

## SYSTEM OPERATION INSTRUCTIONS

The reverse osmosis membrane contains a preservative solution to prevent microbiological growth. If ingested, may cause irritation of the gastro-intestinal tract, Colic, diarrhea, or other similar symptoms. Therefore, discard all the product water for at least thirty minutes of initial operation, after storage before drinking or before use in food preparations!

**Do not operate the system using contaminated feed water sources (oil, chlorine or other chemicals).**

**Have you filled the high-pressure pump with the proper amount of oil (SAE90 gearbox oil) center of show glass or check dipstick?**

- 1) Open the seawater intake valve (sea cock).
- 2) Open the pressure control valve, on the control panel, all the way counter-clockwise.

**Caution: Never start the system with the high-pressure control valve closed.**

- 3) Set the cleaning/storage valve to the pre filter position.
- 4) Set the diverter valve to sample position.
- 5) Switch on the boost pump (optional).
- 6) Switch on the high pressure pump.
- 7) Flush the air out of the system.  
Check the brine discharge at the output location.

**Caution: Never allow any leaks in your hose or tube connections.**

- 8) Close the pressure control valve slowly clockwise to allow air bubbles to work themselves out of the system.
- 9) Adjust the water pressure to 900 psi on the pressure gauge in the control panel. If you operate the watermaker in brackish or lake water adjust the working pressure not to exceed the specified product water rate.

**Caution: If the system is operated in brackish water, the fresh water flow shall not exceed the specified value.**

- 10) Taste the product water at your sample station or check the quality with the optional TDS meter. If the water is pure, switch the diverter valve to fill your storage tank.

## SYSTEM SHUT DOWN PROCEDURE

- 1) Switch the diverter valve to sample station.
- 2) Open the pressure control valve all the way counter-clockwise.
- 3) Switch off the electric motor and the boost pump (if installed).
- 4) Close the seawater intake valve.

## **FRESH WATER FLUSH PROCEDURE**

If you don't use your watermaker for the next three days, you will need to flush your system with fresh water or infuse a biocide solution.

The fresh water flush prepares your watermaker for a shut down period of ten days maximum.

- 1) Open the pressure control valve all the way counter clock wise.
- 2) Close the seawater intake valve or switch the cleaning/storage valve to the closed position.
- 3) Open the fresh water flush valve. Your vessel's fresh water pump should now turn on. For the next flush procedure, test how long it takes until the brine at the outlet becomes fresh. Allow fresh water to flow until all salt water is flushed out of the RO System.
- 4) Open the seawater intake valve and switch the cleaning/storage valve to the seawater position. Allow fresh water to flow until all salt water is flushed out of the pre-filter(s), boost pump and the sea strainer (approximately 30 seconds, depending on the flow rate of your vessel's fresh water pump).
- 5) Close the seawater intake valve.

## **MEMBRANE STORAGE PROCEDURE**

If you intend to store your watermaker for more than ten days, growth of microorganism will degrade the RO membrane(s) performance.

The RO membrane(s) should be flushed with a biocide solution.

This will preserve the membrane for long-term storage of up to one year.

1. If you have installed the optional fresh water flush system, back flush the pre-filter(s), the boost pump and the sea strainer with fresh water and remove the pre-filter cartridge(s). Close the seawater intake valve (sea cock).
2. In a clean plastic container, mix 2.5 gallons / 10 litres of un-chlorinated fresh water with 100 grams (1/3 container) of Echo Tec. Preservative # 3 (Metabisulfite).
3. Switch the three-way valve to the cleaning/storage position. Switch the diverter valve to the sample position.
4. Open the pressure control valve all the way anti-clockwise.
5. Use a funnel (avoiding air to enter the system) to pour the solution into the cleaning/storage hose or lead the hose into the elevated plastic container while running the high-pressure pump. When the solution has been infused, switch off the watermaker.

Under best conditions your watermaker is now prepared for a shut down period of ten months.

Discard the product water for at least thirty minutes of initial operation, after storage, before drinking or before use in food preparations.