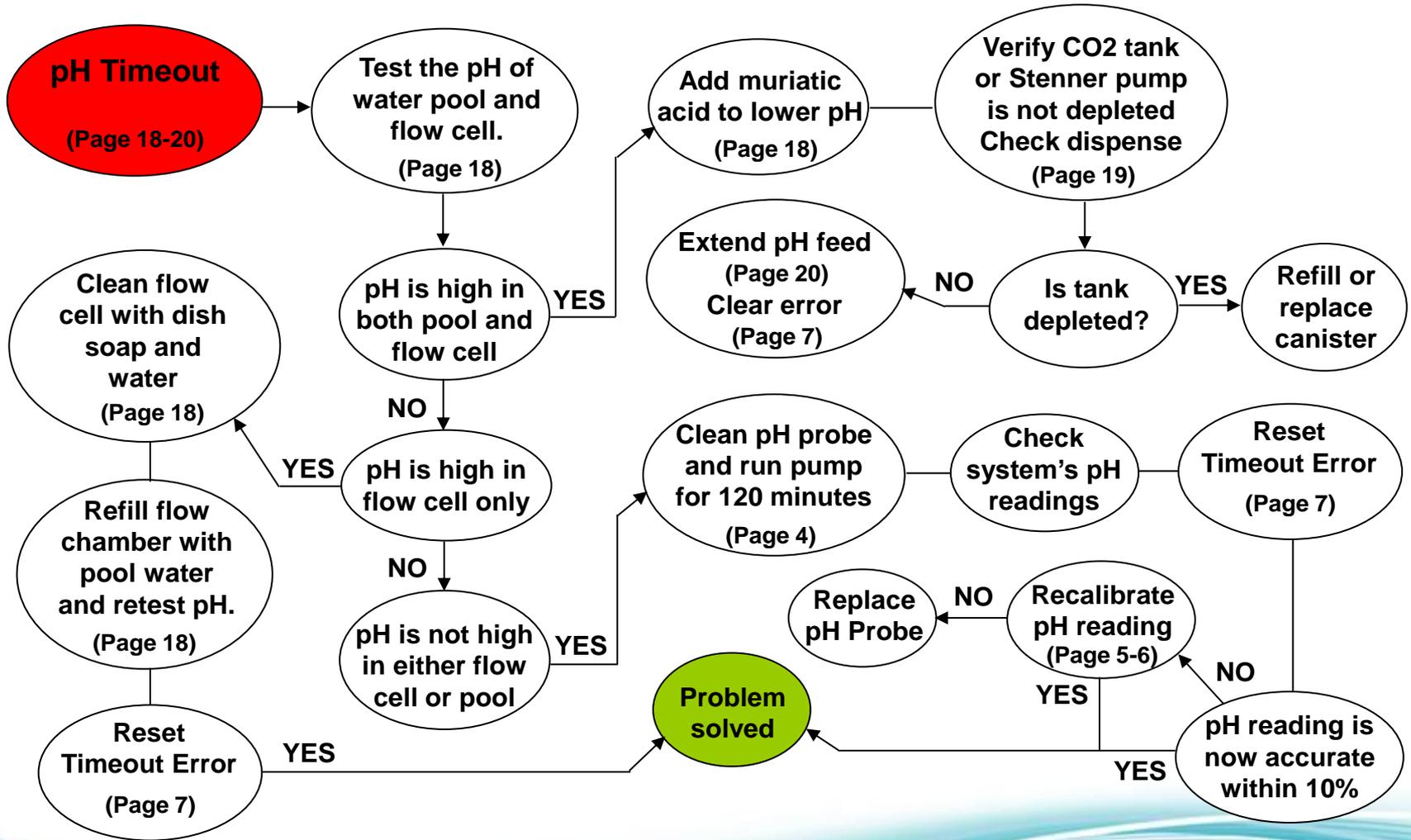
Check System: pH Low Troubleshooting Chart



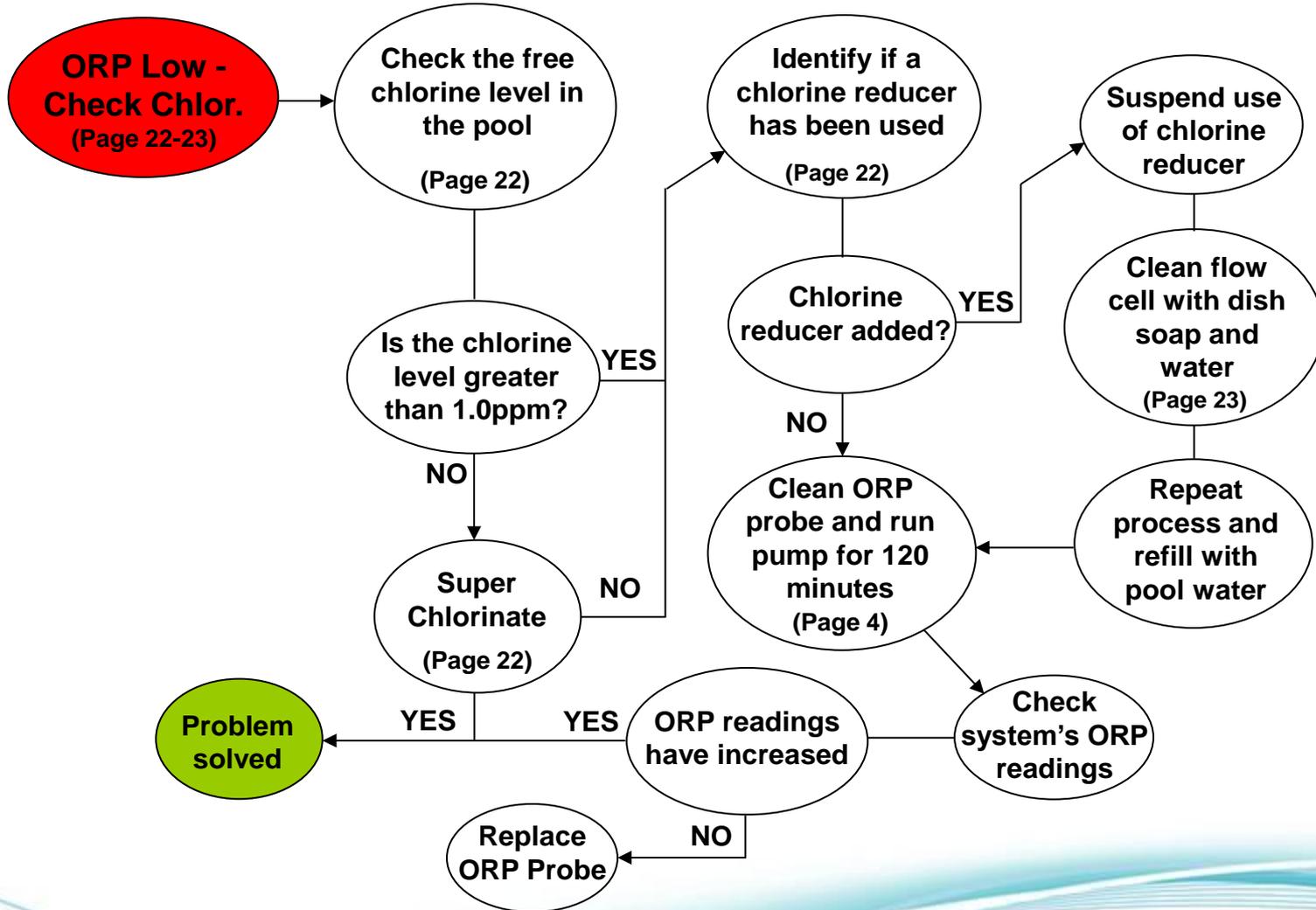
Check System: pH High Troubleshooting Chart



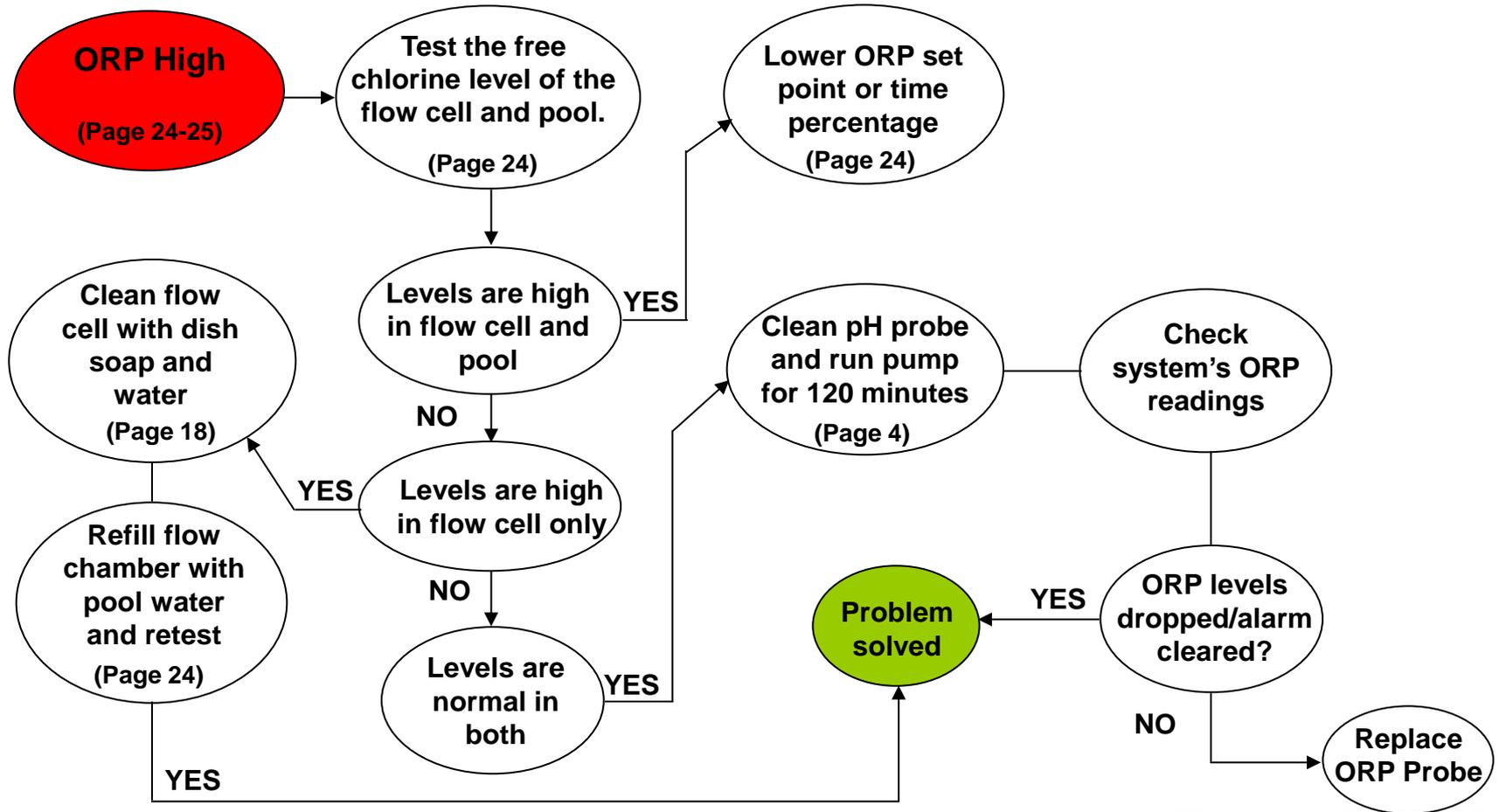
Check System: pH Timeout Troubleshooting Chart



Check System: ORP Low Troubleshooting Chart



Check System: ORP High Troubleshooting Chart



Check System: ORP Timeout Troubleshooting Chart

