



Installation & Operation Manual



Gen III
Engine Driven



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MARINE EQUIPMENT MANUFACTURERS, IMPORTERS & DISTRIBUTORS

Introduction

Thank you for purchasing a Stella watermaker. Our watermakers are the result of many years of experience operating, servicing, selling and installing all brands and types of watermakers. Proudly designed and manufactured in Australia, Stella watermakers combine simplicity with quality components to create a reliable, easy to use system that offers real value for money. Whether you are a seasoned superyacht engineer or cruising yachtie our modular watermakers are designed for easy installation, operation and maintenance.

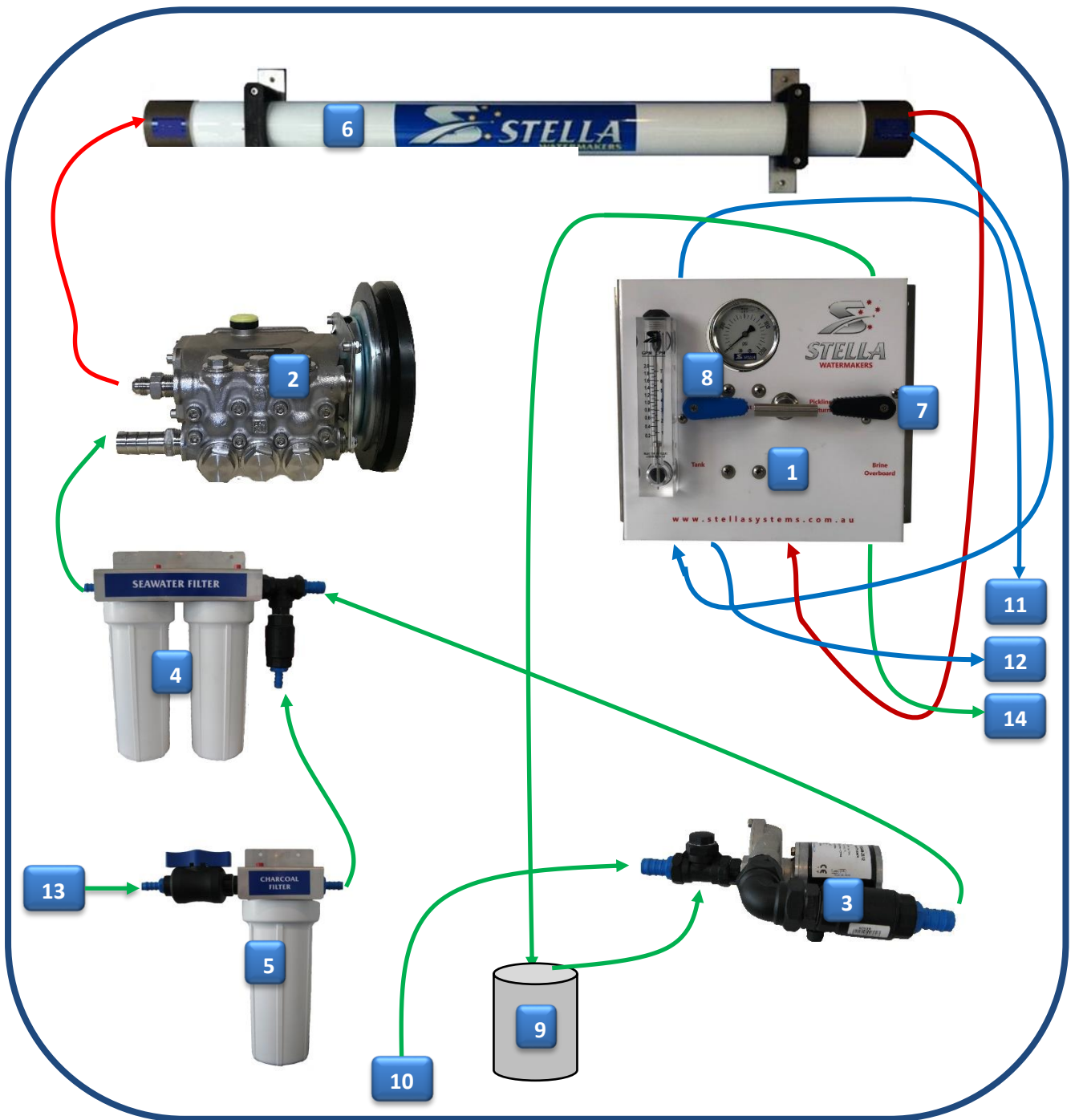
We strongly encourage you to spend some time reading through this manual before starting the installation. If you have any queries after reading this manual please contact Stella Systems or our marine engineering division Stella Marine.

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System Flow Diagram



Legend

→ Low Pressure Hose

→ High Pressure Hose

→ Product Water

1. Control Panel
2. High Pressure Pump
3. Low Pressure Pump
4. Seawater Filter
5. Charcoal Filter

6. Membrane Housing
7. Discharge Valve
8. Product Valve
9. Pickling Bucket
10. From Seawater Intake

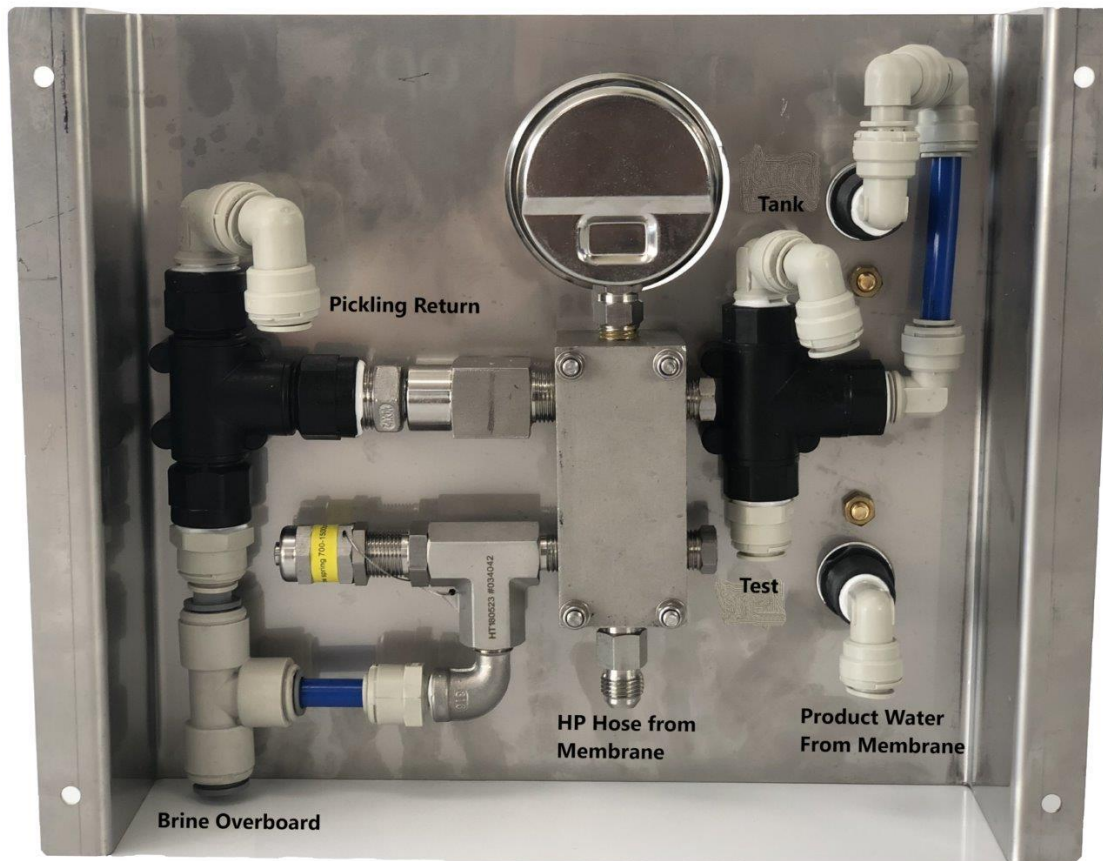
11. To Boat Water Tank
12. To Test Hose
13. From Boat Pressure System
14. To Brine Overboard

Installation

Please read the complete manual before starting your installation

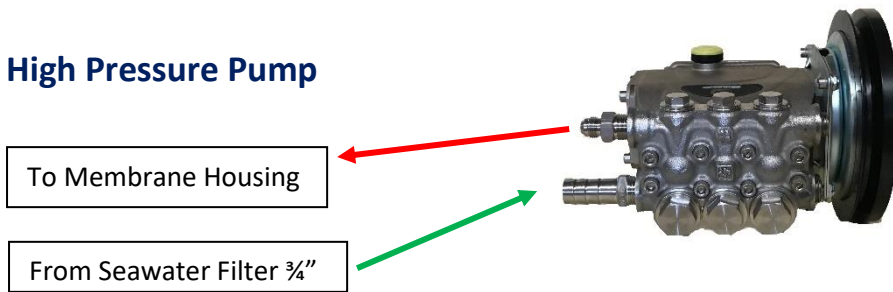
For easy watermaker operation and maintenance it is best to plan the mounting position of all components. We recommend mounting the Control Panel, Seawater Filter, Charcoal Filter, Auto Flush (optional) and electrical switches together if possible. This will allow you to operate the watermaker from one position. On larger vessels all components are usually mounted in the engine room. For smaller vessels the Control Panel can be remote mounted in a cockpit locker or bathroom cabinet, or wherever there is room. All metal components on the Control Panel are 316SS so can be mounted in a wet area if required. We supply as standard two lengths (1-3m) of high pressure hose to connect the High Pressure Pump, Membrane Housing and Control Panel, longer lengths are available on request.

Control Panel



Mount the Control Panel in a suitable location, with enough room for running hoses at bottom of panel. Keep in mind the position should be convenient to operate even when underway. Preferably with enough room to also mount the Seawater Filter, Charcoal Filter, Auto Flush (optional) and electrical switches. Install low and high pressure hoses as per diagram. **If the Control Panel is installed below waterline, install a vented loop above waterline in the "To Pickling Bucket" hose.**

High Pressure Pump



The Engine Drive High Pressure pump will need to be mounted to the engine in a position that allows the clutch pulley to be in line with the spare pulley on the engine, an additional pulley may also be mounted to the engine if required. The mounting bracket should be made from mild steel and be painted; it should also incorporate a belt tensioning device. Please ensure the pump is mounted as level as possible and insure that the transport plug is replaced with the breathing plug prior to operation.

The clutch is a 12 volt electromagnetic pulley arrangement and is mounted on the high pressure pump at the factory. The pulley size is 7" and the ideal operating range on the high pressure pump is 1400 rpm to 1750 rpm. The following table is a guide only to the assist with sizing a suitable size pulley for your engine.

Engine Pulley Size	Required Engine RPM
5"	2000-2450
6"	1650-2000
7"	1400-1750
8"	1250-1500

You will need to determine the ideal engine rpm for your operating requirements, most owners prefer to make water while cruising so it is best to determine your ideal engine cruising RPM and base the calculation on that. You can use the following calculation to determine an ideal pulley size for your vessel.

Engine RPM / Pump RPM x 7(clutch pulley size)

So, if your ideal operating RMP for cruising is 1650 RPM then the calculation will look like this...

Lower Pump RPM 1400/1650x7 = 6" Rounded
 Upper Pump RPM 1750/1650x7 = 7.5" Rounded

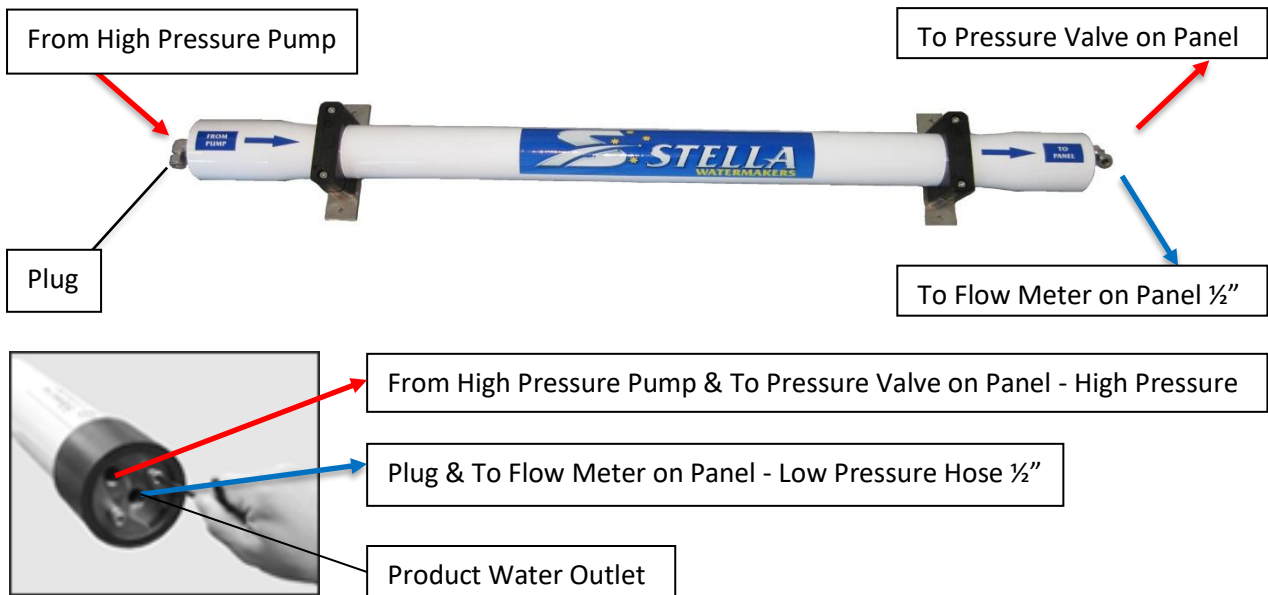
Therefore, your pulley would ideally be between 6" and 7.5" so a 6" or 7" pulley would be a perfect match to run the pump within its ideal operating RPM.

Please note, the above calculations are a guide only, please have your installer confirm the correct engine pulley size for your application.

IMPORTANT: When operating the watermaker while underway take care not to increase or decrease engine RPM once the operating pressure of the watermaker has been set to 800 psi, increasing or decreasing engine RPM will affect the operating pressure of the system which may result in over pressurizing the system or poor water quality.

Wire to a switch near the Control Panel to engage the 12 volt clutch, **Low Pressure Pump must be switched on first to operate High Pressure Pump clutch.** The Pressure Relief Valve has been preset by Stella to open at 900psi, relieving excess pressure via the pump manifold and re-close when the system pressure drops back below 900psi. Install low and high pressure hoses as per diagram.

Membrane Housing



The Membrane Housing can be mounted on a bulkhead or deckhead panel, bilge or wherever there is space, either horizontally, vertically or upside down. If mounting vertically, the flow must be running upwards and allow at least 50mm space on each end for hoses and fittings. Bolt down using the supplied brackets. **Please be careful not to hit the end plug fittings when installing or damage may occur.** If installing more than one membrane housing they will be joined together with a larger bracket and high pressure fittings. **Do not install the vessel in direct sunlight.**

The high pressure hoses must be fitted in one direction as per diagram to outer port on end plugs. The product water outlet can flow from either end of the Membrane Housing, via centre port as per diagram. To change product water outlet ends just swap plug and hoesetail. If installing more than one membrane housing you will have been supplied John Guest fittings to join together multiple product water outlets. The membrane is sealed within its housing by plugs at both ends. It has been tested at the factory and pickled for storage. **If you are not installing and using the system immediately, it will need to be re-pickled every 6 months** to avoid damage, (see section: Pickling the System for Storage).

Low Pressure Pump



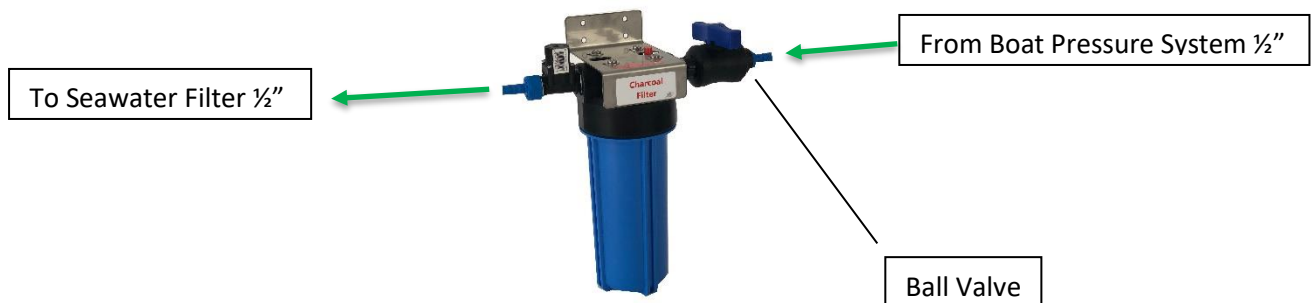
Install the Low Pressure Pump (240VAC) on a flat, horizontal location, with adequate ventilation, **below the waterline** with the outlet on the pump in the highest position facing up, (see included Davey pump manual). Wire to a switch near the Control Panel. **Low Pressure Pump must be switched on first to operate High Pressure Pump.** Connect your boats Seawater Intake to the Low Pressure Pump using 3/4" low pressure hose. This should be a minimum 3/4" thru-hull (skin fitting) and sea strainer (owner supplied). Install low pressure hoses as per diagram.

Seawater Filter



Mount the Seawater Filter near the Control Panel, leaving enough room below it to unscrew and remove the filter housing when cleaning. **Install new filters to each housing** as they are supplied empty. Water should flow through the 20 micron filter before the 5 micron filter (marked on blue ends). Install low pressure hoses as per diagram.

Charcoal Filter



Install the Charcoal Filter near the Control Panel, leaving enough room below it to unscrew and remove the filter housing when cleaning. **Install a new charcoal (carbon) filter to housing** as it is supplied empty. Connect a cold water line of your Boat Pressure System to the Charcoal Filter using 1/2" low pressure hose, to be used for Fresh Water Flushing the system. Install low pressure hoses as per diagram.

Brine Overboard

Connect the boats Brine Overboard outlet to the bottom of the Discharge Valve on the Control Panel, using 1/2" low pressure hose. Outlet should be a 1/2" (minimum) thru-hull (skin fitting-owner supplied) fitted above the water line in a position on the hull that is easy to see for trouble shooting.

Product Water

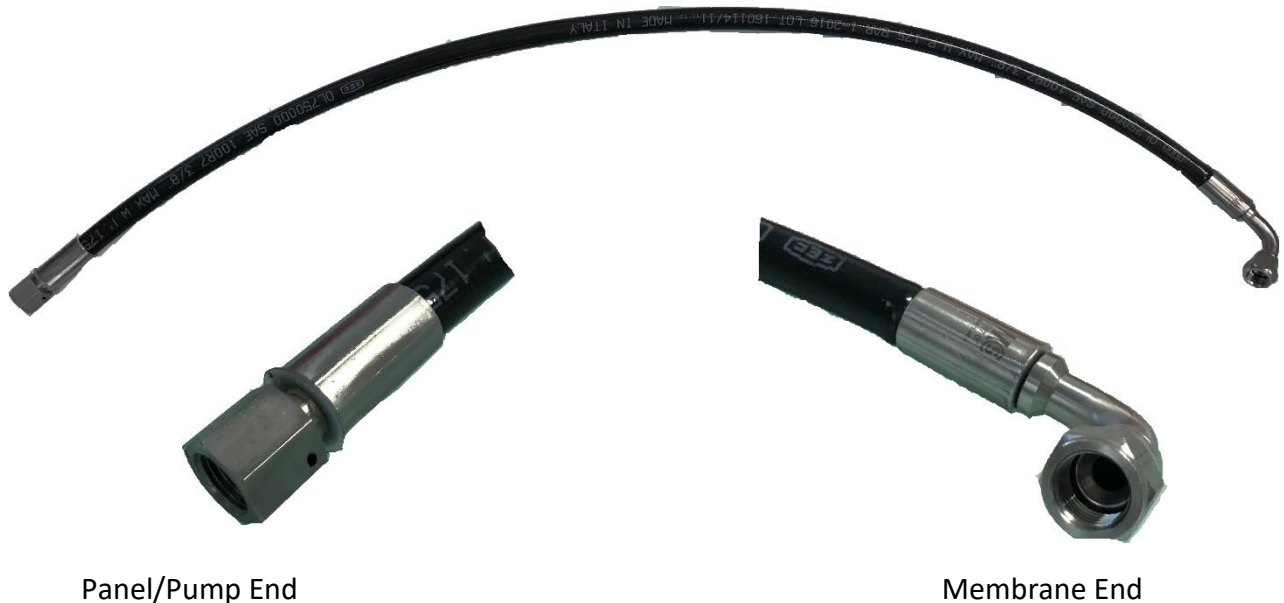
Connect the top of the Product Valve on the Control Panel to the Product Water Test outlet using 1/2" low pressure hose. This can simply be a short piece of hose into a bucket or to a bathroom or galley sink with a spigot for taste testing with a cup. **If using a spigot it must always be open (non-closing) and never be allowed to block the flow of product water.** Connect the bottom of the Product Valve on the Control Panel to Boat Tank using 1/2" low pressure hose.

High Pressure Hose

Stella supply as standard two lengths (1.5 meter) of high pressure hose with 9/16 JIC fittings crimped to each end. Longer custom lengths are available if required at an additional cost.

When installing the hoses:

1. Place the JIC hose fitting onto the male JIC fitting and do up fitting finger tight
2. Place a spanner on the stationary male JIC fitting
3. Place a spanner on the female JIC fitting on the hose
4. Tighten up the Hose fitting taking care not to turn the male fitting its thread (hold the fitting still with the spanner so it can't turn)



Install high pressure hose from outlet port on the High Pressure Pump to end of Membrane Housing marked “From Pump”. The hose connects to the outer port of the end plug as per diagram. You will need to unscrew the caps on each of the end plug fittings first before connecting hose fittings. The Membrane Housing will have pickling solution in it for storage after factory testing. **Do not attempt to over-tighten the port connections as this may damage the end plugs.**

Install the other High Pressure Hose from the other end of the Membrane Housing marked “To Panel” to the Pressure Valve on the Control Panel. **Please be sure to secure hose with saddles or clamps firmly along the entire length to avoid vibration, hose chaffing and harmonics.**

When installing the high pressure hoses to the Membrane Housing, always use the correct size spanner on both the end plug fitting and hose end fitting. The end plug can spin in the housing (this will not affect operation), so **always use a spanner on both fittings when tightening. Do not over tighten, tighten to hand tight and then nip up with a spanner.** When commissioning the watermaker, check the high pressure fittings and if there is a small drip, nip up the fittings again with spanners until the drip stops, this should only be a small adjustment with the spanner.

Low Pressure Hose

All Low Pressure Hose (owner supplied) should be food/drinking water rated. We recommend using clear wire helix reinforced hose from the Seawater Intake (sea strainer) to the Low Pressure Pump (suction) and clear nylon reinforced hose for all other low pressure hoses. All hose must be secured to hosesails with suitable hose clamps.

1. Install $\frac{3}{4}$ " hose from boats Seawater Intake (sea strainer) to hosesail at the front of the Low Pressure Pump.
2. Run $\frac{3}{4}$ " hose from the hosesail at the top of the Low Pressure Pump to the hosesail on the inlet side of the Seawater Filter.
3. Install $\frac{1}{2}$ " hose from the Boat Pressure System (cold water line) to the hosesail on the inlet (valve) side of the Charcoal Filter.
4. Connect $\frac{1}{2}$ " hose from the outlet side of the Charcoal Filter to the hosesail on the bottom of the inlet side of the Seawater Filter.
5. Run $\frac{3}{4}$ " hose from the outlet side of the Seawater Filter to the hosesail on the High Pressure Pump.
6. Connect $\frac{1}{2}$ " hose from the product water outlet on the Membrane Housing (centre port) to the bottom of the Flow Meter on the Control Panel. You will need to remove one plug first and leave a plug in the other end of the Membrane Housing.
7. Run $\frac{1}{2}$ " hose from the top of the Product Valve on the Control Panel to the Product Water Test outlet. This could be a hose into a bucket or to a spigot in a sink.
8. Connect $\frac{1}{2}$ " hose from the bottom of the Product Valve on the Control Panel to the Boat Tank. **Under no circumstances should the product water line be blocked while the system is running. Do not install shut-off valves anywhere in this line. If using a spigot it must always be open (non-closing) and never be allowed to block the flow of product water.**
9. Install $\frac{1}{2}$ " hose from the bottom of the Discharge Valve on the Control Panel to the Brine Overboard outlet (thru-hull).
10. Connect $\frac{1}{2}$ " hose from the top of the Discharge Valve on the Control Panel to the Pickling Bucket. This is usually a short length of hose rolled up and stored below the Control Panel ready for placement into a bucket (pickling return) when pickling the system. **If the Control Panel is mounted below waterline, install a vented loop above waterline in this hose.**
11. Cut and store another small length of $\frac{3}{4}$ " hose with supplied $\frac{3}{4}$ " hosesail for connecting the Pickling Bucket to the plugged tee on the Low Pressure Pump when pickling.

Auto Flush (Optional)

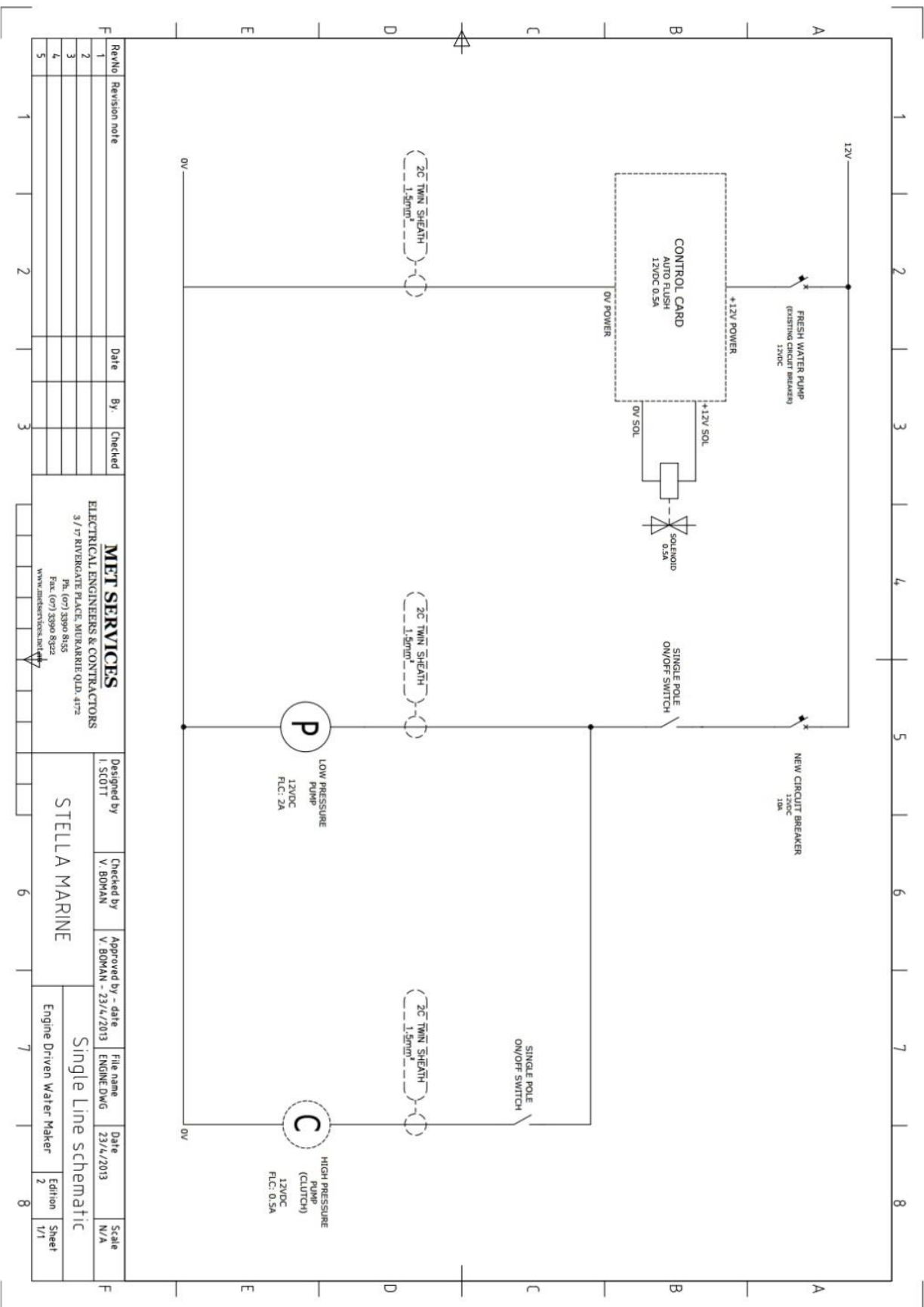
If you have purchased the optional Auto Flush you will be supplied with an additional dual timer (PCB) in a box and a 12VDC solenoid valve. The Charcoal Filter will have the solenoid valve mounted on the outlet. The Auto Flush box should be mounted next to the Control Panel and pump switches. Wire the Auto Flush to the onboard Boat Pressure System power circuit and solenoid valve (see Wiring Diagram).

Commissioning

The installation is not complete until the system has been thoroughly tested. Please read the following operating instructions and run the system from start up to shut down. Check for leaks in both low and high pressure hose and fittings and reseal if required. Purge air from the system, make sure filters are installed in housings, check product water output, fresh water flush and pickling procedure (without pickling solution). If the watermaker is not installed by the boat owner, please run through the complete procedure again with the boat owner during handover.

Wiring Diagram

All electrical work should be completed by a licensed electrician and all wiring and components should be sized for the application. Install two switches (owner supplied) near the Control Panel, one for the Low Pressure Pump and one for the High Pressure Pump. Wire up so that the Low Pressure Pump must be switched on before the high pressure pump will start. Cable and switch size depends on distance from batteries (see diagram below). Pump Wiring is as follows: Yellow (active), Blue-Black Bridged (Neutral), Red-Brown Bridged and isolated, Earth is attached to Green Screw under cover at back of electrical box.



Rev/No	Revision note	Date	By	Checked
1				
2				
3				
4				
5				

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Designed by I. SCOTT	Checked by V. BOHMAN	Approved by - date V. BOHMAN - 23/4/2013	File name ENGINE DWG	Date 23/4/2013	Scale N/A
STELLA MARINE			Single Line Schematic		
Engine Driven Water Maker			Edition 2 Sheet 1/1		

General Warnings

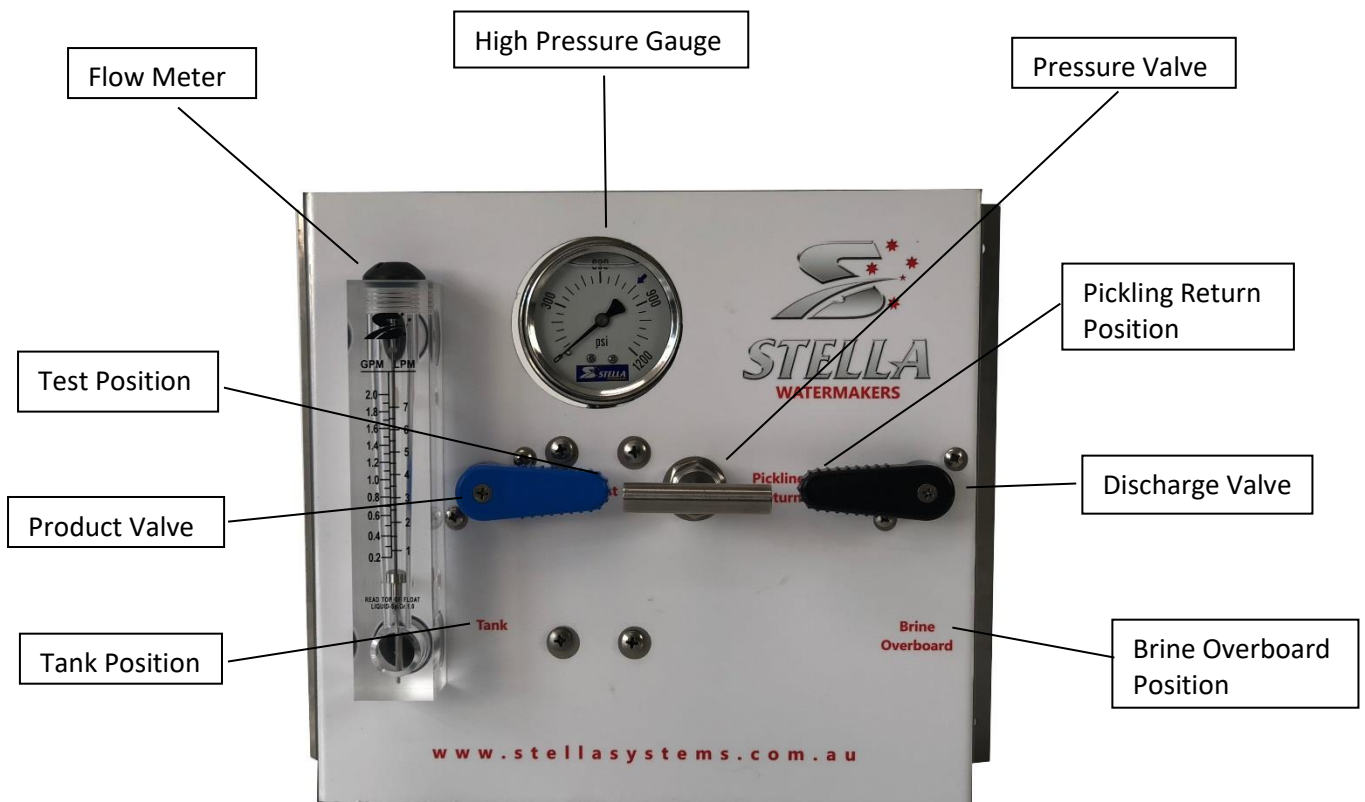
There are several things which the installer or operator of the Stella watermaker can do incorrectly, which can damage the components, reduce operational lifespan of the system or in some cases potentially cause personal injury. Therefore it is better to be informed and understand the system properly to avoid any problems.

1. Never start the watermaker under pressure, this will cause a surge of high pressure water to the membrane causing immediate damage.
2. Never operate the watermaker at a system pressure above 850 PSI, this will damage the membrane. Normal operating pressure is 800 PSI.
3. Never change engine RPM while operating the watermaker, changing the engine rpm will change the pump rpm and also the pressure which may cause over pressurization of the system and result in damage.
4. Never run the high pressure pump dry or without adequate water supply, this will damage the pump.
5. Never run the watermaker in oily water, this will damage the membrane.
6. Never rinse the membrane with chlorine or bleach, this will damage the membrane.
7. Always fresh water flush the system after each use to avoid reduced product water quality, or damage to the components from biofilm build-up (organic growth) and corrosion.
8. The watermaker should not be left for more than 7 days without Fresh Water Flushing or Pickling the System for Storage.
9. Do not let the membrane housing dry out, this will damage the membrane.
10. Never block the flow of product water from the membrane housing, this will damage the membrane.
11. Operating the system in brackish water can damage the membrane, never allow the product water output to exceed the units rated output. To avoid damage you must reduce the system operating pressure so output is reduced to a normal level.
12. Do not install the membrane housing in an area with high temperatures, this will cook and damage the membrane. Do not install in direct sunlight.
13. Do not let the membrane freeze, this will damage the membrane.
14. The membrane is delivered pickled after testing, always run for at least 30 minutes to flush the preservative out of the system before switching to tank. And also after pickling.
15. Always operate the pressure pump with the supplied pressure relief valve and with undamaged high pressure hoses. The pump is capable of creating a dangerous stream of water up to 1500 PSI.

16. As with all electrical components, please use a suitably qualified marine electrician for safe connection and do not mount either pump in a wet area.

Operation

The following instructions must be followed each time your Stella watermaker is operated. Failure to follow these steps can result in serious damage to the membranes and high pressure pump.



Start-Up

1. Open the boat's Seawater Intake (thru-hull with seacock).
2. Check that the Product Water Test hose is in a bucket or plumbed to a free flowing sink outlet. **Blocking this outlet will damage the membrane.**
3. Visually inspect the watermaker for any signs of system damage, broken hoses or fittings etc... and repair if required. Check there is adequate oil in the High Pressure Pump using the sight glass and fill if required.
4. Turn the Discharge Valve on the Control Panel to the Brine Overboard position.
5. Turn the Product Valve on the Control Panel to the Test position.
6. Turn off the optional Auto flush if fitted by switching the switch to the "Off" position

7. Make sure that the Pressure Valve on the Control Panel is fully open (zero pressure) by turning the black knob anti-clockwise till it stops. **Starting the watermaker without the valve in the fully open position (under pressure) will result in a surge of high pressure water to the membrane causing immediate damage.**

8. Switch on the Low Pressure Pump and run for a few minutes making sure the system is primed and purged of all visible air bubbles. Check and fix any visible leaks. Check that seawater is reaching the Seawater Filter by pushing the red button on top of each housing until water comes out. Check that seawater is running through the system and out the Brine Overboard (overboard discharge). Once water is confirmed to be flowing out of the Brine Overboard outlet it is safe to start the High Pressure Pump.

9. Switch on the High Pressure Pump and check that you have an increased and steady stream of water flowing through the system and out the Brine Overboard. Run for a few minutes to clear air bubbles from the system. Check and fix any visible leaks. **Never run the High Pressure Pump without adequate water flowing through the system.**

10. Slowly increase the system pressure by turning the black knob clockwise (Pressure Valve) on the Control Panel. When adjusting system pressure turn knob very slowly while constantly watching the Pressure Gauge on the Control Panel. Bring the pressure up to 700 PSI and pause to let the system stabilize, you should start seeing some product water coming through the Flow Meter on the Control Panel and into your bucket or sink. It is normal to hear some noise coming from the Control Panel. If everything is running smoothly and the pressure gauge is steady on 700 PSI, increase the pressure to the normal operating pressure of 800 PSI. **Never operate the watermaker at a system pressure above 850 PSI. While the Pressure Relief Valve will bleed off excess pressure, damage to the membrane can occur. Normal operating pressure is 800 PSI.**

11. Once the system is stable at 800 PSI with a constant flow of Product Water, check the water quality by tasting or with a TDS meter. If using a TDS meter the water reading should be below 500ppm. Check the Flow Meter on the Control Panel to measure Product Water output. It should be making approx. 70lt/hour per membrane with normal operating conditions. **Operating the system in brackish water can damage the membrane, never allow the Product Water output to exceed the units rated output. To avoid membrane damage you must reduce the system operating pressure so output is reduced to a normal level.**

12. Turn the Product Valve on the Control Panel to Tank and fill your boat's water tank. Continue to monitor the Pressure Gauge and adjust if necessary to maintain a constant system pressure of 800 PSI. **Blocking this outlet will damage the membrane, so make sure your boats storage tank does not overflow. If membrane is new, product water from the first hour should be discarded. If the membrane has been Pickled for Storage, product water from the first 30 minutes should be discarded.**

Shutting Down

1. When you have made adequate water, turn the Product Valve on the Control Panel back to the Test position. This diverts Product Water back to your bucket or sink outlet.
2. Slowly decrease the system pressure back to 0 PSI by turning the black knob anti-clockwise (Pressure Valve) on the Control Panel till it stops (fully open). Product Water will stop flowing to your bucket or sink outlet.
3. Switch off the High Pressure Pump.
4. Switch off the Low Pressure Pump.
5. Close the boat's Seawater Intake (thru-hull with seacock), check the sea strainer for debris and clean if required.
6. Turn the Ball Valve on the Charcoal Filter to open position for approx. 2-5 minutes. This performs a Fresh Water Flush of the complete system using the onboard pressure system and boats tank water. All seawater is purged out of the system via the Brine Overboard outlet. The Charcoal Filter removes any chlorine present in the boats water tank to avoid damaging the membrane. **Never Fresh Water Flush the system without an active Charcoal Filter element. The Charcoal Filter element must be replaced every 6 months to avoid membrane damage.** Turn the Ball Valve back to the closed position. **Always Fresh Water Flush the system after each use to avoid reduced product water quality, or damage to components from biofilm build-up (organic growth) and corrosion.**

If fitted with optional auto flush disregard step 6. Above and simply turn the Auto Flush switch to the on position.

7. Check the 5 and 20 micron filters in the Seawater Filter (twin) housing and clean if required using product water (un-chlorinated) or seawater. Careful not to lose the O-ring from the top of the filter housing. **Using dock water or tank water with chlorine will damage the membrane. If chlorinated water is used, rinse the filter with product water (un-chlorinated) or seawater afterwards to remove the chlorine before replacing.** Cleaning frequency will depend on usage and water quality, we recommend checking and cleaning the filters after each use so the system is always ready for operation.

Auto Flush (Optional)

To use the Auto Flush, the boat's onboard pressure system and must be left switched on with sufficient water in the boat's storage tank for weekly Fresh Water Flushing.

When you turn the switch on the Auto Flush box to the "On" position, the solenoid valve will open for 2-5 minutes, Fresh Water Flushing the system and then close. The timer will then start automatically and perform the same Fresh Water Flush for 2-5 minutes every 7 days until you turn the switch to the off position.

Pickling the System for Storage

If you are leaving your water maker unused for an extended period (without manually flushing or Auto Flush) we recommend pickling the system for storage.

1. Complete the Shutting Down procedures and Fresh Water Flush the system.
2. Make up a bucket of pickling solution by mixing 5 tablespoons of Sodium Metabisulfite (steriliser from small container supplied) with a 10lt bucket of Product Water (un-chlorinated water). **Never use chlorinated water for pickling the system as it will damage the membrane.** Mixing rate is 1 tablespoon of Sodium Metabisulfite with every 2 litres of Product Water.
3. Place the end of the ½" low pressure hose (pickling return) from the top of the Discharge Valve on the Control Panel into the bottom of the Pickling Bucket, as per diagrams.
4. Connect the small length of ¾" low pressure hose from the bottom of the Pickling Bucket to the tee on the inlet side of the Low Pressure Pump as per diagrams. Unscrew the plug in the tee and screw in the supplied ¾" hoesetail to connect the hose.
5. Turn the Discharge Valve on the Control Panel to the Pickling Return position.
6. Turn on the Low Pressure Pump and circulate the pickling solution for 30 minutes, making sure hose ends remain in the bottom of the bucket.
7. Turn off the Low Pressure Pump.
8. Turn the Discharge Valve on the Control Panel to the Brine Overboard position.
9. Remove hoesetail and replace ¾" plug into the tee on the Low Pressure Pump. Empty the bucket and store the hose for use next time. The system can now safely be stored for up to 6 months. **Re-pickle the system every 6 months to avoid damage to the membrane.**

When restarting the system after being Pickled for Storage, product water from the first 30 minutes should be discarded.

Trouble Shooting

Problem	Possible Cause	Solution
Low Pressure Pump does not turn on	No power to pump Faulty pump	Check switch is turned on properly. Check that circuit breaker is not tripped. Check that fuse is not blown. Check power source Check for loose or broken wiring. Check all fuses and circuit breakers are in run position and in good order. Check pump impellor is free from debris. Check and clean strainer at sea cock. Check for airlock in system, remove hose at filter and check for water flow
High Pressure Pump does not turn on	No power to pump Faulty electric motor	Check switch is turned on properly. Check that circuit breaker is not tripped. Check that fuse is not blown. Check power source. Check for loose or broken wiring. Check all fuses and circuit breakers are in the run position and in good order
Water not flowing through the system	Low pressure pump not working Airlock in system Blocked filters	Check that the low pressure pump is working properly and providing a good flow to the seawater filter by pressing the red button on top and check that water with no air comes out. Prime the low pressure pump if required Check pump is mounted below waterline Check that the filters are clean
System does not build pressure to 800 psi	Closed seacock. Blocked filters. Pressure relief valve is open. Leaks in high pressure system	Check seacock is open Check/replace filters Check pressure relief valve is closed Repair leaks in high pressure system
Product water has low production	Incorrect operating pressure	Check operating pressure is 800-850 PSI. Check that the needle on the pressure gauge is running steady. If not check the filter and clean or change if necessary. Check that the pressure relief valve is set at 900 PSI.
Product water has a salty taste, has a reading above 500ppm	Membranes in poor condition and require cleaning	Perform an acid and alkaline wash then re-test
No product water is reaching the storage tank	Product valve is not set correctly, leaks in hose	Ensure valve is set to 'tank' not 'test', identify leaks and repair
Leaks at the high pressure fittings	Incorrect fitting	Tighten fittings ¼ turn clockwise Re-apply sealant to fittings

Quick Start-Up Sheet

Please read the complete operation manual before using your watermaker

Start-Up

1. Open the boat's Seawater Intake (thru-hull with seacock).
2. Check that the Product Water Test hose is in a bucket or plumbed to a sink.
3. Turn the Discharge Valve on the Control Panel to the Brine Overboard position.
4. Turn the Product Valve on the Control Panel to the Test position.
5. Turn off the optional Auto flush if fitted by switching the switch to the "Off" position
6. Make sure that the Pressure Valve on the Control Panel is fully open (zero pressure) by turning the black knob anti-clockwise till it stops.
7. Switch on the Low Pressure Pump: **check that seawater is reaching the Seawater Filter by pushing the red button on top of each housing.**
8. Switch on the High Pressure Pump: **check that you have water flowing overboard. Never run the High Pressure Pump without adequate water flowing through the system.**
9. Slowly increase the system pressure by turning the black knob clockwise (Pressure Valve) on the Control Panel to 800 PSI. **Never exceed 850 PSI.**
10. Check the water quality from hose or spigot by tasting or with a TDS meter.
11. Turn the Product Valve on the Control Panel to Tank and fill your boat's water tank.

Shutting Down

1. Turn the Product Valve on the Control Panel back to the Test position.
2. Slowly decrease the system pressure back to 0 PSI by turning the black knob anti-clockwise (Pressure Valve) on the Control Panel till it stops (fully open).
3. Switch off the High Pressure Pump.
4. Switch off the Low Pressure Pump
5. Close the boat's Seawater Intake (thru-hull with seacock), check the sea strainer for debris and clean if required.
6. Turn the Ball Valve on the Charcoal Filter to open position for approx. 2-5 minutes to Fresh Water Flush the system. Turn the Ball Valve back to the closed position.
Auto Flush (Optional): Turn the switch on the Auto Flush box to the On position to Fresh Water Flush the system (timed). Leave boat's onboard pressure system switched on.

7. Check the 5 and 20 micron filters in the Seawater Filter (twin) housing and clean if required using product water (un-chlorinated) or seawater.

Pickling the System for Storage

1. Make up a bucket of pickling solution by mixing 5 tablespoons of Sodium Metabisulfite with a 10lt bucket of Product Water (un-chlorinated water).
2. Place the end of the ½" low pressure hose (pickling return) from the top of the Discharge Valve on the Control Panel into the bottom of the Pickling Bucket.
3. Connect the small length of ¾" low pressure hose from the bottom of the Pickling Bucket to the tee on the inlet side of the Low Pressure Pump as per previous diagrams. Unscrew the plug in the tee and screw in the supplied ¾" hosetail to connect the hose.
4. Turn the Discharge Valve on the Control Panel to the Pickling Return position.
5. Turn on the Low Pressure Pump and circulate the pickling solution for 30 minutes, making sure hose ends remain in the bottom of the bucket.
6. Turn off the Low Pressure Pump.
7. Turn the Discharge Valve on the Control Panel to the Brine Overboard position.
8. Remove hosetail and replace ¾" plug into the tee on the Low Pressure Pump. The system can now safely be stored for up to 6 months. Re-pickle the system every 6 months to avoid damage to the membrane. When restarting the system after being pickled for storage, product water from the first 30 minutes should be discarded.

Maintenance

1. Always Fresh Water Flush the system after each use to avoid reduced product water quality, or damage to components from biofilm build-up (organic growth) and corrosion.
2. The watermaker should not be left for more than 7 days without Fresh Water Flushing or Pickling the System for Storage.
3. Clean or replace 5 and 20 micron sediment filters in the Seawater Filter housing after each use.
4. Replace Charcoal Filter element every 6 months.
5. The oil in the High Pressure Pump should be checked regularly and changed at 50 hours running time and thereafter every 3 months or 300 hour intervals.
6. The high pressure tubing, fittings and overall system should be kept clean and checked regularly for damage, leaks etc...
7. The membrane cannot be allowed to freeze, cook in high temperatures or dry out.

Maintenance

The following instructions must be followed to maintain your Stella Watermaker. Failure to follow these steps can result in serious damage to the components and reduced lifespan of the system.

System

1. Always Fresh Water Flush the system after each use to avoid reduced product water quality, or damage to components from biofilm build-up (organic growth) and corrosion. Never leave saltwater sitting in the system it will quickly foul filters and membranes, taint water and decrease the lifespan of all system components.
2. The watermaker should not be left for more than 7 days without Fresh Water Flushing or Pickling the System for Storage. Even after flushing with fresh water you will still get water and membrane fouling if left unattended. Depending on boat usage it needs to be flushed manually with fresh water every week, or have an Auto Flush fitted, or Pickled for Storage.
3. Clean or replace 5 and 20 micron sediment filters in the Seawater Filter housing after each use. There will be a build-up of marine life after running the system, more so in dirty or tropical water. If left it will reduce the quality of your product water and block filters. We recommend removing and cleaning filters as part of the Shutting Down process so the system is always ready for use. The filters supplied are a quality washable type that will last many weeks or months (depending on use) and will need to be replaced when they are looking frayed or torn. For replacement use a standard 10" x 2.5" polyester pleated sediment filter, but use a quality unit that won't fall apart and damage the membrane.
4. Replace Charcoal Filter element every 6 months. These carbon filters have a definite shelf life after opening and will expire, so rather than risk damaging the membrane we recommend changing them every 6 months. For replacements use a standard 10" x 2.5" carbon filter, but use a quality unit that won't fall apart or deposit carbon fillings into the membrane.
5. The oil in the High Pressure Pump should be checked regularly and changed at 50 hours running time and thereafter every 3 months or 300 hour intervals, as per manufacturers specifications. Use standard grade 68 hydraulic oil or genuine General Pump oil.
6. The high pressure tubing, fittings and overall system should be kept clean and checked regularly for damage, leaks etc...The High Pressure Hose should be adequately clamped down to avoid chaffing from vibration.
7. The membrane cannot be allowed to freeze, cook in high temperatures or dry out. Remove and store if required. Always have adequate ventilation so it doesn't overheat and keep it wet by flushed weekly or pickling every 6 months if in storage.

Warranty

Stella Limited Warranty

Stella Watermakers are warranted to the original purchaser under normal use and if installed, operated and maintained in accordance with applicable user manual to be free of manufacturer's defects and to perform according to the stated specification for a period of **twelve (12) months** from the date of shipment, subject to the following. Any replacement product or part will be warranted only for the remainder of the original warranty period or thirty (30) days, whichever is longer.

The warranty shall be void if: defects are not reported during the warranty period, the watermaker is subject to accident, damage, incorrect installation, mishandling, abuse, misuse, negligence or accident by any other party, problems are caused by modification or alteration, chemical exposure or acts of nature, wear on replaceable components under normal conditions.

The warranty does not cover components where the serial number has been removed or defaced and the warranty does not apply to the normally reoccurring consumable or wear and tear items as defined below:

- Sediment filters 5 and 20 micron
- Charcoal Filter elements
- Pressure Gauge and Flow Meter calibration
- High Pressure Pump crankcase oil
- High Pressure Pump valves, seals, packing, and ceramic plungers

In the event of a defective component or failure during the term of warranty, Stella will inspect the defective part and repair or replace, with **all shipping charges being the responsibility of the purchaser to and from their location to our office on Gold Coast, Australia.**

As a condition of the warranty, the purchaser is responsible for carrying out the recommended maintenance as stated and or the component manufacturer's specification and operating the system within operational parameters outlined in this manual.

Stella makes no expressed or implied warranty other than that specifically set forth in this warranty statement. Stella disclaims any warranty of merchantability or of fitness for a particular purpose. Stella's liability under the terms of this warranty shall not exceed the purchase price of the component which are claimed to be defective. Stella shall not be liable for any consequential or incidental damages whatsoever, including but not limited to injuries or damages to person or property, loss of business profits, business interruption, loss of use, cost of removing/installing components, or the claims of third parties.

No agent, employee, dealer, or other person has any authority to make any warranties or representations concerning Stella or the product. Stella is not responsible for such claims of warranty or representation.