Device label

TMI Salt Pure Corporation, Model zX-17
CHLORINE GENERATOR
CONTROLS BACTERIA AND ALGAE
In
Swimming Pool (and Spa) Waters
COMMERCIAL

A maximum of 877,818 L can be treated with one zX-17 unit.
Maximum output of hypochlorous acid equivalent to 4.38 kg of free available chlorine per day

For swimming pools, a range of 1-3 ppm of free available chlorine must be maintained
For spas, a range of 3.0 - 5.0 ppm of free available chlorine must be maintained.

READ THE LABEL AND OPERATING MANUAL BEFORE USING
KEEP OUT OF REACH OF CHILDREN

REGISTRATION NUMBER: 34781 *PEST CONTROL PRODUCT ACT*

WARNING: Operating zX-17 without water flow through the cell can cause a buildup of flammable gases which can result in FIRE OR EXPLOSION.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the *Pest Control Products Act* to use this product in a way that is inconsistent with the directions on the label.

TMI Salt Pure Corporation, PO BOX 433
Manchester, Washington 98353
1-800-818-8266

Replacement cell

REPLACEMENT CELL
TMI SALT PURE COMMERCIAL SALT CHLORINATOR, Model zX-17
TMI SALT PURE zX-17 REPLACEMENT CELL

Replacement electrode for the generating device TMI Salt Pure Commercial Salt Chlorinator, Model zX-17

REGISTRATION NO. 34781 *PEST CONTROL PRODUCT ACT*

This cell must only be used on this model device.
READ THE LABEL AND THE INSTALLATION, OPERATION, AND MAINTENANCE MANUALOF THE GENERATION DEVICE TMI SALT PURE COMMERCIAL SALT CHLORINATOR, MODEL ZX-17 BEFORE USING.

TMI SALT PURE CORPORATION, 1605 ALASKA AVENUE EAST
PORT ORCHARD, WASHINGTON, U.S.A., 98366. **1-800-818-8266**

Operating Manual

TMI Salt Pure® zX Series

SALT CHLORINATOR

Model:

zX-17

Installation, Operation, and Maintenance Manual

KEEP OUT OF REACH OF CHILDREN
REGISTRATION NO. 34781 PEST CONTROL PRODUCT ACT.

TMI SALT PURE CORPORATION, 1605 ALASKA AVENUE EAST
PORT ORCHARD, WASHINGTON, U.S.A., 98366. **1-800-818-8266**

TABLE OF CONTENTS

Note: This manual is subject to change at any time based on system improvements, design changes, authorized modifications or new information. Please consult TMI for the latest revision.

WELCOME TO TMI SALT PURE® WATER

We at TMI SALT PURE® are dedicated to providing you with the most luxurious, healthy, 'natural' pool water you have ever experienced, as well as the most reliable product and the best after-sales service you could hope for. Reading this Guide will help ensure that your Salt Pure® system functions correctly and will elaborate on certain maintenance procedures which, if left undone, may void warranties.

Support

Every Salt Pure® system comes with remote technical support for the lifetime of the equipment.

Chemistry Control

!!STOP!! Not all chemistry controllers are compatible with the zX system, before connecting to a chemistry controller, contact your Technical Support Representative to ensure compatibility. Email techsupport@tmiaquatics.com.

Testing Supplies

In order to properly run your new zX series system, you will need reliable, commercial test kits. This should include:

pH, Chlorine, Salt, Calcium Hardness, Total Alkalinity, Cyanuric Acid and Phosphates.

TMI provides a full range of kits for every need. If you need a new kit, or simply replacement items, contact TMI first to ensure you have the right testing supplies on hand.

Preventative Maintenance

Did you know that not all chemicals are fully compatible with chlorine generators?
TMI offers a complete range of Specialty chemicals that are compatible with chlorine generators that improve water quality, system performance and help reduce downtime while keeping your water sparkling clear at all times.

Contact your TMI Technical support rep. for assistance in selecting the PMP that is right for you.

Overview of the TMI SALT PURE® System

A Salt Pure® system is NOT chlorine free, it simply produces pure sodium hypochlorite which is free from all the additives and preservatives in both bottled liquid and tablet/granular chlorine that made it shelf stable and also cause many of the common reactions associated with chlorine (Bleached swimsuits, hair color changes and skin irritation).

Chlorine generation is a natural process and even takes place to a small degree in ocean water!

So how does it work?

Here is the process:
When salt (99% NaCl additive free) is dissolved in pool water and then subjected to electrolysis inside the zX cell, "Liquid Chlorine" in the form of Sodium Hypochlorite is produced.

This sanitizes the water by killing bacteria, virus, algae and other harmful or nuisance organisms.

The chlorine generation process is cyclical, the salt is not consumed, the chlorine returns to salt after sanitizing the water, to be turned back into chlorine again when the system is energized.

This process will repeat as many times as needed until the chlorine demand is met and the water is sanitized.

Each zX system should be designed to suit your particular pool or spa to ensure best results.

SECTION 1
DESCRIPTION

1.1 GENERAL INFORMATION

The TMI Salt Pure® zX Large Series is designed for commercial swimming pool applications. The system manufactures sodium hypochlorite continuously from a salt concentration of 3500 to 4500 ppm added to the pool. The TMI Salt Pure® zX Large Series is designed for commercial service and will be best operated by a TMI chemistry controller.

1.2 PRINCIPLES OF OPERATION

Electrolytic Cell Assembly

The electrolytic cell assembly consists of a cell housing and electrolytic cell.

- The housing is made of clear PVC for visual inspection, inlet and effluent ports and a fixed flange for the electrolytic cell to mount to.

- The electrolytic cell is made up of multiple titanium plates coated with a protective mixture of titanium & ruthenium. This coating allows the system to produce chlorine while resisting the oxidation effect of the production process. This coating will wear over time, and once depleted, the cell must be replaced. This is a closed loop system because the salt is used repeatedly and is only lost through splash-out, backwashing and rainfall.

Power Supply

The power supply provides the current to the electrolytic cells to produce the NSF rated amount of sodium hypochlorite. The power supply used switch-mode technology in its self-selecting power supply. This is currently the most electrically efficient method of producing current for an electrolytic cell as the system can operate from 208vAC up to 240vAC without the need for special wiring changes, while supplying the same output power to the cell. The power supply houses all the safety features to prevent system operation in the event of a malfunction.

Auto-Salt Control System

If you selected to purchase the Auto-Salt Controller System to monitor and automate salt concentrations in the pool, this will include a Saturated Salt Feeder, peristaltic pump and relay box. The LCD of the zX Power Supply displays the salt concentration and will prevent the system from operating should the salt fall below 3,000 ppm to protect the system from low salt and the Auto-Salt System can be used to automate maintaining salinity.

Acid Wash System

If you selected to purchase the Acid Wash System to simplify maintenance, refer to diagram and instructions on page 31 for installation and placement.

SIZING GUIDELINES

All systems must be sized by TMI for warranty to be valid. In some areas additional requirements must be met to comply with local codes. Please contact your local TMI representative for assistance.

1.3 GENERAL SPECIFICATIONS

SODIUM HYPOCHLORITE PRODUCTION:

Model Designation	Sodium Hypochlorite Production	Rated power in DC Amps	Rated Pressure	Minimum Water Flow Rate	Weight Power Supply/ Cell	Inlet/ Outlet Diameter
TMI Salt Pure® zX-17	7,7 kg / day (1220 LPH) (17 lbs. / day) (322 GPH)	50 amps DC	3.5 kg/cm^2 (50 psi)	75.7 lpm (20 gpm)	18.1 kg (40 lbs)	2.54 cm (1 inch)

ELECTRICAL REQUIREMENTS:

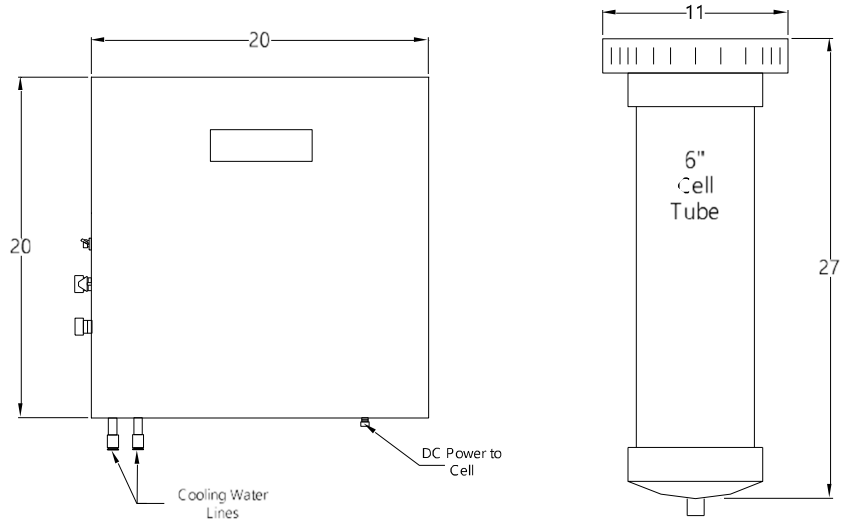
Input voltages are self-selecting.

Model Designation	AC Input Voltage	Phases	Frequency	Amps	Fuse Size	GFCI Breaker
TMI Salt Pure® zX-17	208-240 vAC	1	50/60 Hz	15	20	30

These systems require a 120 vAC external control signal from a chemical feed controller or from a standard 15 amp wall outlet. The control connection is rated at 1 amp.

SPACE REQUIREMENTS:

zX-17



SECTION 2
INSTALLATION
INSTALLATION OVERVIEW

This is a quick guide to how the TMI SALT PURE® zX System should be installed. Refer to the following pages for detailed instructions and helpful hints. If you have any questions, contact TMI before proceeding.

1 Locate an appropriate installation location for the zX System 'Cell' in the return line, the location must:
   a. Be downstream from all other equipment.
   b. Allow the 'Cell' to be installed vertically (see page 14)
2 Mount the Power Supply indoors onto a wall or other rigid surface capable of supporting the 'Power Supply' weight. Power Supply should be within reach of the 'Cell' cord connection.
3 AC power should only be supplied when the circulation pump is operating. (see page 16 for wiring instructions).
4 Connect 'Cell' to Power Supply. (see page 17)
5 When acid is used, connect acid feed on the main line 30 cm (12") before the cell bypass.
   (DO NO INSTALL ACID INJECTOR BEHIND ISOLATION VALVES)
6 Add salt to the pool water. Quantity of salt required kilogram (pounds)

Litres X 4.5 / 1000 = kilograms
(Gallons X 8.35 X (.0035 to .0045) = pounds)

Refer to the following pages regarding type of salt and how to dissolve.

2.1 UNPACKING

In the event of damages occurring during shipping, it is the responsibility of the customer to notify the carrier immediately and to file a damage claim. Open the container carefully and examine all material inside. Check against the parts list to be sure that all items are accounted for and intact.

In the event damage occurred, DO NOT remove the equipment from the packaging before taking pictures of the box and packaging. Then remove it only to the extent required to photo-document the damage. We recommend ensuring the claim is made to the carrier within 24 hours.

2.2 STORAGE

When storing units, use the original packaging and store inside in a dry place. Exposure to excessive humidity, chemical fumes or the elements without protection may lead to damage not covered by the warranty.

2.3 SAFETY CONSIDERATIONS

IMPORTANT SAFETY INSTRUCTIONS
READ AND FOLLOW ALL INSTRUCTIONS

SAVE THESE INSTRUCTIONS

WHEN INSTALLING, OPERATING, AND MAINTAINING THIS EQUIPMENT, KEEP SAFETY CONSIDERATIONS FOREMOST. USE PROPER TOOLS, PROTECTIVE CLOTHING, AND EYE PROTECTION WHEN WORKING ON OR INSTALLING THE EQUIPMENT.
FOLLOW THE INSTRUCTIONS IN THIS MANUAL AND TAKE ANY ADDITIONAL SAFETY MEASURES APPROPRIATE.
BE EXTREMELY CAREFUL IN THE PRESENCE OF HAZARDOUS SUBSTANCES.
THE PERSONNEL RESPONSIBLE FOR INSTALLATION, OPERATION, AND MAINTENANCE OF THIS EQUIPMENT MUST BE FULLY FAMILIAR WITH THE CONTENTS OF THIS MANUAL.
ANY SERVICING OF THIS EQUIPMENT MUST BE DONE WITH THE UNIT FULLY OFF AND DISCONNECTED FROM THE POWER SOURCE AND ALL PRESSURE BLED FROM THE CELL HOUSING ASSEMBLY.

WARNING

- **TMI SALT PURE® zX SYSTEMS ARE INTENDED TO BE INSTALLED ACCORDING TO ALL LOCAL AND NATIONAL REGULATIONS.**
- **CONNECT THE EQUIPMENT ASSEMBLY TO A CIRCUIT PROTECTED BY A GROUND-FAULT CIRCUIT-INTERRUPTER.**
- **MODIFYING THE TMI SALT PURE® zX SYSTEM IN ANY WAY MAY CAUSE BODILY INJURY AND WILL VOID THE WARRANTY.**
- **DO NOT ALLOW CHILDREN TO OPERATE THE TMI SALT PURE® zX SYSTEM.**
- **ONLY REPLACE COMPONENTS WITH THOSE SPECIFIED BY TMI.**
- **WHEN INSTALLING THE zX SYSTEM, ENSURE THAT POWER IS LINKED TO THE MAIN PUMP POWER SOURCE FOR THE POOL TO ENSURE THAT THE TMI SALT PURE® SYSTEM NEVER OPERATES WHEN THE PUMPS ARE OFF!!**
- **ALL BOXES ON TMI SALT PURE® zX SYSTEM CONTAIN HIGH VOLTAGE COMPONENTS. NEVER OPEN ANY BOX WHILE THE POWER IS ON.**
- **THE SYSTEM HAS THE POTENTIAL TO RELEASE HIGH DOSES OF CHLORINE. USE CAUTION WHEN HANDLING, SERVICING, OR OPERATING THE EQUIPMENT.**
- **DO NOT ENERGIZE OR OPERATE THE SYSTEM IF THE CELL HOUSING IS DAMAGED OR IMPROPERLY ASSEMBLED.**
- **DO NOT MODIFY THE CORD CONNECTED AT TIME OF MANUFACTURE.**

    - **DANGER – Risk of injury**
        - **Replace damaged cord immediately**
        - **Do not bury cord**

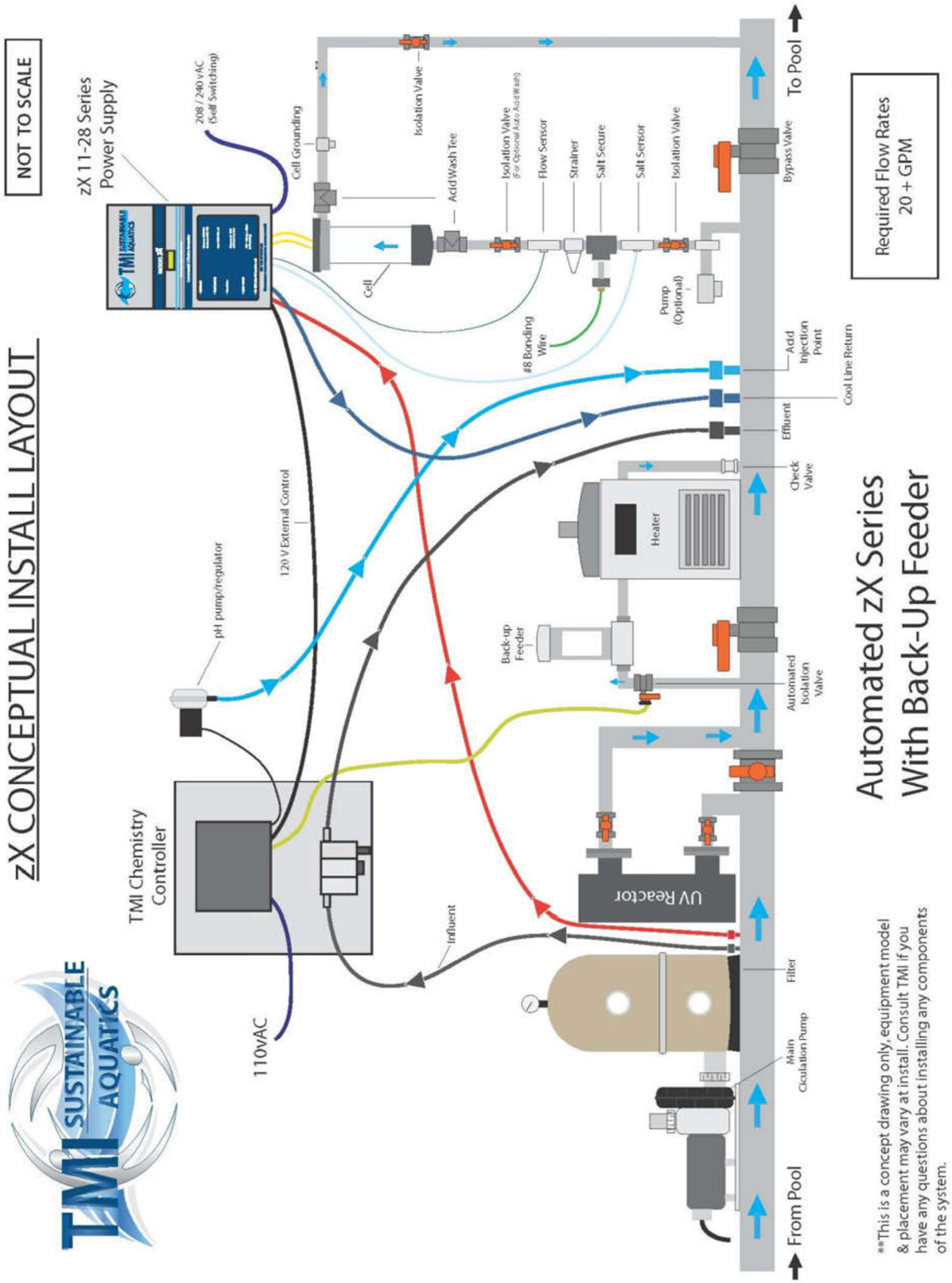
2.4 PLAN AHEAD

When correctly installed, your Salt Pure® system will operate ONLY WHEN THE CIRCULATION PUMP IS OPERATING and water is flowing through the Cell. Your TMI SALT PURE® System **must not be able to operate while the filter pump is OFF**. This may require use of external relays/contactors, mechanical flow switches or other electrical devices.

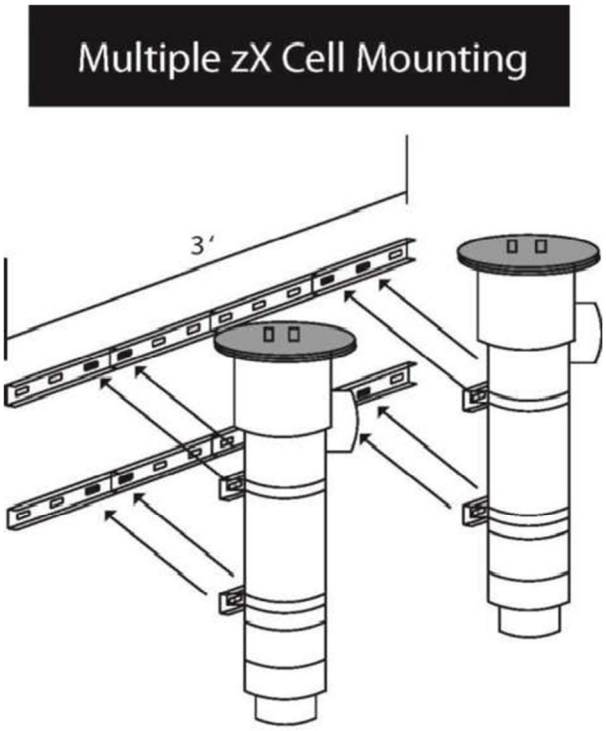
GENERAL TOOLS NEEDED FOR INSTALLATION
(Excluding Electrical Installation)

- **Tape Measure**
- **Phillips & Flathead Screwdrivers**
- **Pliers (Standard and/or Channel Lock)**
- **Reciprocating saw &/or Hacksaw**
- **Electric Drill**
- **Volt Meter to determine line voltage of AC wiring to Power Supply**
- **An NSF® approved PVC/CPVC/ABS Cleaner/Primer**
- **An NSF® approved PVC/CPVC/ABS Cleaner/Cement**
- **Mounting Anchors**

2.5 INSTALLATION DIAGRAM WITH SINGLE CELL SHOWN



2.6 MULTIPLE zX CELL MOUNTING DIAGRAM (IF REQUIRED)



2 Cells will fit on 3' sections of unistrut

PARTS REQUIRED
1 - 10' Stick of Unistrut 4 - 4" Unistrut Clamps 8 - Unistrut Channel Nuts

2.7 POWER SUPPLY INSTALLATION

NEVER TRY TO SUPPORT THE WEIGHT OF THE POWER SUPPLY OR ELECTROLYTIC CELL USING ONLY DRYWALL ANCHORS.

THE MOUNTING LOCATION OF THE UNIT MUST BE AT LEAST 5 FEET FROM THE POOL.

- Locate a space, in the equipment room, that will accommodate the dimensions of the system.
- Mount the power supply using appropriate hardware.
- The power supply must be installed no more than 2.4 metres (8 feet) from the cell housing to ensure that the cables will reach the cell.
- The Power Supply is not designed to be installed outdoors. If outdoor installation is necessary a shelter providing shade and weather protection will need to be installed.

2.8 INSTALLING THE ACID FEED

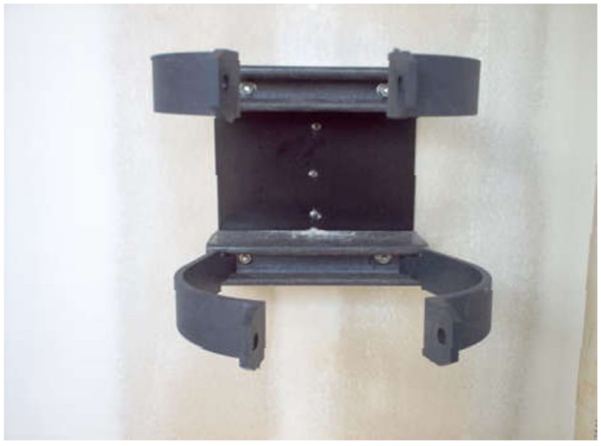
Install the acid feed (For the pH Control) approximately 30 cm (12 inches) IN FRONT of the cell bypass. This will assist in clearing build up from the cell plates, reducing your ongoing maintenance. **Be sure that the acid will not be injected behind an isolation valve, the system must be able to inject acid even when the cell is isolated for maintenance** **(see schematics on page 12.)**

2.9 ELECTROLYTIC CELL INSTALLATION

WARNING

THE MOUNTING LOCATION OF THE ELECTROLYTIC CELL MUST BE AT LEAST 1.5 METRES (5FT) FROM THE POOL.

The cell housing is equipped with unions (Either 2.5 cm (1 inch) or 3.8 cm (1-1/2 inch)) on both sides. Install the cell in the return line of the pool circulation system. The cell must be installed as the last component in the return line, after all other equipment. It is recommended that isolation valves (not included) be installed for ease of service. Be sure to install the cell in a bypass which will allow the cell to be removed for service (see page 12 for schematic). Install the cell mounting bracket to the wall using appropriate hardware. Ensure that the wall mount is level. Mount the electrolytic cell and tube to the mounting backboard. Ensure that the cell and tube are mounted within 2.4 metres (8 feet) of the power supply and that nothing is installed above the cell tube. The cell may need to be removed for service.



2.10 PLUMBING THE SYSTEM

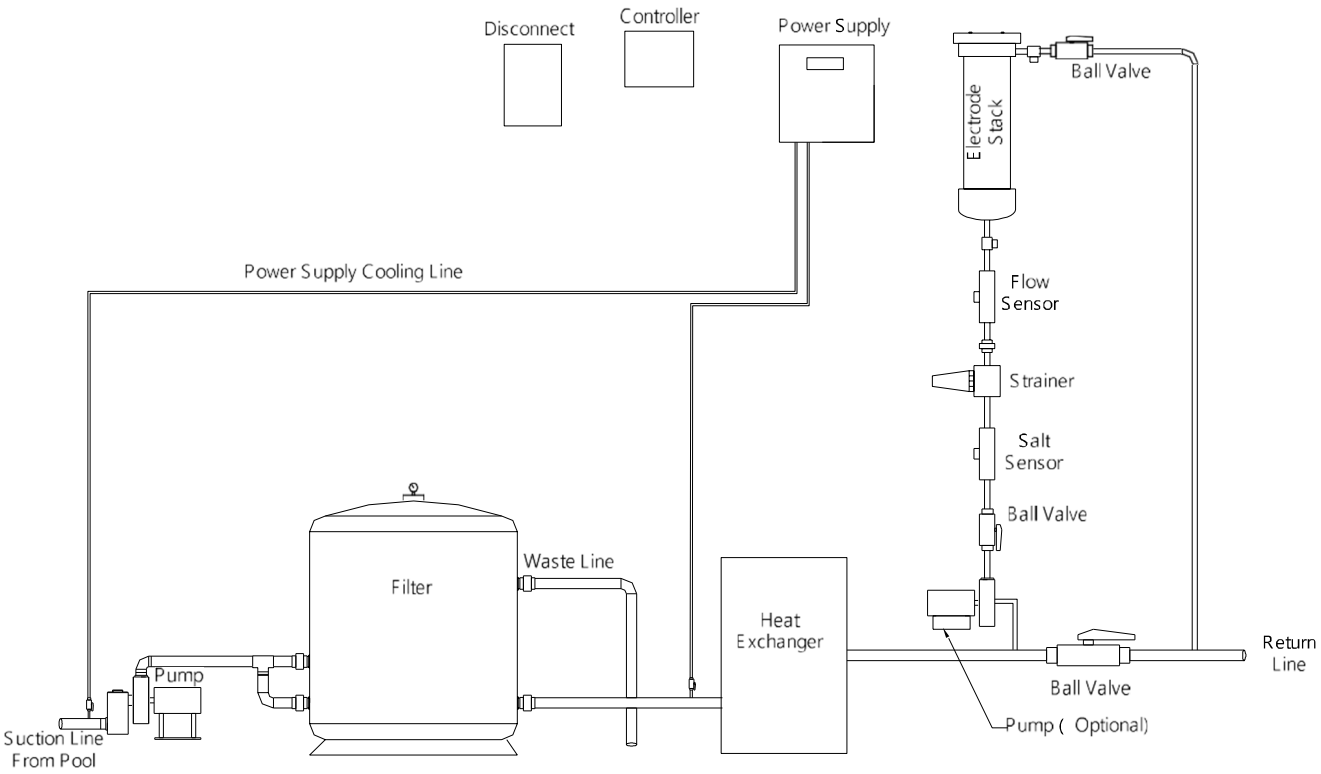
The large TMI zX systems require a minimum of 75.7 lpm (20 gpm) of flow through the electrolytic cell to achieve the rated production of chlorine. The cell housing is plumbed using a bypass to achieve the 75.7 lpm (20 gpm) of flow required. The cell housing must be installed as the last component in the return line of the pool, after all the other equipment. See the plumbing diagram below.

2.11 PLUMBING THE POWER SUPPLY COOLING LINES

The power supply cooling lines are plumbed from the return line to pump suction. The cooler lines on the power supply will accommodate .96 (3/8 inch) tubing.

IMPORTANT NOTE: MINIMUM FLOW RATE FOR COOLING LINES IS 3.8 LPM (1 GPM)
Failure to meet the minimum flow rate could lead to overheating issues.

NOTE: It is not required to plumb on the cooling lines on the suction side of pump, but if unsure of differential pressure, it's best practice to plumb it there to ensure the minimum flow rate of 3.8 lpm (1 gpm) being met.



2.12 ELECTRICAL SUPPLY - CONNECTING TO AC POWER

- **The pre-installed power cable should be hardwired and connected inside a junction box.**
- The system must be interlocked to the circulation pump operation.
- **The system must be connected to GFCI (GROUND FAULT CIRCUIT INTERRUPTOR)**
- **The zX series power supplies are self-selecting and will operate on the following voltages listed on page 7 - Electrical Requirements**

Refer to IMPORTANT SAFETY INSTRUCTIONS at front of these instructions.

2.13 CONNECTING CELL TO POWER SUPPLY

DO NOT CUT OR EXTEND THIS CORD – ANY UNAUTHORIZED MODIFICATION WILL VOID WARRANTY

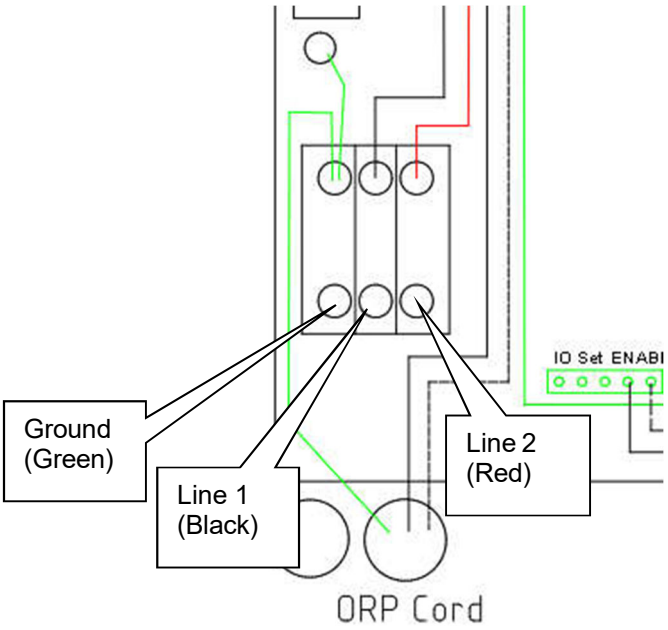
WARNING

THE EARTH/GROUND TERMINALS AND THE EQUIPMENT BONDING WIRE MUST BE CONNECTED. THE ELECTRICAL SUPPLY MUST MATCH THE SYSTEM RATED VOLTAGE AND CURRENT.
ENSURE THAT POWER IS INTERLOCKED TO THE MAIN PUMPS POWER SOURCE TO ENSURE THAT THE TMI SALT PURE® SYSTEM NEVER OPERATES WHEN THE POOL PUMPS ARE OFF.

For ease of service, it is recommended that a manual disconnect box be installed between the electrical service and the system.

Connect the electrical supply from the pool equipment room to the terminal block on the lower left side of the power supply enclosure. Ensure that the electrical service is protected by a ground fault circuit interrupter and is rated for the model that is installed. All models use 208/240V. See Electrical Requirements on page 7 for details.

zX-17 (208/240V)



Connect the external control cord to a chemical feed controller or for manual operation, to a 120 volt AC outlet. When connecting to a chemical feed controller, be sure the controller is set to continuous feed and not set on proportional control. Proportional control will reduce the life of power supply components.

Connect the four pin salt sensor connector to the four pin connector labeled SALT SENSOR.

The terminal labeled FEED SALT is used with the optional Saturated Salt Feeder. When using the optional Salt Feeder, plug the cable from the Saturated Salt Feeder Relay Box to the terminal marked FEED SALT.

2.14 INSTRUCTIONS FOR ADDING A SALT RELAY

Mount the salt feed relay box to the wall close enough to the power supply so that the patch cord will connect to the FEED SALT connector on the power supply. Plug the relay box into a 120 VAC outlet. Plug the peristaltic pump used for feeding salt into the output plug on the relay box.

2.15 ELECTROLYTIC CELL WIRING

Connect the red connector from the power supply to the red connector at the cell. **NOTE: Never remove the cables from the top of the cell. Always disconnect the cell with the red connector.**

2.16 AUTOMATED EXTERNAL CONTROL

Connect a 120 volt power source from chemical feed controller to the terminals in the power supply marked blue neutral and blue line. When connecting to a chemical feed controller, be sure the controller is set to continuous feed and not set on proportional control. Proportional control will reduce the life of power supply components.

2.17 MANUAL CONTROL

For manual operation plug the external control cable (labeled as such) into a 120 volt AC outlet.

2.18 FLOW SWITCH

Connect the two pin flow switch connector to the two pin terminal labeled FLOW SWITCH.

2.19 CELL CABLE

Connect the red connector from the power supply to the red connector at the cell. **NOTE: Never remove the cables from the top of the cell. Always disconnect the cell with the red connector.**

2.20 BONDING THE SYSTEM

All TMI zX systems include cell-bonding assemblies. These assemblies are prebuilt on the cell manifold. The bonding assemblies must be connected with a minimum of 8 AWG bonding wire. Connect the bonding wire from the top cell bonding assembly to the bottom cell SALTSECURE bonding lug and from there to the bonding lug located on the outside of the power supply. The bonding lugs on the power supply are clearly marked with a decal that reads “Bonding Lugs”. Connect the second bonding lug on the power supply to the bonding grid at the facility.

SECTION 3
OPERATION

3.1 PREPARING THE WATER

TMI Salt Pure® saline chlorination systems operate by converting sodium chloride (salt) that has been added to the pool into sodium hypochlorite (liquid chlorine) through electrolysis. In order for the TMI Salt Pure® system to operate salt must be added directly to the pool at least 24 hours before the system is started.

17 kg ($37\,{}^{1}\!/_{2}$ pounds) of salt must be added for every 3,800 litres (1,000 gallons) of pool water to reach 4500 ppm (i.e.: a 190000 litres (50,000 gallon) pool will require 816 kg (1800 pounds) of salt or 50 x 18kg (40 pound) bags to reach 4500 ppm. Once the salt has been added, brush the surface of the pool continuously until the salt has dissolved. Never leave large amounts of salt on the surface of the pool or the pool deck.

Only use pure NaCl. Do not use salt with additives. Contact your dealer or TMI for a list of approved salt.

Your pool water should be balanced in the following range before turning your TMI Salt Pure® system on:

Free Chlorine:	2 – 5 ppm
pH:	7.4
Alkalinity:	80-120 (100 ppm)
Hardness:	200 – 400 ppm
Salt:	3500 – 4500 ppm
Cyanuric acid:	20 ppm (Outdoor Pools only)
Phosphates:	Less than 200 ppb

Use standard commercial test kits to check water chemistry and use the supplied conductivity tester to check saline levels.

(Note that most conductivity testers require frequent calibration to ensure accurate readings, failure to calibrate the equipment will result in inaccurate readings.)

- If the Calcium Hardness exceeds 500 ppm (parts per million) AND is more than 300 ppm above that of the fill water (tap water), it is recommended that you contact TMI SALT PURE® or your TMI SALT PURE® Dealer for a solution.

- **Adding and Dissolving the Salt**

1 Add the salt directly from each bag into the pool water.
2 Sweep the salt around the floor toward the main drain to help dissolve and mix,
3 A short while after the salt has been added it will no longer be visible, however, the heavier-than-water syrup which forms initially will sit on the floor at the deep end until properly mixed throughout the pool. Dissolve by directing filter suction to the floor drain in the pool (if your pool has one) or by vacuuming the pool.

NOTE: ***Newly plastered pools should run on traditional chlorine to "cure" the plaster for at least 2 to 4 weeks before adding the salt. Consult with your builder for exact timing to ensure you do not void your warranty. Be sure to check for calcium buildup in the cell every 2 weeks during "curing" process. See page 22 for directions.***

- **Startup Check List**

Your TMI SALT PURE® System installation is complete when the following have been completed:

1 Cell Housing installed into plumbing
2 Cell properly secured in place in Cell Housing
3 Power Supply mounted in place
4 Power Supply connected to main power (correct voltage)
5 Cell connected to Power Supply
6 Sufficient salt dissolved into pool water
7 You have checked and confirmed that your TMI SALT PURE® System Power Supply switches ON and OFF coincidentally with the circulation pump.
8 You have checked all connections and joints for leaks (including Cell head O-ring).
9 Acid injection plumbed 30 cm (12") before cell bypass (see page 12)

3.2 STARTING THE SYSTEM

Confirm that the salt concentration is 3500 to 4500 PPM.

Confirm that the valves in and out of the cell are in the open position and water is flowing through the cell housing.

Make sure that water is flowing through the water-cooled heat sink (Cooling lines see page 15)

Ensure that the cord labeled "External control" is plugged either into a controller or directly into a wall outlet.

Verify system has power.

Be sure the disconnect box is in the on position.

Ensure that the system is receiving a control signal.

Confirm that the output control knob located on the left side of the power supply is turned fully clockwise to 100%.

Depending on the model, the system will begin generating chlorine at 100% output in 10 – 60 seconds.

If the TMI Salt Pure® system is linked to a TMI chemical feed controller, leave the system at maximum, unless otherwise directed by a TMI Technician.

If the system is being operated manually, adjust the system to find the point at which chlorine levels are maintained to the desired level. This may take several days of monitoring.

TMI zX system connected to a chemistry controller will only operate when the controller is signaling production.

If Proportional Control is used by a chemistry controller, consult TMI Technical Support prior to connecting to zX system.

3.3 SYSTEM OPERATION

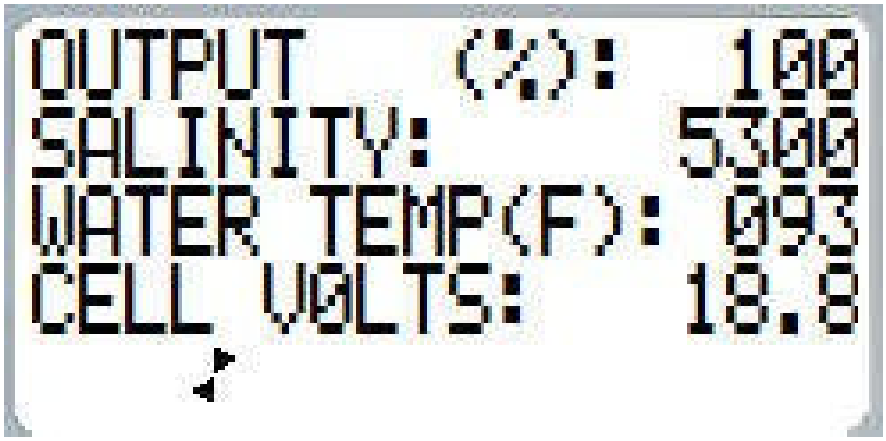
TMI Salt Pure® systems operate when both the main power supply cord and external control cable (labeled as such) have power applied to them. The TMI Salt Pure® system will continue to operate for as long as power is applied from those two sources.

Chemistry controllers will supply the external control cable power to signal production cycles, this can also be done manually by connecting to a constant power source (e.g. 110v outlet)

The system has an output range of 5 -100% of the rated chlorine production for the model installed and can be adjusted by turning the black knob on the side of power supply box in a clockwise or anti-clockwise direction.

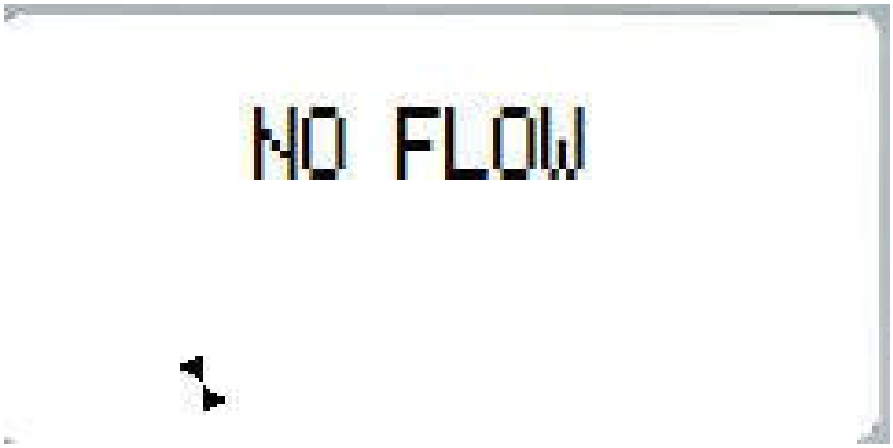
3.4 DISPLAY INFORMATION

During normal operation the display will have the following information available:



This screen is displayed when the system is waiting for a signal on the external control cable from an external source such as a chemistry controller. The system will not generate chlorine until this signal is received.

The screen below is displayed when the system detects no flow through the electrolytic cell housing. This condition will stop the system from generating chlorine. Once flow is restored, the system will start automatically and this screen will no longer be active.



This screen is displayed if a low salt condition is present. Any salt concentration below 3000 ppm will stop the system output and display this screen. When the salt concentration is raised above 3000 ppm, normal system operation will resume.

This screen will be displayed if water temperature drops below 28,8º C (59º F). The system will continue to generate chlorine. Prolonged operation at high system outputs and temperatures below 28,8º C (59º F) is not recommended. Adjusting the system to 50% or less will eliminate this screen.

The screen below indicates a disconnected or defective salt sensor. This screen will shut the system output off. Reconnect or replace the salt sensor to restore system operation.

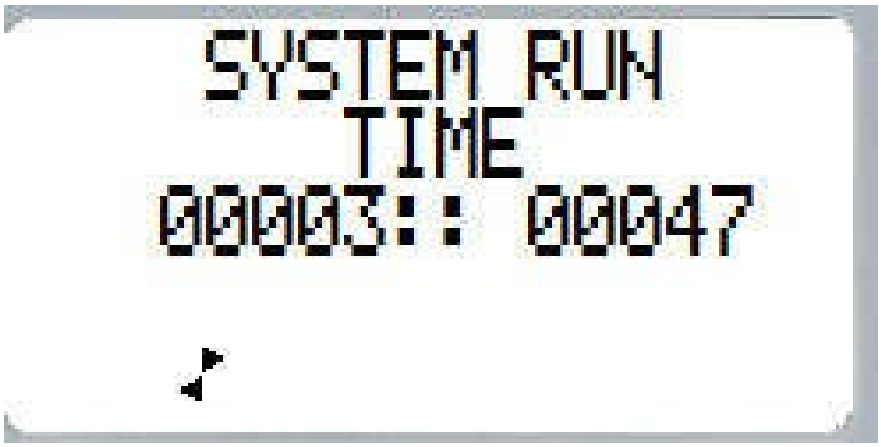
In order to prevent the system from being cycled on and off rapidly, the system has start delay of 60 seconds. During this delay the screen below is displayed.

The following screens are available by accessing the micro controller inside of the power supply.

WARNING

THE POWER SUPPLY CONTAINS HIGH VOLTAGE CIRCIUTS THAT CAN CAUSE INJURY OR DEATH. ONLY PERSONS CERTIFIED AND TRAINED TO SERVICE THESE UNITS SHOULD ACCESS THE FOLLOWING SCREENS. WHEN MAINTAINING THIS EQUIPMENT, KEEP SAFETY CONSIDERATIONS FOREMOST. USE PROPER TOOLS, PROTECTIVE CLOTHING, AND EYE PROTECTION WHEN WORKING ON THE EQUIPMENT. FOLLOW THE INSTRUCTIONS IN THIS MANUAL AND TAKE ANY ADDITIONAL SAFETY MEASURES APPROPRIATE. THE PERSONNEL RESPONSIBLE FOR MAINTENANCE OF THIS EQUIPMENT MUST BE FULLY FAMILIAR WITH THE CONTENTS OF THIS MANUAL.

Daily system run time can be viewed by pressing and holding the “A” button on the microcontroller for 5 seconds.



This system is capable of controlling the salt concentration of the pool with the addition of an external relay. The factory set point for salt is 5000 ppm. The salt set point can be adjusted to any value between 3000 and 7000 ppm. To access the salt set point screen, press and hold the “B” button on the microcontroller for 5 seconds and use the up down buttons to adjust the salt set point.

SECTION 4
MAINTENANCE

TMI Salt Pure® systems are designed to operate 24 hours a day and 7 days a week at maximum production rates when the following basic maintenance and cleaning instructions.

SALT LEVELS:
The zX systems will only operate correctly when is maintained at a minimum 3500 ppm level and a maximum of 4500ppm. Adjust the salt concentration as often as needed to maintain the desired level.
(Low salt will lower the amount of chlorine produced and will cause damage to the electrolytic cell. **Warranties will not be honored if it is determined that salt has been run low.*)***
When maintained properly, the electrolytic cell has a life of 15,000 hours.

FLOW SWITCH:
The zX system is equipped with an integrated mechanical flow switch which must be tested periodically to ensure proper operation. It is recommended to test the flow switch for proper operation at least once a month and clean the strainer as often as needed.

To test the flow switch:

- Close the lower cell isolation valve stopping flow to the cell.
- Immediately check the unit to see if it shut down.
  ****This should shut the unit down****
- If unit shuts down, reopen valve and resume normal operation.

- If unit does not shut down,
- Immediately open the valve.
  *****Do not allow the system to operate with the valve closed.****
- Inspect and repair/replace a defective flow switch immediately.

To clean the strainer, disconnect power from the system, close the lower cell isolation valve and then close the upper cell isolation valve. Unscrew the strainer cover. Allow pressure to release slowly. Remove the strainer screen, clean the screen and reinstall.

4.1 INSPECTING AND CLEANING THE CELL

Evaluate the cell condition every week

Visually inspect the cell tube for leaks and the cell stack for calcium buildup. Check the connections at the top of cell and clean as needed.

This electrode stack is in excellent condition and does not require cleaning

A cell stack with calcium bridged plates.

Manually clean the cell when calcium buildup is present

WARNING

Read all cautions and directions provided with the muriatic acid used. Always add acid to water. Use only with adequate ventilation. If strong odor is noticed, STOP, ventilation is inadequate. Leave area immediately. If the work area is not well ventilated you MUST use a properly fitted and maintained NIOSH approved respirator for acid fumes.

To clean the cell,

1. Disconnect power from the zX system
2. Close the lower cell isolation valve
3. Close the upper cell isolation valve.
4. Disconnect the cables from electrolytic cell.
5. Remove the bolts holding the electrolytic cell stack in the cell tube and lift the cell out of the cell tube.
6. Immerse the cell in a cleaning solution made of 1 part acid to 5 parts water.
7. Leave the cell in the muriatic acid solution for 10-15 minutes. Rinse the cell and repeat as needed until the cell is clean.
   Do not leave the cell in the muriatic acid solution any longer than necessary to clean the cell. Long term exposure to muriatic acid will destroy the alloy coating on the plates and severely shorten cell lifespan.

8. Reassemble the cell stack in the tube and reconnect the cables to the top of the cell stack.
9. Place Valve back in original position.

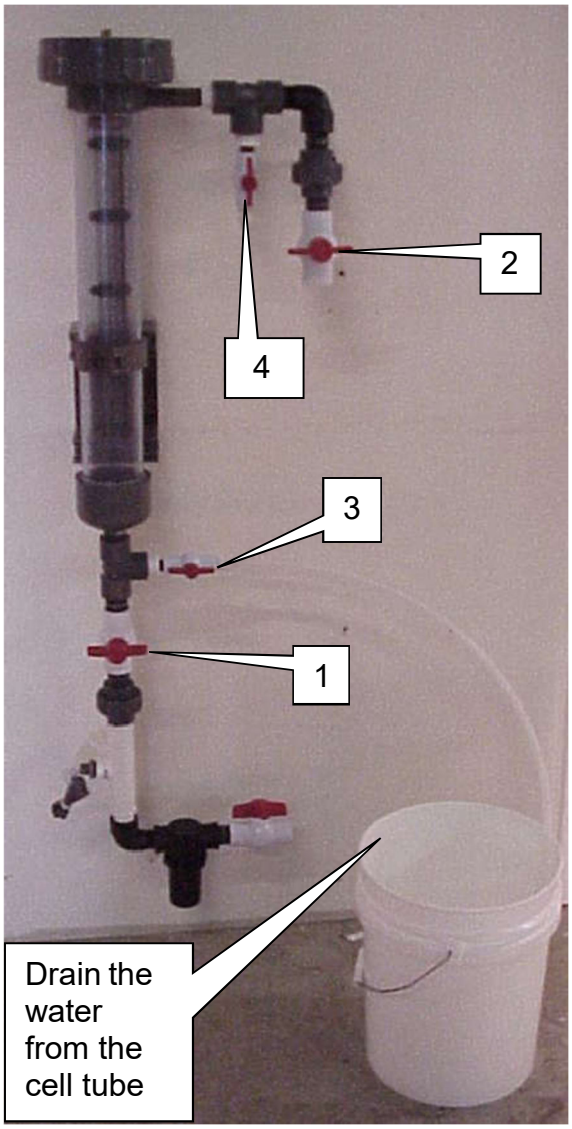
Leaving the cell immersed in the water/acid solution for longer than 20 minutes could damage the ruthenium coating and this will void the warranty.

4.2 ACID WASH OPERATION (if purchased as add-on)

!!WARNING!!

Read all cautions and directions provided with the muriatic acid used. Always add acid to water never the other way around. Use only with adequate ventilation. If strong odor is noticed, STOP and leave area immediately, ventilation is inadequate. If the work area is not well ventilated, you MUST use a properly fitted and maintained NIOSH approved respirator for acid fumes.

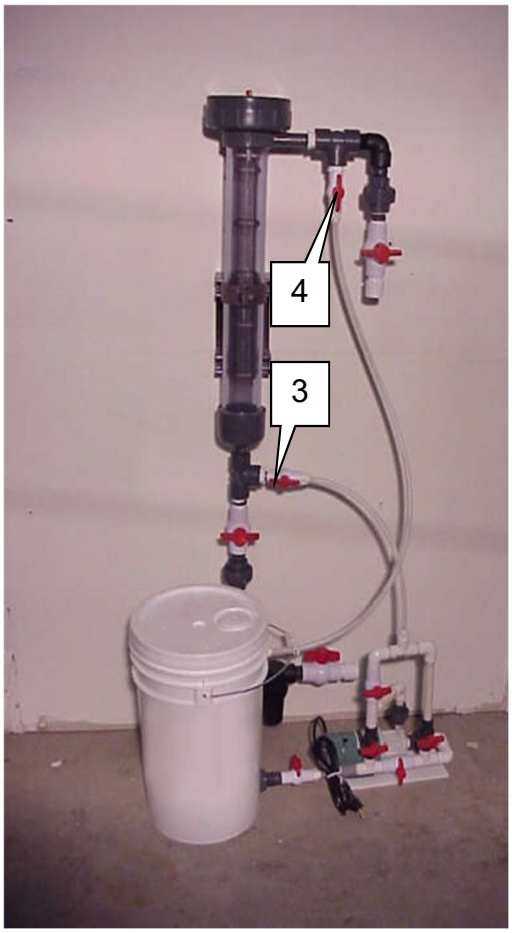
Turn off the power to the chlorinator to be serviced.



Close the lower and upper cell tube ball valves (1) and (2).

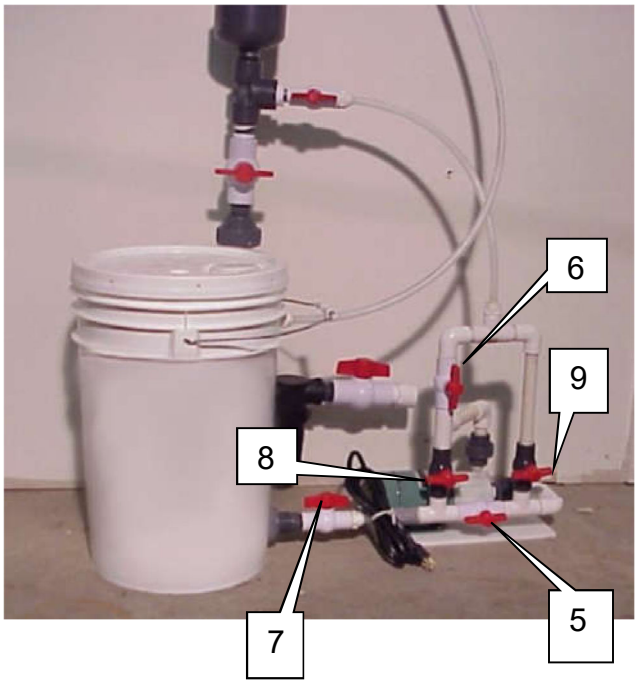
Always close the lower ball valve (1) first to avoid damaging the cell tube.

Open the lower and upper acid wash ball valves (3) and (4). Drain the water from the cell tube.



Connect the acid wash tank and pump to the acid wash valves (3) and (4) as shown in the photo.

Fill the acid wash tank with 15 litres (4 gallons) of water and 3.8 litres (1 gallon) of muriatic acid.



Open the white wash valves (5) and 6).

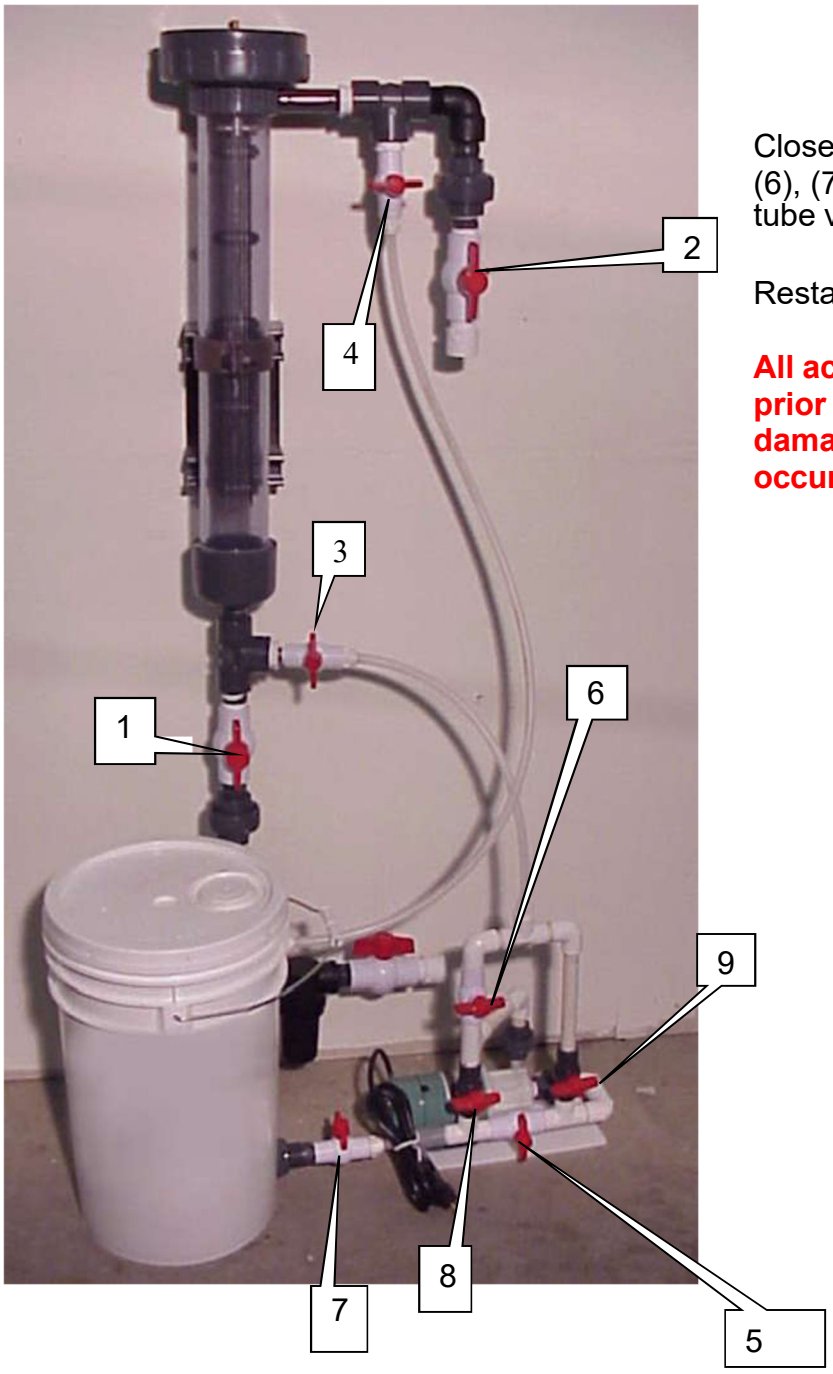
Open the tank feed valve (7)

Plug the Acid Wash pump into a 120 vAC source and start wash cycle.

Allow the pump to run until the cell is clean.

When the cell is clean, leave the Acid Wash pump running and open the grey valves (8) and (9) and close the white wash valves (5) and (6).

The cell tube will now drain into the wash tank. When the cell is empty, unplug the pump immediately.
Do not let the pump run dry.



Close all acid wash valves (3), (4), (5), (6), (7), (8) and (9). Open the 2 cell tube valves (1) and (2).

Restart the system.

All acid wash valves must be closed prior to restarting the system or damage to the acid wash tank may occur.

4.3 Power Supply

Visually inspect the power supply once every month.
Open the enclosure and visually check for any abnormal conditions such as burned wires, loose connections or corrosion.

Operate the system to verify performance once every month.

Turn the system on.

Adjust the control knob to the full position and note that the amps displayed on the meter go to zero.

Adjust the control knob to the maximum position and verify that amps go to maximum.

Adjust the control knob to the desired setting.

SECTION 5
WARRANTY INFORMATION

The TMI® system carries a limited 3-year warranty
3 Year warranty on assembly of electrical components
2 **Year**, pro-rated monthly, on titanium electrodes.
(Year 1 is warranted fully, thereafter pro-rated warranty applies, applicable over the full 2-year period. Applicable on electrode stacks where full price has been paid.)
1 Year on all electrical items cell housings/tubes and production tanks

TMI® advises that titanium electrodes will have to be replaced every 15,000 hours of operating time.

TMI® warranties will not be honored should it be shown that the operating and maintenance procedures have not been followed, particularly with regard to the cleaning frequency program.

TMI® warranties of the titanium electrodes will not be honored if the system is operated in water temperatures lower than 18°C (59°F).

TMI® warranties of the titanium electrodes may not be honored if the system is operated under conditions not originally approved by TMI® on a System Design Sheet, with regard to operating hours, swimmer usage or excessive use of stabilizers or stabilized chlorine.

TMI® warranties of the titanium electrodes will not be honored if the system is operated where phosphates consistently exceed 250ppb - 500ppb.

An installation & commissioning form must be submitted to TMI for warranty to be validated. Failure to submit a commissioning form may result in warranty being void.

During the warranty period the customer shall return the defective component, freight prepaid, accompanied by the original invoice or proof of purchase, and TMI® shall at its sole discretion elect to repair or replace the defective component and return it to the customer, freight pre-paid.

TMI® accepts no responsibility other than to repair or replace a defective component, and this warranty specifically excludes product failure due to accidental damage, abuse, misuse, and negligence, damage due to non-compliance of the operating manual or unauthorized alterations or modifications to the system. TMI® accepts no responsibility and is not liable for any extended warranties or variations to this warranty offered by re-sellers of TMI® systems.

Salt Pure® System Installation & Commissioning Form

INSTALLER: PLEASE COMPLETE ONE FORM FOR EVERY POOL ON THE PROJECT

Facility

Address

City State Zip Code

PLEASE FAX BACK TO:
(360) 871-6871
OR
SCAN AND EMAIL TO:
tech@tmiaquatics.com

Installer Company

POOL INFORMATION

Pool Name			
Gallons		Fill Date	
Flow Rate		Date circulation started	
Salinity		Date pool Salted	

EQUIPMENT INFORMATION

Controller - Model		Install Date	
Controller - Serial #		Start Up Date	
Salt System - Model		Install Date	
Salt System - Serial #		Start Up Date	
UV System - Model		Install Date	
UV System - Serial #		Start Up Date	
Chlorine BackUp - Model		Install Date	
Chlorine BackUp - Serial #		Start Up Date	

The purpose of this document is to verify the proper installation and start date of the equipment. Warranty will be tied to this start date. If this form is not filled out and submitted within 30 days of installation, warranty will begin on date of purchase.

Purchase Date Invoice #

Equipment warranties begin on startup dates provided above. Start Up dates verified on:

TMI Salt Pure Corporation: Company:_____

Signed:_____ Signed:_____

Name:_____ Name:_____