



# Owner's Manual

## Legacy Series

### Brine Maker



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**IMPORTANT: READ THIS MANUAL IN  
ENTIRETY BEFORE OPERATING**

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# Introduction

This machine is a dedicated ice-control solution creation system and is intended to be used by professional, trained operators for creating ice-control solutions used on residential or commercial properties. Using this equipment improperly or for purposes other than its intended use may prove dangerous to you and others. You are responsible for operating the equipment properly and safely.

Read this manual carefully to learn how to operate and maintain your equipment properly and to avoid injury and product damage.

A digital version of this manual that can be accessed on the VSI Spray Control app (“Getting Started/FAQ” button on the Profile” tab).

If service, parts, or additional information is needed please contact VSI Technical Service (1-507-252-3033) for more information.

## General Safety

This product is capable of causing personal injury. Always follow all safety instructions to avoid personal injury.

- Read and understand the contents of this *Owner’s Manual* before operating or servicing the equipment.
- Use your full attention while operating the machine. Do not engage in any activity that causes distractions; otherwise, injury or property damage may occur.
- Use appropriate personal protective equipment (PPE) to guard against contact with chemicals.
- Do not put your hands or feet near moving components of the machine.
- Do not operate the machine without all guards and other safety protective devices in place and in proper working order on the machine.

- Keep bystanders, children, and pets out of the operating area.
- Never allow children to operate the machine. Allow only people who are responsible, trained, familiar with the instructions, and physically capable to operate the equipment.
- Shut off the equipment, wait for all movement to stop, and allow the equipment to cool before adjusting, servicing, cleaning, or storing it.

Improperly using or maintaining this machine can result in injury. To reduce the potential for injury, comply with these safety instructions and always pay attention to the safety alert symbol. Failure to comply with these instructions may result in personal injury or death.

## Safety Instructions

- Read the *Operator’s Manual*.
- All operators should be training before operating the machine.
- Wear eye protection.
- Do not enter the tank.
- Shut off the machine before walking away.
- Do not put flammable liquids in the tank.
- Only lift an empty tank; do not lift the tank when full.

## Quick-Start Installation

Follow the steps below to set up and prepare the machine for use.

1. Ensure proper electrical outlet is available
2. Ensure machine is positioned for space and clearance for loading
3. Download the VSI Spray App
4. Connect to machine via Bluetooth
5. Connect machine to WiFi

# Detailed Installation Instructions

## 1. Electrical Outlet

The electric motor for the pump requires wiring to 220V, single phase, 30 amp circuit. This is not pre-wired on the unit and should be installed by a licensed electrician. It is important that the motor **must** be wired for opposite rotation (red and yellow, black and blue).

The digital salinity reader comes from the factory with an un-wired cord to an electrical box. No switch is provided from the factory. The digital salinity meter converts to DC power and can be wired on either 220V or wired to a 110V, 15 amp circuit. We recommend wiring the digital salinity meter into the always hot leads so that the reader can be powered even with the pump motor switch in the “off” position.

Reference our wiring guide here: [Legacy Brine Maker Wiring Guide.docx](#)

## 2. Space and Clearance

Ensure you position the machine to allow for space and clearance to load the machine with salt. Ideally, situate the brine maker where it is located near your 220V outlet, near your water source, and also near your brine storage tanks. (Brine storage tanks can be stored outside, but must be connected via hose.) If these are not present in the area you wish to set up your machine, make the accommodations necessary to have them available.

## 3. Download the VSI Spray App

To begin using the machine, you must first download the **VSI Spray Control App** from either the Apple App store or Google Play store onto your phone or tablet.

## 4. Connect to Machine Via Bluetooth

4.1. Once downloaded, open the app, read the liability prompt, press *OK*, and click on the **DETAILS** tab on the bottom of the app screen.

4.2. Select the drop down arrow in the upper right corner to toggle to a *BrineMixer*. Press the **CONNECT** button in the app.

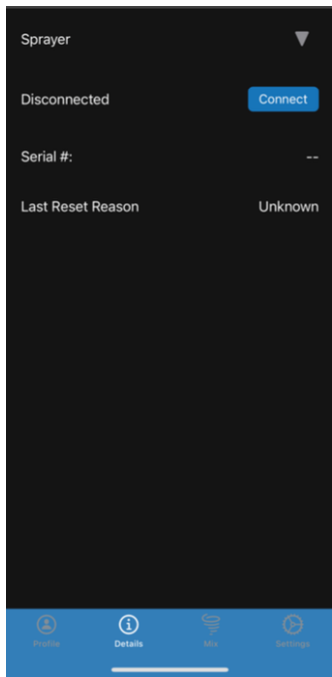
4.3. All machines within Bluetooth range will appear. Select the machine you are wanting to connect (serial numbers are listed).

**Note:** The serial number can be found on the side of the control box.

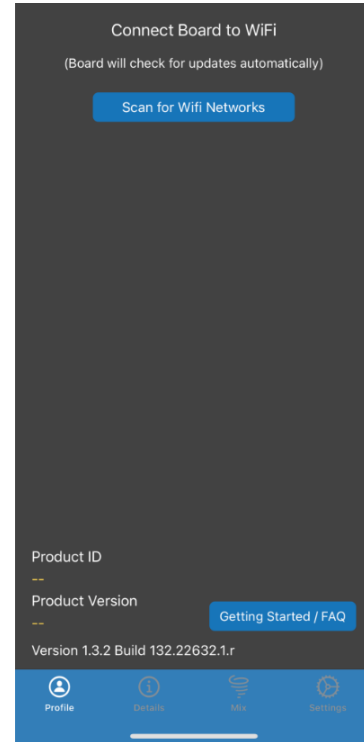
4.4. The app is now connected to the machine.

**Note:** No other devices can connect to a unit that is actively paired to a device.

4.5. If desired, rename the machine through the **DETAILS** page in the app.



prompted with either a successful connection or a failed connection. The sprayer will store the credentials for the last ten (10) WiFi connections entered.



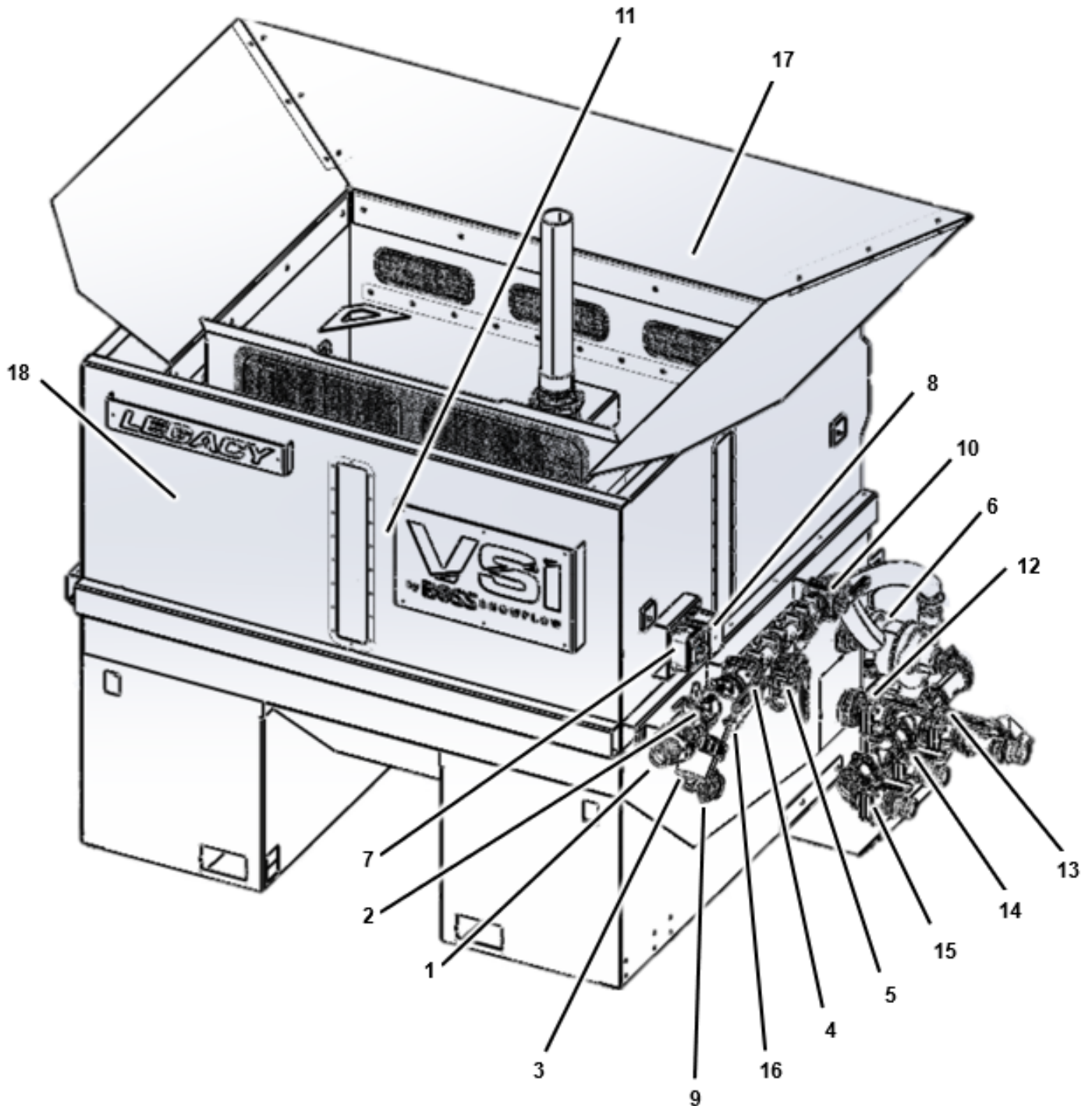
## 5. Connect Machine to WiFi

The machine uses WiFi to search for new firmware releases that may come out to increase performance and reliability of the system. The machine will search for active WiFi networks once per day for 5 minutes. If the sprayer has already recently connected to the WiFi, is in range of WiFi, and if an update is available the sprayer will automatically update.

Connect to WiFi after you first purchase the machine. You can also do a prompted connection at any point in time by following these connection steps:

- 5.1. Ensure you are already connected to the machine via Bluetooth connection.
- 5.2. Click on the **PROFILE** tab at the bottom of the app screen. Connect the machine to the nearest WiFi to where the machine will be stationed.
- 5.3. To save WiFi credentials, select **SCAN FOR WIFI NETWORKS**. A list of available networks will be displayed.
- 5.4. Select the network that you wish to connect and enter the credentials for the network. You will be

# Product Overview



- 1. Truck Fill Camlock
- 2. Air Purge
- 3. Filter
- 4. Truck Fill Valve
- 5. Pump Out Valve
- 6. Pump Motor
- 7. Pump Motor Switch

- 8. Digital Salinity Module Box
- 9. Digital Salinity Sensor
- 10. Agitation Valve
- 11. Agitation Nozzles
- 12. Tank Valve
- 13. Aux 3 Brine Valve

- 14. Aux 2 Additive Valve
- 15. Aux 1 Water Valve
- 16. Eductor Nozzle
- 17. Salt Hopper/ Mix Tank
- 18. Batch Tank



## 1. Truck Fill Camlock

The truck fill camlock is used to pump out the brine to your brine sprayer via a sprayer fill hose.

## 2. Air Purge

The air-purge valve is used with an air compressor (not-included) to prevent spilling brine or additives when you remove the hose after pumping brine to your sprayer.

## 3. Filter

Each machine is equipped with a filter right before the inlet to the pump. Inside the filter housing is a reusable stainless steel 30 mesh filter.

If you suspect the filter is clogged:

1. Close the tank valve and loosen the collar around the filter housing.
2. Pull the outer housing off and remove the filter.
3. Rinse the filter clean and place it back in the housing.

## 4. Truck Fill Valve

The truck fill valve is on the pressure side of the pump and is used when pumping brine/additive out of the machine and into a sprayer using the Fill Hose. See *Understanding Valve Positions* later in the manual.

## 5. Pump-Out Valve

The pump-out valve is on the pressure side of the pump and is used to pump the brine out of the machine and into a storage tank. See *Understanding Valve Positions* later in the manual.

## 6. Pump Motor

The pump moves the water and brine for agitation and for pumping the brine.

## 7. Pump Motor Switch

The pump switch turns the pump on or off.

## 8. Digital Salinity Module Box

The digital salinity module box houses the circuit board for connecting to the VSI Spray Control App and transmitting the digital salinity reading.

## 9. Digital Salinity Sensor

The sensor reads the salinity of the brine. Use this with the app to verify the correct salinity.

## 10. Agitation Valve

The agitation valve is on the pressure side of the pump and is used to pump liquid through the agitation nozzles in the mix tank to dissolve the salt. See *Understanding Valve Positions* later in the manual.

## 11. Agitation Nozzles

The agitation nozzles push water across the bulk salt to dissolve the salt and create the brine.

## 12. Tank Valve

The tank valve is on the suction side of the pump and is used by liquid in the batch tank that needs to be filled, agitated, added, or pumped out. See *Understanding Valve Positions* later in the manual.

## 13. Aux 3 Brine Valve

The aux 3 brine valve is on the suction side of the pump and is used when drawing liquids out of a brine storage tank. See *Understanding Valve Positions* later in the manual.

## 14. Aux 2 Additive Valve

The auxiliary valve is on the suction side of the pump and is used to draw additives from a storage tank into a sprayer via a fill hose line. See *Understanding Valve Positions* later in the manual.

## 15. Aux 1 Water Valve

The auxiliary valve is on the suction side of the pump and is used for connection to a bulk water storage tank for faster filling of the brine tank. It can also be used as a secondary additive storage tank if providing water to the brine maker in a different manner. See *Understanding Valve Positions* later in the manual.

## 16. Eductor Nozzle

The eductor nozzle helps create the brine mixture. Keeping this nozzle free from debris and clogs will aid in a consistent salinity reading.

## 17. Salt Hopper/Mix Tank

The salt hopper is for loading salt to create the brine.

## 18. Batch Tank

The batch tank is used for mixing salt brine.

# Specifications

**Note:** Specifications and design are subject to change without notice.

## Machine Specifications

Description	Brine Maker
Length (inches)	86
Width (inches)	98
Height (inches)	76
Weight (Empty)	2100 lbs

## Attachments and Accessories

A selection of VSI approved attachments and accessories are available for use with the sprayer to enhance and expand its capabilities. Contact VSI for further information.

To ensure optimum performance and continued safety certification of the machine, use only genuine VSI replacement parts and accessories. Replacement parts and accessories made by other manufacturers could be dangerous, and such use could void the product warranty.

## Operation

### *Before Operation*

### Before Operation Safety

### General Safety

- Never allow children or untrained people to operate or service the machine. Local regulations may restrict the age of the operator. The owner is responsible for training all operators and mechanics.

- Become familiar with the safe operation of the equipment, operator controls, and safety signs.
- Shut off the pump, wait for all movement to stop, and allow the machine to cool before adjusting, servicing, cleaning, or storing it.
- Know how to shut off the pump on the machine quickly.
- Check that safety switches and shields are attached and functioning properly. Do not operate the machine unless they are functioning properly.
- Before operating the machine, inspect it to ensure that the components and fasteners are in good working condition. Replace worn or damaged components and fasteners.
- Ensure that all fluid line connectors are tight and that all hoses are in good condition before applying pressure to the system.
- Use the correct chemical for the job.
- Follow the chemical manufacturer's instructions for safely applying the chemical. Do not exceed the recommended system application pressure.
- Do not fill, calibrate, or clean the machine while people, especially children, or pets are in the area.
- Do not clean nozzles by blowing through them or placing them in your mouth.
- Always wash your hands and other exposed areas as soon as possible after working with chemicals.
- Keep chemicals in their original packages and stored in a safe location.
- Properly dispose of unused chemicals and chemical containers as instructed by the chemical manufacturer and your local codes.
- Follow all local, state, and federal regulations for spreading or spraying chemicals.

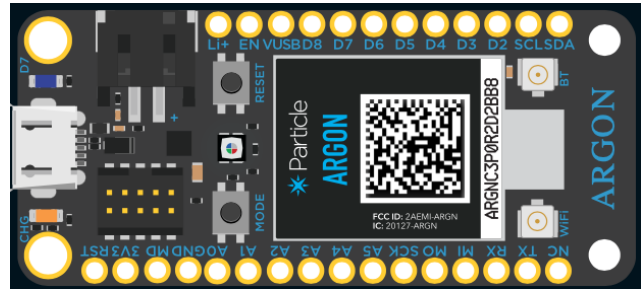
## Chemical Safety

Chemical substances used in the machine system may be hazardous and toxic to you, bystanders, and animals, and they may damage plants, soil, and other property.

- Read the information on each chemical. Refuse to operate or work on the sprayer if this information is not available.
- Verify that there is an adequate supply of clean water and soap nearby, and immediately wash off any chemicals that contact you.
- Carefully read and follow the chemical warning labels and safety data sheets (SDSs) for all chemicals used, and protect yourself according to the chemical manufacturer's recommendations.
- Always protect your body while using chemicals. Use the appropriate personal protective equipment (PPE) to guard against contact with chemicals, such eye protection and/or face shield and chemical-resistant gloves.
- Obtain proper training before using or handling chemicals.

# Sprayer Control Box Light Modes

The computer inside the control box will display different light modes depending on the operation status of the machine.

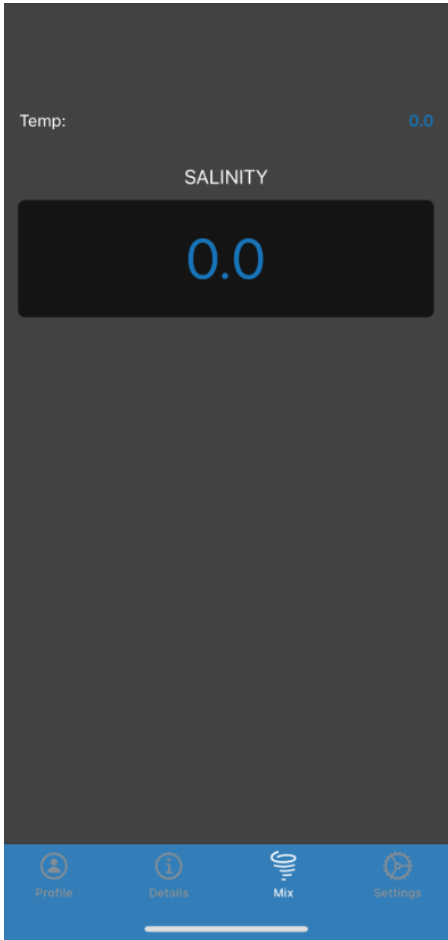


Common light modes include the following:

Status LED Indicator	Mode and Meaning
Flashing magenta	<b>Control box is receiving a firmware update.</b> It is normal for the light to appear solid for a short period of time and flash at different rates while the firmware update is being downloaded. Once the process is finished the computer will restart and the user will need to reconnect to the machine with their smart device.
Flashing green, then breathing cyan	<b>Operator is connecting the machine board to WiFi.</b> When the user chooses to connect to WiFi the computer will start flashing green as it tries to connect to the WiFi network chosen. When the network is connected the light will flash cyan until it is able to establish a connection with the cloud. Then when it connects to the cloud it will start breathing cyan. If there is a firmware update available the computer will start downloading it and the color will change to Magenta. If the computer does not change from flashing green it could mean that an incorrect password was entered, or the network uses some security measures that don't allow the computer to connect to the internet.
No status LED indicator	If there is no light coming from the computer it could mean that the control box is not connected to power.

# VSI Spray Control App Display

When connected to the machine, the VSI Spray Control app will display the concentration of salt in the water.



## Profile Tab

The **PROFILE** tab is used to search and connect to WiFi networks. Reference the *Connect Machine to WiFi* section of the manual. The **PROFILE** tab will also display the Product ID, Product Version, and app version that are currently configured and installed.

Product version relates to the firmware version of the machine and will be used frequently in diagnosing and troubleshooting. VSI customers will be notified when new firmware versions are available for download.

## Details Tab

The **DETAILS** tab contains the serial number of the machine and the last reset reason.

Select the drop down arrow in the upper right corner to toggle to a *BrineMixer*. Press the **CONNECT** button in the app.

All machines within Bluetooth range will appear. Select the machine you are wanting to connect (serial numbers are listed).

**Note:** The serial number can be found on the side of the control box.

The app is now connected to the machine.

**Note:** No other devices can connect to a unit that is actively paired to a device.

If desired, rename the machine through the **DETAILS** page in the app.

**Last Reset Reason:** The reason for the last reset on the machine will be displayed.

## Mix Tab

The **MIX** tab of the app is where the reading of the machine salinity level will be displayed.

## Settings Tab

The app settings should be left alone unless you have consulted with your VSI distributor first.

**Note:** If needed, tap the **RESET TO DEFAULTS** button at the bottom of the app to reset the settings to factory defaults.

**Note:** Ensure to tap the **SAVE** button after any settings changes.

## Plumbing to Auxiliary Tanks

A manifold bank of three (3) valves are provided with each machine. This manifold system can be configured to best fit your operation. A typical setup will be explained below.

### Auxiliary 1 Valve- Water

The valve situated at the far left of the manifold (when facing the plumbing) is commonly designated for the water source.

In the event that your facility possesses an ample water supply exceeding 40 gallons per minute, you have the option to connect your water directly to this manifold valve. However, it is crucial to comply with local regulations regarding the installation of a backflow prevention device.

If your facility lacks an adequate water supply (less than 40 gallons per minute), we recommend the installation of a water float tank. This tank serves as a reservoir, holding anywhere from 1,000 - 3,000 gallons of water. By incorporating a float shut-off valve, the tank can be replenished with little interaction prior to actively making a batch of brine. The water stored in this float tank can then be directed into the brine maker manifold using a 2" hose and valve. This arrangement enables you to efficiently and promptly draw water into your brine maker.

### Auxiliary 2 Valve- Additive

The valve situated in the middle of the manifold (when facing the plumbing) is commonly designated for blending additives.

This storage tank for additives can be plumbed to the manifold using a 2" hose and valve.

See later in the manual for description of how additives can be pumped out of the storage tank through the manifold and out into the sprayers.

### Auxiliary 3 Valve- Brine

The valve situated at the far right of the manifold (when facing the plumbing) must be used for the storage tank of the brine.

This storage tank for brine should be plumbed to the manifold using a 2" hose and valve.

See later in the manual for description of how brine can be pumped out of the storage tank through the manifold and out into the sprayers.

### Additional Auxiliary Brine or Additive Tanks

Additional storage tanks for brine or additives may be added to your storage solution. Poly fittings with ball valves and tees can be used to tie common liquids (brine with brine, or additives with additives) into a singular feed line into the manifold system.

Reference this link for a graphic for an example of a dual-brine storage tank plumbing configuration: <https://www.vsinnovation.com/collections/brine-plant-setup>. Or reference this graphic for an example of an additional tank plumbing to add other storage tanks: <https://www.vsinnovation.com/collections/brine-plant-setup/products/additional-brine-plant-tank>.

# Understanding Valve Positions

Proper valve positioning is vital to the machine working correctly for each given task.

## Suction-Side Valves vs. Pressure-Side Valves

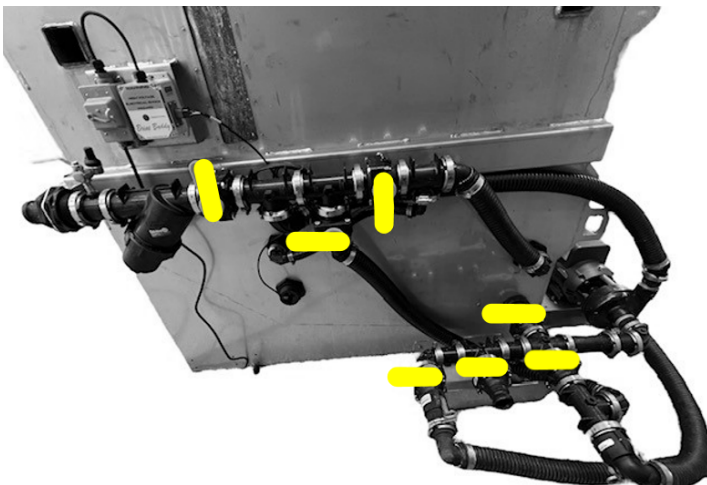
**Suction-side valves:** Any valves on the machine that are entering the lower portion of the pump housing.

**Pressure-side valves:** Any valves on the machine that are high up or connected to the top portion of the pump housing.

## Off Mode Valve Position

Set the valves in the *OFF MODE VALVE POSITION* when you are not actively performing any tasks with the brine maker or are loading the brine maker with salt to make a batch of brine. The figure below shows the valves in this positioning.

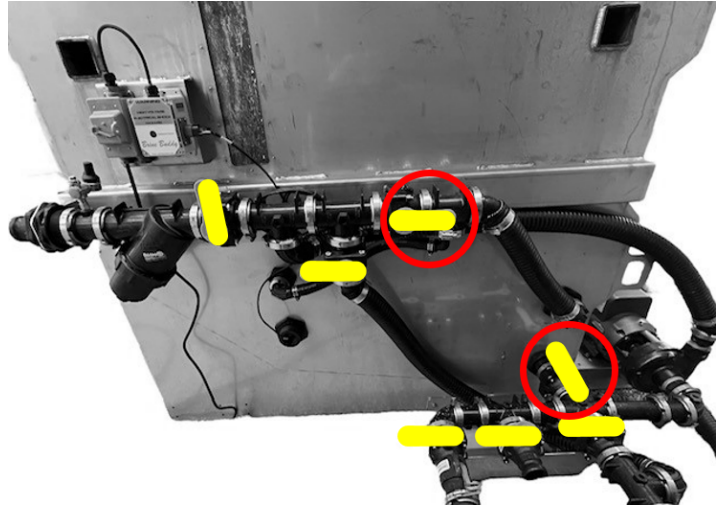
**Note:** All valves are in the closed position.



## Agitation Mode Valve Position

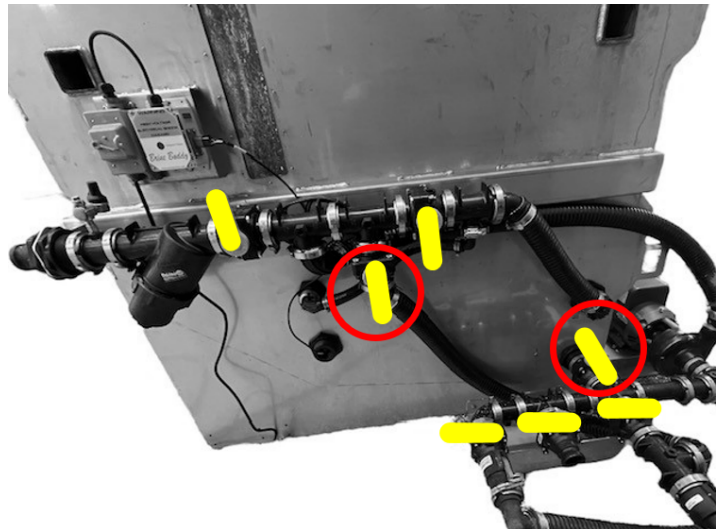
Set the valves in *AGITATION MODE VALVE POSITION* when the batch tank is full of water, salt is loaded into the hopper, and you are creating and monitoring the salinity of the brine. The figure below

shows the Agitation Valve and Tank Valve in the open positions.



## Pump-Out Mode Valve Position

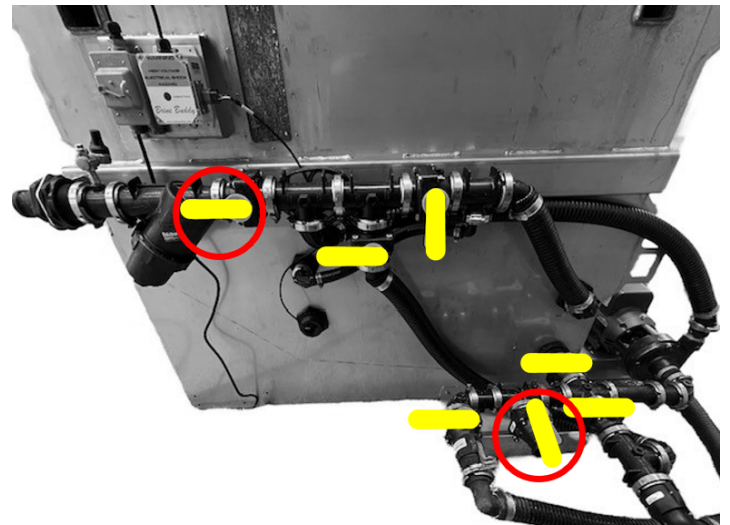
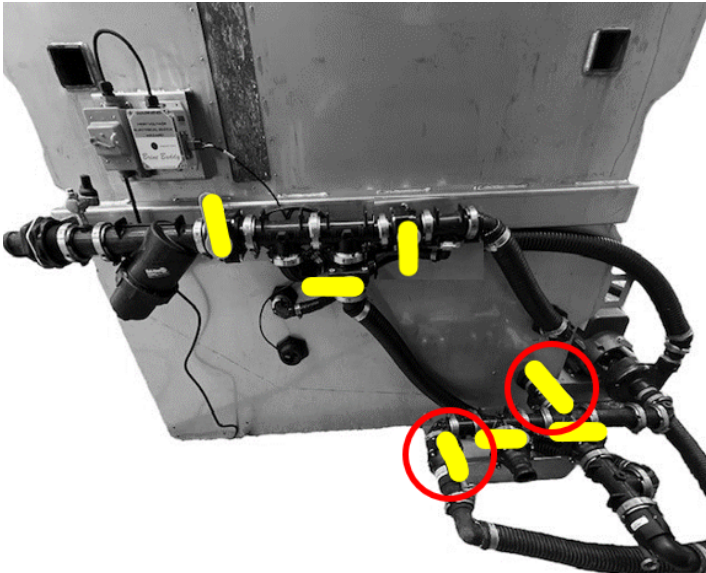
Set the valves in *PUMP-OUT MODE VALVE POSITION* when you are ready to pump the contents of the brine tank out to a storage tank. The figure below shows the Tank Valve and Brine Pump-Out Valve in the open positions.



## Auxiliary 1 Water Fill Mode Valve Position

Set the valves in *AUXILIARY 1 WATER FILL MODE VALVE POSITION* when needing to add water to the batch tank.

The figure below shows the Tank Valve and Aux 1 Water Valve in the **open** positions.



### **Auxiliary 3 Brine Truck Fill Mode Valve Position**

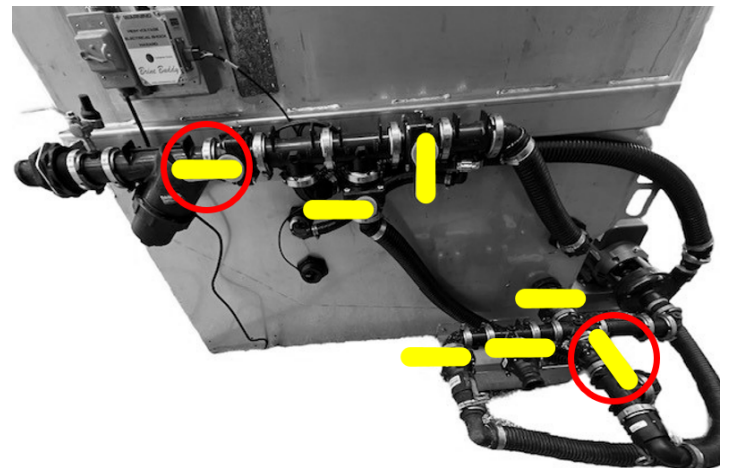
Set the valves to *AUXILIARY 3 BRINE TRUCK FILL MODE VALVE POSITION* when you are ready to draw liquids from a brine storage tank and out through the fill hose to a truck.

The figure below shows the Truck Fill Valve and Aux 3 Brine Tank Valve in the **open** positions.

### **Auxiliary 2 Additive Truck Fill Mode Valve Position**

Set the valves to *AUXILIARY 2 ADDITIVE TRUCK FILL MODE VALVE POSITION* when you are ready to draw a different liquid from an additive storage tank and out through the fill hose to a truck.

The figure below shows the Truck Fill Valve and Aux 2 Additive Valve in the **open** positions.





# ***During Operation***

## **During Operation Safety**

- The owner/operator can prevent and is responsible for accidents that may cause personal injury or property damage.
- Wear appropriate clothing, including eye protection; substantial, and slip-resistant footwear. Tie back long hair and do not wear loose clothing or loose jewelry.
- Wear appropriate personal protective equipment as directed in Chemical Safety.
- Use your full attention while operating the machine. Do not engage in any activity that causes distractions; otherwise, injury or property damage may occur.
- Do not operate the machine while ill, tired, or under the influence of alcohol or drugs.
- Shut off the pump, wait for all movement to stop, and allow the machine to cool before adjusting, servicing, cleaning, or storing it.
- Use accessories and attachments approved by VSI only.

## **Loading the Mix Tank Hopper with Bulk Salt**

**Capacity:** 2 yards of bulk salt (approximately 4,300 lbs.)

**Note:** Use only sodium chloride (salt) to create brine in this machine. Do not use any treated salt products in the making of salt brine.

For the first batch of brine you make you will start with this step of loading the mix tank hopper with bulk salt.

Load bulk salt into the mix tank hopper using a loader and bucket. Align loader bucket towards the center of the hopper to avoid spilling salt over the hopper

extensions or directly into the belch pipe. Each batch of brine will utilize between 1,500- 1,700 lbs.

Overloading the mix hopper can result in salt spillage into the batch tank.

**Note:** For future additional batches of brine there will already be some bulk salt in the mix tank hopper so you can begin with the next step of filling the batch tank with water. You will add bulk salt as needed at this point.

Load salt slowly when there is already water in the brine maker to avoid splashing or overflow.

## **Filling the Batch Tank with Water**

**Capacity:** 650 Gallons

1. Put the machine valve positions into *Auxiliary 1 Water Fill Mode Valve Position* (see earlier in the manual).
2. Turn on the water supply and fill until the tank is  $\frac{3}{4}$  of the way up the window, leaving room for salt saturation and agitation.
3. Turn off the water supply and wipe up any spills.

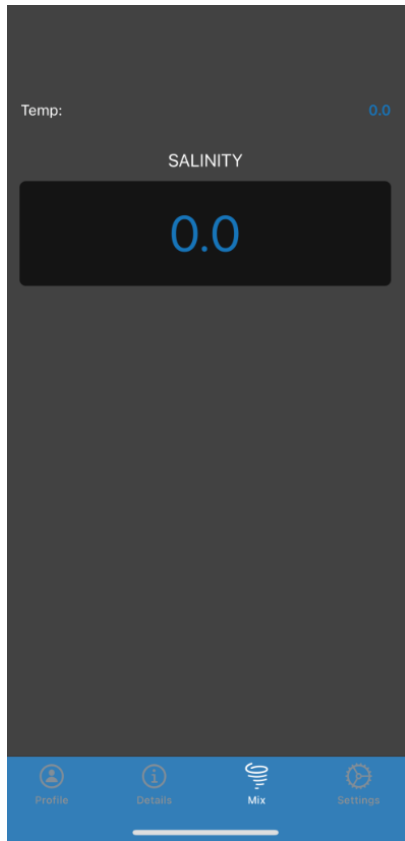
**Note:** Opening the Agitation Valve, Tank Valve, and Aux 1 Water Valve will speed up the mixing process by agitating the solution while simultaneously filling with water. **Important:** Allow the batch tank to partially fill with water before turning on the pump motor to avoid running the pump while dry. The pump will suck air for a moment on startup.

## **Using the VSI Spray Control App Information Display**

1. Open the VSI Spray Control app.

2. Connect to the machine via Bluetooth. Refer to *Connect to Machine Via Bluetooth* earlier in the manual.

3. Select the *MIX* tab to display the brine salinity.



## Agitating a Batch of Brine

**Note:** Use only sodium chloride (salt) to create brine in this machine. Do not use any treated salt products in the making of salt brine.

**Important:** Mix the brine to a salinity reading of 23.3%.

### Brine Mixture- Water to Salt Ratios

Water	Salt
0.4385 Gallons	1 lbs
1 Gallon	2.28 lbs

1. Once you have loaded your brine maker with bulk salt and water, plug the pump into a 220V, single phase, 30 amp circuit.

2. Put the machine into *AGITATION MODE VALVE POSITION* (see earlier in the manual).

3. Turn on the pump switch.

4. Continue to add salt into the hopper until the correct salinity of 23.3% is reached. Use the VSI Spray app to monitor the salinity level. A manual hydrometer is also included.

5. Turn the pump switch off.

## Pumping Out Brine to Storage Tanks

Once agitation is complete and the brine is mixed to a salinity reading of 23.3% proceed with the steps below to pump brine out of the brine maker into a storage tank.

1. Move the valves into the *PUMP-OUT MODE VALVE POSITION* (see earlier in manual).

2. Turn the pump switch on and pump brine out of the brine maker to the storage tank.

**Note:** Ensure the valve at the storage tank is open to allow liquid to flow into the storage tank.

3. Once pumping is complete, close the valves and return to the *OFF MODE VALVE POSITION* (see earlier in manual) and quickly turn off the pump motor.

## Filling Trucks with Brine From Storage Tanks

The brine maker can be used to fill trucks, pulling liquid from either the batch tank or storage tanks via the manifold.

1. Connect the brine maker to a sprayer via the 2" fill hose line with camlocks.
2. Open the Truck Fill Valve and the Aux 3 Brine Valve. Turn on the pump motor.
3. Fill the sprayer with the desired quantity of brine.
4. Close the Truck Fill Valve and Aux 3 Brine Valve. Turn off the pump motor.
5. Proceed to Filling Trucks with Additives From Storage Tanks, if needed. Otherwise proceed to the Air Purge section.

## Filling Trucks with Additives From Storage Tanks

The brine maker can be used to fill trucks with additives, pulling it from a storage tank via the manifold.

1. If not already connected, connect the brine maker to a sprayer via the 2" fill hose line with camlocks.
2. Open the Truck Fill Valve and the Aux 2 Brine Valve. Turn on the pump motor.
3. Fill the sprayer with the desired quantity of additives.
4. Close the Truck Fill Valve and Aux 2 Additive Valve. Turn off the pump motor.
5. Proceed to the Air Purge section.

**Note:** If filling a truck with brine and then immediately using additives, it is possible to simultaneously close the Aux 3 Brine Valve and open the Aux 2 Additive Valve without having to turn off the pump motor.

## Air Purge

After you are finished filling trucks with liquid you can use the Air Purge to prevent spilling liquid from the hoses and valves after each movement of liquid. If desired, connect an air compressor to the air-purge valve. Ensure the Air Purge Valve is closed.

**Note:** A minimum of (20 psi) and a maximum of (120) psi is needed for pressure to clear out the brine.

1. After you are finished pumping out to the trucks, with the fill hose still connected, and with the pump motor off. Put the valves into the *OFF MODE VALVE POSITION*. The fill valve and tank valve on the sprayer should remain open.
2. Open the air-purge valve until air is purged out and heard going into the sprayer.
3. Close the fill valve on the sprayer and immediately close the Air Purge Valve.
4. Slowly remove the camlock connection on the sprayer or storage tank as well as machine.

**Never disconnect the hose fittings under pressure.**

**If pressure is suspected to be present, open the Truck Fill Valve to relieve the pressure before disconnecting the hose.**

10. Disconnect your air-compressor hose.

## After Operation

### After Operation Safety

- Shut off the machine, wait for all movement to stop, and allow the machine to cool before adjusting, servicing, cleaning, or storing it.
- Keep all parts of the machine in good working condition and all hardware tightened.
- Replace all worn, damaged, or missing decals.

## Washing the Brine Maker

**Note:** Use only clean water when cleaning the system.

Wash the inside of the salt hopper and batch tank with clean water.

## Maintenance

Failure to properly maintain the machine could result in premature failure of machine systems, causing possible harm to you or bystanders.

Keep the machine well maintained and in good working order as indicated in these instructions.

## *Recommended Maintenance Schedule(s)*

Maintenance Service Interval	Maintenance Procedure
Before each use or daily	<ul style="list-style-type: none"><li>• Ensure the electrical connections are secure and safe</li></ul>
Every 50 hours	<ul style="list-style-type: none"><li>• Service the in-line filter screen</li><li>• Clean the salt hopper and batch tank (or sooner as needed)</li></ul>
Every 200 hours	<ul style="list-style-type: none"><li>• Inspect all hoses and connections for damage and proper attachment</li></ul>
Before storage	<ul style="list-style-type: none"><li>• Flush the machine after each pump-out or at times of prolonged storage</li><li>• Condition the machine after each season</li><li>• Check and tighten all fasteners</li><li>• Clean the brine batch tank</li><li>• Clean the salt hopper</li><li>• Condition the spray system</li></ul>
Monthly	<ul style="list-style-type: none"><li>• Clean the brine batch tank</li></ul>

## Maintenance Safety

- Shut off the machine, wait for all movement to stop, and allow the machine to cool before adjusting, servicing, cleaning, or storing it.
- Allow machine components to cool before performing maintenance.
- Allow only qualified and authorized personnel to maintain, repair, adjust, or inspect the machine.
- If you must run the machine to perform a maintenance adjustment, keep your hands, feet, clothing, and any parts of your body away from any moving parts.
- Before performing any maintenance, thoroughly clean and rinse the machine; refer to *Chemical Safety* in the manual.
- Chemicals used in the machine system may be hazardous and toxic to you, bystanders, animals, plants, soils, or other property.
  - Carefully read and follow the chemical warning labels and safety data sheets (SDSs) for all chemicals used, and protect yourself according to the chemical manufacturer's recommendations.
  - Always protect your skin while you are near chemicals. Use the appropriate personal protective equipment (PPE) to guard against contact with chemicals, including eye protection and/or face shield, chemical-resistant gloves, and substantial footwear.
  - Refuse to operate or work on the sprayer if chemical safety information is not available.
  - Do not fill, calibrate, or clean the machine while people, especially children, or pets are in the area.
  - Do not clean spray nozzles by blowing through them or placing them in your mouth.
  - Always wash your hands and other exposed areas as soon as possible after working with chemicals.
- To ensure that the entire machine is in good condition, keep all hardware properly tightened.
- If the machine requires a major repair or you need technical help, contact an authorized VSI distributor.
- Modifying this machine in any manner may affect machine operation, performance, durability, or its use, and result in injury or death.
- Carefully release pressure from components with stored energy.

## Electrical System Maintenance

### Electrical System Safety

- Unplug the machine from power before repairing the machine.
- When operating the machine in a damp location is unavoidable, ensure proper connection and routing to reduce the risk of electric shock.
- Wear protective clothing and use insulated tools.

## Brine Maker System Maintenance

### Service the In-Line Filter Screen

**Service Interval:** Every 50 hours

1. Clean the area around the in-line filter cap.
2. Remove the in-line filter cap and check the screen for any clogs or debris.

3. If the screen is clogged, clean the screen.
4. Inspect the gasket. Replace if it is worn or has cracks.
5. Reinstall the screen and in-line filter cap.

## Inspecting the Hoses

**Service Interval:** Every 200 hours

Examine each hose in the machine for cracks, leaks, or other damage. At the same time, inspect the connections and fittings for similar damage. Replace any hoses and fittings if damaged.

## Cleaning

### Cleaning the Salt Hopper

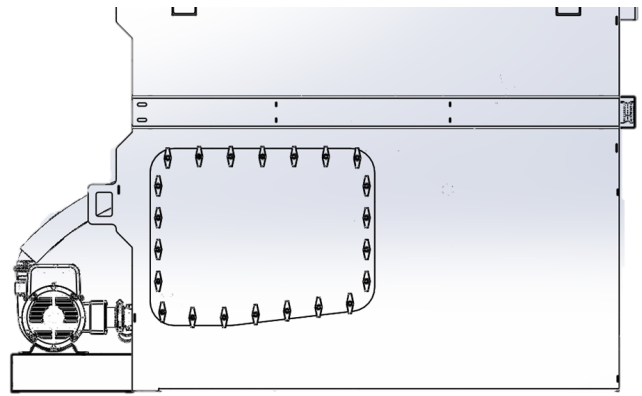
**Service Interval:** Every 50 hours

1. Unplug the machine from the electrical outlet.
2. Clean the area inside the salt hopper of any debris or rocks.

### Cleaning the Batch Tank

**Service Interval:** Every 50 hours, monthly or before storage

1. Unplug the machine from the electrical outlet.
2. Clean the salt hopper.
3. Open the side door to gain access to the tank.



4. Clean the inside of the tank and remove any debris or rocks.

5. Reinstall the side door and ensure the gasket is seated properly to prevent leaking.

### Flushing the System

**Service Interval:** Before storage

**Important:** Use only clean water when cleaning the system.

**Important:** You must always drain and flush out the system after each use. Failure to flush and clean the system may allow the chemicals to dry and obstruct the lines, filter, valves, pump and other components.

Clean the system after each brine making session. To properly clean the system, perform the following:

1. Remove any salt from the salt hopper.
2. Fill the tank with clean water.

**Note:** Use only clean, clear water.

3. Fill the tank with 350 gallons of water.
4. Position the valves in the *AGITATION MODE VALVE POSITION* (refer to earlier in the manual).

5. Check the agitation nozzles to ensure that all holes are spraying correctly.
6. Allow all water to circulate.
7. Pump the water out.
8. Dispose of the water according to local regulations.

## Conditioning the Machine

**Service Interval:** Before storage

**Important:** Use only propylene glycol (non-toxic RV antifreeze) with corrosion inhibitors. Do not use recycled propylene glycol. Do not use ethylene glycol based antifreeze.

**Do not use propylene glycol with soluble alcohols (methanol, ethanol, or isopropanol) or brines added.**

1. Unplug the machine from the electrical outlet.
  2. Remove any salt from the salt hopper.
  3. Flush the system.
  4. Open all the valves.
  5. Remove the hose at the top of the pump and add non-toxic RV antifreeze to the pump.
- Note:** Most propylene glycol RV antifreeze is colored pink. Use a catch container to sample the discharge.
6. Install the hose on the top of the pump.
  7. Remove the filter housing to drain the water out.
  8. Install the filter housing.

## Storage

## Storage Safety

Shut off the engine, wait for all movement to stop, and allow the machine to cool before adjusting, servicing, cleaning, or storing it.

## Storing the Machine

1. Remove salt, sand, and grime from the external parts of the entire machine.

**Important:** You can wash the machine with a mild detergent and water. Do not pressure-wash the machine. Avoid excessive use of water, especially near the electrical system. Pressure-washing can force dirt and water into critical parts.

2. Condition the brine system.
3. Clean the salt hopper.
4. Clean the brine batch tank.
5. Dispose of sediment or debris according to local regulations.
6. Check and tighten all fasteners. Repair or replace any part that is damaged or missing.

## Removing the Machine from Storage

1. Check all fasteners; tighten as necessary.
2. Check that all hoses are installed.
3. Fill the brine tank with 250 gallons of water.
4. Plug the machine into the electrical outlet.
5. Turn the pump switch on.
6. Check the hoses and valves for cracks or leaks.

7. Check that the app is operating on your connected device.

## Troubleshooting

<b>Problem</b>	<b>Possible Cause</b>	<b>Corrective Action</b>
The pump does not prime.	<ol style="list-style-type: none"><li>1. The Tank Valve is closed.</li><li>2. A hose is cracked or leaks.</li><li>3. The internal suction filter is clogged.</li><li>4. The filter O-ring is damaged or missing.</li></ol>	<ol style="list-style-type: none"><li>1. Open the Tank Valve.</li><li>2. Repair or replace any part that is damaged or missing.</li><li>3. Clean the filter.</li><li>4. Replace the O-ring.</li></ol>
The salinity reader stalls or does not show a value.	<ol style="list-style-type: none"><li>1. The eductor nozzle is clogged.</li><li>2. The sensor has debris on it.</li></ol>	<ol style="list-style-type: none"><li>1. Clean the eductor nozzle.</li><li>2. Remove and clean the sensor.</li></ol>

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