



CSS 10 Complete Sanitation System OZONE/SALT CHLORINATOR

Prozone Pool Products
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Owner's Manual

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INSTRUCTION MANUAL

1. Before performing any installation or operation, please read the enclosed instructions carefully.
2. This manual contains easy to follow step-by-step instructions and procedures to properly install and operate your new system.
3. The CSS-10 is electrically powered – electrical installation should be by a licensed electrician – ensure all electrical connections are proper before operating this system.
4. Taking the time to properly install your new system will insure trouble-free installation and maximum performance.

INTRODUCTION

Congratulations! You have purchased one of the most technologically advanced Pool Sanitation Systems in the world – the Prozone CSS-10 Ozonating/Salt Generator. The cleanest and most powerful solution for Sanitation and Oxidation requirements in your pool, the benefits of which will be evident from the very first time you use it and for many years to come.

HOW DOES IT WORK

The Prozone CSS-10 Ozone/Salt Generator System is comprised of two basic components: the Ozone System and a Salt Generator Cell. Both are manufactured to meet stringent safety requirements and are built with corrosion resistant materials (Titanium/Platinum, Aluminum, etc.), to ensure years of trouble free use in outdoor and indoor environments.

Chlorine Generation with Salt: Chlorine is generated within the Salt Generator Cell by an electrolytic reaction that converts the chlorine in salt to hypochlorous acid, the useable form of chlorine for swimming pools. Once the initial amount of salt is added, only a small amount will be required periodically to make up for losses due to splashing.

Salt Water: Mild salt water is gentle on the eyes and skin. In seawater the salinity is approximately 35,000ppm (parts per million). The human body has a salinity of approximately 4,500 to 6,000ppm, while fresh water is at zero. It is the similarity between the salinity of the human body and a pool Chlorinated with CSS-10 (requires only 2,000ppm), that allows pool owners, and their families, to experience the ultimate in water sanitation, and "Swimmer Friendly" clean, clear water

Ozone: Chlorine in pools normally reacts with bather loading to form combined chlorines. These combined chlorines are what causes odors, irritation, and other unpleasant effects that are normally associated with a chlorinated pool. Ozone reacts with these combined chlorines, freeing the chlorine for reuse and precipitating the contaminants for filtration. This reduces the need for chlorine and results in the cleanest, clearest water available.

SAFETY WARNINGS AND GUIDELINES

FAILURE TO ADHERE TO THESE GUIDELINES WILL VOID WARRANTY

- DO NOT ATTEMPT TO OPEN THE CSS-10 HOUSING. IT IS NOT A SERVICEABLE UNIT.
- FOLLOW ALL INSTRUCTIONS AND FIGURES/DIAGRAMS.
- DISCONNECT ALL POWER BEFORE INSTALLATION.
- THE CSS POWER SUPPLY MUST BE MOUNTED VERTICALLY ON A FLAT SURFACE AND A MINIMUM OF 5 FEET FROM THE POOL
- OBEY ALL LOCAL AND NATIONAL REGULATORY GUIDELINES PERTAINING TO ELECTRICAL AND POOL EQUIPMENT INSTALLATION AND USE.
- CANADA AND SOME OTHER REGIONAL LOCAL CODES MANDATE THE USE OF GFCI PROTECTED CIRCUITS. IF INSTALLATION IS COMPLETED BY A LICENSED ELECTRICIAN OR POOL EQUIPMENT INSTALLER, THEY WILL BE REQUIRED TO VERIFY THIS REQUIREMENT FOR YOUR AREA AND COMPLY DURING INSTALLATION.
- THE GFCI SHOULD BE TESTED ON A REGULAR BASIS BY PUSHING THE TEST BUTTON ON THE FACE PLATE. IF FOUND FAULTY REPLACE AND RETEST. DO NOT USE THE SYSTEM WHEN FAULTY.

PARTS LISTING

Description	Part Number	Number in kit
CSS10 Box	7S10T-42IA-P19	1
Salt Generator Bracket	202199	1
Salt Generator Cell	600211	1
Saddle Clamp Assembly	201155	2
Injector	600002	1
Plastic Clamp (black)	20185	4
3/4" Metal Hose clamp	20067	4
1/4" Braided Hose	20260	120 inches
1/4" Braided Hose (Cell Maintenance)	20260	24 inches
3/4" Clear Hose	20264	120 inches
Check Valve (1/4" by 1/4")	20214	1
White 1/2" by 3" PVC Pipe	20314	1
Gasket, Saddle Clamp	400078	2
Gasket, Saddle Clamp, Barb	400076	2
Gasket, Saddle Foot	400018	4

ADDITIONAL SAFETY INSTRUCTIONS

NOTE: When the Pump system is shut down you must also shut down the Salt Generator System.

1. Your CSS-10 must be installed in accordance with the installation instructions and the Figures/Diagrams provided in this manual.
2. To have both your Pump system, and the CSS-10 operate properly together as a unit you should wire the two systems together.
3. The Salt Cell **MUST** be mounted vertically.
4. Use only the power cord (DC Voltage) provided with the Ozonator/Salt Generator System to power up the Salt Cell.

IMPORTANT NOTES:

Salt Level Testing:

1. You should test the salt level of your pool before calculating the salt requirement.
2. If a Salt test is not performed you may find later that too much salt will have been added - the Chlorinator may not perform as intended.
3. If the pool has been treated with other forms of Chlorine – for instance Sodium Chloride – you may already have salt content

General:

1. Always balance the pH, total Alkalinity and Calcium hardness, otherwise corrosive or scaly conditions may result, which will lead to equipment inefficiency or damage. Unbalanced water may cause staining and mineral deposits, chlorine effectiveness may decrease, and bathers may experience discomfort.
2. Regular testing of the pool waters is recommended. A Free Chlorine level of 0.5ppm (parts per million) to 1.5ppm should be maintained.
3. **DO NOT USE** Copper or Bromine based Algaecide products in your pool when the CSS-10 is installed.
4. Prozone recommends the pool pump and Salt Generator (see safety note above), for a minimum of 8 to 12 hours a day. Actual run time will be affected by the chlorine demand from the environment or bathers.
7. **WARNING: Always disconnect automatic pool cleaners before adding salt which must be fully dissolved before turning on the pool cleaner.**
8. **Plaster Pools:** Do not start system until plaster has set for two weeks.
9. **WARNING: Baquacil (Biguanide Pools) must be drained and refilled with fresh water prior to using the CSS-10.**
10. Read the entire Owner's Manual. Additional advice can be obtained from a pool installation professional or from a Prozone sales representative (sales@prozoneint.com) or visit our website at www.prozoneint.com.

INITIAL SALT DOSAGE

Maintain a salinity level of 2,000 ppm to 2,500 ppm. Refer to chart below. Pool gallons can be determined from the following formulas:

- Rectangular – Length x Width x Average Depth x 7.5 (for gallons) or 1000 for liters.
- Round – Diameter x Average depth x 5.9 (for gallons) or 785 for liters.
- Oval – Length x Width x Average Depth x 6.7 (for gallons) or 893 for liters.

Salt ppm Pool Size in Gallons	1,500	2,000	2,200	2,400	2,600	2,800	3,000
8,000 Gallons	100	134	147	160	174	187	200
10,000 Gallons	125	167	184	200	217	234	250
12,000 Gallons	150	200	220	240	260	280	300
14,000 Gallons	175	234	257	280	304	327	350
16,000 Gallons	200	267	294	320	347	374	401
18,000 Gallons	225	300	330	361	391	421	451
20,000 Gallons	250	334	367	401	434	467	501
24,000 Gallons	300	401	441	481	521	561	601
26,000 Gallons	325	434	477	521	564	608	651
28,000 Gallons	350	467	514	561	608	654	701
30,000 Gallons	376	501	551	601	651	701	751
32,000 Gallons	401	534	587	641	694	748	801
34,000 Gallons	426	567	624	681	738	794	851
36,000 Gallons	451	601	661	721	781	841	901
38,000 Gallons	476	634	698	761	824	888	951
40,000 Gallons	501	668	734	801	868	935	1001

RECOMMENDED SALT TYPE AND HOW TO ADD

Type of Salt:

- Use food grade type of salt (evaporated and granulated) or salt formulated for use with salt chlorine generators.
- WARNING: Do not use salt that contains 'Prussiate of Soda' (Prussiate of Soda is an anti-caking agent which contains iron). This type salt may cause yellow stains on your pool bottom if left there without being dissolved.**
- WARNING: Do not use 'rock salt' which has dirt mixed in with the salt.**
- NOTE: Calcium Chloride is not salt. Use Sodium Chloride only.**
- Water softener salt pellets (Sodium Chloride) may be used but will take longer to dissolve.

Adding Salt:

- Never add salt to the 'skimmer' box, however the coarse salt granules may cause the pump impeller to seize.
- Always disconnect any automatic cleaners before adding salt, and leave them off until all the salt has fully dissolved.
- When pouring bags of salt into pool, pour away from skimmer and suction points. Sweep and brush with a pool broom until the salt dissolves.
- Keep the pump operating during this process.

CELL MAINTENANCE

- The Salt Cell requires little or no general maintenance.
- Periodically inspect the Cell plates to ensure that they are clear of foreign matter and other debris.

NOTE: A filtration problem exists (contaminated water is by-passing the filter) if debris is found to have built up around the electrodes and plates of the Cell and should immediately be corrected.

- If calcium build-ups form on the electrodes and plates, it may be caused by one of the following:

- Low Water Flow through the Cell** – Check the hoses and the injector for blockage of water flow.
- Poor water Quality** - High calcium content, clean cells (see below).
- Aged Cell** – After 3-5 years loss of plate coatings may decrease the effectiveness of the self-cleaning process. Replace cell.

ACID WASH FOR REMOVAL OF CALCIUM DEPOSITS ON CELL PLATES

**WARNING: FOR QUALIFIED POOL PROFESSIONALS ONLY
DO NOT ATTEMPT THIS PROCEDURE WITHOUT PROPER TRAINING**

CAUTION: USE PROTECTIVE EYE WEAR, GLOVES, AND PROTECTIVE CLOTHING

1. Turn PUMP OFF and allow water to drain back out of the cell and by-pass system.
2. Disconnect the 1/4" *BRAIDED HOSE* from the Venturi Injector.
3. Place a bottle of Muriatic acid close to the Venturi Injector
4. Attach one end of the two (2) foot 1/4 inch *BRAIDED HOSE* provided to the open port on the Injector, secure with clamp. Put the other end of the hose in to the container of Muriatic acid.
5. Turn the pump back on for approximately 1 minute or until Salt Cell is filled with acid.
6. Turn the pump off for 15 to 20 minutes to allow the solution to soak the plates.
7. Repeat Steps 5 and 6 above until the calcium build-up is gone.

NOTE: The solution entering the pool will not disturb the pH of the pool's water.

NOTE: If build-up is not removed, contact your local dealer or Prozone for additional advice.

8. Reconnect VENTURI to system.
9. Turn PUMP ON.

WINTERIZATION

Freezing water may damage the Cell's internal components and may cause cracks in the casing , voiding the Warranty. If severe, or extended periods of freezing temperatures are possible, drain all the water from the pump, filter, Salt Cell, supply and return lines before freezing occurs.

SPRING START-UP

Balance your pool and perform start-up as listed in this manual.

WARRANTY

The system carries a complete two (2) year warranty against manufacturing defects.

Conditions:

1. On site labor, service calls or freight charges are the responsibility of the purchaser. Under no circumstances shall the manufacturer be liable for incidental or consequential damages, inconveniences or expenses in connection with removal or replacement of equipment.
2. Under no circumstances shall the manufacturer be liable for damages caused to persons, or property, as a result of use of this equipment.

The Following Invalidates the Warranty:

- | | |
|--|---|
| 1. Incorrect installation. | 5. Operating the Cell at a pressures exceeding 30 psig. |
| 2. Misuse or abuse | 6. Operating the cell at salt levels lower or higher than recommended |
| 3. Failure to inspect the cell on a regular basis. | 7. Failure to winterize system. |
| 4. Cell is used for any other purpose than described herein. | |

PROZONE WARRANTY

PLEASE COMPLETE THIS WARRANTY ON THE DAY OF INSTALLATION AND RETURN TO:
PROZONE POOL PRODUCTS INC. , 2610 6TH STREET, SUITE 'A', HUNTSVILLE, AL. 35805

Date of purchase:

Purchased from:

Model Number:

Supplier telephone No.

Date of installation:

Installed by:

Name of purchaser:

Address:

City:

State:

Zip:

Telephone No.

FAX number:

E-mail:

Residential application:



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CSS 10 Complete Sanitation System OZONE/SALT CHLORINATOR



Owner's Manual QUICK START INSTRUCTION GUIDE

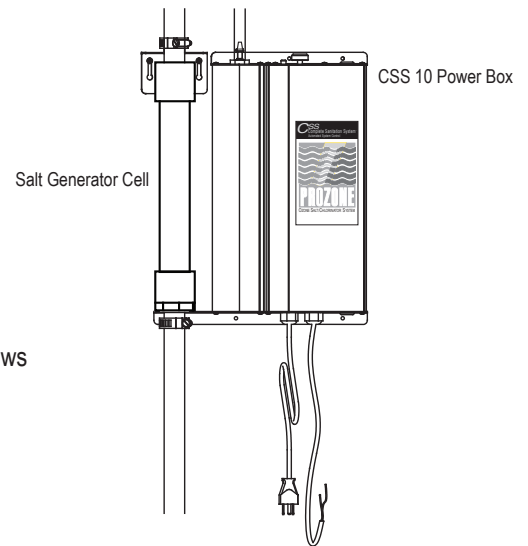
Please see www.prozoneint.com to print out the complete Owner's Manual

Before installing this product, turn pump off

(Diagram 1) CSS 10 Mounting Instructions

- Mount CSS10 in vertical position to a flat surface above the return line to you pool
- Position Salt Generator Cell in Mounting bracket attached to bottom of Control Box, with wire connector leads at bottom
- Position loose mounting bracket over top of Salt Generator Cell and fasten to surface with screws

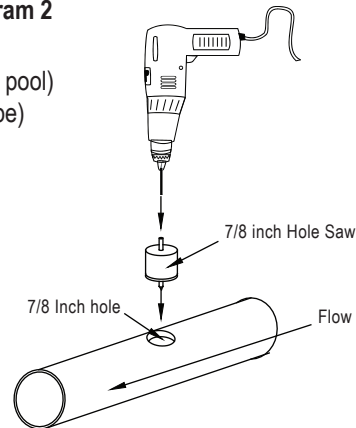
Diagram 1



(Diagram 2) ByPass Installation Instructions

- Drill 2 holes (use 7/8" hole saw drill bit) in return line
 - a. One 7/8" hole between pump and filter
 - b. One 7/8" hole after filter and heater (must be last installation going back to pool)
 - c. This needs to be at lowest point of pressure so water can return to main pipe)

Diagram 2



(Diagram 3) Assemble the Saddle Clamp

(Diagram 4)

- Attach Saddle Clamp over hole after pump
- Insert injector into top of Saddle Clamp, (small ports pointing away from hole) push injector through Saddle Clamp into hole in return line
- Measure and cut 3/4" hose to fit distance between injector and bottom of salt cell (*View B*)
- Place two metal clamps on 3/4" hose
- Attach one end of 3/4" hose to top of injector, tighten with metal clamp
- Attach other end of 3/4" hose to bottom of salt cell, tighten with metal clamp

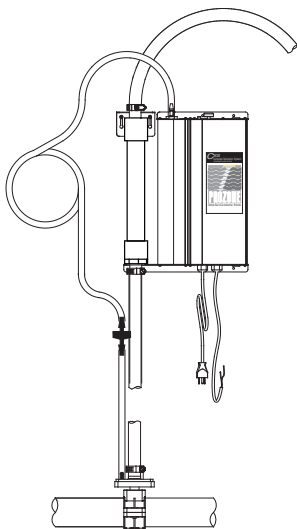
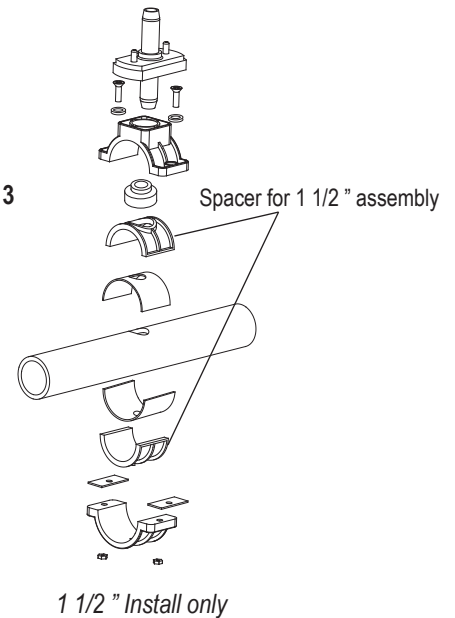


Diagram 4

Diagram 3



1.5" Saddle Clamp Assembly

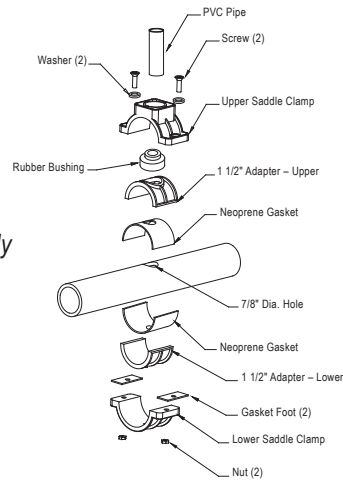
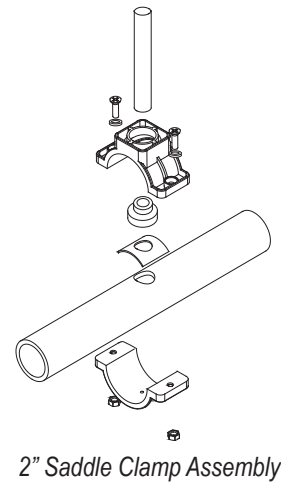


Diagram 5

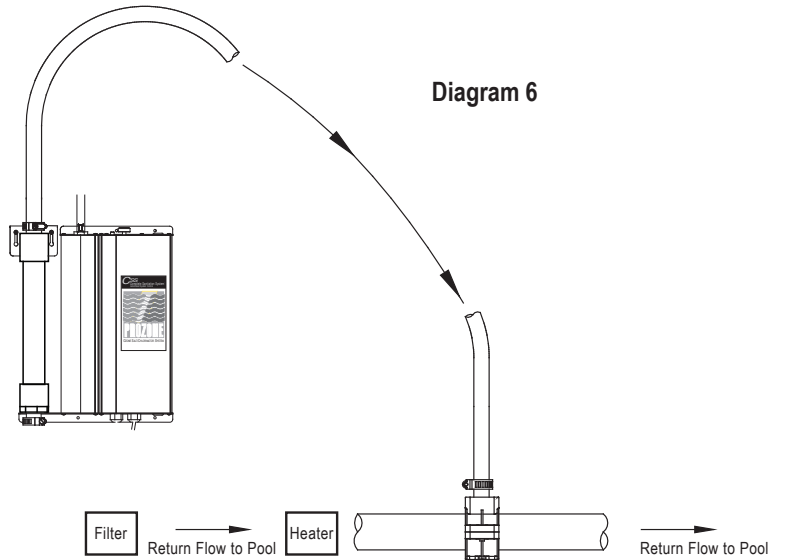


(Diagram 5)

- Assemble 2nd Saddle Clamp (View C)

(Diagram 6)

- Insert 3 inch white PVC pipe into top of Saddle Clamp, push pipe through Saddle clamp into hole in return line
- Place two metal clamps on remaining 3/4 inch hose line
- Attach one end of hose to top of Salt Cell, tighten with metal clamp (View D)
- Attach other end of 3/4 inch hose to 3 inch PVC pipe, tighten with metal clamp (View D)



(Diagram 7) Ozone System Connection

- Cut 6 inch piece of 1/4 inch braided hose
- Attach longer 1/4 inch braided hose to ozone fitting on top of CSS10 Power Box
- Secure with black hose clamp
- Insert check valve in other end of longer braided hose, **make sure the air flow is correct (View B)**
- Attach 6 inch piece of 1/4 inch braided hose to check valve
- Secure with black hose clamp
- Attach end of 1/4 inch braided hose to open port on top of injector (Diagram 8)

Diagram 8

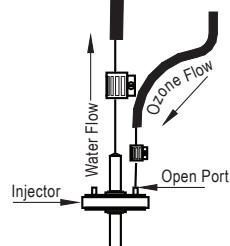
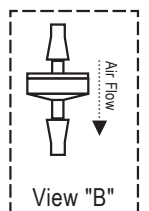
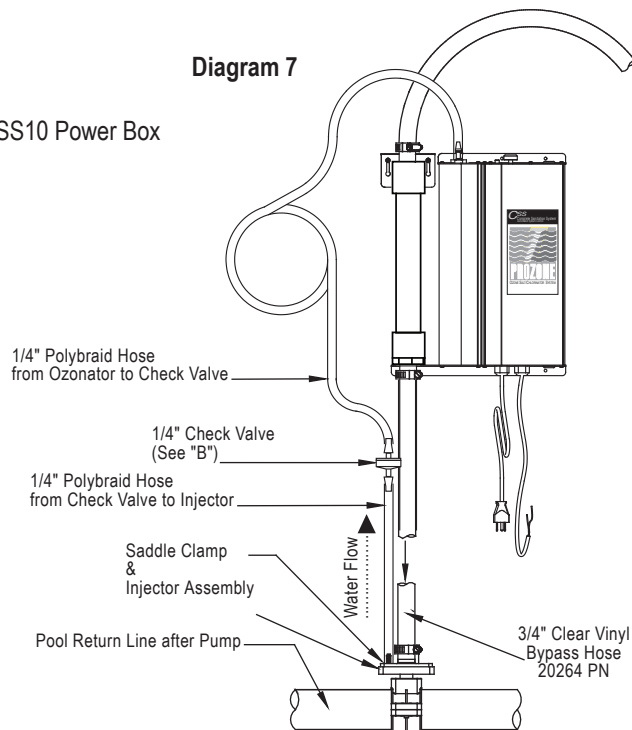


Diagram 7



(Diagram 9) Electrical System Connection

- Connect power lead wires from CSS10 Control Box to matching lead wires at bottom of salt cell (*Diagram 9*)
- Plug power cord in to power supply
- It is recommended to have pump and CSS10 on same timer so that unit is on when pump is running
- Turn on Power switch at top of CSS10 Box
- You must push in knob and turn clockwise to select chlorine production level (*Diagram 10*)

Diagram 9

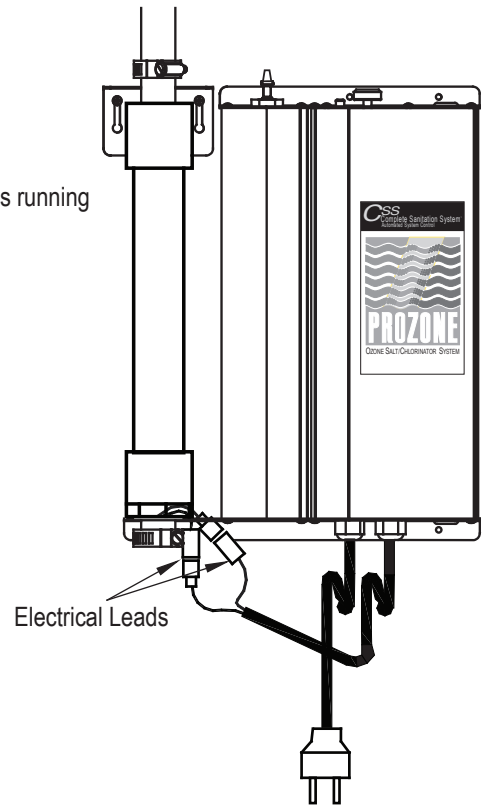
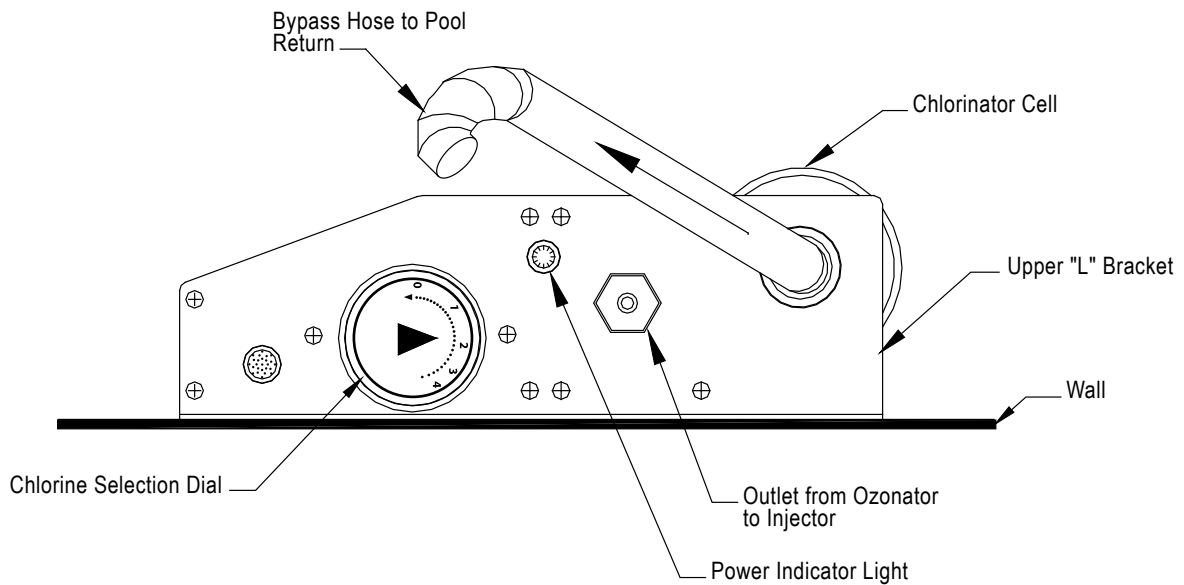
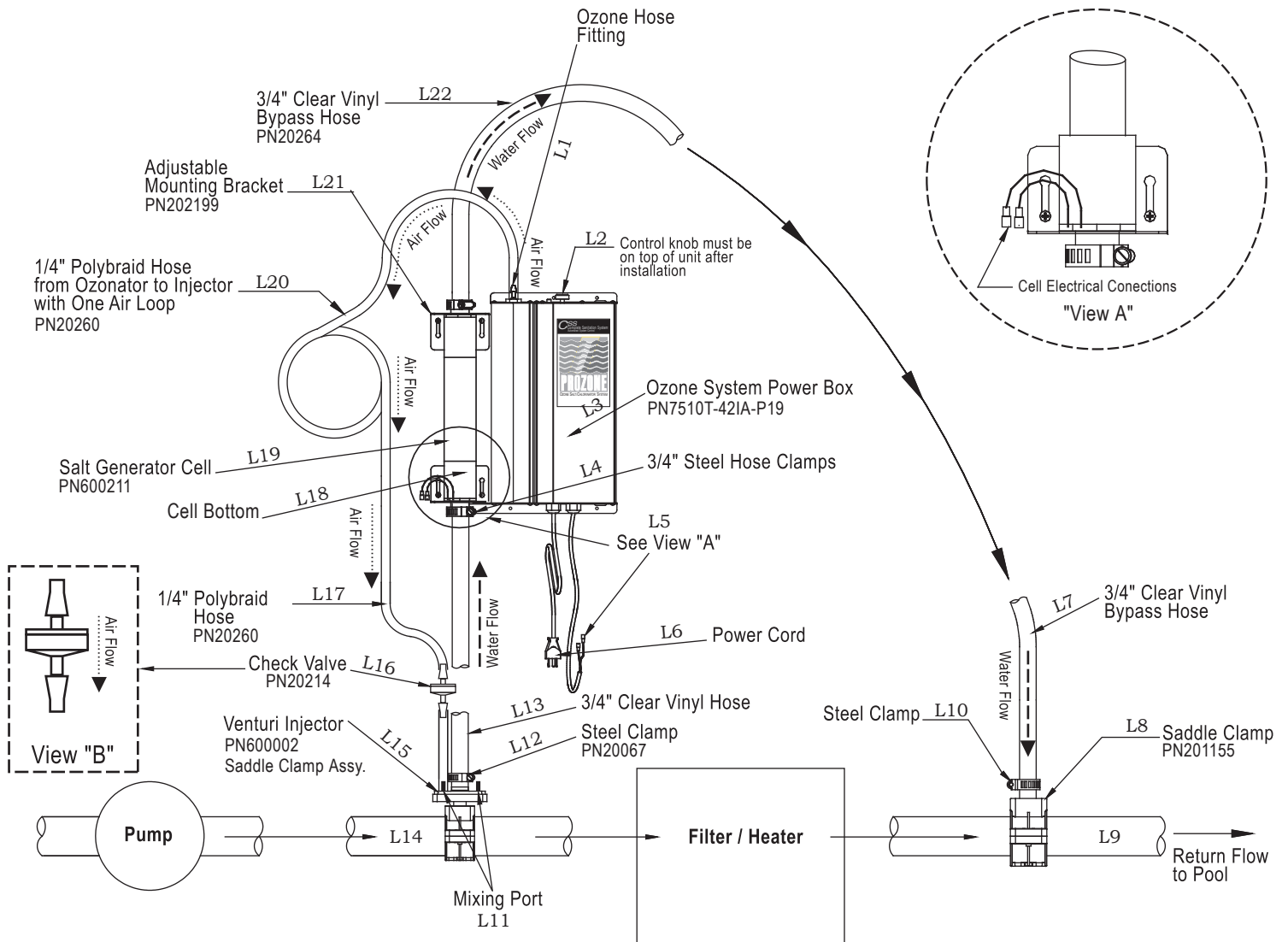


Diagram 10



CSS Unit Viewed From Top

CSS 10 Unit in Bypass Configuration Shown Properly Mounted in Vertical Position



1. A stream of water is pulled out of the main line through the Venturi Bypass Assembly. (L14)
2. As water passes through the injector (L15) ozone is being injected through the mixing port of the Venturi Injector (L11)
3. This water enters the Salt Chlorine Generator Cell through the bottom of the Cell (L18 & L19).
4. A low voltage DC current is applied to the plates. The electrolysis process transforms this salt water into hypochlorous acid, which is your active sanitizer.
5. This sanitized/ozonated water flows out the top of the Chlorine Generator Cell (L22) back in to the main return line (L9) through the second stage of the Bypass assembly (L7 & L8)

WATER CHEMISTRY

CHLORINE PRODUCTION AND CONTROL

Free Chlorine: A 'free' Chlorine residual of 0.5ppm to 1.5ppm should be maintained at all times. This will vary only with respect to bathers in the pool, debris falling into the pool, and the pools overall temperature. These factors will affect the demand for chlorine and also the water 'balance' and 'filtration' effectiveness (refer to the equipment manufactures specifications with regard to the maximum chlorine level permissible).

Testing for Chlorine: Testing for Chlorine levels is very important and should be performed regularly by the pool owner, as well as a pool water professional on a periodic basis.

Residual Water Test: The sample of water to be tested should be taken at arms depth away from the pool returns. This will avoid highly chlorinated water coming from the Salt Generator Cell, and ensures that the reading will be a true representation of the pool's residual chlorine levels.

Production Water Test: Testing for Chlorine production is performed by taking a sample directly at the pool return, which is water directly from the Salt Generator Cell, and should indicate a higher chlorine level than the residual test showed.

BASIC POOL CHEMISTRY TERMINOLOGY

TDS – Total Dissolved Solids: There may be other elements, in addition to salt, that may be present in the pool's water. Your pool professional can perform a TDS test and determine if there are other elements that may be harmful in the pool water as a result of adding salt.

Combined Chlorine vs. Free Chlorine: Combined Chlorine, which include Chloramines, is a molecule of Chlorine that has attached to a contaminant in the pool water. It remains bound to it until it is the other is burned off through breakpoint chlorination (an unpleasant procedure) or ozonation. Combined chlorines are most often associated with odors, eye irritation, and other unpleasant side effects of chlorination.

Installation of a Prozone Ozonator/Salt Generator System does away with breakpoint chlorination by destroying the contaminant particles, and returning the Chlorine to the free state so that it is then able to keep the pool clean, clear and pleasant to use.

The free Chlorine in your pool is the pure chlorine required to provide residual sanitation at all times and should ideally remain within the range of .5 to 1.0ppm. This lower level of residual chlorine is possible because your Ozone system has the potential to oxidize and sanitize between 60% and 80% of all the contaminants in the pool's water. Free chlorine provides a high level of sanitizing power and has no odor or irritating effects.

WATER BALANCE

The water balance of your pool is critical to monitor even after you have installed the CSS-10. There are three components to water balance: pH, Total Alkalinity; and Calcium Hardness.

pH Level:

1. pH is a measure of how 'acidic' the water is in the pool .
2. pH is measured on a scale of zero (0) to 14 A level of 7 is considered neutral.
3. A level greater than 7 is considered alkaline solution, and a level less than 7 is considered acidic.
4. A high pH (above 7.8) begins to reduce the effectiveness of chlorine, and will potentially cause scale to appear as well as becoming an irritant to swimmers.
5. A low pH (less than 7) may cause the water to become corrosive and damage the pools finish, the pool equipment (heat exchangers especially), as well as becoming an irritant to swimmers.
6. Each type of pool and pool finish has a specific range in which the pH should remain. Generally, a pH of between 7.2 and 7.8 is suitable for most pool types and optimum for bather comfort.
7. To lower pH, a diluted solution of Muriatic Acid is added to the pool.
8. To raise pH ,add sodium carbonate.

Total Alkalinity (TA):

1. The total Alkalinity is a measurement of all the alkalis in your pool water such as Carbonates, Bicarbonates and Hydroxides, and their ability to resist change in the pH.
2. When adjusted within the acceptable levels, TA acts as a pH buffer, resisting rapid changes to pH. The recommended TA level of your pool is from 75 to 170ppm depending on the pool finish. A typical level is in the 80 ppm range.

Calcium Hardness:

1. This test is ignored frequently, but is very important for the proper maintenance of your pool.
2. The hardness of your pool water is very important in controlling scale and the corrosive effects of water. A low calcium level may cause pool water to become corrosive, even if the pH is within its recommended range. A telltale sign of this is a build up of calcium deposits inside your Chlorine Generator Cell
3. A high calcium level may cause pool water to deposit scale even if the pH is within its recommended range.
4. Generally a level of 50 to 200ppm is recommended, with a level of 100ppm considered ideal.

Nitrates:

There should be no nitrates in your pool water. Most often Nitrates are associated with fertilizers. A high level of nitrates may cause a higher than normal demand on Chlorine, often lowering the Chlorine level down to zero. This is not a common problem.

NOTE: THE OZONE SYSTEM WILL PRECIPITATE ANY NITRATES.

Metals:

Certain metals may either stain the pool and/or cause chlorine levels to decrease. If testing shows a presence of metals in your pool, consult a pool professional for methods of removal. OZONE WILL REMOVE IRON AND MANGANESE FROM WATER.

NOTE: THE OZONE SYSTEM WILL PRECIPITATE ANY METALS, HELPING TO SOLVE THIS WATER QUALITY ISSUE

CYANURIC ACID – CHLORINE STABILIZER

1. The sun's ultraviolet light breaks down the Chlorine in your pool's water within approximately 2 hours, and therefore the pool's water content requires, particularly in sunny climates, the use of Chlorine stabilizers.
2. The Prozone Ozonator/Salt Generator System has been developed to be a chlorine stabilizer, and is sized to be used in accordance with your pool systems requirements.
3. Either a cyanuric acid system, or the Prozone Ozonator/Salt Generating system, when used in the pool water to achieve levels of between 50 to 80ppm, will effectively reduce the breakdown of Chlorine by UV light.