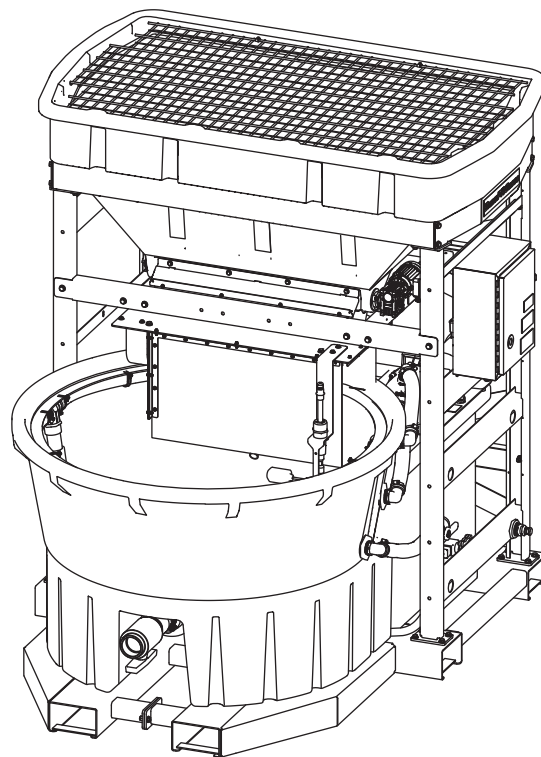




BP-2000

Brine Pro™ Brine Maker

Owner's Manual and Installation Instructions *Original Instructions*



⚠ CAUTION

**Read this manual before installing or operating
the equipment.**

This Manual and Instructions are for BP-2000 brine makers with serial numbers
beginning with 160601 and higher.

This document supersedes all editions with an earlier date.

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PREFACE

This manual has been prepared to acquaint you with the safety information, operation and maintenance of your new machine. Improper installation and operation could cause personal injury and/or equipment and property damage. Read and understand the Owner's Manual before installing, operating or making adjustments. Keep this manual accessible.

When service is necessary, call SnowEx® Technical Service at 1-800-725-8377.

NOTE: This brine maker is designed and programmed to mix rock salt (sodium chloride) and water *only*. It is not intended for use with magnesium chloride, calcium chloride, potassium chloride or any other solid material or additives. The use of additives during brine production will negatively affect the salinity sensor, and will make accurate salinity control impossible. Any additives must be added after brine has left the mixing tank. Do not use this equipment for purposes other than those specified in this manual.

NOTE: Do not modify or alter the machine. Altering the unit in any way will void the warranty

NOTE: The Brine Pro™ 2000 brine maker requires a licensed electrician for installation.

WARRANTY REGISTRATION

Warranty registration is available online at www.snowexproducts.com. Under "Support" click "Warranty Registration" and submit the form online.

OWNER'S INFORMATION

Owner's Name: _____

Date Purchased: _____

Outlet Name: _____ Phone: _____

Outlet Address: _____

Year: _____

Serial #: _____

SAFETY INFORMATION

SAFETY DEFINITIONS

WARNING

Indicates a potentially hazardous situation that, if not avoided, could result in death or serious personal injury.

CAUTION

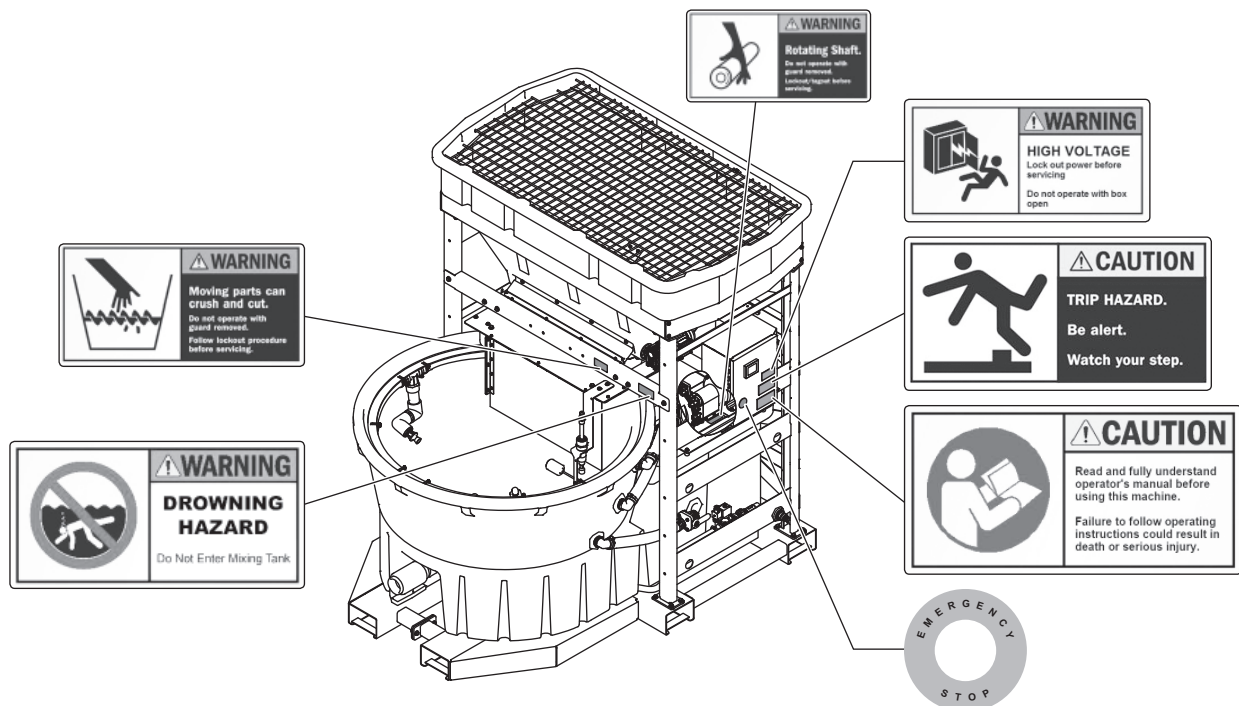
Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

NOTE: Indicates a situation or action that can lead to damage to your equipment or other property. Other useful information can also be described.

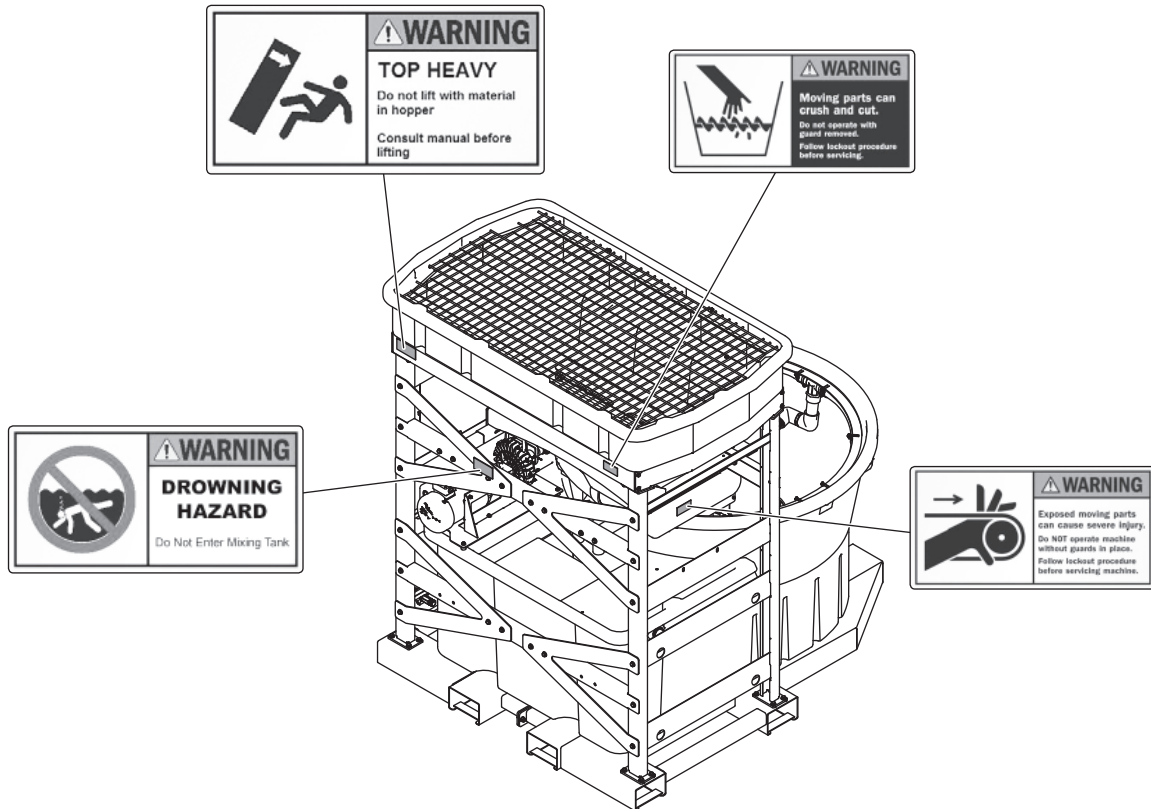
WARNING/CAUTION LABELS

Please become familiar with all the Warning and Caution labels on the machine.

If labels are missing or cannot be read, call 1-800-SALTERS (725-8377).

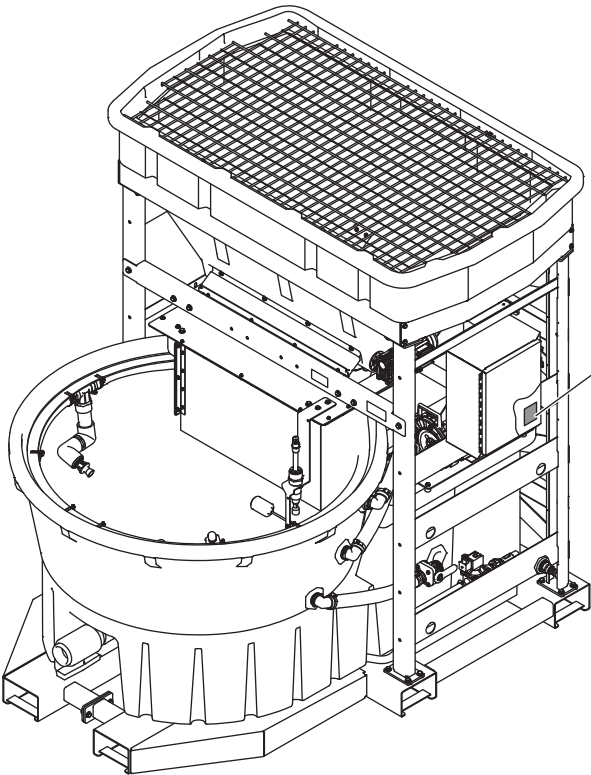


SAFETY INFORMATION



SAFETY INFORMATION

SERIAL NUMBER LABEL





TrynEx International
531 Ajax Drive
Madison Heights, MI 48071
www.snowexproducts.com

XXXXXXXXXXXXXXXXXXXXXXXXXXXX

YYMMDDLLXXXXZZZZZZ



Inside Cover

Code	Definition
YY	2-Digit Year
MM	2-Digit Month
DD	2-Digit Day
LL	2-Digit Location Code
XXXX	4-Digit Sequential Number
ZZZZZZ	Model #

SAFETY INFORMATION

SAFETY PRECAUTIONS

Improper installation and operation could cause **personal injury and/or equipment and property damage**. Follow all local laws and regulations when installing or operating the unit. Read and understand all product labels and the Owner's Manual before installing, operating or making adjustments. This unit requires a licensed electrician for installation. Install with a 50 A breaker.

WARNING

- Always keep hands, feet and clothing away from moving parts.
- All guards and covers must be in place before operating.
- Do not operate a machine in need of maintenance.
- Always make sure personnel are clear when using and filling equipment.
- Never allow children to operate or climb on equipment.

WARNING

Drowning Hazard: Do not climb into the mixing or brine tank.

WARNING

Do not climb into the salt hopper. Moving parts may cause serious injury.

WARNING

Before operating, servicing and cleaning, locate and become familiar with the emergency stop button.

WARNING

Always shut off and lock out the power source before servicing.

WARNING

Overloading the salt hopper could cause an accident. Do not overfill.

CAUTION

- Before working with the machine, secure all loose-fitting clothing and unrestrained hair.
- Always wear safety glasses with side shields when operating and servicing. Failure to do this could result in serious injury to eyes.

CAUTION

For emergencies press the physical Emergency Stop Button on the Control Box. Do not attempt to manually stop the unit.

CAUTION

Brine is typically a clear to cloudy white liquid with no odor. It may be irritating to the eyes, skin and respiratory system. Refer to the Brine Solution Material Safety Data Sheet (MSDS) for more information.

CAUTION

Floor may be slippery when wet or covered with salt particles. Use caution when working around the unit.

CAUTION

Trip Hazard: Be aware of hoses and wires lying on the ground.

NOTE: This unit must be installed and operated in compliance with all OSHA standards and local laws and regulations.

NOTE: Do not leave unused material in hopper for a prolonged period of time. Material can solidify, causing blockage.

NOTE: This unit creates corrosive dust that may affect nearby equipment.

NOTE: Inspect and retighten fasteners after the first run and periodically to ensure structural integrity.

SAFETY INFORMATION & SPECIFICATIONS





TORQUE CHART

CAUTION





Read instructions before assembling. Use standard methods and practices, including proper personal protective safety equipment.

Recommended Fastener Torque Chart

Inch Fasteners Grade 5 and Grade 8

Size	Torque (ft-lb)		Size	Torque (ft-lb)	
	 Grade 5	 Grade 8		 Grade 5	 Grade 8
1/4-20	8.4	11.9	9/16-12	109	154
1/4-28	9.7	13.7	9/16-18	121	171
5/16-18	17.4	24.6	5/8-11	150	212
5/16-24	19.2	27.3	5/8-18	170	240
3/8-16	30.8	43.6	3/4-10	269	376
3/8-24	35.0	49.4	3/4-16	297	420
7/16-14	49.4	69.8	7/8-9	429	606
7/16-20	55.2	77.9	7/8-14	474	669
1/2-13	75.3	106.4	1-8	644	909
1/2-20	85.0	120.0	1-12	704	995

Metric Fasteners Class 8.8 and 10.9

Size	Torque (ft-lb)		Size	Torque (ft-lb)	
	 Class 8.8	 Class 10.9		 Class 8.8	 Class 10.9
M6 x 1.00	7.7	11.1	M20 x 2.50	325	450
M8 x 1.25	19.5	26.9	M22 x 2.50	428	613
M10 x 1.50	38.5	53.3	M24 x 3.00	562	778
M12 x 1.75	67	93	M27 x 3.00	796	1139
M14 x 2.00	107	148	M30 x 3.50	1117	1545
M16 x 2.00	167	231	M33 x 3.50	1468	2101
M18 x 2.50	222	318	M36 x 4.00	1952	2701

These torque values apply to fasteners except those noted in the instructions.

Brine Pro™ 2000 Specifications

Input Requirements

Inlet Flow Rate	3–15 gpm
Electrical Connection	220 V AC, 50 A Service, Single Phase

Dimensions

Length	100 in
Width	86 in
Height	90 in

Weight

Empty	1,500 lb
One Cubic Yard of Salt	2,000 lb
One Gallon Brine	10 lb
Unit with Brine and Salt	9,000 lb

Capacity

Mixing Tank	265 gal
Holding Tank	285 gal
Hopper	1 cu yd
Brine Creation	3–15 gpm

All values are approximate.

MAKING BRINE

The Brine Pro™ 2000 brine maker creates salt brine using an onboard computer to automatically control the mixing process. Upon starting the unit with an empty mixing tank, the unit will open the water intake valve until the waterline covers the mixing pump intake. Once the unit has reached this point it will begin to add salt and mix the solution. The unit will bring the solution to the proper salinity level and overflow into the holding tank, ready to be used or stored.

The Brine Pro 2000 brine maker measures salinity with an electrical conductivity sensor, which automatically compensates for the mixture temperature. For this reason, manual measurements that do not account for temperature may differ from the indicated salinity.

SALT QUALITY

The unit works best with free flowing salt with few impurities. Wet or clumpy salt can jam the auger and hammer mill, and significantly decrease the machine's efficiency and performance. Using clean, dry salt of good quality will increase throughput, will simplify the operation of the unit, and can reduce the frequency and difficulty of maintenance. It is highly recommended to allow wet salt to dry indoors before use, if possible.

The Brine Pro 2000 unit features several standard features to improve the functionality with less than ideal salt. The unit is programmed with a Circulate Mode and an automatic SaltMizer Mode to reduce the amount of usable but still undissolved salt in the mixing tank. It also features a vibrator on the hopper to agitate the salt and ensure a constant flow to the auger. The vibrator and SaltMizer Mode can be configured to run longer or shorter to optimize the use of salt in the machine. For more information see the Operating Modes and User Controlled Settings sections of this manual.

The Brine Pro 2000 is also equipped with an adjustable salt baffle in the hopper for when the use of wet salt cannot be avoided. The baffle should be adjusted into a more open position to better feed wet salt. Conversely, the baffle should be moved into a more closed position for drier salt.

A hammer mill sprayer system is installed on each unit to help prevent the hammer mill from jamming due to wet and clumpy salt.

INSTALLATION INSTRUCTIONS

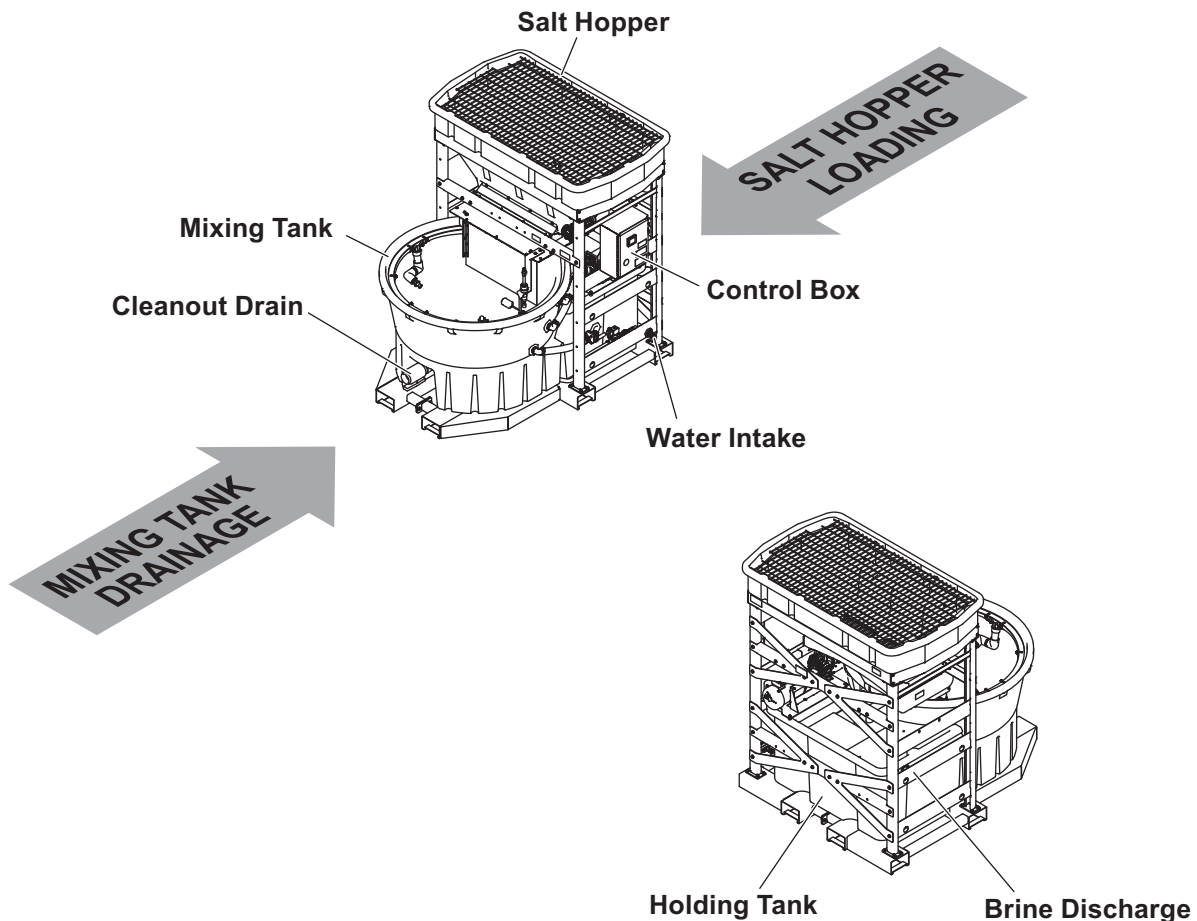
LOCATION

⚠ CAUTION

Failure to install in the proper environment may cause damage, malfunction, and may violate the manufacturer's warranty.

NOTE: This unit must be installed and operated in compliance to all OSHA and local laws and regulations.

The Brine Pro™ 2000 brine maker must be installed indoors, on a hard flat surface, and in an area that is suitable for spray-down cleaning. The ambient temperature must be kept above freezing or significant damage will result. Damage caused by installing in an unsuitable environment may not be covered under warranty. All electrical connections must be made by a licensed electrician. The unit should be installed in an area that provides access to the brine discharge, clean-out drain, salt hopper, water intake, control box, 220 V AC connection and garden hose connection.



INSTALLATION INSTRUCTIONS

INSTALLATION

⚠ WARNING

To prevent electrical overload and the danger of shock, install with a 50 A breaker.

⚠ WARNING

Do not attempt to lift or move unit when it is filled with salt or brine. Always empty unit before moving.

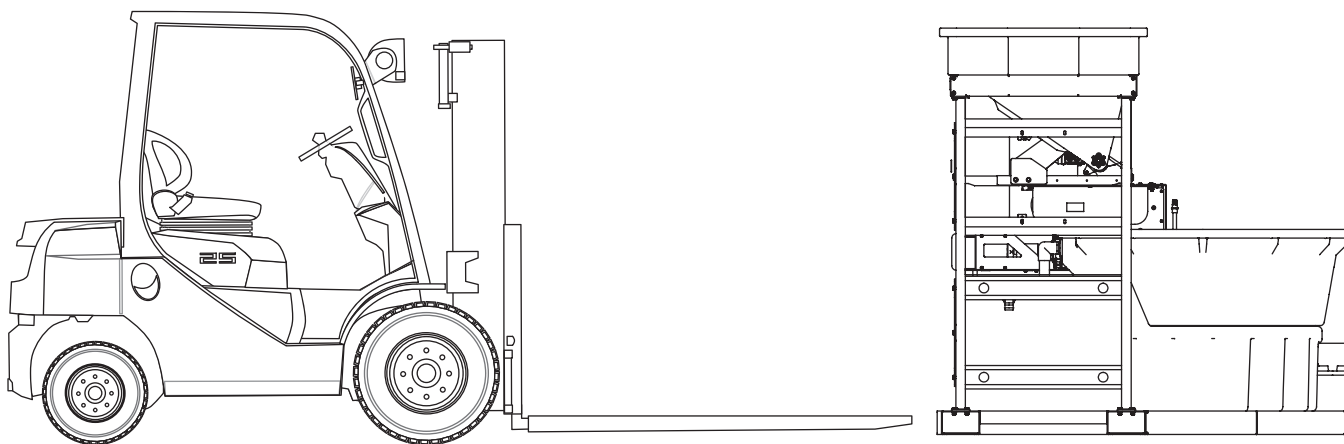
NOTE: To prevent leaks, use a thread sealing compound for all hose and pipe connections. Do not use Teflon® tape, as fragments could damage the flow sensor and clog the nozzles.

NOTE: The Brine Pro™ 2000 should not be run off a generator, as damage to the electronics may occur.

Moving the Brine Pro 2000 unit requires a forklift with a minimum 3,300 lb lifting capacity. Fork extensions at least 72" long are recommended. Lift the unit from hopper loading side as shown in the diagram below. Use caution when lifting and moving the unit to prevent damage by improper insertion of forks.

Once in place, the unit requires a 220 V AC single phase connection and must be installed in compliance with all OSHA and local laws and regulations. Do not run the Brine Pro 2000 from a generator as damage may occur to the electronics. The unit also requires a water hose to be connected beneath the control box. Water source should provide between 8 and 15 gallons per minute of water flow. A higher flow water source should be capped at no more than 15 gallons per minute.

NOTE: Large particles from the water source will negatively affect the accuracy of the flow meter and may cause damage. Particles larger than 50 microns should be filtered out. Do not use thread sealing tape, as fragments from the tape may damage the flow sensor.

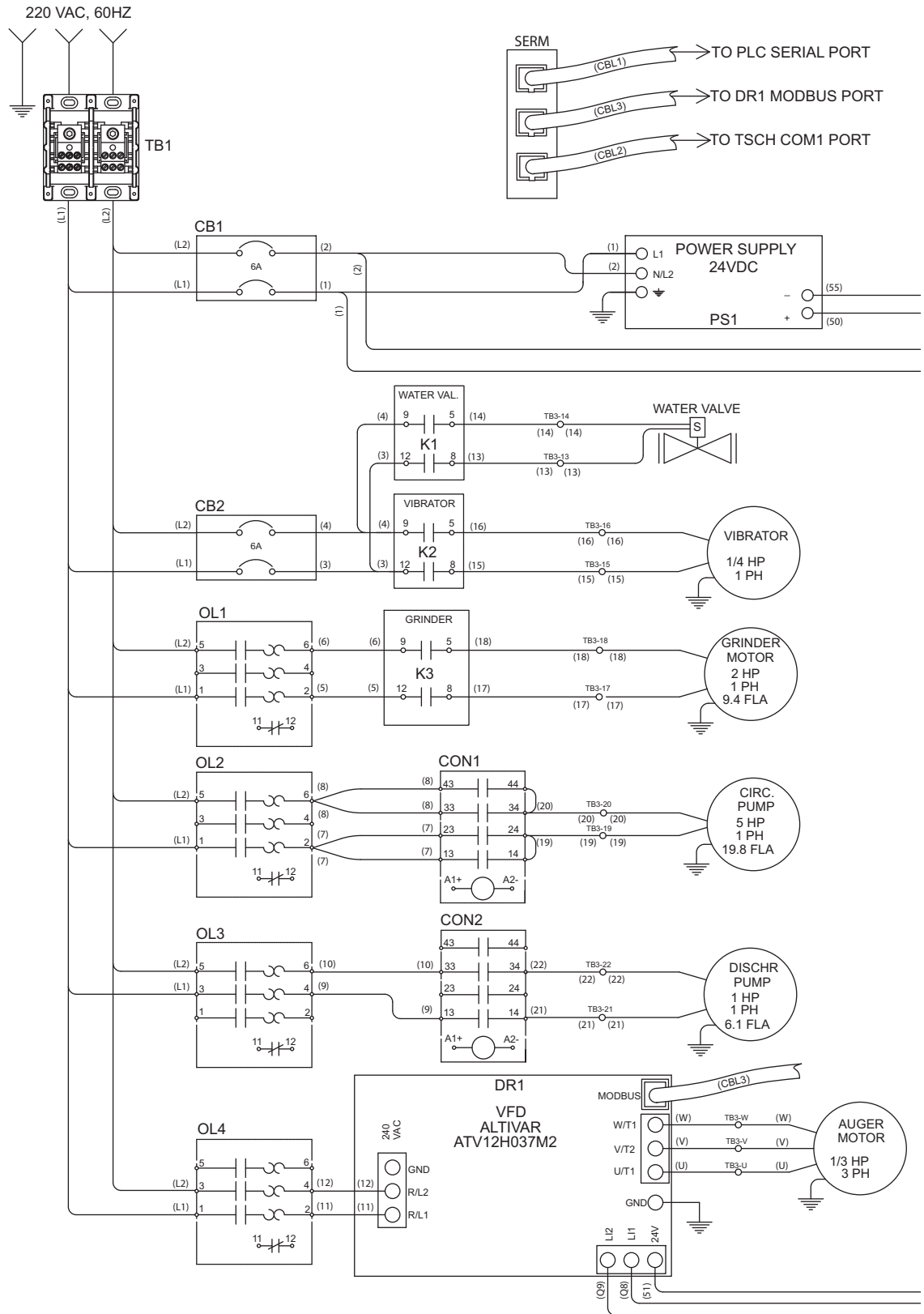


Teflon® is a registered trademark of E. I. du Pont de Nemours and Company.

ELECTRICAL SCHEMATIC

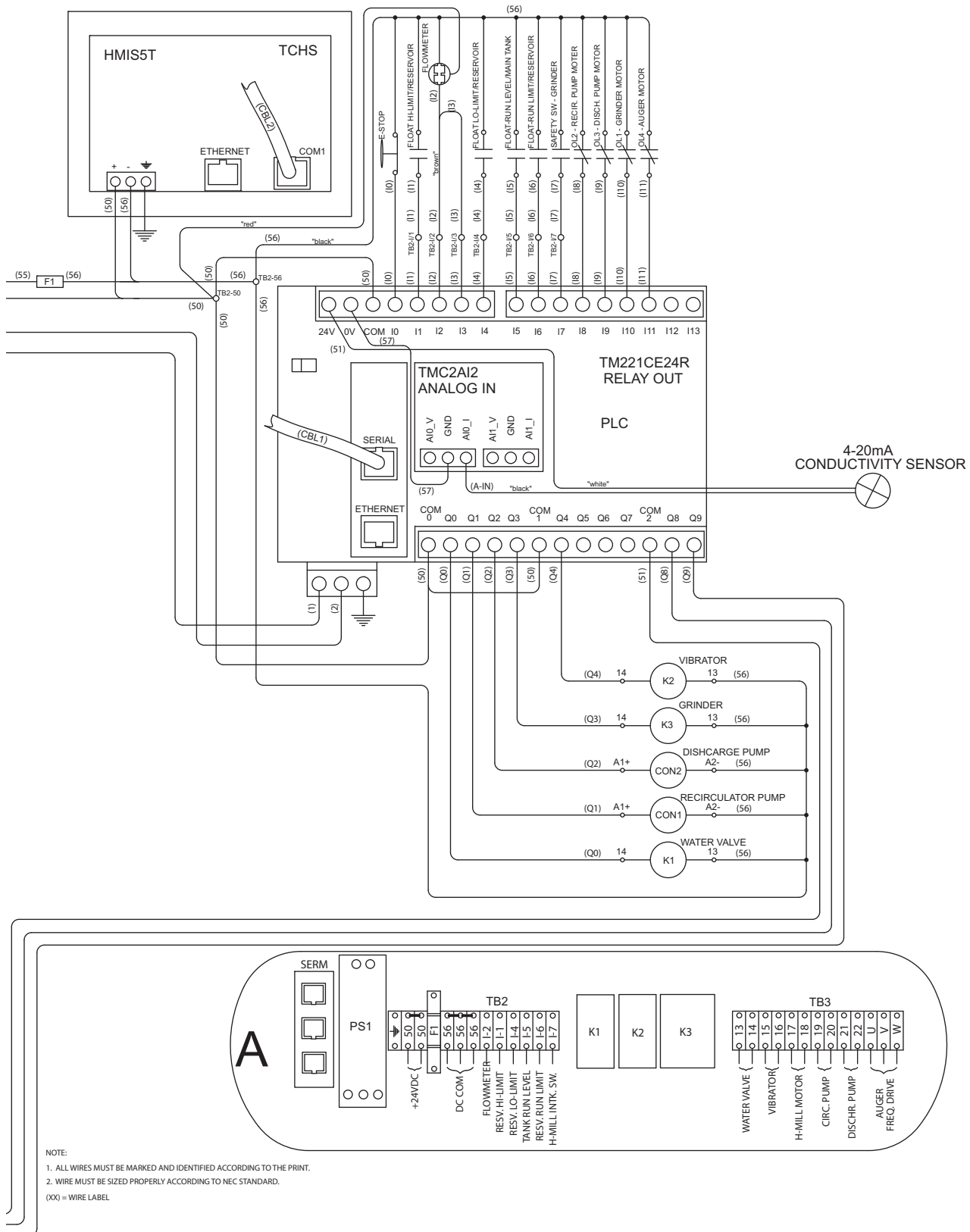
⚠ WARNING

Always shut off and lock out the power source before servicing.



ELECTRICAL SCHEMATIC

When service is necessary, call SnowEx® Technical Service at 1-800-SALTERS (725-8377).



LOADING

⚠ WARNING

Always make sure personnel are clear when using and filling equipment.

⚠ WARNING

Overloading the salt hopper could cause an accident. Do not overfill.



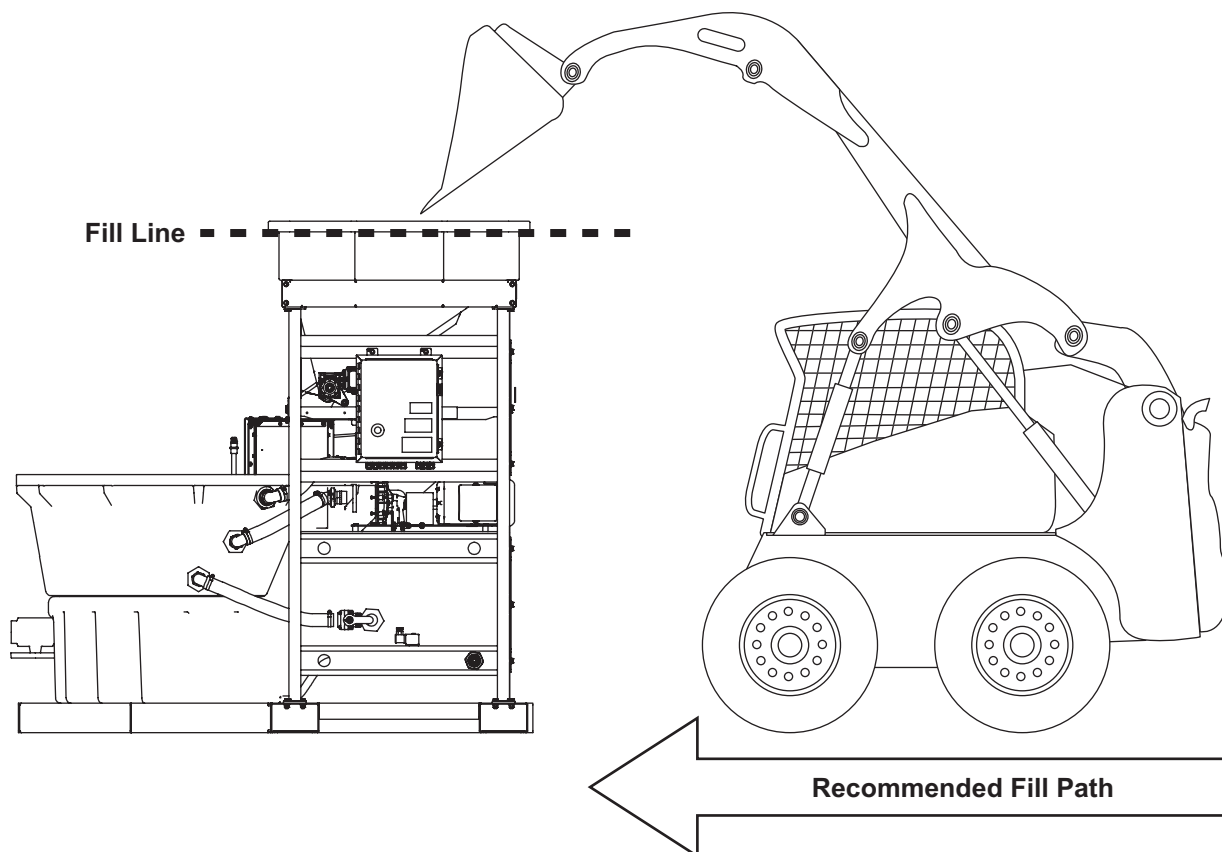
⚠ CAUTION

Read and adhere to Material Safety Data Sheet requirements.

NOTE: This brine maker is designed and programmed to mix rock salt (sodium chloride) and water *only*. It is not designed for use with magnesium chloride, calcium chloride, potassium chloride or any other solid material or additives. Do not use this equipment for purposes other than those specified in this manual.

A skid-steer style loader is recommended for adding salt.

Using a skid-steer or similar loader, carefully load salt hopper up to the fill line. The hopper may be filled as necessary in a safe manner. It holds approximately 1 cubic yard of salt.



OPERATING INSTRUCTIONS

⚠ WARNING

- All guards and covers must be in place before operating.
- Do not operate a machine in need of maintenance.

⚠ WARNING

Before operating, servicing and cleaning, locate and become familiar with the emergency stop button.

⚠ CAUTION

For emergencies press the physical Emergency Stop Button on the Control Box. Do not attempt to manually stop the unit.

USER INTERFACE

Typical Operation Screen



Operation Buttons: Used to operate the machine. Referenced in later sections, from left to right, as "HOME", "SYSTEM", "MODE", "CONTROL" and "INFO".

Status Lights: Used to display the system and sub-system status. Shown in green while system or sub-system is ON and red when the system or sub-system is OFF. From left to right:

- **SYS:** The main system status light.
- **WTR:** The water flow status light.
- **CIR:** The circulation pump status light.

- **HAM:** The hammer mill status light.
- **VIB:** The vibrator status light.
- **AUG:** The auger status light.
- **DIS:** The discharge pump status light.

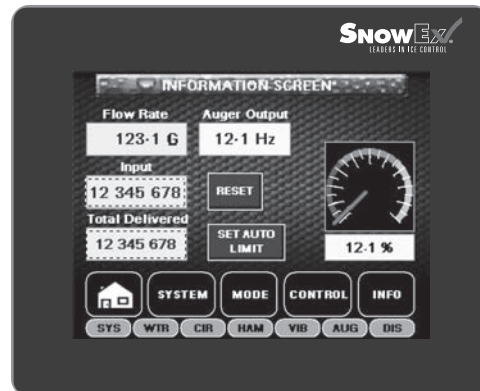
Salinity Reading: Displays the measured salinity reading of the mixing tank.

SaltMizer: Only visible when the SaltMizer function is active. See Operating Modes section for more information.

Auto Run Limit: A notification will appear when the limit is reached. The "SET" button can be used to change the Auto Run Limit. See the Set Automatic Run Limit Screen section for details.

Manual Discharge: The green button on the left will start a manual discharge of the holding tank. The holding tank will discharge until empty or the red button on the right is pressed.

Information Screen



Flow Rate: The amount of fresh water being pumped into the mixing tank. Measured in gallons or liters per minute (this can be adjusted from the *SYSTEM CONTROL SCREEN*).

Input: The amount of water added to the mixing tank since the last reset, similar to a trip counter. Reset by touching the adjacent "RESET" button.

Total Delivered: The total amount of water added to the mixing tank. This value is not resettable.

Auger Output: Displays the frequency of the auger's rotation in hertz.

OPERATING INSTRUCTIONS

OPERATING MODES

The Brine Pro™ 2000 brine maker has four different modes:

- **Automatic:** Enter the number of gallons you want and the unit will run continuously until the set point is reached, or salt hopper is empty.
- **Batch:** The brine maker will fill its own holding tank and stop production. The unit will stop production if the salt hopper is empty.
- **Jog:** This mode allows manual operation of the systems normally under computer control: water flow, circulation pump, hammer mill, vibrator, auger and discharge pump.
- **Circulate:** This mode creates usable brine by stopping the addition of salt and circulating the brine while adding fresh water to the mixing tank. Once the unit reaches the lowest acceptable salinity it automatically stops brine production. This uses built-up salt remaining in the mixing tank to optimize brine production so you can return to normal operation. This is typically run every 3,000 to 7,000 gallons of brine, or as needed — see "Periodic Maintenance".
- **SaltMizer (not selectable):** This function operates automatically while in Automatic or Batch Mode. It continues to produce good brine and reduces salt build-up in the mixing tank, by halting the addition of salt and continuing circulation while adding fresh water. Normal operation will resume automatically.

Adjustment to the SaltMizer function can be made in User Controlled Settings.

Set Automatic Run Limit Screen



The **Run Limit** displays the total amount of brine the unit will make once the mode is started. This is typically used when filling an external holding tank. It is recommended to use a value of 10–15% below the remaining capacity of the external tank when operating the machine for the first few times. This buffer can be adjusted once the user is more familiar with the amount of brine produced by the machine and their tank capacity. To enter this value, touch the orange box and enter the desired volume in gallons (or liters) using the screen shown below. Press enter to accept the value and return to the screen above.

NOTE: Setting the Automatic Run Limit too high can result in the overflowing of brine from the external and/or on-board brine holding tanks.

The **Volume Counter**, shown in the yellow box, is initially set to the Run Limit value and counts down as brine is produced. This shows how much brine the unit has left to create. The unit will stop creating brine when this value hits zero and "Auto Run Limit Reached" will be displayed on the control screen. To continue operation, or to reset the value at any time, touch the "RESET" button on this screen.

Emergency Stop Screen

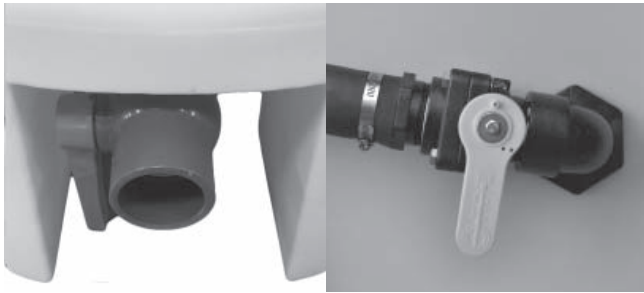
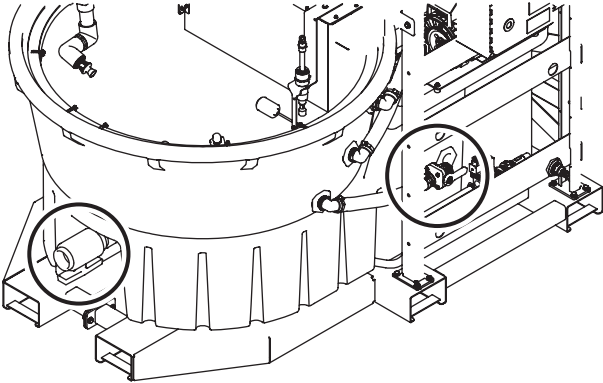


Pressing the "EMERGENCY STOP" button will turn the system OFF. To continue making brine, the emergency stop button must be rotated clockwise to return to the unpressed position and the screen touched to clear the "E-STOP ALARM" message. Turn the system back ON by following the instructions contained in the respective operating mode section.

OPERATING INSTRUCTIONS

SETUP

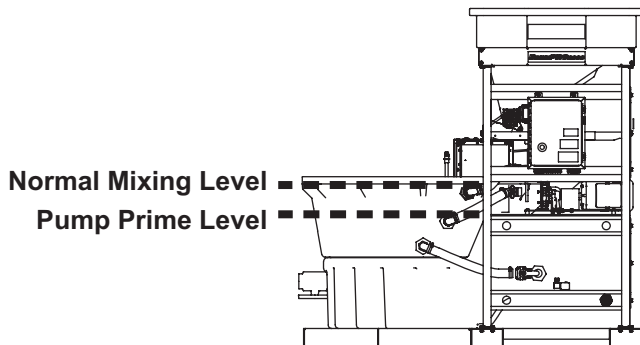
NOTE: Before making brine, ensure the mixing tank drain valve and the transfer valve are closed.



PUMP PRIMING

NOTE: Running the pump with no liquid will cause damage. Make sure the pump is primed before producing brine.

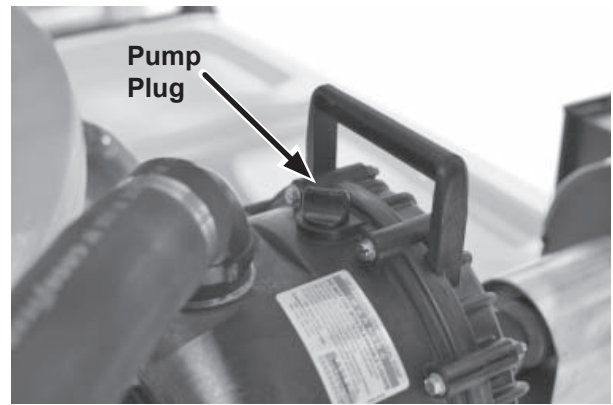
Make sure the circulation pump automatically primes every time the unit is started with liquid below the Pump Prime Level shown in the picture below. You should see churning in the mixing tank by the time the unit begins to add salt. If the pump does not automatically prime, stop the unit and manually prime the pump. Priming the pump is usually not necessary after all the air has been removed from the circulation system and the unit is in regular use.



Manual Pump Priming

If manual priming is required, follow the steps below.

1. Fill the mixing tank past the Pump Prime Level with water or brine (done automatically upon starting Automatic or Batch mode).
2. Stop the unit and enter Jog mode
3. Remove the pump plug and fill the chamber with water or brine from the mixing tank.



4. Replace the plug and jog the pump for a few seconds to remove any air in the circulation system.
5. Repeat Steps 3 and 4 until the pump is primed. The liquid in the mixing tank will begin to noticeably churn once the pump is primed.

OPERATING INSTRUCTIONS

CONTROL OPERATION

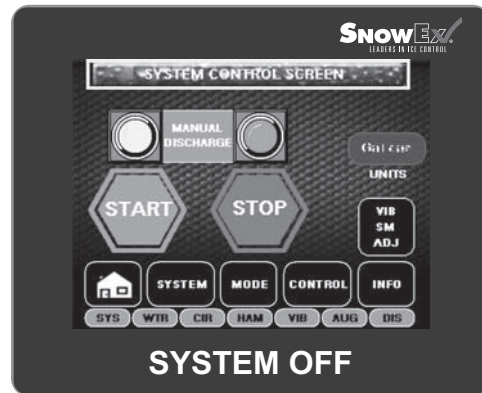
NOTE: Before running the unit, be sure that the manual control on the automatic water valve mounted on the machine is open. If you will not be running the machine for several days, be sure to close the water valve.

Upon startup you will be prompted for a language selection. Touch the appropriate language button to continue. To return to this screen at any point, select the "HOME" button.



Once the language selection has been made the *SYSTEM CONTROL SCREEN* will be displayed. To begin, turn the system ON by touching the "SYSTEM" button, then touching the green "START" button.

NOTE: The system is ON while the "SYS" status light is green. The unit will not run while it is OFF, indicated by a red "SYS" status light.



NOTE: The discharge pump cannot prevent the unit from overflowing due to gravity-driven backflow when in Batch Mode.

NOTE: Using dirty or poor quality salt can lead to sediment build up in the holding tank and can prevent the discharge pump from functioning. Be sure to use high quality salt and regularly check the holding tank for sediment build up, cleaning as necessary.

The unit has several checks to prevent overflow when the unit is creating brine. However, head pressure from the external tank could cause brine to flow back into the unit and cause the machine to overflow. Automatic discharge modes will prevent this type of overflow when the system is ON (indicated with a green "SYS" status light). **The unit may not automatically prevent this type of overflow when the unit is in a batch discharge mode, or while the system is OFF. Close the external tank's flow control valve while the Brine Pro™ 2000 system is OFF.** The screen shown below is displayed as a reminder when the system is manually turned off. Touch the screen to continue.



OPERATING INSTRUCTIONS

To turn the system off at any time, navigate to the *SYSTEM CONTROL SCREEN* by touching the "SYSTEM" button, then touching the red "STOP" button. The "SYS" indicator will turn red to show that the system is OFF. The unit will not run while the system is off. The system must be turned ON to continue brine production.

⚠ CAUTION

For emergencies press the physical Emergency Stop Button on the Control Box. Do not attempt to manually stop the unit.

To select a mode, touch the "MODE" button, which will take you to the *MODE SELECT SCREEN*. Select the desired mode by repeatedly touching the arrow until it points towards the desired mode. Press "NEXT" to continue to the corresponding mode control screen.

When running the machine for the first time after the mixing tank has been drained, be sure to allow at least 1.5–2 hours of run time for the system to stabilize before trying to adjust system settings. Adjusting settings before the system has stabilized can waste salt, water and time.

Automatic Mode

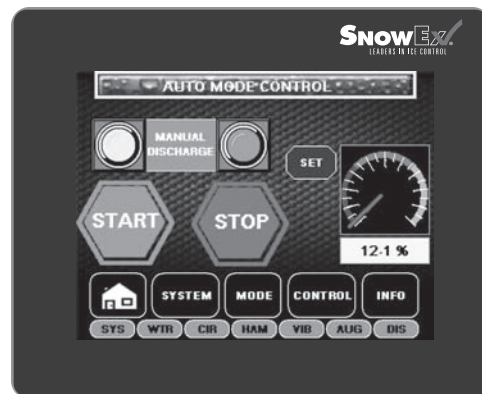


This mode will continuously make and pump out brine until the auto run limit is reached. Use this mode to fill large external storage tanks and other high volume applications. While this mode is active, the system will automatically prevent holding tank overflow due to backflow from external storage tanks. If backflow occurs while automatic mode is active, the discharge pump will activate once the liquid in the holding tank reaches the appropriate level.

Select "AUTOMATIC" on the *MODE SELECT SCREEN* by repeatedly touching the arrow until it points toward "AUTOMATIC". Press "NEXT" to continue to the *AUTO MODE CONTROL* screen.



From the *AUTO MODE CONTROL* screen, touch "SET" to enter the *SET AUTOMATIC RUN LIMIT* screen.



Enter the amount of brine to be created by touching the orange box. A number input screen will appear: enter the amount of brine to be created and touch "ENTER" to return to the *SET AUTOMATIC RUN LIMIT* screen.

OPERATING INSTRUCTIONS

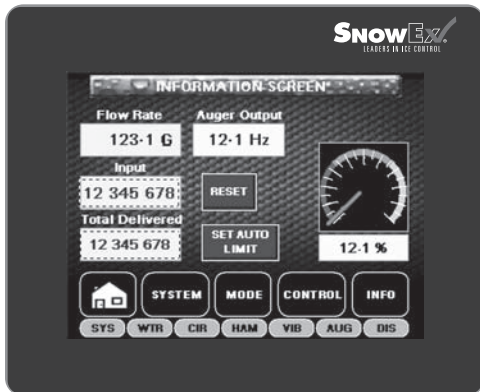


Touch "ENTER" on the *SET AUTOMATIC RUN LIMIT* screen again to accept the value. Touch the "CONTROL" button to return to the *AUTO MODE CONTROL* screen.

The volume counter can be reset by touching the "RESET" button on the *SET AUTOMATIC RUN LIMIT* screen. Reset this value before each run to keep a count of how much brine has been made since the run started. Touch the "CONTROL" button to return to the *AUTO MODE CONTROL* screen.

To begin the automatic brine making process touch the green "START" button. Note that if the "SYS" indicator is red, the system is not on, and the machine will not start.

To view additional information, touch "INFO". From this screen you can reset the input counter by touching the "RESET" button. You can also set the automatic run limit, shown previously, by touching "SET AUTO LIMIT".



Flow Rate: how fast water is flowing into the unit.

Input: how many gallons have been created since the last reset, increasing as brine is created, and can be reset at any time by touching the adjacent "RESET" button. (This is separate from the auto run limit volume counter.)

Total Delivered: how many total gallons the unit has made. This value is not resettable.

Auger Output: Displays the frequency of the auger's rotation in hertz.

Pressing the "SET AUTO LIMIT" button will take you back to the SET AUTOMATIC RUN LIMIT screen.

Batch Mode

In this mode the brine maker will fill its own holding tank and pause brine production until brine is manually pumped out. The unit will then continue brine production until the holding tank is full again.



Select "BATCH" on the *MODE SELECT SCREEN* by repeatedly touching the arrow until it points toward "BATCH". Press "NEXT" to continue.

Once the "NEXT" button is pushed, the unit will start to produce brine and the "BATCH DISCHARGE CONTROL" screen will be displayed. Touch the red "STOP" button to stop the brine production. Note that if the "SYS" indicator is red, the system is not on, and the machine will not start.

OPERATING AND CALIBRATION INSTRUCTIONS



To pump out the brine, touch the green "DISCHARGE PUMP ON" button near the top of the screen. The discharge pump will remain on until the red "DISCHARGE PUMP OFF" button is touched, or the holding tank is emptied. After the tank is empty the unit will automatically start making brine to fill the holding tank again. Touch the red "STOP" button to stop brine production. The discharge pump can still be operated after "STOP" is touched.

Jog Mode

The Jog Mode is used to manually control sub-systems independently for troubleshooting and testing. Avoid jogging for extended periods of time as this mode may affect brine production. For example, jogging 100 gallons of water into the mixing tank will dramatically decrease the salinity and may require the mixing tank be drained before brine production can continue.

Select "JOG" on the *MODE SELECT SCREEN* by repeatedly touching the arrow until it points toward "JOG". Press "NEXT" to continue to the *JOG SELECTOR SCREEN*.



From the *JOG SELECTOR SCREEN*, select the sub-system you want to manually turn on by repeatedly touching the arrow until it points towards the desired sub-system. Once the desired sub-system is selected, touch and hold the "JOG" or "JOG REVERSE" button to turn it on. The sub-system will function only while the "JOG" button is actively pressed. Note that if the "SYS" indicator is red, the main system is not on, and the selected sub-system will not start.



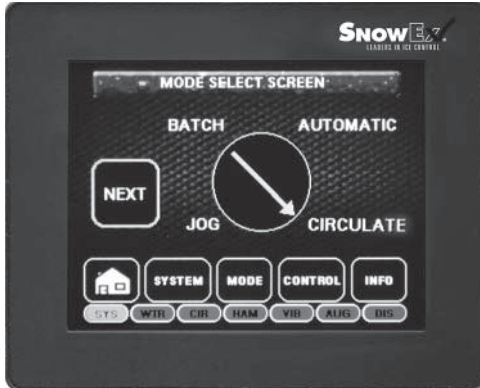
Circulate Mode

NOTE: If manually stirring the sediment in the mixing tank, be careful to avoid damaging the fresh water inlets located on the bottom of the mixing tank.

This mode is designed to manually reduce the amount of usable salt in the mixing tank. Typically circulate mode should be run at least every 3,000–7,000 gallons of brine. A few inches of salt in the mixing tank is normal, but large amounts of salt in the mixing tank will reduce the efficiency of the machine. To increase the effectiveness of circulation mode, you can use a shovel to stir the salt/sediment in the bottom of the mixing tank. When stirring, be careful to avoid damaging the fresh water inlets on the bottom of the mixing tank.

OPERATING INSTRUCTIONS

Select "*CIRCULATE*" on the *MODE SELECT SCREEN* by repeatedly touching the arrow until it points toward "*CIRCULATE*". Press "*NEXT*" to continue to the *CIRCULATE CONTROL* screen.



The discharge behavior of the machine while running *CIRCULATE ONLY* mode will be the same as the mode which was running before switching to *CIRCULATE MODE*. For example, if *AUTO MODE* was running prior to the *CIRCULATE ONLY* mode being activated, the holding tank will automatically discharge when the unit senses it is full. If *BATCH MODE* was running prior to *CIRCULATE ONLY* mode, the machine will stop when it senses that the holding tank is full. The tank can be drained by selecting the green "discharge pump on" button.

User Controlled Settings

The Brine Pro™ 2000 is equipped with some user controlled settings that allow a user to tune some machine parameters based upon the quality of salt used. These include settings to tune the both the vibrator and SaltMizer mode.

To navigate to the Vibration and SaltMizer settings, press the "*SYSTEM*" button to navigate to the System Control Screen. Next touch the "*VIB ADJ*" button which will take you to the *TIMER SETTINGS* screen.

The vibrator for the salt hopper can be configured to run longer or shorter depending on the salt quality being used. Dry, fine-grained salt may need less vibration (longer OFF time, shorter ON time) while moist, coarse salt may need more vibration (shorter OFF time, longer ON time). If salt accumulates in the tank quickly, consider decreasing the *Vibrator On Time*. Experiment with these settings to find the appropriate values for your situation.

Vibrator Off Time: The interval the vibrator will be turned OFF. (Default: 30 seconds).

Vibrator On Time: The interval the vibrator will be ON. (Default: 10 seconds).

SaltMizer Water Delay: The counter that starts after the unit shuts the water off and starts mixing. Increase to have the SaltMizer Mode run longer. (Default: 1 minute).

In SaltMizer Mode, the unit will stop adding salt and only add water to continue making brine. Once the salinity drops, it will stop adding water and continue to mix the solution causing the salinity to rise again. When it shuts off the water to begin mixing, it will start the SaltMizer Water Delay counter. If the salinity rises too high, the unit will add more water and the SaltMizer Water Delay counter will reset. If there is a large amount of undissolved salt accumulating in the mixing tank, consider increasing the SaltMizer Water Delay counter.

MAINTENANCE

PERIODIC MAINTENANCE

WARNING

- **Always shut off and lock out the power source before servicing.**
 - **All guards and covers must be in place before operating.**
 - **Do not operate a machine in need of maintenance.**
 - **Before operating, servicing and cleaning, locate and become familiar with the emergency stop button.**
 - **Drowning Hazard: Do not climb into the mixing or holding tank.**
 - **Do not climb into the salt hopper. Moving parts may cause serious injury.**
- To reduce the usable salt buildup in the mixing tank, run the Circulate Mode. Run this mode if you wish to further reduce salt buildup in the mixing tank, typically this should be run every 3,000–7,000 gallons. See the Circulate mode in the Operating Instructions in this manual for more information.
 - Completely flush out the mixing tank as desired, or any time a yardstick inserted into the tank near the circulation pump inlet indicates a depth of about 14 inches or less from the sediment to the liquid surface. Using clean, high quality salt can greatly reduce the frequency that clean outs are required; use of poor quality salt can also increase the difficulty of the clean out process.
 - Completely flush out the holding tank as desired, or any time a yardstick inserted into the tank near the discharge pump or the float sensors indicates a depth of about 26" or less from the top of the sediment to the top surface of the tank. More frequent clean outs will be required if poor quality salt is used. Using clean, high quality salt can greatly reduce the frequency that clean outs are required.
 - Grease all hammer mill and salt feed auger bearings after every 10 hours of use (≈ 9,000 gallons of brine).
 - Paint or oil all bare metal surfaces as needed.
 - Once per week, inspect unit for defects: broken, worn or bent parts and similar.
 - Once per week, inspect all tubing, hoses and harnesses for cracks and leaks.
 - Once per week, check the hammer mill belt for fraying or cracking.
 - To adjust hammer mill belt tension, loosen motor mounting bolts and slide forward or backward. Tighten once adjustment is made.
 - Inspect and retighten fasteners after the first run and periodically to ensure structural integrity.
 - Inspect the electric motors at regular intervals. Qualified personnel are required to perform maintenance on the motor. Removing parts without the manufacturer's authorization will void the warranty.

CLEANING

CLEANING

1. Run the unit until the salt hopper is empty.
2. You may reduce salt remaining in the mixing tank by running the circulate mode. After running Circulate Mode, solids left in the mixing tank will typically be insoluble debris and not salt. (This is typically run every 3,000–7,000 gallons of brine or as needed—see "Periodic Maintenance.")

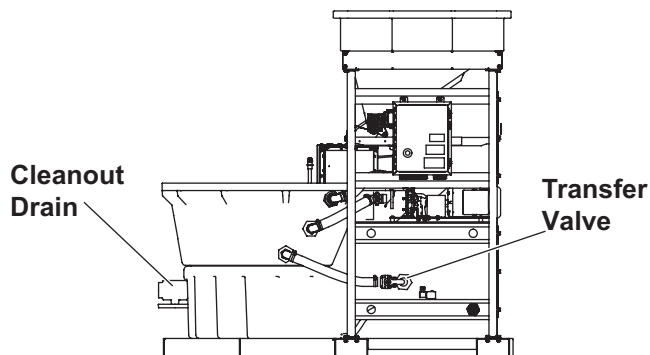
⚠ CAUTION

Do not open the mixing tank transfer valve while the holding tank is full. Opening while full will cause the holding tank to overflow.

3. Pump out the brine in the holding tank and carefully remove the solids. Poor quality salt will tend to leave more solids behind and can affect machine performance. Using high quality, clean salt can greatly reduce the frequency and effort required for cleaning. Once the holding tank is empty, open the mixing tank transfer valve to transfer brine from the mixing tank to the holding tank. Pump out the holding tank again to empty.

NOTE: If using a scoop or shovel to remove the solids remaining in the mixing tank, be careful to avoid damaging the fresh water inlet nozzles on the bottom of the mixing tank.

4. Empty the mixing tank using the cleanout drain located at the front of the machine and flush into a skid-steer bucket or empty as you see fit. Remove all remaining solids in the mixing tank. Using high quality, clean salt can greatly reduce the effort required for cleaning. Consult local laws and regulations for salt brine disposal.



5. Wash down with a hose. If necessary, a pressure washer may be used. Note that the control box is water resistant only. **Do not spray water near or pressure wash the control box.**

STORAGE

END OF SEASON AND STORAGE

- Thoroughly wash out unit with a garden hose or similar to remove salt accumulation. Wash the hammer mill out until the hammers rotate freely.
- Grease all hammer mill and auger salt feed bearings.
- Inspect the hammer mill for wear and rotate or replace components as needed.
- Do not leave unused material in hopper for a prolonged period of time; material can solidify, causing blockage.
- Optional: For a thorough cleaning of the pumping system, run startup with an empty salt hopper. The mixing pump may need to be re-primed. See Mode Selection – Setup procedure for details.
- Paint or oil all bare metal surfaces as needed.

TROUBLESHOOTING

TROUBLESHOOTING

WARNING

Before operating, servicing and cleaning, locate and become familiar with the emergency stop button.

WARNING

Always shut off and lock out the power source before servicing.

WARNING

Drowning Hazard: Do not climb into the mixing or holding tank.

WARNING

Do not climb into the salt hopper. Moving parts may cause serious injury.

For control operation see Operating Instructions.

When service is necessary, call 1-800-725-8377.

Problem	Possible Cause	Suggested Solution
Salinity becomes too low and unit shuts down	1. Hopper is empty	1. Check the hopper salt level; fill as required.
	2. Salt clog in hopper	2a. Jog the vibrator to agitate salt. 2b. Manually clear the salt clog.
	3. Auger jam	3a. Jog the auger in both directions. 3b. Manually clear the auger jam.
	4. Clogged hammer mill	4a. Jog the hammer mill to clear clog. 4b. Flush the hammer mill using the hammer mill sprayer. 4c. Service the hammer mill bearings.
	5. Circulation system malfunction	5a. Jog the pump to verify it is working. 5b. Prime the pump. 5c. Clear the circulation nozzles.
Salinity becomes too high and unit shuts down	1. No water flow into the tank	1a. Check hose pressure. 1b. Check hose for kinks. 1c. Check that water source is on. 1d. Check that the manual water intake valve on the machine is turned on.
	2. Control malfunction	2a. Jog the water valve and listen for water flowing in. 2b. Reset the control by turning the power OFF and ON again at wall breaker.
Slow brine production	1. Slow water flow into mixing tank	1a. Check hose pressure. 1b. Check hose for kinks. 1c. Turn the manual valve on the water intake valve to increase the water flow.
	2. Control malfunction	2. Reset the control by turning the power OFF and ON again at wall breaker.
	3. Large amount of salt in mixing tank	3a. Run the circulate mode to reduce usable salt. 3b. Clean out the mixing tank.

TROUBLESHOOTING

Problem	Possible Cause	Suggested Solution
Unexpected operation	1. Control malfunction	1. Reset the control by turning the power OFF and ON again at wall breaker.
Inside display shows error code: SCF3	1. Auger motor electrical short	1. Call for service.
Frequent jams	1. Wet, clumpy salt	1a. Change the vibrator ON time and the vibrator OFF time to improve salt flow. 1b. Adjust salt baffle to a more open position.
Flow rate displays 0 gal/min while water status light is on	1. No water flow into mixing tank 2. Flow meter clogged or damaged	1. Check to see if water source is on. 2. Call for service.
Machine turns off repeatedly	1. Salinity below 23% for more than 2 minutes	1. See "salinity becomes too low and unit shuts down" above.
	2. Water flow over 20 GPM	2. Throttle back water supply to below 20 GPM.
	3. Damaged flow meter	3. Call for service.
Discharge pump does not turn off after holding tank is drained	1. Debris in holding tank	1. Clean out debris from holding tank, particularly near the float switches.
Noise from hammer mill	1. Debris from salt in hammer mill	1a. Wait 10–20 seconds for debris to pass through hammer mill. 1b. Manually remove debris from hammer mill.



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